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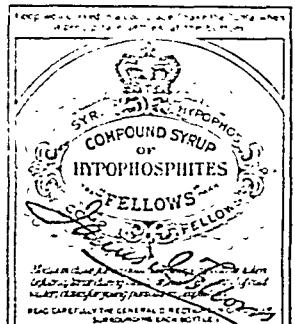

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THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

EDITED BY

SIR DAWSON WILLIAMS, M.D., LL.D., D.LITT., D.SC.,

AND

NORMAN GERALD HORNER, M.A., M.D.

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KEY TO DATES AND PAGES.

THE following table, giving a key to the dates of issue and the page numbers of the BRITISH MEDICAL JOURNAL and SUPPLEMENT in the second volume for 1923, may prove convenient to readers in search of a reference.

Serial No.	Date of Issue.	Journal Pages.	Supplement Pages.
3262	July 7th	1 - 50	1 - 12
3263	,, 14th	51 - 90	13 - 20
3264	,, 21st	91 - 134	21 - 32
3265	,, 28th	135 - 164	33 - 76
3266	Aug. 4th	165 - 214	77 - 92
3267	,, 11th	215 - 268	93 - 104
3268	,, 18th	269 - 310	105 - 112
3269	,, 25th	311 - 346	113 - 116
3270	Sept. 1st	347 - 398	——
3271	,, 8th	399 - 444	117 - 120
3272	,, 15th	445 - 490	121 - 124
3273	,, 22nd	491 - 546	125 - 140
3274	,, 29th	547 - 590	141 - 148
3275	Oct. 6th	591 - 638	149 - 160
3276	,, 13th	639 - 684	161 - 172
3277	,, 20th	685 - 738	173 - 188
3278	,, 27th	739 - 790	189 - 208
3279	Nov. 3rd	791 - 846	209 - 216
3280	,, 10th	847 - 906	217 - 228
3281	,, 17th	907 - 954	229 - 236
3282	,, 24th	955 - 1012	237 - 252
3283	Dec. 1st	1013 - 1072	253 - 260
3284	,, 8th	1073 - 1126	261 - 268
3285	,, 15th	1127 - 1192	269 - 276
3286	,, 22nd	1193 - 1240	277 - 280
3287	,, 29th	1241 - 1282	——

Aug. 57.52
61. 16/2/65

LIST OF ILLUSTRATIONS.

SPECIAL PLATES.

ILLUSTRATIONS IN THE TEXT.

INDEX TO VOLUME II FOR 1923.

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate but nearly synonymous headings—such, for instance, as Brain and Cerebral; Heart and Cardiac; Liver and Hepatic; Renal and Kidney; Cancer and Carcinoma, Epithelioma, Malignant Disease, New Growth, Sarcoma, etc.; Child and Infant; Bronchocele, Goitre, and Thyroid; Diabetes, Glycosuria, and Sugar; Light, Roentgen, Radium, X Rays; Status Lymphaticus and Thymus; Eye, Ophthalmia, and Vision; Bicycle and Cycle; Motor and Automobile; Association, Institution, and Society, etc. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, "Correspondence," "Leading Articles," "The Week," "Reviews," etc. Original Articles are indicated by the letter (O).

A.

B.

D.

E.

F.

H.

J.

K.

L.

M.

O.

P.

Q.

R.

Reviews of Books:

S.

JULY–DEC., 1923] INDEX. [THE BRITISH MEDICAL JOURNAL 27

T.

U.

V.

W.

X.

Y.

Z.

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EPITOME

OF

Current Medical Literature.

JULY TO DECEMBER, 1923.

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429, STRAND, W.C.

INDEX TO THE EPITOME FOR VOLUME II, 1923.

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The Figures in this Index refer to the Number of the Paragraph, NOT the Page.

A.

B.

C.

D.

E.

F.

G.

C.

D.

E.

F.

G.

H.

I.

J.

K.

L.

M.

N.

O.

P.

Q.

R.

S.

T.

U.

P.

Q.

R.

V.

W.

X.

Y.

Z.

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, JULY 7TH, 1923.

A British Medical Association Lecture

ON

THE EXPERIMENTAL INQUIRY INTO THE CAUSES OF CANCER.*

BY

ARCHIBALD LEITCH, M.D.,

DIRECTOR OF THE CANCER HOSPITAL RESEARCH INSTITUTE, LONDON.

Αιτίην δὲ ἀρρεκέα μὲν ἴσασι νοῦνοι θεοί, ἐοικυῖαν δὲ καὶ ἄνθρωποι.—ARETAEUS.

WITH so much known of the actual manifestations of tumour growths, and with their antecedents so obscure, it is little wonder that speculation regarding the causation of cancer has so long held its sterile and unprofitable way. The gossamer fancies of the armchair philosopher need scarcely a breath of criticism for their destruction; and as for the theories of the greater thinkers, the outcome of much experience carefully interpreted, we may for the present adopt the dialectical strategy of Hegel and say that possibly they all represent partial and different aspects of the truth. Anxious as we should be, in view of the poverty of our knowledge, to avoid bound allegiance to any theory, we cannot wholly dispense with working hypotheses, and the recent experimental investigations have been born of the idea that cancerous growth is the result of some long-continued irritation. That is the oldest theory of them all. The ancient Greek physicians imagined that cancer, as well as many other diseases, was due to the irritating and acrid properties of the black bile. Are there not some to-day who attribute to intestinal stasis, a notion not less nebulous, a similar wide-embracing rôle?

Virchow, the father of modern pathology, contended that tumours were caused by irritation of a chemical or physical nature, not further defining or particularizing, for there had not then accumulated the imposing list of special agents that we now know to be closely associated with the production of cancer. His was a theory that anticipated the evidence. Probably we shall find—our experiments point that way—that few of the substances which we might call tissue irritants are capable of inducing tumour growth, just as out of the myriads of kinds of bacteria there are relatively few which are definitely pathogenic.

These specific irritants, or carcinogenic† agents, as far as we know them, require a prolonged time to work their effects, and they appear to be selective in that certain animal species, certain strains, certain individuals, and certain tissues only are vulnerable to their operation. In the human subject we have the well known instances of the cancer of the scrotum to which chimney-sweeps and labourers in the tar, pitch, and paraffin industries are specially prone; the cancer of the urinary bladder in dye-workers and in the victims of bilharziasis; the epithelioma of the abdomen and thighs in natives of Kashmir; the multiple skin cancers in those who have taken arsenic medicinally over long periods; and the epithelioma of the hands in x-ray operators. These and several others seem to show a very intimate relation between particular irritants and tumour formation, but several considerations have long stood in the way of establishing a direct causal connexion between them.

Comparatively few of the subjects exposed to the action of soot, tar, paraffin, aniline dyes, and the rest develop malignant tumours; even those who become affected have been in contact with the noxious substances for many years: more arresting still is the fact that several of these workers have retired from such occupations and yet, years afterwards, have developed the same peculiarly localized cancers. Considering, too, the numerous instances of malignancy supervening on other chronic lesions, and the fact that the so-called irritation cancers are so rare in comparison with the large numbers of tumours arising without the intervention of any known or suspected irritant, we have had to admit that our carcinogenic agents might only be the mediate and not the proximate causal factors of the disease. All that we could claim for them was that they brought about a pathological state of the tissues, on which prepared soil the undetermined cancer germ or virus or influence might then exert its action.

Sometimes, however, the progression of events was so uninterrupted—as, for example, in arsenic cancer, where skin hypertrophy merges into wart formation and warts insensibly into epithelioma—that it was difficult to point to any particular time when one factor could give place to another. But no amount of argument could settle the matter. No one had ever produced cancer experimentally by the use of any of the implicated irritants. Of course, numerous claims to have done so by the injection of this or that parasite have been put forward. Let us not resurrect them. The silent records, too, of our laboratories contain many a failure that we have not liked to parade. But a new era dawned on cancer research when Johannes Fibiger of Copenhagen presented his brilliant experiments on the production of gastric cancer in rats. Then for the first time could it be said that cancer had been produced experimentally beyond all doubt, and explorations into the etiology of cancer became practical problems.

SPIROPTERA CARCINOMA.

While examining the bodies of three rats that had been inoculated with tubercle bacilli Fibiger found in each case a cancer of the fundus of the stomach. Such a thing had never before been seen in the rat, though scores of thousands of these animals had been examined for tumours. Malignant new growths do exist in rats, about once in a thousand cases, but cancer of the stomach had never been observed. Fibiger at once endeavoured to propagate the tumours by inoculation of fragments into other rats, and failed. Fresh rats were fed with other pieces of the tumour; nothing happened. Another batch was put in the cages previously occupied by the infected rats, they remained unaffected. Microscopic investigation of the gastric tumours showed them to be epitheliomata, for the cardiac half of the rat stomach is lined with squamous epithelium, and amongst the epithelial cell masses there were round spaces sometimes containing a peculiar structure that suggested sections of an animal parasite. Tracing

*Delivered before the Nottingham Division of the British Medical Association, January 25th, 1923.

† From καρκίνος, a tumour, simple or malignant, and γεννάω, to produce. Such adjectives as cancrigenic, cancrogenic, and cancerigenic, which have been used by others, are hybrids to be avoided.

these through hundreds of serial sections, and reconstructing the pictures, he found he was dealing with a nematode, and subsequent dissection of a preserved portion of the tumour enabled him to obtain an entire worm of a species hithero unknown, to which he afterwards gave the name of *Spiroptera neoplastica*.

Observe the conjunction of facts: three rats in one batch, each with cancer of the stomach and in each tumour the same parasites; cancer of the rat's stomach never seen before; a nematode till then unknown. What was the relation between the nematodes and the tumours? A mere accidental coincidence, many would have said, and dismissed it. A probable predisposing cause in these particular cases would have been accepted by the majority. Had Fibiger stopped there he would have made merely an interesting contribution to the literature of our subject, and cancer research might still be the fettered Andromeda of pathology. He killed and examined carefully over a thousand rats, but failed to find either a gastric lesion of any importance or the particular nematode he sought for. Reading the literature of animal parasites, he learned that Galeb had been able to obtain nematodes in the stomach of some rats by feeding them on the common cockroach, *Periplaneta orientalis*, which was infested with another stage in the life cycle of these parasites, and thinking this might be a possible clue he examined rats from a locality in Copenhagen where such cockroaches abounded, but without success. Then he fed fresh laboratory rats on these cockroaches, and again nothing resulted. But finally, when the sustaining hope was almost gone, he heard of a large sugar refinery in the town, where both rats and cockroaches swarmed. The cockroaches here were of a different kind; they were *P. americana*, uncommon in Northern Europe. An examination of the rats revealed many cases of gastric tumours, and in them the long-sought-for nematode was found. A false clue, and a stroke of fortune that was bravely deserved, led him to the great discovery. These cockroaches had come in consignments of sugar from the West Indies; in their muscles were the coiled-up larvae of the nematode, and when the cockroaches were eaten by the rat the larvae were set free and developed in the stomach into the adult nematode. Here, after a time, it produced eggs, which were evacuated with the faeces, eaten by the cockroach, and the larval stage again produced, and so the cycle went on. By feeding other species of cockroaches on the eggs Fibiger succeeded in getting these to serve as intermediary hosts, and thus he obtained his source of supply of spiropterae. By feeding laboratory rats on such artificially infested cockroaches, or on the larvae isolated from their muscles, he induced gastric epithelioma in over 50 per cent. of them.

The freed larva burrows superficially in the gastric epithelium, and there develops to maturity. In some cases no change takes place in the stomach, but in most instances the epithelium begins to proliferate and forms papillomatous projections, and sooner or later the proliferating cells penetrate the muscular coats and reach the peritoneal covering. The nematode may also lodge in the epithelium of the tongue, producing glossitis, leucoplakia, and finally cancer. Strangely enough, though the worms may inhabit the oesophagus they have never been found to induce more than papillary hyperplasia in that situation. In no other portion of the alimentary tract do the parasites lodge or produce neoplasms. Metastases have occurred in several cases in the lungs or lymphatic glands, but from these secondary tumours the parasites were absent. Having once started malignant proliferation, probably by the prolonged toxic action of some excretion, the parasites are no longer essential to the continued growth of the tumour. The parasite may be transferred to wild rats and to other rodents, but in no case has cancer resulted. There are thus species, strains, and particular tissues which are insusceptible to the action of the nematode. Mice are relatively insusceptible, only about 5 per cent. developing gastric tumours; but whilst cancer may be produced in rats in six weeks to three months it takes many months—perhaps over a year—to induce it in mice.

I have given the merest outline of Fibiger's researches—epoch-making, patiently pursued, and brilliantly executed. He was the first to furnish us with a means of producing cancer experimentally at will with a definite agent. He is the pioneer in the experimental inquiry into the etiology of cancer, and I should like, as a humble follower, to pay him my tribute. To my mind, Fibiger's work has been the greatest contribution to experimental medicine in our generation. He has built into the growing structure of truth something outstanding, something immortal, *quod non imber edax possit diruere*.

CYSTICERCUS SARCOMA.

The greatness of Fibiger's achievement stands out in relief when we reflect on the mass of information we had at our disposal regarding another and commoner parasite which is associated with tumour formation, and which, had our eyes been alight, we might have utilized. In examining the bodies of laboratory rats it is no uncommon thing to find cysts of the liver, sometimes single, sometimes in large numbers, filled with clear mucoid fluid and containing a triangular-headed parasite with flattened segmented body—the *Cysticercus fasciolaris*, the larval stage of the *Taenia crassicollis* which affects the cat. Less frequently these cysts may be situated in the omentum, kidneys, or other abdominal organs. Several observers, notably Borrel in 1906, Regaud in 1907, Bridré in 1909, and McCoy in the same year, had described sarcoma of the liver of rats occurring around these parasitic cysts. Bullock and Rohdenburg in America made careful histological studies of several such sarcomata. Histologically the tumours are all of the same nature—spindle-cell sarcomata often highly vascular with a tendency to the formation of large multinucleated cells—and they arise from one or more parts of the compressed connective tissue constituting the wall of the cysts. Borrel and others were able to transplant these sarcomata, and there is no doubt about their true nature.

There are several highly suggestive features about these tumours. Of all the cases of tumours that have been reported in rats, well over a hundred in number, no less than four-fifths have been sarcomata; more than half of these sarcomata have been situated in the liver; and there they have practically always been found around a cysticercus-containing cyst. But it was not until 1917 that any attempt was made to produce sarcoma experimentally by means of the worms. In that year, when reporting a spontaneous case, Hirschfeld, instigated undoubtedly by Fibiger's work, stated that he had instituted feeding experiments on rats with the ova of *Taenia crassicollis*, but as no later communication on the subject came from this author's pen we may assume that his experiments failed. Bullock and Rohdenburg in 1920 were successful. To a very large number of rats they administered by mouth on a single occasion the ova of the adult worm obtained from the faeces of an infested cat. Certain strains of rats, and especially old rats, proved quite insusceptible, but in the majority of young rats the larvae reached the liver and formed cysts, and in about a quarter of the number of such animals sarcoma developed on the cyst wall. Usually only one sarcoma was produced, though there might be dozens of cysts, but in a few cases two independent sarcomata were found. Metastases occurred in about 60 per cent. of the cases. There is a long latent period in the development of these liver sarcomata—eight to fifteen months or more elapse after the ingestion of the ova before the sarcoma starts, but once started it develops with great rapidity. This peculiar feature in the experimental production of sarcoma—the prolonged latent period followed by explosive growth—has struck me in my experiments with paraffin oils and has been noted by Russell in his tar experiments on rats. Possibly we may find it characteristic of sarcoma in general.

Schmidt-Jensen of Copenhagen has failed to produce cysticercus sarcoma in rats, so that there are probably strains of rats that are refractory to this tumour-producing agent. It is presumed that the toxic products of the cysticercus furnish the necessary constant tissue irritant; but however that be, a susceptible tissue is required. The same parasite is commonly found in the liver of mice, but sarcoma of the liver has never been reported in the mouse save in one doubtful case, and neither in that nor in the epithelial tumours of the liver, some thirty in number, could any parasite be discovered.

TAR CANCER.

Workmen constantly exposed to coal-tar and pitch, such as retortmen at gasworks, road sprayers, and briquette makers, are liable to develop skin cancers. This has long been known, and, believing that tar contained some ingredient which directly influenced the tissues to become cancerous, pathologists first used this substance in their endeavours to produce cancer experimentally. Doubtless more numerous attempts were made than the few on record, but they all failed, and the direct relation suspected could not be established. The reasons of those failures are now fairly obvious: either we did not employ suitable animals or our patience was exhausted before results were possible.

Inspired by the success of Fibiger's experiments, two Japanese workers, Yamagiwa and Ichikawa, renewed the attempts. They applied coal tar every other day for several months to the ears of rabbits, and claimed to have produced epitheliomata. While it is probable that many of the epithelial proliferations which they induced would not be recognized as true malignant tumours by the critical, yet the evidence in favour of the malignancy of some, especially the finding of lymphatic gland metastases, must be accepted. I repeated their experiments two years ago on twenty rabbits, applying the tar to the skin between the shoulders, and though in all cases I obtained multiple horny papillomata, commencing in about ten weeks and reaching in some cases the size of acorns, they never became malignant; indeed, the surprising thing was that the tumours tended to diminish in size in spite of the continuance of the tar applications, and in one or two instances entirely disappeared. Possibly Yamagiwa employed a more susceptible strain of rabbits, but more probably the tar he used was more potent. Deelman, Moeller, and Teutschländer have also failed to produce tar cancer in rabbits.* Tsutsui, a pupil of Yamagiwa, discovered that the mouse was the animal of choice; amongst 67 mice which had survived the tar applications for over a hundred days, he found that 35 developed tumours, 16 of which were epithelioma and 1 sarcoma; two of the epitheliomata metastasized to the lungs.

When, after the war, these results became known to us in Europe, it was evident that we were provided with a means not only of producing tumours *de novo*, but also of studying the phenomena of their onset and development. Fibiger and Bang were the first to publish corroborative experiments, soon to be followed by the various other members of our international society—the Leeuwenhoek Vereeniging. In the short space of time that has elapsed, scarcely more than two years, since our Danish colleagues presented their preliminary observations, very many experiments have been done with this one irritant. If tar be applied repeatedly, say thrice weekly, to the skin of mice the hair is lost, at first temporarily, but in the course of time permanently, the skin becomes rough and scaly, and after the lapse of three to six months or more tiny warts, single or multiple, make their appearance, and, increasing gradually in size, form excessively cornified upstanding papillomata with branching vascularized stalks of connective tissue. By and by the epithelium commences to grow downwards into the dermis, the cells become more atypical, the panniculus carnosus is penetrated, and metastatic deposits may be found in the lymphatic glands or in the lungs. The malignant stage is not generally apparent before six months at the earliest. Sometimes the malignant epithelioma is not preceded by preliminary simple wart formation: a minute superficial ulcer may mark the commencement of the epithelial downgrowth, and subcutaneous induration may be the first sign apparent of a neoplastic reaction. In the case of mice almost all develop tumours in response to the tar applications, and in practically all of these one of the papillomata, seldom more, becomes an epithelioma sooner or later. Very few of those that live more than eight months escape without tumour formation. But there are considerable differences as regards the length of time that may elapse before tumours are evident and great variations in the rate of progress of the tumours. The first papilloma to appear is not necessarily the earliest to become malignant.

Given the fact that repeated applications of tar to mice result in the production of epitheliomata in a large proportion, we first addressed ourselves to the consideration of the specificity of the irritant. Did it merely induce a chronic inflammation, a non-specific lesion, on which a malignant process, attributable to some mysterious added cause, was prone to develop? The question is not yet answered. Employing exactly the same technique as in the case of mice, I tried the effects of the tar on several series of rats for periods of more than a year. The rat's skin is more sensitive than that of the mouse, and it does not tolerate the applications so well; the area painted shows the same changes that we find in mice, but I have never succeeded in producing in rats any papillomatous or epitheliomatous formation. The same failure has attended the experiments of others. On the other hand, Russell, by injecting tar in lanoline subcutaneously into rats, has produced sarcoma in two or three cases; it is the fibrous connective tissue and not the epithelium of the surface that responds to the action of tar in this animal. I have similarly applied tar to the skin of a batch of guinea-pigs for two years now, but in no instance have I produced any epithelial proliferation whatever. The experiments with rabbits have already been mentioned. We are thus impelled to the conclusion that, just as in the case of pathogenic bacteria, only certain animal species are responsive to the action of the pathogenic agent, and probably only certain tissues. But this is, after all, only an indirect and partial reply to the question.

The next point that interested us was, given this active agent and a responsive species, what part does age play in the onset of cancer? It is usually said, and generally believed, that cancer is essentially a disease of old age, or of ageing tissues, but anyone who has had much to do with cancer in the human subject knows that it by no means infrequently occurs in quite young people. I therefore made two parallel series of experiments, using in one set adult mice and in the other mice all under six weeks old. Neither in yield of tumours nor in rate of tumour growth was there any appreciable difference between the two. This has been confirmed by subsequent experience so often that the fact is beyond doubt. The conclusion is that age by itself is not an important factor. It is merely a question of the length of time the causal agent has been in operation. We may argue that if we exposed a child of 10 and an adult of 40 to one and the same carcinogenic agent, and the latent period necessary was ten years, the cancer would declare itself when the former was 20 and the latter 50.

In view of the fact that countless and careful investigations of human growths have almost invariably failed to reveal the presence of any irritant, and knowing from previous experiments that tumours reaching the stage of malignancy continued to grow after tar applications had been stopped, it became of importance to determine whether the bias towards malignancy was given to the cells at a more remotely antecedent period. I therefore stopped the tar paintings as soon as minute warts made their appearance. Nevertheless, these small warts continued to grow and became epitheliomata just as speedily as if the irritant had been continued. Going still further back, I found that if I stopped the irritant before there was any sign whatever of neoplasia, in due course warts appeared and the phenomena of malignancy were unfolded just as before. Though, in mice, the usual course is first papilloma and then epithelioma, we have occasionally found that the epitheliomatous formation was not preceded by simple tumour. Bang has had similar results. We have grounds, therefore, for believing that in the case of human cancer, the antecedents of which are for the present hid from us, some irritant may have been in action and have disappeared, leaving no other evidence of its presence, long before the cancer declared itself.

My colleague, Dr. E. L. Kennaway, has been endeavouring to find the particular ingredient in tar which has this tumour-producing property. So far he has not isolated the substance, though it seems to be in greatest abundance in the higher boiling fractions. We know that pitch, for example, the solid part of tar left after the lower boiling fractions have been extracted, is associated with epitheliomatous ulceration in briquette makers, and he has been able to induce tumours in mice by using pitch dissolved in benzol or in lanoline. How does the pitch dust, a rather

*Immediately after this paper was read, Menetrier and Surmont reported a single success. Dr. J. A. Murray informs me that he has recently succeeded in two cases with an ether fraction of tar

insoluble substance, produce its harmful effects on the exposed skin? By dissolving pitch in human sebaceous fat I have produced malignant tumours in mice in less than three months. On the other hand, I have applied Scottish blast-furnace tar, which is produced at a comparatively low temperature, to mice for eight months without obtaining any sign of tumour formation. Tars are found to vary considerably. Thus we applied a direct ethereal extract of a tar to 500 mice, with the result that at the end of five weeks, so toxic was the extract, only 26 remained alive. As it was useless to continue we stopped the applications, but in one case a tumour appeared in the record time of thirty-seven days. It and several others which subsequently appeared became malignant. Using the same extract of another tar from the same gasworks we found no such toxic action, and the earliest tumour took nearly three months of repeated applications to declare itself. Kennaway's experiments are of practical importance because means may be found in the industries concerned to obviate the necessity of exposing men to dangerous distillation products of tar, and thus to prevent a certain number of cases of cancer.

Deelman of Amsterdam has discovered that if the tar applications are preceded four or five times by light scarification of the skin tumours result in the second month. Apart from this demonstration that the superficial layers of the epithelium act as fairly efficient barriers against the irritant, it seems to me that his experiments open up suggestive paths for the investigation of the relation between the processes of wound repair and malignant proliferation.

Murray has recently made a contribution which may have far-reaching results. He found that if he extirpated a tar epithelioma and then resumed the tar applications he could not induce any subsequent tumour formation in that animal. Further, if he removed a spontaneous tumour from a mouse and subjected that mouse afterwards to tar paintings it did not show any neoplastic response to the tar. In view of the fact that two different cancers are of very rare occurrence in the same individual, and, judging from statistics, much rarer than the laws of chance would indicate, he argues that the occurrence of one form of cancer in an individual protects the body in some way against the occurrence of another. The practical application of this must be obvious. There is, however, room for some difference of interpretation of the facts, and more extensive experiments may modify the conclusions that one is tempted to draw from these important observations.

I cannot here touch on numerous other observations by ourselves and other workers—the analyses of precancerous states, the reactions of defence, or the questions of immunity and susceptibility. Though of interest from the theoretical point of view, their practical bearing is not yet of general interest.

CHIMNEY-SWEEPS' CANCER.

It is now nearly 150 years since Percivall Pott called attention to the chimney-sweeps' cancer of the scrotum. Not only was this the first time that any tumour formation was attributed to a definitely ascertained irritant, but, still more important, it was the earliest recognition of the purely local origin of a cancer; as Pott said, it was not a "disease of the habit." Since his time numerous English authors have written on the disease without adding much to the classic description. Frequently they have remarked on the increasing rarity of this form of cancer, [illegible] to the wider recognition of the v[illegible]ongst sweeps. In point of fact, it is probably as common to-day as it was then. The English mortality returns give a yearly average of five or six cases. There are two features about this cancer that merit attention: (1) its geographical distribution, and (2) its exclusive localization to the scrotum.

It is practically unknown on the Continent. By the courtesy of the Registrars-General of Ireland and of Scotland I gather that it is relatively common in the former country, and so rare in the latter that several years may elapse between cases. In their recent paper Southam and Wilson state that of 141 cases of cancer of the scrotum admitted to the Manchester Royal Infirmary during the last twenty years only one was a chimney-sweep. Thirty years ago Butlin dealt fairly exhaustively with the question why the disease was so common in England and so rare on the Continent, concluding that the greater protection in the matter of clothing in the case of the foreign sweeps and the different methods adopted abroad in the use of domestic coal accounted for the contrast. But no such explanation can account for the unequal distribution of the disease through the British Isles. It is well appreciated in industrial concerns that coals from different localities have their well marked characteristics; even in the same pit and the same seam coals of different composition exist. The tars obtained by the destructive distillation of different coals vary very much, and this holds good with regard to the pitches. Chimney-sweeps, whom I have questioned on the matter, claim to be able to identify the particular kind of soot which is most dangerous, though they do not agree in their description of its physical appearances. I suggest that the soot which contains the tumour-producing substances is derived from the more bituminous coals coming from the Midlands of England.

But even more mysterious is the fact that soot cancer in chimney-sweeps is confined to the scrotum. That one or two cases of epithelioma arising in other situations have been reported in workmen engaged in the handling of soot does not affect the general statement. Other parts of the body in sweeps are as much exposed as the scrotum, probably more exposed, to the action of the soot, and though occasionally soot warts may be found on the skin at other places, the scrotum is the seat of election of the epithelioma. The same thing holds to a lesser extent in the cases of pitch and paraffin cancer. Why should this be so? The laxity of the scrotal skin, enabling the soot to lodge in its folds, as suggested originally by Pott, seems to offer only a partial explanation. One peculiarity has hitherto escaped attention. The scrotum in the human subject contains unusually large sebaceous crypts, which are not infrequently rendered prominent by the retention of inspissated secretion. I imagine that the soot may lodge there, and that the carcinogenic principle it contains is abstracted and dissolved in the sebaceous fat.

For years experimenters have endeavoured to produce cancer in animals by means of soot, but without success. I have rubbed soot into the scrotum of rabbits (in which animals, be it noted, the scrotal skin is lax and rugose) thrice weekly for two years; I applied it to the scrotum of rats for a year; and I had batches of male mice living in boxes of soot for several months; but in no case did I succeed in producing any perceptible lesion of the epithelium. It may be that I was unfortunate in not having the right kind of soot, but I am more inclined to the belief that the natural solvent necessary is absent from the scrotum of these animals. Passey induced epithelioma in mice by painting on their backs an ethereal extract of soot. His experiments are valuable in demonstrating that soot does contain a tumour-producing fraction to which mice at least are susceptible, but it is obvious that in the animal body we have no such powerful solvent at work. To supply the natural solvent which I fancy is present in the human scrotum and absent or deficient in the scrotum of laboratory animals, I have had recourse to the sebaceous fat from ovarian dermoid cysts. I have to thank numerous gynaecologist friends for supplies of ovarian dermoids. Different samples of this fat vary a little, but they are all liquid at about body temperature, and they dissolve some fraction of soot, the melting point of the solution being lower than that of pure fat. The experiments with this solution have not proceeded far enough to forecast the result. I have already mentioned that with this sebaceous fat as a solvent for the active ingredients of pitch I have readily produced malignant tumours in mice.

PARAFFIN CANCER.

It has been known for fifty years that workmen exposed to the action of the crude products obtained by distillation of the oil-bearing shales of Scotland and of the brown coal (lignite) of Germany are prone to develop chronic skin affections, papillomata and epitheliomata, especially on the arms and not infrequently on the scrotum. The most

authoritative account of these occupational lesions, the result of several years of intimate observation, has recently been given by Dr. Alexander Scott of Broxburn, from whose pen we hope soon to see a more detailed study. My own experiments with paraffin-containing oils have not long been published and I need not recount them. It will suffice to recall the fact that the repeated application of these oils to mice brought about the formation of tumours. Simple papillomata, frequently multiple, resulted in many cases, commencing three months after the beginning of treatment. Some of the animals, however, even after nine months, showed no neoplastic reactions. Two cases developed carcinoma in seven and seven and a half months, and two developed sarcoma in six and ten months respectively. The sarcomata arose underneath simple papillomata, probably owing to the paraffin oils obtaining access to the underlying connective tissue through fissures in the warts. These sarcomata were slow to begin, but the subsequent growth was extremely rapid. Here is an instance of two very different kinds of malignant tumour being caused by the same agent. Rats and guinea-pigs did not tolerate well the applications of paraffin oils: the irritation of their skin was severe and few lived more than nine months. None of them showed tumour growth. The experiments with rabbits have gone on now for eleven months without yielding any sign of new formation. One of the oils used which induced epithelioma in the mice was an unfinished lubricating oil, the possible dangerous properties of which no one had previously suspected. We were surprised, therefore, to have our experiments confirmed quite independently by the clinical observations of Southam and Wilson. They called attention to the occurrence of cancer of the scrotum in mule spinners, attributing it to the action of lubricating oils. I have reason to believe that cancer of the scrotum amongst mule spinners is much commoner than even their paper suggests, and we shall await with interest the results of their promised experiments with the particular lubricating oils used in the mills of Lancashire. Most of the lubricating oils in commerce are obtained from crude petroleum, and though not more than three or four cases of petroleum cancer are recorded in literature, it is probable that unrefined petroleum is just as dangerous as shale oil. It may be that the results of our experiments with petroleums, which are in contemplation, may be useful in preventing the risks, at present unappreciated, to man. Since my paper was published I have frequently been asked if the habitual use of liquid paraffin as a laxative may not cause intestinal cancer. I do not know of any clinical observations pointing that way, and, until we obtain strong experimental evidence (which we have not yet elicited) to support it, it may be wiser to stifle any uneasy suspicion.

ARSENIC CANCER.

Kennaway and I in a recent communication dealt with the late Sir Jonathan Hutchinson's theory that the prolonged use of arsenic medicinally may produce cutaneous epithelioma. Nearly all the reported cases were patients suffering from psoriasis, and though most dermatologists agree with Hutchinson, there are still some who dispute the relationship, believing that even in the absence of arsenic epithelioma may supervene on psoriasis. I have seen a workman in an arsenic factory who showed pigmentation, palmar keratoses, multiple papillomata, and multiple epitheliomata coexisting together, and I learned from him that several of his fellow workmen had suffered in the same way. Probably it is commoner than we had suspected. We reported that we had succeeded in producing a metastasizing epithelioma in a mouse by repeated applications of a weak solution of potassium arsenite. Feeding experiments on rats were negative. We have repeated the experiments on several series of mice, but have failed to produce another positive result. The difficulty, which is still unsurmounted, is to keep the animals alive for the necessary length of time while applying the arsenic solution in a concentration likely to be effective. Our single success, though a matter of good fortune, yielded us the necessary experimental proof of the carcinogenic power of arsenic.

X-RAY CANCER AND RADIUM CANCER.

The epithelioma to which, in the past, radiographers and others working with Roentgen rays have been so liable is probably the clearest example we have in man of an irritation cancer. Not much more than a quarter of a century has elapsed since x rays came into use, and, in the earlier days at any rate, a comparatively small number of men were subjected frequently to their action. Yet the number of cases of epithelioma of the hands of these workers has been inordinately high. Of seven radiologists of long experience with whom I have been acquainted, no fewer than four developed local cancer. Now that the dangers have been realized and adequate precautions adopted, its incidence is fast diminishing and we may never see it again. The lesions, expressing themselves as severe radiodermatitis followed by irregular hyperplasia of the skin, fissuring, simple ulcerations, and wart formations, intractable ulcers, and finally true epithelioma, often multiple, occurred on the back of the hands and fingers because these were the sites directly exposed to the rays when the operator was holding the fluorescent screen. So gradual was the progression from the slightest to the most serious manifestation that we could think of no moment when a new determining factor could intervene. Whether a single x-ray burn of sufficient magnitude is all that is necessary, or several burns, or numerous repeated exposures to lesser doses are essential has never been satisfactorily determined, but certainly the exposure lasted for several years in the cases with which I am familiar.

No one has yet succeeded in producing epithelioma in animals by the application of x rays. Marie, Clunet, and Raulot-Lapointe in 1911 reported that they had subjected a series of rats to frequent but very feeble irradiations without inducing any neoplastic lesion, but in another series where they used more destructive rays a sarcoma occurred on a site which had been treated nine times during five months, the tumour developing eleven months after the last séance. This observation excited slight interest at the time. It was dismissed by the critics as a chance occurrence, the spontaneous development of a tumour unconnected with the skin lesions induced by the x rays, a sarcoma to which rats are prone, and not the squamous-cell carcinoma such as is found in the human subject. Moreover, it did not arise for nearly a year after the exposures had been discontinued, and only one animal was affected. I have already stated that in spite of numerous experiments I have failed to produce epithelioma of the rat's skin by means of tar applications, whilst Russell has succeeded in producing sarcoma by the subcutaneous injections of tar, and in one of his rats the sarcoma started nearly a year after the injections were discontinued. It would seem as if the rat's connective tissue was much more responsive to the action of a carcinogenic substance than its skin. Though in the human subject the malignant tumour is almost always a frank epithelioma, yet I have examined a nodule removed from a radiologist, a supposed recurrence, which I would not hesitate to call a sarcoma, and in two of the cases reported by Porter sarcoma was a favoured diagnosis. Again, the long delay after removal of the irritating agent fits in with my experiments, already quoted, on the delayed action of tar. If the experiments of Marie, Clunet, and Raulot-Lapointe could be repeated on a larger scale and gave the same result we should have to give the credit to these authors of being the first to produce cancer experimentally. Caulfeild and I failed to produce tumours by single exposures in the case of guinea-pigs, nor have we yet succeeded with thrice-weekly exposures over many months in the case of mice.

Probably the lessons that were learned of the harmful effects of unscreened Roentgen rays prevented similar accidents amongst those who have had to handle radium. At any rate, no such casualties have been reported. I have, however, seen two cases of radium warts on the forefinger and thumb, and I have heard of three cases of epithelioma in radium workers occurring on the Continent. Though I applied 6 mg. of unscreened radium bromide for ten minutes daily for several months to the backs of a batch of rats, I never succeeded in producing any perceptible skin lesion.

TOBACCO CANCER.

That tobacco-smoking is one of the chief factors in setting up cancer of the oral cavity, and especially of the tongue, is an idea that has been widely held. Some have said that the lesions produced are due to the heat conveyed to the lips through the stem of the pipe or to the tongue by the smoke,

whilst others have maintained that they are due to the products of combustion of the tobacco. Still others have supposed that the noxious principles exist as such in the unsmoked tobacco and are not produced during combustion. In favour of this last idea are cited instances of malignant growths of the oral mucous membrane in tobacco-chewers, and much attention has been directed to the cancers of the cheek observed in natives of Southern India and the Philippines who chew "betel." Here, however, it must be noted that the betel preparation is a crude mixture of areca leaves, lime, and probably other substances as well as tobacco, and the effect of these accessories cannot be discounted. That betel-chewing is indulged in by millions—men, women, and children—and that the number of cases of cancer of the cheek actually observed by any one medical man seem to be surprisingly few, are points that should make us cautious in accepting this as an instance of cancer due to tobacco, or even as an example of an irritation cancer at all. Again, not a few surgeons of great experience in lingual cancer have stated that tobacco-smoking is of quite subsidiary importance in producing the lesions which, in their opinion, are the sequelae if not the result of local tertiary syphilitic infections.

I need not discuss the arguments at length, for the discussion would be as fruitless as the arguments are interminable. Can experiment help us to settle the question? I must leave aside, as too difficult of approach at present, the test of heat, syphilitic infection, and other general irritations, merely remarking that Fibiger succeeded in producing leucoplakia and epithelioma in the tongue of the rat by an animal parasite (*S. neoplastica*), and record the results with tobacco. We set up an artificial pipe where the tobacco was smoked by suction from a water pump and collected the fluid products of combustion, such as are found in the stem of an ordinary pipe. These products consisted of a brown tarry material easily soluble in chloroform or ether, and a light-coloured watery fluid which darkened through time or by oxidation. The latter fraction, tested on mice for over a year, was without toxic properties and produced no pathological effects whatever. The chloroform-soluble fraction, with the solvent driven off, had, on the other hand, both toxic and pathogenic properties. A minute trace of it applied to the mucous membrane of the tongue or of the vagina, or even to the skin, of rats and mice brought about death by clonic convulsions, usually within a minute. This poisonous effect is probably due to nicotine. By diluting the tarry fraction with acetone to 5 per cent. and afterwards gradually increasing the concentration we found that we could accustom the mice finally to the undiluted stuff. Again, we boiled the tobacco in water first of all in order to deprive it of nicotine and obtained a non-toxic product by smoking. We applied these fractions to two series of mice for many months. They produced epilation of the areas to which they were applied, and they induced chronic ulcerations, but in no single case did any neoplastic reaction result. We have thus no evidence in support of the contention that tobacco smoke contains a cancer-producing property, though e may not therefore conclusively reject the idea that there something connected with tobacco-smoking which may be perative on the oral mucous membrane of human beings. But what is of more theoretical and practical interest is the fact that here we had a substance with a very marked irritative effect on the skin in that it produced chronic lesions and yet no tumour formation supervened. We might say that it is not a specific irritant of the tumour-producing class.

ANILINE CANCER.

In the German literature much has been made of the occurrence of tumours of the urinary bladder in workmen engaged in the manufacture of aniline dyes. Though we have insufficient data to allow us to say that the incidence of bladder cancer amongst them is much greater than in the general population, the reports of its absolute frequency lead us to regard it as a particular form of cancer to which dye workers are liable—an irritation cancer of a different kind from what we have been considering. No cases have been known to occur in English dyeworks. There is no general agreement amongst the authors as to the particular chemical substance responsible for the condition, and an analysis of the reported cases with reference to the process in which the men were employed fails to reveal any definite clue. In one factory the greater number of cases may occur in the aniline department, in another the fuchsin workers would seem to suffer most, and so on. To complicate matters still further, cases have been noted in clerks and others who do not come directly into contact with any of the processes. This has led to the belief that it is something in the atmosphere. Miss Alice Hamilton, the American authority on industrial diseases, has suggested that the particular noxious substance is hydrogen arsenide, but the German experts strenuously deny that this is present in their workshops, and, as far as I know, no case of so-called aniline bladder cancer has exhibited the usual skin changes that are found in arsenic workers. Aniline, benzidine, and fuchsin are the main products that have come under suspicion. Inhaled, or absorbed through the skin, they undergo probably very complex changes in the economy, and are excreted in different combinations in the urine. It is imagined that the long-continued action of low concentrations of these end-products, whatever they may be, on the epithelium of the bladder induces villous papilloma and finally epithelioma. No other tissue of the body responds in this way to the aniline derivative: it is definitely selective in its action; indeed, the kidneys and ureters, equally exposed to it, do not show tumour formations.

If we could produce cancer of the urinary bladder in animals by applying some aniline product to the skin we would succeed in carrying our experimental inquiry to a more important stage than it has yet reached; it would enable us to demonstrate clearly the selectivity of a carcinogenic agent. So far we have given a prolonged trial to aniline, benzidine, and fuchsin, applied to the skin of mice, but in no case have we produced any neoplastic response either in the bladder or elsewhere. We have also kept series of mice for a long time on xylene and benzene, the precursors of most of the aniline substances, but here also we have failed to induce tumours. Everybody knows the irritating effect of xylol on the skin. In the case of mice its long-continued application produces epilation and that chronic scurfy dermatitis which we generally find with all the tumour-producing agents we have hitherto employed. In several cases, after the lapse of several months, we obtained what we thought were flat warts of a non-progressive character. The histological examination of these, however, showed us that there was no epithelial proliferation but merely a peculiar vitreous degeneration of the tissues of the dermis. Though the experiments, therefore, are negative as far as tumour production is concerned, and leave the question of aniline cancer as undecided as before, those with xylol especially are of value in indicating once more that all tissue irritants have not the property of setting up, or paving the way to, cancer.

OTHER SUBSTANCES.

In addition to those I have mentioned we have tried a large number of substances which might be supposed to have an irritant action on the tissues, but they have proved altogether incapable of producing tumour formation. Thus we may tentatively claim that there are only certain specific agents which have the property of eliciting neoplastic reactions. We hope in the course of time to discover more. It will not escape notice that in all the cases in which we have succeeded in producing tumours experimentally, these tumours, epithelioma or sarcoma, are of the same structure whatever substance we employed to produce them. No one examining the final lesion could say what particular agent we used. And it might be maintained as strongly as before that some single common cause must be postulated. It does not follow. Similar acute or chronic inflammations may be caused by very different bacteria.

I must leave to some future occasion the argumentation regarding these disputed points, but even supposing our contentions that some of the substances above mentioned are direct causes of cancer be admitted, it might yet rightly be urged that they are all external irritants, that they are responsible only for a very small number of cases of cancer in the human subject, and that we have thrown no light whatever on the processes that occur within the cells to pervert them to the anarchic and progressive proliferation that we call cancer. We may reply that the demonstration that

has already been given tempts us to hope that some day we shall be able to isolate endogenous carcinogenic substances, local malproducts of metabolism it may be, which have similar effects on tissues long subjected to their action. It is true that we know nothing regarding the intimate cell processes that are set up by the irritants, but the investigation is not beyond practical methods of inquiry.

May I recall some old experiments that I did several years ago? I had a transplantable mouse carcinoma which had passed into a depressed phase: the percentage of successful inoculations was very low; when tumours did result they were very slow in their growth. I ground up some of the tumour material in fine sand in a mortar and shook this up with saline solution. A batch of mice were injected with this extract and subsequently they were inoculated subcutaneously with living tumour tissue at the same time as another untreated series of mice. The contrast between the two sets was striking: in the untreated series the proportion of successful inoculations was small and the tumours were slow in developing; in those previously treated with the extract the percentage of successful inoculations rose from 30 to 80 and the rate of growth was rapid. We had supplied something—a "growth aggressin"—which was not supplied to the controls, and we had obtained it from the same tumour tissue. Such a substance, whatever its nature may prove to be, may be produced in small amounts in ordinary wound repair: it may be produced in excessive amounts in the neoplastic reaction.*

Looking back on the great discoveries of the past, we may wonder why they were so long delayed. The essential data for a conclusion, the materials with which to build, the terrain for the advance, all were already prepared, available for everybody, and sufficiently obvious, we should imagine, to the ordinary mind. It is all so simple to us now, for we fail to appreciate the difficulties of the pioneer. A future generation, knowing surely the causes of cancer, will have no patience with our flounderings, our guesses, and our contending arguments. Had we not all the facts before us, they will say, staring us in the face, clamouring for recognition? Probably we have, but we are like children gazing at a starry sky—the stars that are so bright to us may be very small worlds and those that we barely see may be infinitely great. When we can place our facts in their order of importance, and make order out of seeming disorder, the answer will be easy. At present do we stand in respect of our subject as our predecessors stood fifty years ago at the dawn of bacteriology, and will our discoveries be as great, as rapid, and as epoch-making as theirs? I wonder.

SURGERY OF THE HEPATIC AND COMMON BILE DUCTS.†

BY

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THE great bile duct as a whole, from the point where the hepatic duct emerges from the liver to the duodenal papilla, is discussed because the pathologic processes with which the surgeon is concerned in this special field must be treated as a whole.

In the period from December 31st, 1890, to December 31st, 1922, there were 16,980 operations performed on the biliary tract for all conditions — acute, chronic, and malignant—by the eleven surgeons on the general staff of the Mayo Clinic, with an average mortality of 2.6 per cent. Of these operations 1,920 were on the hepatic and common ducts, with an average mortality of 7.8 per cent. In the ten years from 1910 to 1920 the average mortality for operations on the great bile duct was 6.8 per cent. In 1921 the mortality for operations on the common and hepatic ducts was 5.6 per cent., in 1922 it had dropped to 3.8 per cent., while in 1922, for 942 cholecystectomies, it was 1.6 per cent.

All patients dying in the hospital following operation, without regard to the length of time thereafter or the immediate cause of death, were classified as having died from the operation. It may seem somewhat severe to classify patients as having died from operation who, when operated on, had chronic nephritis, hepatic insufficiency from biliary cirrhosis, and secondary cardio-renal disturbance, the result of months of cholaemia and duct infection, and patients who died in the hospital some weeks after operation from causes not connected with the operation. However, without an arbitrary standard of classification it is difficult to secure comparable statistics from different hospitals. Perhaps, too, there is a certain stimulation in holding to a high standard of responsibility.

A satisfactory improvement, so far as mortality is concerned, is manifest by these data. Improvement has been greater than would be apparent from a study of mortality alone, because of constantly increasing knowledge and improvement in technique. Because of a better understanding of the conditions more and more severe cases have been undertaken, and operations carried out successfully which, in earlier days, were not attempted.

Certain fundamental principles which greatly affect the welfare of surgical patients must be evaluated. They concern (1) mortality from the operation, (2) benefit from the operation, and (3) disability following the operation.

The pride of the operator and his statistical skill in honestly juggling percentages make most astonishing apparent differences in statistics which are nearly identical. For instance, the early transference of the dangerously ill patient to the medical side of the hospital because of a medical complication, from the standpoint of surgical statistics, is helpful. If operations rather than cases are counted, and a number of operations are performed on the same patient, a small series of cases may make a large series of operations. Mortality estimated by cases is high; estimated by the number of operations it is low, although the number of deaths would be the same. Again, a slight operation which does not cure will be the test in a bad case. If the patient does not react well, the curative procedure with the major operative risk, for many reasons, may not be undertaken; consequently the patient is not given the chance for cure which a primary radical operation would have given.

We study surgical tragedies and endeavour in every way to hold operative mortality at the lowest point, but the mere fact that a patient recovers from an operation is not in itself sufficient. If he does not receive sufficient benefit to warrant the risk of life, the pain and suffering from the operation itself, the expense, and the loss of time, he has just cause for dissatisfaction. On the other hand, if a more radical operation would have resulted in correspondingly greater benefit, an increase of primary risk might be justified.

The question of post-operative disability is important. A surgical procedure should be planned so that the patient, with the least possible risk and loss of time, will receive the greatest possible benefit. To-day industry is on a full-time basis, and every unnecessary day that the patient is disabled is an economic loss. To perform several operations when one would suffice, and thus deduce an apparent but not a true reduction in mortality, to use a type of incision not strictly indicated for the work at hand, or to use unnecessary drainage which will confine the patient to bed longer, or leave him with a greater hernia liability, is unjust. This economic loss is illustrated by a comparison, at ten-year intervals, of the hospital morbidity following operations on the biliary tract. The methods in use to-day, as compared with methods used ten years ago, save for each patient operated on in the clinic ten days of hospital time, or thirty-six years of the lifetime of one person each year.

The incision used in the majority of operations on the biliary passages has been the incision introduced by Bevan in 1893, slightly modified. The method of McArthur, in leaving undivided the posterior aponeurosis, the peritoneum, and the nerves in the lower third of the incision, is followed because the posterior aponeurosis, peritoneum, and nerves are sufficiently mobile to be drawn down readily by a retractor.

Secondary operations on the common duct for the removal

* Important experiments in tissue culture which are being carried out by A. H. Drew of the Imperial Cancer Research Fund may have an important bearing on these points.

† Abstract of paper read before the Surgical Section of the Royal Society of Medicine, London, June 27th, 1923.

of stones, especially if the gall bladder has been removed at the first operation, may be most difficult, particularly if dense adhesions bind the area in a confused mat, and a state of hepatitis, or biliary cirrhosis, makes the liver bleed at a touch.

The importance of removing all stones from the common duct cannot be overestimated. In nearly one-third of the deaths following operation on the common duct for stone *in our series, post-mortem* examination revealed that all stones had not been removed. Since *post-mortem* examinations are made on more than 90 per cent. of patients who die in the hospital, this checking up has been of very great importance in adding to knowledge, although often most humiliating to the surgeon. Perhaps some of the stones which are supposed to have re-formed in the common duct are left-overs.

Next to gall stones in the hepatic and common ducts, operative injuries during cholecystectomy are the most common cause for operations on the common duct. The most serious and difficult operations are those which have for their purpose restoration of totally interrupted biliary connexion between the liver and the intestinal tract. When the common or hepatic duct has been injured, and the fact has been recognized at the time, failure successfully to repair the injured duct has not occurred in a single instance. A study of the operative methods employed in these cases, from the standpoint of ultimate results, indicates that in any case in which a piece of the duct has been accidentally removed, and the injury not discovered and repaired at the time, thus necessitating secondary reconstruction, direct union between the stump of the hepatic duct and the duodenum is the best operation.

Of the causes of death after operation, haemorrhage, hepatic and renal insufficiency, and infections of the bile ducts are the most common. These conditions are directly related to the existing chronic obstructive jaundice, hepatitis, biliary cirrhosis, dehydration, and chronic undernourishment. Walters reviewed the *post-mortem* records, for a five-year period, of patients who died following operation on the biliary tract, and demonstrated that in 58 per cent. of the patients with jaundice who died within the first week after operation, there was more or less blood in the abdominal cavity, usually the result of oozing from slight injuries to the liver. Of itself the haemorrhage was not always sufficient to cause death, but it was a contributing factor. In jaundiced patients in poor condition, unless there is a definite indication, cholecystectomy is not added to the risk of operation on the common bile duct because of the danger of injury to the liver, which adds to the possibility of slow post-operative oozing.

As these patients are dehydrated and usually unable to take much nourishment, an attempt is made before operation to introduce a quantity of water into the system to aid renal elimination. As a rule it is difficult to accomplish this by mouth; it is best accomplished by proctoclysis, or subcutaneously.

A third factor of importance in these cases is hepatic insufficiency, which runs parallel with renal insufficiency. In the presence of hepatic insufficiency the blood sugar may appear to be at the normal level when it is not truly so, because of the concentrated state of the blood from dehydration. Therefore, in the presence of hepatic insufficiency, 5 per cent. glucose, in plain water by rectum, or 3 per cent. in sodium chloride solution subcutaneously, is given.

In order to check the haemorrhage calcium chloride intravenously has proved effective, and in certain cases blood transfusion is a remedy of remarkable efficiency. Failure of normal blood-clotting in the jaundiced patient is a specific indication of deprivation of blood calcium. It remained for Lee and Vincent to give calcium in a 10 per cent. aqueous solution intravenously, with striking results. When the administration of calcium fails to reduce the clotting time to normal, blood transfusion will usually cause a temporary reduction in the clotting time sufficient for an operation to be performed.

The careful pre-operative management of jaundiced patients has greatly reduced the mortality of operations. In two years in not a single instance in the clinic has a patient so prepared died from haemorrhage following the operation.

CASES ILLUSTRATING METHODS OF DIAGNOSIS IN RENAL SURGERY.*

(With Special Plate.)

BY

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IN spite of its already voluminous literature, the subject of cystoscopy, pyelography, and ureterography is so important that no apology is needed for bringing forward some interesting points in the application of these methods of diagnosis.

Kidney or ureter cases usually present themselves for investigation because of one or other of the symptoms—pain, haematuria, dysuria, or pyuria which does not yield to potassium citrate or the usual urinary antiseptics. On the other hand, some cases which eventually prove to be of urinary origin come under observation because of symptoms not necessarily suggesting the upper urinary tract as the seat of trouble; for example, in one case which I shall quote, asthma was the only symptom of ill health in the first instance.

Assuming that one of the typical urinary symptoms is present, that a pathological and bacteriological examination of the urine, and a clinical and *x*-ray examination of the renal, ureteric, and bladder regions have been made, an approximate diagnosis will probably have been reached, but many points will still remain to be investigated. Thus, if pyuria is present, the question whether it is of badder or renal origin remains. The general recognition of the fact that most cases of persistent pyuria are of renal origin must be credited to the wide adoption of cystoscopy. Simple observation of the ureteric orifices or ureteral catheterization will localize infection or haemorrhage to one or other kidney. The ureteric catheter will provide material for estimating the efficiency of each kidney. Catheterization and aspiration may determine the existence of a hydronephrosis.

In almost every case pyelography will contribute some fresh details in the investigation. In renal calculus one will learn whether the stone is in the renal pelvis or in a calyx—an important point in planning operation. The shadow of a ureteral stone can be differentiated from other shadows like it by a pyelogram, but sometimes an *x*-ray photograph of the opaque ureteral bougie *in situ* will suffice. The cases mentioned below will illustrate these among other points.

The method of performing cystoscopy and of obtaining a pyelogram are now standardized. In injecting the ureters one depends on the patient's sensation of fullness or pain to indicate when enough of the opaque solution has been injected. For ordinary cases no special apparatus is necessary, save the cystoscope, ureteral catheters, and access to a radiologist. Dr. Oram has taken all the photographs in the cases mentioned in this paper. In most cases the ordinary *x*-ray couch serves for the various cystoscopic procedures, and conversely the *x*-ray tube can be used with the patient resting on the cystoscopy table. The latter arrangement will suit best when a photograph in semi-upright position is desired.

The first case I shall mention is one illustrating how, in certain cases of chronic pyuria, cystoscopy by itself excludes the bladder, and localizes the active septic focus to the kidney.

CASE I.

Some six months before I saw him, the patient, a man of 53, had an acute attack of cystitis with frequent micturition, suprapubic pain, and abundant pus in the urine. The attack came on after six hours' exposure to tropical rain. He was very ill and was admitted to a foreign hospital, where his bladder was washed out several times a day and urinary antiseptics administered. Under treatment his symptoms improved, but albumin and pus, as well as staphylococci and a coliform bacillus, remained constantly in the urine. On examination one saw that the mucous membrane was healthy everywhere save at the orifice of the right ureter,

*A paper read at a clinical meeting of the Lancashire and Cheshire Branch of the British Medical Association.

where the lips of the opening were engorged, and below that orifice there was a fan-shaped inflamed area, marking the track of the shoot of urine from the orifice. The jet of urine from the right orifice was turbid, while that from the left was clear. The condition was either simple or calculous pyelitis. Radiographically a large stone was to be seen in each kidney (Fig. 1). Subsequent catheterization of the ureters after a meal of 15 grams of urea confirmed the infectivity of the right and the non-infectivity of the left kidney, and the differentiated urines showed: on the right side 1.2 per cent. of urea; on the left 1.5 per cent. The stone was removed from the right kidney by pyelotomy, and after six months' treatment with urinary antiseptics and vaccines, and when the pus had disappeared from the urine, the left kidney was similarly treated. When last seen before going abroad, albumin had quite disappeared.

The next two cases I shall mention are cases in which cystoscopic examination, taken in conjunction with clinical signs, facilitated definite diagnosis of tuberculous kidney in spite of the fact that tubercle bacilli could not be found in the urine.

CASE II.

The first case was a woman of 42, who gave a history of having had an abscess in the left loin, which was opened about three years ago. The abscess discharged for some months and then healed, only to break down again after another few months.

The urine was normal and the patient denied that there had ever been any urinary abnormality. The doctor who was last in attendance, however, suspected kidney trouble and sent her for further examination. At this time there was a sinus in the left loin discharging pus containing staphylococci. In the circumstances, and in the presence of normal urine, the suppurating focus might have lain in any of the neighbouring structures, but cystoscopic examination showed that there was only one functioning ureter—the right. There was no trace of the left ureteric orifice even after an intramuscular injection of indigo carmine. In the region where the left ureteric orifice should have lain, however, there were three or four cicatrices of healed ulcers. It was only at this stage that the patient could be induced to remember that

FIG. A.—CASE II. Remains of old tuberculous kidney, showing fibrofatty capsule with trabeculae and caseous débris below.

twenty-five years previously she had had haematuria, and increased frequency of micturition, lasting over a period of six months. With this confirmatory fact it was possible to realize what had occurred—that at the age of 16 to 17 she had suffered from an actively tuberculous kidney. The caseous débris had, later, blocked the left ureter and allowed the secondary ulceration of the bladder to heal.

In this case I removed the kidney, or rather its representative—a large sac of caseous matter contained in the fatty capsule, subdivided by fibrous strands, but containing no trace of kidney tissue (Fig. A). Probably there had been no trace of secreting tissue for over twenty years.

CASE III.

The second case of tuberculous kidney I shall mention was in a girl of 19, who had been wardmaid in a sanatorium for tuberculosis. She suffered from hectic fever, night-sweats, intermittent haematuria, colic on the right side, and a considerable amount of pus in the urine. Tubercle bacilli were not found. She had very frequent micturition, and her bladder could not be induced to tolerate more than 2 ounces of fluid. It was necessary to give her an anaesthetic for cystoscopy, and then one had an opportunity for a moment of seeing and catheterizing the left ureter and of ascertaining that the right ureteric orifice was situated in the centre of an ulcer in the posterior wall of the bladder. The cystoscope was removed, the catheter being left in position, and the patient allowed to come round from her anaesthetic. She was given 15 grams of urea, and in an hour and a half she was found to have a concentration of 2 per cent. urea in the urine from the left kidney. There were some blood and pus cells in the urine from the left kidney, but in view of its power of concentrating urea, and as the symptoms of colic, haematuria, hectic fever, and night-sweats were pressing, the right kidney was removed. It was found to be tuberculous and secondarily infected (Fig. 3).

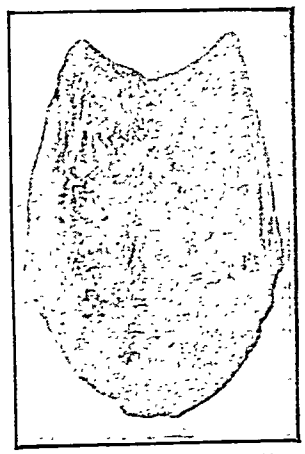

FIG. B.—CASE III. Tuberculous kidney with mixed infection.

She was excreting 45 ounces of urine when she left hospital, but there was still some pyuria.

The differentiation of the x-ray shadow of a phlebolith or of a mesenteric gland from that of ureteral stone is frequently necessary. I will first show the appearance of a genuine ureteral calculus in relation to the opaque bougie and the opaque injection, and then show cases where the pyelogram or ureterogram excludes the possibility of urinary calculus in favour of phlebolith or calcareous gland.

CASE IV.

A young man of 23 had suffered from one attack of haematuria and from intermittent pain in the right iliac fossa and right inguinal region. The *x* rays showed a shadow which was probably a stone in his right ureter (Fig. 2). Cystoscopically the bladder and the ureteric orifices were normal. Examination of the urine showed nothing definite once the slight haematuria had passed off. On passing the ureteric catheter, it was stopped at a point short of the renal pelvis. Fig. 3 shows the catheter held up. Fig. 4 shows the sodium bromide injection passing round the stone and partly dilating the renal pelvis. The stone, obviously ureteric, was removed extraperitoneally.

CASE V.

In contrast with the case just mentioned is that of a medical student, aged 20, who had suffered from pains in the right iliac fossa and inguinal region for some months. The pains had recently disappeared, but while they were present they had occasionally been accompanied by haematuria. Later on he passed per urethram a small calculus, which Dr. Duffield analysed and reported as consisting of phosphates. The urine was normal. A radiogram showed a shadow at the brim of the pelvis over the course of the ureter, and the question arose as to whether this shadow was a ureteral calculus or a calcareous gland. Catheterization of the ureter could only be effected to the extent of a couple of inches (Fig. 5), but on injecting the ureter with sodium bromide the shadow, though in contact with that of the ureter, was seen to be independent of the latter (Fig. 6). The ureter is seen to pass the region of the doubtful shadow without dilatation or distortion—this in contrast to the photographs in the previous case, where the injecting solution is seen to surround the stone. The shadow in the present case is evidently that of a mesenteric gland.

CASE VI.

In contrast with Case IV, too, is Case VI, that of an old lady suffering from intermittent haematuria accompanied by colicky pains in the right loin. The *x*-ray appearances of the renal region were negative. In the ureteral region they showed two circular shadows low in the pelvis, and in the course of the right and left ureters respectively (Fig. 7). An *x*-ray examination made with the ureteric bougies in position showed that the shadows did not in fact lie in the course of the ureters (Fig. 8). At a later examination when the haemorrhage was actually in progress the blood was seen to be coming from the

left ureter. In the absence of pus or *x*-ray evidence of stone, the presumption was in favour of a growth of the left kidney. No operation was performed owing to the feeble condition of the patient, but the rapid increase in size of a gland above the left clavicle confirmed the existence of malignant disease in the drainage area of the thoracic duct. The shadows in the pelvis were phleboliths.

CASE VII.

This patient was a seaman aged 36. When homeward bound from Australia he was seized with severe pain in the right iliac fossa and right testicle. He was obliged to lie up for three or four days. He was then transferred to hospital ashore at a Mediterranean port. There he was *x*-rayed and a diagnosis of calculi in the pelvic ureter on the right side was made. Being anxious to get home he declined treatment and continued his voyage. The severe pain had passed off in two days from its onset, but he suffered from slight abdominal aching for upwards of a fortnight. On reaching Liverpool, two months later, he was referred to me for further investigation and treatment. The urine was normal. Palpation revealed slight tenderness in the right iliac fossa. Radiographically a number of circular shadows were visible in the right lower pelvis (Fig. 9), but a photograph with the opaque bougie in position showed that the shadows lay clear of the ureter (Fig. 10). The renal pelvis was normal.

The original illness was evidently due to appendicitis, of which testicular pain is an occasional symptom. This diagnosis I verified by operation, finding a retrocaecal appendix lying over the course of the ureter, buried in adhesions and acutely kinked.

FIG. C.—Case XIII. Stones *x*-rayed after removal, showing oxalate core and uric acid and magnesium salts in periphery.

A ureteral calculus may exist side by side with a phlebolith, and the latter with its associated fibrosis may prevent the passage downward of the former.

CASE VIII.

The patient, a man of 37, suffered from repeated attacks of right loin pain radiating downward to the testicle. A radiogram showed two shadows in the region of the lower right ureter (Fig. 11). The ureteric bougie passed the lower shadow and thrust the upper shadow upwards for a couple of inches before being stopped (Fig. 12). The ureterogram (Fig. 13) showed that the lower shadow lay outside the ureter, and that the injection could not pass backward below the point of the ureter in contact with the phlebolith. The ureteric catheter occupied the entire lumen of the ureter at this point. At operation I found the ureteral calculus lying beside the phlebolith, separated only by the ureteral wall. The phlebolith was surrounded by a mass of fibrous tissue which involved the ureter, and determined the obstruction. The calculus was removed and the obstruction dilated.

The fact that a pyelogram is normal helps one to exclude the possibility of a surgical condition of the kidney in a doubtful case of loin or abdominal pain.

CASE IX.

A woman of 54 complained of a constant aching in the right iliac region. The routine *x*-ray examination of the urinary tract showed no abnormality. The urine was normal. A pyelogram in the semi-upright position showed a normal renal pelvis (Fig. 14).

The patient is now wearing a visceroptosis belt and has obtained relief.

CASE X.

A young woman complained of severe pain the left iliac fossa and on the front of the t thigh. An *x*-ray examination of the urinary tract was negative. The urine was normal. A pyelogram taken as in the last case was normal. The pain was so severe that I explored the abdomen, and found high up at the root of the mesentery a large tuberculous gland. Its removal relieved the symptoms. The pyelogram helped to exclude a renal condition, and limited the exploratory operation to the abdominal cavity.

FIG. D.—Case XIV. Pyonephrotic kidney after removal. (Compare Figs. 23 and 24.)

When an intramural ureteric stone remains in situ *for some time the ureteric muscle tires in its efforts to expel it. It is of interest to observe the later changes in the appearances presented at the ureteric orifice.*

CASE XI.

Shortly after her confinement, a woman came complaining of severe pain in the right inguinal region, coming on at short intervals. There was pyuria and slight haematuria. *X* rays showed a stone in the lower part of the right ureter (Fig. 15).

Cystoscopically the left ureteric orifice was of the normal slit-like type; the right was a circular dark hole, and any attempt to pass the urethral bougie brought one up against the stone. When the orifice was kept in view for a short time, one could see the lower pole of the stone rhythmically presenting at the orifice as the ureteric muscle endeavoured to thrust it through. With each contraction one could see round the presenting stone a circle of jets as the urine was forced out. The presentation of the stone in the orifice was sometimes accompanied by distinct pain, and the whole phenomenon was, in miniature, what is seen during a labour pain when the foetal head is presenting and receding. When I first saw her a few months ago she had just been confined and was nursing her baby. As the pain was not severe, and the stone likely to pass spontaneously, I thought it desirable to postpone operation. In the course of five months the stone failed to pass into the bladder, and I have since removed it through the bladder. In the meantime the cystoscopic appearances had altered completely. The stone no longer presented intermittently at the ureteric orifice, and though the kidney still functioned, the efflux trickled away constantly, and not with a periodic jet. The ureter had evidently become dilated and lost its power of rhythmic ejaculation.

In hydronephrosis it is not always possible to demonstrate the condition by aspiration. The aspirating catheter may not pass the obstruction, and when the syringe is applied nothing may be drawn off. In such a case an opaque injection may be made to pass the obstructing stricture or kink, and the ureterogram or pyelogram to demonstrate the obstruction.

CASE XII.

Mrs. D., aged 54, had for six years been suffering from severe spasmodic asthma. She had had various forms of treatment, including Tucker's asthma cure, morphine injections, and adrenaline injections. The adrenaline had the power of cutting short an attack, but there was no means of preventing it. Her doctor found pus in the urine, and with the aid of *x* rays demonstrated the presence of a large stone in the left kidney (Fig. 16), and some minute shadows in the right (Fig. 17).

As a preliminary to operation I passed the ureteric catheters for differential examination of the urine. On the left side the ureteric catheter passed up to the renal pelvis, and a pyelogram showed the stone to be situated in a calyx (Fig. 18). In the case of the right side the ureteric catheter failed to advance higher than about 2½ inches from its lower end (Fig. 17), but using a catheter with a terminal opening only, the obstruction proved to be permeable to injection.

The pyelogram (Fig. 19) showed a hydronephrosis and enlargement of the upper ureter; the ureterogram (Fig. 20) showed narrowing of the shadow where the instrument had been stopped. At operation this narrowing was found to be a stricture, not a kink.

Treatment consisted in relieving the stricture in the right ureter and removing the stone from the left kidney. Apart from showing the superiority of the injection over the opaque bougie in certain cases it was of interest to find that the patient was cured of her asthma.

In contrast with the picture of general dilatation of the upper urinary tract seen in the last case, is the pyelogram of a hydronephrosis caused by obstruction at the ureteropelvic junction.

CASE XIII.

A man of 58 presented typical symptoms of right renal obstruction—pain in the right loin, intermittent haematuria, alkaline urine containing pus. The *x*-ray photograph showed faint shadows in the right renal region (Fig. 21). A pyelogram showed dilatation confined to the renal pelvis (Fig. 22), and localized the shadows in the dilated pelvis. At operation an artery was found passing from the aorta to the inner aspect of the kidney, half an inch below the renal sinus. With the kidney *in situ*, the ureter lay in front, and the dilated pelvis behind the vessel. The vessel was removed, also half a dozen stones from the renal pelvis by pyelotomy. The stones were probably secondary to the stasis caused by the abnormal vessel. The shadows seen in Fig. 21 were smaller than the stones themselves. This is explained by the radiogram of the calculi taken after removal (Fig. C). Each stone shows a dense core, and less dense periphery. The core consisted of calcium oxalate, magnesium salts, and albuminous material; the periphery of uric acid and magnesium salts.

Under magnification the original of Fig. C showed the lamination of the periphery of the shadows. In such a case a pyelogram is necessary as a means of fixing the level of the obstruction, and of locating the calculi in the pelvis.

FIG. 1.—Case I. Stone in right renal pelvis. Radiogram taken after finding pus coming from right ureter.

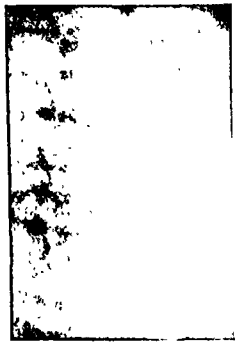

FIG. 2.—Case IV. Shadow in course of right ureter.

FIG. 3.—Case IV. Ureteric bougie stopped by ureteric calculus.

FIG. 4.—Case IV. Opaque injection surrounding ureteric calculus and partially filling upper ureter and renal pelvis.

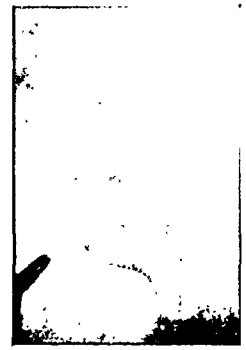

FIG. 5.—Case V. Doubtful shadow in ureteric region.

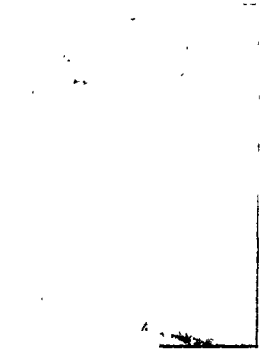

FIG. 6.—Case V. Injected ureter, showing that the doubtful shadow is independent of the ureter.

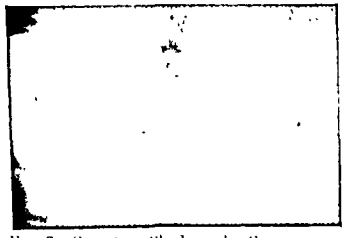

FIG. 7. Case VI. Shadows in the course of right and left ureters respectively.

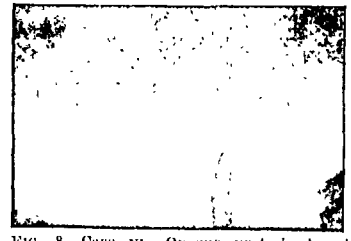

FIG. 8.—Case VI. Opaque ureteric bougie x rayed *in situ*, showing that the shadows in this case lie free of the ureters.

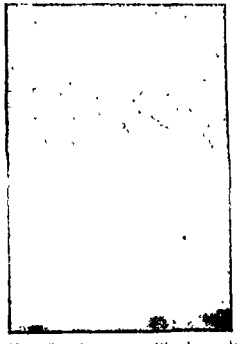

FIG. 9. Case VII. Shadows in course of right ureter.

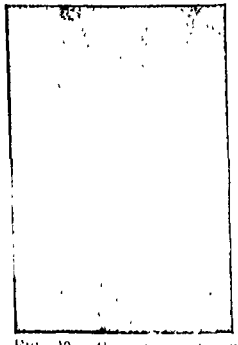

FIG. 10.—Case VII. Opaque catheter *in situ*, showing that the stones are extraurethral.

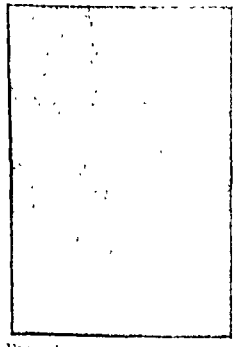

FIG. 11.—Case VIII. Showing two shadows in the region of the right ureter.

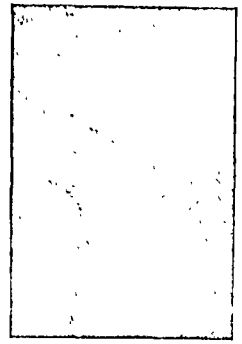

FIG. 12.—Case VIII. Shows the ureteral bougie passing one of the shadows and thr[illegible] the other upwards.

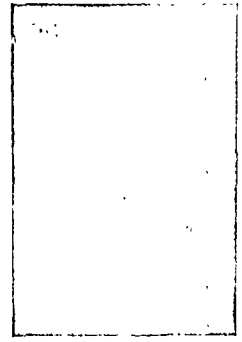

FIG. 13.—Case VIII. Opaque injection [illegible] the upper shadow [illegible]). The reproduction is not [illegible] enough to show the structure [illegible] ureter at level of phleboliths.

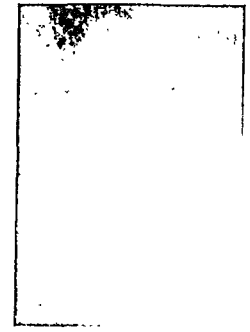

FIG. 14.—Normal renal pelvis [illegible] seen in [illegible]

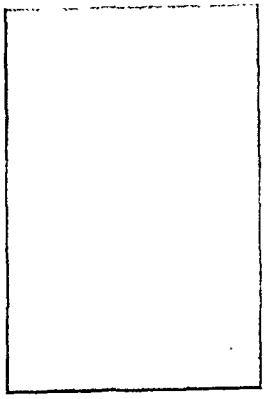

FIG. 15.—Case XI. Stone in the intramural portion of the right ureter.

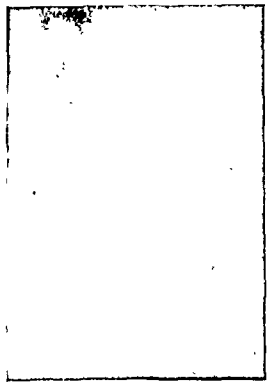

FIG. 16.—Case XII. Showing stone in left renal region.

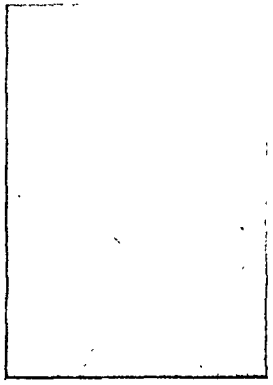

FIG. 17.—Case XII. Showing limit to which ureteral bougie could be passed.

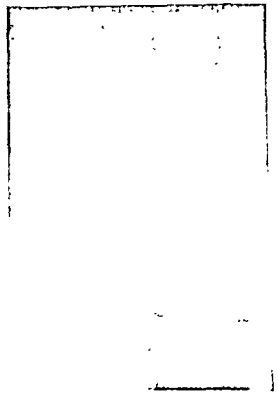

FIG. 18.—Case XII. Left pyelogram, showing that the stone is in a calyx. (Compare Fig. 16.)

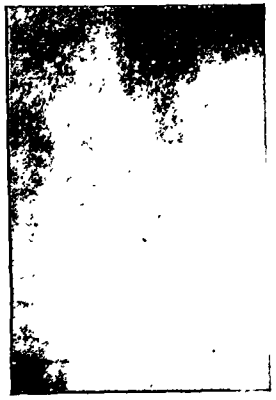

FIG. 19.—Case XII. Right pyelogram, showing hydronephrosis and dilatation of upper right ureter. (Compare Fig. 17.)

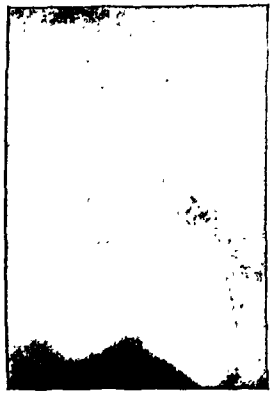

FIG. 20.—Case XII. Showing lower right ureter with obstruction where the bougie had been

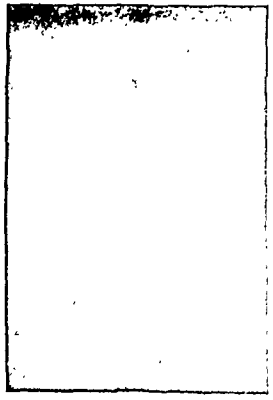

FIG. 21.—Case XIII. Right renal region, showing various small shadows.

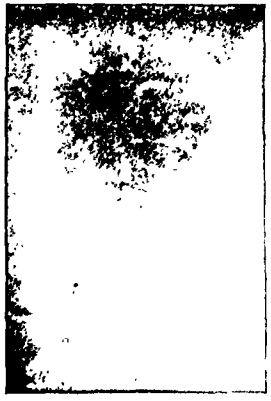

FIG. 22.—Case XIII. Pyelogram showing right hydronephrosis. The ureter is not dilated, the

FIG. 23.—Case XIV. Left renal region, showing small calculus.

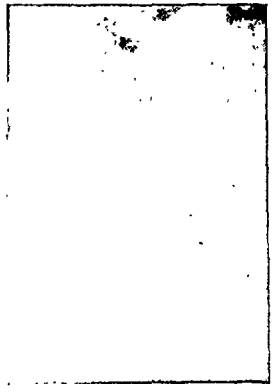

FIG. 24.—Case XIV. Left pyonephrotic kidney injected. (Compare Figs. D and 23.)

In pyonephrosis a pyelogram materially assists in prognosis.

CASE XIV.

A woman of 36 suffered pain in the left loin, pyuria, and irregular fever for six months. There was definite enlargement of the left kidney. X rays showed a small calculus (Fig. 23). No urine could be obtained by catheterization of the left kidney. Catheterization of the right kidney after 15 grams of urea gave a urea concentration of 1.8 per cent. A pyelogram showed cavities occupying the greater part of the renal region (Fig. 24). At operation these cavities were found filled with pus, and the kidney shown in Fig. D was removed. It consisted merely of fibrous loculi and contained a small stone.

It was possible to say prior to operation that nothing short of nephrectomy would relieve such extensive suppuration and disorganization.

NOTE ON "DEFATTING" OF THE ACID-FAST BACILLI OF LEPROSY AND TUBERCLE BY INJECTIONS OF CHAULMOOGRATES AND MORRHUATES.

BY

SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.C.S., F.R.S., I.M.S. (RET.).

IN 1916 I recorded favourable effects in leprosy from the subcutaneous and intravenous injection of soluble sodium salts of the unsaturated fatty acids of chaulmoogra oil, sodium gynocardate, and hydnocarpates[1 2]; in 1917 I pointed out[3] that even small doses given intravenously may produce softening of the nodules, accompanied by breaking up and absorption of the lepra bacilli; these changes were illustrated by coloured plates. In 1919 I recorded similar results from sodium morrhuate, prepared on similar lines from cod-liver oil,[4] and a year later with sodium soyate from soya-bean oil (to which Dr. E. Muir has since added ethyl esters of linseed and olive oils), and I showed that prolonged treatment by these methods may produce disappearance of the lepra bacilli from the tissues with apparent cures, which have now lasted in some cases for from five to eight years. I showed also that occasionally severe cases of leprosy cleared up in the course of some months following a prolonged febrile reaction, with great destruction of the bacilli, after a small intravenous dose without any further treatment, indicating that the dissolved bacilli have acted as an antigen in producing active immunity. In 1920 I reported some favourable results in the treatment of tuberculosis, mostly of the surgical form, with sodium morrhuate. In 1921 I summarized the results of my six years' researches,[5] and discussed the probable mode of action of these preparations, pointing out that the direct action theory of E. L. Walker and Marion Sweeney[6] (based on their demonstration of a specific action of gynocardates and hydnocarpates on acid-fast bacilli as a class) would not explain the efficacy of sodium morrhuate and soyate nor the prolonged improvement after a single febrile reaction, and I concluded:

"Such cases appear to be best explained on the theory that, during the extensive breaking down of the bacilli, antigens are formed, which bring about the subsequent prolonged improvement. I have for long considered that the action of the soluble salts of the fatty acids of the several oils I have shown to be effective in leprosy must, in some way, be due to a chemical reaction with the fatty acids in the coating of the acid-fast bacilli, so weakening their protective envelopes as to allow the body-cells to deal with them, while the extensive breaking down of the bacilli in the body may lead to immunizing antigen formation in the system. Whatever the precise explanation may be, it is now abundantly clear that my discovery, that injections of soluble preparations of the fatty acids of chaulmoogra, cod-liver, and soya bean oils lead to breaking down of leprosy bacilli in the human body, is of great interest and importance, and one which demands much further research."

The precise manner in which the dissolution of lepra bacilli in the tissues is brought about remained to be elucidated, but in 1920 Dr. J. A. Shaw-Mackenzie[7] recorded experiments showing that the addition of sodium gynocardate, sodium morrhuate, and sodium oleate to a pancreatic extract doubled the fat-splitting effect of pancreatic lipase on an emulsion of olive oil *in vitro*, and he suggested "a direct stimulating action of tissue lipolysis in, at any rate, partial explanation of the therapeutic effect of sodium morrhuate and of sodium gynocardate" on acid-fast bacilli. It then occurred to me to investigate the possible effect of these preparations on the blood lipase in both leprosy and tuberculosis, for it is known that this ferment is deficient in many tuberculous cases, and during the past year I have been working at this point in the biochemical laboratory at St. Bartholomew's Hospital, with the kind permission and help of Dr. Mackenzie Wallis, the preliminary results of which appear to be worth mentioning in view of the interest aroused by Professor Dreyer's important researches on "defatting" of tubercle bacilli *in vitro*.

Thanks to the kindness of Dr. E. Muir, Leprosy Research Worker, Calcutta School of Tropical Medicine, in sending home to me in ice a considerable number of serums of treated and untreated lepers, I was able to find that in three untreated nodular lepers the blood lipases averaged only an equivalent of 0.033 decinormal sodium hydrate, while the average of nine treated cases was 0.22, or about the normal figure; one of them, who had just had a severe febrile reaction with extensive destruction of the bacilli, however, showed a low lipase content, as if the ferment had been used up in dissolving the organisms. Dr. Muir has since made a large number of lipase estimations in lepers in Calcutta, and he has recently reported to me that "we are finding almost invariably a very low lipase content in severe reactions, and we are finding a good prognosis justified when there is a high lipase content."

I have also been making lipase estimations in a number of serums from surgical cases of tuberculosis kindly sent to me by Dr. Pugh and Dr. Mawson from the Carshalton Children's Hospital, and Dr. Mawson has recently sent me records which indicate that patients with low lipase content are usually those who are not doing well. I am also testing serums before and after treatment by chaulmoogrates and morrhuates at Carshalton, and also, through the kindness of Dr. Rundle, at the Fazakerley Sanatorium of Liverpool, to see if the lipases are raised by these drugs. It is too early to report the results, but those already obtained in leprosy appear to support the view that this class of preparation acts by increasing the blood lipase, which in turn dissolves the fatty coating of the acid-fast bacilli of leprosy, and probably also of tubercle, setting free the antigens, with resulting production of immunity in the system in leprosy, and possibly also in tuberculosis. In the latter disease, however, it is more difficult to control the process with sufficient accuracy to prevent too great liberation of toxins, in pulmonary affections at any rate. In other words, I appear to have obtained in leprosy, and possibly in surgical tuberculosis, "defatting" of the causative bacteria *in vivo*.

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[1] *Lancet*, February 5th, 1916. [2] BRITISH MEDICAL JOURNAL, October 21st, 1916. [3] *Indian Journ. Med. Research*, vol. v, No. 2, October, 1917. [4] *Indian Med. Gaz.*, May, 1919. [5] *Practitioner*, August, 1921. [6] *Journ. Infect. Dis.*, 1920, 26, p. 238. [7] *Medical Press*, August 18th, 1920.

A PAN-RUSSIAN Odontological Congress will be held at Moscow from September 4th to 11th, when the subjects of discussion will include the chemistry and surgery of the buccal cavity, single and compound prothesis, caries as a social disease, industrial diseases of the teeth and buccal cavity and the means of combating them, provision of dental treatment, statistics of diseases of the teeth and buccal cavity, and post-graduate courses.

THE fifth Italian Congress of Medical Radiology will be held at Palermo, under the presidency of Professor Gioacchino, from October 18th to 21st, when the following subjects will be discussed: X-ray treatment of skin diseases, by Professor Rossi of Parma; pneumo-radiography, by Professor Gortan of Trieste; radio-diagnosis of the urinary system, by Professor Boidi Trotti of Turin. An excursion will be made to Taormina and Syracuse. The subscription, 25 lire, should be sent to Dr. Sgroi Salvatore or Professor G. Scaduto, via Alloro 53, Palermo, before September 1st.

Observations ON FIFTY CASES OF CARCINOMA OF THE CERVIX TREATED WITH RADIUM.

BY

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NATURE OF THE RESEARCH.

IN June, 1921, the Medical Research Council offered to lend St. Bartholomew's Hospital 324 mg. of radium bromide, to be used solely for the purpose of research.

The hospital authorities gladly accepted this offer, and formed a Radium Committee, which decided that one of the investigations to be carried out should be "the study over a prolonged period of the clinical and pathological changes produced by the action of radium, applied locally, in cases of carcinoma of the cervix." The object of the present paper is to record the results of the work done in this connexion during the last eighteen months.

In carrying out this research, both as regards clinical and histological observations, it was decided not to attempt more than to record the changes produced in the local condition and in the chief clinical symptoms, together with those histological changes which were easily recognizable and lent themselves to more precise classification.

Irradiation of Cervix.

Radium.—The radium available consists of the following:

(1) Two platinum tubes with walls 0.5 mm. thick containing respectively 53.1 and 54.2 mg. radium element. The outside dimensions of the tubes are 4 mm. in diameter and 34.8 mm. in length.

(2) Thirteen platinum needles with walls 0.4 mm. thick, each containing on the average 5.1 mg. radium element. The average outside dimensions of the needles are 1.8 mm. in diameter and 23.5 mm. in length.

(N.P.L. measurements corrected for platinum containers.)

The two tubes, filtered with aluminium, are placed end to end in the cervical canal, and the thirteen needles inserted into the cervical tissue at some distance from the canal and in a circle round it. On a few occasions, the needles before insertion were dipped into sterile Indian ink and allowed to dry. This procedure serves to leave a mark along the track of the needle.

Dosage.—The cases are divided into two series. In the first the quantity of radium element varied between 133.3 and 173.6 mg. radium element, the duration of exposure being eight hours. In the second, with one exception, the amount of radium element was 173.6 mg. and the duration of exposure was twenty-four hours.

Filters.—The filters employed in the case of the tubes consisted on most occasions of (1) a platinum container, which is 0.5 mm. thick; (2) a covering of aluminium; in the case of the needles, on all occasions the platinum container, 0.4 mm., was the only filter.

Sterilization of Radium and Filters.—This was carried out by boiling, the use of soda being avoided.

Irradiation of the Iliac Glands.

To this end the technique of Daels (of Ghent) was employed. For details of this operation, see a short paper written by one of us (M. D., *Proceedings of the Royal Society of Medicine*, 1922, pp. 67-70.)

HISTOLOGICAL INVESTIGATIONS.

Method.—In undertaking the histological investigations it was considered essential to examine sections of the growth before irradiation and as often after irradiation as circumstances would permit, so that comparative observations could be made from time to time. Owing to the anatomical situation of the lesions there was no difficulty in obtaining at frequent intervals fair-sized portions of the material for examination in the form of "snippings." Further, we were able to obtain from some of these cases the whole uterus, appendages, and glands by operation, or, as in two cases, at autopsy.

Technique.—Formalin was employed for fixation in the earlier cases, but later Zenker's fluid was substituted. Efforts were directed to placing the material in the fixative as soon after it had left the body as possible, and to cut it up into as thin slices as could conveniently be made. Sections were embedded and cut in paraffin, the usual technique being employed. As a routine staining, haematoxylin and eosin were used, but where special nuclear detail was required, the sections were stained with iron haematoxylin.

Results of Histological Examination.

In order that we might arrive at conclusions with the least possible bias, we made a careful analysis of our protocol, which was compiled without preconceived ideas as the sections came to hand.

I. *Eight-Hour Series.*

The observations in this series were made on cases examined at different times from one to sixty-two weeks after first irradiation (see chart); the majority of cases having more than one such application, and the dose varying between 133.3 and 173.6 mg. of radium element. The series comprises 14 cases of squamous-celled carcinoma. Of this number, 9 were examined both before and after treatment and are included in the chart. Growth was present in 8 after irradiation, and in the remaining case of the 9 (No. 8) a few cells of doubtful nature were found. Of the 5 not included in the chart, 2 were not examined before irradiation, and 3 did not present themselves for examination after treatment.

The material after treatment was obtained by hysterectomy in three (Nos. 5, 13, and 15) and at autopsy in two (Nos. 1 and 6), and by snippings in the remainder. Seven out of the nine received one irradiation before the second observation, and two (Nos. 2 and 8) received two irradiations, one of the latter being the case in which the only possible evidence of carcinoma was a few cells of doubtful nature.

Characters of Growth and Surrounding Tissues.

Certain of the main characters of the growth are mentioned here for comparison with the twenty-four-hour series, and will be found in more detail under that heading.

Cell Division.—In this series, 5 cases showed mitosis after irradiation; in 2 of these mitosis appeared more abundant than before; in 2 other cases mitosis had apparently disappeared after irradiation.

Large Nuclei.—These were seen in 3 cases, in one of which they were present before irradiation.

Small Round-celled Infiltration.—This was always found at the spreading edge of growth before and after irradiation, except in one case (No. 15) where it was absent after treatment.

Fibrosis.—This is not a marked characteristic in this series.

Encapsulation of new growth was not found in this series.

II. *Twenty-four-Hour Series.*

The observations were made on cases examined at different times up to forty-nine weeks after irradiation. The full quantity of radium was given on almost every occasion, the number of applications being two or more in the majority of cases (see chart). The series consists of 34 cases of squamous-celled carcinoma and 2 of columnar-celled carcinoma (Nos. 47 and 54), in which sections were taken both before and after irradiation. In addition, there were 2 cases in which no sections were taken before irradiation; and in 3 cases no sections were taken after irradiation, and thus are of no histological value.

In the 34 cases of squamous-celled carcinoma we were unable to find any growth after treatment in 22, and found growth in all stages of degeneration in the remaining 12. Two of these latter, however, contained bodies, for the most part structureless, but which appear to be the remains of new growth cells.

Twenty-two Cases in which no New Growth was found in the Cervix after Treatment.

From these the material was obtained by hysterectomy in 7 (Nos. 26, 27, 34, 36, 37, 45, 57), sections being cut at different levels. Four of these 7 cases were irradiated twice before the hysterectomy was performed, and 3 were treated once only before operation. In the remaining 15 cases, the material was obtained by "snippings"—in 14 cases after one irradiation, in one case after two irradiations.

Twelve Cases in which Growth was present in the Cervix after Treatment.

Growth was found to be present in 12 cases, but, as will be seen later, the amount of growth was considerably reduced. Further, the general microscopic appearances of the growth differed markedly from that of the original, and in some cases it was barely recognizable as such (Cases 22, 23, 33). All these 12 cases, with 3 exceptions, received one irradiation. Of the 3 exceptions, one (No. 24) received two doses before the second observation was made, the other 2 cases (Nos. 33 and 48) received one dose before the second and third observations respectively. Of these 12 cases, the material was obtained by hysterectomy in 4 and by "snippings" in 8.

Characters of Growth and Surrounding Tissues.

After irradiation, cases have been observed on the first day (that is, at the time of removal of radium), also on the second, fourth, and seventh days, and henceforward at varying intervals up to forty-nine weeks.

In the sections taken on the days immediately following irradiation considerable changes were noted. In some cases these were more marked than in others, probably owing to the proximity of the source of irradiation. In a section taken immediately after removal of radium the appearances were not dissimilar to those in the section taken before treatment—namely, normal mitotic figures were present in small numbers, and degenerate mitoses were occasionally seen. In a section taken on the third day, mitotic figures were much more numerous, normal prophase and metaphase were frequently seen, together with undoubted mitoses showing an irregular arrangement of chromosomes and occasionally multipolar-spindle figures. These changes were still more marked on the fourth day, when there was hardly a cell which did not show abnormalities of one kind or another. These abnormalities consisted of (*a*) Abnormal mitosis, (*b*) Necrosis, (*c*) Increase in size of the cell.

(*a*) *Abnormal Mitosis.*—No normal mitoses were seen; almost 50 per cent. of the cells showed absence of nuclear boundary and of these a large number showed degenerative mitoses. Prophase was occasionally seen, metaphase was abundant, but the later stages of division were not observed. Multipolar division was present, though not frequent, but cells showing granular and fragmented chromosomes were seen in large numbers. Some of them showed well formed spindle figures, but others showed only occasional scattered threads, the nature of which was doubtful, and we were unable to decide whether these latter cells were undergoing mitosis or were in a process of dissolution, especially as the cytoplasm of some of them was broken into droplets. In other cells, the chromosomes had almost entirely disappeared, the spindle figure alone being seen.

(*b*) *Necrosis.*—In some areas the tissue as a whole had undergone coagulation necrosis, there being complete loss of power to take up nuclear stain, while the general structure of the tissue was maintained. These areas, we believe, were in close proximity to the radium.

(*c*) *Increase in Size.*—The remainder of the new growth cells showed some increase in size compared with those in the original growth, and further, their nuclei were enlarged.

Later Changes.

From the seventh day onwards no mitoses of any kind were observed, an observation which would seem to be of considerable importance. The nuclei appeared to be broken up, the chromatin being distributed in the cytoplasm as droplets or irregular particles; in some cells, however, nuclear staining was no longer visible. After the first six weeks breaking up was less frequently seen, but when it did occur the nuclei occasionally assumed irregular and angular outlines, staining indifferently and unevenly, their appearance being more like that of an inorganic than of a biological substance.

In certain cases observed at a still later date the nucleus was no longer distinguishable, but masses of unorganized material, often concentrically laminated, were seen. These masses usually take up haematoxylin to a moderate extent. They are stained deep blue by a well matured Nile blue solution and red with mucicarmine, especially with regard to their outer laminations.

CHART OF HISTOLOGICAL CHANGES.

Case No.	Weeks after First Dose— 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24...49	Method of Obtaining Section.
Squamous-celled Carcinoma: 8-hour Series.																									
1												(X)													P M
2																									S
4				2																					S
5	0				0₂										(X)₃										H
6		(X)																							P M
8			2																	?N₃					S
13	(X)																								H
15	0																								H
16											(X)₂														S
Squamous-celled Carcinoma: 24-hour Series.																									
14															2										S
17												N₂						N₃					N		S
18																		N₂							S
20													N₂												S
22															[‡‡]₂									[‡‡]	S
23									[‡‡]																S
24							2			X															H
25														N₂											S
26								N₂		N															S H
27				N																					H
30					N₂																				S
31			X																						H
33				X₂					[‡‡]																S H
34								X₂																	S H
35				X₂																					S
36										N₂				N											S H
37							N₂						N												S H
38								N₂																	S
39								X₂																	S
40							N																		S
42						X₂																			S
43					N₂																				S
44				N₂																					S S
45			N																						H
46	XX₂																								S S
48								(X)																	H
50					X₂																				S
51									N																S
52														N₂											S
53				N₂																					S
55												N₂													S
56							N₂																		S
57				N																					H
Columnar-celled Carcinoma: 24-hour Series.																									
47	X				X																				S H
54							X																		H

N.B.—Some cases are omitted from the above series because the patient refused further examination, and a few because no section was obtained before treatment.

Explanation of Signs.—0 = No change found. (X) = Slight changes found. X = Marked changes found. [‡‡] = Growth scarcely recognizable. N = No growth found. P M = Section obtained *post mortem*. H = Section obtained from hysterectomy. S = Section obtained from snipping. The small figures 2 and 3 denote date of second and third doses respectively.

For amount of radium used see text.

Large nuclei were observed in 3 cases and were usually accompanied by a great increase in the amount of cytoplasm. They were deeply staining and had irregular and often "blurred" outlines. Although such nuclei are occasionally observed in untreated growths, and were undoubtedly seen in one of these cases, yet there is no question that they occur much more frequently after irradiation.

Small round-celled infiltration to a greater or less amount was always found before irradiation at the spreading edge of the growth or between the finger-like processes. In sections taken nine weeks after treatment it was still found, but later than this was no longer present. It is remarkable that the absence of small round-celled infiltration seems to correspond with the presence of the later type of nuclear change mentioned above.

Polymorphonuclear cells were usually found in a breaking down core of a growth, whether it had been irradiated or not. They were seldom seen at the spreading edge of the growth, except in relationship to an ulcerated surface. Occasionally polymorphonuclear cells were seen included in a new growth cell before irradiation, but on three occasions, varying from three to five weeks after treatment, this intracellular invasion was a prominent feature.

Fibrosis was found to be increased in all cases after treatment, especially near the position previously occupied by the radium, as shown by the Indian ink preparations. In the early stages there is a greater number of fibrous tissue cells between the muscle fibres independently of the proximity of new growth. As time continues muscle strands are less frequently met with and may be seen separated by masses of fibrous tissue fibrils. In the later stages no muscle at all, nor nuclei of any cells, are seen, but the micro-anatomical structure of the uterus and its vessels—the latter being by this time thrombosed—is to be seen formed of a quantity of dense fibrous tissue in which relatively few elastic tissue strands are incorporated.

Encapsulation.—There was little or no attempt at the formation of fibrous capsules round the growth before irradiation. This was also the rule after irradiation in those cases observed before the eighth week; but in five cases observed on six occasions—at the eighth, ninth, tenth, fifteenth, and forty-ninth weeks respectively—there was a definite sheath of fibrous tissue encircling the growth islets. It is not clear whether this formation is a purposeful reaction on the part of the tissues or whether it is simply a mechanical arrangement of the fibres. It is to be noted that this period corresponds with the later type of nuclear change, and with the absence of small round cells.

Columnar-celled Carcinoma.

Columnar-celled carcinoma was found in two cases of the 24-hour series. These were irradiated on one occasion only before hysterectomy. Growth was found in these two cases five weeks and nine weeks respectively after irradiation. In both cases the amount was much reduced, and in the second case to such an extent that it was only found in small isolated islets after several sections had been searched. The changes were of a similar nature to those found in the squamous-celled carcinoma.

ANALYSIS OF CLINICAL RESULTS.

A concise presentation of the clinical aspects of the cases seems to the authors to be a matter of some difficulty, for while a complete clinical note of each case might be of great value to those who are directly interested in irradiation, yet this is so cumbersome that it was considered that an analysis would be more acceptable to the majority of readers.

The analysis is based upon the effect of irradiation on the four cardinal signs and symptoms—that is, haemorrhage, discharge, ulceration, and induration—and also upon the effect on the length of life and general comfort of the patient, so far as can be estimated at the present juncture.

As the immediate object in view is to show the effect of irradiation on the cervix, those cases in which hysterectomies have been performed are necessarily omitted from this analysis, but are included in the histological investigations.

Analysis of 8-hour Series.

Reviewing first the 8-hour series, we find that there were 14 cases treated, and of these 5 had hysterectomies performed, leaving 9 inoperable cases for analysis, but detailed information of subsequent history could not be obtained from 3 of these.

Length of Life.—Of these 9 cases, 2 (Nos. 4 and 8) have been treated for twenty and eighteen months respectively, and are still living. One of these cases (No. 4) is extremely well, and able to do her daily work; in her own words, she "has taken on a new lease of life." On vaginal examination it is found that the walls have become densely adherent, making it impossible to see the cervix. Per rectum there is some thickening to the left and to the front of the rectum. It is doubtful whether this is fibrous tissue or new growth. This patient, however, was found to have a fresh nodule of growth in the vagina after fifteen months. This was treated with 66.3 mg. of radium element for 24 hours, and at the same time deep irradiation was done by Daels's method. The second patient (No. 8) was very much improved for fifteen weeks, but is now not doing well, and when last heard of was rapidly going downhill. Of the remaining 7, 1 lived three, 1 sixteen, and 2 nine months respectively; 1 died of septicaemia within a few weeks of the insertion of radium, and 2 were notified as having died about four months after treatment began.

Haemorrhage.—Of the 5 cases in which this symptom was noted, haemorrhage ceased entirely after treatment in 4, and in 1 the amount was diminished.

Vaginal Discharge.—This cleared up entirely in 1 case, and was diminished in 4.

Ulceration.—This cleared up entirely in 2 cases, was diminished in 2, and remained the same in 1.

Induration.—It is always difficult to gauge how much of the induration present is growth and how much fibrous tissue caused by infection or as a result of treatment. In no case has the induration entirely cleared up, but in 1 case it was markedly diminished, in 2 somewhat diminished, in 1 somewhat increased, and in 1 remained the same.

Summary.—Two cases were decidedly improved, 2 cases slightly improved, in 4 cases there was no alteration, and 1 case died shortly after treatment.

Analysis of 24-hour Series.

Reviewing now the 24-hour series, one finds that 41 cases were treated, and of these 13 had hysterectomies performed, and 2 of the remaining cases have been treated so recently (within three months) as to be of no value in discussing results. This leaves 26 inoperable cases for analysis in detail.

Of these 26, 10 have died, 1 could not be traced, 15 are still living after periods varying from four to sixteen months, and in 7 of these treatment was commenced more than twelve months ago. Of these 15, 4 are deserving of special remark. One (No. 49) was treated with deep x rays by Dr. Finzi after one application of radium. Another (No. 23) is extremely interesting. After one application, she was considered to be too advanced for further treatment. It was, therefore, a very great surprise to find that six months later she had entered another department of the hospital and had undergone an operation for gall stones. Some months after the treatment she developed a vesico-vaginal fistula, the edges of which are at the present time composed of healthy-looking epithelial tissue. She is still alive more than twelve months after treatment and appears to be in good health. One case (No. 21) is still living after sixteen months, and feels extremely well; the local condition shows the vagina walls to be somewhat adherent, but on separating these the cervix is revealed as an atrophied nodule of fibrous tissue. There is some induration in the fornices. Another (No. 17) has been under treatment for thirteen months, is extremely well, and doing her daily work. Of the remaining 11, the majority were markedly improved for a time, but some now seem to be on the downward grade. Of the 10 who died the term of life after treatment varied up to fourteen months. In nearly every case the patient had a considerable amount of growth in the parametric

tissue and glands, which in 2 cases caused intestinal obstruction.

Haemorrhage.—This symptom almost invariably yields to treatment, and we find that it usually ceases within a week or so of the first irradiation. It ceased entirely in 22 of the 25 cases; in 2 others it was absent for a time but recurred. In 1 case it was diminished.

Vaginal Discharge.—In 11 cases discharge disappeared entirely; in 2 it ceased but recurred, and in 12 it was not diminished.

Ulceration.—In 10 cases ulceration cleared up entirely; in 2 it disappeared entirely but recurred; in 6 cases it was diminished, but never entirely disappeared. No change took place in 7 cases.

Induration.—Induration was markedly diminished for a time in 1 case. This was the one referred to above, which was treated by Dr. Finzi by means of deep x rays. Induration was slightly diminished in 3, markedly increased in 3, and not altered in 17. In 1 case it was markedly diminished for a time but increased later.

Summary.—Of the 25 cases traced, 13 are still living, and 3 remain well after more than a year. Definite improvement was made in 13 cases, slight improvement in 10: in 1 treatment seemed to have no beneficial effect whatever, and in 1 pain was actually increased.

DISCUSSION OF RESULTS.

The present-day knowledge concerning the action of irradiation and results hitherto published appear to the writers to be quite inadequate to justify any discussion as to the relative merits of this form of treatment as compared to operation, and the majority of people in this country agree that at present radical operations should be performed for carcinoma of the cervix wherever that procedure is possible, whether or not irradiation is employed in addition. Nevertheless, the most optimistic of surgeons cannot but deplore the small number of cases that can be said to be cured, considering the prevalence of the disease. It is therefore essential that we should no longer resign ourselves to this hopeless state of affairs, but should investigate fully any method which offers hopes of bettering the present conditions. It must be remembered that the treatment by irradiation is, comparatively speaking, in its infancy, and therefore, in spite of the promising nature of the results so far obtained, we must not, at present, expect to effect permanent cures. As has been seen, certain changes, such as the local disappearance of the growth, cessation of haemorrhage, diminution of discharge, and healing of the ulceration, have been observed, striking differences having been noted between the 8- and 24-hour series. These facts promise to be of value in helping to discover the laws governing the biological effect of irradiation, without the knowledge of which it is extremely improbable that any true progress in the treatment is likely to result.

Histology.

Before discussing the histological results in detail, it is necessary to bear in mind certain preliminary considerations.

First, it is usual to find in untreated carcinoma a greater or smaller number of cells undergoing degenerative changes; but whilst it might seem that these changes would vitiate the conclusions arrived at on the effect of the irradiation, yet a careful comparison of the sections before and after treatment will leave no doubt that these are due to the radium.

Secondly, a series of "snippings" in any one case may differ from one another, because the conditions of sepsis, blood supply, distance from the situation previously occupied by radium, and relation of surrounding tissues are not the same for each successive piece taken. Nevertheless, if all the changes observed trend in the same direction, it is impossible to believe that they are due to any such chance causes. Further, in the 8-hour series no striking differences were observed after treatment, except in one case, whereas in the 24-hour series a very different state of affairs exists.

Thirdly, in those cases where growth is absent after treatment it is possible that it may not have been included in the material obtained. The fact, however, that growth was always present after treatment in the 8-hour series (except possibly in one case), and absent in over 60 per cent. of cases in the 24-hour series, makes it extremely improbable that this can often have occurred.

The quantity of radium in most of the cases has been kept a constant factor. The time of application has been eight hours or twenty-four hours in the two series respectively, so that the amount of irradiation of the tissues in the two series is in the proportion of 1 to 3. Marked differences were obtained in the two sets of cases, and we are of opinion that irradiation for eight hours is wellnigh useless, even if repeated on as many as three occasions; whereas even one exposure for twenty-four hours has a very marked effect, and has not infrequently led to the complete local disappearance of the growth.

Although it is impossible to obtain accurate measurements of the energy at any one point in the pelvis, owing to the method of distributing the radium, yet it is obvious that the energy received by all parts of the cervix must be of very great intensity compared to that received by the iliac glands, where the action of the inverse square law comes into play. Consideration of these facts explains why no growth can be found in the cervix, but is present and apparently unaffected in the iliac glands.

The only change after treatment which can be shown to have any degree of constancy in the 8-hour series is the appearance of large cells containing large deeply staining nuclei with irregular outline. This has been seen only in the first and second weeks after irradiation, and is probably to be regarded as a degenerative process.

In the 24-hour series the most striking change is the disappearance of the growth from the cervix in over 60 per cent. of cases of squamous-celled carcinoma. As is to be expected, this does not take place immediately; the earliest date on which it was observed was three weeks after irradiation, and this was in a case where the whole uterus was examined. It is not possible to say how long carcinoma cells can persist after treatment, but it is interesting to note that evidence of new growth débris was present in a section taken forty-nine weeks later. In those cases where new growth can yet be found, it is present in greatly diminished amount and shows marked degenerative changes. Consideration of these cases leads us to frame a tentative hypothesis of the stages through which the cell may proceed to its doom.

In discussing the sequence of events it is necessary to bear in mind the physical conditions present in the irradiated area. The cells closest to the radium receive the greater amount of energy, and those further away receive less, both because of the increase in distance and because a certain amount of energy has already been absorbed. When a large amount of radium such as we have used is left *in situ* for twenty-four hours it seems as if the radiations were sufficient to cause immediate death of all the cells in close proximity, thus giving rise to the picture of coagulation necrosis, which in turn disappears within a few days as the débris is removed. In the zone beyond this the irradiations do not seem to have an immediate lethal effect, but about the third day the cells show a breaking up of the chromatin into droplets accompanied by an enlargement of the cell itself, and sometimes by a breaking up of the cytoplasm into a number of small masses. Still further beyond this zone a large number of cells show marked activity on the third and fourth days. Mitoses are much more frequent than in the original growth, but they are almost entirely of a degenerate nature. They may be multipolar or may show granulation and fragmentation of the chromosomes, or the chromatin may have disappeared from the cell leaving only the spindle figure. The observations on which we have based this hypothesis of the stages in the first four days is in accordance with those published by A. Lacassagne and O. Monod (*Arch. Franç. Path. Gén. et Exp.*, 1922, Fasc. I, p. 28), but we are not so far in entire agreement with regard to his interpretation that the *principal mode* of death is degenerative mitosis. When discussing the matter with M. Lacassagne, he pointed out that there

was a considerable difference in the technique of irradiation employed by him, which fact may account for our interpretation. We are, however, further investigating the changes that occur within the first few days.

From the seventh day onwards there is apparently no attempt at multiplication by mitosis, and we have no evidence that multiplication in any form takes place. The nucleus, on the other hand, assumes strange forms; there is often an increase in size accompanied by an increase in cytoplasm and sometimes very large forms are seen. The outline is irregular and the nucleolus is often deeply stained. Later mottling or even vacuolation (sometimes the vacuoles are of large dimensions) is seen, followed in some places by a gradual loss of staining power whilst the nuclear form is still maintained. The cytoplasm itself is usually increased in quantity, and occasionally shows vacuolation. The tissues around are heavily infiltrated with small round and plasma cells, as before treatment, and in addition there is usually an increase in the amount of fibrous tissue. These appearances last up to six or eight weeks, towards the end of which time the cells, if they have not already disappeared, become difficult to find owing to their paucity. After this stage it seems that the cells entirely vanish from the tissue, except in a few cases where another process seems to be at work, which for want of a better expression we have termed "embalming." Whereas in the former case the cells seem as if they were dissolved and their remains removed, in the present case they appear to remain collected together in their original alveolar forms. The nuclei are sometimes to be recognized by their spherical outline and staining properties, but generally, and especially in the later observations, no nuclear structure is to be seen, and the islets consist of an unorganized mass, often concentrically laminated. These can only be regarded as remains of new growth because (1) they are bodies entirely foreign to the normal cervix; (2) they can be traced in a series of cases through the various stages from unquestionable carcinoma. In this embalmed state there is an entire absence of round-celled and plasma-celled infiltration around, suggesting that the growth is no longer capable of causing cell reaction, and is dead. The islets are often embedded in a mass of dense fibrous tissue or may have muscle tissue in close proximity, but usually there is an attempt at fibrous tissue encapsulation round them. From their staining properties these masses appear to be heterogeneous, but there is evidence that their outer portions contain myxomatous material.

Judging from the observations in one case which was examined fifteen and forty-nine weeks after irradiation, it would seem that when once the cells have reached this advanced stage these masses appear to be relatively permanent.

CONCLUSIONS.

Clinical.

1. These are in accord with the general experience of others in recent years, that in the majority of cases patients suffering from carcinoma of the cervix cease to have haemorrhage, vaginal discharge, and ulceration after treatment with radium. Further, that in some of those cases which are inoperable, life is prolonged and the patients are enabled to lead useful existences. It would be premature at the present juncture to talk of cures.

2. That the preliminary application of radium in those cases which are operable causes the disappearance of fungating growths or ulcers, so that the risk of infection and of implanting new growth from the cervix at the time of incising the vagina wall is markedly diminished.

3. There is no doubt that the application of 173.6 mg. of radium element for twenty-four hours is markedly more efficient in bringing about this result than the same amount applied for eight hours, even when the latter is given on as many as three occasions.

4. That since histological evidence of the efficacy of Daels's method of irradiation of the pelvic glands is impracticable its value is still *sub judice*, as it depends upon clinical evidence.

Histological.

1. That the introduction of 173.6 mg. of radium element into the cervical tissue for twenty-four hours is capable of causing a complete disappearance of the growth from the cervix within a few weeks, whereas the same application for eight hours produces little or no effect in the quantity or appearance of the growth.

2. That definite series of changes in the carcinoma cells can be demonstrated after irradiation, leading up to the destruction of the cell.

3. That little or no effect has been produced in affected iliac glands when the cervix is irradiated.

4. That as changes in the malignant cells take place before the formation of fibrous tissue, the latter is not the causal agent in the disappearance of growth.

5. That the carcinoma cells are more vulnerable than the uterine musculature, but that in the latter local atrophy and fibrosis take place at a later date.

Our thanks are due to the Medical Research Council and the Radium Committee of St. Bartholomew's Hospital for the facilities given us in carrying out this research; to Dr. Williamson and Dr. Barris for allowing us to irradiate some of their cases and to include them in this series; and to many others for their valuable assistance, but especially to Dr. T. S. P. Strangeways for the whole-hearted manner in which he has given us his assistance and advice.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TONGUE SYMPTOM IN ABDOMINAL SEPSIS.

I WOULD like to call attention to a symptom which I have been accustomed to seek in all cases of abdominal disease, and which has not once failed me during many years of practice. I refer to a definite smell in the tongue, which I find present in all cases where pus is present in the peritoneal cavity. I do not refer to the smell of the breath but of the tongue itself. I find the smell varies from the distinct smell of pus to an actual faecal odour, sickening to the observer.

I am unable to find any reference to this symptom in books on surgical diagnosis, but have notes on cases extending as far back as twenty-five years in which I have used this symptom and verified its accuracy by operation. We know how rapid is the absorption from the peritoneum, and it appears to me that the tongue gives the first indication of this absorption. Among many cases of which I have notes I mention only three.

Case 1.—A female child had pain in the appendix area, and was sent into a nursing home at once. The temperature was not raised. There was slight rigidity of the abdominal walls. No vomiting. I noted that the tongue smelt very offensively. Operation at once. Perforation of adherent appendix, with offensive fluid in peritoneal cavity.

Case 2.—Adult, male. History of two days' illness. Pain not severe. Slight rigidity of abdominal walls. Temperature raised. Tongue smelt faecal. Operation at once. Appendix gangrenous; pus and gas in the peritoneum.

Case 3.—Seen in consultation. Adult female. History of obscure pain in left side of pelvis. Definite swelling extending upwards for three inches above iliac crest. Per vaginam tense swelling to left of uterus. The tongue very offensive. Gave advice for immediate operation as I was sure that there was pus in the peritoneal cavity. Operation two hours later. On opening the abdomen in the middle line we found a large collection of pus walled off. The pus had originated in the left broad ligament and ruptured into the peritoneal cavity, becoming walled off by adhesions. Over twenty ounces were evacuated. Recovery was uneventful.

I have tried testing this symptom by getting the patient to gargle and wash out the mouth, but in every case the smell of the tongue remained. In most cases I have noted that the tongue was not covered with fur; usually it is dry and beefy-looking.

I would be very interested to know if others have observed this symptom, which I have learned to rely upon with much confidence.

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British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

ASSAM BRANCH.

AT the annual general meeting of the Assam Branch of the British Medical Association, held at Haflong on January 7th, with Dr. WINCHESTER in the chair, a number of interesting papers were read.*

The Health of the European Community in Assam.

The CHAIRMAN read a paper by Dr. C. E. P. FORSYTH, entitled "Notes on conditions affecting the health of the European community in Assam." Dr. Forsyth was of opinion that prior to the engagement of a young assistant for work in Assam tea-gardens, expert medical examination at home was essential. While sufferers from the more obvious disabilities had not been engaged to any great extent for tea-garden work, yet it had been different in the case of those affected with, for example, the minor psychoses, and Assam was no place for the treatment or cure of "shell-shock" or similar conditions. Dr. Forsyth considered that tea companies should not, unless in exceptional circumstances, engage married men new to the country as assistants, nor should directors permit marriage until a man had at least completed his first five years, when he should be in a position to decide for himself. Women withstood life in the tropics or subtropics much less easily than men, although conditions in Assam could, in a general way, compare favourably with those prevailing in many other parts of the East. The strain of life for women in Assam fell especially and prejudicially on the nervous system, and continued residence led to nervous irritability, insomnia, and neurasthenia. Infants did well in Assam, and flourished up to about the age of 3 years, and their removal to the hills in the rains was unnecessary. After the age of 7 or 8 the risk of physical deterioration and mental detriment was markedly great, and after that age home was called for. A certain amount of monotony in regard to food could scarcely be avoided, and alcohol other than a whisky and soda at sundown, or with the evening meal, was unnecessary and to be avoided. In regard to special measures against particular diseases, one important matter was the use of quinine as a prophylactic against malaria. Dr. Forsyth's opinion was that 5 grains of quinine given daily in all ordinary circumstances was the optimum prophylactic dose.

Progress of Kala-azar Work in Assam.

Lieut.-Colonel T. MCCOMBIE YOUNG, I.M.S., Director of Public Health, Assam, read a paper on the progress of kala-azar work in the province of Assam in general and in Sibsagar in particular. He said that Assam was for some unknown reason *par excellence* the home of kala-azar, while the terrors of bubonic plague were unknown. The older residents of Assam told gruesome stories of the appalling mortality formerly, and in the eighties and nineties epidemics of kala-azar swept up the Assam valley. For the last twelve years the importance of vigilance with regard to the prevalence of the disease had been urged by the Government health advisers, and as a result a touring staff of subassistant surgeons had been maintained to watch its activities during the quiescent period. In 1917 a new focus of the disease came to light in the Sibsagar subdivision, and in 1919-20 there was an extensive recrudescence of the disease in the endemic areas previously traversed. Providentially for Assam, treatment by the intravenous injection of tartar emetic had recently been introduced into India by Sir Leonard Rogers; in 1921 nearly 16,000 kala-azar patients were treated by this method, and in 1922 (excluding December, the returns for which had not yet been received) 16,778 patients had received treatment. Lieut.-Colonel McCombie Young gave details of outbreaks at Reoti-Kopohua and Hudupana, and expressed thankfulness for the introduction of intravenous tartar emetic. In what other disease, he asked, was there a 95 per cent. cure for a disease the mortality of which was otherwise 90 per cent.? During the present year the total of patients treated would be, he said, nearly 20,000, and Assam within the last two years owed to modern medicine and the Government organization which had placed that treatment within reach at least some 23,000 lives.

The Calcutta School of Tropical Medicine.

Major R. KNOWLES, I.M.S., Professor of Protozoology in the Calcutta School of Tropical Medicine, gave a lantern lecture on the school and its programme of research. Major Knowles detailed the early history of the school and its struggle for existence, and said that it represented and would ever constitute the finest memorial to the genius and the determined obstinacy of Sir Leonard Rogers. The completed scheme incorporated four separate but mutually dependent institutions, functioning under a single director as head: the School of Tropical Medicine proper, the object of which was post-graduate teaching and research work; the Institute of Hygiene, with which were incorporated the public health laboratories; the six special research laboratories, which were added to the scheme by public subscription and were financed by the Indian Tea, Jute Mills, and Mining Associations, the Indian Research Fund Association, and by public and private subscriptions; and finally, the Carmichael Hospital for Tropical Diseases, which at present held 98 beds, but which it was hoped to increase to 114 beds. In regard to kala-azar, co-operative work was being carried on by four departments. The most easily applied method of diagnosis was by spleen puncture, and in 463 consecutive cases of fever and enlarged spleen seen at the school, no less than 300 proved to be kala-azar on spleen puncture; much of the so-called malaria of Bengal was really kala-azar. In regard to treatment, the intravenous administration of sodium antimony tartrate was regarded as the sheet anchor; stibenyl had been found disappointing. The question of how kala-azar was transmitted from man to man was, in Major Knowles's opinion, the most puzzling and most important unsolved problem in tropical medicine. He believed that a domestic insect was concerned, and suggested, as those most worth considering, the bed bug, conorhinus, the flea, and the sandfly, but those were speculations only. Turning to the consideration of malaria, research work was being carried out by Major Acton in conjunction with Major Chopra. With regard to quinine treatment, the intravenous administration had the most rapid and the most immediate effect upon the clinical symptoms, but it did not prevent relapse and was not entirely free from risk; intramuscular administration had its uses, but administration by the mouth remained the most important method. The effects of the other alkaloids contained in cinchona bark were being studied, and Major Acton had already pointed out the value of quinidine in quartan and benign tertian malaria, in which it was six to ten times more efficacious than was quinine. The ordinary plain cinchona febrifuge, which consisted of the total alkaloids *minus* the extracted quinine, was a more effective remedy for malaria in general than was quinine. Much useful work was also being done in the school on the dysenteries, and the treatment of amoebic dysentery had become almost standardized. After the diagnosis had been confirmed the patient was given a six-day course of combined hypodermic and oral emetine; one grain of emetine was given each morning by injection, and, if the patient could tolerate it, two or three grains of bismuth emetine iodide in keratin or salol coated pills, preceded half an hour earlier by 1/6 to 1/8 grain of omnopon; after the sixth day the patient was taken off all treatment, except perhaps liquid paraffin for any constipation, and if clinically well he was discharged; but for at least once a week for eight weeks his stools were examined for *E. histolytica* or cysts, and, if necessary, the six days' course was repeated. Major Knowles also discussed the Indian dietetic diseases on which research was being done, such as lathyrism and the epidemic dropsy of Bengal; and the research work was described that was being carried on in ankylostomiasis, leprosy, tropical skin diseases, and indigenous Indian drugs.

* A full report has been published in the printed *Proceedings* of the Branch.

Reports of Societies.

SURGERY OF THE BILE PASSAGES.

A MEETING of the Section of Surgery of the Royal Society of Medicine was held on June 27th for a discussion on the surgery of the hepatic and common bile ducts. A report of Dr. WILLIAM J. MAYO's opening paper appears at page 7.

Sir BERKELEY MOYNIHAN commenced his speech by paying a graceful tribute to the pre-eminence in the surgery of the bile passages of his friend Dr. William J. Mayo. Secondary, tertiary, or multiple operations upon the biliary system might be made necessary by a variety of causes. Chief amongst these were the nature and condition of the disease, its complications and remote effects, and imperfect primary operations. There were two factors bringing about the formation of stone—infection reaching the bile channels, and an increase in the cholesterol content of the blood. An infection might reach the gall bladder from several directions—from the blood stream, the bile, by the lymphatics, from the common duct, infected in its turn from the duodenum, or by contiguity. But such an infection might not be primary in the organ from which it was immediately derived. A search for infective lesions should therefore involve a scrutiny of the whole body. Failure to do this might mean a recurrence from stones in the gall bladder, the liver, or its ducts. Cholesterol was known to be present in excess in the blood in certain circumstances. In pathological conditions other than cholelithiasis or cholecystitis low or normal values were usually found. In uncomplicated cases of cholelithiasis the cholesterol blood content tended to be high. In 60 per cent. there was hypercholesterolaemia; although in the remaining 40 per cent. the cholesterol content of the blood was normal, in three-quarters of these cases high normal values had been obtained. In all cases of cholelithiasis a marked fall in the cholesterol content of the blood was observed after operation. In some cases re-examination afterwards showed a subsequent rise, sometimes progressive. These people were continuously hypercholesterolaemic; usually, however, after operation the cholesterol content of the blood fell to normal. It was the speaker's practice not to allow the following articles of diet after operation: Yolk of egg, brains, kidneys, sweetbreads, liver, goose and duck, pork and game, fat, stewed and fried meats, cream and cheese, fresh fruit and green vegetables (for three months), butter (only in small amounts if at all).

Recurrence of symptoms after operation might depend on a number of circumstances. Stones might be overlooked or left behind in any part of the extra-hepatic ducts, including the ampulla of Vater. Frequently the common duct was obviously, even grossly, dilated. The question of how best surgically to diagnose a stone in such a duct was one which surgeons answered differently. The enlargement of glands along the duct, the presence of large nodules in the head of the pancreas, might cause one to be almost confident that a stone was present. The speaker emphatically disagreed with the opinion that in such circumstances the duct should be opened and explored. A probe or even a small scoop could miss a calculus of good size, particularly if it were in a little pocket aside from the main channel of the duct. By far the best method of decision was to place the first and second fingers of the left hand through the foramen of Winslow and the thumb in front of it, and to palpate the duct and compress it between finger and thumb. To an expert hand the smallest fragment of stone would be apparent after the duct had been emptied of bile. When a stone concealed in the ampulla of Vater had been overlooked at the primary operation the duodenum should be opened and McBurney's or Kocher's operation performed. When it was not necessary to open the duodenum the dilatation of the lower part of the duct from above was a most useful procedure. It might be effected by the passage of probes of the type suggested by Mayo, or by the passage of a rubber catheter through the duct into the duodenum.

Another imperfection of operation was to provide inadequate drainage for the particles of grit which were sometimes left in the lower intrahepatic ducts or in the hepatic or common duct. He strongly disagreed with the practice of immediate suture of the duct after choledochotomy. In every case of obstruction of the common duct by a calculus there was cholangitis; often there was mud or sand in addition to the larger stones. With a large solitary stone of recent descent from the gall bladder immediate suture might sometimes safely be performed. He made it a rule to drain the hepatic duct in all cases of multiple stones. For patients who were gravely ill he often used the method of McArthur of passing a catheter down the duct into the duodenum for the purpose of giving liquid nourishment. Narrowing of the common duct was for the time overcome and drainage was effected. He gave through the tube 5 per cent. to 15 per cent. solution of glucose with a little sodium carbonate by the "drip" method, interrupting the steady flow every three or four hours to give a meal of peptonized milk, beaten eggs, etc. As much as ten to twelve pints of fluid might be introduced during the day; the tube remained in for ten days to a fortnight.

Irrigation of the intrahepatic ducts was sometimes necessary in cases in which the ducts contained great quantities of mud. If typhoid organisms were found in the bile the administration of urotropine by the "thump" method was advisable; 30 grains of acid sodium phosphate in one pint of water were taken during the day, and at night a single dose of urotropine, beginning at 30 grains and increasing to 60 grains, was given. At the end of a week a respite of a few days was allowed and alkalis given; the administration of urotropine was again commenced and again interrupted. In cases of primary cholecystectomy failure to divide the cystic duct at the proper place might be responsible for disaster. There were many anatomical variations. The inviolable rule in the surgery of the gall bladder and of the common duct was to "see exactly what you are doing, and until you see, do nothing." If a part of the hepatic or common bile duct was removed it should be immediately repaired. Sir Berkeley Moynihan considered the question of the operation of choice in a case of cholelithiasis with stones in the gall bladder and common duct. He advocated removal of the gall bladder at the time when the common duct was emptied of stones.

An important group of cases was that of involvement of the pancreas with cholelithiasis. Whether the infection reached the pancreas via the lymphatics or the common duct was still undecided. In any case, it was better to remove the gall bladder than to drain it. Cholecystectomy was beginning to displace cholecystenterostomy in the treatment of chronic pancreatitis. Cases sometimes occurred in which an enlarged, hard, oedematous head of the pancreas, by pressing on the common duct and compressing it, caused stagnation of the bile, cholangitis, and typical symptoms of calculous obstruction. In such cases the T-shaped tube of Kehr might be used to drain the hepatic duct intermittently; or better, two catheters might be introduced, one draining the hepatic duct and the other passing downwards into the duodenum and affording a channel for nourishment.

All the operations upon deeply jaundiced patients raised two questions—that of hepatic insufficiency, and of its avoidance, if such be possible, by an adequate preliminary preparation of the patient; and that of post-operative haemorrhage. The symptoms due to the failure of the liver were apt to come quite unexpectedly. The operation had perhaps presented no unusual difficulties, and the patient left the operation theatre in good condition. For a few days all went well; then one of two events attracted serious attention. The amount of bile discharged might suddenly diminish, or almost cease; jaundice deepened slowly; the pulse became slower; the mind was clouded; nourishment was sparsely taken or refused—when it was well taken vomiting began; the amount of urea in the blood steadily augmented, the patient grew rapidly weaker and died after a period of coma. In these cases, as Walters had shown, it was renal failure consecutive to hepatic failure that caused

death. Or the picture so well described by Walters and Parham might be seen:

"Clinical picture of hepatic insufficiency. Usually the first two to eight days after operation the course is uneventful; biliary drainage and urinary output are normal, fluids are taken well, the pulse and temperature are normal. One of the first signs of the onset of trouble is paling and thinning of the bile with marked increase in the flow. This profuse cholerrhagia does not continue long, but the bile remains thin. The patient begins to grow weaker, the pulse loses volume, and the temperature becomes subnormal. Restlessness and irritability develop, with great fatigue and muscular weakness. Soon regurgitant vomiting follows intake of liquids by mouth and little taken by rectum is retained. Jaundice does not deepen markedly, but there is an increasing pallor beneath the icteric hue, the face becomes drawn, and the eyes anxious. The patient grows progressively weaker and finally dies. The urinary output remains proportional to the fluid intake throughout, and the urine reveals little or no evidence of marked nephritis. The blood urea remains persistently low."—(*Surgery, Gyn. and Obst.*, 1922, xxxv, 605.)

Post-operative haemorrhage was due to the reduced power of coagulation of the blood, and this depended probably upon a lack of calcium salts. The deficiency of these was made good in two ways—by direct transfusion of blood or by the intravenous administration of 5 c.cm. of a 10 per cent. solution of calcium chloride on three successive days, as advised by Walters, and by Lee and Vincent. The giving of calcium salts by the mouth even in colloid form had little effect, when it had any, upon the calcium content of the blood. The coagulation time of the blood might be brought down to the normal or to the near neighbourhood of the normal by the intravenous administration, and the operation carried out at the appropriate moment. In all these cases it was necessary to administer as much glucose as possible by the mouth, and by the rectum; and at the operation to take every care to ligature the smallest vessels. It might sometimes be prudent to postpone the removal of the gall bladder because of the slow but unceasing weeping of blood from the denuded surface of the liver which sometimes followed upon cholecystectomy. Secondary operations upon the biliary system were among the most difficult tasks in surgery. To obtain the best results all the highest qualities of the surgeon were called into play: courage, resource, patience, accuracy and rapidity of judgement, fine craftsmanship, and a tranquillity of mind and action that nothing could disturb.

Mr. JAMES SHERREN's remarks were based on his personal experience in the operative treatment of 600 patients with gall stones, in 113 of whom the stones were in the common or hepatic ducts. He pointed out that these complications were due to a failure of efficiency in the earlier stages; they were usually entirely unnecessary complications of gall bladder disease. Save in very rare cases stones did not form primarily in the ducts. He did not believe that, in the operative diagnosis of stones in the common duct, palpation was enough. If the surgeon were suspicious of a stone in this position the duct should be opened. In operating for obstructive jaundice a two-stage procedure was recommended. In ordinary cases he advocated removing the stone or stones and the gall bladder. Prognosis depended on the presence and degree of jaundice and infection. Cholecystectomy for stone confined to the gall bladder had a death rate of less than 2 per cent. In the series of common duct cases in the absence of jaundice there was a mortality of 2.5 per cent.; with severe jaundice it was as high as 27 per cent.

Mr. G. GREY TURNER emphasized the need of great care in the performance of cholecystectomy—which had a direct bearing on the surgery of the common duct. The cystic duct ought never to be divided, he said, until both the hepatic duct and the common duct were seen, and during every such operation the removed gall bladder should be carefully examined, so that if there was any suspicion of the main duct having been injured the site could be exposed and the damage repaired while the lesion was fresh. Although some such injuries might fortuitously recover with restoration of function, in his experience the tendency was more often towards obliteration or stricture, and he gave notes of four such cases. Surgical literature had latterly been filled with accounts of operations for the restoration or reconstruction of the bile ducts, which was suggestive that these surgical injuries were more frequent than the published cases would lead them to suppose. In dealing surgically with the larger bile ducts certain facts had to be borne in mind. (1) The ducts were elastic and not only retracted when divided, but their ends actually contracted, thus favouring obliteration. (2) Except when fixed by inflammation they lay loosely among the tissues, which formed a natural sheath and protection for them. Haemorrhage and extravasated bile tended to be confined or conducted by these natural sheaths, and the former aided in the obliterative process. (3) The mucous membrane of the ducts had great recuperative power, tended to grow out along the duct, and was very helpful in bridging a gap or making up deficiency. (4) Ducts did not atrophy appreciably or become obliterated as a result of disuse—these were happenings which depended on inflammation. In the light of these considerations it was clear, he believed, that the most important point in the repair of ducts was to secure approximation of the ends, but not necessarily exact apposition. Too many sutures and too much nicety in suturing were very apt to cause narrowing. The suture line should be the widest part of the duct, and in order to secure this it might be necessary slightly to slit up one end of the duct. Any type of vertical incision through the rectus would give a sufficient exposure provided it was carried right up to the epigastric angle. The use of the Robson position had become well established, but the reversed Trendelenburg posture did not seem so well known, though it had proved very helpful. His experience had taught him that when there had been symptoms pointing to an obstruction or infection of the common duct the latter should always be opened. Small stones, soft stones, and detritus might very readily be missed if external palpation alone was depended on. He never concluded an operation on the duct without passing a sound, and he preferred the female bladder sound with a diameter of three-sixteenths of an inch, through the duct into the duodenum.

Mr. A. J. WALTON dealt with that difficult group of cases in which some form of reconstruction of the common bile duct was necessary. First came the case in which injury had been caused by an operation for cholecystectomy. The many variations in the origin and course of the cystic artery and in the length and position of the cystic duct were responsible for many errors. In the older days when it was more common to commence a cholecystectomy at the fundus of the gall bladder, the common bile duct might easily be pulled up in a loop by tension on the cystic duct and a portion completely resected. As the result of inflammatory adhesions, Hartmann's pouch of the gall bladder might be drawn down and firmly attached to the side of the common bile duct, and this again might be a source of error. The only way to avoid these mistakes was to make a very definite rule that in performing cholecystectomy an incision should first be made in the upper part of the gastro-hepatic omentum and that nothing should be divided until all three ducts were exposed. Congenital absence of the cystic duct was fortunately very rare. When a cholecystectomy was done with this condition present a portion of the common duct was necessarily resected. In early pancreatic disease there might be present obstruction to the lower part of the common duct, and this might in time demand some form of reconstruction operation. Advanced cases of chronic pancreatitis and carcinoma of the head of the pancreas might be associated with the presence of white bile in the gall bladder and passages. The danger in these cases lay in the fact that if the gall bladder were aspirated the condition might be thought to be an obstruction of the cystic duct, and the common duct opened to settle the diagnosis. Frequently this resulted in a permanent biliary fistula. Carcinoma of the common duct was rare, as also was scarring and fibrous stenosis at the junction of all three ducts caused by an impacted stone. The operations for relieving these conditions were numerous. Direct suture was theoretically best, but was frequently very difficult. Suture round a tube was often followed by fistula formation. Without a tube leakage was common and stenosis was likely to occur. Lateral choledochenterostomy was not entirely satisfactory. These operations were gradually being superseded by direct or indirect inplantation into the duodenum. Direct inplantation into the duodenum, where possible, was the operation of choice. The proximal end of the duct was brought down to the duodenum and

anastomosed to a valvular opening in the wall of the viscus. Without a valvular opening, which was sometimes difficult to make, there was danger of infection from the duodenum and a suppurative cholangitis. He strongly advised an operation of indirect inplantation in which a new duct was formed out of a flap of duodenum. This method might be used either when the duct was completely divided or for the formation of a new lateral duct when the original passage was simply dilated above an obstruction.

PEDIATRICS.

THE BRISTOL MEETING.

A PROVINCIAL meeting of the Children's Section of the Royal Society of Medicine was held at Bristol on June 22nd and 23rd, with Dr. ERIC PRITCHARD in the chair.

During the first afternoon a demonstration of cases was given at the Bristol Royal Hospital for Sick Children, and a large number of interesting cases were exhibited.

Dr. O. C. M. DAVIS showed the following cases:

(1) A girl, aged 17, with marked cyanosis, clubbing of fingers, easily provoked dyspnoea, and polycythaemia. There was no cardiac enlargement, no abnormal auscultatory phenomena, and "no enlargement of the spleen."
(2) A boy, aged 9½, with ichthyosis and congenital heart disease. There was a systolic murmur and thrill with maximum intensity at the aortic area, and slow pulse suggesting aortic stenosis.
(3) A girl, aged 3½, with congenital absence of iris in both eyes.
(4) Three cases of mongolism—two with malformation of the ears, and the third with congenital heart disease.
(5) A boy who suffered from encephalitis lethargica three years ago, now showing after-effects of the paralysis agitans type.
(6) A girl, liable to severe attacks of bronchial asthma after food indiscretions, greatly relieved by benzyl-benzoate.

Dr. R. H. NORGATE showed four cases of congenital syphilis, one of which exhibited mixed gonococcal and syphilitic lesions, and one, a boy aged 10 years, wasted, with irregular fever, a large heart, systolic murmur and thrill all over precordium, and some considerable splenic enlargement. The diagnosis in this case appeared to be one of congenital syphilis and congenital heart disease, with superimposed subacute bacterial endocarditis.

Dr. E. C. WILLIAMS showed three cases:

(1) A case of consanguinity—the child of a brother and sister—subject to violent tempers, backward, with a bad circulation, malformation of ear, and exhibiting other signs of mental degeneracy.
(2) A girl, aged 15, with fibroid phthisis.
(3) A boy, aged 12, with peroneal type of muscular atrophy. Eight years previously the child was alleged to have been knocked down by a tramcar; wasting of the muscles below the knees has since followed. There is now wasting of muscles below the knees, some talipes equinus, and wasting of the small muscles of the thenar eminence of both hands. The reflexes are normal except for loss of Achilles jerks. Sensations and sphincter are normal.

Mr. HUBERT CHITTY showed cases which included the following:

(1) A case of myositis ossificans affecting the left arm. Sections show true bone invading the fascia and deep layers of skin.
(2) Congenital dislocation of the shoulder, the loss of power to rotate the arm outwards being dealt with by osteotomy of the humerus.
(3) A case showing the result of ankylosing a flail-shoulder due to infantile paralysis.
(4) So-called late rickets. The osteotomy fracture in this case remained ununited for months, but union occurred after local injections of collosol magnesium.
(5) A girl exhibiting numerous malunited fractures and with malunction of the skull—namely, "persistence of frontal groove, large thinly closed anterior fontanelle." X rays showed defective calcification. This case was labelled osteitis fibrosa, but the consensus of opinion of those examining the case was that it was one of osteogenesis imperfecta.

Dr. RICHARD CLARKE showed an infant with loose skin at the nape of the neck and swollen hands and feet due to lymphangiectasis; another with many large hairy moles on the body, face, and limbs; and a case of achondroplasia.

Mr. WILFRID ADAMS showed two cases of ectopic testis, inguinal, treated by orchidopexy; a case of ectopic testis, perineal, and a case of absent radius—both with a view to suggestions as to treatment; a case of haemophilic knee; two cases of Erb's palsy and fractured humerus, treated and cured; and a child of 2 years and 4 months with an ovarian dermoid cyst, in which acute torsion had taken place, followed by operation and cure.

Dr. GEORGE HALL showed a child of 3 years with hemihypertrophy affecting both bones and soft parts of the whole of the right side of the body.

Mr. L. N. MORRIS showed a case of tuberculous disease of the hip with large abscess and disintegration of head of femur, cured by fixation and repeated aspiration; a case of osteomyelitis of lower end of femur, with secondary streptococcal infection of knee-joint; several cases of deformed feet illustrating end-results of tendon transplantation; and a case of median fistula of the neck.

Owing to the large number of cases exhibited there was no time available for a formal discussion, and the meeting adjourned to the University of Bristol, where three short addresses were given: (1) Acute nasal sinus disease in young children, by Mr. E. Watson-Williams; (2) The Schick reaction and diphtheria anaphylaxis, by Dr. J. A. Nixon; (3) The clinical significance of certain urinary conditions in children, by Dr. O. C. M. Davis.

Mr. E. WATSON-WILLIAMS showed two cases in which he had operated for acute nasal sinus disease, both patients being 3 years of age. The onset was sudden, a week after severe colds, with redness and swelling of the whole cheek, and fever. Teeth, normal.

Case 1.—Right nasal discharge of offensive pus. Antral exploration with suction syringe: Right side pus, culture streptococci; left side clear, culture negative. Right intranasal antral operation. Subsequent daily lavage—cure (shown three and a half months later).

Case 2.—Nasal discharge reported, none seen. Right antrum contained pus, culture streptococci; left antrum clear, but culture streptococci. Right intranasal antral operation. Temporary relief (two months), but relapse has just occurred with bilateral discharge.

In his paper Mr. E. Watson-Williams briefly reviewed the anatomy, frequency, symptoms, diagnosis, treatment, and literature of acute nasal sinus disease in children, and pointed out that one must separate the acute maxillary osteomyelitis of infants, in which the antral infection was a small part of a graver condition, from antral sinusitis resembling that of the adult. Most cases were not seen in the acute stage. Chronic nasal sinus disease in even young children was becoming recognized as by no means rare. Occasionally cases were found with acute symptoms of suppuration. In operating, the small size and high floor of the antrum must be remembered, as also the proximity of the dental germs. From these anatomical considerations exploratory puncture through the middle meatus was preferable to puncture through the inferior meatus.

Dr. J. A. NIXON, in his paper on the Schick reaction and diphtheria anaphylaxis, emphasized some of the drawbacks and difficulties which might arise in the performance of this test. He mentioned the fallacies that might arise from errors of technique and deterioration of test toxin. He discussed the question of interpretation of results, dividing these into frankly positive, frankly negative, and pseudo-positive and pseudo-negative. He pointed out that while as a general rule this test distinguished the susceptible from the immune, yet exceptions did occur in which cases giving a negative reaction developed diphtheria; while certain cases with sufficient antitoxin in the blood gave a positive reaction. He quoted also certain cases that clinically and morphologically had diphtheria but gave a negative reaction, and other cases which showed that immunization would not always protect against massive doses of infection. As an indication of the value of the test and of the immunity that might be acquired from inoculation with toxin-antitoxin, he gave the results of an examination of 201 members of the staff of a hospital which had been suffering from an outbreak of diphtheria. Of these, 77 were positive or pseudo-positive and were immunized with toxin-antitoxin; the remaining 124 were negative, and of these 18 had had diphtheria. After immunization only 4 cases contracted diphtheria, and 2 of these were almost immediately following their immunization. In answer to the President and other members, Dr. Nixon said the test was of no value in children under 5 years of age; that it could not be utilized in the detection of carriers, the identification of whom must still be dependent on careful examination of nose and throat swabs; and finally, that it gave no evidence as to the virulence or avirulence of any infection, the estimation of which must depend still on animal experiment.

Dr. O. C. M. DAVIS read some preliminary notes on a research which he had been carrying out for four years in conjunction with Dr. F. W. Rixon. The remarks made referred to a possible mathematical relationship between urinary acidity and combined ammonia, as determined by Folin's method.

The amount of decinormal alkali required to neutralize 25 c.cm. of urine, using phenolphthalein as indicator, was referred to as Titration I, and the further amount of alkali required to react with the acid liberated from the neutralized urine by a neutral solution of formaldehyde was referred to as Titration II.

$$\text{"R"} = \frac{\text{Titration II.}}{\text{Titration I.}}$$

Dr. Davis pointed out that there was clinical evidence to show that in certain pathological conditions (quite apart from ketosis) the value of "R" was increased, and he considered that it was to some extent a measure of the physiological activity of the liver of the individual under observation. He thought that there was little doubt that many adults and children when in good health could maintain a fairly constant magnitude for "R," whereas others seemed unable to do so.

Reviews.

NON-SURGICAL DRAINAGE OF THE BILIARY TRACT.

DR. B. B. VINCENT LYON, whose numerous reports on his method of draining the biliary tract by aspiration through a duodenal tube have excited much interest and discussion, has now collected his results into a volume of over 600 pages, entitled *Non-Surgical Drainage of the Gall Tract*.[1] His work on these lines began in April, 1917, and as the first of the series of papers appeared in September, 1919, much investigation was carried out before any conclusions were made public. The starting point of this method was the observation contained in Meltzer's paper in 1917 on the law of contrary innervation that by spraying the biliary papilla with a 25 per cent. solution of magnesium sulphate the tonic contraction of Oddi's sphincter at the lower end of the common bile duct is inhibited so that bile flows into the duodenum. Meltzer's further suggestion that by means of the duodenal tube the solution of magnesium sulphate could be applied and the bile then withdrawn and examined was elaborated and applied in practice by Lyon. In health the first bile thus obtained is of a light yellow colour, of medium viscidity, like syrup, and perfectly transparent; after the withdrawal of some 10 to 30 c.cm. of this "A" bile from the common duct, the bile suddenly deepens to a considerably darker golden yellow colour and becomes more viscid, and is thought to be the contents of the gall bladder. After a flow of 10 to 75 c.cm. of this so-called "B" bile there is a third transition and the bile is of a light lemon colour and is thinner and more limpid than either of the two previous specimens; this "C" bile is believed to come from the liver. These three kinds of bile can be received into separate bottles and examined microscopically, chemically, and bacteriologically so that a diagnosis of disease and of the infecting organism can be made. Lyon goes further than Meltzer in believing that magnesium sulphate causes contraction of the gall bladder as well as relaxation of Oddi's sphincter; this fits in admirably with the idea of contrary innervation.

These views have met with considerable criticism from Crohn, Bassler, and others, and Max Einhorn, the inventor of the modern duodenal tube (1909), argues that the changes in the colour of the bile are due to the action of the magnesium sulphate and are not indications of the site from which the bile comes. These objections to the fundamental principles of the method are answered at length by Lyon, whose book is intended to show that non-surgical drainage of the biliary tract is a practical procedure and within certain limits is of use both in the diagnosis and the treatment of some forms of biliary disease. A full account, copiously illustrated, is given of the technique of medical drainage of the biliary tract, which is elaborate, for special precautions must be taken to prevent contamination of the tube during its passage; the method is of value in the early diagnosis of biliary infection and of biliary stasis. It is held to have a wide field of usefulness in the treatment not only of mild cholecystitis and biliary stasis but also as an alternative method of treatment in many forms of gall-bladder disease in which the question of immediate surgical interference arises, and as a supplementary method of maintaining after operation the surgical principles of drainage in cases incompletely cured by surgical measures alone. As an example of its value in simple catarrhal jaundice it may be mentioned that the duration of the disease was reduced by 52 per cent. as compared with another series treated on ordinary lines. Many illustrative cases are given in full with instructive commentaries. The author must be congratulated on the results of his prolonged and successful work.

[1] *Non-Surgical Drainage of the Gall Tract.* By B. B. Vincent Lyon, A.B., M.D. Philadelphia and New York: Lea and Febiger. 1923. (Med. 8vo, pp. xvii + 640; 175 figures, 10 plates.)

THE PREMATURE INFANT.

IN the preface to his work on *Premature and Congenitally Diseased Infants*[2] Dr. JULIUS H. HESS contends that the number of premature births has increased during recent years, and states that of 2,806 deaths of infants occurring in Chicago during one year, 739 in the first month were due to prematurity. The book is divided into four parts: the first is devoted to etiology, physiology, and pathology; the second to nursing and feeding; the third to general diseases; and the fourth to prognosis. The chapter on physiology in Part I contains useful tables of the body weight and other measurements drawn from various authorities as well as by the author. Emphasis is laid on the value of x-ray examination for determining the age of the foetus, since osseous development is more regular and offers more factors for consideration than the length and other measurements. A diagram of the skeleton of the full-term infant is given showing the development of the centres in each bone based on roentgenographic studies of 55 cases. In the chapter on pathology, which is based on the work of Ylppö, it is stated that premature birth should be looked on as a traumatic process in which the characteristic lesions are most frequently found in three groups of organs—the skull with the brain and membranes, including the spinal cord, the lungs, and the gastro-intestinal canal. The second part contains chapters on maternal nursing, the selection and hygiene of the wet-nurse, the care and nursing of premature infants, and the methods of feeding. Premature infants are considered in two groups according as they can or cannot be breast-fed. The important rules to be observed in the case of these infants are maintenance of the body-heat from birth, careful individual handling with prevention of infection, and breast milk. Administration of orange juice as an antiscorbutic is commenced at three weeks, and cod-liver oil for its antirachitic properties at four weeks, irrespective of the type of feeding. A special chapter is devoted to incubators, with an account of their history from the time of Denucé in 1857 to the present day, illustrated by numerous photographs of various models. The third part deals with general diseases and the fourth with prognosis. The author considers that the future of premature infants who survive is, on the whole, good. Though they are somewhat more subject to hydrocephalus and to psychic and nervous anomalies, as well as to rickets, anaemia, and tetany, by the time that puberty is reached most of the differences between the premature and the full-term child will have disappeared. Many celebrated men, including Newton, Rousseau, Voltaire, Cuvier, Victor Hugo, Lamartine, and Renan, were born prematurely.

The book, which is well indexed and gives numerous references to current literature, should prove useful.

PUBLIC HEALTH AND ADMINISTRATION.

THE codification of the law relating to public health and sanitation is becoming more urgent year by year and if it were not for the assistance of certain textbooks in dissecting Acts of Parliament, departmental orders, regulations, and the like, the difficulties of officials concerned

[2] *Premature and Congenitally Diseased Infants.* By Julius H. Hess, M.D. London: J. and A. Churchill. 1923. (Med. 8vo, pp. xi + 237; 139 figures. 18s. net.)

with public health administration would be very much increased. One of the best known of these books is the *Handbook of Sanitary Law*, by Dr. B. BURNETT HAM, which was first published in 1899, and the ninth edition[3] of which is edited by Professor H. R. KENWOOD. Under various headings, such as nuisances, water supply, sewerage and drainage, housing, and food supply, the laws relating to the respective subjects are tabulated, and by a free use of cross-references a clear picture is placed before the reader. The first chapter contains a useful list giving definitions of terms used in particular Acts of Parliament, with in many instances (it is a pity it is not in all) the statutory authority for the definition. On page 5 it is stated that the local authority authorized by the Sale of Food and Drugs Act to appoint a public analyst is a county council or a county borough council. To this should be added "a quarter sessions borough having a population of 10,000 and over." Nearly fifty pages are devoted to the law relating to food supplies, in which the editor has brought together various Acts, orders, and regulations, the details relating to milk being very complete. The Sanitary Officers' Order, 1922, which relates to the appointment and duties of medical officers of health and sanitary inspectors, is given almost textually, and there is a very clear abstract of the Local Government and other officers' Superannuation Act, 1922. In a work which so admirably serves the purpose for which it was written it is a pity that greater care was not taken in revising the present edition and the correct titles of Acts of Parliament and other documents given. On pages 11 and 12 the Children Act, the Dairies, Cowsheds and Milkshops Order, the Factory and Workshop Act, and the Housing, Town Planning, etc., Act are all given incorrectly, although the proper designations are to be found on subsequent pages.

Only those who have to administer the law relating to the production and distribution of food can really appreciate the pitfalls which they have to avoid if success is to attend their labours. During a period of nearly forty years *Bell's Sale of Food and Drugs Acts* has been a safe guide for those who would escape them, and the seventh edition,[4] edited by Mr. CHARLES F. LLOYD, of the Inner Temple, has been brought as well up to date as seems possible when dealing with a subject with regard to which the Legislature and the central administering department of the Government appear to have no very settled policy; owing to this lack we have a constant output of Acts of Parliament, amending Acts, postponing Acts, departmental orders, amending orders, and rescinding orders in such quick succession that "order, counter-order, disorder" aptly expresses the present position. Mr. Lloyd has continued the general arrangement of previous editions, and some idea of its completeness may be gathered from the fact that although the principal Food and Drugs Act—that of 1875—contains only 36 sections, it is so fully annotated and there are so many references to legal decisions that more than 100 pages are devoted to this Act alone. As an instance of the extreme care and thoroughness which has been taken in annotating we may refer to Section 16 of the Act, which provides that an article may be sent to an analyst through the post "subject to any regulations which the Postmaster-General may make"; the text of those regulations is given, thus saving much trouble and possible vexation to those concerned with the dispatch of samples. The amending Food and Drugs Acts, the Margarine Acts, and other statutes even remotely bearing on the subject, are considered with care and fullness. The text of the Milk and Dairies (Amendment) Act, 1922, is given in full, and there are many cross-references which cannot fail to be of service. Although the Milk and Dairies (Consolidation) Act, 1915, does not come into force completely until the end of 1925 it has very properly found a place in the appendix, which also contains a very complete set of the circulars and memoranda of the Local Government Board and Ministry of Health with respect to the sale of food and drugs. In this connexion we suggest that it would increase the facility of reference if in future editions the editor would attach to the documents the number given to them by the Ministry of Health. The notes on some of the commoner forms of adulteration which Mr. R. A. Robinson, of the Middle Temple, contributed to previous editions are continued in the present and add to the completeness of the volume.

The student who is preparing for examination in public health will find Dr. AITCHISON ROBERTSON'S *Aids to Public Health*[5] of great use as a refresher. The matter is arranged after the manner of larger well known textbooks, the earlier chapters dealing with meteorology, ventilation, and water supplies, and the later with vital statistics and sanitary administration. The intervening chapters cover the ground very fairly and the information has been brought well up to date. The chapters on drainage and the disposal of sewage are accurately and clearly written, very good descriptions being given of the most modern methods of dealing with sewage. In the section on conservancy systems reference is made to the deodorant power of dry earth, but there is no mention of the nitrifying action of the earth, and it is to this property rather than any power of deodorizing that suitable earth serves a useful purpose when mixed with excreta. On page 150 the zymotic death rate is said to refer to the deaths from notifiable infectious diseases. Many years ago a great deal of importance appeared to be attached to the death rate from the "principal zymotic diseases," but these were not the notifiable infectious diseases, and nowadays the more progressive medical officers of health have no concern with zymotic death rates. We can recommend this little book to those for whom it is primarily intended—public health students.

TYPHOID-PARATYPHOID GROUP OF BACTERIA.

THE many different types of bacilli which, because of their similar behaviour towards ordinary laboratory tests, are arranged together as the typhoid-paratyphoid group, have been made the subject of a special research by Dr. A. HECHT JOHANSEN of the Copenhagen Institute, who has written a monograph[6] in English on their classification. Although for the last ten years a fairly consistent nomenclature has been followed in this country, Continental writers have often been unwilling to distinguish between certain strains which we in this country regard as distinct; this has led to considerable confusion, more particularly in translating from German authors. It is a relief, therefore, to find a familiar classification followed in this book, thus rendering it easy to compare the work of this author with that of our fellow countrymen.

The chief bacteria included in the group are, of course, the typhoid and dysentery bacilli, the paratyphoid bacteria, and food-poisoning organisms of the Gaertner type. These resemble each other very closely, and the different classifications which have been proposed in the past, based on the character of growth on media, fermentation reactions, and serological tests, are separately considered by Dr. Johansen and their limitations admitted. The greater part of the original work published in this book describes an attempt at classification based on agglutination and complement fixation reactions in conjunction with absorption tests. About a hundred different strains were studied, and the mass of experimental work recorded indicates that the typhoid, paratyphoid, and enteritidis organisms may be divided into eleven groups. The work would have gained in interest had the same laborious tests been directed towards the paratyphoid C bacillus and the atypical organisms about which there is so much dispute at present, but as it stands it provides a reassuring contribution to

[3] *Handbook of Sanitary Law.* By B. Burnett Ham, M.D., D.P.H. Edited by Henry R. Kenwood, C.M.G., M.B., F.R.S.Edin., D.P.H. Ninth edition. London: H. K. Lewis and Co., Ltd. 1923. (Fcap. 8vo, pp. xxviii + 244. 5s. net.)

[4] *The Sale of Food and Drugs Acts.* By the late Sir William J. Bell, LL.D. Edited by Charles F. Lloyd. Seventh edition. London: Butterworth and Co., and Shaw and Sons, Ltd. 1923. (Crown 8vo, pp. xxv + 456. 15s. net.)

[5] *Aids to Public Health.* By W. G. Aitchison Robertson, M.D., D.Sc., F.R.C.P.E. London: Baillière, Tindall, and Cox. 1923. (Fcap. 8vo, pp. viii + 160. 3s. 6d. net.)

[6] *Classification of the Strains belonging to the Typhoid-Paratyphoid Group of Bacteria.* By A. H. Johansen. Copenhagen: Levin and Munksgaard. 1923. (Sup. roy. 8vo, pp. 266.)

the classification of these important but still ill defined groups of bacteria. The exhaustive tests advocated in this monograph are very time-consuming, and inspire once more the hope that some simpler method of study will one day be discovered.

The second part of the book describes experiments on the avidity of antiserum for complement. These were complicated researches which certainly throw light on the laws governing the fixation between antigen and antibody, but they do not add anything to our knowledge of individual members of the group, nor of the relationship of one organism to another. It is to be regretted that the manuscript was not better translated, for in many places the language is decidedly ambiguous.

THE HOME AND HEALTH IN INDIA.

THE fruits of long experience and competent observation are garnered in Dr. KATE PLATT's book[7] on *The Home and Health in India and the Tropical Colonies.* It is a manual of advice which will be particularly valuable to women going to these regions for the first time. The chapter on outfit and equipment is of first importance and should of course be studied before leaving this country. In choosing a home newcomers are inclined to be influenced by the beauty of a bungalow near a tank or surrounded by luxurious vegetation, and they may learn by sad experience that the pleasures of the scenery are more than counterbalanced by the abundance of mosquitos. The fly nuisance is well dealt with by Dr. Platt, and the dangers of disease conveyance and methods of protection are explained. As regards domestic sanitation, however, she seems to have a leaning to conservancy methods rather than house drainage, on the ground that lack of intelligence on the part of native servants may make the latter a failure. But the newcomer would do well to remember the possibility of a sweepers' strike, which is a very serious matter for those who have not the benefit of a water carriage system.

A large part of the book is devoted to the health of the mother and child in India, and will be appreciated by the young wife. For those in outlying districts where medical attendance is not easily or immediately available, the chapters on tropical diseases, skin troubles, bites, and stings, will be of great service both in emergencies and for general guidance. Dr. Platt has been very happy in her clear and simple explanation of technicalities. She and her readers are alike to be congratulated on her success, and the book ought to find a place in the equipment of every young wife about to settle in India or the tropics.

NOTES ON BOOKS.

THE second edition of Dr. FRIEL's monograph entitled *Electric Ionization*[8]—the first was published in 1920—has appeared. In addition to a general overhauling and revision which has resulted in a considerable enlargement of the parts devoted to the statement of electrical facts and to the explanation of electrical terms, additional chapters are given dealing with ionization as applied to the treatment of certain diseased conditions; for instance, there is a special chapter on pyorrhoea, another on endometritis, and so on. The work now contains so much more material and information as regards the actual application of ionization that its value as a textbook has been considerably enhanced, and those interested in this somewhat specialized branch of therapy will find much that is of value from the practical point of view. It is well presented and well printed; the illustrations are good and useful, and the index is sufficient.

The Dominant Sex: A Study in the Sociology of Sex Differentiation,[9] has been admirably translated by EDEN and CEDAR PAUL from the German work of Mathilde and Mathias Vaerting. Their investigations have led them to the conclusion that the relationships of the sexes as regards dominance vary in a manner somewhat resembling the swing of a pendulum; in some instances, as in ancient Egypt, Sparta, and the Iroquois, women have had the upper hand; but in almost all parts of the civilized world society is now in the phase of transition from the nearly universal dominance of man to the equality of the sexes. The authors believe that there is always a deliberate or an unconscious campaign to modify the records of the past so as to establish the tradition that the sex in power has always been the dominant one; they consider that this bias is strong, and that many eminent writers, including Max Müller, show it. A special chapter is devoted to the campaign against the historical vestiges of the dominance of women. The dominance of one sex is, they hold, much more important than inborn physiological factors in determining differences in physique, division of labour, and habits such as dress.

The eighth edition of the book on treatment in the Berlin university clinics,[10] edited by Dr. W. CRONER, consists of twelve sections in which the whole of medicine, surgery, obstetrics, and gynaecology is dealt with by specialists in each branch. There is an appendix consisting of four sections devoted respectively to intoxications, dietetic cures, principles of vaccine and serum therapy, and the chief organic extracts, of which the last two have been added since the seventh edition appeared. The diseases in each section are arranged in alphabetical order.

Insurance law is usually classified under the headings marine, fire, or life insurance, but Mr. WELFORD, who is already jointly responsible for a book on fire insurance, has now produced a book on *The Law Relating to Accident Insurance,*[11] and, despite inevitable overlapping, his treatment of the subject justifies his ambitious project. There is scarcely a claim or proposal form relating to insurance for personal injuries which does not require either a medical certificate or report or even in some cases a *post-mortem* examination; with this part of the law Mr. Welford deals fully. A recent case of interest to the medical profession is quoted; a policy provided that no indemnity was to be payable unless the assured had been regularly under the care of a legally qualified medical practitioner; the assured, who had fractured his foot, placed himself under the care of a bonesetter; it was held that there was a breach of condition and that the assured could not recover.

[7] *The Home and Health in India and the Tropical Colonies.* By Kate Platt, M.D., B.S.Lond. London: Baillière, Tindall and Cox. 1923. (Cr. 8vo, pp. 216. 5s. net.)

[8] *Electric Ionization: A Practical Introduction to its Use in Medicine and Surgery.* By A. R. Friel, M.A., M.D.Dub., F.R.C.S.I. Second edition. Bristol: John Wright and Son, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd. 1922. (Demy 8vo, pp. 132; 43 figures. 8s. net.)

[9] *The Dominant Sex: A Study in the Sociology of Sex Differentiation.* By Mathilde and Mathias Vaerting. Translated from the German by Eden and Cedar Paul. London: George Allen and Unwin, Ltd. 1923. Demy 8vo, pp. 240. 10s. 6d. net.)

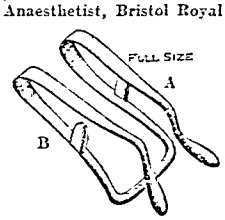
[10] *Die Therapie an der Berliner Universitäts-Kliniken.* Edited by Dr. Wilhelm Croner. Achte auflage. Berlin and Vienna: Urban and Schwarzenberg. 1923. (Cr. 8vo, pp. vi + 693.)

[11] *The Law Relating to Accident Insurance.* By A. W. Baker Welford, of Lincoln's Inn, Barrister-at-Law. London: Butterworth and Co. 1923. (Roy. 8vo, pp. civ + 651 + 54 35s. net.)

MEDICAL AND SURGICAL APPLIANCES.

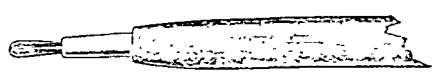
Nasal Dilator for Use during Anaesthesia.

DR. A. L. FLEMMING (Senior Honorary Anaesthetist, Bristol Royal Infirmary) writes: The dilator illustrated herewith is retained in position by the shoulders, A engaging in the vestibula, and the lugs B prevent the alae nasi from contracting. The value of the dilator is well illustrated in the administration of nasal gas, in which case it greatly diminishes the tendency for nasal to be replaced by oral breathing during induction. The makers are Messrs. Down Bros., Ltd., 21-23, St. Thomas's Street, London, S.E.1.



Diathermy Knife.

MR. WALTER G. HOWARTH, F.R.C S.Eng. (London), has found the instrument here described useful in the excision of malignant growths of the pharynx, tongue, tonsil, and palate with the diathermic spark. It consists of a platinum knife embedded in a thin glass tube covered for the purpose of further insulation by thick rubber tubing. The cable is very light. The instrument has



been in use for several years at St. Thomas's Hospital, and several have been made by Mr. Winch of the X-Ray Department. The advantages over the usual soft metal knife are that a more intense and less diffuse spark is obtained. This is particularly useful when it is desired to use the spark as a cutting instrument in the complete excision of growths. The instrument can now be obtained from Messrs. Mayer and Phelps, New Cavendish Street.

THE TREATMENT OF GENERAL PARALYSIS BY TRYPARSAMID:

PENETRATION OF THE DRUG INTO THE CEREBRO-SPINAL FLUID.

THERE are many points of similarity in the pathology of sleeping sickness and of general paralysis. In both diseases there is an invasion of the brain by a specific organism, and it is therefore probable that a therapy that would arrest or cure the one disease would arrest or cure the other.

It is certain that cerebro-spinal syphilis occurring within the first few years after infection has yielded to treatment by mercury or arsenobenzol compounds, and, provided the treatment had been adopted before thrombosis of vessels and degenerative softening of the neuronic structures had occurred, surprisingly satisfactory results were obtained. Whereas in general paralysis, although arrests and even cures were announced as a result of intensive treatment by arsenobenzol compounds or their substitutes, either by intravenous injections of the drug or by intrathecal injections of salvarsanized serum, further experience only showed that a successful remedial treatment had yet to be found.

The question arises whether this difference in the results of treatment of these two forms of neural syphilis is due to a resistance of the organism, owing to a morphological latent form in the nature of a granule in general paralysis, or whether there is a specific organism which has acquired some means of resistance to these metallic poisons. For general paralysis, it is said, is unknown among races of people who have not been subjected to treatment. Experiments by Förster and Tomaschewski showed that apes could not be inoculated by brain tissue containing living spirochaetes, and Levaditi and others have brought forward many facts and arguments tending to establish the existence of two forms of spirochaetes—a neurotropic and a dermatotropic. It has been shown that a considerable percentage of infected people give a positive Wassermann reaction of the cerebro-spinal fluid and that in spite of effective treatment a certain proportion remain positive. It is probable some of these are the cases that eventually develop the late forms of neural syphilis.

How can this be explained? The blood and general lymphatic circulations may have received abundance of the spirillicidal agent, yet the positive reaction of the fluid indicates the existence of the organism in the tissue of the central nervous system. An explanation may be found in the fact that the organism has left the general lymphatic circulation which accompanies the vessels of the brain and entered the closed circulation of the cerebro-spinal fluid which irrigates the brain. Histological examination, in fact, shows that the spirochaetes lie in little foci actually in the nervous tissue. Their multiplication produces a toxin which escapes with the cerebro-spinal fluid along the perivascular spaces, thence into the subarachnoid space, setting up a meningo-encephalitis there. In sleeping sickness a similar meningo-encephalitis is set up by the toxins produced by the trypanosomes in the nervous tissue.

There is probably an anatomical reason why cerebro-spinal syphilis yields to treatment. It is that the specific organism which is causing the meningitis, perivascularitis, and endarteritis is located in the lymphatics which form a part of the general lymphatic circulation. The spirochaete is therefore accessible to the therapeutic agent. That that is so seems probable from the fact that in general paralysis and sleeping sickness inflammation of the endarterium does not occur. The inflammatory reaction in these diseases is in the perivascular sheath of veins and arteries, and not in the tunica adventitia. The cerebro-spinal fluid is a secretion of the choroid plexus, and there is evidence that the usual spirillicidal drugs either pass with great difficulty or do not pass at all through the choroid plexus. Such drugs as soamin and atoxyl, which were once used for the treatment of sleeping sickness and found ineffective, probably did not penetrate the cerebro-spinal fluid in the doses it was safe to administer. Likewise, as already remarked, experience showed that salvarsan and its substitutes were inefficient in the treatment of general paralysis. Indeed, the progress of the disease often appeared to be hastened by energetic treatment with this drug.

In the *Journal of the American Medical Association* (May 26th) the remarkable results of the therapeutic use of tryparsamid in neuro-syphilis are recorded by W. F. Lowry, A. S. Lowenhart, W. J. Blackman, and E. J. Hodge. The tryparsamid used in their work at Madison, Wisconsin, was supplied by the Rockefeller Institute. They state that "it is our clinical experience, largely borne out by histologic studies, that the demarcation between meningo-vascular syphilis and paresis is not very clear. Excepting the extremes of these conditions, the transitional point, or mean, is a matter of opinion." It is for this reason that I have set out above what I conceive to be the essential pathological difference.

The very successful results obtained by these investigators may be interpreted in two ways. First, it may be said that among their cases are included early forms of neuro-syphilis that were readily curable by mercurial inunction in the pre-salvarsan days and still more readily curable by modern intensive treatment. It might be argued also that some cases of general paralysis undergo spontaneous remission. However, this certainly does not account for the fact that "of the total of fifty-four cases of paresis studied, twenty-eight have been discharged from the hospitals and have been holding positions and earning a livelihood for themselves and their families for periods ranging from six months to two years."

The Wisconsin workers relied at first solely upon tryparsamid, but they found "that the additional use of mercury during the time of tryparsamid treatment resulted in more permanent improvement of the serologic findings as well as more rapid clinical improvements." Incidentally it may be asked whether this is not the same experience as with salvarsan. The treatment now adopted by them is as follows:

"To dissolve 3 grams of tryparsamid in 10 c.cm. of sterile freshly distilled water and to inject the total amount intravenously. This solution is given at intervals of one week and for a period of eight weeks. At the same time mercuric salicylate is administered intramuscularly in 1-grain doses. The mercury is given three days before the tryparsamid, and a total of nine such injections, alternated with the eight injections of tryparsamid, comprise a course." A rest is then given of from five to eight weeks, when a second course is repeated. After this second course and a period of rest, if there is continued evidence of activity or the case is still serologically positive, a third course is given.

A note of warning is sounded as to the danger of retinal affection, but other complications arising from arsenic are not mentioned. It would be interesting to know whether neuritis, dermatitis, and liver affections do not occur.

It has already been pointed out that there is an essential difference in the pathological conditions which would account for the one form of neural syphilis yielding readily to treatment, whereas the other (for the same reason as sleeping sickness) does not yield to treatment. I cannot agree with the following statement: "It is our clinical experience, largely borne out by histologic studies, that the demarcation between meningo-vascular syphilis and paresis is not very clear." Before hailing this new drug, combined with mercury, as a cure for general paralysis it will be necessary to have the results of independent observers who will not include all cases of meningo-vascular syphilis with mental symptoms in the group of general paralysis. In the summary, the claims of success are more restricted. "Clinical and serological improvement in early and violent cases of paresis is extremely striking. The recovery or improvement is not absolutely stable; but the use of mercuric salicylate with the tryparsamid tends to stabilize the improvement." The main question is this: Can tryparsamid intravenously injected penetrate the cerebro-spinal fluid and the tissues of the brain and by its direct or indirect influence kill or arrest the development of the trypanosome or spirochaete without injuring the nervous tissue?

In an article published in the *Journal of the American Medical Association* on June 2nd, entitled "Tryparsamid and its penetration into the spinal fluid," it is stated that "workers of the United States Public Health Service have now made available the results of an experimental investigation of the penetration into the cerebro-spinal fluid of tryparsamid and other arsenicals which is enlightening as to the mechanism by which the reported effects (previously

alluded to in general paralysis) are brought about." A heavy suspension of *Trypanosoma equiperdum* was injected into the cranial subarachnoid space of rabbits.

"No essential difference in behaviour towards arsenicals has been discovered between *T. equiperdum*, *T. gambiense* and *Spirochaeta pallida*. Preliminary investigation demonstrated that trypanosomes thus injected would be recovered in considerable numbers. Tryparsamid and other arsenicals were then injected into the ear vein of infected animals. After twenty-four hours a careful search was made in at least six different specimens of cerebro-spinal fluid taken from the various subarachnoid spaces of the brain and medulla. The absence of trypanosomes in these specimens was considered evidence of permeability of the membranes by the arsenical injection or by some trypanocidal derivative. Under these experimental conditions tryparsamid proved more effective than any other arsenical used. An amount which was only 4 per cent. of the minimal lethal dose was 87 per cent. efficient. Sulpharsphenamin with 16 per cent. of its minimal lethal dose was 82 per cent. efficient."

These experiments show that this arsenical preparation, probably by its penetration into the fluid, acts more efficiently than other arsenical preparations in destroying trypanosomes. We are told that the drug is "a white crystalline solid extremely soluble in water. It is odourless, tasteless, and possesses practically no local irritating action."

Should further observations on an extensive scale show that a safe remedy for the arrest or cure of general paralysis and sleeping sickness has been found, it will be a great triumph for experimental medicine.

FREDERICK W. MOTT.

A NOTE ON THE "SO-CALLED PARKINSON'S MASK."

THE peculiar after-effects or residua of epidemic encephalitis have given rise to an increasing study of everything appertaining to paralysis agitans. The name of Parkinson has thus become familiar to many who, a few years ago, might have hesitated before stating the exact disease with which it is associated. By utilizing the recognized synonym of paralysis agitans—namely, "Parkinson's disease"—we obtain a short and easy series of substantives and adjectives wherewith to describe the various signs and symptoms following epidemic encephalitis.

On the continent of Europe, where these residua have been even more common than in this country, this terminology has been adopted extensively. "The Parkinsonian syndrome," "Parkinsonismus," "pseudo-Parkinsonism," and other modifications, are at the present time in use in medical papers. Their exact meaning differs somewhat with different writers. Some use the term for conditions other than pre-senile or true paralysis agitans; others retain the expression "Parkinsonian" for the disease which Parkinson described, and use the term "pseudo-Parkinsonian" for other similar but distinct conditions. There is thus a certain amount of confusion in the use of the terms.

In any case the adoption of this nomenclature has called attention to Parkinson's original *Essay on Shaking Palsy*, published in 1817, and all who have read it must admit that his clear and accurate description of the disease, as he saw it, deserves this tribute to his memory.

James Parkinson was a surgeon who practised in Hoxton; he wrote a number of small medical books in addition to his essay. He got into trouble in 1794 in connexion with the "popgun plot" to assassinate George III in the theatre by means of a poison dart, as is described more at length in the *Dictionary of National Biography*. He was also a palaeontologist and wrote a big book in three volumes (1804-1811) entitled *Organic Remains of a Former World*, described as "the first attempt to give a familiar and scientific account . . . of fossils." He was an original member of the Geological Society. He died on December 21st, 1824.

Thanks to the enterprise of the *Archives of Neurology and Psychiatry* (1922, vii, 681), this essay has now been reprinted and is available for anyone to read. On reading it again recently, I was surprised to find that it contains no allusion to the facial expression in paralysis agitans. There is an excellent description of the tremor, and its temporary cessation on voluntary movement; the stooping attitude; the hurried gait; the salivation. There are also statements which appear to refer to postural changes and rigidity, together with remarks on the supposed pathology and suggestions for treatment; but from first to last, there is no reference to the "facies."

This is the more surprising because, prior to the use of the term "Parkinsonian" in connexion with the residua of epidemic encephalitis, the only sign of paralysis agitans to which the author's name was commonly attached was the characteristic "facies"—the so-called "Parkinson's mask." It is, indeed, the irony of fate that, more than a century after his death, Parkinson's name should be particularly attached to practically the only prominent sign which he failed to record in his essay. It seemed to be a matter of some historical interest to find out when and where this term "Parkinson's mask" arose. With the assistance of the librarian at the Royal Society of Medicine (Mr. H. E. Powell) an attempt has been made, and the following facts ascertained:

First Recognition of Symptoms.

So far as we can ascertain, Charcot, in his many writings, in the middle of last century, was the first to emphasize the diagnostic importance of the immobile "facies" in paralysis agitans. We cannot find that any of the leading textbooks prior to this period make any reference to it. Whether or not Charcot himself first observed it seems uncertain. Fagge in the first edition of his *Textbook of Medicine* (1886, i, 629) writes: "According to Charcot the features present a peculiar immobility and want of expression"; but Charcot and Vulpian (*Gaz. Hebdomadaire de Médecine et de Chirurgie*, 1861-62, vols. 8 and 9) quote a case described by Oppolzer in the *Wiener medizinische Wochenschrift* for 1861, where he says "der Gesichtsausdruck ist ganz apathisch!" This may possibly have drawn Charcot's attention to the sign.

It is thus probable that the pathognomonic facies of paralysis agitans was not recognized—at any rate, it was not recorded—until about fifty years after Parkinson's original essay was published. This is as surprising as that a shrewd observer like Parkinson should have omitted all mention of it. Is it possible that this particular feature of the syndrome was absent or less marked during the first half of the nineteenth century?

Such a suggestion might have seemed rather far-fetched a few years ago; but our experience of the effects of epidemic encephalitis shows that the different components of the syndrome which we call "post-encephalitic paralysis agitans" may each occur separately and almost alone, and that the particular region involved may be strikingly limited. Thus it is not uncommon to find the residuum following encephalitis in the form of the characteristic "facies" of paralysis agitans as the earliest and most striking feature; the extent to which the rest of the body is then affected may be exceedingly slight.

Even in pre-senile paralysis agitans the facies may be absent for long periods. Moreover, diseases do change their type from time to time. This may possibly explain the curious oversight of this striking sign, not only by Parkinson who studied, carefully, some cases, but by physicians during the following half-century, who at least wrote about them.

Origin of the Term "Mask."

The earliest record that I can find of the use of this term to describe a facial expression is in a paper by Gayet, in the *Archives de Physiologie* (1875, ii, Série II, 341). He there records what he calls an "affection encéphalique" which bears a striking resemblance to epidemic encephalitis. In this article the term "masque" is repeatedly used. Thus he writes: "Tout le masque est singulièrement affaissé." "Il n'a plus son masque facial si prononcé." "Le masque de la face s'est amélioré." It is interesting that this early use of the term should be in connexion with a case, not of paralysis agitans, but of an acute disease simulating epidemic encephalitis in many respects. The first evidence that we find of its application to the facies of paralysis agitans is in the article on this disease by W. Sinkler in Pepper's *System of Medicine*, vol. 5 (1885). Two

years later Paul Richer (*Nouv. Icon. de la Salpêtrière*, 1888, p. 213) writes of the facial expression in paralysis agitans, "C'est masque vide, dont la vie semble absente."

The term "facial mask," or mask-like face, applied to paralysis agitans, thus seems not to have been used at all generally until after Charcot's time. It has the advantage of being brief, though not an apt description of the condition.

The Earliest Use of the Term "Parkinson's Mask."

So far as our investigations go, the first use, in print, of the term "Parkinson's mask" is found in the first edition of Osler's well known *Textbook of Medicine*, 1892. Mr. Powell has searched through all the leading textbooks from 1817 to 1892 and can find no previous use of Parkinson's name in this connexion.

The actual expression which Osler uses is rather curious, "the so-called Parkinson's mask." This was repeated in each succeeding edition down to 1916. To one as familiar with the original works of the past as Osler was the fact that Parkinson had not described the facies of paralysis agitans must have been well known; hence the form of his expression—"the so-called Parkinson's mask." It seems, therefore, probable that about the early nineties the term "Parkinson's mask" had become current amongst certain medical teachers in certain parts of the world, and that Osler first gave it official recognition as a concise* and convenient label for the student.

It may be said that in using the term "Parkinson's mask," we merely mean the mask-like face seen in Parkinson's disease, and as such the term is quite warranted. When, however, the term "Parkinsonism" is applied, as it frequently is at the present time, to post-encephalitic residua which may consist of nothing but an immobile face with certain mental and moral changes in character, it is historically inaccurate.

In conclusion, I desire to thank Mr. Powell for his valued help, and to take this opportunity of pointing out to my colleagues living in the provinces the many valuable services which the Royal Society of Medicine places so generously at the disposal of those Fellows who are unable to make frequent personal visits to the library.

ARTHUR J. HALL, M.A., M.D., F.R.C.P.,
Professor of Medicine, University of Sheffield.

EPSOM COLLEGE.

THE annual general meeting of the governors of Epsom College was held at the office, 49, Bedford Square, W.C., on June 29th, when the treasurer, Sir HENRY MORRIS, was in the chair.

The names of the successful candidates for foundation scholarships were announced as follows: Thomas M. Newton, Jeffrey O. Timms, James D. Johnston, Irwin J. McGhie, Denis A. Sanford, H. Vincent Adcock. The successful candidate for the ordinary pensionership was Adelaide Lynch.

In submitting the annual report of the Council, the chairman drew attention to the loss the College had sustained by the death of Mr. Clement Locke Smiles, as well as by the retirement from the Council of Mr. Walter Archibald Propert, the grandson of the Founder of the College. The governors were also informed that Mr. W. Douglas Crossley, who entered the College as a master in September, 1888, and was appointed bursar in September, 1890, was about to retire, after a service to the College of practically thirty-five years. The chairman paid a tribute to the zealous and efficient way in which Mr. Crossley had carried out the duties of his office during that long period. The chairman further reported that Mr. Bluett, one of the honorary auditors, had died since the last annual general meeting, and that the Council proposed that Mr. Norman C. King, the registrar of the General Medical Council, should be appointed an honorary auditor in his place. The chairman also drew attention to two pension funds recently instituted, and mentioned that the Council had decided to propose that, in consequence of the increased cost of living, amendments in the by-laws should be made to permit a somewhat larger income than hitherto held by persons wishing to become candidates for various pensionerships—namely, £100 a year instead of £60. He stated that steps had been taken to begin at once the work of rebuilding the nave of the chapel in harmony with the new chancel, in spite of the fact that the funds in hand were not sufficient for the purpose, and he urged all friends of the College to do their best to secure contributions.

In the report to the governors, the Council expressed its thanks to the various honorary local secretaries, the British Medical Association, and other friends who had assisted the Royal Medical Foundation attached to the College by obtaining donations and subscriptions, as well as to the editors of the *British Medical Journal* and *Lancet* for many services kindly rendered. The Medical Insurance Agency of the British Medical Association had again sent generous contributions, for which the Council was grateful. For many years it had been customary to elect as vice-presidents those who had collected the sum of £1,000, and as the Rev. Walter J. Barton, the late head master, had succeeded in completing this sum, the Council proposed that he should be elected a vice-president of the College.

After the adoption of the annual report and accounts, formal business was transacted, including the re-election of members of the Council and auditors, and the adoption of new by-laws. A cordial vote of thanks to the chairman was proposed by Dr. Raymond Crawfurd, who drew attention to the valuable services rendered to the College by Sir Henry Morris as treasurer. This resolution was seconded by Mr. Hollis Walker, K.C., and carried with acclamation.

BIRTHDAY HONOURS.

THE deferred list of honours granted on the occasion of the King's birthday was issued as a supplement to the *London Gazette* of June 29th. The following are among the names of those upon whom honours have been conferred:

Baronetcy.

Major-General Sir Anthony A. Bowlby, K.C.B., K.C.M.G., K.C.V.O., F.R.C.S., President of the Royal College of Surgeons of England; Consulting Surgeon to St. Bartholomew's Hospital.

Knighthoods.

George Francis Blacker, C.B.E., M.D., F.R.C.P., F.R.C.S., Dean of University College Hospital Medical School.

Ewen J. Maclean, M.D., F.R.C.P., F.R.C.S. For services to the Ministry of Health in Wales. Dr. Maclean was formerly chairman of the Representative Body of the British Medical Association, and presided over the Annual Representative Meeting in 1911 and 1912, when held in Birmingham and Liverpool respectively.

C.B.E. (Civil Division).

Lieut.-Colonel John Southey Bostock, M.B., Ch.B., Director of Medical Services, Ministry of Pensions.

The distinction of C.B.E. (Civil Division) is also conferred upon Mr. Ernest T. Nethercoat, President of the Pharmaceutical Society, in recognition of his services in connexion with the Dangerous Drugs Regulations.

THE second International Congress of Comparative Pathology will be held in Rome from October 7th to 14th. The subscription is 40 lire. Further information can be obtained from Professor Perronetto, 40, Corso Valentino, Turin.

THE thirty-eighth annual meeting of the Caledonian Medical Society was held on June 29th in the rooms of the Aberdeen Medico-Chirurgical Society. The President, Dr. D. Rorie, D.S.O., took as the subject of his presidential address the career of Dr. George Boswell, who was surgeon to King James VI of Scotland. The meeting was largely attended, and at the dinner the same evening seventy members and guests were present. It was arranged to hold the next annual meeting of the society in Liverpool under the presidency of Dr. David Smart.

* In Farge and Pye-Smith's *Textbook of Medicine* (fourth edition, I, 677) the words are, "The features are immobile and the face has a [illegible] expression, like a mask, as Parkinson described it." The name Parkinson is evidently a "lapsus calami" for Charcot, which occurs in [illegible] editions.

British Medical Journal.

SATURDAY, JULY 7TH, 1923.

CANCER: ITS CAUSES AND TREATMENT BY RADIUM.

OF all the hypotheses which have been advanced from time to time to explain the causation of cancer, only one receives any measure of support from the experimental studies of recent years—namely, the original theory of Virchow that tumours are caused by irritation, chemical or physical. This seemed the most likely interpretation of the facts observed by those who studied the clinical manifestations in the days before methods of inducing cancer in animals had been discovered; it has been sustained by the evidence derived from the experimental production of cancer following such irritants as tar, paraffin, and *x* rays. In a British Medical Association Lecture published this week (p. 1) Dr. Archibald Leitch discusses several different agents which have been shown to be capable of producing cancer in animals; all are of an irritating nature, being foreign to the cells of the body, and invoking in them the familiar response—proliferation and increased cellular activity.

Evidence derived from experimental inquiry into the causes of cancer has not only brought support to the doctrine that cancer follows chronic irritation, but has also very considerably narrowed the issues by demonstrating that certain irritants are very potent agents in producing tumours, whereas others have not been found to possess carcinogenic properties, to use the term the lecturer has devised. The irritant is therefore in a sense specific; it evokes a response in the cells which is at first similar to that aroused by other stimuli, but later, on account of its peculiar nature, leads to the anarchic and progressive proliferation that we call cancer. The evidence is that certain irritants easily produce cancer, while others do not.

A second fact which the experimental study of cancer has brought to light is that the specific irritant produces cancer only in certain animals, and only in the susceptible tissues of these animals. Thus only particular races of rats can be infected with spiroptera carcinoma, and, in those which are susceptible, tumours develop most rapidly in the stomach and tongue, but are unknown in the oesophagus; cysticercus sarcoma does not affect mice, and even certain strains of rats are refractory to this tumour-producing agent. Dr. Leitch has failed to produce tar cancer in rats or guinea-pigs by the employment of a method which readily succeeded in mice. He had succeeded in producing cancer in mice by applications of paraffin, but failed in similar experiments on rats, guinea-pigs, and rabbits. Again, cancer following exposure to *x* rays was unhappily a very common affliction of early radiologists, but no one has yet succeeded in producing epithelioma in animals by the application of *x* rays. It seems, therefore, that there must be not only a specific type of irritant, but also a peculiar cellular susceptibility in order that cancer should follow irritation.

Another important fact made clear by the experimental studies Dr. Leitch passed in review is that a considerable space of time may elapse between the action of the irritant and the appearance of the neoplasm. A careful study of human cancer has often failed to reveal any recent antecedent irritation, but sufficient consideration has not been given to the possibility that a bias towards malignancy may be imparted to cells by some previous, and even distantly previous, irritation. That this may be the case is shown by Dr. Leitch's experiments with tar cancer, for he has observed that even if he stopped the applications of tar before there was any sign whatever of neoplasia, "in due course warts appeared and the phenomena of malignancy were unfolded just as before." The possibility that a particular tumour has followed the action of an irritating agent cannot be dismissed because the irritant has not been detected immediately prior to the appearance of the growth, for it may have been present in the past, and, though absent for some time, have transmitted to the neighbouring cells the fatal tendency to malignant proliferation.

Experiment has shown that cancer is not essentially a disease of ageing tissue; the reason why this disease more frequently occurs with advancing years is capable of another explanation than that the cells are manifesting senile changes. Dr. Leitch made two parallel series of experiments, using in one set adult mice and in the other mice all under six weeks old, and found that, after the application of tar, neither in yield of tumours nor in rate of tumour growth was there any appreciable difference between the two. The essential point may be the length of time the causal agent is in operation. Since in most instances this requires a protracted period, it becomes obvious why cancer is usually a disease of middle or old age.

To the pathologist it is of great interest to notice that after the application of paraffin to mice in some cases carcinoma and in other cases sarcoma developed in approximately the same time. Thus two very different kinds of tumour can be produced by the same agent, according to whether the irritant substance affects chiefly the epithelial or connective tissue cells. It is not claimed that the irritant is necessarily the actual cause of the cancer; as Dr. Leitch observes, the carcinogenic agents may only be "the mediate and not the proximate causal factors of the disease." All that is claimed for these tumour-producing agents is that they bring about a pathological state of the tissues, and that on this prepared soil the undetermined causal agent of cancer can then exert its action. Still, it is curious that both carcinoma and sarcoma should follow the application of paraffin after approximately the same interval of time.

The fact that after a tar epithelioma has been extirpated from a mouse subsequent applications of tar do not induce any further tumour is an observation which may prove to be of great practical importance. After the removal of a spontaneous tumour from a mouse Dr. Murray found that the animal did not show any neoplastic response when afterwards subjected to painting with tar. This suggests that the occurrence of one form of cancer in an individual "protects the body in some way against the occurrence of another." Dr. Leitch warns us against hasty conclusions from these experiments, and the result of further researches along these lines will be awaited with great interest, for they seem to hold out a promise of the justification of the optimistic spirit in which Dr. Leitch concludes his masterly review of the experimental inquiry into the causes of cancer.

His lecture is wholly concerned with the etiology of cancer, unless it can be said that Dr. Murray's

observation quoted above gives support to the surgical doctrine of early and complete removal. But cure is only less important than causation, and here it is satisfactory to note some hopeful signs. The treatment of cancer by radium, for example, is based on theoretical principles which encourage a hopeful attitude. As has been pointed out in the last two annual reports of the Radium Institute, the effect of radium irradiation upon any living cell, if of sufficient intensity and permitted to act for a sufficient length of time, shows three phases. First, there is an increase of cell activity, accompanied, it may be, by proliferation; secondly, there is an arrest of cell activity; and finally, degeneration and destruction of the cell. These three phases merge into each other, and no hard and fast line can be drawn between them, for the transition from stimulation to destructive irradiation is simply one of degree, depending entirely upon the intensity of the stimulus. It has been established that all cells are more vulnerable to irradiation when in a state of active nuclear division, and a pathological cell is much more susceptible than a normal to irradiation, so that a stimulus which would act only beneficently on a normal cell may prove destructive to an abnormal one. Successful radium therapy is dependent on the correct appreciation of these facts. Thus, if the dose be incorrectly calculated, and be excessive, destruction not only of the pathological but also of the normal cells occurs, resulting in great loss of tissue, with the formation probably of an intractable ulcer or fistula. On the other hand, if the dose be too weak, the pathological cells may be stimulated to activity, with consequent rapid increase in the size of the growth.

The paper by Drs. Donaldson and Canti on fifty cases of carcinoma of the cervix treated with radium (p. 12) affords an illustration of the care which must be taken in estimating the dose of radium rays necessary and in its application. In both respects they make valuable contributions to knowledge. They have sought by experiment to ascertain the proper dose, and incidentally have arrived at the conclusion that with the quantity of radium employed by them a continuous irradiation for twenty-four hours is much more effective than an application for eight hours thrice repeated. No extravagant claims to curing cancer are made by these authors, but they demonstrate once more that patients undoubtedly derive benefit from this form of treatment, in that the distressing symptoms of haemorrhage and vaginal discharge often disappear, and ulceration may be diminished. They point out also that in operable cases a preliminary application of radium causes the disappearance of fungating growths or ulcers, "so that the risk of infection and of implanting new growth from the cervix at the time of incising the vagina is markedly diminished." The amelioration of symptoms which follows radium treatment was shown to be accompanied by definite histological changes; all the cells in close proximity were killed, whereas on those in the zone beyond this the irradiations did not seem to have an immediate lethal effect; about the third day, however, the chromatin of the cells was breaking up into droplets; on the third and fourth days a large number of cells still further away showed marked activity. A series of definite changes occurred in the carcinoma cells, leading eventually to their complete destruction, whereas the normal cells were less vulnerable, and in the uterine musculature local atrophy and fibrosis only took place at a later date. The treatment of cancer by irradiation is still in its infancy; general principles have yet to be firmly established, an effective technique evolved, and correct dosage determined by experiment.

The two papers published in the JOURNAL this week illustrate how the problem of cancer is being studied from widely different points of view. The patient and exhaustive inquiry into the etiology of cancer has defined certain types of carcinogenic agents and showed that they only act on certain types of cell; slow but definite progress is made towards the ultimate goal of the cure of cancer by the cautious experiments carried out with irradiation.

The public is waiting for a startling discovery of the cause of cancer or some dramatic invention for its cure. This may, of course, be achieved in the future, but in the meantime it is reassuring to realize that if the problem of cancer is viewed in its natural perspective, and its dimensions, positions, and relations thoughtfully considered, it becomes obvious that the tide of knowledge is rising steadily and irresistibly.

For while the tired waves, vainly breaking,
Seem here no painful inch to gain,
Far back, through creeks and inlets making,
Comes silent, flooding in, the main.

THE NEW HOUSE OF THE BRITISH MEDICAL ASSOCIATION.

THE British Medical Association has acquired a fine building in Bloomsbury for its future headquarters. If a change was to be made—and undoubtedly a change had become necessary—members of the Association will, we believe, be practically unanimous in agreeing that the choice of locality has been happy. Bloomsbury has been slowly undergoing a transformation from an area of somewhat dingy respectability into the academic quarter of London. The change began when the British Museum was built towards the southern part of the district and University College a little beyond its northern border. The British Museum has been enlarged northward to almost twice its former dimensions; University College has extended mightily to the south and east. Some eleven acres of the central part have been bought by the Government for the headquarters of the University of London and perhaps for King's College. A site has been found and cleared for the Imperial School of Hygiene at the western side of the district, and the British Medical Association is now to establish itself on its eastern edge.

The building which the British Medical Association will in future occupy is of singularly gracious proportions, and, while thoroughly individual, recalls memories of Kensington Palace and Hampton Court, and so of the genius of Sir Christopher Wren, who has found a successor in Sir Edwin Lutyens, the architect of our new building. The whole design has not been completed, but arrangements are being entered into which will enable the Association in due time to carry out any extension which may be considered necessary. The building is approached from what is becoming one of the principal thoroughfares of London, leading from the terminuses of the Northern Railways to the modern centre of London. But it stands back in its own quadrangle. Of the general appearance of the façade and of the quad so far as it has been completed an impression can be gained from the picture printed at page 33. A good deal must be done to the interior before it can be fitted to the purposes of the Association, and for this

the cordial co-operation of the distinguished architect, who has shown great interest in the project, has been secured. The building, however, which was erected as a college for the Theosophical Society, already provides much of what the Association needs; it has, for example, a large hall which will seat more than 500 people, or over 250 with desks, as for a Representative Meeting. The lease is for 200 years, and the terms secured by the Association must be regarded as very advantageous.

A change from its present premises was forced upon the Association by the growth of its work, especially in the Medical Department. The existing building was very substantially built, and is of course a most valuable asset, but it had become too small, and all the amenities the Association desires to provide for its members have been diminished, with the exception of the Library, which remains as the only room for the use of members not engaged strictly on Association business. The accommodation of the Library, too, had proved too small; the new building will enable excellent provision to be made for it, common rooms to be set apart for members, and ample office accommodation for the Medical Secretary's Department, the Financial Department, and for the Editorial Department. It is hardly necessary to say that the resolution to remove was only reached after very anxious consideration, but, as we have said, the necessity was obvious to all engaged in the central work, whether officers, members of committees, or officials.

The Association is, we think, to be warmly congratulated on its good fortune in acquiring a building which, even so far as it is at present completed, might almost have been designed for its purposes.

GUY'S HOSPITAL MEDICAL SCHOOL.

ON July 2nd H.R.H. the Prince of Wales, President of Guy's Hospital, visited its famous Medical School for the purpose of opening the new anatomy, biology, and physics departments. This ceremony signalized the completion of the rebuilding of the whole school during the twenty-six years that have passed since the first block was opened by King Edward VII (then Prince of Wales) in 1897. The total cost of rebuilding the various departments has been upwards of £100,000. The latest extension occupies an area of 4,000 square feet; it consists of five floors, each communicating with the principal staircase of the main block. By transferring the physics department from its former site to the new building, space has been freed for biochemical research within the department of chemistry; and in designing the new quarters for the departments of anatomy and biology special accommodation has been set aside for research. On Monday afternoon the grounds of the hospital were filled with a very large company, who gave the Prince a warm welcome on his arrival accompanied by Viscount Goschen, treasurer of the hospital, Mr. H. J. Waring, Vice-Chancellor of the University of London, Sir Cooper Perry, Principal Officer of the University, Mr. H. L. Eason, superintendent of the hospital, Professor T. B. Johnston, dean of the medical school, and the senior members of the hospital staff. The ceremony took place in the "park," on the steps leading to the extension. After the treasurer had offered a formal welcome to His Royal Highness, the dean read an address briefly recounting the history of the reconstruction of the school, and expressing the hope that other benefactors would come forward in the future to relieve the school of its incubus of debt and enable it to carry on its work in a manner worthy of the traditions of Astley Cooper, Bright, Addison, Gull, and Wilks. The Prince of Wales expressed his pleasure at visiting Guy's to take part in celebrating this important event, and unlocked the door of the school with a gold key handed to him by Mr. W. J. Walford, architect of the extension. Dr. John Fawcett (senior physician) proposed, and Sir Alfred Fripp (senior surgeon) seconded, a vote of thanks to the President, who then made a brief tour of inspection of the new buildings. At the end of the formal ceremony a garden party was given by the governors and medical staff in the pleasant grounds of the hospital, and the laboratories, museums, college, the Henriette Raphael Nurses' Home, and the wards were visited by large numbers. Altogether this was a red-letter day in the annals of Thomas Guy's great foundation. The medical school has now been rebuilt, with ample accommodation for teaching and research. The next need is an adequate endowment fund. As the President of the hospital well said on Monday, science and industry are not enough; to fight germs you must have money.

THE MAYOS AND THE MAYO CLINIC.

THE discussion at the Section of Surgery of the Royal Society of Medicine last week on the surgery of the hepatic and common bile ducts is reported elsewhere in this issue (p. 18), and a full note of the paper with which the discussion was opened by Dr. William Mayo will be found at page 7. In the evening Dr. Mayo was entertained by the Section at dinner at the Hotel Cecil. Mr. James Berry, President of the Section, who was in the chair, gave the health of Dr. Mayo and sketched the origin of the Mayo Clinic at Rochester, Minnesota. The father of Dr. William and Dr. Charles Mayo was born in the neighbourhood of Manchester and was a student of Owens College; with his Scottish wife he went out to America and settled in the village of Rochester, which is within the region of the Mississippi Valley and therefore subject to devastating tornadoes. Such a cataclysm destroyed the village in 1883, but left the church standing; a religious sisterhood, in thanksgiving for the preservation of the church, founded, at the suggestion of Dr. Mayo, the small hospital of St. Mary's, and it was under their father's tuition that the two young men received their first introduction to surgery. Gradually there grew up under their hands a great clinic which had done much for the advancement of surgery and had been visited by many surgeons from many lands. Mr. Berry went on to speak of the readiness of both brothers to make themselves acquainted by personal visits with the methods of surgeons in all countries, and of the enthusiasm and indomitable energy with which they have carried on their own work at Rochester. Mr. Berry concluded by expressing the hope that the Mayo Clinic would continue to flourish after its founders had left it. Dr. William Mayo in his reply said that the permanency of the clinic was a matter to which he and his brother had given much thought. If it was to live the clinic must, they realized, command the services of men of ideas and training, and these men should be afforded adequate opportunities to perfect their own methods and to keep themselves fully informed of every advance of surgery elsewhere. To meet these fundamental requirements he and his brother had from an early stage put aside out of the fees they received one half, with the intention that this money, received from the people, should be returned to them by providing facilities for research and for the education of surgeons; in this way the people would be repaid, since they would be able to command the services of better surgeons. Funds were also accumulated from the surplus of the clinic. The staff numbered altogether 128, and every member of it, including the chiefs, was paid by salary. In this way a fund of about eleven million dollars had been accumulated,

partly by the annual payments from the sources mentioned and partly by the interest on investments. In order to ensure permanency it was resolved to associate the clinic with the University of Minnesota. The fund had been handed over to a board of eleven persons, six elected by the staff and five by the university. He passed on to speak of the importance of a close co-operation between English-speaking peoples, not only to ensure the advance of surgery but also, and chiefly, for the progress of thought in all nations. The common possession of the English tongue meant something more than speaking the same language; it meant thinking in the same way. There was fundamentally a unity of purpose and of ideas; it remained to ensure the full realization of this unity. Sir Berkeley Moynihan gave the toast of American surgery in a brilliant speech, in which he sketched the early history of surgery in England and in America, and the intimate ties which from the earliest days of American independence had existed between surgeons in the two countries. If an attempt, he said, were made to enumerate the characteristics of American surgery they would be found to be perfection of technical achievement, integrity of statement, fertility in new suggestions, and readiness to receive new ideas. The profession in America was unafraid of new adventures in action or thought, and in American surgery none held higher places than Dr. William Mayo and his brother. The toast was acknowledged by Dr. Donald C. Balfour, a member of the Mayo Clinic at Rochester, who gave a brief account of the efforts made, and in part completed, to improve the organization of medical education in the United States.

EARLY MENTAL TREATMENT AT A GENERAL HOSPITAL.

AT Middlesex Hospital on June 28th, two new wards, for men and women respectively, were formally opened for the treatment of functional disorders of the nervous system. These wards are to be worked in co-operation with St. Luke's Hospital for Mental Diseases, and the cases received will be under the treatment of the medical staff of St. Luke's and will be attended by St. Luke's nurses. This is believed to be the first instance in this country of an alliance between a general hospital and a special hospital for nervous disorders. The two institutions are to share funds, material, experience, and the services of the staff so far as may be necessary, and all the resources of a general hospital in the way of special examinations and of medical and surgical treatment will be available for these patients. Although the wards are for the reception of early mental cases which require in-patient treatment, it is not intended, nor would it be possible, to admit cases of insanity or mental deficiency, or cases of a kind which might cause annoyance to other inmates of the hospital; the patients in these wards will be under no more compulsion than those in the general wards. It is hoped that although the wards are small, and the cases treated must be few, the mere establishment of the wards will do something to break down the prejudice whereby mental trouble is severely isolated from all other human infirmities. The chief advantage of the arrangement will be that the environment of a general hospital is likely to react favourably upon patients and prospective patients, because such an institution will be approached by the patients with less hesitation and misgiving than a special mental institution often excites. The Earl of Athlone, Chairman of the Middlesex Hospital, welcomed the few persons present, chiefly members of the staffs of the two hospitals concerned, and extended a special greeting to the representatives of St. Luke's. He remarked that the importance of this interesting reform in hospital procedure was not to be measured by the number of beds at present available, but by the fact that the principle of co-operation between a general and a special hospital of this kind, several times mooted, had now taken practical shape. Mr. A. C. Powell, treasurer of St. Luke's, said that there was a very great future for such co-operation. He remarked upon the fact that Middlesex and St. Luke's came into existence almost in the same year, and the history of St. Luke's indicated the rise and progress of the new spirit in regard to mental disorder. Formerly the word "lunatic" was commonly applied to cases received at that hospital, but the word had now completely disappeared; the change was not a mere polite convention, but was significant of a new outlook, to which the departure at the Middlesex bore further witness. Other speakers added a few congratulatory words, and Dr. C. Hubert Bond expressed the interest of the Board of Control in this movement. He remarked that at all the great general hospitals of this country there had hitherto been an impervious screen, whereby all mental cases were banned from their doors. It was a matter of profound interest, therefore, to find this association of Middlesex and St. Luke's, and he looked forward to the example being followed, if not by every general hospital, certainly by all the great teaching hospitals of the kingdom. The visitors afterwards inspected the wards; each contains accommodation for two or three patients; a special effort has been made to suggest cheerfulness in decoration and furnishing, and the appearance is very comfortable and homelike. The wards are in a part of the hospital away from the general wards and their approaches, and they form a self-contained unit, with sitting room, kitchen, and store cupboards. Border-line cases will also be treated in an out-patient department.

THE LABORATORY DIAGNOSIS OF VENEREAL DISEASES.

THE first edition of the Medical Research Council's Report (No. 19) entitled "The Laboratory Diagnosis of Gonococcal Infections and Methods for the Detection of *Spironemum pallidum*" was issued in September, 1918, and proved to be one of the most useful of the reports upon pathological methods, but it has been out of print now for some months. A revised edition[1] has now been published, and though it follows closely the original plan it contains some new features and is excellently illustrated. Its object is to describe reliable methods for the laboratory diagnosis of gonococcal infections and to explain the technique of dark-ground illumination and the staining reactions which may be employed for the identification of the syphilis spirochaete. The first part, which deals with gonorrhoea, discusses the localities which should be examined for the presence of gonococci, describes the methods to be employed for the identification of the gonococcus in film preparations, advises on methods for the cultivation of the gonococcus, cautions against the procedure employed for the production of a focal gonococcal reaction, and considers the advantages, disadvantages, and limitations of the complement fixation test. The descriptions of the most satisfactory methods of preparing culture media for this delicate organism are detailed and explicit, and four different methods for carrying out the notoriously difficult complement fixation test are given. One of the best features of this part of the report is the frank discussion of the value of the evidence which may be derived from these different methods of investigation. In the second part of the report Mr. Barnard explains in simple language the principles underlying observation by dark-ground illumination and describes methods for setting up the apparatus. This was looked upon as one of the most useful sections of the first

[1] H.M. Stationery Office, or through any bookseller. Price 1s. 6d.

edition, and a direct and practical description such as this will be of great service to those endeavouring to master the technical difficulties of this branch of microscopy. Mr. Barnard describes a method he has recently devised for differentiating between *S. pallidum* and other spironema by employing on eyepiece graticule which provides a scale in reference to which the spironema under observation may be measured. Dr. Dobell contributes the final section on other methods of demonstration of spirochaetes—namely, stained films, Indian ink and Congo red methods and silver nitrate methods—and emphasizes the precautions which must be observed in order to secure satisfactory preparations. His argument on the correct nomenclature of the organism, commonly referred to as the syphilis spirochaete, leads him to the conclusion that its correct name should be *Spironema pallidum*.

BOTULISM.

A STUDY of the epidemiology of botulism, by Drs. Geiger, Dickson, and Meyer, has been published in Bulletin No. 127 of the United States Public Health Service. In view of the admittedly great difficulty—perhaps we might say impossibility—of obtaining an exact and exhaustive record of the occurrences of botulism, statistics of incidence are hard to interpret. This remark applies equally to rates of fatality, geographical distribution, and attribution to particular articles of food. In spite of these obstacles the investigators have collected some important data. The most detailed inquiry related to the Yakima Valley district of Washington. A careful survey demonstrated that within five years 7 outbreaks of human botulism, 27 outbreaks in domestic fowls, 26 in horses, 3 amongst cattle, and 1 amongst pigs had occurred. Of 26 human cases in the State of Washington, 18 were fatal. Home-canned corn, asparagus, and spinach were incriminated, and in one case commercially canned evaporated milk seemed to be responsible. Thirty of the outbreaks studied—32.9 per cent. of the available data—were verified bacteriologically. Regarding the relative proportions of the two types of organism, Type A has been isolated 38 times and Type B 13 times. In 11 outbreaks the diagnosis was established by the demonstration of the toxin of *B. botulinus* in the remnants of the incriminated food. The popular idea that food must always be visibly spoiled in order to be toxic is not entirely supported by the available observations, although in a majority of instances some abnormality was recognized. Instances of tinned beans, tinned spinach, and tinned minced olives occurred where no change was noticed. *B. botulinus* is a soil parasite in some localities, and the frequent occurrence of botulism in the southern section of California is apparently closely connected with the distribution in nature of the spores of the bacillus. A short account of the observations made by Professor K. F. Meyer in California, and also in this country, where he found *B. botulinus* five times in 64 samples of English soil, was given in the course of a review published on June 2nd (p. 932) of Dr. Gerald Leighton's book on *Botulism and Food Preservation*.

INTERNATIONAL INDUSTRIAL HYGIENE.

THE International Labour Organization for Industrial Health is an offshoot of the League of Nations. There exists in the public mind some considerable confusion as to its constitution and real function, and many of those who are better informed about its objects seem to have but hazy notions respecting the details of its activities. It was therefore a happy conception on the part of the League of Nations Union to bring together lately in conference representatives from authoritative bodies, interested in promoting industrial health and safety, and accredited representatives of the International Organization itself. A report of the conference appeared in our last issue (p. 1108). Its aim was by means of discussions and explanations to produce a better understanding of the work carried on in Geneva and of the ways and means by which the efforts and objects of the bodies particularly interested can be assisted by a co-ordinating centre. Among the members of the medical profession present at the various sessions were Sir Thomas Oliver, Dr. J. C. Bond, Dr. W. F. Dearden and Dr. Alfred Cox, representing the British Medical Association, Dr. D. McKail, Dr. T. Watts, M.P., and Dr. W. H. F. Oxley, representing the Association of Certifying Factory Surgeons, Dr. T. M. Legge, Professor E. L. Collis, Dr. F. E. Fremantle, M.P., Dr. C. S. Myers, Dr. Winifred Cullis and Dr. R. Legge (University of California). The scheme devised by the promoters was to select for discussion four of the principal industrial health problems now before the public; to have these introduced by well known British experts; to bring out under each heading how the International Organization could be useful. Mr. Harold Grimshaw, who occupies the position of Chief of the Diplomatic Section of the Central Office, was present at all the sittings and, during the course of the discussions as well as in a preliminary address, very ably fulfilled his particular task of making the situation quite clear so far as the International Organization was concerned. He pointed out that this body was not an amalgamation of Trade Unions or Soviets, but held place as a well defined unit in the League of Nations constitution established by the Treaty of Versailles. Its function was to secure by international action the adjustment of conditions of labour throughout the world to the requirements of justice and humanity; its constitution was made up by membership of subscribing States, at present fifty-four in number. At periodical conferences to which each State sent four delegates—one representing employers, one representing workers, and the other two directly representing the Government concerned—draft conventions were formulated, recommendations with a view to co-ordinating legislation in member States were drawn up, and scientific Commissions of Investigation were appointed. He explained how the permanent staff at Geneva, under the supreme direction of M. Albert Thomas, collected information from all quarters, both for the purposes of the conferences and for the use of subscribing States, and added that much of this would be available to properly accredited associations who cared to make application. He also intimated that the magnificent library of the Organization would be at the service of any properly accredited representatives of such associations visiting Geneva. Though no resolutions were brought forward, the conference seemed much impressed with the present and future usefulness of the International Organization.

TO HARROGATE BY PULLMAN CAR.

JUST four years ago, in a note on Harrogate and its eighty-seven different waters—"One sure, if another fails"—we mentioned the successful efforts then being made to improve the organization and equipment of British spas and bring their claims more prominently before our own countrymen.[1] The revival of Continental watering places since 1919 makes it desirable once again to remind the British medical profession of the advantages of our home health resorts, and to draw attention to the steps taken by the baths management and the railway authorities to attract patients to Harrogate. On Monday next a new fast train service between London, Leeds, Harrogate, and Newcastle will be instituted. These trains, which are made up of specially built Pullman cars, first and third classes,

[1] BRITISH MEDICAL JOURNAL, July 13th, 1918 (p. 75).

are timed to cover the 203¾ miles from King's Cross to Harrogate in exactly four hours. Each day during the season one of these most luxurious trains will leave London at 11.15 a.m., and another travelling in the opposite direction will leave Harrogate at the same time. A trial run, organized by the London and North-Eastern Railway Company and the Pullman Car Company, in association with the Harrogate Corporation, took place last week-end. The guests on the inaugural trip included representatives of the medical press and some twenty practising medical men, mainly from the metropolis. Entertainment on arrival at Harrogate was provided at the Hotel Majestic, where a banquet to celebrate the occasion was held on Saturday evening. The health of the guests, proposed by Sir Ernest Bain, chairman of the Wells and Baths and Publicity Committee, was responded to on behalf of the medical visitors by Dr. Fortescue Fox, and on behalf of the Harrogate Medical Society by Dr. David Brown, who drew attention to the work of the Royal Bath Hospital, a local charity, which celebrates its centenary next year. This institution of 150 beds extends the benefits of Harrogate baths and mineral waters to poor patients; it had been visited during the afternoon by a number of the medical guests, who examined the wards, the reorganized bath-house, and the laboratories. Dr. David Brown mentioned, as an indication of recent progress at the great Yorkshire spa, the winter classes held during the last two years by members of the local medical society for the training of bath attendants in the rudiments of anatomy, physiology, and electricity, and in the technical methods employed at the Royal Baths. These were inspected at leisure by the visiting party on Sunday morning. In various other ways the Harrogate bathing establishment has moved with the times, and, assuming support from the medical profession, the new Pullman car train service should deflect a considerable proportion of invalids from the Continental health resorts.

THE INTERNATIONAL SURGICAL CONGRESS.

THE sixth congress of the Société Internationale de Chirurgie will (as already announced) be held in London from July 17th to 20th under the presidency of Sir William Macewen. On Tuesday, July 17th, at 11 a.m. the congress will be opened by the Prince of Wales in the presence of the Foreign Secretary, the Minister of Health, and the President of the Board of Education. Many ambassadors and ministers will attend the opening ceremony, which will take place in the rooms of the Royal Society of Medicine. In the afternoon a discussion on the surgery of the endocrine glands (thyroid excluded) will be held. It may be of interest to describe how the discussions of the congress are arranged. Official reporters have been appointed, who will give abstracts of papers which have already been circulated in full. These abstracts may take not more than fifteen minutes. Then may speak for ten minutes those who have signified their desire to do so, and last, if there is time, any member of the congress may enter the discussion for not more than five minutes. The official reporters for 1923 are Drs. Bazy (Paris), MacAusland (Boston), Frazier (Philadelphia), Sauty (Lyons), Fraser (Edinburgh), Gosset (Paris), Sargent (London), Vergo (Pavia), Hey Groves (Bristol); Quénu, Duval, Moquet (Paris); Crile (Cleveland), Almroth Wright (London), Willems (Liège), Bristow (London), Platt (Manchester), Henrikson (Skien), and Putti (Bologna). On the morning of July 18th there will be a discussion on arthroplasty; in the afternoon operations will be watched at the hospitals. The proceedings on July 19th will open with a discussion on the late results of peripheral nerve injuries, to be followed by the general meeting, and in the afternoon operations will be seen. On the morning of July 20th there is to be a discussion on vaccino- and sero-therapy (tetanus excluded), and on operative shock; after lunch, besides a programme of operations to be watched, there will be a demonstration on vaccino-therapy by Sir Almroth Wright at St. Mary's Hospital. All these meetings will be held at the Royal Society of Medicine. Entertainments have not been forgotten. The Ladies' Committee has organized visits to various places of interest in London, and an excursion to Hampton Court Palace and to Windsor. On Monday evening, July 16th, there will be a reception by the University of London. On the afternoon of July 17th Sir John and Lady Bland-Sutton will hold a reception, and in the evening delegates, members of congress, and friends will be received by the President, Sir William Macewen. On July 18th the Lord Mayor will give an evening reception at the Mansion House. On Thursday, July 19th, there are to be receptions by the President of the Royal College of Physicians and by the President of the Royal College of Surgeons at 4 and 9 p.m. respectively. On Friday, July 20th, there is the annual banquet of the society. After these somewhat strenuous four days the visitors will probably enjoy one of the two three-day tours which have been arranged. Each begins on July 21st. One is to the Shakespeare country and Oxford, the other to Bournemouth, the New Forest, Salisbury, Winchester, and Stonehenge. The Council of the British Medical Association has offered members the use of its Library and the services of its officials. The following are amongst the many distinguished surgeons attending the congress: Drs. Hartman, Martell, Lariche, Tuffier, Rovsing, Depage, Lamlotte, Willems, Schoemaker, Giordano, Putti, Soublotitch, Denegri, Bartos, Jonesco, De Quervain, W. W. Keen (who comes the doyen of American surgeons, president of the congress last year, a young man of 86), Lovett, and Matas. An interesting and novel badge has been found in a small medal bearing the figure of John of Arderne taken from a fifteenth-century manuscript. The British secretaries are Sir D'Arcy Power and Mr. J. E. H. Roberts. The offices of the secretariat are at 26, Harley Street, W.1.

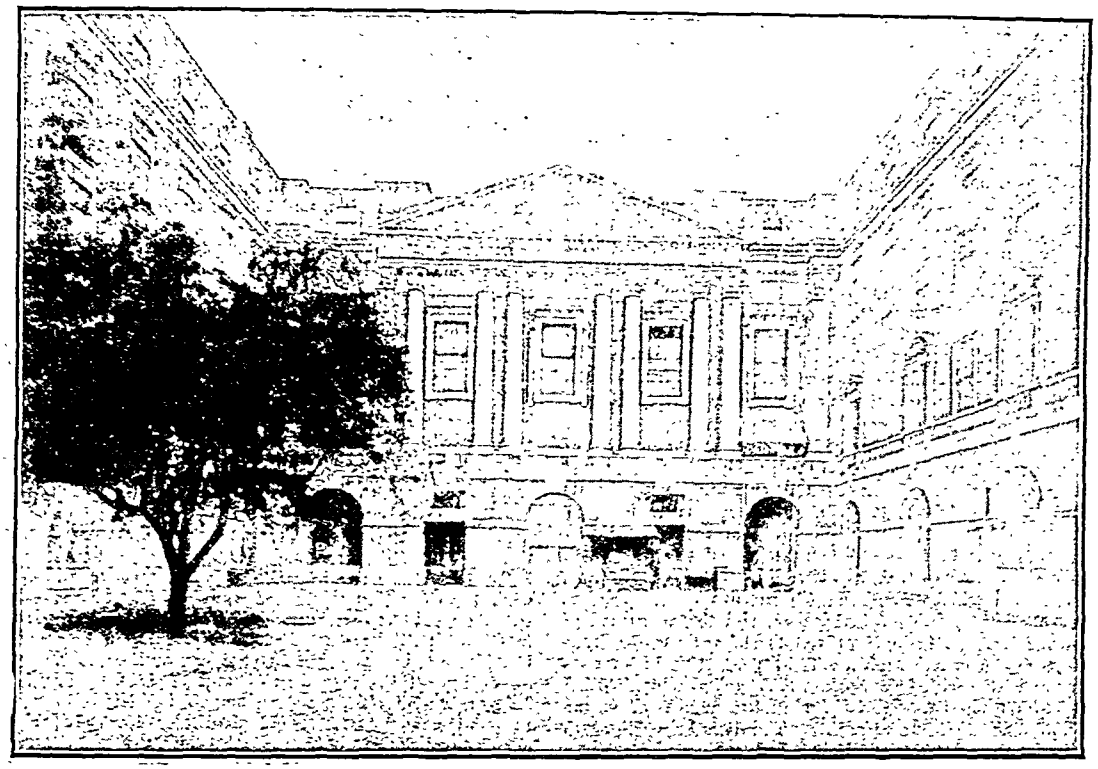
THE gold medal of the Royal Society of Medicine, which is presented triennially to a scientist, man or woman, who has made valuable contributions to the science and art of medicine, has this year been awarded by the Council to Dr. F. Gowland Hopkins, F.R.C.P., F.R.S., Professor of Biochemistry in the University of Cambridge.

THE Prince of Wales has accepted the invitation of the President and Council of the Royal Society of Medicine to be present at the Society's dinner on Tuesday, December 11th.

PROFESSOR PITRES, the well known neurologist and former dean of the Bordeaux Faculty of Medicine, has been elected a member of the Académie des Sciences Morales et Politiques.

THE chairman of the London County Council is making an appeal for support for the Children's Country Holidays Fund, which enables London elementary school children to benefit both physically and mentally by a fortnight's holiday in the country. This year, owing to the financial position of the fund, it has unfortunately been necessary to estimate for about 4,000 fewer children than were sent away last year. Donations should be sent to the secretary of the fund at 18, Buckingham Street, Strand, W.C.2.

OWING to the death of Dr. H. C. Ernst the *Journal of Medical Research* has become the property of the American Association of Pathologists and Bacteriologists. It will be devoted to the publication of original observations and investigations in pathology. The price is 5 dollars net for each volume in the United States, 5½ dollars net in Canada, 6 dollars net in other countries. The editor-in-chief is Dr. F. B. Mallory, Boston City Hospital, Boston, Mass., U.S.A., to whom all communications should be addressed.



THE BRITISH MEDICAL ASSOCIATION'S NEW HOUSE.
View of main quadrangle as it exists at present.

NEW HEADQUARTERS BUILDING FOR THE ASSOCIATION.

THE house of the British Medical Association (429, Strand) has for some years proved increasingly inadequate for the growing activities of its departments, and accommodation originally intended for the use of members generally has been gradually absorbed for business purposes. The position has been under consideration for some time, and the Council, at its meeting on April 18th last, adopted a resolution to the effect that the time had arrived when steps should be taken towards securing a British Medical Association building or site not only adequate for likely future office requirements, but also capable of providing small and large hall accommodation. The Council on the same occasion authorized the Office Committee to take steps towards obtaining increased accommodation and gave it power to enter into negotiations, including the taking of an option, if necessary. The Office Committee referred the matter to a subcommittee, consisting of the officers of the Association (the Chairman of Representative Meetings, the Treasurer, and the Chairman of Council).

At the Council Meeting on June 13th the subcommittee was able to report that it had examined a large number of sites, had obtained expert opinion upon several of them, and had come to the conclusion that the most suitable course was to enter into negotiations for a site on the Duke of Bedford's Estate in Bloomsbury. There was already upon it an imposing building, designed by Sir Edwin Lutyens, R.A., for the Theosophical Society; this building had been completed up to a certain point when it was taken over by the Government. It was used by the War Office during the war as the London Command Paymaster's Office. Afterwards it was handed over to the Disposals Board.

The Finance Committee, after long consideration and consultation with various experts, resolved unanimously to instruct the Treasurer to accept an offer by the Disposals Board of the lease of the college for 200 years from March 25th, 1920, and to continue negotiations with the trustees of the Bedford Estate concerning certain complementary ground, with a view to obtaining possession of the frontage of about 140 feet to Tavistock Square and Upper Woburn Place.

The meeting of the Council on June 13th was interrupted in order that the members in a body should inspect the building. On the resumption of business the Chairman of Council gave a brief account of the many inquiries that had been made with regard to various sites, and showed plans of the site now selected and of the college building upon it. He pointed out the advantageous position of the site abutting upon one of the chief north and south thoroughfares in London, in close proximity to the chief railway termini from the North (King's Cross, St. Pancras, and Euston), and lying practically equidistant from the Underground Stations at Euston Square, King's Cross, and Russell Square. He said that at 429, Strand, the Association had accommodation represented by just under 18,000 square feet of floor space. It was estimated that any new premises ought to have a total of 42,000 square feet. Both these figures excluded the space required for corridors, entrance, lift, etc., and the estimated requirement included provision for a large conference room, and for the proper housing of the library, as well as for adequate Council and committee rooms. The building which the Council had just inspected had a total floor area of 58,000 square feet, including passages, lavatories, and so forth. Standing on an ample site, the provision of full social facilities for members in the way of meeting rooms, and even all the amenities of a club, were within its scope.

The modern demand for garage accommodation could readily be met within the precincts of the building.

The Treasurer reviewed the financial aspects of the proposed transaction, and concluded by saying that the whole matter came practically to this: That the Association, in removing from the one building to the other, must face the higher maintenance cost of the increased accommodation. The chief assets of the Association were the present valuable freehold building in the Strand and the reserve fund. He was satisfied that the purchase contemplated was an advantageous transaction for the Association, and that the financial position was such that the Council might unhesitatingly approve the project. After some further discussion, Dr. John Stevens moved the formal approval of the recommendation; this was seconded by Dr. Ridley Bailey and supported by Dr. Crawford Treasure, Dr. Radcliffe, Dr. Darling, Colonel C. B. Heald, Dr. C. E. Douglas, and Mr. McAdam Eccles. The Chairman then put the resolution sanctioning the proposal, and it was carried without dissent amid much applause.

We reproduce on the preceding page a photograph of the main quadrangle, or courtyard, facing the north-east corner of Tavistock Square, as it appears to-day in its unfinished condition. It will, perhaps, serve to give members of the Association some idea of the general proportions of the building. When completed the new house of the British Medical Association will, we venture to say, be regarded as the handsomest structure of its kind in modern London, and a worthy memorial to the genius of its architect. It is built of red brick, with white stone facings. The centre archway is at present filled in temporarily with rough brickwork, which, together with other makeshifts, will be removed during the process of fitting the building for its new purpose. This it is hoped to carry out under the advice of Sir Edwin Lutyens.

GOLF COMPETITIONS AT THE ANNUAL MEETING.

THE British Medical Association holds each year a golf competition wherever the Association happens to be holding its annual meeting. In the past members have only had the privilege of playing for one cup—namely, the Ulster cup, presented to the Association by the Ulster Branch, and first played for during the annual meeting at Belfast in 1909. This year, by the kindness of the President-elect, who has presented the Childe cup, members will compete for two cups. Both will be played for during the same round. The Ulster cup is open to all members of the Association, the maximum handicap allowed being 18; the Childe cup is open to all members of the Association who have a handicap of 10 or over, 18 being the maximum again allowed. Play in both cases is against bogey. If the Ulster cup is won by any competitor with a handicap of 10 or over, the Childe cup will be presented to the player (with a handicap of 10 or over) with the next lowest score. The Portsmouth Division has kindly offered to present small memento cups to the winners of both the Ulster and the Childe cups.

Conditions of play are as follows:

1. One round of 18 holes to be played on Thursday, July 26th, by kind invitation of the Hayling Golf Club at their course on Hayling Island.
2. Competitors are not permitted to put in previous play on the course on the day of the competition.
3. Intending competitors are required to furnish with their entry a certificate signed by their club secretary stating (*a*) their lowest handicap, (*b*) the bogey score of their own course, and (*c*) the length of their own course.
4. Entries to be made at the Reception Room before 4 p.m. on Wednesday, July 25th.
5. Competitors may choose their own partners, although partners will be arranged for by the committee on notice being given at the time of entry.
6. Play to commence at 10 a.m., no cards to be issued after 3.30 p.m.

It is hoped that all members who attend the Annual Meeting and who play golf will enter for these competitions. Lunch will be served at the club house, and by kind invitation the competitors will be entertained at tea in the afternoon.

CANADIAN MEDICAL ASSOCIATION.

THE fifty-fourth annual meeting of the Canadian Medical Association, held in Montreal on June 12th and three following days, was largely attended, more than 800 members and guests being present. A number of other medical organizations held their annual meetings at the same time; these included the Canadian Society of Anaesthetists, the Canadian Radiological Society, the Canadian Society for the Study of Diseases in Children, the Canadian Medical Protective Association, and the Province of Quebec Medical Association.

In his address of welcome Sir Arthur Currie, Principal of McGill University, said that Montreal was fast becoming a Mecca of conventions, but no convention that had been welcomed here had brought more honour to the city than that of the Canadian Medical Association, whose members came not particularly for their own pleasure or advancement, but chiefly that the community might benefit. Referring briefly to the aims and ideals of the profession and to the value of such an organization as the Canadian Medical Association, the Principal expressed the hope that the general public and the Government, Dominion and Provincial, would take a more active interest in medical advancement.

THE WORK, PRESENT AND FUTURE, OF THE CANADIAN MEDICAL ASSOCIATION.

Dr. Malcolm MacEachran of Ottawa gave an address on what the Canadian Medical Association stands for. There were, he said, eleven hundred doctors in actual practice in Canada; this was an average of one doctor to every 862 inhabitants, but the distribution was not even. He gave an outline of the organization and aims of the Canadian Medical Association, and mentioned its desire to possess national headquarters. He spoke also on the problems of hospitalization, transportation of the sick, medical education, training of interns, and the better correlation of preventive and curative medicine.

It was arranged for lecturers to visit various provincial centres to speak on the most recent developements of medicine and surgery. The three lecturers appointed were Dr. F. W. Marlowe of Toronto, Dr. F. J. Tees of Montreal, and Dr. T. C. Routley, Secretary of the Association. It is planned to start at Victoria, B.C. on July 3rd. The centres visited will be Vancouver, Edmonton, Calgary, Saskatoon, and possibly Moose Jaw and Winnipeg. Drs. Marlowe and Tees will give scientific addresses and Dr. Routley will speak on organization work. Three representative committees were appointed to study questions relating to medical education and legislation. It was suggested that a medical conference be held some time during the coming winter with a view to bringing together all bodies in Canada interested in such matters.

The distribution of the doctors throughout the country is a vexing question. Some districts are almost totally without medical aid, whilst in other parts of the country the supply exceeds the demand. It is hoped that the association will take up the matter seriously and suggest a remedy to relieve the situation.

Men without medical qualifications are presuming to practise medicine in the west, and this usurpation of privileges is spreading to the east, to the general lowering of the standards of the profession. The Hon. J. D. McLean, M.D., Provincial Secretary and Minister of Education and Railways, British Columbia, told the members of the Canadian Medical Association that there was need for strenuous fighting to eliminate this scourge of the profession. "One difficulty we have in our province," he said, "and one that you will have in the eastern provinces in times to come, are the followers of many cults who are presuming to practise medicine. There are some men practising medicine to-day who are not as well educated along medical lines on which they are practising as they ought to be. Precautions must be taken and some methods adopted whereby these men shall be brought to a higher standard of efficiency. It is a question that men will have to face in eastern Canada as we are facing it now in the west and in the Western States of the

United States. Judging by my observations, there is one thing the medical profession must do: there must be to some extent a house-cleaning."

Following Dr. McLean, Dr. R. W. Powell of Ottawa, president of the Canadian Medical Protective Association, referred to actions taken by the Protective Association for malpractice, negligence, or want of skill. "As we go on," he said, "the greater we see the value of organized defence, of straightforward fighting, of no compromise."

In submitting the report of the general council of the Protective Association Dr. F. Fenton Argue expressed the belief that the limiting of the association work to its members had brought matters to a pass where a change of policy had become necessary. On the motion of Dr. W. G. Reilly a resolution was passed unanimously calling upon the executives of the Medical Association and the Protective Association to confer, in the hope of evolving a scheme by which membership in the former association would carry with it the protection afforded by the latter association.

The affiliation of the Medical Association of the Province of Quebec with the Canadian Medical Association was confirmed, which means that all of the nine provincial associations are now linked up under the Dominion organization. The making of the Canadian Radiological Society a branch of the Canadian Medical Association was also approved. The members decided to petition the Dominion Government to increase for income-tax purposes the deductable sum for dependent children to 500 dollars. It was decided to hold the next annual meeting (1924) in Ottawa. The following officers were elected for the ensuing year: Dr. John F. Kidd of Ottawa was named president; Dr. A. D. Blackader was elected editor of the *Journal;* Dr. A. T. Bazin was made honorary treasurer, and Dr. T. C. Routley of Toronto general secretary.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

The clinical and scientific work of the meeting was carried out in sections, including pathology, dietetics, diseases of the ear, nose, and throat, and radiology, and at general meetings. At one of these Dr. S. A. Kinnier Wilson gave a history of the National Hospital for the Paralysed and Epileptic in Queen Square, London, sketched the work of the men that made it, and described its organization.

A discussion on infection of the hand was very largely attended. The chief speakers were Mr. I. MacLaren Thompson, Department of Anatomy, McGill University, who dealt with the anatomical structure of the hand. Dr. W. A. Ferguson spoke on the development of treatment in infections, showing the advance made in scientific management of traumatic injuries. Dr. D. D. MacTaggart, Professor of Medical Jurisprudence, McGill University, dealt more particularly with disabilities of the hand in their economic relationship.

Dr. William J. Mayo (Rochester, Minnesota) gave an address on the septic factors in tuberculosis, syphilis, and carcinoma; with regard to the latter he said:

"Glandular involvement in carcinoma tells the story. While operative skill and technique are important, generally speaking, results show that, without regard to the type of operation, five-year cures occur in 71 per cent. of cases in which an operation has been performed for carcinoma before the glands are involved, and in only 19 per cent. after they are involved. Local operations cure local disease; massive operations fail when the local stage has passed. The associated sepsis in cancer is the cause of much of the distress, and hurries the patient to a fatal end. We all recognize the dangers of operation on the infected, so-called inflammatory cancers, such as those around the mouth. The use of the knife in these cases is often followed by rapid recurrence. Cautery excision in these cases, followed later by plastic repair, is a step in the right direction. There are many men who, with a small amount of radium, do little good and an enormous amount of harm. With good faith, but poor judgement, they apply radium in cases in which an operation should have been performed early. Generally speaking, the use of radium means the parting of the ways. If radium is selected, one can seldom turn back and take the operative route with a good prospect of success."

Sir William Taylor (Dublin) followed with an address on intestinal obstruction.

Dr. Luther C. Peter of Philadelphia was the first speaker in a discussion on the diagnostic value of modern perimetry in disease of the visual pathway, and Dr. W. G. M. Byers of Montreal spoke on the treatment of tuberculosis of the eye. The surgery of the mastoid was dealt with by Dr. Edmund Boyd of Toronto; and unusual findings, with pathological specimens, in the neuro-otological examination in a verified brain tumour in a child was discussed by Dr. D. E. Staunton Wishart, also of Toronto.

A discussion on insulin and diabetes was opened by Dr. F. G. Banting of Toronto, and it was subsequently announced that the Federal Government would be asked to recognize suitably the work of Dr. Banting and his collaborators, including Dr. C. Best; and that some special recognition should be given also to Professor Macleod, in whose laboratory in Toronto the work was done, and to Professor Colip.*

Dr. J. S. Fraser, surgeon to the Ear, Throat, and Nose Department of the Royal Infirmary, Edinburgh, gave an address on diseases of the ear. Sir Robert Jones gave a demonstration on orthopaedic surgery, in the course of which he discussed several series of cases of surgical tuberculosis, club-foot, and other deformities, which had been collected for him, and indicated the treatment he recommended in each. The demonstration was attended by over 500 members, who, at the conclusion, expressed their appreciation of the demonstrator's efforts.

THE CANADIAN AND THE BRITISH MEDICAL ASSOCIATIONS.

The Council of the Canadian Medical Association proposed that an invitation should be given to the British Medical Association to visit Canada so that a joint meeting of the two Associations might be held. In placing the matter before the meeting Dr. C. F. Martin, President of the Canadian Medical Association, said that a set of questions had been sent out to members asking whether they approved such an invitation. Of the replies received 1,223 were in the affirmative and only 28 in the negative. This statement was received with cheers, and the proposal was unanimously approved.

Dr. C. F. Martin afterwards presided at a luncheon given to Lord Shaughnessy and Sir Robert Jones. More than 300 members of the Canadian Medical Association were present. Afterwards Sir Robert Jones gave a short address on the imperial relationships of medicine. In the course of his remarks, he said:

"I cannot imagine any theme more likely to prove the next and perhaps the greatest chapter in the history of medical science. I also cannot picture any subject that would respond to the hopes and aspirations of us all more deeply. But it is a very great idea, and I cannot aspire to do more than emphasize an aspect that possesses immediate importance.

"First of all, what is meant by imperialism? There is no denying that, before the great war made the word synonymous with comradeship, there was a certain antipathy and suspicion towards the very name, principally founded upon a false conception of dependence. The war, out of its long agony and affliction, produced one progressive and not simply destructive achievement—it cemented imperial relationships. It was in that sense a challenge. It proved as never before that dependence one upon another in a common cause is a greater and more progressive ideal than isolation. It proved in our particular civilization the profound possibilities of team work; it taught us all the lesson, in other words, of unity of effort founded, not upon jealousies, water-tight compartments, or indifference, but upon comradeship and high ideals.

"The war has gone, and with it much of its dramatic and urgent challenge. But in its place is the infinitely more permanent challenge of peace. Is all that enthusiasm, fraternity, and unbounded promise to evaporate and pass into a tepid tolerance? Does it require the stringency and destruction of war to make an ideal common to us all more than an individual occupation? Surely not. Without question every effort should be made to maintain our past and present relationships.

"Consider under such an idea—so reasonable and so inevitable—the prospect of a closer alliance between the British and Canadian fields of medicine. I admit that on the grounds of sentiment alone the promise of such co-operationship possesses a peculiar and lofty idealism. The tie between the medical traditions of your land and the land of your fathers recalls those ancient institutions at which they were taught. Nor is there any need for me to remind you how deeply the profession in Great Britain respect you and how concerned they are for the greatest possible unity with you. I was asked to make the point as clear and to emphasize it as strongly as I am

* It is now reported that the Ottawa Parliament has voted Dr. Banting an annuity of 7,500 dollars.

able, and I do so now more gladly than I can say and less eloquently than I wish. There is, I know, nothing but goodwill on your side; it has been shown too plainly for misconstruction.

"Certain conclusions occur to me as an outsider. I am not here to formulate machinery for closer co-operation, for the simple reason that if the determination and goodwill are there, such technicalities come within the work of the committees concerned. All that can be emphasized, as I trust it will by our friends on this side, is the realization that progress is won not so much by independence as dependence one upon another. There is no question of interference with your autonomy or ours, any more than with our colleagues in Australia, New Zealand, or Africa. Out of such an alliance, who can tell what may not come in the future? but it is enough for us that our ideal should be that of a large family distributed, as is the way with large families, throughout the world, each master in his own house, but each with a sense of more than goodwill concerning the other habitations, and even a kind of family pride in their success and a loyal fellowship in their troubles."

The cablegram sent on behalf of the Council of the British Medical Association, as stated in a Current Note published last week, was read and very cordially received by the company. The letter addressed to the President of the Canadian Medical Association by the Chairman of Council, confirming the invitation, will also be found in the SUPPLEMENT of last week.

MEDICAL PRACTICE IN THE SCOTTISH HIGHLANDS.

THE most interesting part of the newly issued fourth Annual Report of the Scottish Board of Health[1] relates to the work of the practitioners under the Highlands and Islands (Medical Service) Grant Act, 1913. The Board states that there are signs that medical practice in the Highlands and Islands is growing increasingly attractive to doctors. For posts recently advertised there have been unexpectedly numerous applicants, and those who had left the area show an inclination to return. The report goes on to say that, apart from improved finance, the increasing popularity of the service is believed to be due, at least in part, to the sympathetic attitude of the British Medical Association and of its Highlands and Islands Subcommittee. Also, of the more recently qualified doctors who have been employed in emergency and holiday service in the Highlands, a proportion seem inclined to seek permanent posts, the temporary work having been to their liking. The result is that the service is now practically at full strength except in a few districts of exceptional difficulty owing to lack of suitable houses, or other reasons. For example, in the Island of Lewis one district of 354 square miles with 11,000 population has only two doctors, on account of want of houses; in another area it is very difficult to get a building site sufficiently level and free from rocks, while the hunger for arable land creates objection to giving up a feasible patch large enough to hold a house.

Special financial arrangements have had to be made for some isolated communities too small to occupy the full time of a doctor. Among the examples given of the difficulties encountered, that of Fair Isle, situated midway between the Orkney and Shetland groups, may be quoted. Down to the end of 1922 each visit to the island meant 150 miles of sea travel; a new arrangement for attendance from the south of Shetland is better, but it will require 50 miles by sea for each visit, or 100 miles if the boatman has to come from the island; the crossing includes Sumburgh Roost, where the troubled sea is kept in constant turmoil by the meeting of two tides. Such island work indeed is largely at the mercy of storms and fogs. On the Fair Isle a medical officer was recently fogbound for a week, and on the remote island of Foula another was detained for four days last July. Here is a striking account of a case in which, notwithstanding every effort, the weather rendered it impossible for a medical officer in Portree (the capital of Skye) to make a visit to a patient in the Island of Soay, to the south of Skye:

"I received a telegram from Elgol on Friday morning asking me to go to a man (on the Island of Soay) who had damaged his eye. . . . I had several patients in at the time who had come from North Raasay to consult me, and they kept me until about 12 o'clock noon. I then set out for Soay, but had to see an important case in Portree before going. . . . On the road to Glenbrittle, the last eight miles of which is very rough, I had considerable tyre trouble involving a good deal of delay, so that I did not reach Glenbrittle until about 4.30 p.m., when it was beginning to get dark. On finding that the boat from Soay was not at Glenbrittle to meet me I went to the guide at Glenbrittle and asked him to guide me across the hill—a distance of about three miles—to the place from which one can signal (by lighting a fire) to Soay for a boat. The guide refused to undertake the journey in darkness on account of the dangers. I may say that there is no track, and that there are three streams to cross, over which there are no bridges. I waited all night at Glenbrittle. During the night and in the morning heavy rain fell and a strong wind was blowing. When we again set out we found that the streams were quite impassable, and I then decided to try to cross from Elgol. I came back to Sligachan, and from there wired to Elgol asking if I could get across to Soay from there. While waiting for the reply I had again to change my tyres, borrowing one from a passing car. I received a reply from Elgol that it was impossible to cross to Soay that day."

The fund provided by the Act has been applied to medical service, nursing service, houses for doctors and nurses, hospitals and ambulance service, telegraphs and telephones, a special emergency scheme, and a special tuberculosis scheme.

The object of the medical service, it may be recalled, is to secure that distance of doctor from patient shall not add anything to the charges to be paid by the patient; small fixed fees, no matter what the distance is, are paid for first visits and for subsequent visits, and the doctor is subsidized from the fund to meet the deficit, usually by an annual grant, but in a few cases by a guaranteed income. The payments to doctors are under three heads, and for 1922 the amounts were estimated as follows: (1) Scheme of modified fees and special arrangements, £44,000; (2) supplementary scheme (mileage) £1,120; (3) holiday relief, £855.

It is to be understood that the Highlands Act is not in substitution for the Insurance Act, but in supplement. The Act owed its inception to the Scottish Insurance Commissioners, who, after their appointment, speedily realized that the Insurance Act fell far short of meeting the case of the Highlands, where the chief occupations—especially fishing and crofting—are not carried on under any contract of service. The Commissioners accordingly made a representation to Government, and a committee of inquiry was appointed; its report was followed by the passing of the Act. Last year the nursing service was expected to cost £8,500, houses for doctors and nurses £3,199, and hospitals and ambulance service £700. The annual grant is only £42,000, but owing to the war some of the contemplated services remained largely in abeyance, so that the fund rapidly increased. At the beginning of last year it was £172,624, but by the end of the year it had fallen to £143,459. In a very few years, therefore, Parliament will be faced by the fact that the funds will not nearly meet the outlay. Indeed, the expenditure in 1922 considerably exceeded the estimates above mentioned, medical services having cost £63,798, and nursing services £10,206. But of the benefit to the population of the Highlands and Islands there can be no doubt whatever.

As pointed out in an article on "The country practitioner" (May 26th, p. 904), the Highlands Fund is not the only subsidy outside the Insurance Act to medical service in Scotland. For specially difficult and remote parts of what are technically the Lowlands—parts of Aberdeen, Banff, Dumfries, etc.—there is a Necessitous Districts (Lowlands) Grant, devoted to removal to hospital, transmission of messages, establishment of doctor, subvention to income, means of conveyance, maintenance of dispensary, difficulty of access, and footpath miles. The total outlay must be quite small, but no figure is mentioned in the report. The principle, however, is of much importance—namely, that in the public interest medical and related services in sparsely populated and difficult areas may be specially assisted by grants voted by Parliament and administered by the central health authorities.

In a later article we hope to refer to the parts of the Board's report dealing with the Insurance Act.

[1] Fourth Annual Report of the Scottish Board of Health, 1922. Presented to Parliament by Command of His Majesty. Edinburgh: Published by H.M. Stationery Office. 1923. (Cmd. 1337.) Price 5s. net.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

The Ministry of Health for England and Wales.

A YEAR'S WORK.

PRACTICALLY the whole of the sitting of the House of Commons on June 28th was taken up by a discussion on the vote for the Ministry of Health. Mr. Neville Chamberlain, in illustration of the economic importance of public health, mentioned that among the insured population in 1922 upwards of 19,500,000 weeks were lost by sickness. This was the equivalent of loss of work by 375,000 persons for a whole year. But only by adding the corresponding figures of uninsured people, whatever these might be, could be estimated the full importance of a preventive health service. An examination of vital statistics was encouraging, especially when allowance was made for the exceptionally hard conditions of life during the last three or four years. The death rate in the first ten years of the century was 15.4 per 1,000; in the next ten it fell to 14.3; and last year to 12.8. In the five years 1910–15 the infant mortality rate was 111 per 1,000; in the next five it was 90; in 1921 it was 83; and last year it was 77. A baby born to-day could expect to live twelve years longer than its grandfather could have hoped.

It was thought by many that tuberculosis and cancer were the most fatal diseases, but that was far from being true. Respiratory diseases, such as pneumonia and bronchitis, came first in fatal effects. This high mortality was to be attributed to the congested conditions and polluted atmosphere of the large towns. After a thick fog the death rate in London went up. He hoped that before very long he would be able to introduce legislation to help the campaign for cleansing the atmosphere. Next in fatal effects were diseases affecting the heart, and third came those of the nervous system.

Cancer, which now caused 96 per 1,000 of all the deaths from all causes, was fourth, and there was no doubt, unhappily, that deaths from this disease were increasing. In 1900 the rate per million of the population was 829; ten years later it was 967, and in 1921 it was 1,215. The figures were very disquieting despite allowance for better diagnosis and the fact that more people reached the span called the cancer age. The Ministry of Health had a standing Medical Committee on cancer, and researches were being carried on by the Cancer Research Fund, Middlesex Hospital, and the Cancer Hospital, Fulham Road. In addition, the subject was under the constant attention of the Medical Research Council, and there had lately been started another body—the British Empire Cancer Campaign. If this organization could succeed in co-operating with the existing bodies and form some co-ordinating influence, he would heartily welcome its existence and be glad to give it his support.

The position with regard to tuberculosis was more encouraging. The deaths per million last year were only 855 as compared with 2,653 in 1867. With regard to M. Spahlinger's claims to cure tuberculosis, Mr. Chamberlain said that he had offered to M. Spahlinger to make a full and sympathetic examination of his method so soon as the serum and vaccine were supplied. Mr. Chamberlain afterwards referred appreciatively to Professor Dreyer's researches reported in our columns on June 23rd (p. 1065). Statistics of venereal diseases, Mr. Chamberlain said, showed that they were fairly rapidly on the decline. He attributed the improvement largely to the setting up of clinics; 191 were now in existence, and it was hoped to increase their number. The report of Lord Trevethin's Committee seemed at last to offer some basis upon which two schools of thought might work harmoniously in the future for the common good.

Owing to vaccination small-pox had for some time been almost extinct. In 1917 there were only 7 cases, but lately there had been a serious revival—in 1922 upwards of 973 cases, and this year, down to June 16th, 955. It was important not to lose sight of the fact that a mild type of small-pox might presently become much more severe. He considered the situation distinctly serious. Twenty years ago 75 per cent. of children were vaccinated and now only 38. There was a possibility of an outbreak, which if it occurred would not only be dangerous to health and life, but would certainly inflict very serious damage and injury upon the commerce of the country. The one sure protection was vaccination, and those who refused it and advised others to refuse it were taking a very grave responsibility.

Referring again to infant mortality, Mr. Chamberlain said that the satisfactory figure of 77 per 1,000 for 1922 still meant the death of 60,000 children under 1 year. On the other hand, if the rate had been what it was in the first ten years of the century, the deaths would have been 100,000. Besides the actual saving of life there was an improvement in the general health of the children. He ascribed this in great measure to the establishment of the infant welfare centres; there were now 1,950 in the country. There was need, however, for more centres, more pre-natal clinics, more free medical attendances, and more health visitors and improved practice in midwifery. Results already achieved proved that the expenditure of more money in these directions would be well worth while.

Dealing with the voluntary hospitals, Mr. Chamberlain said that the Commission had expended about £425,000 of the half million sterling voted by Parliament. It had now practically cleared off all the deficits for the year 1921, except in a few cases in which the equivalent amount of money could not be raised. While it was a fact that a good many voluntary hospitals had been obliged to realize their realizable assets, and had therefore reduced their reserves to a minimum, a considerable number were able to balance their accounts. A hopeful feature was that while expenditure had increased there had been increased mass contributions from factories and societies, but the situation was still serious. Every hospital had a terrible waiting list, and the growth of population had to be coped with. One way in which relief could be given to the hospitals was through Poor Law infirmaries, which had improved greatly in recent years both in equipment and method of treatment. Some had appointed consultant medical staffs, others had attached to them convalescent homes, and others had taken paying patients at fixed fees. In London they had 18,000 beds, and he hoped they might be able to help the hospitals. In conclusion Mr. Chamberlain said that the estimates had been reduced in the last two years by nearly £4,750,000, and he thought they had got almost to the end of possible reduction.

Mr. George Lansbury joined issue with Mr. Chamberlain in regard to vaccination, and Sir Kingsley Wood said that a great defect in the panel system was that only about half the general practitioners of the country had taken service under the Act. There were far too many patients on the doctors' panel lists. He suggested that insured persons should be able to change at any time. Another complaint he ventilated was as to the surgery accommodation. Mr. Charles Roberts agreed as to the possibility of improving the panel system, but thought that it was largely due to it that the statistics were so much better.

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a clean milk campaign), and Dr. Watts were subsequent speakers. The last named, taking up the antivaccination argument that the decline in small-pox was due to improved sanitation, said that scarlet fever, small-pox, and measles had been subject to the same sanitary conditions, but scarlet fever and measles had continued, whereas until last year small-pox had nearly died out. At present the parents of every child over the age of 6 months must produce certificate of vaccination or one of conscientious objection. Parents did not trouble to get even the latter. He could not recall half a dozen prosecutions of late. He asked that the law, such as it was, should be carried into effect. As to the Spahlinger treatment, he feared that Mr. Chamberlain's statement was not quite accurate. M. Spahlinger had worked for twenty years on his method. He had spent the whole of his private fortune upon it. Unless he had help in a few weeks his establishment and apparatus would have to be sold. In reference to the panel system, Dr. Watts said that now the work was cheerfully and efficiently done.

Sir Alfred Mond said the experience of the world was practically in favour of vaccination. It was in accord with the whole trend of the modern scientific treatment of disease. In 1874, when in Russia there was compulsory vaccination, small-pox did not exist; last year it was growing. The sanitary conditions of Mexico were terrible, but small-pox had almost died out owing to vaccination. He hoped that the Minister would exercise his fullest powers in this connexion. Maternity and child welfare work should be developed; the whole question of the medical treatment of children required co-ordination. For the Minister of Health to deal with a child up to a certain age and then to hand it over to another department was unscientific and uneconomical, and there was still a great overlapping in medical services. The linking up of ordinary hospitals with the other institutions for treating the sick was needed. The same difficulty had been found by him when dealing with the problem of National Health Insurance. The medical service up to a point was satisfactory, if not perhaps ideal, but what was wanted was to build up from the panel doctor to the specialist. A full inquiry should be held into the working of the National Health Insurance system; experience had demonstrated both its good and its weak points. It had been one of the greatest measures of social welfare ever introduced into this country, and no one doubted that it had come to stay. He thought that a committee of inquiry might overhaul the machinery and see what further developments were required. It could work with knowledge of the report of the committee which he set up when Minister of Health to deal with the possibility of amalgamating National Health Insurance and the administration of unemployed insurance.

Major Molloy, speaking as a member of the medical profession and not a panel doctor, said his experience showed that the work

done by them in the vast majority of cases was extremely good. The support given to cancer research was inadequate. To be efficient it must have the support, supervision, and sympathy of the Ministry of Health.

Lord E. Percy, on behalf of the Ministry of Health, said he thought it was obvious that the Government must give adequate assistance to the work of cancer research. Dealing with criticisms of certain reductions of expenditure, he said that for tuberculosis work it was about 3 per cent., but prices and cost of administration had gone down more; the actual service had expanded. The reduction in the amount for maternity and child welfare was about 15 per cent., but he believed that there also the cost of administration had gone down more than the reduction in the estimate. The service was to be as efficient and widespread as last year.

After reference by several Labour members to the effect of crowding on the spread of tuberculosis, Mr. Falconer, a Scottish Liberal, offered some criticism of panel doctors, while agreeing that the majority recognized their obligations. Sir Walter Preston feared that proper steps were not being taken to deal with the outbreak of small-pox in Gloucester, and gave his reasons at some length. Mr. Clynes summed up the debate on behalf of the Labour party, and incidentally returned to a charge made by Mr. Lansbury that under recent restrictions no child over 12 months got milk. Lord E. Percy, interposing, read the terms of the circular issued as long ago as March 31st, 1921, under which milk may be supplied to children up to 3 years of age, and exceptionally to children between 3 and 5 years of age.

Mr. Chamberlain agreed with Sir Alfred Mond that the panel system, whatever might have been its defects and faults, had done very valuable service by raising the standard of medical attendance among the poorer classes, but he did not question that it could be improved. Since 1920 much had been done to strengthen the weak places and to correct some of the faults disclosed in the course of experience. An attempt had been made to obtain a ubiquitous service, so that any insured person wherever he was might always be able to obtain the services of a panel practitioner; that was secured by a system of remuneration not dependent on the payment of a fixed sum per person. An endeavour had been made also to secure that patients should not be charged for any services properly within the scope of the service, and that the accommodation of the surgeries should be adequate and sufficient; it was one of the matters it was hoped to improve in the course of the next year. Mr. Chamberlain also referred to the appointment of regional medical officers to act as consultants. With regard to new terms to apply when the present terms of remuneration came to an end in 1924, the Ministry of Health had had a number of discussions already on such subjects as the limitation of a panel; that there should be no private fee for services within the scope of the contract; that there should be greater freedom in the choice of doctor; and that the Ministry should be able to secure that proper records were kept of each case. When agreement was reached on various points the Ministry would have to go into the question of remuneration. This matter would be discussed in the House sooner or later, very probably in the course of the autumn session, because it was most likely that further legislation would be necessary to put into operation the new arrangement. It would be unfortunate if the announcement of the coming of any thorough drastic inquiry in the whole system were to postpone the settlement of various questions he had mentioned or delay the settlement coming into operation. It would be necessary at some time or other to have an inquiry such as Sir Alfred Mond had suggested, but being desirous of a speedy settlement he did not think that time had arrived.

As to the Spahlinger treatment, he was told that a movement was going on to raise a sum of money privately which if successful—as he had some reason to hope it might be—would enable M. Spahlinger to produce his remedies in sufficient quantity to be available for experiment, and he would send a supply of these materials over here, where they would be handed over to the Ministry for complete examination. Dr. Dreyer's method, as to which very much more complete information was available, was extremely encouraging. No kind of remedy which offered a reasonable chance of success should be neglected.

Replying to inquiries about the grading of milk, Mr. Chamberlain said he had not yet got returns from the local authorities enabling him to give figures, but he had every reason to believe that the matter was proceeding satisfactorily.

The vote was agreed to.

Scottish Board of Health.

On a vote for £1,773,730 for the Scottish Board of Health, to follow a vote of £720,000 already given on account, Captain Elliot, on June 27th, made the annual review of administration. He went with some detail into statistics of tuberculosis, infant mortality, and health insurance to ascertain how far trade depression had affected health. The average death rate from tuberculosis (all forms) in 1910–14 was 172 per 100,000; in 1921 it dropped to 118; and in 1922 it was 119. For England and Wales, for the corresponding period, the rates were 140, 113, and 112. From phthisis the average death rate for 1910–14 was 111, and in England and Wales 102. In 1921 the rate was 81 in Scotland and 88 in England and Wales. In 1922 the rate in Scotland had increased to 83 and for England and Wales to 89. It was most encouraging that, speaking broadly, the lower death rate had been maintained in spite of the great trade depression. In 1913 the rate in Budapest was 611, in Warsaw 591, in Lodz 775, in Jugo-Slavia 400 to 500, and in Czecho-Slovakia 386, as compared with 160 in Scotland and 169 in England and Wales. Captain Elliot then gave a number of comparative figures as to infant mortality. The suggestion had been made that the limitation of grants for child welfare had brought about an increased death rate. In point of fact the rate had fallen. The rate per 1,000 births for 1870–80 was, in Scotland 123 and in England and Wales 149. For the period 1911–15 the figures were 113 for the former and 110 for the latter. In 1920–21–22 the figures for Scotland were respectively 92, 90, 101, and for England and Wales, 80, 83, and 77. In the first quarter of last year the rate was 141 for Scotland. That was when maternity, milk, and food grants were given. In the corresponding quarter of this year the figure was 98. It was true that epidemics of measles and influenza had much to do with this high rate, but the fact remained that the figures were higher in the quarter while the grants operated than in the three quarters when they did not. The policy of dissociating maternal care and child welfare from relief agency work had not been seriously challenged by any responsible authority. As regards health insurance, Captain Elliot said that the expenditure per week per insured person was 2d. in 1913 and 2¼d. in 1914; the expenditure for males on sickness benefits was less than 2¼d. in 1920 and less than 2¾d. in 1921. It was an increase, but balanced by a big increase in the percentage of benefits. The Ministry had been able to pay 50 per cent. of the grant for tuberculosis to the local authorities as promised. The average weekly cost for institutional maintenance in all Scotland, excluding loan charges, was 49s. The estimated cost of the middle ward in Glasgow was 71s. a week. The figures for Glasgow for tuberculous patients treated in fever hospitals was 57s. per week, and the corresponding Mid-Lanark rate was 46s., as compared with the Edinburgh figure of 37s., the Dundee figure of 36s., and Aberdeen 38s. Some further scrutiny of these figures was needed. Captain Elliot said there had been interesting conferences on venereal diseases with the local authorities which are dealing with venereal diseases. There was a widespread feeling that further powers of compulsion should be given to the authorities. Compulsory notification and compulsory treatment were both urged, but the subject involved questions beyond his immediate scope. It was hoped that a report of the death rate amongst mothers, prepared by a strongly representative committee, would soon be available.

Mr. Sullivan moved a reduction of the vote by £10, mainly to condemn the lessening of the welfare grant.

Dr. Chapple rejoiced that, despite unemployment, the mortality from tuberculosis had been going down. He also thought that the figures as to infant mortality for the last ten years were satisfactory. He deplored, however, that the local authorities were continually confronted with the problem of waiting lists for the sanatoriums. These institutions had two functions—curative or for isolation. And he deeply regretted that people should be left in the last stages in the slums of the great cities, where families lived together and where so much harm might occur through infection. He appealed to the Government to spare nothing to remove the causal conditions of disease that existed to-day.

Mr. Maxton, on behalf of the Labour party, spoke bitterly of the higher rates for tuberculosis in Scotland as compared with England. He then referred to the decision that the arrangements for emergency supplies of food and milk to nursing mothers and infants on a large scale must be regarded simply as measures for the relief of distress and withdrawn from association with maternity service and child welfare schemes. He went over the statistics of infant mortality to show that, in consequence of the change, there had been an increase in the death rate from 90.3 to 101.4 per 1,000.

Captain Elliot, interposing, said he had already pointed out that the majority of the deaths took place in the quarter when the policy of relief grants still operated.

Mr. Maxton, continuing, claimed to be using the figures with moderation, his point being that the Minister ought not to be satisfied with them. At the time that the epidemics of measles, influenza, and whooping-cough were raging a circular was issued by the Board saying it could no longer approve of the provision of hospital accommodation for children suffering from whooping-cough and measles. He called the men who initiated that policy murderers, and those who walked into the Lobby in support of it also murderers.

While Mr. Maxton was developing this accusation in hectic language Sir Frederick Banbury raised a point of order, and there followed a scene which has been described in the daily press. Mr. Maxton and Mr. Wheatley, in spite of appeal from the Deputy Chairman, from Mr. Bridgeman, and indirectly from their own leader, Mr. Ramsay Macdonald, persisted in repeating the unparliamentary phrase, and in the end they were reported to the Speaker and a motion for their suspension carried. Two other members, Mr. Stephen and Mr. Buchanan, were afterwards suspended for persistently disregarding the authority of the Chair.

Other Labour members afterwards pursued the debate more moderately. Mr. Macpherson, coming later, paid tribute to the services of the Board of Health in connexion with the Islands and the Highlands, and to the work done by the nursing service. He

asked Captain Elliot, however, to consider whether more could not be done for the isolated communities, and especially for the districts without telephone or railway facilities. Captain Elliot, replying on the discussion, said the actual fact was that infantile mortality was much lower now than in pre-war years. He welcomed Mr. Macpherson's tribute to the doctors and the nurses in the remoter Highlands, and read as an example of the services of the nurses a report from a medical officer dealing with a recent epidemic of typhus, wherein he spoke in the highest praise of the assistance rendered by a nurse under the most trying conditions.

The amendment was rejected by 209 votes to 118, and the vote was agreed to.

Bequests to Hospitals.—Viscount Ednam, on report of the Finance Bill, moved a clause to provide that legacy and succession duty should not be leviable on bequests to public hospitals. He repeated the case presented by a very influential deputation to the Secretary of the Treasury in the previous week. He recalled that Lord Cave's Commission advised a grant of £1,000,000 (of which the Treasury had seen its way to give only half), and had advised that testamentary gifts to hospitals should be exempt from legacy duty, as in the United States. He pointed out that there was no difficulty in discriminating between voluntary hospitals and other charities, and reckoned that the sum involved for the Treasury would not exceed £130,000. Major Cadogan seconded the motion and Dr. Macnamara warmly supported it, mentioning that six wards (180 beds at King's College Hospital, Denmark Hill, were closed, and there were 1,000 persons on the waiting list. Sir William Joynson-Hicks, in stating that the Government did not see its way to accede to this request, insisted that it was not unfriendly in holding that it was better for the hospitals to ask for an open rather than a concealed subsidy. He argued that if a man left, say, £1,000 to a hospital and the rest of his fortune to his wife and family, it would be the widow and family that would benefit, and not the hospital, from the repeal of this clause. If the House concluded that under the voluntary system the hospitals were on the verge of breaking down, the Government would be bound to give a subsidy. He held that there would be difficulty in drawing the line between hospitals and other charitable institutions. His information also was that on the average the loss to the State by the suggested change would be about £200,000 a year. Mr. Charles Roberts, Colonel Sir Charles Burn, Mr. G. Spencer, Colonel M. Alexander, Sir W. Lane-Mitchell, and Dr. Chapple pressed for a reconsideration of the matter. Viscount Curzon, on the other hand, agreed with the Minister. The Solicitor-General (Sir W. T. Inskip) made further reply. Viscount Ednam said that the hospital authorities, for whom he spoke, did not wish to divide the House against the Government. He was bound, however, to say that they were very greatly disappointed at the unsympathetic attitude of the Government. Leave to withdraw the motion was refused, Labour members more especially calling for a division. The proposed clause was thus rejected by 243 votes to 153. Viscount Ednam and some other Conservatives who had spoken in favour of the clause did not vote.

Insurance Medical Service.—Lord E. Percy stated, on June 27th, in answer to Sir Kingsley Wood, that the Insurance Acts Committee had met representatives of the Ministry of Health on the previous day to discuss recommendations of the Panel Conference as to the revision of the terms of service. Further discussion would be necessary on certain points with the Insurance Consultative Council. No joint conference beween representatives of the insurance practitioners and approved societies and the Minister, as was suggested by Sir Kingsley Wood, was contemplated at present, and it was unlikely that any definite decision as to the rates of remuneration would be reached before the autumn. Any change in the terms of service of insurance practitioners, apart from the amount of the practitioner's remuneration, would involve an amendment of the regulations, and any amending regulation would be laid before Parliament in accordance with the terms of the Act of 1911.

Cancer Research.—In reply to Mr. Becker, on June 27th, Lord E. Percy stated that roughly one-third of the annual grant of £130,000 to the Medical Research Council was allocated by that body to the payment of the research staff and the maintenance of the central laboratories at the National Institute of Medical Research. The remainder was distributed in grants in aid of research work carried out by universities, hospitals, and other centres throughout the country. In addition to the sum of £5,000 expended in grants for work directly upon cancer, radium owned by the Government to the value of £70,000 was made available by the Council for approved research into the treatment of cancer. The problem of cancer might be solved sooner and perhaps only through advancing in fields of medical science other than the direct study of the disease itself, and accordingly advances in the knowledge of cancer were effectively promoted by the grants for research in the primary parts of medical science. The allocation for cancer varied from year to year as the Council found useful opportunities for supplementing the work done by the Imperial Cancer Research Fund and other institutions devoted especially to the subject. Major Molloy asked whether Lord Percy was aware that the death rate from cancer had increased during the last forty years by 126 per cent.; and Sir Sydney Russell-Wells suggested that more money might be devoted to dealing with this appalling scourge. Lord E. Percy said he would be glad to receive suggestions.

Cancer Mortality.—At the instance of Major Molloy, on June 27th, who asked for information as to the proportion of cancer deaths in decades amongst persons of 30 years of age and upwards, Mr. Chamberlain said that full particulars were not available, but gave the following percentages of total deaths:

Age 35 years and over:	
1881–1891	6.6
1891–1900	8.5
1901–1910	10.9
1911–1920	12.4
1921	15.3
Age 30 years and over:	
1911–1920	12.3
1921	14.9

Mr. Chamberlain stated, on July 2nd, in reply to Commander Locker-Lampson, that he was giving attention to the increasing prevalence of and mortality from cancer and the action which central or local public health authorities might be able to take for investigation and cure. He did not consider, however, that the establishment in every area of special machinery financed out of the local rates would be desirable.

Pitch Cancer.—In reply to Mr. D. Williams, on June 23th, the Home Secretary said that the numbers of men engaged in the manufacture of pitch and patent fuel reported to the Factory Department as suffering from "pitch cancer" in the last five years were as follows: In 1918, 23; in 1919, 10; in 1920, 23; in 1921, 18; and in 1922, 15. No fatal cases were reported in 1918 to 1920; two were reported in 1921 and one in 1922. Before 1920 the disease was not compulsorily notifiable under the Factory Act, but cases were notified under a voluntary arrangement. The figures did not indicate any increase in incidence. No information was available to show the number of deaths in these industries from other forms of cancer. Mechanical appliances were generally used where practicable, but this could be done only in a few operations. The most effective precautions were great attention to personal cleanliness and periodic medical examination. Facilities to enable the worker to take these precautions had been arranged at the instance of the Factory Department in all the works concerned.

Alleged Infection from Returned Bread.—The Marquess of Titchfield asked, on June 13th, whether there was a practice common among the vendors of bread of accepting from customers unused bread in exchange for fresh loaves; whether such practice provided a means of spreading infection, and if the Minister of Health would introduce legislation to make it illegal. Mr. Chamberlain said he was not aware of the extent to which this course was adopted or of any case of the spread of disease through it, but he would be glad to receive particulars.

Answers in Brief.

The ratio of vaccinations or revaccinations performed on British soldiers in 1921 was 250.10 per 1,000 strength.

The residential institutions in England approved by the Ministry of Health for the treatment of tuberculosis contain about 19,730 beds and those in Wales 1,315.

England and Wales.

UNIVERSITY OF DURHAM.

ON June 26th, at a crowded convocation of the University of Durham, the honorary degree of D.C.L. was conferred on Sir Anthony Bowlby, Bt., President of the Royal College of Surgeons of England, and Consulting Surgeon to St. Bartholomew's Hospital. On the previous evening he was the principal guest at the annual dinner of the University of Durham Medical Graduates' Association, held in the King's Hall of the Armstrong College. The company, which numbered over one hundred ladies and gentlemen, was received by the President of the Association, Mr. Leech, and by Mrs. Leech.

The guests included the Vice-Chancellor of the University (Professor A. Robinson), Sir David Drummond, Sir Theodore Morrison, Dr. Cecil Cochrane, and Professor Howden.

After the Royal toast had been honoured, Dr. R. A. Bolam proposed the toast of The Guests. As this was only the second banquet at which ladies had been present, a delicate compliment was paid to them. Of each guest some kindly remark was made and appreciated by the gathering, but it was only proper that Dr. Bolam should reserve the main part of his speech for the principal guest of the evening. There was, he said, a peculiar appropriateness in the Durham Graduates' Association seeking to do honour to Sir Anthony Bowlby, for he was a north countryman, having spent the early years of his life in the City of Durham. The medical profession on Tyneside extended a hearty welcome to him, for, whatever was his love for the North, Sir Anthony was recognized as an extremely

capable and skilful surgeon, as an author, and as a successful teacher. He came of a fighting stock; several of his forbears had fought at Waterloo. He himself had first given surgical service during the South African campaign. In the recent war, both as an operator and an administrator, he had been of the greatest assistance to the army and his country. It was common knowledge that many young medical men who had gone to the front found themselves placed in circumstances where they had no opportunity of utilizing the knowledge and experience they possessed. Sir Anthony Bowlby had righted things for many of these men, and thus, in return, got out of them the best work possible. The country generally was grateful to Sir Anthony Bowlby for all that he had done. The toast was most heartily received. In his reply, Sir Anthony alluded at considerable length to his association when at the front with the Northumbrian Division. He paid a high compliment to the fighting spirit and bravery of the men of the North, particularly to what they had done on April 27th, 1915, when the enemy, near St. Julien, launched his first gas attack. He spoke of the great services rendered by the surgeons of the North of England, especially of those of Mr. John Clay. At Hazebrouck there remained the kindliest of memories of the surgeons from the North of England. The excellent work done by Mr. Hamilton Drummond was specially alluded to, while to Dr. Horsley Drummond an equally well-deserved compliment was extended. Dovetailing between his serious remarks a short humorous story now and then, Sir Anthony's reply was most favourably received. To Sir Theodore Morrison was entrusted the toast of the Medical Graduates' Association. He pleaded for making the North of England a "resistance centre." There was too great a tendency to regard London as the one place where the best work of the country was done and that thither all the best brains went. He maintained that there were just as capable men in the provinces and as many of them as in the metropolis. The President, Mr. Joseph Leech, replied; after mentioning that the association was founded in 1880, he expressed the hope that more graduates would feel it their duty to become members of it. The pleasure of the evening was enhanced by music and song.

TREATMENT OF TUBERCULOSIS IN LONDON.

The Public Health Committee presented a report to the last meeting of the London County Council on the tuberculosis dispensary service and the work of tuberculosis care committees. At a recent conference between representatives of the Council, of the City Corporation, and of the borough councils it was resolved to draw the attention of the London Panel Committee and the British Medical Association to the desirability of securing earlier notification of cases of tuberculosis. The letter received from the County Council is printed on page 43. The borough councils which provide hospital dispensaries and the borough councils concerned in cases in which there is lack of co-ordination between the borough public health department and the municipal dispensary are to be urged to take steps to secure closer co-operation between the department and the dispensary. A proposal that facilities should be provided for the post-graduate instruction of tuberculosis officers was favourably received by the conference of local authorities, and the Public Health Committee has since been in communication with the Ministry as to the practicability of an expenditure not exceeding £1,000 for this purpose during the current financial year ranking for Government grant. The Ministry has intimated that it will be prepared to give an approval carrying a grant to satisfactory proposals from metropolitan borough councils within this limit of expenditure. The Public Health Committee is now in consultation with the Ministry of Health as to the nature of the arrangements which can best be made.

SMALL-POX IN GLOUCESTER.

The situation at Gloucester, where there is an outbreak of small-pox, remains serious, but it is being dealt with efficiently and firmly. Down to July 3rd, 191 cases of small-pox had been admitted to the Brockworth Isolation Hospital, near Gloucester. Dr. W. H. Davison, assistant medical officer of health for Birmingham, has been given a free hand by the Gloucester City Council to take all measures he considers necessary. He is being assisted by two medical men with wide experience of small-pox, who have been lent by the Metropolitan Asylums Board. Some of the difficulties with which Dr. Davison has had to grapple may be realized from a report, in the *Birmingham Post* of June 28th, of a meeting of the Gloucester City Council on the previous day. It was stated that the matron of the isolation hospital had resigned and proposed to leave at once. Captain J. Wood, chairman of the Public Health Committee, in moving the adoption of the minutes, referred to an article in which Dr. Hadwen had said, "I do not believe that there is a single case of small-pox in Gloucester." The Health Committee had evidence that absolutely disproved Dr. Hadwen's statement. The article also assailed the professional qualifications of Dr. Davison, whose services had been of the greatest value. Dr. Killick Millard, medical officer of health of Leicester, had seen the cases and confirmed Dr. Davison's diagnosis of small-pox. Dr. Millard said, "Every case I have seen is a case of small-pox." Captain Wood asked him if he had seen a single case of chicken-pox in the hospital, and Dr. Millard's reply was, "No, not one; nor can I understand how any medical officer can say these are not cases of small-pox." A letter had been sent to the public vaccinator from a Gloucester father, in which he said that out of eight children in his home, two had been vaccinated, and they had not a blemish on them, but the other six were suffering from the disease. Mr. J. W. Embling gave his views on the diagnosis of small-pox, quoted Dr. Hadwen's opinion, and questioned Dr. Davison's competence, whereupon, after some further discussion, during which it was stated that Dr. Davison had been insulted in the street and threatened with personal violence, the Council unanimously passed a resolution tendering its warmest thanks to Dr. Davison for his valuable services, and, having the fullest confidence in his qualifications and administrative ability, urgently asked him to continue his services in Gloucester. After the meeting a deputation, which included the Mayor, the chairman of the Health Committee, and Mr. Embling, presented the resolution to Dr. Davison, who said that he could not disregard it and would continue to serve Gloucester for the period for which he had come. Dr. J. R. Bibby resigned, on June 30th, his position as medical officer of health for the city of Gloucester. It is understood that he intends to seek election, when opportunity occurs, to the Gloucester City Council, of which he was formerly a member. He was appointed medical officer of health for Gloucester in 1919.

A letter from Dr. Headlam, Bishop of Gloucester, was read in Gloucester Cathedral and in the churches throughout the city, on Sunday, July 1st.

> So far, the Bishop wrote, the cases of small-pox had not been very serious, but in the great epidemic of twenty-seven years ago all the cases were at first mild, but later the deaths were appalling. He definitely declared the cause of the outbreak to be the neglect or refusal to be vaccinated. To refuse to be vaccinated was, he believed, wrong from a religious point of view. God had given them intellectual powers which enabled them to study the working of nature, and to learn the laws of nature. To refuse to obey His laws, to refuse to make use of the more certain results of medical science, and then to pray that they might have good health, was as wrong and foolish as it would be for a farmer to pray for good crops and refuse to cultivate the ground. Unless they could shake off the appeals to low motives, to party prejudice, to class prejudice, they could not hope to make the state of their city better.

During the week ending June 23rd, 1923, a total of 141 cases of small-pox were notified in England and Wales, according to the official *Weekly Return of Births, Deaths*, etc., issued by the Registrar-General. The notifications were made up as follows:—Derbyshire—Alfreton, 1; Belper, 1; Heanor, 4; Long Eaton, 5; Clowne, 1. Durham: Stockton-on-Tees, 1. Gloucestershire: Gloucester (county borough), 79; Gloucester (rural district), 3; Cheltenham, 1; Stroud, 2; Westbury, 1; East Dean, 4. Hereford: Hereford (borough), 1. Notts: Kirkby-in-Ashfield, 6; Warsop, 15. Worcestershire: Martley, 1. Yorkshire: Middlesbrough, 1; Bentley, 2; Doncaster (rural district), 10. Monmouth: Risca, 1.

Scotland.

DINNER TO SIR HENRY GRAY.

SIR HENRY M. W. GRAY was entertained at a complimentary dinner by his friends of the medical profession on June 27th, in the Palace Hotel, Aberdeen, on the occasion of his leaving Aberdeen to take up his new post of chief of the surgical staff of the Royal Victoria Hospital, Montreal. Mr. J. Scott Riddell presided over a company of a hundred. In proposing the health of the guest, Mr. Scott Riddell said that he had watched Sir Henry Gray's surgical career since he was a medical student, and in every position he had held three admirable qualities had been present—an infinite capacity for work, a painstaking care in all he did, and an abounding and infectious enthusiasm in the practice and advance of surgery. Sir Henry Gray was the second apostle in surgery that Aberdeen had sent across the Atlantic, for his old friend John Fairbairn Binnie had already made himself and Aberdeen famous there. Sir Henry Gray went as a disciple of Alexander Ogston, that inspiring surgeon who founded the modern school of surgery in Aberdeen. It had required persistent and painstaking effort to keep the surgical school thoroughly up to date, and in this work of progress their guest had borne his full share. During the war Sir Henry Gray had quickly risen to the rank of colonel and surgical consultant to a British army in the field, and he came back to his native city bearing the insignia of many famous orders. He was going to work in a city three times the size of Aberdeen, with a university many of whose benefactions had come from men of Scottish birth. Montreal was a centre which should provide great opportunities for such an ardent surgeon. Their guest would never forget the city that had given him birth, the medical school that trained him, and the colleagues with whom he worked for so many years, while on their side there would remain a deep sense of personal loss tinctured by a feeling of pride that one of themselves should be hailed abroad to spread the light and enhance the reputation of the medical school of Aberdeen. Sir Henry Gray, in reply, said that the gathering took him back to the time when he completed his house-surgeonship with his great chief, Sir Alexander Ogston. He regretted very much that illness had prevented Sir Alexander from being there, for he should have liked to have acknowledged to him personally, before them all, the great debt he owed him for the inspiration, stimulus, encouragement, and many kindnesses he had received at his hands. He had tried to do his work faithfully in their midst, and to advance surgical interest to the best of his ability. He wished also to acknowledge his great indebtedness to the members of the nursing profession in the North who had helped him. Dr. Thomas Fraser proposed the health of the other guests, and Mr. J. W. Dowden and Mr. F. MacRae replied; the proceedings concluded by Professor Marnoch proposing the health of the chairman, which was acknowledged by Mr. Scott Riddell.

GIBSON MEMORIAL LECTURES IN EDINBURGH.

The George Alexander Gibson Memorial Lecture, given in the Royal College of Physicians at Edinburgh every second year, was delivered on June 27th and 28th by Dr. W. T. Ritchie. He took for his subject, "The Response of the Heart in Health and Disease." On the first day the lecture was devoted mainly to a consideration of the origin and transmission of the cardiac stimulus in normal circumstances, a description of the nodes and neuromuscular system of the heart, and the properties of cardiac muscle fibres. The electro-cardiographic response was demonstrated by lantern slides of electro-cardiograms, which showed the manner in which the normal cardiac response might be modified by nervous influences, mechanical factors, and metabolic processes. On the second day the lecturer described types of cardiac response rendered abnormal by disease situated in different parts of the heart, or by the action of drugs. There were two great disease factors operative in the production of heart disorders—rheumatism, which produced its effect chiefly in the decade 20 to 29, and syphilis in the two decades 40 to 59. Sino-auricular block was seldom produced, and its effect could be abolished by atropine. Auriculo-ventricular block was frequently produced by a ring of calcareous deposit round the base of the mitral valve, which pressed upon the bundle of His; the result was that while the auricle contracted with unabated frequency, the ventricle failed to respond to many of the auricular contractions, and its rate was therefore slowed. The ventricular contraction was at the same time lengthened from the normal duration of 0.32 second to 0.4 or 0.5 second. One of the effects of this was an increase of the difference between the systolic and diastolic blood pressures, which might result in a defect of oxygen supply to the central nervous system and consequent syncope. These symptoms were generally known as the Stokes-Adams syndrome, but it was interesting to note that they had been described along with the morbid anatomy by Morgagni as long ago as 1762. Extra-systole was a very common condition, and might start in any part of the heart. When it originated in the auriculo-ventricular node the electro-cardiogram showed an inverted auricular wave. It was most apt to occur when infection was spreading from endocarditis of the mitral valve to the wall of the ventricle, thus causing irritation of the auriculo-ventricular node. Auricular flutter was shown by a very rapid contraction rate of the auricles. Auricular fibrillation was extremely common, its maximum incidence in females occuring in the decade 40 to 49, and in males ten years later. X-ray examination of the heart in this condition generally revealed a distinctive globular appearance of the heart shadow, the auricles often showing a prominent bulge on either side. In the electro-cardiogram the absence of the auricular wave was to be noted. As to the pathological basis of this condition, Lewis had demonstrated that it arose from shortening of the refractory phase; and on histological examination the muscle of the auricle sometimes showed inflammatory signs, though not always. With regard to drugs, digitalis acted through its influence on the vagus or on the neuromuscular tissues. Quinidine had been introduced in 1918 and operated through lowering conductivity. Its use was not devoid of danger; it was most effective in fibrillation of recent origin, and had little influence on old-standing cases.

CAMERON PRIZE LECTURES.

The Cameron Prize Lectures of the University of Edinburgh were delivered on June 27th and 28th in the Physiology classroom by Professor F. G. Hopkins, F.R.S. Principal Sir Alfred Ewing occupied the chair at the first lecture, and Professor Cushny at the second. The lecturer discussed the present position of the vitamin question, and pointed out that at the close of the nineteenth century physiologists had regarded foodstuffs simply from the point of view of their isodynamic equivalent. In the last few years, however, the importance of the qualitative factor in food had been more fully recognized. Food must contain certain exogenous hormones, to which the name of vitamins was given; an animal would die if provided with a diet containing only pure fat, protein, and carbohydrate. The amount of accessory factors necessary was extremely small. For example, two sets of ten rats had been kept on a diet which was ample as regards energy-producing power: to the diet of one set had been added 5 mg. of cod-liver oil, containing an extremely minute amount of accessory factor: it had, however, been sufficient to make the difference between the life of one set of rats and the death of the other set in 70 days. Probably the amount of cod-liver oil administered might have been still smaller. Vitamins were much more stable under the influence of heat than was formerly supposed: their instability was largely a matter of oxidation, for in acid solution they were unaffected by boiling for several hours. Their action was probably exerted by a dynamic process of catalysis. In the second lecture Professor Hopkins dealt specially with researches in regard to vitamin A; its complete absence precluded growth altogether, but the diet could be so adjusted that growth might just take place, with, however, the series of defects known as rickets. Rickets might also result from a want of balance between the amount of calcium salt and of phosphoric acid in the

food. Absence of sunlight had also a great effect in the causation of rickets; experiments had shown that this effect was due to defective actinization of the air breathed by the animals leading to calcium phosphate retention in the tissues of the body.

THE SCOTTISH R.A.M.C. MEMORIAL.

The Scottish part of the war memorial to the 743 officers and 6,130 other ranks of the Royal Army Medical Corps who lost their lives in the great war has just been carried to completion. The memorial in St. Giles's Cathedral, Edinburgh, was unveiled on June 30th by Lieut.-General Sir Walter Braithwaite, Commander-in-Chief, Scottish Command. It consists of a bronze tablet, with an angel of mercy at the top bending over a wounded soldier, and underneath, the crest of the R.A.M.C. The service of dedication was conducted by the Rev. Dr. Wallace Williamson. The memorial in Westminster Abbey was unveiled a year ago.

THE SCOTTISH BOARD OF HEALTH.

We referred briefly last week to the publication of the fourth annual report of the Scottish Board of Health, and indicated that the activities of the Board were to some extent limited during 1922 by the need of economy and by the prolonged trade depression. Employment showed scarcely any improvement as compared with 1921, and the Board found it necessary to extend for another year the operation of the Poor Law (Emergency Provisions) Act, 1921, which authorized parish councils to grant relief to destitute able-bodied unemployed and their families. This involved grants by ninety parishes in Scotland, amounting in all to £1,200,000 during the year.

The death rate for the year was 14.9 per 1,000 of population, which was 1.3 more than that of the previous year, but still 0.3 less than the mean of the rates for the previous ten years. There was a slight rise in the death rate from pulmonary tuberculosis (0.83 per 1,000, compared with 0.81 for 1921). The infant mortality rate was 101.4 per 1,000 births, which was 11.1 per 1,000 higher than in 1921, which, however, was the lowest rate recorded for Scotland. The estimated deaths per 1,000 children over one and under five years of age is 19.9, compared with 12.4 for 1921. The immediate causes of the increase were epidemics of measles, whooping-cough and "influenza" in the first half of the year. These figures bring out the deadly nature of the so-called "childish complaints," but the Board does not consider that it has sufficient data to determine the effect of unemployment upon this.

With regard to venereal diseases there seems to be a definite, if small, falling off in their incidence in Scotland. The infected persons who were treated in 1922 numbered 21,364, of whom 10,688 were still under treatment at the end of the year, and 4,759 were discharged cured. Just under one-half discontinued treatment without the sanction of the medical officer in charge. The treatment of venereal diseases involved an outlay of £65,782.

It is gratifying to note, especially in view of the prevalence of small-pox in some parts of England, that Scotland was practically free from the disease in 1922, only seven cases having been notified, all in the burgh of Kirkcaldy. Small outbreaks of typhus fever occurred during the year in Glasgow, Saltcoats, and the islands of Raasay and Skye.

Regarding shortage of houses, the report states that if the estimates framed by the local authorities in 1919 are accurate, the housing problem in Scotland is still a long way from being solved. Indeed, the shortage is probably accumulating, for it is doubtful whether the number of houses being built each year is sufficient to provide for the natural increase of population and to replace houses that become unfit for occupation. Since there is no alternative accommodation for the occupants of these unfit houses, the local authorities are prevented from exercising their powers to close them. As a result, unfit houses remain occupied, to the detriment of the health and well-being of the occupants. The estimated number of houses required in 1919 was 131,101, and by the end of 1922 only 14,777 had been completed, with a further 10,722 in course of erection. The Board believes that the present shortage in Scotland amounts to at least 100,000 houses. The Board notes an appreciable fall in building costs, so that the private builder has been enabled again to commence work.

EDINBURGH ASSOCIATION FOR SOCIAL STUDY.

The annual meeting of the Edinburgh Association for Social Study and Training was held in the Senate Hall of the University of Edinburgh on June 26th, Principal Sir Alfred Ewing in the chair. In the report for 1922, which was presented by the director, Miss Nora Milnes, special emphasis was laid upon the development of visitation in their homes of out-patients attending the Royal Infirmary. During the past three months 162 cases had been investigated and 280 visits paid. The report was cordially approved on the motion of Sir John Lorne Macleod, G.B.E. Thereafter an address was delivered by Miss Ida M. Cannon, director of Hospital Social Service, Massachusetts Hospital, Boston, United States of America. She said that in addition to the medical and research aspects of the hospital hitherto universally recognized, the hospital had a third and very important social function to discharge. She indicated the lines upon which this was being developed in the United States. Professor Sir Richard Lodge, one of the managers of the Royal Infirmary, in proposing a vote of thanks to Miss Cannon, said that in Edinburgh the social needs of in-patients had for long been well looked after by the Samaritan Society, and at the present time great efforts were being made to develop a social service on the lines indicated for the out-patients.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

At a meeting of the Central Midwives Board for Scotland for the hearing of penal cases, Dr. James Haig Ferguson in the chair, two nurses were found guilty of negligence and breaches of the rules. The Board instructed the instructing the removal of the name from the midwives' and issued an order that they be prohibited from attending women in childbirth in any other capacity. Another nurse appeared in answer to charges of failure to notify ophthalmia neonatorum in two cases, and other breaches of the rules. The Board found the charges to be proved, and expressed the opinion that the offences could not be adequately dealt with by censure or caution, but before instructing the removal of the name from the midwives' roll and the cancelment of her certificate, and in order to give an opportunity of proving amendment, it was decided to postpone a decision and to put the midwife on probation for report from the local supervising authority, and, in the event of an unfavourable report being received, instructions were given that the name would forthwith be removed from the roll and the certificate cancelled.

Ireland.

THE annual meeting of the Royal Medical Benevolent Fund Society of Ireland was held on June 20th, in the Royal College of Physicians, Dublin, when 76 cases were considered, and the sum of £1,462 was voted to 72 applicants.

IRISH COMMITTEE.

A meeting of the Irish Committee of the Association was held at the Irish Offices, 16, South Frederick Street, Dublin, on Wednesday, June 20th. Dr. Denis Walshe, chairman, presided and there were present: Dr. Joseph Power, Dr. J. Singleton Darling, Dr. H. T. Warnock, Dr. John Mills, Dr. T. B. Costello, Dr. R. C. Peacocke, and Dr. T. Hennessy, Irish Medical Secretary. Apologies for absence were received from Sir James Craig, M.D., T.D., Dr. H. Corby, Mr. R. J. Johnstone, F.R.C.S., and Dr. P. G. Lee.

Dr. William Murphy, Dr. Joseph Power, and Dr. H. T. Warnock were co-opted members of the Committee. Dr. Denis Walshe was re-elected chairman, and Dr. John Mills

vice-chairman: Sir James Craig, Dr. J. S. Darling, Dr. W. Doolin, and Dr. R. C. Peacocke were elected members of the Finance and Executive Subcommittee.

Vote of Thanks to Sir James Craig, M.D.

Several members of the Committee and the Irish Medical Secretary referred to the great services rendered by Sir James Craig, M.D., to the furtherance of Irish public health and the interest of the profession generally since his election to the Dail as one of the members for Dublin University. The Irish Medical Secretary was directed to write to Sir James thanking him, on behalf of the Irish Committee, for his services in the Dail in connexion with medical questions.

British Medical Association in Ireland.

The position of the Association in Ireland was considered in connexion with the different changes in the government of Ireland. The Committee was glad to notice that the change in Irish government seemed to make no difference in regard to the position of the British Medical Association in Ireland, and that the Association was functioning as heretofore throughout the country.

Medico-Political.

The Committee considered the agenda of the Irish Medical Committee, and it was agreed to adopt and further the decisions of the Irish Medical Committee arrived at in accordance with the resolutions of the last meeting of delegates, representative of the entire Irish profession. The Committee also decided that the Irish Medical Secretary (Dr. T. Hennessy) should continue to act as honorary medical secretary of the Irish Medical Committee.

Correspondence.

"DIAPLYTE" VACCINES AND ANTIGENS.

SIR,—In my paper[1] published in the last number of the *British Journal of Experimental Pathology* I gave an account of a method of preparing antigens from *B. tuberculosis* and some other Gram-positive bacteria, and I provisionally described the bacterial antigen so prepared as "defatted," a word that had been used conversationally in my laboratory. I pointed out at the same time that by the term "defatted" it was by no means intended to imply that all fatty or lipoidal substances present in the micro-organisms so treated had been removed. Only some of the lipoidal substances are taken away in this mode of preparation by washing with acetone after formalin treatment.

It is plainly desirable, however, that the term "defatted" should not come into general use. It is as false, I am afraid, to the laws of language as it is to the experimental facts. I propose to introduce a new word to describe the vaccines or antigens prepared by this or similar methods of extraction. The essential factors in the process are the fixation treatment by formalin and the successful acetone extraction which the fixation permits. The bacteria so treated become, as I have described, non-acid-fast and Gram-negative, and are changed in appearance. They have been thoroughly washed out, and I propose to call them "diaplytes," from the Greek word πλυτός, washed, in its intensive form διαπλύτος, washed through and through. I propose to speak of "diaplyte vaccines" or "diaplyte antigens," and in the process of their preparation I should describe the acetone used as being the "diaplytic agent." I think there is justification for introducing a new word for the description of these vaccines, and it seems desirable to use one which has no previous connotations in pathology.—I am, etc.,

GEORGES DREYER.

Department of Pathology,
University of Oxford, July 3rd.

[1] Some New Principles in Bacterial Immunity, their Experimental Foundation, and their Application to the Treatment of Refractory Infections. *Brit. Journ. Exper. Pathol.*, 1923, 4, 146.

EARLIER NOTIFICATION OF TUBERCULOSIS.

SIR,—At a recent conference between the members of the Public Health Committee of the Council and representatives of the metropolitan borough councils, the question of the earlier notification of tuberculosis was considered. The conference passed a resolution as follows:

> That this conference is of opinion that the attention of the London Panel Committee and the British Medical Association should be called to the desirability of securing earlier notification of cases of tuberculosis, and that such information as is available should be forwarded to them.

Ministry of Health circular No. 194 (April 4th, 1921) suggested that, in order to secure prompt notification of cases under the Public Health (Tuberculosis) Regulations, 1912, metropolitan borough councils should once more direct the attention of the medical practitioners practising in their areas to the importance of strict compliance with their obligations under Article V of the regulations.

Attention has more recently been drawn to the failure on the part of medical practitioners to notify cases of tuberculosis. Under the Public Health Act, 1896, penalties are recoverable for wilful neglect or refusal to carry out the Tuberculosis Regulations; but after a long discussion of the matter at the conference, it was not considered that prosecutions would be the most hopeful means for increasing the proportion of early notifications.

The Council concurs in the resolution of the conference, and I am directed to communicate accordingly with the London Panel Committee and the British Medical Association, and to furnish to them the following summary of information obtained from the medical officers of health of the metropolitan boroughs:

Total number of deaths from tuberculosis.	No. dying unnotified or notified at death.	Notified within one month of death.	Notified within three months of death.	Notified within six months of death.
During 1920: 5,036...	1,496 (29 %)	589 (11 %)	474 (9 %)	357 (7 %)
During 1921: 5,222...	1,637 (31 %)	674 (12 %)	571 (10 %)	504 (9 %)

In addition, I am to invite the London Panel Committee and the British Medical Association to direct the attention of their members to the fact that the services of the tuberculosis officers are available for consultation and for the examination of contacts, and that the Council has provided observation beds for the purpose of diagnosis.—I am, etc.,

MONTAGU H. COX,
Deputy Clerk, L.C.C.

The County Hall, Westminster Bridge,
S.E.1, June 21st.

ETHER *VERSUS* CHLOROFORM.

SIR,—It is a matter for congratulations that you have opened your columns to a discussion upon this subject, which, though treated in a somewhat academical fashion by some medical men, is of vital interest to the public. In the course of argument with my house-surgeons I have frequently been astounded by the remark, "Well, I have given some hundreds of anaesthetics, and I have *only had one death* from chloroform." One death! Only one family left without the breadwinner, only one woman deprived of her only child, only one husband left to mourn the loss of his wife! Oh, the tragedy of it! Year succeeds year and chloroform takes its toll of the population, and yet nothing is done to stop it.

My own experience of chloroform has convinced me that it is in any dilution a deadly drug, and that no previous examination, however stringent, can detect that unfortunate patient who has an idiosyncrasy regarding chloroform.

My first introduction to its danger was when a student at St. Bartholomew's Hospital. A youngish man was given chloroform by one of the staff anaesthetists to allow a catheter to be passed. The drug was administered drop by drop upon a flap of lint with ample air. Before a drachm had been given the patient turned white and was dead. There was nothing to be done; the heart had ceased to beat.

Shortly afterwards two children died during induction with chloroform given for adenoid operations.

For the past sixteen years I have been on the staff of two general hospitals. In one chloroform is frequently used and there have been several deaths, mostly during induction. There was one death under ether, but this was a case of frontal sinus disease in an old decrepit man and a lot of blood was aspirated into his lungs. At the other general hospital ether is given. There has been one tragedy in ten years. A young, perfectly healthy girl was given chloroform to undergo a trivial operation. She died during induction. At the special hospital to which I am attached there has been one death in ten years, again chloroform. At the British Ophthalmic Hospital, Jerusalem, we used ether almost exclusively, given by an Arab boy educated in a mission school. We often performed twenty operations a day under ether, and I cannot remember a case that gave the slightest anxiety during the four years I worked there.

For the past sixteen years I have never employed chloroform, and I have extracted five cataracts under ether. I submit that if ether is suitable for cataract extraction, which demands absolute relaxation of the superior rectus, it will do for most operations. I absolutely forbid my house-surgeons to use chloroform in any dilution whatever without my permission—permission which I should never give unless the patient was one of those rare persons who cannot breathe ether. I tried the method advocated by Silk and McCardie: a mixture of one part of chloroform to sixteen of ether administered in a Clover apparatus. I very nearly had a fatality in the case of a young, perfectly healthy boy. We had to perform artificial respiration for twenty minutes.

The advantage of ether is that it is perfectly safe, I believe safer even than gas, and that it can be given by the semi-skilled. In Jerusalem we had an Arab boy, and he did all that was necessary. In America ether is given by a nurse. It can be administered without any apparatus, but I prefer to induce with a Clover, and to put 3 c.cm. of ethyl chloride into the bag. Unconsciousness supervenes in two or three minutes, and then we change to open ether. The alpha and omega of ether administration is to keep the jaw forward, and to give as little of the drug as possible.

My own experience is that ether is perfectly safe, and that chloroform is deadly. The constant records of deaths under chloroform confirm my view, and I think that the time has come when the Legislature should lay down stringent regulations regarding the administration of chloroform.—I am, etc.,

Leamington Spa, June 30th. T. HARRISON BUTLER.

SIR,—There is no question that the periodical discussion on the respective merits or otherwise of chloroform and ether does help, by the pouring out for the anaesthetist's benefit the full vintage of the experience of many operators.

The advocates of each rather claim an anaesthetic Utopia for their favourite, and incidentally criticize the one they depreciate. Their praises of the merit of one is at the same time an indictment of the other. In spite of the lurid tones in which some depict chloroform, and though I also like ethanesal, I venture to support Dr. Samways in his appreciation of chloroform.

All surgeons, I believe, appreciate the quietness and relaxation that chloroform gives. Still, as Mr. Tilley remarks, the first and chief object is the safety of the patient. His experience seems to forge link to link to a chain in a way that rather prevents the remark that the chain has nothing to hold it. In fact, Mr. Tilley has conjured up the dread spectre of sudden death to scare the anaesthetist and drive him to ether.

I have heard that bronchitis and pulmonary sequelae do sometimes occur with ether; with chloroform such is not the case, I believe. Some patients, I am told, have died from post-ether pneumonia. These, of course, are not the subject of a coroner's investigation and so do not cast a slur on ether by being reported in the press. We may as well be candid and also, if possible, impartial.

Do I rub the sore when I should bring the plaster? I use and like both of these anaesthetics. Still, I would suggest that with a gradual induction, such as can be obtained with a percentage inhaler, the dread spectre of sudden death can be exorcised.

For cerebellar operations, and all those in which the respiratory centre may be interfered with, and sepsis, where acidosis may be feared, chloroform is, I admit, not suitable. Still, there are shoals of other operations, and chloroform is a good net for many fish, and, with care, I venture to state none should escape without the requirements of the operator being fulfilled with absolute safety. Of course, the administrator must pay attention to his work and not monkey with the steering wheel over such a precipice as anaesthesia. If that is seen to I am sure the conclusion will be that chloroform cannot be slighted with impunity.—I am, etc.,

London, S.W., July 1st. CHARLES T. W. HIRSCH.

SIR,—One afternoon, thirty and more years ago, I was sitting in the lowest tier of seats in the operating theatre of King's College Hospital watching the late Lord Lister tapping down the ends of the silver wire with which he was uniting the fragments of a fractured patella (then a new operation) rendered possible by his own faith in his new treatment of wounds.

His house-surgeon (*pro tem.*) was a recently qualified student who was giving chloroform. He had a white square of surgical lint, which he held pressed lightly over the patient's nostrils and opening of his mouth. Some remark caused Lister to look quickly at the patient, whose face had a waxy look, and who appeared to have stopped breathing. So quickly that we could hardly see what was happening, Lister had seized the astonished house-surgeon by the wrist, and the lint went flying away; at the same instant we saw the patient's lower jaw extended and his tongue hanging out over it with a pair of clipped forceps attached. Colour came slowly to the patient's face, and respiration could be seen. Lister gave a great sigh, and then, with that charming manner and sweet smile so characteristic of his fine face, he apologized to his house-surgeon for his apparent rudeness, saying, "The condition of the poor man demanded prompt action." Then he turned, and, facing a full theatre, said:

"Gentlemen, the method I consider to be the safest for administering chloroform is to pucker the pointed ends of a starched towel, or napkin, by passing a safety-pin through, and holding this well above the patient's nostrils and mouth in such a way that with each inhalation he obtains a free mixture of air during the whole time of administration. By observing this you will not require any form of apparatus, and the method is safe and simple."

I made a note of this at the time, and I now sometimes wonder, on so frequently reading of deaths under chloroform, whether the old teaching is still observed.—I am, etc.,

Birmingham, July 2nd. J. B. MARTIN KENNEDY.

THE DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

SIR,—In the BRITISH MEDICAL JOURNAL of December 23rd, 1922 (page 1228), Dr. McConnel Wanklyn writes a very useful paper on the differential diagnosis between chicken-pox and small-pox. I presume he refers to modified small-pox—that is, occurring after vaccination—because it is usually in such cases the difficulty of diagnosis arises. Having suffered from small-pox personally, and after recovery seen a great number of cases in Dublin during my student days, I am able to confirm what Dr. Wanklyn says of the two eruptive diseases. There are two outstanding features which can be relied upon to assist in diagnosis. First, in variola the preliminary sickness is very marked and distressing, whilst in varicella it is not nearly so severe; and secondly, the path of invasion is generally quite evident and distinct. In small-pox the eruption is usually first observed on the extremities. The back of wrists and the forehead are two of the most favourite positions for the pimples or pustules to first appear, whilst in chicken-pox the chest, shoulders, and abdomen are the localities of selection for the eruption. In small-pox unmodified by previous vaccination there is

usually little room for doubt owing to the severity of preliminary symptoms of lassitude, fever, pain in the back, and the general aspect of serious illness. Then the eruption is very profuse, associated with a disagreeable odour from the person of the patient. It is of very great importance for young medical men who have not seen or studied the difference between these two diseases to be aware of these points of difference, for I know in Australia many large passenger steamers have been delayed at the quarantine stations owing to lack of knowledge of the ship's surgeon on these points, causing great expense and delay.—I am, etc.,

Collie, West Australia, May 5th. J. DE B. GRIFFITH, M.D.

VACCINE TREATMENT OF TUBERCULOSIS BY A NEW METHOD.

SIR,—Professor Dreyer's research on the "defatting" of the tubercle bacillus is of great interest to me, since his work is in several respects an important confirmation of a part of my researches on the splitting of germs and their detoxication (vide Medical Society of London, February, 1919; *Lancet*, June 28th, 1919; *Journal of State Medicine*, 1921; *Lancet*, April 16th and 23rd, 1921; *British Journal of Tuberculosis*, January, 1922; BRITISH MEDICAL JOURNAL, May 20th, 1922).

In my detoxication process the germs are split up into their various fractions, in order that the bad or useless components may be discarded and only the good antigenic components retained. In 1918-19 I proved by a long series of complement fixation tests that my splitting process did not injure the antigenic properties of the protein or alkali-soluble fraction of the germs, and I further proved that large doses of this non-toxic protein fraction gave much better antibody response than small doses of the ordinary toxic germs themselves. It was found also that detoxicated typhoid bacillus protein produced agglutinins when injected into human persons. I pointed out that the Gram-negative germs were much more easy to split up than the Gram-positive variety, and that the tubercle bacillus was the most difficult of all to fractionize on account of its high lipoid content. I further enunciated the law that the solubility of germs in alkali was inversely proportional to their lipoid content.

My original detoxicated vaccines contained only the protein- or alkali-soluble fraction of the germs and were free from the lipoid and wax which are completely insoluble in alkali. These non-toxic protein vaccines, comprising all varieties of pathogenic germs and including detoxicated tubercle bacillus vaccine (fat-free), were used extensively by many medical men for two years between 1919 and 1921, and in most instances excellent reports were received but were not published, so far as I am aware.

After 1921, due to further extensive researches on the splitting of germs and the study of the antigenic properties of the various fractions, it was decided to include the acid-soluble component and alcohol-soluble lipoid fraction, since they were apparently also antigenic.

Samples of the new detoxicated tubercle vaccine, including the alcohol-soluble lipoid and the chloroform-soluble waxy acid-fast fraction, were sent to Mr. Fraser, F.R.C.S., at the Sick Children's Hospital in Edinburgh to try out in cases of tuberculous children. After a fairly extensive trial he decided to abandon it because in many instances nodules were produced at the site of the injections. Investigation showed that these nodules were due to the acid-fast waxy fraction, and since that time this chloroform-soluble fraction has been discarded, with the result that nodules are now seldom produced. Occasionally, however, when large doses are reached a small hard lump may still be produced at the site of injection, and it is just possible that this is due to the alcohol-soluble lipoid fraction. Again, after an extensive trial at the Edinburgh Royal Infirmary, over a period of three years, Mr. David Lees, F.R.C.S., has concluded that the original detoxicated gonococcal vaccine containing only the protein fraction, and therefore "defatted" so to speak, is as good if not better than the later variety which contained the lipoids as well. In order to decide this vexed question I have also made during the past three years extensive investigations into the literature dealing with the antigenic nature of the lipoids and other fractions of germs. The evidence is somewhat contradictory; for instance, Small (1918) found that the efficiency of bacterial antigen was raised by the removal of the chloroform-ether soluble constituents of the dried bacteria. Many workers, on the other hand, have brought forth evidence to show that the lipoids and even the waxes are antigenic. After weighing up the whole evidence, however, and more especially on account of the observations of Mr. Lees and Mr. Fraser, I had decided to discard the lipoidal fractions from the vaccines, or, in other words, to return to my original type of detoxicated vaccine of 1919-21—namely, that containing the protein fraction only and free from the lipoids and waxes.

Early in 1922 a new development in the splitting up of germs into their component substances was introduced by the invention of a germ-smashing machine which has been in constant use in the Pickett-Thomson Research Laboratory for the past year with great success. By its mechanical smashing action it enables one to disintegrate germs into their component fractions by means of the weakest of chemicals.

If tubercle bacilli are mixed with a solution of twice normal alkali and smashed in this machine for two hours at room temperature they are completely defatted and rendered non-acid-fast. (The protein fraction is dissolved in the alkali and is completely separated by porcelain filtration from the lipoid and wax which are insoluble in the alkali.) In other words, with the aid of the machine the same result can be obtained in two hours with twice normal alkali as was previously obtained with the drastic chemical action of antiformin for a period of three days. With many other varieties of germs one-tenth normal alkali acting for half an hour is sufficient with the aid of this machine.

During the past five years my brother, Dr. Robert Thomson, and myself have split up into their various components and removed the toxic fraction from sixteen litres, or about thirty-five pounds' weight, of solid pathogenic germs of every variety, and I can only conclude from my own endeavours that Professor Dreyer's process of "defatting" or splitting away the lipoid fraction is exceedingly crude. It is surprising to me that a germ can withstand his process of four hours' boiling in formalin at 100° C. and twenty-four hours' boiling in acetone at 65° to 70° C. and still retain its antigenic properties, since my own experiments showed that the boiling of gonococcus protein antigen in neutral saline for half an hour largely destroyed its antigenic value.

My chief anxiety for the past four years has been to split up germs by almost purely mechanical methods, since certain bacteriologists have stated that my detoxication process destroys the antigenic value of my vaccine fractions. However, it is a great comfort to me to think that Professor Dreyer's experiments have proved that the antigenic properties are still largely intact after even his drastic procedure.—I am, etc.,

DAVID THOMSON.

Pickett-Thomson Research Laboratory,
St. Paul's Hospital, London, W.C.2, June 25th.

WHAT IS A "DISEASED" TONSIL?

SIR,—Is it as impractical and futile to try and define a "diseased" tonsil as Mr. Tilley (June 16th, p. 1033) and Dr. Cavenagh (June 23rd, p. 1075) seem to suggest? Not to do so is to confess our ignorance, yet it is a point of real practical importance. We all recognize the grossly diseased tonsils such as those described in the letters on this subject, but there are many cases in which the evidence of disease is not so convincing. I am frequently asked by colleagues on the medical side to see cases of endocarditis, nephritis, arthritis, eczema, etc., and to report on the condition of the tonsils. Only too frequently I find they are exactly like those of anyone else who is

not suffering from any of these complaints, and to pronounce a verdict on them is very difficult. It is easy to say they should be enucleated, but to do so in every case must eventually bring discredit on the operation and the operator. I entirely agree with Mr. Tilley's statement that "it is impossible by mere inspection to say whether a tonsil is healthy or diseased." I hope the time will come when this assertion will be inaccurate. From certain passages in Dr. Poynton's lecture, I rather assumed that he considered it was possible, and it was more particularly to elicit this information that I raised the question.

The presence of enlarged lymphatic glands at the angle of the jaw is a very valuable sign, but there are many cases of obviously diseased tonsils where they are not palpable.

Dr. Cavenagh asks, "If 'pus' is not a sign of disease [in the tonsil] why should it be considered so in tooth sockets or accessory sinuses?" Surely there is no analogy. The more I study this subject, especially the transatlantic and Continental literature, the more convinced I become that the tonsils have a definite function to perform in resisting systemic invasion and in building up immunity. Professor Digby, whose researches, perhaps, are not so well known as they should be, describes in his letter in the JOURNAL of June 23rd (p. 1075) how he considers they do this. In his own words: "The lymphocytes in the tonsil are continually migrating through the epithelium, phagocyting the bacteria in the crypts, and returning into the lymph nodules." In his book *Immunity in Health* he says: "Lymphocytes found astray in the lumen . . . are the few which have failed to wander back into the lymphoid tissue." We have therefore a fluid normally in the crypts which consists of micro-organisms, lymphocytes, shed epithelial cells, and mucus—clinically very like pus, but as it is formed by the tonsil in the exercise of its function, surely it is more physiological than pathological (a very different thing from pus in a tooth socket or accessory sinus, neither of which are lymphoid structures). The real practical difficulty is to distinguish between this physiological fluid (which has been mistaken for pus) and pus. If these findings are accepted the question of what is a diseased tonsil becomes very difficult to answer. In the present state of our knowledge, I think, only a physician can answer it if, after a thorough examination of all the systems of the patient, he finds evidence of systemic invasion, which is likely to have occurred through the tonsil.

The correspondence, to my mind, clearly shows that the problem has never been really tackled and that we have still much to learn.—I am, etc.,

Norwich, June 25th. N. STUART CARRUTHERS.

THE EDUCATION OF MYOPES.

SIR,—The statement by Dr. Edridge-Green (June 30th, p. 1115) that "myopia is caused by distension of the eye due to back pressure through the veins, such as is caused by lifting a heavy weight," probably contains an element of truth, as my experience as oculist attached to medical boards during the war coincides with his in finding many cases of high myopia in farm servants, who are far from literary in their tastes.

That it does not state the whole truth is demonstrated by the case of a schoolgirl, aged 12, examined by me at Alford this year for the Aberdeenshire Education Authority. Under atropine her refraction was: Right eye −20 D.=6/18; left eye +1 D.=6/6. The fundus of the myopic eye was practically normal, with a very small crescent and no other lesion. Cases of anisometropia frequently repeat themselves in various members of a family; the same sort of astigmatism with the same axis may occasionally behave in a similar fashion. There is no doubt that heredity plays a very important part in the production of refractive errors. Nevertheless, careful correction and supervision of the education of a young myope is essential.—I am, etc.,

Aberdeen, June 30th. A. RUDOLF GALLOWAY.

PROPOSED RONALD ROSS CLINIC.

SIR,—Your leading article and the recent letter in the *Times* concerning the proposal to establish in honour of Sir Ronald Ross a "Ronald Ross Clinic" leads me to write to you.

Sir Ronald Ross, whom I have had the great pleasure of knowing for many years, is deserving of the highest honour and recognition for the work so patiently pursued under difficulties, disappointments, and discouragements, to such a successful end. But may I venture to ask professional and informed opinion whether a clinic in a temperate climate is the proper place for research in tropical diseases, and whether the fund now proposed to be raised would not be much more advantageously expended in establishing one in a tropical country—India, for instance, where Sir Ronald Ross laid the foundations of his great work—or, perhaps, in endowing periodical expeditions to the tropics for the investigation on the spot of particular diseases or local forms of disease.

I make these suggestions with some hesitation, being only a layman who has been keenly interested for many years in the work of schools of tropical disease, and particularly in the establishment of the Sir Alfred Jones Laboratories at Sierra Leone.—I am, etc.,

Liverpool, June 29th. J. PICKERING JONES.

FREEDOM OF NEGRO RACES FROM CANCER.

SIR,—Will you allow me to add the results of my own inquiries to Dr. F. P. Fouché's statement of the freedom of the South African native races from malignant disease (June 30th, p. 1116)?

Thirty years ago I was interested in the causation of cancer, when my friend, the late Sir Henry Morton Stanley, the African explorer, drew my attention to the fact he had observed, that the native races in the regions through which he had travelled were free from it. To make sure, he furnished me with a list of hospitals and got me to write to the physicians in charge of them. The replies I received confirmed his observation and revealed that only in coast towns, where natives mingled with Europeans, did cancer occur, and then only (at that time) one case in about ten or twelve years.

This information led me to further inquiries, and I ascertained that native races of other continents were similarly immune when not brought in contact with civilization. I also noted the belief of several of my correspondents that it was the vegetarian diet of the natives which accounted for the exemption.—I am, etc.,

London, W.1, June 29th. BERNARD HOLLANDER.

HERPES ZOSTER WITH LOCALIZED MUSCULAR PARALYSIS.

SIR,—I am indebted to Dr. Parkes Weber (June 23rd, p. 1075), whose knowledge of the literature of the rarer manifestations of disease is unrivalled, for drawing attention to further references dealing with herpes zoster complicated by localized paralysis. In my paper, however, I commented upon the extreme rarity of cases of muscular paralysis in the affected zone accompanying or following herpes zoster of the *trunk*, and stated that I had found very few recorded cases.

By "herpes zoster of the trunk" I implied herpes due to involvement of any of the spinal ganglia between and including the second thoracic and twelfth thoracic segments, and used the term "trunk" as distinct from "limbs." I gave the few references to cases of paralysis of thoracic and abdominal muscles following herpes in the affected zone that I had been able to find, and also mentioned Ebstein's series of twenty cases of paralysis complicating herpes zoster, which included no case of paralysis of thoracic or abdominal muscles, merely to emphasize the rarity of the latter distribution. I made no attempt whatever to deal with the literature of paralysis of the limbs or shoulder-girdle muscles complicating herpes zoster, which I mentioned as being relatively more frequent owing to the closer association of the anterior and posterior spinal nerve roots in the lower cervical region than in the thoracic region.

The case which Dr. Parkes Weber recorded in 1915 was a brachial paralysis, and the nine references he gives all concern paralysis of muscles supplied from the spinal roots concerned in the formation of the brachial plexus—namely, paralyses of muscles of the upper extremity and shoulder girdle. I myself have met with two such examples, and it was my intention to deal with this form of paralysis in a subsequent communication.—I am, etc.,

London, W., June 24th. C. WORSTER-DROUGHT.

HOUSE DISINFECTION.

SIR,—A recent decision in the King's Bench Division by Mr. Justice McCardie on the need for house disinfection as an important factor in the control of tuberculosis raises issues regarding infectious disease and disinfection alike important to the practitioner of curative and of preventive medicine.

In their relation to disinfection, infectious diseases may be regarded as constituting three groups. The first group would include the majority of common infections—scarlet fever, measles, whooping cough, cerebro-spinal fever, and typhoid, from all of which infection is spread either from actual cases of the disease or from carriers, the infectivity of contacts being in all probability due to whether or not they happen to be carriers of the infection. The liability for fomites in this group to play the important part attributed to them in the past has less significance in the light of the carrier problem, and as a result the practice of home disinfection by chemical means after scarlet fever or diphtheria has now been largely given up as redundant by many medical officers of health. Chemical disinfection of an inhabited house fails therefore to control the spread of the above series of infections for two reasons: first, because no effect is produced upon carriers, who are mainly responsible for dissemination of the infection; and, secondly, because satisfactory disinfection of an inhabited house is in many cases wellnigh impossible without resorting to almost impracticable measures to ensure chemical cleanliness. Equal benefit has in these infections been found to result from disinfection of the fomites of the actual case, together with house cleansing, apart from any further attempts at disinfection by chemical means of the premises during occupancy.

In the next group the carrier is an invertebrate, actual cases of the disease apart from the carrier being non-infectious, as for example in typhus fever. Other examples might be quoted, such as trench fever and relapsing fever, both of which, like typhus, are due to infection spread through the common louse. Disinfestation and delousing are, therefore, of importance in controlling the dissemination of such diseases, destruction of the carrier being the most important part of the task of prevention.

A third group would be represented by tuberculosis disseminated in the pulmonary type, through infected sputum, whether recently exhaled or in dry dust months after its extrusion. In the case of tuberculosis, with its absence of carriers, home disinfection can, with proper precautions, be carried out either after the removal of an infective case from his former surroundings, or, with greater satisfaction, should be enforced as a valuable public health measure, compulsorily, if necessary, when the premises are vacated. The ideal time to disinfect a house is on vacation, a fact that might well be considered by owners a matter of self-protection, before re-letting, in any case where a previous tenant is known to have had infectious disease in his household.

Apart from personal fomites care need only therefore be directed to the acquisition of ordinary domestic cleanliness and supervision of contacts in the first group, delousing of contacts and disinfestation of premises in the second, whilst in the third domestic and chemical cleanliness should be carried out as effectively as possible, the absence of a carrier in tuberculosis being obviously an additional asset in the more effective control of this disease, by disinfection.—I am, etc.,

Croydon, June 26th. K. SIMPSON, M.D., D.P.H.

Obituary.

SIR JAMES REID, BT., G.C.V.O., K.C.B., LL.D., F.R.C.P.,

Physician-in-Ordinary to the King.

WE regret to record the death, on June 28th, at the age of 73, of Sir James Reid, Bt., G.C.V.O., K.C.B., Physician-in-Ordinary successively to Queen Victoria, King Edward VII, and King George.

James Reid, son of Dr. James Reid of Ellon, Aberdeenshire, was born in 1849, and was educated at the Grammar School of Aberdeen and then at the University of that city, where he graduated M.A. in 1869 with honours in natural science and a gold medal. He took the degrees of M.B. and C.M. three years later with highest honours, and the M.D. in 1875. He practised in London for two years, and then was in Vienna in 1876 and 1877 for post-graduate study. Returning home, he settled down in general practice at Ellon, and in 1881 he was introduced into Court circles by being given temporary charge of the Royal household at Balmoral during the illness of Dr. William Marshall, who had been resident physician to Queen Victoria for several years. When it was seen that Dr. Marshall would be unable to take up his duties again, Dr. Reid was appointed in his stead and moved with the Court to London.

At first he acted under the supervision of Sir William Jenner, who for years paid a weekly visit to Queen Victoria except when the Court was in Scotland or abroad. Reid was undoubtedly an able and tactful man, and he soon gained the full confidence and respect of Sir William Jenner as well as of his patients. He proved very successful in what must have been a difficult position, and in 1887 was appointed Physician Extraordinary to the Queen. Sir William Jenner's health broke down about this time, and in 1889 Dr. Reid became in title, as well as in fact, Physician-in-Ordinary to Her Majesty. His duties at the Court occupied him fully, and as he was constantly in residence there he engaged in no other practice. The Queen thought very highly of Reid, and was accustomed to seek his advice in many matters not connected with medicine. She made him a C.B. in 1889, K.C.B. in 1895, and a baronet in 1897; in 1901 he was made G.C.V.O. A few years before her death the Queen bestowed on him a house within the precincts of Windsor Castle. After her death Reid continued as a Court physician, but the late Sir Francis Laking was rather the personal medical attendant of King Edward VII, and Reid took a house in London. He relieved Laking at times, attending often on Continental visits, and also taking part charge when the King was ill at home. In 1901 he was appointed Physician-in-Ordinary to the Prince of Wales, and on King George V's accession (1910) he was continued in that office.

While Sir James Reid was physician to Queen Victoria he resided always with the Court and was but little known to the medical profession, but after her death he lived in London and mixed more with his professional brethren, who were able to judge of his personal character and medical capacity, and formed high opinions of both. Reid became a Member of the Royal College of Physicians in 1887, and a Fellow in 1892. He was consulting physician to the King Edward VII Sanatorium, Midhurst. He received many decorations from the various Courts which he visited with Royal patients.

He married in 1899 the Hon. Susan Baring, daughter of Baron Revelstoke, one of the Maids of Honour to Queen Victoria, and leaves two sons and two daughters. His eldest son and successor was a Page of Honour to King George, and distinguished himself at Cambridge, obtaining a first class in the classical tripos, Part II, last year.

A memorial service was held on July 3rd at the Chapel Royal, St. James's Palace, when the Archbishop of Canterbury officiated. A large congregation was present, including representatives of the King and Queen and other members of the Royal Family.

THE RATIONALE OF PARATHYROID THERAPY.

BY

H. W. C. VINES, M.D.,

FELLOW OF CHRIST'S COLLEGE, CAMBRIDGE; FOULERTON RESEARCH STUDENT.

Chronicity of disease implies a stage in a pathological process at which neither the defence of the body nor the attack of the invading organism is making headway, but where the condition is that of an almost evenly balanced conflict. It is a balance between the effect of the parasite on the host and that of the host on the parasite, for in the first case the host has for some reason failed to respond sufficiently to the attack, and in the second the parasite is kept sufficiently in check to prevent an overwhelming onslaught. The main defence of the host lies in its cellular response, indicated by the mobilization of leucocytes and by the production of certain substances collectively called the antibodies. It is obvious that in chronic infections this response is insufficient to defeat the invading organism, and though it is easy to say that the resistance of the body has become weakened, such a statement explains nothing and affords no clue to the means of helping the body to victory.

It is impossible to assume that the reactions of the body to an infecting organism are limited merely to the mechanical mobilization of pre-existing cells and chemical substances. Both cells and antibodies are the end-products of other processes, for they must originate from some definite source, since neither is capable of reproduction in the blood stream. It is therefore behind these end-points of immune reaction that we must search for a clue to the failure of somatic response in chronic infections. Where the infection is of long standing, it is necessary materially to increase the rate of production of the leucocytes, and it cannot be assumed that the leucocyte-producing tissues alone of the body cells commence a proliferation due directly and entirely to the incidence of infection. Some means must therefore be found of stimulating certain tissue functions, and so the problem t once assumes a nutritional aspect. It may be recalled at the usual means of combating disease is by "keeping up the patient's strength"—that is to say, by decreasing tissue breakdown as far as possible by keeping the patient at rest, and by giving a nourishing diet; for many years therefore the basis of treatment of infections has been essentially the conservation of tissue energy.

The Sympathetic Response to Disease.

The non-volitional activities of the body—and among them immune reactions must be reckoned—are for the most part under the control of the autonomic system, and closely associated with the latter is the group of endocrine glands. Through the agency of this double system the metabolic tone of the body is kept at a standard level, which is recognized as the physiological normal, and since metabolism and resistance are so closely related it is not unreasonable to turn to this system in search of the cause of failure of the body to react to infective processes. The autonomic system and its associate glands are generally divided into two groups—the thoracico-lumbar or sympathetic system, with which are associated the thyroid, suprarenal, and pituitary glands; and the cranio-sacral or parasympathetic system, to which are conjoined the pancreas, the parathyroids, and perhaps the thymus. If now we consider the symptoms of an acute infection it is not difficult to see which of these two systems becomes first affected. Acute infection is accompanied by fever, tachycardia, shivering, sweating, increased metabolism, and hyperglycaemia; all these are signs of overaction of the sympathetic nervous system, and they may also be produced in some degree by overaction of the thyroid gland. If these symptoms are perpetuated the picture of a chronic wasting febrile disease is presented, and may be exemplified by the later stages of phthisis. The tendency of this syndrome is towards death, since the rate of katabolism is greater than that of anabolism, and therefore we find that the general treatment of such conditions has been by rest and adequate nutrition, the indirect method of increasing resistance by limiting tissue breakdown.

There is another biochemical sign in acute infections which is of importance—it is the loss of calcium from the body; it has been recorded by a considerable number of observers and in a wide variety of diseases. There is evidence that this also is a sign of sympathetic overaction, for it may be produced by hyperthyroidism, while the parathyroid glands, which belong to the opposing system, are the regulators of calcium metabolism. I have observed disturbances of calcium metabolism in ulcerative conditions, and it has been shown that if the calcium deficiency which occurs is rectified by means of parathyroid administration the ulcer will also heal, the two processes running concurrently. Bruning and others consider that "trophic ulceration" is due to sympathetic overaction, and that while hypersympathicotonia leads to tissue degeneration and necrosis, vagotonia leads to tissue regeneration and repair. On these lines they treated a series of cases of varicose ulcer by periarterial sympathectomy and obtained satisfactory results. To sum up: the signs of sympathetic overaction include fever, tachycardia, sweating, hyperglycaemia, calcium loss, and a tendency to ulceration. All these are clinical signs of acute infection with the exception of the last, which, however, often appears in chronic infective states.

The acute infection has so far been considered, but it is easy to imagine a condition of less severity in which the symptoms are less marked and in which the infection is less acute. There may only be a low degree of fever, barely perceptible tachycardia, and yet the diagnosis of infection can often be proved bacteriologically. In such conditions some degree of hyperglycaemia and a decreased content of active calcium in the serum may be found, so that signs of sympathetic overaction are still present. We have now arrived at the picture of a chronic infection in which a low-grade sympathetic overaction is present, but yet in which the sympathetic function is greater than in the normal subject. For instance, in chronic nephritis there may be no clinical signs of sympathetic overaction, and yet calcium loss and hyperglycaemia have been frequently recorded.

Bacterial infection tends therefore to the disturbance of the balance between the sympathetic and the parasympathetic systems, the effect of the latter being outweighed by that of the former. If this be translated into terms of the endocrine glands, we may say that the thyroid overacts and submerges the action of the parathyroid glands. Examples of this antagonism are not uncommon, and it is frequently found that where a case is making progress on parathyroid therapy, the exhibition of thyroid substance will lead to retrogression.

Thyroid Functon and Resistance.

It is quite clear that in infection the sympathetic system is first affected and that its main activity is an acceleration of metabolism together with increased efforts of elimination. This action cannot, however, be regarded as a purposive one, but it is more in the nature of an irritative effect by the bacterial toxins upon the sympathetic system. The question may even be raised whether the febrile response is of real assistance, and here the phenomena of immunizing animals may be of value. Sestini observed that the thyroid gland of guinea-pigs showed signs of hyperplasia and intense cellular activity [illegible] against *B. typhosus*. Kepinow and [illegible] mented upon the tuberculin reaction in guinea-pigs and found that the febrile response was closely connected with the thyroid gland since thyroidectomy prevented its occurrence; removal of the thyroid did not, however, prevent the guinea-pigs from dying.

There is apparently no relation between the degree of febrile response which follows a vaccine injection and the degree of immunity thereby established, and it becomes questionable whether the febrile reaction is an advantage or the reverse. The results of the injection of a full dose of vaccine are parallel to a mild acute infection in regard to the clinical and biochemical signs, and in both instances

opposite type; a dose is given which stimulates the tissues weakened by tuberculous infection to increased vitality and enables the vitalized phagocytes to consume the tubercle bacilli, and, the active source of infection having been removed, to help absorption of the caseating material.

It is unnecessary while a patient is having radium treatment to have the neck fixed so as to limit movement, or to make the patient in any way an invalid. Violent exercise only is prohibited, otherwise the patient is permitted to lead such a life as his general health will allow of, merely avoiding excessive strain and fatigue. The dose of radium employed appears to produce a general tonic effect on the system as well as a local effect on the glands; this I have gathered from the observations of several intelligent adults who have independently remarked on it, and have asked me whether the radium could have such an effect. Carious teeth, diseased tonsils and adenoids, and any other obvious sources of primary infection, must be dealt with at the beginning of the treatment, as it would be folly to cure existing tuberculous glands and leave a future source of infection behind.

DISCUSSION.

The President said that many cures had been claimed which depended on mistaken diagnoses. It was difficult to realize that radium could cure tuberculous glands, but the fact that caseous glands had been present in many of Dr. Molyneux's cases was proof positive that they were tuberculous. He would like to ask how the cost of treatment by radium compared with the cost of other methods such as operation. Would it be within the means of the ordinary individual?

Dr. Nabarro (London) called attention to the difficulty of distinguishing between tuberculous and syphilitic glands in children. A Wassermann test should be done in any doubtful case. Tuberculous glands were less common now than thirty years ago. He attributed this to the attention which was given to-day to tonsils. Glands often subsided after their removal. The tonsil was a path of entry for the tubercle bacillus.

Dr. Molyneux, in reply, said that with regard to the cost he himself treated most cases free, but that it would certainly amount to less than the visit to the seaside, which was so often prescribed. He made certain of the diagnosis in doubtful cases by excising a gland and examining it microscopically; this had been done in a large proportion of his patients. A few had turned out to be Hodgkin's disease. These he refused to treat; it could do no good and might do harm. He had also had a number of cases of syphilis sent him. He always verified the diagnosis before attempting treatment. He agreed with Dr. Nabarro that removal of tonsils and adenoids often prevented the formation of tuberculous glands.

THE REACTION OF THE BLOOD IN CHILDREN.

BY

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In this communication, following the suggestion of A. V. Hill, the term cH will be used to represent the H ion concentration, thus omitting the use of logarithms. The cH, according to the Henderson-Hasselbach equation, may be expressed as follows—

$$cH = k.\frac{H_2CO_3}{NaHCO_3}\ \frac{(\text{dissolved } CO_2 :: \text{to pr. } CO_2)}{(\text{combined } CO_2)}$$

By observing the cH in relation to the tension of CO_2 and to the combined CO_2 we may have some idea of the factors controlling the acid-base balance. Among these factors the blood buffering power is of great importance. Dr. Cammidge has indicated the importance of the presence of buffer acids and buffer salts in the blood stream. I should like to emphasize the value of protein base salts found abundantly as base haemoglobinate in the blood; for example—

1. $NaHb \rightleftharpoons Na^{\cdot} + Hb'$
2. $H_2CO_3 \rightleftharpoons H^{\cdot} + HCO_3'$
3. $NaHCO_3 \rightleftharpoons Na^{\cdot} + HCO_3'$
4. $H.Hb \rightleftharpoons H^{\cdot} + Hb'$

If the CO_2 tension be increased, then equation 2 will act from left to right, causing an increase in dissociated H ions. H.Hb, being weaker than H_2CO_3, tends to dissociate less, and equation 4 will take place from right to left, preventing increase of H ions. Reduction in Hb and H ions leaves equivalent amounts of Na ions and HCO_3 ions—a neutral salt in solution. This will continue until the base available from NaHb is exhausted, and hence the importance of estimating the alkali available as base at more than one tension of CO_2. The power of a given blood to tolerate increases of CO_2 tension and influx of carbonic acid can be observed by plotting the combined CO_2 values at two different reactions. The latter are obtained by exposing a sample of blood to two widely differing CO_2 tensions, and observing the cH and combined CO_2 values at these tensions.

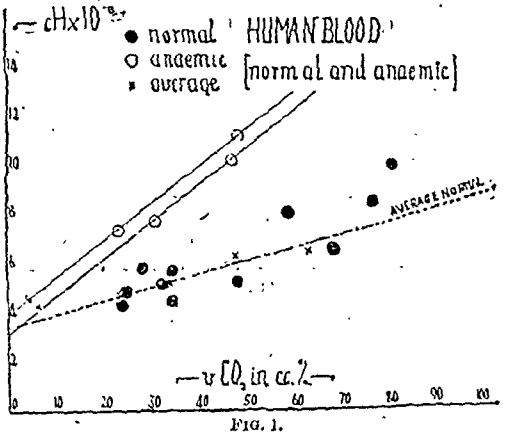

Fig. 1.

Fig. 1 shows the bloods of a number of normal individuals. Crosses indicate the arithmetical mean of readings of the cH at three mean observations of the CO_2 content or combined CO_2 value (alkali reserve). The two steeper curves are the cH—v.CO_2 relation plotted in two cases of anaemia. Lack of haemoglobin allows the cH to increase more rapidly, or may be said to show failure of the CO_2 content to rise as rapidly as in the normal. This shows the necessity of good buffering.

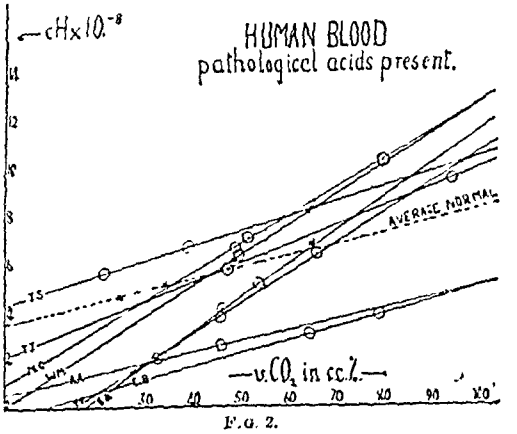

Fig. 2.

Fig. 2 shows the same relation in blood taken from children with post-anaesthetic ketonuria. It is presumed that a large part of the available alkali has been required to unite with acids produced by faulty fat and carbohydrate metabolism. Two cases treated with copious amounts of $NaHCO_3$ solutions showed a lowered cH at any value of v.CO_2. In these cases lack of stimulus to the respiratory centre might cause oxygen lack, and would temporarily increase the alveolar CO_2 provided no impairment of respiratory mechanism were present.

It is hoped to define the normal limits of variation in these relations, and thus attempt to build up a method of prognosis concerning the blood of children about to be exposed to the risk of the presence of ketones and similar acids.

I should like to express my thanks to Professor A. V. Hill, F.R.S., for his supervision and direction of this work, and I must also thank the committee of the Ashby Memorial Scholarship for permission to show cases investigated as work for this scholarship.

a negative phase of resistance is produced. The time of occurrence of the negative phase is coincident with that of the sympathetic response; in an acute infection vaccine therapy in the acute stage may have serious consequences, and an acute infection supervening in the negative phase after vaccine injection may be equally dangerous. There is no proof that thyroid overaction produces either maintained leucocytosis or favours the production of antibodies; such evidence as there is points to an opposite effect. It appears that the febrile response to infection has but little real value, except that it may aid in the elimination of a certain amount of toxic material by increasing the blood supply to the eliminative organs. It is also of interest to note that fever is usually regarded as a sign of danger and not of protection, that efforts are made to reduce it, and that the favourable course of disease is judged largely by the diminution of the intensity of the fever. Much has been written concerning the action of the thyroid as a "detoxicating organ," and though the statements are usually of a vague and indefinite character, there seems to be a gradually growing idea that the destruction of toxic substances occurs actually within the gland. No satisfactory proof of this theory has ever been forthcoming, and there is no evidence that thyroxin or thyroid gland can destroy toxic substances *in vitro*. The theory seems to be based largely on the hypertrophy of the thyroid in infections and in pregnancy, but the possibility does not seem to have been considered that such hypertrophy may be a reaction to chronic irritation, just as any other tissue may hypertrophy under similar conditions.

Parasympathetic Function.

Chronicity of infection may therefore be due in part to a continued overaction of the sympathetic system, and a simultaneous depression of parasympathetic activity which may be relative or absolute. It must also be remembered that the endocrine glands may suffer direct damage in disease and that their function may therefore be interfered with; in addition the function of the parasympathetic glands may be further affected by the thyroid hypersecretion. That such damage may be done to the parathyroid glands is shown by the not infrequent occurrence of tetany in acute and chronic toxic conditions. The function of the parasympathetic system is essentially towards the conservation of tissue energy, whereas that of the sympathetic is to accelerate metabolism even to the ultimate destruction of life. Normally these two systems are in equilibrium, and it seems reasonable to suppose that when this balance has been upset by infection one method of inducing adequate resistance to the disease will be to restore the endocrine balance to its normal state. It has already been pointed out that the sympathetic response to a vaccine injection does not produce a high degree of immunity, and that it is not until the sympathetic response is over that immunity becomes established. The injection of dead organisms limits the extent of the sympathetic response in point of time, but where an infection is present it is probable that the continuous irritation of the sympathetic system prevents, or at least delays, the re-establishment of the normal sympathetic-parasympathetic balance.

Parathyroid Function and Resistance.

If this view of chronic infection is correct, the reasonable method of dealing with the condition is by increasing the parasympathetic function. If we regard the balance between the sympathetic and the parasympathetic as being represented by the balance between thyroid and parathyroid, then the means of counteracting thyroid overaction would be by parathyroid administration. The susceptibility of animals to infection after parathyroidectomy is well known; in common with other observers I have found that parathyroid therapy is of value in a wide variety of chronic infective states. In such different conditions as varicose ulcer, rheumatoid arthritis, and sprue, among others, it has been shown that an increase of the parasympathetic element by parathyroid therapy leads to a marked improvement. In such differing states there can be no question of any specific action of the preparation used upon the infecting organism, and it is evident that the phenomena of resistance to disease lie deeper than the leucocyte and the antibody. Moreover, I have found that where a chronic infection is present and where the leucocyte count is low, the administration of parathyroid substance has led to a considerable increase in the leucocyte count, indicating an effect upon the leucocyte-producing tissues. Similar effects, but of a less decided character, may be obtained by the injection of soluble calcium salts, and this supports the statement that calcium loss is one of the signs of sympathetic overaction. It is of interest to note in this connexion the powerful action of ultra-violet light upon disorders of calcium metabolism such as rickets, and also the curative effect of sunlight on such chronic infective states as tuberculosis. One might conjecture that ultra-violet light has a depressant action upon the sympathetic system or that it stimulates the parasympathetic.

Endocrine Balance.

It seems, therefore, that the problem of chronic infection resolves itself into the problem of equilibrium between the sympathetic and the parasympathetic systems, represented by the thyroid and the parathyroid glands respectively. It is not difficult on these lines to understand the incidence of chronic sequelae after acute infections, although the acute attack has apparently been overcome successfully and though the sequelae may be remote in point of time. The endocrine balance which was disturbed in the acute attack has never in reality returned to normal; a new equilibrium has been established on a different level which will still permit of an apparently normal existence. This new balance contains a sympathetic element greater than the normal, and signs of hyperthyroidism after severe illness are not uncommon. The patient is therefore left with a degree of parasympathetic deficiency and its accompanying susceptibility to infection. This is the condition which has been called "latent tetany," though a better term would be "chronic parathyroid insufficiency."

To recapitulate: the immediate response to infection, just as to physical attack, is an overaction of the sympathetic system. If the severity of the infection is of such a degree that it can be immediately overcome by the existing defences, there are no further ill results. If, however, the invading organism is not rapidly destroyed, the sympathetic irritation is continued and recovery does not take place or is long delayed; the condition becomes chronic, for under the existing condition of sympathetic overaction the resistant powers present at the onset of infection are not adequately reinforced. But if the activity of the parasympathetic can be stimulated, the re-establishment of the normal balance between the two systems permits recovery. As the body is kept in health by the normal balance between sympathetic and parasympathetic, so must this balance be re-established at the normal level for recovery to occur from an illness by which it has been disturbed.

Such a conclusion must lead to the consideration of all infective states on a similar basis, since the major phenomena of resistance to disease are not specific to the infecting organism in any sense of the word. The body reacts to all infections of equal severity in the same way—namely, by those phenomena which are collectively termed inflammation—and the only substances which are specific to the infecting organism are the antibodies. There is no evidence that these substances are produced to any great extent by the immediate sympathetic response, and experimental evidence suggests that thyroid activity does not facilitate their formation. They are a later development; in immunizing animals they appear after the negative phase at a time when the balance between sympathetic and parasympathetic is being restored. The leucocytes and the antibodies are not themselves necessarily affected by the disturbance of endocrine balance; the effect is upon the tissues as a whole, and therefore includes the sites of leucocyte production. In disease the body must be regarded as an organism with limited means of reaction, and it is those factors which control the physiologically normal state which will afford a clue to the control of abnormal or pathological conditions.

Conclusion.

The rationale of parathyroid therapy is therefore simple; it is a means of re-establishing the normal endocrine balance of the body, which infection has disturbed. Emphasis is

SECTION OF LARYNGOLOGY AND OTOLOGY.

E. B. Waggett, D.S.O., M.B., B.Ch., President.

DISCUSSION ON LABYRINTH DEAFNESS.

OPENING PAPER

BY

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There is probably no organ in the body the anatomy and physiology of which is so accurately, so intimately known to us as the labyrinth. But by an unparalleled concatenation of circumstances there is no organ of the body of whose pathology, excluding suppuration, we know so little. The reasons for this regrettable state of matters, so strikingly at variance with modern medical progress, are simple. Opportunities for observing cases of deafness during their entire course from start to finish are rare. And still more rare are the opportunities of making a pathological examination of such cases at the different stages of their development, an examination which, we may add, demands from the investigator a quite unusual kind of skill, training, and experience. The time and the loved one seldom concur with the place when that place is the labyrinth.

We shall, of course, some day emerge from this darkness and mystification. But that day is not yet, and at the present moment, in a discussion which must necessarily range over the whole field of the non-purulent diseases of the labyrinth, all we can do is to make the most of such pathological and clinical information as we possess. Unfortunately, whatever may be said of the scanty pathological data at our disposal, with regard to the clinical facts we have to confess that they are by no means always so clear and unequivocal as to render the conclusions we base upon them entirely trustworthy.

The first question we have to ask in a review which will be full of questions is: What exactly do we mean by "labyrinth deafness"? If we were to address this question to a pathologist his reply would be simple and definitive, even although it might not carry the clinician very far in his search for enlightenment. "Labyrinth deafness," he would say, "is deafness caused by a disturbance in the labyrinth." But I am not speaking as a pathologist. I have no claim to do so. I have no right to do so. I speak only as an observer of clinical phenomena in general, and at the moment of the hearing tests in particular. And as such, looking back over a collection of many thousands of cases of deafness, I confess that I have often, very often, found it difficult and sometimes indeed impossible to tell, from the results of the hearing tests alone, whether the patient's deafness was due to a middle-ear lesion, to a labyrinth lesion, or to both. And it is possible that most of my hearers find themselves in the same predicament as often as I do.

The textbooks of otology inform us, to be sure, and we who are teachers hand on the rule to our students, that there is a clean-cut distinction, traceable clinically by means *of the hearing tests, between a defect in the conducting* apparatus and a defect in the nerve organization of the ear. When, for example, in a deaf person, the hearing of tuning-fork sounds by bone conduction is increased, when deep musical tones cannot be heard, while the higher tones of Galton's whistle or the monochord are audible up to or near the physiological limit, then, we say, the deafness is "obstructive," and we are to infer that the impairment of function is due to a lesion situated somewhere in the conducting mechanism; whereas when the bone conduction is diminished, the deeper tones retained, and the higher tones lost, the deafness is "nerve" deafness, and it is to be attributed to a lesion in the nervous structures of the hearing organ.

Yet, face to face with clinical fact, are we not compelled to admit that in nature this precise and comforting distinction does not always hold good? Nay, there are some who say to themselves that the distinction holds good but very seldom, and that any inferences based upon it are therefore fallacious. Let us submit this sceptical attitude of mind to examination.

In the first variety of deafness—the obstructive—when the phenomena I have mentioned are present, no one, so far as I know, has ever thrown any doubts upon the correctness of the inference. Obstructive deafness all acknowledge to be caused by a disturbance in the conducting mechanism of the ear. But this is by no means true of the second type, or "nerve" deafness. And there are undoubtedly grounds for a cautious, if not a sceptical, attitude here. To take only two instances out of many I have myself experienced, I have notes of a case before me as I write in which all the signs of nerve deafness were present, and of nerve deafness of a moderately severe grade. The patient happened to be a personal friend, and, as was natural, I was grieved at the discovery, for I looked upon the impairment as serious. The external auditory meatus on both sides, it is true, was occluded by hard cerumen, but in view of my findings I was unable to promise myself or my patient much benefit from the removal of the meatal obstruction. All the same the clearing of the meatuses was followed by the complete disappearance of every sign of even the slightest nerve or any other deafness. The second case I may mention was one of subacute Eustachian and middle-ear catarrh in which precisely the same happy ending was reached by the simple process of catheterizing the Eustachian tubes.

We are, therefore, compelled to admit that "nerve" deafness may be induced by a simple obstruction in the conducting apparatus. Or, to put the matter in another way, a lesion in the conducting apparatus does not inevitably produce the phenomena of "obstructive" deafness. Now I should like to ask you whether in your experience this disconcerting occurrence is a great rarity.

We must pause here to note the fact that these criticisms are by no means novelties. You will find them carefully and minutely dealt with in the literature of thirty years ago. And Lucae it is who expressly cautions us not to rely upon the predominance of air conduction over bone conduction as indicative by itself of nerve deafness (that is, of a nerve disturbance) unless the hearing power is very much reduced. The whisper, he says, ought not to be audible at a distance of one metre. This, of course, is tantamount to saying that we are not in a position to diagnose from the tuning-fork test results any disease of the labyrinth, any case of nerve deafness, in its earlier stages. But this conclusion, though logical, need not dismay us. The deafness of many cases of the Ménière group, for example, is often quite trifling, and yet it is undoubtedly in most cases due to labyrinth disease. And that deafness is of the classical "nerve" deafness variety. If, then, leaving vertigo out of count for the moment, the signs of "nerve" deafness are present, and if on a general survey of a case—the history, the subjective sensations, the objective appearances of the tympanic membrane, the nose, nasopharynx, and Eustachian orifices, and lastly the results of Eustachian catheterization—we can find no sign of any middle-ear or meatal disease, then surely we are entitled to say, in spite of its mildness, and maybe its brief duration, that the deafness is due to a disturbance in the nerve organization. Of course, this diagnosis can only be a probability. But the probability approaches more and more to a certainty as fact after fact and finding after finding are all found to point in the same direction. And of these findings one of the most important is the type of deafness present. This, then, is the proper use, and here is to be found the value, of the hearing tests. They form one of a large number of significant phenomena, but they can only be used in combination with their correlatives; otherwise they will, ever and anon, mislead us.

I turn now to that very large group of cases in which the phenomena of nerve deafness as detailed above are present, but in which these phenomena are modified by associated obstructive deafness — what we call "mixed" deafness—where the bone conduction is diminished as compared with the physiological, but where a negative Rinne test shows the bone conduction as compared with the patient's own aerial conduction to be increased. I think

laid on the point that the balance between sympathetic and parasympathetic must be brought back to normal level; adequate resistance to disease is not a function either of the sympathetic system or of the parasympathetic system, but of the equilibrium between them. Disease may occur equally when either system is overacting at the expense of the other, and it is probable that the great success of prophylactic vaccination as compared with the more meagre results of curative vaccination may depend on the fact that in the former case the subject is healthy and is in a state of endocrine equilibrium, whereas in the latter case other conditions prevail. Any tissue performs its functions best when under physiologically normal conditions, and it cannot be supposed that the tissues which are concerned in the mechanisms of defence are exceptions to this rule.

EPIDEMIC HICCUP AND ENCEPHALITIS LETHARGICA.

Report of a Case of Epidemic Encephalitis showing Lethargy, Cranial Nerve Palsies, Myoclonus, and Hiccup,

BY

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The purpose of this communication is to report a case of epidemic encephalitis exhibiting in one individual many of the varied manifestations of this protean disease.

M. M., aged 16, a healthy-looking well developed girl, was admitted to the London Hospital on July 18th, 1923. The mother says she had St. Vitus's dance as a child. In November, 1918, she had an acute illness. She was in bed a week with severe headache, sleepy all day but restless at night, and delirious for a day or two. She did not complain of visual impairment or diplopia at that time. Drooping of the right eyelid was noted by the doctor who attended her, but the mother said it has been present since infancy, and this is corroborated by photographs. She made a good recovery. This was possibly a previous attack of encephalitis.

Three months before admission she began to have attacks of hiccup two or three times a week; the attack would last a few minutes and then stop spontaneously.

Two months before admission she became acutely ill with severe headache. She slept all day, was hard to rouse, and became "a little light-headed at night." She vomited several times and the temperature is said to have been 104° F. She was in bed two days, and on getting up found that objects looked blurred, and she saw double, and has done so ever since—has felt languid and has had occasional attacks of hiccup as before.

Eight days before admission an attack of hiccup began which continued until admission; and she did not sleep at all on the previous night. The mother states that the patient has been always rather excitable, but more so since her illness two months ago.

Condition on Admission.

Mental State.—On admission she was restless, excitable, and talkative; smiling and laughing during examination. In spite of having hiccupped persistently for eight days she was apparently in no way depressed or fatigued by her condition, but, on the other hand, was rather amused at it; she was able to give an intelligent account of her illness; and her memory was unimpaired. Her mental state was thus similar to that of the myoclonic cases described by Ellis, though the excitement was less extreme and there was no delirium.

Hiccup.—When admitted she was hiccupping about 120 times a minute. Synchronous with each contraction of the diaphragm was a relaxation of the musculature of the abdominal wall and a sharp dilatation of the alae nasi. The frequency of the hiccup was diminished during speech, but it was not completely inhibited and often cut short a word; laughter caused a similar partial inhibition. She complained of a sensation of stiffness around the lower ribs. The hiccup ceased as soon as she was given a hot bath, within two hours of admission, and before she had had any sedative drug.

Myoclonic movements occurred in the upper limbs and the abdominal walls, but have never been very marked. In the upper limbs there were slight jerking movements of flexion of the elbow, wrist, and fingers, and pronation of the forearm occurring every few seconds. In the abdomen even before the hiccup ceased slight twitches of the abdominal muscles were seen, which did not occur so frequently and did not synchronize with it. When the hiccup ceased it was possible to examine these movements alone. They occurred seven or eight times a minute almost entirely in the upper abdomen and chiefly in the upper right quadrant, the umbilicus being drawn sometimes straight upwards, but usually obliquely upwards and to the right. The movements were associated with a weakness of the upper abdominal wall for voluntary movement, the umbilicus moving downwards when the head was raised from the pillow against resistance. The abdominal reflexes are of interest; the response in the right upper segment was very brisk as compared with the reactions in the other segments, and consisted of a sharp primary twitch, followed by a series of smaller twitches occurring at irregular intervals for several seconds. The reflexes on the left side and in the lower segments on the right side were normal. The myoclonic movements were thus associated with an increased reflex excitability of the same segment of the abdominal wall.

Cranial Nerves.—The fundi were normal, vision was unimpaired, and the visual fields normal. [illegible] with a reflex spasm of the orbicularis [illegible] homolateral eye. The pupils were somewhat dilated, equal and regular. There was an extremely sluggish and unsustained reaction to light and on accommodation, but a slightly brisker response on convergence, which was poorly carried out. There was a slight weakness of the external rectus on each side with a corresponding convergent strabismus and diplopia on extreme lateral fixation to either side. Slight ptosis of right eyelid. No nystagmus. The uvula was drawn to the right on phonation. The other cranial nerves and the remainder of the nervous system showed no abnormality.

Condition One Month after Admission.

She had had no recurrence of the hiccup (August 15th), but was still abnormally sleepy at times, and occasionally complained of pain behind the eyes. The mental excitability was less pronounced, but the myoclonic movements were slightly more marked. Involuntary elevation of the eyebrows and blinking of the eyes were noted, while, in addition to the movements described before, occasional contractions were observed in the sternomastoids, the pectorales, the small muscles of the hands, and both quadriceps extensors; flexion and extension of the toes also occurred. The abdominal movements were unchanged; there was some flattening of the right upper segment on raising the head against resistance; the abdominal reflexes were brisker on the right than on the left, especially in the right upper segment, where the response still consisted of a series of three or four successive twitches. The cranial nerve palsies were less marked. The response of the pupils to light was brisker, as was also the reaction on convergence. The reaction on accommodation was still sluggish and ill sustained. Photophobia was still present. The weakness of the external recti was extremely slight, there being now no obvious strabismus, and only slight blurring of the image on extreme lateral fixation to either side. The slight ptosis of the right eyelid was unchanged.

When in 1917 von Economo first described the condition the well known lethargic type of the disease, with somnolence, lethargy, and ocular palsies leading to ptosis, strabismus, and pupillary disturbances, greatly predominated. Later it began to be realized that the manifestations were much more varied and widespread. The occurrence of cases closely resembling paralysis agitans began to attract attention, and still later the excited and myoclonic and choreiform types of the disease and the occurrence of epidemic hiccup became recognized.

In the excited and myoclonic patients and in epidemic hiccup the lethargy so typical of the more ordinary forms of the disease is replaced by mental excitement, delirium, and insomnia. Cases in which myoclonic movements were present occurred sporadically in 1918, but it was not until the end of 1919 that they became prevalent. They were described as a form of acute epidemic encephalitis in January, 1920, by Sicard and Kudelski, and Ellis[1] reported three cases in this country in that year. The characteristic of this variety is the occurrence of twitching of the muscles of the limbs, and rhythmic shock-like movements of the abdominal muscles, which may be so severe as to shake the bed with each contraction. Cranial nerve palsies may or may not occur.

Although cases of hiccup were noted by von Economo in 1917, hiccup did not occur in epidemic form until the end of 1919, when an outbreak coincided with the epidemic of the myoclonic form. Hall[2] quotes Boyd as describing an outbreak of epidemic hiccup which occurred in Winnipeg in the autumn of 1919, and preceded an outbreak of the lethargic form of the disease. The same authority quotes Dargein and Plazy, who describe a case in which lethargy and ocular palsies developed a fortnight after recovery from an attack of epidemic hiccup. But Hall concludes that "at the present time no dogmatic statement of the relationship of the two conditions seems warranted."

Conclusion.

The above case, therefore, is of interest. The patient after suffering for a month from intermittent brief attacks of hiccup, developed a typical though mild attack of the lethargic form of encephalitis with ocular

all will assent to the statement that this is the commonest type of deafness we encounter. Dundas-Grant, by the way, pointed out many years ago that there is a preponderance of bone conduction over air conduction not only when the Rinne test is negative, but also when it is zero. He goes so far as to make the same decision when the Rinne test, though positive, is less than the normal length for any particular fork.

Fortunately, as we have already said, in making our diagnosis in any case of deafness we are not limited in our examination of the patient to the hearing tests alone. The history of the case tells, perhaps, of attacks, it may be many years before, of nasal or nasopharyngeal disease; we learn, maybe, that the deafness varies with the weather, that tinnitus is a prominent symptom, and so forth. And finally our objective examination may reveal changes in the Eustachian tube or tympanic cavity. The upshot is that we are able to say confidently, in most cases of mixed deafness, that whether there is or there is not a lesion or a defect in the labyrinth, there are certainly changes in the conducting apparatus sufficiently great to cause considerable deafness.

But how are we to account for the presence of the signs of nerve deafness? Now we know as certainly as we can know anything that a lesion limited to the labyrinth does induce the phenomena we call pure nerve deafness. We are, therefore, entitled to suppose—though to be sure it is only a supposition—that when nerve deafness is present in a case of meatal obstruction or middle-ear disease, whether that nerve deafness is pure or mixed, so long as the general deafness is pronounced, we are entitled to suppose, I say, that these obstructing lesions in some way lead to a disturbance in the cochlea. How do they do so, and what is the disturbance they cause?

In many cases, no doubt, cases (say) of serious and it may be long-continued disease in the middle ear, the pathological process extends to and implicates the labyrinth. Microscopic examination has frequently disclosed in such cases as these degenerative processes in the cochlear structures. But it is necessary to recall to your memory that, according to Politzer, the labyrinth is not affected save in the "chronic adhesive processes" of the middle ear, and in otosclerosis, and in syphilis. In chronic non-purulent middle-ear catarrh the labyrinth, "except in rare cases," is, we are told, undamaged. There is, however, a great deal to be said for the active participation of the labyrinth in middle-ear disease. The frequent occurrence of spontaneous nystagmus in acute suppuration of the middle ear proves the readiness with which lesions in the one will influence the functions of the other.

As to the manner in which simple lesions of the conducting apparatus unaccompanied by cochlear changes may induce the phenomena we usually associate, and with reason, with cochlear and other diseases I am ignorant. Here we come upon one of the gaps in our knowledge. Perhaps the defect in the cochlea, seeing that the phenomena disappear with the obstruction, is only functional. On the other hand, there may be some varieties of obstruction which, without affecting the cochlea at all, induce of themselves what we call nerve deafness. As things are at present this may seem to be a large assumption to make; nevertheless there are many authorities who subscribe to this opinion.

Leaving all such theoretical considerations on one side and turning to clinical facts, there is, as my figures show, one generalization formed from these facts which we may safely venture upon, and that is that the most common single cause of nerve deafness known to us, whether that nerve deafness be due to an organic or to a functional cochlear change—the *commonest individual cause of nerve deafness is middle-ear disease.*

Let us now inquire whether the foregoing critical considerations have any practical meaning for us. It has often been said—it is almost an otological truism—that when objective indications of middle-ear disease are present, and when the typical obstructive deafness of such a case is modified by the presence of the phenomena of nerve deafness, then the prognosis is unfavourable. In so far as this applies to the cure of severe deafness in chronic cases I agree. But to say that such findings invariably foreshadow a progressive deterioration of hearing would, in my opinion, be going too far—save, perhaps, in otosclerosis. Doubtless in many cases progress downward does continue. On the other hand, I am inclined to say that if the disease process in the middle ear can be arrested then the deafness, even when it manifests some of the signs of nerve deafness, may become stationary, at all events until the patient reaches old age. In support of this statement I can cite instances from my own practice; I know patients whose deafness has remained thus stationary for the last fifteen years. We should, therefore, avoid taking too gloomy a view of nerve deafness when middle-ear disease is present if—and the proviso is important—if the middle-ear disease is of a kind likely to be brought to a period by treatment.

Before we leave the subject of mixed obstructive and nerve deafness it is necessary to consider one variety of this class which is eminently amenable to treatment. I allude to myxoedematous deafness. There are some otologists who, they tell me, make a practice of submitting all cases of mixed deafness to a course of thyroid medication, and this practice has much to commend it. For deafness seems to be often quite an early phenomenon in myxoedema, and the response to thyroid treatment may thus give us a pleasant surprise. Myxoedematous deafness has another lesson for us: it shows that middle-ear and labyrinth deafness may coexist—not because one is induced by the other, but because both are due to a common cause. The same lesson, by the way, may be learned from otosclerosis.

I suppose you will agree that, speaking generally, all high grades of deafness show signs of involvement of the labyrinth. At all events, the upper tone limit is lowered and bone conduction shortened. And, *a fortiori*, when a patient is deaf to all sound by air we expect to find those signs of nerve deafness very pronounced. Nevertheless, I once had an opportunity of examining a lady, who had been deaf for forty years to all sound but thunder, in whom the bone conduction was actually increased. In view of the fact that as long as the perceptive mechanism remains intact some amount of hearing must persist, this case is hard to explain except on the assumption of a functional defect either in the end-organ or in the cerebral hearing centre.

It is a curious circumstance, by the way, that labyrinth disease in adult life but seldom leads to complete abolition of function. Some amount of hearing even in the worst cases is left, although it may be but a trifling amount and of no practical value to the sufferer. Of non-purulent diseases affecting both ears progressive nerve deafness, syphilis, and epidemic meningitis alone are liable to end in absolute deafness; while, though herpes oticus and mumps lead to complete deafness, it is less crippling in that it is only unilateral.

The condition of the vestibular reactions in suspected labyrinth deafness is interesting, and it is a question to which I have paid some little attention. Broadly speaking, cochlear disease, as evidenced in the phenomena of nerve deafness, is associated with impairment or complete abolition of the vestibular reflexes. And when this is the case we may look upon it as suggestive at least of some organic cochlear disease; because clinical experience has shown us that the canalicular section of the labyrinth is very frequently indeed affected, in some way not yet understood, by serious cochlear trouble. It is necessary, however, to add the caution that, as with the hearing tests, so with these reactions, considerable variety is encountered in practice.

Everyone has noticed, of course, how acute disease of the labyrinth is accompanied by attacks of severe and it may be prolonged vertigo, whereas, on the other hand, in chronic labyrinth disease, while, as I have just said, the vestibular reactions are often impaired, vertigo—at all events severe vertigo—may be entirely absent. According to my figures vertigo of the "storm" type was present only in about 11 per cent. of the cases of pure nerve deafness.

Now it is remarkable that in mumps deafness the attack, albeit often dramatically sudden and complete, is not accompanied with vertigo nor with impairment of the vestibular reactions. Here we come upon another of those gaps in our pathology. The lesion that causes mumps deafness is unknown. But our clinical experience permits us to surmise that the lesion is either not situated in the labyrinth,

palsies. Two months later, after further brief attacks of hiccup, an attack of hiccup developed which lasted eight days, and for which she was admitted to the London Hospital. On admission she exhibited cranial nerve palsies, hiccup, and also myoclonic movements of the arms and abdominal wall. This would seem to establish finally the relationship between epidemic hiccup and epidemic encephalitis.

It is therefore not surprising that the epidemics of hiccup and myoclonic encephalitis should have coincided in 1919, since hiccup is probably a myoclonus of the diaphragm. *In this patient as in the case recorded by* Dargein and Plazy the hiccup preceded the development of the lethargic symptoms.

A further point of interest is the occurrence in this patient of an acute illness with lethargy and delirium in November, 1918. If, on the rather scanty evidence obtainable, this be accepted as a previous attack of epidemic encephalitis, the present illness must be regarded as a recurrence of the disease after the long interval of four years and six months.

It will be seen that in this one patient the majority of the varying types of this interesting disease are apparent and that the history of the individual reproduces more or less accurately the history of the development of our knowledge of epidemic encephalitis.

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SECTION OF DISEASES OF CHILDREN.

EDMUND CAUTLEY, M.D., F.R.C.P., President.

DISCUSSION ON SUMMER DIARRHOEA.

OPENING PAPER

BY

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SINCE the early days of scientific bacteriology many investigators have paid attention to the micro-organisms present in cases of summer diarrhoea with the view of isolating the causal agent. Some of the earliest investigations are of little more than historical interest, inasmuch as the differentiation of allied forms as we now know them was in its infancy. I have not the time or space at my disposal to give you a detailed account of all the investigations which have been carried out upon this subject, so shall content myself by giving a summary of the findings of previous investigators.

Booker and Escherich were among the first to study the flora in intestinal disease, but they did not find a specific organism for diarrhoea. Amongst the organisms isolated by Booker were *B. coli communis*, *B. lactis aerogenes*, *B. proteus vulgaris*, and streptococci, any one of which Booker thought might play a part in the different types of the disease studied by him.

Klein in 1897 and 1898 isolated the *B. enteritidis sporogenes* from a small number of cases and regarded it as the causal organism of summer diarrhoea.

It was about this time (1898-1900) that Shiga, Kruse, and Flexner discovered the bacillus of dysentery, and in 1902 Duval and Bassett isolated dysentery bacilli from 42 out of 53 cases of infantile diarrhoea. These authors come to the conclusion that the dysentery bacillus "is an important, if not the most important, cause of summer diarrhoea in children." In 1903 the Rockefeller Institute undertook, under Dr. Flexner's direction, a comprehensive investigation in several large American cities on the occurrence of the dysentery bacillus in the summer diarrhoea and other diarrhoeal diseases of children. Dysentery bacilli were isolated in 63.2 per cent. of the 412 cases investigated. They were mainly of the Flexner-Harris type, but the Shiga type was also met with, and occasionally the two types were associated. Other atypical forms were also isolated. Flexner, in his conclusions, stated that it is probable, though not proven, that *B. dysenteriae* appears at times among the saprophytic bacteria of the intestinal contents. He states also that streptococci in large numbers were frequently grown together with the dysentery bacilli, but that the relative parts played by each in the production of the intestinal lesions and the symptoms of the disease is not established by the investigation. Nor is the possible action of any other of the many bacteria of the discharges excluded by the special findings of this investigation. Other American observers, among them Wollstein, Park Collins and Goodwin, Duval and Schorer, Cordes, Weaver and Tunnicliffe, and Graham of Toronto, have reported epidemics associated with the dysentery bacillus.

In connexion with the frequent isolation of the dysentery bacillus by many American observers and its rarity in our English cases of the disease, attention must be drawn to the fact that the clinical types of summer diarrhoea as studied in the two countries appear to differ. In the American type of case the stools very frequently contained blood and mucus, and hence were more like the stools passed in true epidemic or asylum dysentery. In cases seen in this country the stools are variously described as green, slimy, watery or curdy, and offensive; blood is only occasionally present and mucus perhaps more frequently.

On the other hand, we find that Park Collins and Goodwin, and Schwarz in America, and Jehle and Charleton in Vienna, never isolated dysentery bacilli from cases of acute gastro-enteritis with the characteristic stools we are familiar with in this country. The last named observers considered that summer diarrhoea might be caused by various forms of micro-organisms of a non-dysenteric type, more particularly by *B. coli communis*.

In 1905 and 1906 Morgan studied the bacteriology of the disease in London children and isolated a considerable number of bacilli of the non-lactose fermenting type. These investigations were continued by Morgan and Ledingham in 1907 and 1908, and their presentation of the results obtained and the conclusions they drew from them to the Epidemiological Section of the Royal Society of Medicine in February, 1909, evoked an interesting discussion from epidemiologists and bacteriologists.

The outcome of the prolonged investigation was that a certain organism—Morgan's No. 1 bacillus—was proved to occupy a predominant position among the non-lactose fermenters in the excreta of summer diarrhoea patients. "In selected cases of the disease" it was isolated from 63 per cent. The strains isolated in 1905 and 1906 were pathogenic to young rats, rabbits, and monkeys by feeding; diarrhoea was produced, followed by death. The 1907 and 1908 strains were found to be much less pathogenic to animals by feeding.

Agglutination reactions with the serums of patients yielded far less satisfactory results than had been obtained by the American investigators. In 1905 Morgan found only one of the 44 serums tested agglutinating its own bacillus. In 1908 positive results were obtained in a larger proportion of the cases, 30 out of 65 cases tested giving a positive reaction with Morgan's bacillus, but the dilution in which the reaction was obtained never exceeded 1 in 40. The best results were obtained at or near convalescence.

Morgan's bacillus is a motile, small, Gram-negative organism which grows well on ordinary media, produces acid and a little gas in glucose and no change in lactose, dulcite, saccharose, or mannite. Litmus milk is unchanged in one and three days, but slightly alkaline on the fifteenth day. Indole is produced and gelatin is not liquefied. Morgan and Ledingham came across two variants of this type, both of which were non-motile and one of them not producing indole. It will be noted that the variant which was non-motile and indole-negative differs from Shiga's dysentery bacillus only by the production of a little gas in glucose media. Morgan himself, in his 1907 paper, draws attention to the fact that some of the properties of his No. 1 bacillus may vary—particularly the amount of gas produced from glucose. This, he says, may be so slight that

or else, if it is situated there, it cannot be of an inflammatory, exudative, or haemorrhagic nature. Otherwise the highly sensitive canalicular end-organs would be irritated and vertigo would occur. This reasoning is strengthened by the fact that mumps deafness is unilateral. I have recorded the occurrence of mumps deafness without parotitis but with orchitis. And if orchitis may occur alone in a case, as it does sometimes in a mumps epidemic, are we not entitled to assume that deafness due to the mumps virus may also sometimes appear as the unique expression in a patient of this infection? This may be the explanation of those cases of unilateral deafness in children to which Richard Lake drew attention some years ago.

The symptom of vertigo, so common in labyrinth disease, may nevertheless attend, as Urban Pritchard and Sydney Scott have pointed out, upon almost any ear disease—even impacted cerumen; it is by no means uncommon in simple Eustachian obstruction. Excluding sudden and complete destruction of one labyrinth, vertigo is due to an irritation of the vestibular end-organ. It is, that is to say, of the same order of events as tinnitus. Now it is a fact, I think, that while tinnitus is by no means unknown in uncomplicated labyrinth disease (I have noted it as "severe" in about 5 per cent. of my cases), still it is much more common in middle-ear disease. If, then, tympanic changes so frequently induce one form of labyrinth irritation—tinnitus, to wit—we cannot be surprised to learn that they may also induce that other form of labyrinth irritation, vertigo. But it is noteworthy and even a little puzzling to consider that vertigo is more commonly a symptom of a lesion inside the labyrinth than of a lesion limited to the middle ear. Why should tinnitus be a commoner middle-ear symptom than vertigo, if both are due to labyrinth irritation?

At this point we come upon a problem of great difficulty—that of the Ménière syndrome. Will you forgive me if I ask you, in order to free our minds from preconceptions, to let me discuss this group of symptoms (tinnitus, deafness, vertigo, nausea, and vomiting of a paroxysmal character) under the name of the "labyrinth storm"?

I have already said that vertigo may attend almost any disease of the ear. Well, the same seems to be true also of the labyrinth storm. At all events, in going through my cases, I have heard it complained of not only in pure nerve and mixed deafness, but also in obstructive deafness. I can give you the notes of a case in which it had occurred, not once but several times, and yet in which I found the upper tone limit normal and the bone conduction increased. Indeed, it is impossible to look upon the labyrinth storm, as it appears in the series of cases, as anything more than merely a severe variety of vertigo. For we encounter it in all gradations, from a momentary loss of equilibrium to the definite and prolonged crisis, either with or without vomiting. And this gradation, this variation, characterizes not only these cases considered as a whole, but sometimes it may even occur in one individual case.

From one point of view, therefore, to look upon the labyrinth storm as anything more than a severe kind of vertigo would seem to be illogical. We must note, however, that if, as we said, simple vertigo is more frequently due to a labyrinth than to a middle-ear lesion, the same remark must be made and with even greater force regarding the labyrinth storm. For it generally indicates—as the hearing tests, made in the intervals between the attacks, show—not merely a transient labyrinth disturbance, but a definite lesion which induces changes of a permanent character.

What is the nature of this lesion? In certain cases we are able, from our clinical findings coupled with our pathological knowledge, to give a satisfactory answer to this question, but in most cases we can give no reply better than a vague surmise.

Let us take the former class first. In suppuration of the middle ear the labyrinth storm occurs under two conditions: first, when purulent labyrinthitis is set up by a sudden and massive invasion of the labyrinth spaces by pyogenic organisms; and secondly, when, without actual, or at least massive invasion, toxins of these organisms induce what we call serous labyrinthitis. In the former event, the sense organs of hearing and equilibration being destroyed, the labyrinth storm does not recur. In the latter event, the end-organs, though they may be permanently damaged, are not destroyed, and obviously the storm may recur.

Now, arguing from these events, it is not, I think, drawing the long-bow to suggest that, when the labyrinth storm occurs in the course of a chronic or subacute non-purulent otitis media, something happens comparable to the serous labyrinthitis of purulent otitis media. And proceeding with our surmise, may it not be the same kind of change that induces the nerve deafness element of a "mixed" catarrhal case?

Secondly, we know the lesion that induces the labyrinth storm (when it occurs) of herpetic deafness. In this case the virus attacks not the end-organ but the vestibular ganglion and with it usually the ganglion of the cochlea. This variety also is non-recurrent.

Thirdly, in syphilis of the labyrinth, which we shall deal with more particularly later on, the labyrinth storm is a frequent and recurring symptom.

Lastly, we have definite pathological information, the value of which we shall estimate in a moment, in Ménière's disease.

Now, you may be surprised to hear me use the term "Ménière's disease" after my request to be allowed to substitute the expression "labyrinth storm" for "Ménière's syndrome." But I am not so inconsistent as I seem to be. Apart from the justifiable objection to calling any disease entity after a person, I am bold enough to say that, if we may credit the classical otological writers, there is a group of symptoms dependent upon a definite pathological lesion which is as worthy of the name "Ménière's disease" as any other disease is of the name of its discoverer. Can anyone read the account of this very rare disorder in Politzer's *Diseases of the Ear* without being convinced that we have there the description of a symptom-complex which is distinct and individual, and which, I hasten to add, for the sake of clearness, is by no means the same condition as the transitory attacks of vertigo, deafness, and vomiting we are so constantly hearing about in our practice? The differences between the two varieties, the rare and the common, are great and striking. In the former the attack is of overwhelming severity, and its effects are not only devastating, they are permanent. The attack itself presents many indications of a general and profound disturbance in the brain. It is attended with unconsciousness. The hearing is utterly and finally destroyed, and the deafness may be bilateral. The dizziness and the disturbances of equilibrium gradually subside after the attack, it is true, but unsteadiness in gait may continue for years. Politzer calls it "apoplectic," and we cannot deny that the epithet is apt and correct if we accept Ménière's finding of an extravasation of blood into the semicircular canals as a reliable observation. Here, however, we encounter another difficulty. Ménière's *post-mortem* observation of haemorrhage into the canals does not seem, apart from what happens in leukaemia and other blood disorders, to have been corroborated. On the other hand, it has recently been suggested that what he saw was perhaps not a simple haemorrhage but a haemorrhagic septic labyrinthitis (Sydney Scott).

I may say that I have never in my practice come across a case answering clinically to Politzer's description. Only once have I heard a patient insist that during the attack he became unconscious, and in his case the deafness, when I saw him, was not great.

Contrast that picture with the relatively mild disorder we so commonly hear about from our patients. (By the way, we very seldom have an opportunity of seeing the patient during the attack.) In this type during a period of several months or years the patient experiences at irregular intervals a succession of attacks, of which the earliest are usually but not invariably the most severe. The symptoms vary in severity. Vertigo is always present and nausea, but often there is no vomiting. In some cases the crisis ends, after an hour or two of acute discomfort, in sleep. But unconsciousness does not occur, and the deafness is only partial, or if it is complete at the time of the attack, hearing returns on recovery, although a certain amount, perhaps a considerable amount, of deafness remains. Yet the attacks do not seem, even when untreated, to lead to complete loss of function. As a rule one ear is the more affected, but

none shows in an ordinary Durham's tube. He notes, too, that the gas-producing power varies with age; after eighteen months' subculturing there may be no gas produced.

Another point from Morgan's and Ledingham's researches deserves attention. In addition to Morgan's bacillus and its two variants just referred to, no less than thirty-one other strains of non-lactose fermenters were encountered. These are grouped by the authors into seven types, which include a Flexner and a Gaertner type, each of which contains several strains and varieties.

The question of a filter-passing virus as the infecting agent was also considered in 1908. The blood and organs from three fatal cases of typical summer diarrhoea were extracted with salt solution and passed through a Berkefeld filter. Young cats were fed and rats inoculated with the filtrate, but with entirely negative results.

In 1907 Orr and his collaborators isolated from the heart blood, taken immediately after death from a fatal case of summer diarrhoea, an organism of the Salmonella type. It produced no change in litmus milk and no indole. It was pathogenic to the ordinary laboratory animals on injection and to puppies by feeding. In a later paper (1910) these investigators report that in course of time they found a gradually developing alkalinity in milk cultures and also that the bacillus formed gas from galactose, whereas on isolation it had formed acid alone. From 40 cases of summer diarrhoea they isolated this bacillus seventeen times, and they state that it was not once isolated from 100 healthy infants and children. They call it Bacillus "F," and consider that agglutinogenically it is related to *B. paratyphosus* B and *B. suipestifer*.

Next in point of time (1910-12) came the investigations of Lewis, Alexander, Ross, O'Brien, and Orr, under the auspices of the Local Government Board, to examine, amongst other points, the incidence of Morgan's No. 1 bacillus in healthy infants and children and in those suffering from diarrhoea; 919 normal children were examined in London, Birmingham, Liverpool, Manchester, and Shrewsbury, with the result that non-lactose fermenters were isolated from the faeces of 212 (23 per cent.). These organisms were of many different groups and varieties, the commonest being Morgan's No. 1 bacillus, which was isolated from 44 cases—about 4.8 per cent. Other non-lactose fermenters isolated from these normal cases were Gaertner's bacillus (Ross), Shiga's bacillus (Orr), and "dysentery-like" bacilli (Alexander). An interesting observation of these investigators, emphasized by Lewis, was that non-lactose fermenters were most often found in cases where cow's milk was an important item in the dietary, and when cow's milk was the sole diet such bacilli were rarely absent.

During these investigations (1910-12) 659 cases of summer diarrhoea were examined and non-lactose fermenters were obtained from 405—giving a percentage of 61.4. By far the commonest non-lactose fermenter encountered was Morgan's No. 1 bacillus (182 times); next comes Lewis's Group H (36 strains), then *B. paratyphosus* B and *Gaertner* (10), and *B. dysenteriae* (8). The remaining 169 non-lactose fermenters are distributed in various groups, subgroups, and varieties. Similar organisms were also isolated from milk, mice, and flies, so that it was concluded (1) that there are habitats for these organisms outside the human body, (2) that milk may serve as a vehicle, and (3) that other avenues may exist by which these organisms may gain access to the alimentary canal of children. Lewis (1914) after investigating the agglutination reactions of 242 strains of Morgan's bacillus, came to the conclusion that there are at least three main groups which can be thus differentiated, and that the strains isolated from normal children, from milk, and from mice may exhibit agglutination reactions identical with those of Morgan No. 1 isolated from diarrhoea cases. Logan in Edinburgh (1912) isolated non-lactose fermenters from 6 out of 21 normal children who were artificially fed. He did not find them in breast-fed infants. Morgan's bacillus was isolated twice; the others belonged to Lewis's groups H and J. In 14 cases of summer diarrhoea he met with Morgan's No. 1 bacillus 5 times, and from 3 others he isolated non-agglutinable dysentery bacilli. In one case numerous *B. proteus* were found. He records an interesting observation of "four cases all in the ward at the same time and three of them starting acute diarrhoea within a period of three days, in which the non-lactose fermenters isolated were different in each case."

We come next to the claims of *B. proteus vulgaris* as a cause of summer diarrhoea. It has already been mentioned that Booker assigned an important rôle to this organism in some of his cases. Jeffries and Baginsky also concluded that it played a part, but they do not suggest it as the sole cause. Most subsequent observers, too, have come across *B. proteus* in a certain small proportion of their cases. Metchnikoff and his school revived the suggestion of the causal relationship of *B. proteus* to summer diarrhoea. In 1914 he wrote thus: "*B. proteus* is the chief microbe in the diarrhoea of infants. We have found it in nearly every case of the disease we examined. Its pathogenicity when given by the mouth, either alone or in association with other microbes, demonstrates its preponderating importance." Several investigators, such as Levy and Thomas (1895), Vincent (1909), and Metchnikoff and Berthélot (1914), have shown that *B. proteus* seems to possess the power of increasing the pathogenicity of other organisms. Apparently in certain French epidemics of this disease *B. proteus* has been much more frequently found than in the cases studied in other countries.

Bloch (1911-18) reports the isolation of *B. proteus* in 52 out of 128 cases of acute gastro-enteritis and in 95 out of 244 cases of acute dyspepsia and symptomatic diarrhoea. Several pathogenic bacteria—paradysentery, paratyphoid, and, in one case, typhoid bacilli—were isolated, and Bloch concludes that acute gastro-enteritis in infancy is due to infection, but not to any specific infection.

During the war a large amount of work was done upon intestinal infections in the many military laboratories in Europe and elsewhere. Our knowledge of the pathogenic bacteria, particularly of those causally connected or associated with intestinal disorders, has hereby been considerably increased. For example, the dysentery group of bacilli received a large share of attention, and in consequence these organisms have been more thoroughly differentiated. We are particularly indebted to Andrewes and Inman for a clarification of our knowledge of the Flexner group of dysentery organisms. On the other hand, the investigations carried out during the war brought to light many more connecting links between the well established bacilli, to which such names, for example, as "para-Shiga, indole-positive" and "para-Shiga, indole-negative" have been given. C. J. Martin and others have drawn attention to the fact that the organisms of the Flexner group are very variable in their properties.

Personal Observations.

The summer of 1921 was very hot and dry, and one would have expected summer diarrhoea to have been very prevalent that year. Owing to the absence of some unknown factor or factors, we did not experience a severe epidemic, nevertheless a considerable number of typical cases did occur. My colleague Dr. Donald Paterson and I investigated 150 cases of summer diarrhoea and other conditions in which diarrhoea was a symptom among patients at the Hospital for Sick Children, Great Ormond Street. Unfortunately the labour entailed in making complete pathological and bacteriological investigations upon such a large volume of material proved too much for the assistance at our disposal, so that the bacteriological investigations we were able to carry out were not as complete as could be desired. Nevertheless, some interesting results were obtained.

The 150 cases studied were made up as follows: 111 cases of summer diarrhoea, of which 84 were fatal and 27 recovered; 36 cases of other diseases in which diarrhoea was a symptom; and 3 cases of nurses with diarrhoea. Bacteriological examinations were made (either during life or after death or both) upon 41 of the 84 fatal cases of summer diarrhoea, and upon the remaining 66 cases of the series—making 107 cases in all which were studied bacteriologically. Dr. Paterson has already described the clinical and pathological aspects in detail in a paper which was published in the *Lancet* (1922, vol. ii, p. 320). A few points brought out in that paper are worth recalling. The evidence of infectivity in our series of cases is slight. Of the 84 fatal cases, 45 were attacked when in a healthy

both may become in the course of time about equally deaf. I have only seen four cases (out of 41), I may say, in which the deafness was confined solely to the one ear. But the process seems to be self-limiting; for as time goes on the crises become less and less severe, until finally they disappear altogether, leaving the patient more or less deaf, but not stone-deaf. This variety is obviously very different in nature from the apoplectic type.

Now, as I have already pointed out, the recurrent labyrinth storm may arise from a variety of lesions situated in a variety of places, so that to regard this, the ordinary type of the malady, as a disease entity having a precise pathological meaning would seem to be flying in the face of common sense. Yet, as a clinical picture, to my eye at least, it has the look of a definite disease, at all events when middle-ear trouble can be excluded. But what the nature of the lesion may be in this mild variety we do not know. Here again we stand in need of reliable pathological data. Meantime, is it permissible to hazard a guess as to its nature? Allow me to postpone my answer to that question.

This type is certainly in most cases benefited, and indeed it is often promptly cured, by medicinal treatment. Potassium iodide has a well merited reputation for modifying and even stopping the attacks. And I have sometimes found a combination of nux vomica and potassium bromide (gr. x) equally efficacious.

There is, however, yet another, a third group—that, namely, in which the attacks occur very frequently, often being induced by slight causes, such as a change in body position, and in which no tendency to spontaneous improvement is manifested as time passes. Moreover, in this variety medicinal treatment is of no value. Naturally, this is a state of matters which may entirely incapacitate a patient from following his occupation. As to the pathology of this particular type, much has been conjectured, but little really is known. It differs, however, from the first two groups I have specified, chiefly in the frequency of its attacks, a feature which suggests that the canalicular system is in a continual state of hypersensitiveness. The deafness, moreover, is more severe than in the second group.

We may suppose, indeed, as Spear did some thirty years ago, that we have here to do with a rise in intralabyrinthine pressure, analogous to the elevation in intraocular pressure of glaucoma. Under the influence of this idea severe, frequently recurring, and obstinate vertigo has lately been treated by "uncapping" the external semicircular canal (suggested by Cheatle and carried out by G. J. Jenkins), or more radical procedures (Hugh Jones, R. Lake, W. H. Ison).

Some have found vertiginous attacks (type unspecified) associated with a high blood pressure, while others, like Albert Gray, are of opinion that they are more frequently associated with an abnormally low blood pressure. At all events, some cases, as we have seen, are cured by potassium iodide, others by ernutin.

Finally, on one occasion I found the attacks and their effects wholly evanescent. The patient, a young woman, recovered not only from the vertiginous attacks, but also from the deafness. When last I saw her the hearing was normal. Moreover, I formed the opinion that in her case the recovery took place spontaneously, as she had many remedies during the course of her illness without any apparent benefit.

In concluding this section of our review I must once again emphasize the need for thorough pathological investigation in order that we may be delivered from the darkness and confusion that envelop us. Vertigo is only a symptom. The Ménière syndrome is only a group of symptoms, induced, as acute septic labyrinthitis proves to us, by some sudden change in the vestibular system. What are the causes of this change in non-purulent cases?

Labyrinth deafness from noise claims our attention next, chiefly because with the ever-increasing use of loud machinery in modern life it is becoming more common. Welcome efforts, however, are now being initiated to reduce industrial noises and their attendant industrial fatigue. They deserve our hearty support. Noise deafness, as Wittmaack's experiments indicate, is due to degeneration of Corti's organ from over-stimulation, and Ritchie Rodger has shown that, in the early stages at all events, the deafness corresponds with the pitch of the causative noise.

A question here suggests itself. Is there any reason to suppose that the ordinary noises of modern life—the din of trains, tubes, motor buses, motor cars and cycles—induce a degree of nerve deafness in sensitive individuals of the general population? Another question I should like to ask. Does the deafness induced by loud noise progress after the exposure to noise has come to an end, or does it remain stationary? My own observations are too limited to allow me to form an opinion on this point. So far as I have observed, however, the deafness seems to remain stationary if exposure to noise is avoided. But I have sometimes noticed that these people become very deaf when they get old. It is as if the noise deafness led to an unusually severe senile deafness. But I should like to hear the views of others on this matter.

Senile deafness requires no particular description. But here also are one or two points worthy of attention. One is the peculiar absolute deafness caused by impacted cerumen in the meatuses of people suffering from mild senile deafness. This I have twice observed. On the removal of the wax hearing was at once re-established—that is to say, the patient was able to hear, although by reason of the senile deafness not so well as a normal person. This looks like functional deafness again.

As we get older the upper tone limit is lowered. Normally this seems to set in between 50 and 60, and the defect may be regarded as physiological unless the hearing for speech is impaired. Inasmuch, however, as we come across people who are prematurely aged, so also we may get early senile deafness. Not only so, but just as there is what we may call a regional senility, such as the untimely blanching of the hair, the early arcus senilis, and the like, so also may it not be that some cases of nerve deafness, coming on without any apparent cause in comparatively young people, are due to premature regional senility of the cochlea?

Moreover, the increasing deafness that attends upon chronic middle-ear deafness after middle life is also probably due to senile changes in the labyrinth. Perhaps the functional deafness we have so often hinted at eventuates in an early atrophy of Corti's organ from disuse. On the other hand, the close pathological partnership between the middle ear and the labyrinth is noticeable even in senile deafness, which is due not solely to cochlear change but also to an insidious thickening of the tympanic mucosa with stiffening of the ossicular articulations.

Now there is an insidious form of nerve deafness, known as progressive nerve deafness, which appears without any signs of labyrinth or canalicular irritation, without either vertigo or tinnitus. It is a silent deafness.

Unfortunately, in this connexion as elsewhere we have to report much discrepancy in the pathological evidence. Some have observed a general degeneration of the auditory nerve system, starting at the auditory "nerve root" and extending peripherally to involve the organ of Corti. Others see the process beginning and ending in the ductus cochlearis. Clinically also the voices are not in accord. Manasse states that it occurs chiefly in old men. Politzer says it may appear in young people. The term "progressive" implies that it is a disease which marches steadily on to its end, which is the total destruction of the sense organ and complete deafness; yet Seligmann says it sometimes comes to a standstill. Finally, Manasse mentions as its possible causes arterio-sclerosis, syphilis, chronic nephritis, and middle-ear inflammations, all of which, I may add, are diseases either inducing or induced by senility, general or regional.

In other words, I suggest that this progressive nerve deafness is simply a senile change which may appear untimely. And my suggestion is favoured by the fact that the changes induced by senility resemble those we have described, consisting as they do of an atrophy, this time of the auditory nerve endings. At the same time one would be careful not to proceed beyond suggestion at the moment. Here, as elsewhere, we require more, much more, pathological information than we at present possess before our opinions are worth making, much less listening to.

We pass now to syphilis of the labyrinth, of the anatomical changes of which, said Politzer in 1909, "but little is

condition, and in 39 there was a history of previous digestive troubles; we call these cases "acute" and "chronic" respectively. The theory that the infection is conveyed in the milk did not receive much support from this series of cases. The curve of onset shows two maxima, one about the third to fourth week in July, and the other about the first week in September, as though there were two epidemics, as suggested by Brownlee.

In the "acute" cases there was usually a history of sudden vomiting and diarrhoea—the motions were green, slimy, and only rarely contained blood. On only one occasion was pus detected in the stools. In the "chronic" cases there were many watery, green, slimy, undigested stools which very rarely contained blood. The patients rapidly passed from the stage of "dehydration" to one of "intoxication," then became comatose and died. *Post mortem* the most important as well as the commonest lesion was a varying, and at times an extensive, degree of fatty change in the liver. The kidneys were similarly affected, but to a less extent. The intestinal lesions varied considerably in degree. At times the intestines appeared quite normal, at others there was a catarrhal enteritis and colitis with excess of mucus. Some cases showed definite ulcer formation, either small punched-out ulcers, or larger, shallow, irregular ulcers. The changes were more marked in the big bowel and particularly in the neighbourhood of the caecum; they included congestion, petechial haemorrhages, follicular ulceration, general thickening and induration or ulceration, and occasionally a definite membranous colitis.

The results of the bacteriological investigations are set out in the accompanying table. In it we see that no non-

Analysis of Diarrhoea Cases Investigated (1921).

Organisms Isolated.	Fatal Cases of Summer Diarrhoea.*		Non-fatal Cases of Summer Diarrhoea.	"Other" Cases of Diarrhoea.‡	Nurses (Two with Clinical Typhoid).	Totals.
	Acute.†	Chronic.				
No. of cases examined	22	19	27	36	3	107
B. coli anaerogenes ...	7	4	10	2	2	25
B. dysenteriae	2	1	3	7	0	13
B. typhosus	0	0	0	5	0	5
B. paratyphosus B—type. Indole-negative	1	1	0	0	0	2
B. paratyphosus B—type. Indo e-positive	2	2	0	3	0	7
B. proteus vulgaris ...	0	2	0	4	0	6
No non-lactose fermenters isolated	14	9	14	19	1	57

* These cases were examined bacteriologically and *post mortem*, and are referred to in the paper by Dr. Paterson, with short bacteriological report by Dr Nabarro (*Lancet*, 192 , ii, p. 320).

† Acute = apparently healthy children suddenly attacked by diarrhoea. Chronic = children with history of previous indigestion, diarrhoea, and failure to gain weight.

‡ These include cases occurring during summer and all cases of diarrhoea (including "D. and Y.") occurring out of the season.

lactose fermenters were isolated in 57 of the 107 cases investigated. No doubt we missed these organisms in a certain number of the cases owing to the want of sufficient assistance to enable us to make repeat examinations of the faeces in the negative cases. The organism most frequently isolated (25 times out of 107 cases) was one which produced acid but no gas in the sugar and alcohol media used—glucose, mannite, lactose, saccharose, and maltose. It was generally non-motile, was Gram-negative and a non-liquefier of gelatin, formed acid and generally a clot in milk, and only rarely formed indole. It closely resembles, if it is not identical with, the *B. coli anaerogenes*, first isolated from the faeces of dogs, and described by Lembke in 1896. Several strains of the organism were met with in our cases. They all formed acid in glucose and mannite in one day; saccharose and maltose were acidified by some and not by others. In lactose acid was usually produced in one to three days, but sometimes not until the ninth day, and occasionally not at all. This variety, which apparently formed no acid in lactose, might quite well have been found by previous observers and labelled a "non-agglutinable dysentery bacillus."

As has been recorded so often by other investigators in the case of different organisms, so I have found to be the case here—namely, that the properties of the bacillus have changed after frequent subcultures. For example, several of the strains which in 1921 produced indole, now fail to do so, and one which did not form indole on isolation now does so. One strain forms acid in lactose on the first day, whereas in 1921 no acid was observed until the sixth day. On isolation the agglutination reactions with a dysentery Flexner-Y serum were kindly tested for me by Drs. Ledingham and Brooks of the Lister Institute. The results were all negative except in the case of one strain which agglutinated at 1 in 100 (it was not tested in higher dilution). I have since carried out a large number of agglutination reactions (which are, however, not yet completed) and have found hitherto that the only heterologous serums which agglutinate this group of bacilli are those of *B. coli communis* and the "Newport" and "Mutton" strains of *B. suipestifer*.

A few feeding experiments recently carried out on young rabbits have resulted in producing diarrhoea and death in some of the animals, from the heart blood of which I have succeeded in recovering the bacillus. This organism or group of organisms has not received much attention from bacteriologists. Alexander, in the reports already referred to (1911 and 1912), states that in 1911 he encountered them frequently, and in 1912 he paid particular attention to them. He isolated them from 7 out of 100 normal children and from 9 out of 77 diarrhoea cases. He describes 11 different varieties from his diarrhoea cases which produced acid and no gas in lactose, but only one which produced no gas in any sugar medium. From the normal children he isolated 5 different varieties, 3 of which produced no gas in any sugar. Fifty-nine strains were tested by feeding to young rabbits: 8 proved to be pathogenic—2 out of 8 obtained from normal children, 3 out of 26 from diarrhoea children, and 3 out of 25 obtained from other sources. He gives in his paper a list of the previously investigated acid producers: several were isolated and named by Castellani; others were isolated by Dr. Cox from flies in insanitary areas in Liverpool during the summer of 1911; others again were isolated by Gettings from cases of pseudo-dysentery at Wakefield. I had myself isolated it from a patient with clinical dysentery at the Wakefield Asylum early in 1912, and quite recently I have isolated a strain from a long-standing case of bacilluria.

Bainbridge, in his paper "*On the paratyphoid and food-poisoning bacilli*," 1909, describes a strain of *B. suipestifer* which never formed gas in any medium, and mentions that a similar strain of *B. suipestifer* was described by Bock in 1906.

Coming back to our table, it is interesting to note that the *B. dysenteriae* was isolated from as many as 13 cases out of 107. I have no doubt, from my eleven years' experience at Great Ormond Street, that infections due to the *B. dysenteriae* have been much more commonly met with in children since the war began than in the pre-war days. This is what one would expect from the large number of men who suffered from the disease, some of whom are no doubt carriers. The cases from which *B. typhosus* was isolated constituted a small group of 5 children and 2 nurses, who contracted the disease from a known source. The organisms I have called paratyphoid B type, indole positive or negative, are probably harmless intestinal organisms for which Savage has suggested the name of "para-Gaertner bacilli." Lastly, one must draw attention to the fact that Morgan's No. 1 bacillus was not isolated from a single case in 1921, though in previous years I had come across it in the children at Great Ormond Street, and in 1911 I isolated it eight times in association with other bacilli from about 50 cases of asylum dysentery at Wakefield.

In 1922 extensive preparations were made at the Great Ormond Street Hospital, under the auspices of the Medical Research Council, for a full investigation of summer diarrhoea, but unfortunately for the investigation very few cases of the disease occurred. While waiting for cases Dr. Marshall Findlay investigated the bacteriology of the stools

known." Of that little we proceed to give a summary. At that time some six cases of acquired syphilitic deafness had been examined *post mortem*, and one only of congenital deafness (Walker Downie). Since then, however, J. S. Fraser has added to our knowledge by the publication of a case, detailed with characteristic thoroughness and care.

This is not a large collection of instances, and their value as evidence is somewhat impaired by the fact that many different lesions are described. Toynbee observed a "thickening of the periosteum" of the vestibule; Moos, a similar thickening, together with lymphocyte infiltration of the labyrinth spaces; Moos, in a second case, with Steinbrügge, osteomyelitic changes in the bone with degeneration of the cells of the spiral ganglion; Manasse, in one case, lymphocytic infiltration of the acoustic nerve, and, in a second case, new-formed connective tissue in the scalae tympani and vestibuli, and in the perilymphatic space of the vestibular apparatus; Politzer, atrophy and destruction of the spiral ganglionic cells without any change in Corti's organ or in the semicircular canals; Moos and Steinbrügge, again, degeneration of the spiral ganglionic cells and atrophy of the acoustic nerve. That is to say, changes have been found in all the labyrinth structures separately, and in two or more of them in combination.

With regard to congenital syphilis the information at our disposal is still more scanty. This variety of the disease is divided into three according to the time of its appearance: (1) foetal and infantile; (2) young children (1 to 7 years of age); and (3) late (7 to 15). Of the first Fraser summarizes the pathological findings as follows:

"(*a*) Otitis media is of common occurrence not only in syphilitic infants but also in syphilitic children born prematurely. (*b*) The infective process in the middle ear has been found to involve the labyrinth in some cases . . . by invasion of the vestibule through the oval window. (*c*) Delayed ossification of the labyrinth spaces. (*d*) Intrauterine meningitis in the region of the internal meatus and neuritis . . . of the eighth nerve. (*e*) Baratoux, in addition to purulent otitis media and interna, has noted changes in the blood vessels. (*f*) In numerous cases haemorrhages have been observed in the middle and inner ear, but such findings must be discounted, as they are probably due to suffocation. Pause, however, holds that the haemorrhage is of syphilitic origin. (*g*) Changes in Corti's organ, and in other parts of the membranous labyrinth and nerve apparatus, especially the spiral ganglion, have occasionally been noted."

In the second group, that of young children, Fraser could not find any definite pathological information.

In the third or late group microscopic examination, until Fraser investigated his own case, was "almost entirely lacking." The generally accepted view was that congenital *syphilitic deafness is due to a syphilitic neuro-labyrinthitis.* But this view has not been confirmed by microscopic examination. In his own case the patient had suffered from chronic purulent otitis media. As a result, Fraser thinks, of the syphilitic disease, the infective process slowly spread from the middle ear to invade the bone of the labyrinth, giving rise to a chronic osteomyelitis with porosis until the lining membrane of the bony labyrinth was perforated and granulation tissue with giant cells formed in the perilymphatic space. The nervous structures were implicated. Corti's organ was partly replaced by cells, and there was a little meningeal infiltration in the internal meatus. These changes, however, he held to be secondary to the osteomyelitic process.

Fraser emphasizes the rôle played by the middle-ear disease in producing the labyrinth changes, and he cites the clinical findings of himself and others to show how frequently congenital syphilitic nerve deafness is accompanied by middle-ear changes.

Whether labyrinth changes independent of middle-ear disease, such as occur in acquired syphilis, ever occur in the late congenital disease, we have so far no microscopic evidence to show. On the other hand, however, it has been repeatedly noticed, clinically, that in the acquired disease also syphilitic nerve deafness may follow upon otitis media, catarrhal or purulent, in a syphilitic subject. It is as if a simple inflammatory lesion in the middle ear had the effect of precipitating the specific infection upon the labyrinth.

My reason for a rather deeper and more detailed incursion into this particular branch of our subject will now be clear to you. It has been made with the object of enforcing the lesson I gave in an earlier section of this paper, that disease in the middle ear is liable to become the stepping-stone to labyrinth disease and labyrinth deafness. In view of the possibility of syphilitic infection it is a clinical rule of value to have the Wassermann reaction taken in all cases of nerve deafness occurring before the age of 50, and this rule is all the more important when the deafness is making rapid progress.

As to the results of treatment in this variety of labyrinth deafness my experience unfortunately compels me to speak cautiously, as I have not, I confess, been very lucky. In some cases, certainly, the administration of mercury and potassium iodide has been followed by an arrest in progress, and even, in one or two cases, by an improvement in the hearing. On the other hand, I have known syphilitic deafness to improve without treatment, and I have seen it progress in a few months to complete loss of function while the patients were undergoing energetic treatment, both by mercury and potassium iodide alone, and by salvarsan combined with mercury. Some authorities make a practice of administering salvarsan in these cases, but the possibility of the Herxheimer reaction always makes me avoid the drug. Perhaps I am unduly timid. At all events, it would be instructive to hear your opinion on this point. My experience also of blistering the mastoid, extolled as it is on the high authority of Urban Pritchard, has not so far been encouraging.

In treating syphilitic deafness the older otologists were in the habit of using pilocarpine. But this remedy seems to have gone out of fashion. Judging by the warm expressions in its favour one reads in the older literature, perhaps we ought to make a new trial of it. On the whole I am, however, almost persuaded that syphilis of the labyrinth advances or comes to a standstill altogether independent of our efforts. But I am prepared to hear this opinion controverted.

Herpetic nerve deafness I have come across not infrequently. The diagnosis is usually not doubtful if the patient is seen when the herpetic rash is present. Moreover, other cranial nerves (facial, vestibular, etc.) are frequently involved. It is a unilateral disease and the deafness is irremediable. Its distribution in time suggests some epidemic influence.

A case of true nerve deafness necessitates a general overhaul of the patient. The otologist must school himself to be a physician as well as a surgeon. We encounter deafness as an early though rare event in tabes dorsalis and in diabetes and Bright's disease. But perhaps I am here over-*stepping the precise limits of our subject.*

Attempts have been made, by the way, to distinguish labyrinth deafness from that due to affections of the auditory nerve. According to Gradenigo, the latter induce diminished perception chiefly of the tones in the middle of the range, and sometimes even their entire loss. Again, some information, it is said, can be derived from the vestibular reactions. When the caloric test is negative and the galvanic test positive, a lesion of the cochlea is to be inferred, as the electric current overflows it and stimulates the nerve. From disease of the auditory nerve centres in the brain it is distinguished by the absence of other indications of brain disease.

Toxic deafness is a subject of considerable importance, but I do not propose to enter into it save as an introduction to another suggestion I wish to lay before you. Before doing so, however, I should like to ask whether you have come across tobacco deafness, on which Wyatt Wingrave wrote a paper some years ago. It has even been said that excessive tea-drinking may lead to deafness, and Sharp records a case. With regard to quinine deafness, I know that our President has a few comments to make, and so I leave that detail to him.

On several occasions cases have been recorded in which the cause of the deafness, often of the labyrinth storm type, seems to have been intestinal toxaemia, and what I am about to say follows naturally upon the mention of this possibility.

So far as we have now come in our dissertation we have been dealing with many unknown problems and hazards. But throughout we have been able to speak of the labyrinth deafness as of a definite kind and due to a definite cause.

and the agglutinating properties of the serums of normal children chosen from the out-patient department of the hospital and from welfare centres. He has kindly furnished me with the following summary of his results: 304 investigations of the faeces or rectal swabs were made from 139 cases; in 13 cases organisms of the dysentery group were isolated, in only one of these, however, did the child's serum agglutinate the organism isolated; in 115 cases of normal children the agglutinating power of the serum was tested against *B. dysenteriae* Flexner, *B. enteritidis* Gaertner, *B. aertrycke* ("Mutton"), and Morgan's bacillus No. 1; 13 agglutinated *B. dysenteriae*, but never higher than 1 in 50, 3 the *B. enteritidis*, and 1 *B. aertrycke*. In the 6 cases of summer diarrhoea studied, a specific *B. enteritidis* infection was found once, giving both a positive culture and agglutination.

Critical Review.

The one outstanding fact which emerges from the foregoing review of the bacteriology of summer diarrhoea is that in different outbreaks of the disease many different organisms have been isolated by the same observer or group of observers, and that at the same time one particular organism, be it a dysentery bacillus, a *B. proteus*, a Morgan's bacillus, or a *B. coli anaerogenes*, has been the organism most frequently met with. This suggests the first question we must endeavour to answer—namely, Is summer diarrhoea a single clinical entity like typhoid fever, or are there several diseases included under that heading? Certainly in some epidemics—for example, in America—the type of the disease has been more severe and more like clinical dysentery than has been the case in our English epidemics. But in our own cases we have found lesions of all grades of severity *post mortem*, yet clinically the types of the disease had been very similar. I believe myself that the disease is one and the same all the world over, and not an infectious disease in the strict sense of the term, but rather of a metabolic origin with a secondary infection by one of a number of different micro-organisms, which have for the time being, in a manner I shall suggest later on, become either more virulent than usual or pathogenic after being non-virulent. The diarrhoea and vomiting I regard as symptoms of that metabolic disturbance, and the consequent "dehydration" and "intoxication" as secondary effects of the loss of water from the system. This in turn gives rise to reduced elimination of toxic substances by the kidneys, reduced action of the liver owing to its fatty degeneration, and so a "vicious circle" is established.

There is no doubt that the Americans isolated dysentery bacilli from 63 per cent. of their cases, also that Morgan and Ledingham isolated Morgan's bacillus from 63 per cent. of their "selected" cases, but this does not prove that either organism is the actual cause of the disease. The French investigators isolated *B. proteus* from nearly all their cases, and in 1921 I failed to find Morgan's bacillus even in one case. Certainly in any one year or series of years one particular organism may be the predominant one, but it must be remembered that all observers have found many other forms, some allied to the dominant bacillus, others more remotely resembling it, if at all. I emphasize this point because it leads to the vexed and important question of bacterial instability and metamorphosis.

The essence of life is growth, change, and evolution. Presumably bacterial life dates from the Creation, but it is less than fifty years since it has been studied scientifically by modern methods. We know that bacteria grow and therefore may change and undergo evolution. A month or a year in the life of a micro-organism and its progeny may be equivalent to a thousand years in the case of man and the higher animals. As with the higher forms of life, bacteria undoubtedly respond to and are affected by changes in their environment—for example, heat and cold, diet, and, in the case of intestinal bacteria, the reaction and composition of the intestinal contents, other organisms (symbiosis), the presence of bacteriophages, and so forth. Possibly, too, bacteria may have their own diseases; they certainly have their enemies as well as their friends. There are undoubted signs that bacteria are changing their characteristics. Hiss, Neisser, Rodet, Massini, Twort, and Penfold have given instances of this in their writings on bacterial variation. A host of investigators have remarked that in studying the bacteria isolated from cases of diarrhoea and dysentery many different strains of bacilli have been present; either the sugar reactions varied, or their behaviour in milk, or their power of forming indole, and even their agglutinability.

Furthermore, it has been noted very frequently that under our very eyes, during a period of even a few months only, one or more of these properties of a particular organism may vary on subculture. If that is so, surely it is not too great a stretch of the imagination to ask you to believe that these very same changes may be going on in the intestine of the host in whom a bacillus may have effected a temporary or permanent lodgement? Take, for example, Morgan's No. 1 bacillus. Morgan himself says that Houston and MacConkey, both of whom are careful observers and had examined hundreds of strains of bacteria from sewage, waters, milk, etc., had never come across his No. 1 bacillus. All these observers used the same methods of investigation, and it is unlikely that it was overlooked by Houston and MacConkey—therefore it must be an "entirely new organism." I think this very improbable, and that it is much more likely to have been evolved from some other bacillus. Morgan says it is most like the bacillus of hog cholera; it is obviously not far removed from the Shiga bacillus. It is interesting to note that several observers (Bainbridge, Bock, Ten Broeck, Savage and Forbes) have recorded strains of *B. suipestifer* which have lost the property of forming gas from glucose and other sugars. It will be remembered that my strains of *B. coli anaerogenes* agglutinate with *B. suipestifer* serums. Perhaps the explanation is that the fashionable diarrhoea bacillus which in 1905-12 was the Morgan No. 1, in 1921 appeared in the form of *B. coli anaerogenes*, and by 1930 will have changed to something apparently different.

What evidence is there that these organisms, which are admittedly present in a large percentage of the cases of summer diarrhoea, are the actual causal agent? There is evidence both for and against this view. In favour of it we have their frequent occurrence in cases of the disease and the fact that the blood of the patients often agglutinates the bacillus, though frequently not in high dilution. Against this view is the fact that the same organism may be isolated from normal children and from flies in infected houses. During epidemic seasons the non-lactose fermenters have been isolated more frequently than in non-epidemic seasons. This is to be expected. During an epidemic the chances of direct infection, the infection of milk and other foods, either by the hands of mothers, or by soiled cloths, or by flies gaining access, are naturally greater than at non-epidemic times, especially if due provision is not made for immediate disinfection or disposal of the excreta or soiled napkins. The pathogenicity or otherwise of the isolated microbes for the lower animals also proves little, for (1) diarrhoea-producing and even fatal strains of Morgan's No. 1 bacillus and *B. coli anaerogenes* have been isolated from normal children, and (2) many strains from diarrhoea cases have not been pathogenic to animals by feeding.

While admitting, therefore, that these organisms may play a part in summer diarrhoea, I do not think they are the sole or even the principal exciting cause. I am inclined to agree with the dictum of Pfaundler, quoted by Liefmann, that in summer diarrhoea children sickened *ex alimentatione*, and that they died *ex infectione*.

If we admit (and much evidence in favour has been adduced) that most, if not all, of these bacteria may be harmless intestinal inhabitants, what conditions determine their conversion into harmful pathogenic agents? These I can give only very briefly as follows:

A. *Diminished Resistance of the Individual.*

1. General—from exposure to great and prolonged heat, undue and prolonged exposure to cold (Gettings found that many patients developed dysentery at Wakefield Asylum during the coal strike in 1912), malnutrition from underfeeding, improper feeding, and perhaps vitamins A and B underfeeding (Cramer).

2. Local—that is, in the alimentary canal.

(a) Diminished acidity of the gastric juice allowing more swallowed bacilli to pass into the intestine.

We have touched upon mumps deafness, noise deafness, syphilitic deafness, herpetic deafness, and we have suggested that a large, a very large, class of labyrinth deafness is due to middle-ear disease. Now, however, it is necessary to face what is after all our central problem. Even including labyrinth deafness secondary to middle-ear disease or produced by those causes to which we have alluded, how relatively seldom it is that we are able to surmise, even vaguely, what the cause of their trouble may be in patients who consult us with nerve deafness! Out of 345 cases in my own private practice I find that in 129, or 36.3 per cent., the cause remained unknown. And as the cause is hidden so it comes about that our treatment is purely haphazard. To some we give nux vomica, to others potassium iodide, to all our sympathy. And there the matter ends.

But must we always be standing in deep resignation before this problem? Have we really done all that we can to solve it? Let us see.

Of late years we oto-laryngologists have become accustomed to ophthalmologists sending to us cases in which, say, irido-cyclitis or retino-choroiditis is present, which they suspect to be the effect of some septic focus such as pyorrhœa, septic tonsils, or nasal sinus suppuration. In many of these cases the removal of such foci seems to exercise little or no influence upon the ocular trouble, yet every now and then a brilliant result rewards our efforts. Is it not possible that in the labyrinth also lesions due to a remote septic focus may occur? And I should like to ask this question particularly regarding the group of the labyrinth storm cases to which I alluded in an earlier section. Many of these cases can be explained, it seems to me, in this way. Some of them are "gouty"; others, as in a case reported by Spalding, may even manifest ocular lesions. Here is a question that ought to be answered; perhaps it will be answered to-day. In any case such a problem can only be tackled in one way—namely, by the methodical removal of such foci from patients with deafness for which no other cause can be found. A prolonged and widespread experimental therapy is, in fact, called for. It may, after all, come to nothing. But it is certainly worthy of trial, and of trial on the living patient, for this is one of the problems no mere pathological inquiry could solve.

As we look back now upon this sketch of labyrinth deafness perhaps to the practising otologist the most unsatisfactory feature of a picture by no means wanting in shadow is that in the article of treatment we are so sadly deficient. And however great progress may be in the future, it will always be true, I fear, that treatment will remain unsatisfactory. Nothing can restore a destroyed sensory end-organ. Nothing can rejuvenate an organ of Corti rendered senile by age and disease.

Yet we are not without hope. For although we cannot cure a destructive cochlear lesion we can at least prevent its occurrence in a large and important group of cases. There is reason to believe, as we have seen, that most cases of labyrinth deafness are due to middle-ear disease, and many advancing diseases of the middle ear can be, if not cured, at least brought to a standstill. Thus it is in prevention that our most powerful remedy is to be found. Fleeting attacks of middle-ear catarrh in children and young adults, occasional bouts of earache, little turns of deafness from a "cold," should receive the strict attention they deserve. And a heavy responsibility rests upon those who venture to decry such a simple operation, for example, as the timely removal of adenoids in the young. For there is good reason to believe that those trifling and evanescent attacks foreshadow serious middle-ear deafness in early manhood, and later the grave and irreparable involvement of the labyrinth.

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DISCUSSION.

Mr. W. M. MOLLISON (London) agreed as to the difficulty in distinguishing, by hearing tests, between conductive and nerve deafness. He divided deafness into qualitative and quantitative. The qualitative group included those with lower tone loss and upper tone loss, while the quantitative group included cases where the tone limits were normal but there was general diminution. Some of these were familial, some toxic—due, for example, to influenza, mumps, or tonsillitis; he had seen one case of mumps with vertigo. He mentioned Jenkins's point of the relation between Paget's disease and nerve deafness, and gave notes of a case. Mr. Mollison then dwelt upon the importance of loss of the upper tone limit, and the use of the monochord in comparing air and bone conduction. In syphilis a helpful sign was diminution of the upper tone limit through bone. He called attention to the acuity of hearing of the blind and of certain types of war neurasthenics, who could hear a whisper for long distances. He also spoke of the extraordinary sensibility to cold and to pressure of the vestibules of some of the latter patients. Were the semicircular canals, he asked, becoming less and less valuable to man? He suggested that perhaps these neurasthenics were not able to exclude useless stimuli as other people had to learn to do.

Mr. A. J. WRIGHT (Bristol) said that every case of vertigo was not in need of middle-ear treatment. It might fix the patient's attention on his symptoms. In regard to mumps, in an epidemic he had found that in two cases of deafness due to mumps vertigo was present. In noise deafness, if the noise was removed the deafness did not as a rule progress. He classified 71 cases from the point of view of otiology, dividing them first into two groups—those with an obvious cause, such as trauma or syphilis, and those with a doubtful cause. There were 31 males and 40 females; excluding those cases caused by trauma and noise, the condition was present in women much more frequently than in men. In the war cases there was always pre-existing middle-ear disease. Of the doubtful cases, septic foci seemed to be the cause in four, the foci being in the teeth or tonsils. Functional cases were six in number, and had begun with some suggestion, such as syringing the ear. Of the other cases most were found in association with vasomotor rhinitis, childbirth, and thyroid deficiency.

Sir JAMES DUNDAS-GRANT (London) said that in senile deafness "senile" did not mean old age but old arteries. Vertigo in middle-ear disease was due to mechanical considerations, the safety valves, the fenestrae, being prevented from acting by adhesions. Quinine was of value in unilateral labyrinthine vertigo, given in half-grain doses, the explanation of the benefit being that it caused a diminution of sensitivity of the sound ear. Loss of upper tone limit meant a lesion in the cochlea. The tuning-fork tests were open to fallacies. He raised the point of whether diseased middle-ear cases as seen in the war really predisposed to labyrinth trouble. Certainly nasal obstruction predisposed, mechanically. He suggested that what Mr. Mollison called "quantitative" deafness was due to an exhaustion of the auditory centres, not uncommon in neurasthenia. Traumatism had often produced an increase of chronic labyrinthine troubles, and mercuric chloride was of benefit in these cases.

Dr. W. J. LEIGHTON (Manchester) said that syphilis as a cause was somewhat neglected; syphilis insontium was a thing not to be missed. He quoted a case which occurred in a surgeon who contracted the infection during an operation upon a varicose ulcer. The psychological factor was of importance. He had seen a labyrinthine storm, in a case of Eustachian obstruction, relieved by inflation. He emphasized the importance of the caloric tests in distinguishing between central and labyrinthine troubles.

The PRESIDENT said that the discussion had brought out the important points that in a considerable proportion of cases of internal ear deafness, evidence of middle-ear

(*b*) Irritation of the bowel by chemical "poisons" in milk or other food, or made locally—for example, tryptophane and other protein degradation products.

(*c*) Reduction in the numbers of the beneficent intestinal microbes, *particularly the anaerobic acidophile* or "acid-tolerant" bacilli which normally check the overgrowth of *B. coli* and allied forms. Possibly bacteriophages play a part in this process.

(*d*) Stunting and atrophy of the intestinal villi consequent upon underfeeding with fat-soluble vitamin A, whereby organisms are enabled to multiply enormously in the mucous glands of the caecum, as Cramer has recently shown.

(*e*) Increased formation of harmful acids as by *B. coli* and *B. welchii* leading to increased peristalsis and diarrhoea and a catarrhal or inflammatory condition of the bowel wall (Distaso).

B. *Increased Virulence of the Bacillus.*

1. "Mass action," whereby is meant the ingestion with the food of greatly increased numbers of the organism, which has multiplied owing to the temperature. The local overgrowth in the intestine just referred to would act similarly.

2. Increase of toxicity on account of passage through a former patient.

3. Symbiosis—for example, through association with *B. proteus* or other intestinal organism, possibly a filter-passing virus.

Two or more of these conditions may act together and I cannot help thinking that the primary cause of summer diarrhoea is to be found under this heading rather than in any one particular micro-organism.

In conclusion, I should like to convey my thanks to my assistant, Mr. Stanley Woodward, whose valuable help has enabled me to carry out all the work referred to in this paper.

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DISCUSSION.

Dr. DONALD PATERSON (London) said that of the vast group of cases which suffered from diarrhoea in summer time, only a comparatively small proportion were severe enough to become in-patients at a hospital. Of the cases admitted to hospital possibly one-half to three-fourths died, depending on the length of their illness before admission and the gravity of their condition on admission. Of those cases which died and came to *post-mortem* examination, less than one-half showed any pathological lesion in the bowel wall, and from even those which did show ulcers or erosions of the mucous membrane an organism pathogenic to man could be obtained in only a small proportion of cases. Blood and mucus in the stools of cases of summer diarrhoea was an extreme rarity in this country and was taken in America as the criterion on which to diagnose clinically between an infective and a so-called fermentative diarrhoea. In more than one-half of the fatal cases of summer diarrhoea, therefore, there was no pathological or bacteriological evidence of infection by an organism pathogenic to man. It might safely be assumed that of the vast number of cases that recovered the majority had not been infected by an organism pathogenic to man. They had not been suffering from an ileo-colitis, for it was noted constantly in hospital that this type of case was uniformly fatal. The question then arose, what was the cause of the diarrhoea in those children who succumbed showing no pathological lesion in the bowel or other organs, and in those children who had completely recovered from their attack of diarrhoea? This group comprised by far the greatest proportion of the whole of the cases of diarrhoea in summer time. An analysis of the case-histories, especially from the feeding standpoint, would lead one to believe that in this direction lay the main fault. At least one-half of all these cases had a history of unsatisfactory feeding and mismanagement. Prior to the onset of their illness they were suffering from malnutrition or marasmus; their stools were loose and contained partially digested food elements even in cold weather. On the advent of warm weather this condition of indigestion was exaggerated merely, and they passed into a state which was indistinguishable clinically from a case of true infective diarrhoea. The other half of this group were as a rule at the other extreme as regards nutrition. They comprised the fat, overfed infants who were putting on weight rapidly and whose digestive organs were being pushed to the extreme limit to handle the food offered them. With hot weather those children developed an acute attack of dyspepsia which manifested itself by diarrhoea and vomiting—nature rebelling against too much food. This might occur on artificial food or even on breast milk. Starvation in an infant of that type was badly borne and quite quickly it developed the condition known as "acidosis." In these cases *post-mortem* examination revealed only an extreme fatty change in the liver. This group, in which there was no pathological or bacteriological evidence of infection by an organism pathogenic to man, had been termed "fermentative diarrhoea," or diarrhoea due to "auto-infection." Whether they were really suffering from auto-infection by the normal organisms of the bowel or whether their condition was due to an exaggeration of the fermentative action of the bowel organisms during the warm weather was difficult to prove. Certainly a diet which tended to reduce fermentation in the bowel seemed to suit them better than any other which he had found. In Dr. Paterson's opinion the large proportion of cases of diarrhoea in this country were due to a primary dietetic error, which was easily produced in hot weather and owing to the tendency for children to be overfed. Possibly increased fermentation of the carbohydrate portion of the diet due to an overgrowth of the bowel organisms took place and exaggerated this dyspepsia. The main proof of that rested on the beneficial effect of a diet in which fermentation was reduced to a minimum.

The PRESIDENT (Dr. Edmund Cautley) said that Dr. Nabarro had raised many interesting points. It was especially interesting to hear that he did not consider summer diarrhoea as infective. But if Dr. Nabarro

disease was present. In his experience a negative Rinne and prolonged bone conduction in cases of chronic deafness with middle-ear disease were phenomena which were very far from being common; on the contrary, loss of bone conduction and a positive Rinne were very common indeed in such cases. It was his impression that many cases of so-called internal ear deafness would be proved some day to be due to disease in the foramen rotundum. It was an important and perhaps significant point that in all cases of hyperostosis of the external auditory meatus, where genuine obstruction of the meatus did not exist, there was deafness of the internal ear type. In regard to cases of toxic deafness, he wished to say that although he had lived for three years with an army soaked in quinine and in malaria toxins, he had met with no clear evidence of chronic deafness arising from these causes.

DISCUSSION ON RETROBULBAR NEURITIS OF NASAL ORIGIN.

OPENING PAPER

BY

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THIS paper is based on 54 cases of retrobulbar neuritis which were sent to me by ophthalmic surgeons for an examination of the nose with a view to ascertaining the cause of the condition of the eye. The following results were obtained after repeated nasal examinations and a thorough examination of the etiology of each case:

Syphilis	7
Disseminated sclerosis	3
Pituitary tumour	2
Septic teeth (?)	4
Septic tonsils (?)	1
Choroiditis	2
Leber's optic atrophy	1
Albuminuric retinitis	1
Tobacco and alcoholic amblyopia	1
Undoubted nasal sinus suppuration	4
Nasal disease excluded, but investigation as to cause incomplete	5
No cause ascertained	23

It will be noticed that only 4 cases out of 54 had nasal sinus suppuration. All 4 cases underwent operative treatment in which the middle turbinal was removed and the sphenoidal and posterior ethmoidal cells were opened. A dramatically rapid improvement in the sight was produced in 3 of the cases, and in the one remaining case the lack of improvement was considered to be due to optic atrophy. The lesion was unilateral, and the cause was suppuration of the posterior ethmoidal and sphenoidal sinuses. The maxillary antrum was also affected in 3 of the cases, but it must be remembered that the antrum is a cesspool for the nasal sinuses, and I believe that in those cases in which optic neuritis or retrobulbar neuritis have been recorded as the result of antral suppuration the ethmoidal cells were probably involved, and that the disease in this latter region was the real cause of the inflammation of the optic nerve. Suppuration of the antrum of nasal origin is practically always accompanied by suppuration in other sinuses, such as the frontal and ethmoidal. On the other hand, where antral suppuration arises from the teeth this cavity alone is involved, and optic neuritis or retrobulbar neuritis has never been recorded in such cases, nor have I seen it in the large number of dental cases which I have had under my care. Moreover, the anatomical position of the antrum makes it difficult to understand how suppuration in that cavity can affect the optic nerve; but at the same time it must be admitted that that indefinite condition toxaemia cannot be excluded. It is a striking fact that though severe nasal sinus suppuration is so common, yet it is rarely complicated by retrobulbar neuritis.

In these cases and others recorded, in which there was no doubt that the optic neuritis was caused by the nose, the nasal disease was obvious. There was a history of an offensive discharge from the nose of long duration, and the presence of suppuration and polypi was easily seen during an examination. This type of neuritis rapidly progresses to optic atrophy and permanent blindness, and the sooner the nose is treated the better. The improvement in sight after operation in the above cases was extremely rapid, and was confirmed by the ophthalmic surgeon. It was also permanent, the patient being kept under observation for more than twelve months. The condition of the eye was described by the ophthalmic surgeon as optic neuritis, and the fields of vision showed an absolute central scotoma, but there was no tenderness of the globe of the eye on pressure or on movement. In one case there was slight exophthalmos.

I have not seen any case of retrobulbar neuritis occurring during acute coryza or a cold, in spite of the fact that observation of cases of acute coryza is an everyday experience. In some of the cases in which no cause for the neuritis was found, the patient made the statement that the sight improved during a cold. Others developed colds during the period they were under observation, and there was no additional loss of sight and no symptom to indicate that the condition was in any way aggravated.

The anatomical relations of the sphenoidal and posterior ethmoidal cells to the optic nerve are familiar, and skilfully shown by these photographs by Professor Onodi. [Photographs exhibited.]

It is reasonable to suppose that the short intracranial portion of the optic nerve as it lies in the optic foramen and canal in the upper and outer angle of the sphenoidal and posterior ethmoidal cells is the portion of the nerve involved in nasal disease. The bony canal is very thin, and sometimes shows a dehiscence. The two outer dural and arachnoid fibrous coverings of the nerve are absent, and it is only covered by the pial sheath. The delicate papillo-macular fibres which supply the macular region lie to the temporal or outer side of the nerve away from the nose, and in cases of central scotoma it is these fibres which are involved. The periphery of the field of vision is supplied by the fibres which lie in the centre of the nerve trunk. The charts of the fields of vision in the nasal cases showed a large central scotoma, and the other so-called idiopathic retrobulbar cases demonstrated a definite contraction of the field and also a central scotoma. Unfortunately there are so many factors in perimetry which influence the charts that it is impossible to show that only the outer fibres were affected in the nasal cases and all the fibres of the nerve in the idiopathic cases; also the extent and severity of the neuritis must vary considerably in the different cases. It was hoped that the charts of the field of vision of the nasal cases would show definite characteristics and so be an aid to diagnosis, but, on discussing the charts with Mr. Basil Lang, who has made a special study of perimetry and scotometry, it was decided that no such simple conclusion could be drawn, nor was there any probability that such a distinction could be made by the perimeter.

The relations of the optic nerve to the sphenoidal and posterior ethmoidal cells of the nose are similar to that of the facial nerve and the middle ear, and it appears to me that this analogy can be carried further in the cases of retrobulbar neuritis. Paralysis of the facial nerve as the result of ear disease is most commonly due to the chronic and more destructive suppuration seen in tuberculosis of the mastoid or in cholesteatomatous suppuration of the middle-ear cleft, and I believe it is the more destructive chronic suppuration of the nose which produces retrobulbar neuritis. Professor Onodi, in his book *The Optic Nerve and the Accessory Sinuses of the Nose*, gives the pathological details of nine cases recorded by different observers in which optic neuritis was due to sphenoidal and ethmoidal suppuration with periostitis, osteitis, and necrosis, and confirmed by *post-mortem* examinations. The disease was extensive and destructive, and accompanied by meningitis, extradural abscess, or venous thrombosis. The optic nerve was affected by direct extension from the bone, or more rarely by venous thrombosis. It is only in a very few of the many cases of suppuration of the sphenoid and ethmoid that the optic nerves are

There is also the question of the resistance of the organs. Some organs are no doubt more resistant to infection than others, and it would appear as if the bronchial glands are less resistant than the abdominal glands, which drain the intestines.

The Progress.

In judging the outlook of this disease we need to look not at the results as seen at the end of a course of treatment, but at the results as seen many years later. Cases are often thought to be cured after treatment, but when we come to investigate these cases some years later we find that the mortality is a good deal higher than we anticipated at first. We need to be more cautious about calling a case cured too soon. This is well shown by this series of cases, and the outlook in many cases has turned out to be a good deal worse than was thought at the time of ending treatment.

A case of abdominal tuberculosis should remain free from symptoms for at least two years before being pronounced as cured. Practically all the cases that I have watched, if they have kept free from symptoms for two years, have almost invariably done well.

During the first year of life the outlook is practically hopeless, and it is not very much better during the second year of life. The disease is specially difficult to diagnose at an early stage at these ages, and it is possible that there are mild cases which are not recognized and which recover.

I have seen eleven cases under the age of a year, most of them between the ninth and twelfth months, and all of these have died, nearly all from a general tuberculosis. An interesting feature of these cases is that there is a family history of tuberculosis in a near relative in a high percentage of cases. In quite a number also the infants had had no unboiled milk in their lives. It would thus seem that a large proportion are due to the human type of tubercle bacillus.

Looking at the older children, the outlook improves very considerably, although the disease is always a serious one, and one needing prolonged treatment and care. Many cases relapse or develop tuberculosis in some other part of the body later on. The more that one can feel in the abdomen in the way of glands, matted omentum, etc., the worse is the outlook, yet it is remarkable what large masses can disappear in time under treatment. The type of case which has ascites does better on the whole than the plastic or dhesive type. Of my cases with ascites 23 have had a aparotomy performed, and 15 of these are living and well, showing 65 per cent. of permanent recoveries. Thus, many cases of the ascitic variety do well after an operation for the removal of the fluid, but why this should be so is doubtful. After all, the ascitic is turned into one of the plastic variety. This apparent relief by laparotomy is, however, sometimes only temporary, and after a few weeks they take on the symptoms of the plastic type with pain and obstruction.

In so-called tabes mesenterica an abscess may form, and this is generally best left to open at the umbilicus and discharge, in the hope that it will dry up and heal without a faecal fistula. There is always a great risk of a faecal fistula if the plastic variety of abdominal tuberculosis is operated upon.

When we come to analyse the series of 250 cases of all ages, we may sum up the results as follows:

Cured	56 per cent.
Doubtful	8 ,,
Death, or outlook very bad	36 ,,

If we exclude the 11 fatal cases which occurred in the first year of life the table is better, and shows:

Cured	58 per cent.
Doubtful	8 ,,
Death, or outlook bad	34 ,,

Taking the results of children over 5 years of age when first seen, the outlook is shown to be better still—namely:

Cured	62 per cent.
Doubtful	6 ,,
Death, or outlook bad	32 ,,

These statistics go to show how serious the disease is in children; in fact, the outlook for abdominal tuberculosis is much worse than the outlook in chest tuberculosis of children. It would appear that when the mesenteric glands and peritoneum become seriously affected, the body resistance to the disease is small. This would be expected when one comes to consider the large surfaces and organs involved.

When we go into the after-histories of cases who have recovered we find that the large majority have grown up and kept perfectly well. They have no symptoms of the former disease, except that a few have a tendency to colic and to looseness of the bowels. The adhesions and matting of the intestines seem to have but little deleterious effect in the future. In some, however, a mass of calcified glands can be felt many years later in the same situation as the former enlarged glands. These old glands seem to cause no trouble. The earlier a case is treated by rest and suitable diet the better is the outlook.

It is likely that abdominal tuberculosis is a potent cause of sterility in females by causing adhesions and damaging the reproductive organs.

Amount of the Dose.

It is clear that infants and children have every chance of becoming infected with the tubercle bacillus at an early age. As the age of children increases we find that more and more have been infected, but that resistance to infection is such that they thrive in the ordinary way. It is possible that the magnitude of the dose and the continuance of infection has a good deal to do with an illness like abdominal or chest tuberculosis. A long series of doses of infection will most likely set the disease going, while a small dose or doses may be resisted by the child and all goes well, although he is infected. This is clearly shown by the bad outlook when there is a tuberculous parent, who is continually infecting his or her children by living in the same house and by not taking sufficient precautions.

Summary.

I have been able to follow up 250 cases of abdominal tuberculosis in childhood for a number of years, and the results have been analysed. Many cases are apparently cured for a time, but relapse later on; this point must always be borne in mind. The outlook is practically hopeless under the age of 1 year, and not much better under the age of 2 years. However, as the age increases the outlook improves considerably, although the disease is always a most anxious one. The more that can be felt in the abdomen, the worse as a rule is the outlook. The type with ascites does better on the whole than the other types, and this class of case often responds well to operative treatment. The after-histories of children who have had abdominal tuberculosis and kept well for some years are good, even though there are still enlarged calcareous glands felt in the abdomen.

DISCUSSION.

The President (Dr. Edmund Cautley) said that the prognosis in abdominal tuberculosis was not as bad as it used to be. With the advent of abdominal surgery the outlook became suddenly much better. Surgeons sometimes used to open the abdomen under a mistaken diagnosis. Tuberculous peritonitis was discovered and a hopeless prognosis given. Then it was found that many cases recovered. Laparotomy became the popular treatment, and various theories were suggested as to how it worked. The physicians thought that with suitable diet (and diagnosis) the prognosis was good. The outlook was worst in the caseous type unless the disease was localized. The after-effects were wasting, leading eventually to death, intestinal obstruction, and generalized tuberculosis.

Dr. E. A. Cockayne (London) commented on the absence of after-effects in the cases that recovered. He had felt calcified glands and nodules in the omentum years after the original disease, but they produced no symptoms.

Dr. Eric Pritchard (London) agreed in the main with Dr. Ashby's conclusions, except on the point that tuberculosis in children under 1 year of age was specially fatal. Some years ago he himself had made this statement, but since then he had had reason to change his opinion. During the last ten years he had treated a number of children

involved, and in this respect again the relation of suppuration of these nasal sinuses to the optic nerve is similar to middle-ear suppuration and the facial nerve. In all these cases the cause of the neuritis was definitely due to gross and severe suppuration of the sphenoid and ethmoid, and, though unilateral neuritis is considered to be more common and indicates a nasal origin, both nerves were sometimes affected, and it has been claimed that optic neuritis has been known to be due to sinus suppuration on the opposite side of the nose. For this and anatomical reasons, it is always advisable to open and drain the sphenoidal and posterior ethmoidal cells of both sides in cases of retrobulbar neuritis of nasal origin. It is true that acute otitis media occasionally produces facial paralysis, but there are a large number of cases of transient paralysis in which no cause can be found, and the paralysis disappears in a few weeks. In this respect facial paralysis resembles the 23 cases of idiopathic retrobulbar neuritis about to be discussed, the majority of which recovered.

The scrutiny of the 23 cases of retrobulbar neuritis for which no cause could be determined showed that these were of sudden onset and usually occurred in women under 40 in whom the nose was perfectly normal, and repeated examinations with exploration of the sphenoidal sinuses and antra yielded a negative result. In 3 of these cases the middle turbinals were removed, the sphenoidal and ethmoidal sinuses were opened and found to be normal, and there was no improvement in the sight as the result of this procedure. In another case the nose was not above suspicion, and, as there was no improvement, the sphenoid and ethmoid were opened and found to be absolutely normal. This case ultimately turned out to be disseminated sclerosis, in which the sight varied as in other cases due to the same cause.

In most of the 23 cases x-ray examination, Wassermann reaction, tests of urine and of the nervous system, and searches for tuberculosis were all negative, neither was there any evidence of toxaemia, and though the patients were seen at intervals for more than twelve months no further information as to the etiology was obtained. Nevertheless the sight improved or became normal. It is possible that an examination of the cerebro-spinal fluid may have thrown some light on these cases, but unfortunately lumbar puncture was not done.

Bruckner records ten cases of unilateral retrobulbar neuritis in which the sphenoid and ethmoid were examined and no nasal lesion was found. Other observers, particularly in America, report that a much greater number of cases of retrobulbar neuritis are due to nasal disease, and it may be claimed that some of the above idiopathic cases have a latent nasal lesion which cannot be detected macroscopically.

If the severity of the symptoms in a case of retrobulbar neuritis is progressing and every other cause for the condition is eliminated, or if there is the slightest suspicion of sphenoidal and ethmoidal disease, then it would be justifiable to remove the middle turbinal and open up the sphenoidal and ethmoidal cells; the risk of damage done by such procedure is negligible.

In conclusion, only 4 out of 54 cases of retrobulbar neuritis were produced by nasal suppuration, and in those 4 and in others recorded the suppuration and disease of the sphenoidal and ethmoidal cells was obvious and extensive. An improvement in the sight after the sphenoid and ethmoid have been opened and when little or no disease was found does not conclusively prove that the neuritis was caused by the nasal condition.

LITERATURE.

StClair Thomson: Optic Neuritis of Sphenoidal Sinus Origin, British Medical Journal, June 2nd, 1923, p. 925. Cerebral and Ophthalmic Complications in Sphenoidal Sinusitis, *Trans. Medical Society of London*, xxix, 1906.

Leon E. White: Aeration of the Posterior Accessory Sinuses in Acute Optic Neuritis, *Laryngoscope*, xxxii, May 22nd, 1922, p. 282.

DISCUSSION.

Sir StClair Thomson (London) said that at present there was a "boom"—the second one in twenty years—in the association between sinusitis and retrobulbar neuritis. He agreed with Mr. Davis that it was rare, and that it was orbital inflammation which was the common result of sinusitis, not ophthalmic inflammation. Surgeons ought not to operate upon the sphenoidal sinus on the supposition that it might cause retrobulbar neuritis although clinically it was healthy. The association was a rare one.

Mr. A. J. Wright (Bristol) agreed with the opinion expressed by Mr. Davis. When the sinuses were the cause, this could be diagnosed by rhinologists. Unexplained cases were common, and they would all improve occasionally, with or without treatment.

Mr. T. Ritchie Rodger (Hull) said that some cases of sinusitis were very difficult to diagnose. He quoted a case, diagnosed as cavernous sinus thrombosis and subjected to operation, in which, although pus and polypi were absent, relief followed four hours after the procedure of sphenoidal drainage. He felt certain that some unexplained cases arose from non-purulent sinusitis.

Sir J. Dundas-Grant (London) discussed the anatomy of the associated parts, and quoted a case in which sphenoidal drainage relieved the pain, and in which the Wassermann reaction was positive.

Mr. Somerville Hastings (London) found that the association of retrobulbar neuritis and sinus disease was commoner than some of the previous speakers had said. He agreed with Mr. Ritchie Rodger that opening the sphenoid sometimes led to immediate improvement although no disease was found.

CANFIELD'S OPERATION ON THE ANTRUM:

DESCRIPTION AND RESULTS.

BY

SIR JAMES DUNDAS-GRANT, K.B.E., M.D., F.R.C.S.

When referring recently to some cases as having been treated for their chronic suppuration in the maxillary antrum by "Canfield's operation" I was asked by a distinguished laryngologist what Canfield's operation was. I knew it only by this name, having made its acquaintance in Loeb's majestic *System of Operative Surgery of the Nose, Throat, and Ear.* It appeared to me to have such distinct and valuable features as to justify its being named after its putative deviser. The main feature in it is that the opening is made in the narrow anterior part of the antrum, close to the margin of the piriform orifice of the skull. This margin can be distinctly felt by a finger pressed into the naso-facial fold externally, while if the nose is tilted up and the naris is opened by means of a nasal speculum, not pushed too far in, a corresponding fold running nearly vertically can be seen or felt. The anterior part of the antrum, which is narrow, comes forward towards the edge, though at some little distance posterior and external to it.

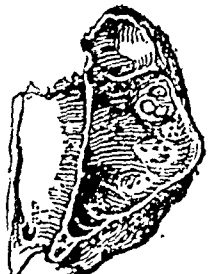


Fig. 1.—Horizontal section of left maxillary antrum, showing the narrow anterior "foc'sle" to be opened in this operation.

The antrum being exposed at this anterior part it is easy to look straight into it or introduce an irrigating cannula in a way that no other intranasal operation permits of. It is likely also that the position of the resulting opening, situated as it is at a narrowed part of the nasal passage, allows of the production of negative pressure as the respiratory currents of air pass over it.

In Canfield's original paper (*Journ. Amer. Med. Assoc.*, vol. li, p. 1136) the operation is described as "the submucous resection of the lateral nasal wall in chronic empyema of the antrum, ethmoid, and sphenoid," and he appears to lay stress upon the mode of dealing with the

infected with the human tubercle bacillus from tuberculous mothers. The earliest age at which he had been able to diagnose the disease was fourteen days. He gave an injection of old tuberculin. If the child was infected there was a local and focal reaction. In abdominal tuberculosis an attack of colic with the passage of green motions was observed. Without this test it was very difficult to say whether tuberculosis was present or not. There might be no clinical evidence of the disease. He had followed his cases for years; one child, aged 12, was now alive and well. He had had one death in his series, and that was in an advanced case. He thought that many cases were not recognized. Treatment by tuberculin injections had been very successful. The prognosis was bad when the disease was diagnosed by ordinary clinical means, but good when diagnosed by the test.

Dr. G. Bruton Sweet (Auckland, New Zealand) said that the prognosis of infants suffering from abdominal tuberculosis was greatly improved by the use of tuberculin, especially when of a bovine strain. In a small series of cases of abdominal tuberculosis in infants under the age of one year 5 made a complete recovery after the use of T.R. bovine.

THE TREATMENT OF TUBERCULOUS CERVICAL ADENITIS BY RADIUM.

BY

ECHLIN S. MOLYNEUX, M.R.C.S.,
Honorary Surgeon, Warneford Hospital, Leamington.

It is not my purpose to go into the pathology of tuberculous adenitis, as this was dealt with fully last year in a very exhaustive paper by Mr. John Fraser. I think it will be generally admitted that the various treatments of this complaint, whether surgical or conservative, as carried out all over the country, have in the past not been very satisfactory.

I am quite ready to admit that an early excision will often cure a patient, but even then he has to undergo the unpleasant and painful ordeal of an operation, and a scar of greater or lesser size is left to disfigure his neck. This is especially undesirable in the case of girls, however satisfactory an artistic and neat scar is to the surgeon. Another objection to operation is that often a skilful dissection has been made to remove the affected glands on one side of the neck, and much to the surgeon's disappointment the debilitating effect of the operation has apparently caused a fresh outbreak of the disease on the opposite side which had previously appeared healthy. Conservative measures are usually very lengthy, entailing long visits to the sea or Switzerland, and too often failure at the end of it. It is for this reason that I put in a plea for a method which I have been practising for over ten years with excellent results.

Treatment by Radium.

During the whole of this time I cannot recollect a case that has not been benefited, and I think I am right in saying that only one patient who conscientiously had the treatment carried out has not been apparently cured. This means that one can almost promise to cure a patient whether the disease is early or advanced. The treatment is painless and perfectly safe, provided that scrupulous attention is paid to the technique; I say this because recently a few cases have come under my notice where harm instead of good has been done by wrong doses of radium. Caseating masses of glands, suppuration and secondary infection, and old sinuses are no bar to radium treatment. Unless suppuration has already occurred no scar is left. The skin is sometimes a little red for a few weeks from the effect of the secondary beta rays thrown off from the screen covering the radium—more will be said about this later; the redness always disappears. The one disadvantage of this form of treatment is the cost of the radium and the ease with which applicators are damaged and sometimes lost and thrown away with the dressing.

The period during which I have been doing this work has been sufficiently long to judge whether the cures are permanent. It is excessively rare to find any recurrence of the trouble once it has been apparently cured. The very few recurrences I have seen have responded to a second treatment. In cases of doubtful diagnosis it has been my practice to remove a small piece of affected gland and have sections cut, and if necessary have a Wassermann reaction taken as well.

Technique.

It is unnecessary to go to the length of describing all the initial experiments and the concentrations of radium used. The following is the technique which I now employ. The applicators I use are flat ones; the most convenient size is a square one, one inch square containing the equivalent of 15 mg. of radium bromide. This is the concentration that must be used; I actually use the radium sulphate as it is insoluble in water, but in measuring it one speaks in this country in terms of radium bromide. The radium is spread out on the applicator, which is a plaque of silver 3 mm. thick. It must be mixed with some basic to cause the radium to adhere to the applicator evenly and to prevent loss. I used to employ a special form of varnish with this object, but varnish perishes and is easily cracked if the applicator should be dropped, with consequent loss of part of the radium. Recently I have used applicators in which the radium is incorporated with a form of cement instead of varnish, and these are less liable to damage. The applicator has over it a screen of 1 mm. of silver, then a couple of layers of lint, and finally a couple of layers of thin gutta-percha tissue tied over the whole to prevent any soiling of the screen. The gamma rays of radium are used for this work; the screen of silver absorbs the alpha and beta rays, which if used for a sufficiently long application would cause a burn. A silver screen 1 mm. thick will absorb all the alpha rays and 99.9 per cent.—that is, practically all—of the beta rays. When gamma rays emerge from a metal surface such as a silver screen, secondary beta rays are set up whose action on the tissues is the same as that of the primary beta rays, and it is necessary to provide for their absorption. The layers of lint and gutta-percha tissue absorb these irritating secondary beta rays. The applicator thus protected is strapped to the patient's neck, or wherever the tuberculous glands are. Four hours is, on the average, the correct time for the application. I usually employ two or more applicators in order to cover the diseased area at one sitting.

Dosage.

The frequency of the dose should be twice a week to begin with, and once a week when the glands are markedly subsiding; this is an average frequency, but the effect must be watched and each case judged on its merits. Patients vary greatly in their reactions to radium, some getting well with very few applications, and others requiring many. I have known a mild case recover after two applications, but this is quite unusual. Broadly speaking, patients with early tuberculous glands recover soonest; then those in whom the glands have suppurated; the fibrous type of tuberculous glands and those with large caseating masses that have not become liquefied take the longest time; they often take months to cure.

Treatment is continued until all signs of the disease have disappeared, or, at the most, some fibrous nodules are all that remain. These were for years a source of perplexity to me; an American colleague, however, excised a considerable number and had sections cut. He stated that they consisted of scar tissue and presented no signs of any active disease. If a patient when first seen has a cold abscess I always aspirate the pus under local anaesthesia in order to relieve tension of the skin before starting treatment. If, as occasionally happens, the caseating material is too thick to aspirate, I make a tiny incision with a tenotomy knife and squeeze the pus out. Two or three aspirations are usually sufficient.

Conclusions.

The following appears to me to be a possible theory as to how the radium acts. In treating cancer one gives a dose which causes a maximum amount of destruction; this, then, is a destructive dose of radium. In treating a tuberculous gland the dose of radium employed is of exactly the

turbinated bodies rather than on the site of access to the interior of the antrum, which is, in my opinion, the essential feature of the operation. A few more details with regard to this latter point might have been given with advantage, and I venture to supplement Canfield's description by adding them in the form suggested by my experience.

For half an hour before the operation the vestibule and anterior part of the nasal fossa should be plugged with a 10 per cent. solution of cocaine hydrochloride in the full strength (1 per 1,000) solution of adrenaline, on ribbon gauze, or preferably non-absorbent cotton-wool.

At the operation (under a general anaesthetic) the head should be slightly raised as for the submucous resection of the nasal septum, and the posterior naris should be plugged. A nasal speculum—by preference Killian's shortest type—is introduced and turned outwards, so as to expose the outer wall of the vestibule of the nose. The cocaine plug having been removed, an intranasal incision is made with a short-bladed scalpel down the fold described above as corresponding to the margin of the piriform fossa. This should go down to the bone and hug its *outer* surface. Skillern removes an elliptical piece of tissue by making two incisions meeting above and below. A periosteum elevator is then introduced, and slid quickly up and down so as to detach the periosteum to the depth of about half an inch, carefully avoiding the infraorbital nerve. Then with the greatest decision a flat strip of gauze (two or three ply) is pushed between the bone and periosteum, the outer end being turned outwards over the cheek. The bleeding being thus checked, the nasal muco-periosteum is raised by means of a narrow elevator introduced through the same incision but on the *nasal* side of the bony edge. The elevator is then pushed inwards under the inferior turbinated body for about three-quarters of an inch (avoiding the orifice of the nasal duct).

To make a flap an incision is now made from the top of the original one down the whole of the anterior margin of the inferior turbinated body and for a short distance along its inferior margin the muco-periosteum is detached, and a portion of the turbinated bone resected by means of flat punch forceps. By a transverse incision across the roof and walls of the inferior meatus this muco-periosteal flap may be formed for insertion into the floor of the antrum when the opening is made.

The insertion of such a flap is not, however, of very great importance, and it will be found sufficient to remove the anterior third of the inferior turbinated body. A strip of gauze is now introduced so as to check the bleeding, which, if the preliminary adrenalization has been well carried out, is seldom great, though otherwise considerable.

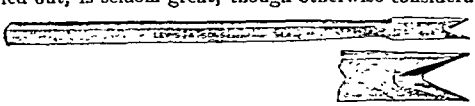


FIG. 2.—Author's notched osteotome.

The opening in the bone is now to be made. A Killian's speculum, usually the middle-sized one, is introduced through the original vertical incision with one blade on the facial surface of the bony ridge and the other on the nasal one. The ridge being freely exposed, a flat chisel or my notched osteotome, devised for this operation (Fig. 2), is introduced at the lower part with its cutting edge horizontal, pointing backwards and outwards. An assistant hammers on it with a leaden-headed mallet so as to cut into the bone for about the third of an inch. The chisel is then extracted and replaced at the upper part, level with the line of attachment of the inferior turbinal, and is driven into the bone to the same depth. An endeavour should now be made to unite the facial extremities of the two chisel cuts by a vertical one, which should penetrate the antrum, but as a rule the projecting wedge of bone can be gripped by means of bone forceps and broken off. With the forceps the opening can be enlarged both in the facial and the nasal direction, and the pus, polypoid swellings, and débris of bone removed by means of gauze swabs and curettes. The antrum can now be swabbed out with a 10-volume hydrogen peroxide, then with a 3 per cent. solution of zinc chloride, and a vaselined plug of gauze, preferably encased in a thin rubber finger-cot, introduced.

The margins of the opening (Fig. 4) may be trimmed with the bone forceps, especially the lowest part of the nasal side, which should be cut down as near to the floor of the nose as possible. If a muco-periosteal flap has been made,

FIG. 3.—Diagram showing notched osteotome applied to margin of piriform orifice.

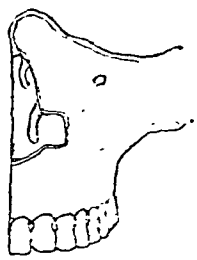


FIG. 4.—Diagram showing amount of bone removed.

the plug should be removed and the flap pushed into the floor of the antrum, the plug being renewed. In twenty-four hours this plug is removed, and as a rule it need not be replaced.

The following are notes of a consecutive series of cases in which I have operated by this method:

CASE I.

Margaret H., aged 18, applied for treatment at Brompton Hospital on account of increasing debility and depression; she was found to have discharge from the left nasal cavity which had existed for three years; she had weekly washings out of the left antrum for a couple of months without cessation of the discharge. Almost immediately after the carrying out of Canfield's operation the discharge ceased completely, there was no fetor, and she felt well.

CASE II.

Harry W., aged about 40, had suffered from frontal headache for two and a half years and nasal discharge on both sides. On the right side pus was present between the septum and the anterior lip of the hiatus, and on the left side between the septum and the middle turbinal. The opening into the frontal sinus from the nose on the right side was obstructed, but on the left one free. A quantity of fetid pus was washed out of the right antrum by Lichtwitz's method, but on the left no pus was found in the antrum, though some could be washed out of the frontal sinus. The head was relieved by the washing out of the right antrum and of the left frontal sinus; at a later period the headache was confined to the right side, and continued until the Canfield operation was carried out. When seen ten days later he reported that he had complete freedom from pain and heaviness in the head, and that his nose was quite clear.

CASE III.

Colonel — complained of fetid discharge on the left side of the nose of over two years' duration; pus was found in the right antrum, and two days later the antrum was opened by Canfield's method. Within a few days after the operation the suppuration had stopped.

CASE IV.

Reuben P., aged 34, had been rejected from the army on account of signs at the right apex but with absence of bacilli in the sputum. He was sent to Brompton Hospital for Consumption on account of pain in the chest, cough, and expectoration. He was referred to the throat department, where the right maxillary antrum was washed out, after which the pain in the chest disappeared; he was conscious of nasal obstruction and an offensive smell in his nose; there was a deflection of the septum and hypertrophy of the right middle turbinal. The washing out of the antrum was repeated on several occasions, and fetid pus was always evacuated. The radical operation by Canfield's method was carried out early in 1922; the suppuration then disappeared and his chest was soon so clear that it was considered unnecessary for him to attend further. Signs of obstruction in the right nasal cavity were relieved by removal of the middle turbinal.

CASE V.

Jessie G., aged 23, complaining of cough and pain on the left side of the chest, was found to have nothing definite in the lungs nor any bacilli in the sputum; she had pain in the left frontal region and discharge in the left side of the nose, with an unpleasant smell of which she was conscious. The left antrum was opaque on transillumination, and when washed out was found to be full of fetid pus. In spite of repeated washing out the discharge of fetid pus continued, and the Canfield operation was carried out. In a week's time she was free from headache and discomfort and also from suppuration, except what appeared to be a slight coring from the frontal sinus.

SIR BENJAMIN SIMPSON, K.C.I.E.,

Surgeon-General, I.M.S. (ret.).

SIR BENJAMIN SIMPSON, K.C.I.E., Bengal Medical Service (retired), died in London on June 27th, at the great age of 92. Since the death of Deputy Surgeon-General Parke, on April 10th, 1920, he had been the senior officer on the retired list of the I.M.S. That somewhat doubtful honour now falls to the lot of Deputy Surgeon-General Clarence Cooper, of the Madras Service, who, though just one month junior to Simpson, was actually eight months older.

Benjamin Simpson was born at Clontarf, Dublin, on March 31st, 1831; he was the son of Robert Simpson, solicitor, and was educated at Trinity College, Dublin, where he graduated M.A.; he took the M.R.C.S. in 1852, and the M.D.St. Andrews in 1853. He joined the I.M.S. as Assistant Surgeon on October 20th, 1853, nearly seventy years ago, reached the administrative grade on March 21st, 1882, became Surgeon-General and head of the service on March 20th, 1885, and retired on March 29th, 1890. Though in India at the time of the Mutiny, he did not see service in that campaign. In 1860 he entered civil employ in Bengal, and in 1863 was posted to the medical charge of the mission sent to Bhutan in that year, subsequently serving in the Bhutan campaign of 1865-66, for which he received the frontier medal with a clasp. In 1867-68 he was on special duty on the North-East Frontier of India, and in the latter year was appointed civil surgeon of Darjiling. In 1871 he was transferred to Patna, and in the same year served on the Cinchona Commission. In 1878 he was appointed to accompany the late Maharaja of Kuch Bihar, father of the present ruler, as his guardian, on the first of his many visits to India. In 1881 he was promoted to act in the administrative grade as Deputy Surgeon-General of the Army in Southern Afghanistan, and in the same year was posted as Principal Medical Officer of the Quetta Division. On March 21st, 1882, he was confirmed in the administrative rank, and appointed Deputy Surgeon-General and Sanitary Commissioner of the Central Provinces; subsequently he acted for some time as Surgeon-General of the Punjab and of Bengal successively. On March 20th, 1885, he succeeded the late Dr. J. M. Cuningham as Surgeon-General and Sanitary Commissioner with the Government of India, the title then held by the head of the Indian Medical Service.

On December 20th, 1885, he was granted a good service pension, and on February 15th, 1887, he was created K.C.I.E., being one of the first batch of knights appointed to the Order of the Indian Empire. In 1859 he married Jane, daughter of Brigadier-General Hugh Sibbald, C.B., by whom he had two sons and one daughter, the latter the wife of Brigadier-General Sir A. G. Balfour.

His two chief pursuits in India were big game shooting and photography, and in both he was very successful, attaining considerable skill in the latter when it was a much more difficult art than it is nowadays. When he was Surgeon-General he had rather the reputation of being more intent on his amusements than on his work. The writer of this note, however, was told by a distinguished officer of the Indian Medical Service, who served as secretary to several Surgeons-General, and later himself became Surgeon-General, that Simpson did more work than any other chief under whom he had served. He was a man of the old Anglo-Indian school, who rose very early and got through a great deal of work before breakfast; he had the faculty of knowing just what work he could safely leave to his assistants and subordinates, and he did not himself do work which it was their duty to do—consequently he was free from the cares of his office at an hour when most men were still hard at work. As Surgeon-General he was a strong man, and he raked out of the hands of the Provincial Governments into those of the Government of India—that is, practically into his own hands—a good deal of patronage. Two instances were that in his tenure of office the Government of India took over from Provincial Governments the right of nominating individual officers for civil employ, and the power of appointment to the professorships in the various medical colleges in India. When the question whether medical officers in civil employ should be eligible for military promotion was considered, the Government decided that they should, giving as two instances of conspicuous success on the part of officers promoted from civil posts to act as military administrative medical officers Sir Benjamin Simpson and the late Deputy Surgeon-General Sir James Thornton, both of whom were civil surgeons in Bengal before their promotion.

HUGH CLAYTON FOX, F.R.C.S.I.,

London.

MANY will learn with sorrow and surprise of the death, from angina pectoris, of Mr. Clayton Fox, on June 13th, after scarcely more than one day's illness. He presented the appearance of perfect health and vigour, and those who saw him a day or two before his death would have prophesied for him a prolonged life of activity.

He was born in 1864 at Coddenham in Suffolk, and was educated at Needham Market Grammar School. He studied medicine at the Middlesex and Charing Cross Hospitals and ultimately in Dublin, taking the M.R.S.C.Eng. in 1888, and the F.R.C.S.I. in 1901. After an experience of general practice he studied oto-laryngology at the Central London Throat and Ear Hospital and joined the staff of the Metropolitan Ear, Nose and Throat Hospital. He devoted much time to the work of the throat departments of the Brompton Hospital and the West End Hospital for Nervous Diseases. During the war he acted as assistant and deputy (for Sir James Dundas-Grant) at the King George Hospital, as well as at the Endsleigh and Vincent Square Hospitals for Officers.

The Ministry of Pensions afforded him great scope at the aural clinics at Queen Mary's Hospital, Ducane Road Military Hospital, and for the last few years three aural clinics a week at Hammersmith Broadway. Moreover, he was constantly employed on aural boards. Just before his death he had been appointed aurist and laryngologist to the Marylebone General Dispensary.

He made a masterly translation from the French of Laurens's *Oto-Rhino-Laryngology*, which has been in such demand as to call for two new editions in a comparatively short time. His abstracts from French special journals which appeared in the *Journal of Laryngology* were always accurate and practical. Though of a somewhat reserved disposition he acquired a large number of friends, who became more and more attached to him as they learnt to realize the largeness of his heart.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on June 28th the degree of Bachelor of Medicine was conferred on E. F. Chapman.

The following candidates have been approved at the examinations indicated:

FINAL M.B.—(*Materia Medica and Pharmacology*): G. R. P. Aldred-Brown, E. N. Allott, L. J. Barford, L. W. H. Bertie, R. B. Bourdillon, V. H. Brink, C. S. Broadbent, T. A. J. M. Dodd, L. O. F. Fysh, S. Harris, T. B. Hodgson, A. Kendrew, R. Lewthwaite, P. Morton, E. L. Newell, W. D. B. Read, T. E. Ryves, B. G. Scholefield, R. W. A. Simmons, R. A. Walsh, A. Q. Wells, Evelyn C. Whitehall-Cooke, D. O. Williams, Rosa S. Wordsworth. (*Pathology*): M. McC. Baird, R. E. D. Cargill, C. W. Carter, T. A. J. M. Dodd, C. L. Elgood, K. J. Franklin, D. R. Gawler, C. A. H. Green, H. E. Harding, J. R. B. Hern, J. A. Macfadyen, V. P. Robinson, J. P. Shaw, I. M. Sidley, H. N. Stokoe, J. G. S. Thomas, B. E. Tompson, G. P. Wright, Mathilde E. F. Bugnion, Janet M. Vaughan. (*Forensic Medicine and Public Health*): O. D. Ballinger, D. T. Barnes, E. F. Chapman, A. M. Cooke, R. S. Creed, R. van B. Emmons, J. A. Macfadyen, G. F. L. Mitcheson, E. B. Strauss, T. S. Townsend, H. F. Turn·y, Cicely D. Williams. (*Medicine, Surgery, Midwifery*): J. W. Alden, P. W. Boobbyer, T. A. Brown, A. D. Dyson, R. van B. Emmona, R. V. Facey, H. C. Hill, J. P. Shaw, A. L. B. Stevens, E. H. Watkins, A. Q. Wells, C. R. Young, W. A. Young, Sibyl R. Eastwood, Cicely D. Williams.

M.CH.—C. H. Carlton.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examinations indicated:

M.D.—R. Platt.

FINAL M.B., CH.B.—O. H. Billington, R. L. Brown, Alice C. Caiger, Ida Coates, H. Cretney, A. S. Drummond, C. S. Dunbar, D. Guest (Second Class Honours), W. H. Harding, Mona E. Hatherley, A. B. Nutt, Muriel R. Powell, J. E. Schofield, Annie D. Sykes.

UNIVERSITY OF DURHAM.

A CONVOCATION was held in the Castle Hall on June 26th, when a number of honorary degrees were conferred.

As recorded elsewhere, the honorary degree of D.C.L. was conferred upon Sir Anthony Bowlby.

The following medical degrees were also conferred:

M.D.—N. R. Beattie, D. G. P. Bell, O. Collville, S. W. Davidson, C. N. Gover.
M.D. (*Practitioners*).—W. H. Bennett, Philip Gosse, W. L. Hodge.
M. [illegible] Boll, W. A. Brown.
M. [illegible] Irene B. M. Green, [illegible] R. Isaacs, R. H. [illegible] L. Minski, Doris H. Motyer, [illegible] Philipson, H. N. Popham, [illegible] Rollin, Evelyn M. Scott, W. F. O. Taylor, A. Todd, Kathleen Shelton, P. J. G. de Vos, H. A. Wallace, and A. J. Watson.
B.HY. AND D.P.H.—N. R. Beattie.

Dr. R. A. Bolam was nominated for election by convocation as a member of the Senate for the ensuing period of four years.

UNIVERSITY OF GLASGOW.

THE following medical degrees were conferred on June 20th:

M.B., CH.B.—Grace F. Macpherson, Ian Macpherson, Ethel M. Oastler, W. Simpson.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

As announced last week, the Honorary Fellowship of the College was conferred on June 25th on Sir Harold Stiles, Regius Professor of Clinical Surgery in the University of Edinburgh. In introducing Sir Harold Stiles, the Vice-President of the College, Mr. Charles B. Maunsell, said that he was worthy of the highest honour, as he was one who had worked unceasingly to advance the science and art of surgery. The highest honour which they could bestow was the Honorary Fellowship of their ancient College. On the roll of Honorary Fellows were the names of such world-renowned workers as Erichsen, Hunter, Huxley, Lister, Paget, Pasteur, and the brothers Mayo, and Sir Harold Stiles was worthy to have his name enrolled amongst such immortals. His first work was a translation of that wonderful textbook of operative surgery which was written by the late Theodore Kocher of Berne. Afterwards he collaborated with the Irish students' old friend and teacher, the late Professor D. J. Cunningham, in the production of his *Textbook of Anatomy*. This work was followed by an original and painstaking study, the results of which were given to the world in Burghard's *System of Operative Surgery* and in the *Encyclopaedia Medica*. From these foundations Sir Harold Stiles built higher and higher, always with the same results—the saving of life, the relief of pain, and the advance of knowledge.

Sir William I. de C. Wheeler, President of the College, then formally admitted Sir Harold as an Honorary Fellow in the words quoted last week (p. 1107).

The Governor-General then, on behalf of the College and country, presented the new Honorary Fellow with the parchment. At the charter day dinner which, as already reported, followed the ceremony, the Governor-General paid a warm tribute to the work which had been done in the world of medical science by Dr. Mayo and his brother, and said that these two men alone had done for surgery in America what had been done nowhere else in the habitable globe. They were proud, too, of their distinguished guest from Edinburgh, a city to which Irishmen owed a great deal, both as regards medicine and surgery. He rejoiced that that great College had once more been able to assemble in jollity and good-fellowship, and was glad to think that their toast would have a speedy re-echo in the speedy prosperity of their beloved country.

The speeches made in connexion with the other toasts were reported last week.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—L. P. Garrod, B. Hart, *L. K. Htoe, *M. S. Mahmud, B. Teverson.
[illegible] Hicks, B. Teverson.
[illegible] Garrod, E. W. Hicks, J. A. H. Sykes, [illegible] L. P. Garrod, L. Statnigrosh, B. Teverson.

* Section II.

The diploma of the Society has been granted to Messrs. L. P. Garrod, B. Hart, E. W. Hicks, and B. Teverson.

The Services.

COMMISSIONS IN THE R.A.M.C.

THE War Office announces that an examination for not fewer than twenty commissions in the Royal Army Medical Corps will be held in London on August 1st next, and that those who intend to compete should lodge their applications with the Secretary of the War Office not later than July 20th. The presence of candidates will be required in London from July 30th. A full statement of the duties and emoluments of the service will be furnished to prospective candidates on written application to the Secretary (A.M.D.1), War Office, Whitehall, S.W.1.

FOREIGN DECORATIONS.

THE *following are among the decorations and medals awarded by* the Allied Powers to British Forces for distinguished service during the war 1914–19.

BY THE KING OF THE BELGIANS.

Croix de Guerre.—Brevet Colonel John T. Clarke, C.B., C.A.M.C., Major T. Morrison, C.A.M.C., Captain A. F. Menzies, M.C., C.A.M.C.

BY THE PRESIDENT OF THE FRENCH REPUBLIC.

Medaille de la Reconnaissance Française (En Argent).—Major Robert C. Hallowes, D.S.O., R.A.M.C.

Medaille des Epidémies (En Vermeil).—Major Jules Lafleur and Captain Joseph H. A. Paquette, No. 8 Canadian General Hospital, C.A.M.C. (*En Argent*).—Captains Clermont Bourget and Raoul Biault, No. 8 Canadian General Hospital, C.A.M.C.

DEATHS IN THE SERVICES.

LIEUT.-COLONEL THOMAS BOYD, R.A.M.C.(ret.), died at Ballina, co. Mayo, on March 31st, aged 71. He was born at Ballina, took the L.R.C.S.I. in 1874, and the L.R.C.P.I. in 1875, entered the army as surgeon on February 4th, 1877, became surgeon lieutenant-colonel after twenty years' service, and retired on February 24th, 1897. After his retirement he was employed for some time in medical charge of the dépôt at Armagh. He served in the Egyptian war of 1882, and was present at the battle of Tel-el-Kebir, receiving the medal with a clasp and the Khedive's bronze star; and in the Sudan in 1884–85, in the Nile expedition, when he was in charge of the field hospital at Absarat, and received a clasp to the Egyptian medal.

Medical News.

A MEMORIAL tablet to the late Dr. John Roberts Thomson, erected in the hall of the Royal Victoria Hospital, Bournemouth, was unveiled on June 26th. The Mayor of Bournemouth, before drawing aside the flag which covered the tablet, spoke of the devoted and self-sacrificing services which Dr. Roberts Thomson had rendered to the town and in particular to the hospitals. He said that no honorary freeman was regarded by the borough with more affectionate regard and the memory of no freeman was more highly revered. Dr. Roberts Thomson was president of the British Medical Association when it held its Annual Meeting at Bournemouth in 1891, and was chairman of the Central Council of the Association from 1899 to 1901.

THE annual meeting of the Medico-Psychological Association of Great Britain and Ireland will be held in London during the second week of July. Dr. Edwin Goodall, medical superintendent of the Cardiff Mental Hospital, will take the chair for the first time as president, and will give an address on the afternoon of Tuesday, July 10th, on "Considerations, bacteriological, toxicological, and haematological, and others therewith associated, bearing upon the psychoses." On the following day, July 11th, a discussion on the relation of chronic sepsis to the so-called functional mental disorders will be introduced by Dr. Henry A. Cotton, medical director, New Jersey State Hospital; in the afternoon a visit will be paid to the Bethlem Royal Hospital, and the annual dinner will take place in the evening. On the afternoon of July 12th a visit will be paid to the Maudsley Hospital. A number of papers will be read on each day of the meeting, which will close on Friday, July 13th.

A PRESIDENT'S gold chain and badge have been presented to the Royal Society of Tropical Medicine and Hygiene by the retiring president, Sir James Cantlie, who was one of its founders. The chain consists of a number of plaques held together by ornamental links. Each plaque bears, or will bear, the name of a former president. The centre link is formed by the initials of the donor surrounded by a laurel wreath. The badge shows a sketch of a mosquito on a shield, with the motto *Zonae torridae tutamen*. The incoming president, Sir Percy Bassett-Smith, K.C.B., F.R.C.P., F.R.C.S., was formally invested with the chain by the retiring president at the last meeting of the Society. The chain was designed and made by the Goldsmiths and Silversmiths Company, London.

THE issue of the *Journal of Tropical Medicine and Hygiene* for June 1st is devoted to tropical skin diseases. It contains papers from contributors in the Sudan, Siam, Calcutta, and the United States, as well as from workers in this country, and is well illustrated. The plates provided for the paper by Dr. Mendelson on the disease hitherto known as juxta-articular nodules, to which he proposes to apply the term "xanthoma tropicum," show conditions which at first glance suggest to the uninstructed either multiple bony lesions or malignant tumours. The nodules seem, in fact, to be fibromatous without any tendency to malignancy, though they may undergo fatty degeneration, and in old cases some calcification and amyloid change. The cause of the disease

CASE VI.

Matt. R., aged 32, complained of fetid purulent discharge from the nose confined to the left side, of four years' duration, accompanied by left frontal headache. Transillumination showed opacity of the left antrum, and Lichtwitz's puncture gave vent to a quantity of fetid pus. The middle turbinal was enlarged, and the anterior part of it removed so as to free the infundibulum and the orifice of the antrum. This was followed by relief to the headache, but repeated punctures showed no diminution of the amount of pus. Canfield's operation was performed, and in a few days the purulent discharge had completely disappeared. A small mass of granulations developed on the anterior margin of the opening, which interfered with the introduction of a cannula, but after this was removed there was no further difficulty.

CASE VII.

Mr. F. L. B., aged about 50, was the subject of a paper read by me at the Newcastle meeting of the Association, as a "case of suppuration in a subdivided maxillary antrum with 'nasal ganglion neurosis,' suggesting malignant disease: operation followed by recovery." In this case there was intense pain; the antrum was translucent on transillumination, and no pus was washed out by means of Lichtwitz's trocar and cannula. Canfield's method of operation was employed, and the anterior part of the cavity was found free from pus or new growth; there was, however, a vertical bony partition shutting off the posterior part of the cavity; this was broken through by means of a strong spoon, giving vent to a quantity of soft granulation-like tissue, bathed in pus; convalescence was retarded by a streptococcal infection which yielded to injections of antistreptococcal serum, and recovery was complete. The patient found no difficulty in washing out the antrum through the convenient opening afforded by this operation. Further details and skiagrams will be found in the *Journal of Laryngology and Otology* for February, 1922.

CASE VIII.

Nellie D., aged 25, who had suffered for a number of years from pulmonary trouble, with cough and profuse expectoration, was referred to me in May, 1921, on account of a purulent discharge from the left nasal cavity. I did not see her again till September, 1922, when an alveolar puncture was made and pus washed out. In February of the present year there was still fetid pus in the left antrum. Canfield's operation was at once performed. Some discharge still continued to flow, but this was found to come from the frontal sinus, and it disappeared after removal of the anterior part of the middle turbinal and the washing out of the frontal sinus with argyrol on three occasions. An accompanying headache on the left side disappeared, and the physician reported such great improvement in the chest conditions after the treatment of the antrum that further attendance on that account was unnecessary. The left antrum is now quite dry, and on transillumination quite translucent.

In this case, for the first time, I have made use of the notched osteotome, having experienced the tendency of the straight-edged chisel to slide off the sharp ridge of bone.

CASE IX.

Mrs. W., aged 55, was operated on through the nose a number of years ago, before the adoption of the Canfield method, on account of chronic suppuration in the left maxillary antrum. There was still a discharge of pus, and it was proposed to perform Canfield's operation on the antrum. In May, 1922, she developed suppurative inflammation in the right antrum with extreme pain and headache. In July I performed Canfield's operation; the pain disappeared at once, and the suppuration ceased in a few days; it has not returned, and the opening into the antrum is still patent.

CASE X.

Mr. J. W., aged 38, was operated on in 1912 by the old intranasal method for chronic empyema of both antra. The right one settled down completely, but the left one continued to discharge. I performed Canfield's operation, and at once the headache and mental depression from which the patient suffered disappeared completely. In this case the antrum contained a number of polypi. The discharge disappeared almost at once.

In this case the operation was facilitated by the use of the notched osteotome.

The enormous improvement in general health which follows this operation has certainly done so in other forms of radical procedure, but in none—in my own experience—has the improvement been so rapid.

I may mention that exception has been taken to this operation on account of the amount of bleeding, which was extremely troublesome in my earlier cases. Since the adoption of the methodical cocaine-adrenaline preparation insisted on by my friend Mr. Clayton Fox, and the "decided" insertion of the gauze strip on the facial surface of the bone, this has become quite insignificant.

Though this may be considered a rhinologist's operation, I venture to think that the details I have here given will place it within the scope of others. Its efficacy may well be tested in cases in which the more usual methods have failed to give complete satisfaction, and I have every confidence as to the result.

BUTYN AS A LOCAL ANAESTHETIC IN NOSE AND THROAT PRACTICE.

BY

WILLIAM HILL, M.D., B.Sc.,

Consulting Surgeon for Diseases of the Throat, Nose, and Ear to St. Mary's Hospital, and Endoscopic Surgeon to the Metropolitan Ear and Throat Hospital.

ALTHOUGH the alkaloid cocaine was isolated from the leaves of the coca plant so far back as 1860, it is only during the last forty years that it has been generally used as a local anaesthetic in the form of its most soluble salt, the hydrochloride. In the early days of its employment serious toxic and even fatal effects were occasionally reported, and this soon led to efforts to discover any equally efficient local anaesthetic substance considerably less toxic than cocaine and free from those exhilarating properties which have resulted in its becoming a drug of addiction; thus during the final decade of the last century the synthetic alkaloidal substances eucaine, stovaine, and orthoform were brought out, to be followed early in the present century by anaesthesine and novocain, to mention only some of the more widely employed local anaesthetics.

These agents, however, whether on account of their salts being sparingly soluble in water or of their transitory effects, failed to displace cocaine entirely. The hydrochlorides of eucaine, novocain, and stovaine proved reliable anaesthetics for infiltration anaesthesia by injection in weak solution, and comparatively free from toxic effects, and they have supplanted cocaine in this method of local anaesthesia. Again, the very sparingly soluble powders, orthoform and anaesthesine—both benzoates—have proved useful local anaesthetics for insufflating on to ulcerated surfaces in cancer and tuberculosis of the throat.

For the production of local anaesthesia by surface application to mucous membranes as a preliminary to surgical procedures none of the above substances, however, proved really efficient, and cocaine hydrochloride remained not only pre-eminent but the only possible local surface anaesthetic for surgical requirements in the nose, throat, and elsewhere.

With the full recognition that caution must be used in the employment of much cocaine for surface anaesthesia and that toxic effects occur in certain susceptible individuals, they are occurrences of extreme rarity and fatal results have apparently been conspicuous by their absence in recent years. Cocaine having been superseded in infiltration anaesthesia by substances far less toxic and equally efficient, it may be confidently expected that it will one day be supplanted as a mucous surface anaesthetic by the discovery of a substance which is equally efficient but far less generally toxic, having no such special toxic effects to which a small number of individuals are keenly susceptible and possessing no properties likely to lead to its becoming a drug of addiction.

As the result of prolonged experiments, the expert staff of the Abbott Laboratories of Chicago, working in collaboration with Professors Adams and Kamm of the University of Illinois, have produced a synthetic substance—butyn—which is readily soluble, and which, it is claimed, fulfils most of the requirements of a safe and efficient cocaine substitute.

Butyn is not a cocaine derivative, and there are therefore no restrictions as to its purchase, but, like the other local anaesthetics mentioned above, it is chemically *related* to cocaine, as will be seen from the following table.

Ethyl series:

(1) Novocain = Para-amino-benzoyl-di-ethyl-amino-ethanol hydrochloride.
(2) Anaesthesine = Para-amino-benzoic-ethyl-ester.

Methyl series:

(3) Cocaine = Methyl-benzoyl-ecgonine.
(4) Eucaine = Trimethyl-benzoxy-piperidin hydrochloride.
(5) Orthoform = Methyl-amino-oxy-benzoate.

Butyl series:

(6) Butyn = Para-amino-benzoyl-gamma-di-n-butyl-amino propanol sulphate.

A committee appointed by the American Medical Association reported early in 1922 very favourably on butyn, as the result of extensive investigations of its clinical employment, more especially in eye work. Beaumont of Bath con-

British Medical Journal.

SATURDAY, NOVEMBER 10TH, 1923.

THE INSURANCE CRISIS.

The executive bodies of Approved Societies have sent to the Minister of Health a long "statement of the Societies' case against the proposal to appropriate towards the remuneration of panel doctors for the present type of medical service sums contributed by the insured population and their employers for other benefits." This quotation from the preamble to the statement itself embodies an untruth, and the statement contains several assertions which can be similarly characterized, as well as a larger number of others which seem to be deliberate suggestions of what is false. It is unnecessary to traverse them all. The Societies' letter is too long and involved to be read by those who are not directly interested; those who wish to believe what it contains will no doubt do so in any circumstances; those who know the facts will detect the misstatements with relative ease. In general the statement shows not only a complete misapprehension of the work of the medical profession, and of the contentions of insurance practitioners in the present controversy, but also a failure to appreciate the very elements of what an insurance scheme implies—a matter the writers might be expected to have studied before setting out to instruct the Minister and the public. To take only two examples: the Societies contend that because drugs were not prescribed on the occasion of every attendance on a patient all the other attendances were not "essential" and therefore ought not to be "taken into account"; and that it is improper, if not illegal or immoral, for doctors to receive any insurance credits for insured persons who are not ill or who do not consult them when they are ill. It is strange that contentions so absurd should be put forward in a document evidently intended to be taken seriously.

The letter of the Societies makes abundantly clear how necessary it was to obtain from the Minister the declaration which is placed in the forefront of his new offer (printed in last week's Supplement, p. 209); and how great will be the gain to the profession if it is put effectively into practice, as it must be assumed will happen if the profession accepts one or other of the Minister's alternatives. The Societies explicitly claim that additional benefits take priority of the full payment for medical attendance and treatment determined on its merits if this should be more than a certain sum. It may be pointed out that the Act of 1911 does allow additional benefits in certain circumstances to be substituted for sickness and disablement benefit, but in no circumstances does it allow medical benefit to be touched. The Societies describe the contention (accepted by the Minister) that medical attendance and treatment should first be provided for as an "astounding proposition." The framers of the Act evidently regarded it as axiomatic, and no doubt the public generally, as well as the insured persons, will agree. Societies would soon become aware of it if insured persons were allowed to claim sickness benefit apart from medical treatment.

Again, the Societies dispute the allegation that they desire to dominate the insurance practitioners or the insurance service. They merely "take an interest in the fees paid to doctors"—an interest so keen that they dispute the right of the Minister to negotiate with the profession for its services to the community without their intervention, or his right to offer one penny beyond what they are pleased to approve. If the medical profession did not combat this to the utmost, "interest" and "domination" would have to be accepted as synonymous terms. Let it be admitted at once that the Societies have an absolute right to be heard as to the "source whence the money is to be derived." They have a vital concern in the National Health Insurance Fund. This the profession has never disputed, but it carries with it no right to be a party to determining, on its merits, what insurance practitioners ought to be paid for their services. The Societies' letter concludes by expressing "their determination to resist to the utmost the unjust demand of the British Medical Association that the insured persons' funds should be raided." Neither the Association nor anyone else authorized by the profession has made any such demand. Nor has the Association ever contended, as the letter alleges, "that there are other National Health Insurance Funds from which money can be found." This, like other such statements, is a myth. The contention of the Insurance Acts Committee is that, on the merits of the case, there is no justification for reducing the present capitation fee; and its belief is that the present state of the Fund in the aggregate would allow this fee to be met from that source without danger to other interests. The Committee has been led to this belief by an investigation by its own experts; it has been confirmed therein by the fact that two of the signatories to the Societies' letter have themselves signed the following statement: "We have satisfied ourselves that the National Health Insurance Fund in the aggregate contains sufficient money to meet the cost without lowering or endangering the revision of the other benefits (whether normal or additional) to which insured persons are entitled," and by the further fact that an identical conclusion has been accepted, after investigation, by the Trades Union Congress General Council and the National Executive of the Labour Party.

These matters of insurance finance, of Approved Society administration, and of the granting of additional benefits will, amongst others, be the subject of inquiry by the Royal Commission which the Minister of Health has promised. We understand that attention was immediately drawn to the Prime Minister's statement at Swansea on October 30th, "that the Royal Commission would examine especially the question of medical benefit," and that no such limitation of the inquiry is in fact contemplated. It will, on the contrary, be the full inquiry that the Insurance Acts Committee has asked for. The Minister of Health has informed the Committee that a Royal Commission will be set up to investigate and report on the whole system established under the National Health Insurance Acts, including medical benefit and the remuneration of practitioners, and has promised that the terms of reference to this Commission will be agreed with the profession. In his speech at Manchester on November 2nd the Prime Minister indicated that the Government also proposed "to examine and co-ordinate and improve the existing schemes of insurance, and adjust those evils that

tributed a paper to the British Medical Journal in January of this year confirming from his own eye practice the favourable impressions received from America. Bulson and others in the United States have also used butyn extensively in nose and throat practice, as a surface anaesthetic, with fairly good results.

The claims made for butyn are as follows:

1. It is a powerful local anaesthetic, being about twice as potent as cocaine, so that a 5 per cent. solution of butyn suffices in nasal surgery, for example, where a 10 per cent. solution of cocaine hydrochloride would be necessary.
2. Butyn acts more quickly than cocaine and its effect lasts longer. This I can confirm, but it is only an advantage amounting to a very few minutes, and it is of little practical importance.
3. It is less toxic than cocaine; possibly only half as toxic dose for dose, and as only half the quantity of the drug is necessary its toxicity in practice is still further reduced. The point of real practical importance is that although butyn has been employed many thousands of times in America, more especially by ophthalmologists, no record of any serious toxic complications appear to have been reported up to now.
4. It has no ischaemic effect when applied to mucous surfaces. This may be an advantage in eye work, but, as will be pointed out later, is a decided disadvantage in nasal practice.
5. It can be boiled without impairing its anaesthetic potency, and it does not deteriorate on keeping, as does cocaine.
6. It gives rise to no exhilarating and pleasing effects, and is therefore not likely to excite craving and become a drug of addiction.

I find the *disadvantages* of butyn are as follows:

1. On the appearance of Mr. Beaumont's paper more than six months ago I purchased some butyn, and was at once confronted with one of the drawbacks to the employment of this drug, as the price was 6s. a gram in powder and 6s. 6d. in tablet form; that is to say, the cost is at present five times that of cocaine, and even taking into consideration the fact that a gram of butyn goes as far as two grams of cocaine hydrochloride, butyn is two and a half times as expensive to employ at the present time.
2. Cocaine hydrochloride is a very reliable surface anaesthetic for mucous surfaces, although inflamed surfaces require a longer application and may demand an increased percentage solution; on the other hand, *butyn is not uniformly reliable*. It was not until my seventeenth observation with butyn that I found it quite failed, in spite of renewed applications in that case, to render the mucosa of the septum sufficiently insensitive to tolerate the galvano-cautery. Beaumont made no mention of this occasional failure of butyn to anaesthetize. There is a French aphorism which advises that in the case of a new remedy we should hurry up and employ it whilst it continues to act. On referring to Bulson's report I find that others have noticed that certain individuals, not a large number probably, have failed to respond to butyn. I have had to resort to cocaine in addition on at least four occasions during the last six months, which represents about a 5 per cent. failure in my nasal series. This is to my mind a serious drawback, and in marked contrast to the reliability of cocaine hydrochloride.
3. The most disadvantageous characteristic of butyn as far as the rhinologist is concerned is that it not merely fails to produce ischaemia of the mucosal vessels and general shrinking, but that it has a tendency to bring about hyperaemia and tumefaction. In many rhinal procedures, whether for examining or other purposes, reduction of tumefaction of the mucosa is as essential as anaesthetization. It is recommended that an ischaemic effect can readily be obtained by adding adrenaline, or some similar suprarenal product to the butyn solution. No rhinologist, however, needs to be reminded that adrenaline has in many individuals, and especially in inflammatory conditions in the nose, an extremely irritating action, sometimes causing an intense coryza most distressing to the patient and lasting two or three days Since I have been testing the effects of butyn reinforced by adrenaline solution I have produced such a distressing coryza on several occasions. For operation under local anaesthesia on the sinuses and on the septum and for the removal of polypi this complication cannot be provided against by using cocaine hydrochloride instead of butyn, because for haemostatic purposes we are accustomed to reinforce the ischaemic effect of cocaine by the addition of adrenaline, and as large surfaces have to be anaesthetized in the above-named procedures we have here a useful field for the employment of butyn instead of cocaine hydrochloride so as to minimize the chance of toxic effects occasionally incidental to exhibiting a considerable quantity of 10 per cent. solution of cocaine hydrochloride. It has been already pointed out, however, that marked toxic effects following the use of fairly large amounts of cocaine hydrochloride solution up to 10 per cent. potency are of extreme rarity, and that such a complication depends far more on intolerance to cocaine in exceptional individuals than on the actual amount of cocaine applied to mucous surfaces and liable to be absorbed. In vasomotor rhinitis and in the rhinitis of influenza and similar acute and subacute conditions where the ostia of the sinuses are liable to become blocked and where application of weak solutions of cocaine hydrochloride often affords an immense amount of relief by anaesthesia and ischaemia, adrenal preparations are contraindicated *on account of the irritation and hyperaesthesia* being thereby intensified, so that for these conditions butyn finds no useful field of employment.

In my rhinal practice the application of butyn solutions has recently been almost entirely restricted to galvano-cautery applications to the septum and to the inferior turbinals, but even here, except in individuals who are proved to be especially susceptible to cocaine, it is doubtful if anything worth mentioning is gained by using this expensive agent.

What has been said in reference to the shortcomings and restricted field of usefulness of butyn in the nose applies in a somewhat lesser degree to the pharynx and larynx, which are not so susceptible to irritation by adrenaline. I have on two occasions failed to get sufficiently good anaesthesia with butyn to carry out with comfort to the patient galvano-cautery to the base of the tongue for the relief of paraesthesia. My use of butyn in the throat has not been very extensive owing to my increasing loss of confidence in the drug on account of its occasionally proving unreliable.

In conclusion I must record my opinion that butyn cannot claim to be a reliable and efficient all-round substitute for cocaine in nose and throat practice, but it is a useful alternative in a few conditions, more especially where cocaine is contraindicated.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HYDROCEPHALUS FOLLOWING SPINA BIFIDA.

A twin, aged five weeks, was admitted to the General Infirmary, Leeds, with a large thin-walled meningocele in the lumbar region. Both legs were paralysed, the one quite flaccid, the other showing some resistance to movement. There was a suspicion of condylomata in the anal region, and the facies suggested a syphilitic taint, but the family history was good, and the other twin to all appearance healthy.

At operation it was found that all the lumbar laminae were wanting, and that the cord was lying on the posterior surfaces of the vertebral bodies. The sac was excised. In the belief that spina bifida is a symptom and not simply a congenital defect, I threaded silkworm sutures from the subdural space into the erector spinae muscles, hoping that thereby the cerebro-spinal fluid would drain off into the muscular spaces. The wound was then closed, but remained unhealed for about two weeks, during which time it discharged cerebro-spinal fluid copiously.

Rapid healing now began, and after three days hydrocephalus developed. As the condition was causing great pain, it was decided to drain the lateral ventricle. I made a curved incision over the parietal bone about one inch above the external auditory meatus. A portion of the bone was removed with scissors, and a crucial incision into the dura made. The brain, thus exposed, was unduly moist. A bundle of short silkworm sutures were thrust into the ventricle, and a large amount of cerebro-spinal fluid welled up. The bundle was secured to the cerebral surface of the dura mater, and the skin drawn together with silkworm sutures. The cranial bones at first moved curiously on each other, but twelve hours later the skull had consolidated. The operation apparently gave relief from the pain, and there was no return of the hydrocephalus during the three weeks following. The spina bifida wound remained closed. One week after discharge the child died. No particulars were obtainable.

The rapid development of hydrocephalus following the healing of the spina bifida wound is a strong argument in favour of the theory advanced by Mr. John Frazer and others, that spina bifida should not be regarded as a purely local defect, but as the sign—in the cord—of increased pressure of the cerebro-spinal fluid. The cause of this increased pressure is probably some interference with its outflow, possibly by adhesions.

My thanks are due to Mr. L. R. Braithwaite for permission to operate on this case, and to publish this account.

A. P. Birtwistle, M.B., Ch.B.,
Late Resident Surgical Officer,
Leeds General Infirmary

affect the life and health of the people, such as old age and ill-health and unemployment."

There is therefore great danger of confusion, and the Government will have to consider carefully the relationship between the two inquiries which appear to be contemplated. An almost unending vista of chaotic and overlapping material is presented to us in the Prime Minister's speech at Manchester, and it is difficult to see how all the subjects he enumerated can be combined without overloading even a Royal Commission and postponing any report to an indefinitely remote future. One thing is at any rate imperative. In view of a possible early general election the Royal Commission with the reference indicated by the Minister of Health, sufficiently wide yet clearly defined, must be set up at once, or the promise which is part of the Minister's offer will be in serious danger of never being kept. This would be fair neither to the Minister nor to the medical profession.

At its meeting on November 7th the Insurance Acts Committee resolved to advise the Conference of representatives of Local Medical and Panel Committees on Wednesday next, November 14th, to accept the Minister's offer, and decided by a majority to recommend acceptance of "alternative *b*"—the proposal to set up an immediate Court of Inquiry to determine the appropriate capitation fee for 1924.

LETHARGIC ENCEPHALITIS AND HERPES FEBRILIS.

THE researches carried out in recent years on the nature of the infective agent causing lethargic encephalitis have shown that the filtrable virus obtained from lesions in man, when introduced into susceptible animals, becomes localized in the central nervous system, travelling to it along the nerve trunks, but that the blood and internal organs, with the exception of the liver, do not contain it. Researches on herpes febrilis (or labialis) have shown that the vesicles contain a filtrable virus, infectious to the rabbit, and in a lesser degree to the guinea-pig and mouse. When the virus is scratched into the cornea a lesion is produced which can be transferred from rabbit to rabbit, but no visible micro-organisms have been found in the discharge from the conjunctival sac. Nevertheless the diluted filtered discharge, when inoculated into the brain of a rabbit, produces all the symptoms of lethargic encephalitis and leads invariably to the death of the animal. Consequently it is held that the virus of encephalitis lethargica and that of herpes febrilis are closely related if not identical.

There are other infections in man and animals related to herpes febrilis and encephalitis lethargica the causal agents of which are unknown. Thus certain clinical observations appear to indicate that epidemic chicken-pox may originate from a case of herpes febrilis, and certain experiments prove that the cornea of a rabbit may be infected by the contents of the chicken-pox vesicles. Levaditi thinks that the virus of mumps may be closely related to that of lethargic encephalitis, and certain infections of animals, including foot-and-mouth disease, are believed to belong to the same category. Szymanowski and Zylberlast-Zand,[1] working at Warsaw, have made a special study of the symptoms and pathological lesions in encephalitis herpetica and encephalitis lethargica. They obtained the material for the former experiments from a patient suffering from herpes and transferred it to the cornea of rabbits, all the experiments yielding positive results. The course of the disease was either acute or chronic, and inoculation of the same material subdurally caused cerebral changes manifested clinically by a series of nervous symptoms, such as unnatural positions of the head, stereotyped circus movements of the body, profuse salivation, stiffness of the jaw, and paresis. *Post-mortem* examination of the brain revealed pathological changes identical with those due to lethargic encephalitis. In studying lethargic encephalitis they employed as infective material cerebro-spinal fluid and discharge from the nasopharynx of patients suffering from lethargic encephalitis, and emulsions of the brains of patients dead of this disease. The infective material was introduced into the eye and under the dura mater of the brain or spinal cord; fifty-five inoculations gave eighteen positive results. They proceeded to inoculate healthy rabbits with brain emulsions of rabbits infected with lethargic encephalitis, but here met with difficulties, since a secondary infection destroyed a large number of the animals. They found it much more difficult to infect rabbits with material taken from other infected rabbits than with material from human cases. Still, in the positive cases the clinical symptoms of infection by lethargic encephalitis were identical with those of herpetic infection, though the local changes in the eyes were more intense in herpetic infections. The pathological changes are, they say, identical in both infections. In the acute form of the disease there was a well marked infiltration of the pia mater all over the brain; in some places the blood vessels showed perivascular infiltration, and in the brain tissue, principally in the region of the lenticular and caudate nuclei, there were foci of cellular infiltration, consisting of mononuclear elements (large mononuclears and lymphocytes). The mononuclear infiltration was a constant feature, even in the most acute cases that proved fatal in two days. In the chronic cases there was much less small cell infiltration than in the acute, but more proliferation of the connective tissue in the meninges, and polyblasts and plasma cells were found in the nervous tissues. The reason why animals infected with the virus of herpes or lethargic encephalitis so often develop circus movements and disturbances of static position has not received a satisfactory explanation. It may be that in animals the virus has a selective affinity for the vestibular nerve as it has for the oculo-motor nuclei in man, or there may be a special arrangement of the blood vessels or some peculiar biochemical properties of these nuclei.

In all the animals infected with either virus inflammatory changes were found in the liver, consisting of a mononuclear infiltration round the small bile ducts; the inflammatory cells often penetrated between the epithelial cells, which were occasionally much proliferated. The liver was congested, and the cells around the blood vessels were often destroyed. These authors believe that both the liver and brain are affected simultaneously.

There are many characters common to the infection of man and animals with these viruses; the infiltration consists of mononuclear cells in both, its localization in the basal ganglia is also similar, and degenerative changes in the cerebellum occur in man as well as in the rabbit. The meninges, however, react differently, since in man their affection plays an important part in the pathological picture. This, and also the involvement of the liver, are arguments against Levaditi's hypothesis of a special affinity for tissues of ectodermal origin.

[1] *Brain*, May, 1923, pp. 53-97.

A SPORADIC CASE OF MYOCLONUS MULTIPLEX.

THE following notes on a man who was stated to have delusions and hallucinations may be of interest.

J. W., aged 56, was admitted to the Littlemore Mental Hospital on September 20th. On admission he was in a condition of stupor. The temperature, pulse, and respirations were normal and remained so throughout the course of the disease. Marked myosis and the Argyll Robertson pupil were present. The consensual and sympathetic reflexes were absent. The biceps and triceps reflexes were absent. The abdominal reflexes were brisk. The abdominal wall was rigid and hyperaesthetic. The knee-jerks and ankle-jerks were absent. Indefinite Babinski and Oppenheimer signs elicited on the right side; on the left the plantar reflex was normal. Both protopathic and epicritic sensibility were increased in both legs, and more especially in the right foot. Myokymia and myotatic irritability were well marked.

Convulsive attacks of a myoclonic type occurred on the second day. The muscular contractions started in the legs or abdominal wall, and soon became generalized. They were regular, rhythmical, and forcible, and occurred at the rate of thirty to forty a minute. Each seizure lasted from three to four minutes. The left pupil now dilated slightly and reacted sluggishly to light. Signs of a transient meningismus now appeared—slight head retraction and Kernig's sign, the latter being more definite on the right.

A fortnight after admission the stupor was less profound and the patient answered questions with a feeble stammer. The pupils were of normal size and reacted to light and accommodation. The meningismus and myoclonus had passed off. The abdominal reflex was now absent on the right side, and the Babinski and Oppenheimer signs were quite definite. There was slight frontal headache. The white cell count was 8,756 per c.mm. A differential count showed a slight relative increase of the polynuclear type. The cerebro-spinal fluid was clear and under normal pressure. A cell count of the centrifuged deposit showed two mononuclear cells per cubic millimetre.

The Lange colloidal gold reaction was negative, as was the Ross-Jones test for globulin. Twenty-four-hour cultures at 37° C. were made from the centrifuged deposit on blood serum and agar with negative results.

The patient is under treatment by intestinal antiseptics and full doses of hexamine and appears to be gradually improving.

Littlemore, Oxford. J. CAMPBELL RAMSAY, M.B., B.Ch.

FACIAL PARALYSIS FOLLOWING HERPES FACIALIS.

I DESIRE to record a case of facial paralysis following herpes similar to the case of herpes zoster with muscular paralysis reported in the BRITISH MEDICAL JOURNAL of June 9th, 1923 (p. 970).

A. L. R., sanitary inspector, Bengali, Hindu, aged 33, went on duty on a long and arduous bicycle journey on March 28th, 1922, when he received a severe wetting. On his return at night to headquarters he had headache with slight fever (100° F.), for which he took 10 grains of quinine and 5 grains of aspirin.

On the following day an attack of herpes facialis developed, affecting the pinna and external meatus of the left ear, together with the skin in the neighbourhood of the mastoid eminence.

On April 3rd, on awaking in the morning, he felt giddy and subsequently noticed that his face was drawn to one side. On medical examination it was found that he was suffering from well marked facial paralysis. He was unable to shut his left eye, to whistle, or to chew food properly. His sense of taste was also defective, as well as his sense of hearing on the affected side. These symptoms were accompanied by vertigo with a tendency to fall to the left, which in the event proved to be so severe and persistent as to incapacitate him from work for over five months. There was also a very considerable degree of sleepiness and mental hebetude, and a sense of general physical weakness.

Slight facial paralysis still persists after more than one year's convalescence, with some impairment of former mental acuity. A feeling of vertigo and pain in the left parietal region is also experienced on exertion, especially after cycling.

The sleepiness and mental dullness noticed in this case are particularly interesting in view of the close relationship stated by French investigators to exist between the virus of herpes and that of encephalitis lethargica.

Asansol, Bengal. J. W. TOMB, M.D., D.P.H.

Reports of Societies.

SPINAL ANALGESIA.

AT a meeting of the Section of Anaesthetics of the Royal Society of Medicine held on November 2nd, with the President, Dr. A. L. FLEMMING, in the chair, Dr. HENRY FEATHERSTONE communicated a critical report on 100 cases of spinal analgesia with tropacocaine. The paper dealt with the selection of cases, the administration of the drug, the condition of the patient, the local effects of the drug at operation, and the ultimate progress.

Discussing the selection of cases, he said he had never been wholly convinced that spinal analgesia, where its employment was permissible, was as satisfactory as general anaesthesia, owing to mental distress on the part of the patient and lack of his co-operation, the possible failure to insert the needle, especially in the obese and in the deformed, the possible deterioration of the drug, the limitation of the time available for operation, and the added strain on all the theatre workers. The series included cases suffering from prolonged or severe trauma 26, toxaemia or shock from intestinal obstruction, etc., 6, acute shock from trauma 2, lung affections 15, affections of air passages 6, pre-operative exposure to infectious colds 3, obstruction of larynx by enlarged thyroid 2, tuberculosis 5, heart disease 6, venous thrombosis of thigh and pelvis 1, albuminuria 2, diabetes 2, eclampsia 2, senility 3, enfeebled general condition 2, Caesarean section 12, uterine haemorrhage 1, objection to general anaesthesia 7.

In regard to results, one patient with crushed lower limbs died and the other recovered, but this type of anaesthesia was rarely employed for such cases owing to the dangers of a falling blood pressure. Pneumonia developed in 2 cases with respiratory affections and both recovered, but these served to show the importance of blood loss and abdominal shock in determining the onset of pneumonia, for both cases had lost much blood. In 6 cases of grave prognosis owing to prolonged intestinal obstruction, strangulation of bowel, and intra-abdominal sepsis, no harm was done by the injection, but shock was not eliminated, especially in the upper abdominal cases. The 5 tuberculous cases all did well, as also did the 6 cardiac cases. The drug gave an excellent result in the case of thrombosis of the pelvic and thigh veins, as the risk of post-operative movement was minimized thereby. The toxaemic cases, albuminuria, diabetes, etc., showed excellent results, and emphasized the importance of a non-toxic method of treatment. The senile cases also were satisfactory, as were the cases in which a general anaesthetic was refused.

Discussing administration, Dr. Featherstone said he preferred to have the patient on his side for the injection, especially as the sitting posture was often contraindicated in these cases. He used a 5 per cent. solution of tropacocaine in normal saline, and varied the dose with the dimensions of the vertebral canal, the level of the anaesthesia required, and the duration of the operation—for example, a big man to be operated upon for an hour below the umbilicus would require 2.5 c.cm., whereas a boy of 8 years, if given 1.5 c.cm. would have high anaesthesia for one and a half hours. The ethyl chloride spray dulled skin sensation sufficiently for incision, and was preferable to nitrous oxide, which caused rigidity of the erector spinae muscles, with consequent difficulty in finding the intravertebral space. The cerebro-spinal fluid must enter the barrel of the syringe before injection, or some of the drug would be lost in the epidural space; the injection should be made through the second lumbar space. There were three causes of the extension of the analgesic area upwards: (1) the drawing off of a considerable quantity of cerebro-spinal fluid, (2) inclining the body with the head downwards, and (3) rapid injection of the drug. In the present series, with a minimal release of cerebro-spinal fluid, 3.5 per cent. of patients developed headaches, whereas with a greater release 78 per cent. complained of this after-effect. Where combined anaesthesia was employed no headache was complained of. The author also cautioned his hearers against the too free mixing of the drug in the syringe with the cerebro-spinal fluid before injection, as in one case where he had done this vomiting, acetone in the breath and urine, and shock lasting for two days resulted. He suggested that the diffusion and dilution of the drug led to more rapid absorption and hepatic shock. Sudden movement caused a more rapid fall in the blood pressure than did gentle movement, but if the patient were gradually lowered analgesia up to the sixth dorsal vertebra could be obtained without discomfort. In the flat position this would extend only up to the umbilicus. Seven deaths occurred among the series, but none died on the table and only

THE SEMON LECTURE.

THE Semon Lecture of the University of London, delivered by Dr. Logan Turner of Edinburgh on November 1st, brought together a large audience, including many oto-laryngologists from the metropolis and beyond it. An abstract is published in this issue (p. 885), and the full text will, we understand, appear in the *Journal of Laryngology*. In the evening Sir StClair Thomson held a reception of the members of the two Sections of Otology and Laryngology of the Royal Society of Medicine, and, to meet them, he had extended invitations to the Presidents of the Royal Colleges and the Royal Society of Medicine, to the Vice-Chancellor of the University of London, and to others interested in the sister departments of practice. It was attended by many guests and a large contingent of provincial members, who remained on in London for the meeting of the Section of Laryngology the following day and the Section of Otology two days later. The meeting room of the Royal Society of Medicine was completely filled at these gatherings, and the extra-metropolitan members expressed warm appreciation of the arrangements made to enable them to attend three such interesting gatherings during one visit to London. The cultivation of the social side of the work of these two Sections also helps to explain their activity, and the existence of a most admirable *camaraderie*. The Central Throat Hospital held its annual dinner under the chairmanship of Dr. Dan McKenzie on one of the evenings mentioned, and the Presidents of the two Sections (Dr. Banks-Davis and Mr. Sydney Scott) entertained their councils, the Semon orator, and Professor Burger of Amsterdam. The latter is an honorary member of the Section of Laryngology, and well known here as permanent secretary of the International Congresses of Medicine. He largely helped in the success of the last, that held in London in 1913.

INCIDENCE AND CAUSE OF HERNIA.

SIR ARTHUR KEITH devoted the Banks Memorial Lecture, which he gave before the University of Liverpool last week (as noted elsewhere), to the subject of the origin and nature of hernial formation. The full text of the lecture will, we understand, be published in the *British Journal of Surgery*, and we will confine ourselves here to a short account of its general argument. The lecturer began by dealing with the incidence of hernia, and observed that a great deal had been learnt about it through the very large number of physical examinations of men made during the severe recruiting for the war. Such examinations revealed the fact that among males of 18 to 41 in the South of Scotland, 36 per 1,000 suffered from hernia. In various parts of England the ratio was 10 per 1,000, and in the neighbourhood of Manchester and Stockport it was 50. Taking males at all stages of life he thought it probable that about 20 per 1,000 would be found to be suffering from hernia, but that in females, excluding pelvic protrusions, the ratio was 3 to 4 per 1,000 only. He alluded to the work of Rushton Parker, who, after the introduction of Listerian methods, was a pioneer in performing the operation for radical cure. The two theories of the cause of hernia held by various surgeons were then discussed. The one school considered that developmental defect was the prime cause, and held that no rupture occurred unless there was a preformed sac into which the protrusion could take place. The other school, to which Banks belonged, maintained that the protrusions and simultaneous formation of peritoneal pockets or sacs might be formed either before or after birth. The cases with which the surgeon was confronted in adult life were protrusions into sacs formed at the same period that the hernia developed. Sir Arthur Keith then dealt in detail with the descent of the testicle into the scrotum, and compared it to a severe operation that in some cases left the muscular abdominal wall weak. That other mammals did not suffer to anything like the same extent as the human infant was due to the much more efficient muscular arrangement in them than in the baby's groin. He thought that the efficient working of the muscular guard of the breach in the groin depended on the state of the bowels and other conditions over which medical men could exercise control. Before attributing to imperfect evolution a baby's liability to hernia, it would be well to explore first the possible mistakes we might be making in our nursing and treatment of infants. In adult life sudden muscular effort unmasked a latent hernia. Unfortunately we had no facts to guide us in deciding how far special occupations, involving particular movements and abnormal positions of the body, might influence the production of latent hernia. Further and exact observations were urgently wanted to elucidate the causes and conditions of what might be termed vocational ruptures.

FUMIGATION BY HYDROGEN CYANIDE.

FUMIGATION by hydrogen cyanide for the destruction of rats and insects was discussed a short time ago (September 22nd, p. 527) in a review of an article by Colonel Glen Liston, I.M.S., and we then described some of the precautions which are of importance. The Ministry of Health has now issued a preliminary report on the subject,[1] with a prefatory note by Sir George Newman, who explains that the investigations described were commenced under the supervision of Dr. Richard J. Reece, the senior medical officer of the branch of the Ministry's Medical Department which is concerned with port sanitary administration, and that the inquiries were made by Dr. P. G. Stock, one of the Ministry's medical officers, in association with Dr. G. W. Monier-Williams, one of the Ministry's chemical experts, who during the war had been specially engaged in the anti-gas section of the British Army in France. Dr. Reece and Dr. Stock visited the United States to study the method of cyanide fumigation employed in the ports of that country, and Dr. Stock also made inquiries on the subject in Holland and other European countries. The present preliminary report has been prepared by Drs. Stock and Monier-Williams "in order that the knowledge and experience so far acquired concerning hydrogen cyanide might be available to all who are directly or indirectly concerned with the use of the gas as a fumigant. The scientific and practical results and conclusions it contains appear to be entirely confirmatory of those which led Dr. Grubbs in the United States and Colonel Glen Liston in India to design cyanide fumigators which would minimize the dangers inherent in the so-called "dumping process." It seems clear that, whatever precautionary rules and regulations may be made, safety to the lives of persons engaged in cyanide fumigation on board ship cannot be ensured except by using a fumigating machine scientifically designed with full knowledge of the difficulties and dangers to be overcome. The advantages of hydrogen cyanide gas, the methods of generating it, its properties, the chemical and other tests of its presence, the fumigation and subsequent ventilation of a ship, the accidents that have happened and the precautions that ought to be observed, are all dealt with in the report, which is illustrated with diagrams and photographs, and includes prints of the Johannesburg by-laws regarding the trade of disinfection by cyanide, of a circular to masters and agents of vessels

[1] Ministry of Health Reports on Public Health and Medical Subjects. No. 19. "Preliminary Report on the use of Hydrogen Cyanide for Fumigation Purposes." By P. G. Stock, C.B., C.B.E., M.B., and G. W. Monier-Williams, O.B.E., M.C., M.A., Ph.D., F.I.C. Published by H.M. Stationery Office. 1923. Price 2s. 6d. net.

one immediately after operation; the highest mortality occurred amongst the high abdominal cases. As a rule Dr. Featherstone gave gas and oxygen when the effects of the drug were beginning to wear off, and in cases where the Trendelenburg position was needed. Occasionally a little ether might have to be added.

In regard to the site of operation, those needed above the colon were best carried out under general anaesthesia. Patients with adhesions of the small intestine showed more distress than those in whom such adhesions were absent. Pulling on the intestines might cause vomiting and even pain, though the patient was usually unable to localize this. Stimulation of the diaphragm caused distress unless the cervical cord was anaesthetized. The action of the lumbar analgesia on the pregnant uterus was of great interest. There was tonic contraction of the body and cervix, though the circular fibres alone seemed to take part in this. Pain was absent and loss of blood slight. The progress of the foetus downwards was slow until the drug began to wear off and the longitudinal fibres started to contract. Then the child could be readily and painlessly expressed, and if necessary the placenta also. The pain sensation was the last to be recovered. On the other hand, dilatation of the non-pregnant uterus became increasingly difficult, as the cervix tended to contract after each instrument was passed.

The drug caused a fall of blood pressure; the minimal fall recorded by the author was 15 mm., the maximal 70 mm., but this last was probably due to the table being tilted too quickly. Post-operative treatment consisted in keeping the bed horizontal, with the patient's head on pillows, and the legs well raised. Immediate untoward after-effects were extremely rare. Remote after-effects showed headache in 40 per cent., and giddiness in the enfeebled cases. Of the 40 cases with headache 39 were women.

The author's conclusions were as follows: (1) Patients suffering from diseases of lungs, heart, kidneys, chronic toxaemia and diseases of metabolism may well be treated by intrathecal methods. (2) The presence of acute traumatic shock is a contraindication. (3) The method does not prevent abdominal shock associated with severe handling of a viscus above the colon without very high paralysis. (4) Exhaustion from manipulation of the pregnant uterus in labour and of the pelvic organs in general is rarely seen. (5) Association with light general narcosis is most helpful. (6) Early post-operative headache rarely occurs with tropacocaine, provided that there is little loss of cerebro-spinal fluid. (7) The most careful handling of these cases is needed if a considerable fall in the blood pressure is to be avoided. (8) Late complications attributable to the spinal anaesthetic are extremely uncommon in the absence of infection.

Discussion.

Mr. H. BECKWITH WHITEHOUSE was of opinion that surgeons who gave their own spinal injections had wandered into the domain of the anaesthetist. He believed in team work, and that necessitated the employment by the surgeon of an anaesthetist whom he could trust and who was familiar with the surgeon's idiosyncrasies. He had no doubt that in all operations on the pregnant uterus the employment of tropacocaine by the spinal route practically eliminated haemorrhage. He also had noted that his results were better since he had employed the drug in Wertheim's operations, in large resections of the vulva in old women for such diseases as leucoplakia, and in cases of pregnancy with advanced cardiac disease. The contraindications were obesity, pelvic inflammation, normal labour, and certain conditions of abnormal labour where such proceedings as version were required.

Dr. F. E. SHIPWAY questioned whether the results obtained in war surgery really showed the unsuitability of spinal analgesia in cases of shock. Work during the war was for the most part hurried, and too large doses were apt to be given with the mistaken idea of hurrying the onset of anaesthesia. He suggested that Dr. Featherstone's doses were very large, and, as the result of his own experience with stovaine, advised him to try the effects of a smaller dose. He then showed on the epidiascope diagrams taken from actual cases illustrating the smaller fall in blood pressure where smaller doses of the drug were given. He usually administered small doses of a C.E. mixture along with the spinal injection. In cases of prostatic resection in old men, he found the combined spinal and inhalation method very satisfactory.

Dr. R. E. APPERLY said that the patient ought to be kept in the Trendelenburg position until the effect of the spinal injection had worn off. Such was his practice with hospital cases, but in private it was more difficult to ensure this being done and it was often necessary to devise expedients to that end.

Dr. C. F. HADFIELD inquired why Dr. Featherstone used tropacocaine. He thought spinal injections should be made under scopolamine-morphine narcosis. To illustrate how easy it was for false deductions to be made, he mentioned a case in which, while the surgeon was dissecting out a large malignant growth of the bladder, the effect of the spinal injection wore off, and he was forced to continue with a little chloroform. Bleeding became more profuse, and he was promptly reprimanded by the surgeon for using ether! One of the drawbacks of spinal analgesia was the tendency of certain patients to retch and vomit after the drug had been administered. As a rule this passed off quickly, but it was a distinct hindrance to the surgeon if it occurred while the operation was in progress, owing to the violent extrusion of the bowels from the wound while the abdominal walls were in a state of complete relaxation. So far as the uterine muscle was concerned he had not been able to notice any difference, as regards bleeding, between the effects of a spinal injection and of a general anaesthetic. His experience of the duration of a spinal anaesthetic was that the analgesia lasted on an average forty minutes, but in certain cases it might be prolonged to one and a half hours.

Dr. HUGH PHILLIPS said that he refused to give a spinal injection without a preliminary general anaesthetic in small amount. His experience of the onset of headache after such injection was the opposite of that of Dr. Featherstone, with regard to the amount of fluid drawn off. He found scopolamine-morphine distinctly useful when dealing with women but unreliable in men. As regards children spinal injections after an extensive trial had been given up at Great Ormond Street. In parturition there was a difficulty in removing the placenta after a spinal injection.

Dr. C. H. M. HUGHES had had two deaths in diabetic patients following the use of a heavy stovaine solution. He had since used a lighter solution with better results in such cases. He attributed the high percentage of headaches in Dr. Featherstone's cases to the fact that no general anaesthetic was given. He believed that a C.E. mixture ensured the most tranquil anaesthesia and he administered it after the injection had been given. He believed also that heavy solutions were apt to cause headaches, for he had had no such complaints since he had taken to using lighter solutions.

Dr. W. J. MCCARDIE said that vomiting and collapse during spinal analgesia were often the result of the surgeon pulling on the small intestine. He did not think that the contraindications to spinal analgesia were sufficiently emphasized by the opener of the discussion. These consisted chiefly in the presence of myocardial disease and low blood pressure. His experience was that tropacocaine was less toxic than stovaine.

Dr. L. K. THOMAS questioned, at the risk of being dubbed unpatriotic, whether the tropacocaine now used in this country was as powerful and as certain in its effects as that of German origin used before the war. He did not find a general anaesthetic necessary before the insertion of the needle. All that was necessary was to numb the skin with the ethyl chloride spray, and it could then be painlessly incised with a sharp-pointed bistoury, and the needle inserted without inconvenience to the patient.

Dr. FEATHERSTONE, in reply, said that he used tropacocaine in all the cases of this series as he wished to compare his results after carrying out a uniform method of injection. He found this drug very satisfactory. So far from believing the English preparation unreliable, he quoted an authority who had used the German preparation extensively before the war, and had found that the ampoules dispatched from the German factory varied not only in the quantity of the solution contained in the ampoule, but also in the strength of the solution; and it was to overcome these defects that the authority in question prevailed upon a British firm to undertake the preparation of the drug as now used. He then replied seriatim to the points raised by the various speakers.

regarding fumigation at the port of New York, and an outline of the routine adopted for fumigation of ships there, as well as a note on a cyanogen chloride gas mixture used in the United States. Australian apparatus is described, and notes are given on first-aid treatment of cyanide poisoning. The report leaves no room for doubt either as to the efficiency of fumigation by hydrogen cyanide for the destruction of rats and vermin, or as to the danger to the lives of persons engaged in fumigation when carried out with the more or less crude appliances usually employed. Sir George Newman in his prefatory note expresses the opinion that the procedure must be classed as a hazardous occupation, and raises the question whether the application of the method should be specially restricted by licence. The law of diffusion of gases and the experiments of Graham and Loschmidt referred to in the report point to the conclusion that the complete mixing of two gases by diffusion is a matter, not of minutes, but of hours. Analysis of samples of gas taken in different parts of a ship at various times during fumigation indicated that the diffusion of the gas may be incomplete, and that "for thorough fumigation of large spaces it may be necessary either to increase the number of points at which the gas is generated or to arrange for artificial circulation of the gas." As gaseous diffusion is slow, the clearing of a ship from gas must depend almost entirely upon the movement of air currents in the manner of ordinary ventilation, the atmosphere of the ship being regarded, not as gas, but as poisoned air. In certain circumstances it might be very difficult to clear the gas by natural ventilation without the use of fans, and pockets of gas might remain for many hours or even days in the lower parts of the ship. These considerations are of fundamental importance. It is absolutely necessary to test systematically the progress of ventilation by means of rats or in other reliable ways, and it is dangerous to assume that a certain number of hours is sufficient for clearing under all conditions. The report contains interesting sections on the biological action of the gas on animals and on its detection by physical, chemical, and animal means; the discussions of the biological action on birds and of the chemical tests for the presence of the gas do not seem fully to cover the literature of the subject, and the same criticism is applicable to some other items of information; such omissions, however, are perhaps unavoidable in a report of a preliminary nature. A great part of it is concerned with elaborate details of the precautions necessary to be taken before, during, and after fumigation. They are doubtless necessary when the "dumping method" is used, but it is possible that the emphasis laid upon them may arouse opposition to a very useful and efficient method of disinfection which has been scientifically proved to be without danger when it is carried out with a satisfactory apparatus operated by an instructed personnel.

MEDICAL INCUNABULA.

The great medical library of the College of Physicians of Philadelphia has just issued a *Catalogue of the Incunabula* in its possession. A catalogue of this series appeared in the *Annals of Medical History* some time ago, but since then many valuable incunabula have been added, and now we have a complete descriptive catalogue of all that the Philadelphia library contains of books of that class. The incunabula (books printed before 1500) in the library now number 337, and it is safe to say that no medical library in this country can lay claim to such an extensive collection. The library of the College of Physicians of London possesses 110, but they are not all medical, and smaller numbers are to be found in the libraries of the College of Surgeons and the Royal Society of Medicine. If collections of this class of book are to be made the necessary funds must be forthcoming, and unfortunately few of our medical libraries possess sufficient money for this expensive but very laudable form of book-collecting. Occasionally a stroke of good fortune places in the possession of a library a valuable collection, such as the magnificent bequest of the late Dr. Lloyd Roberts, who in his will left to the library of the Royal College of Physicians of London over 2,000 books, of which more than fifty were incunabula. This may be regarded as an example of the way in which our medical libraries may be enriched, and is wholly worthy of emulation. The catalogue before us is compiled in a most careful and complete manner, and, conforming to Hain, contains all the information necessary for the bibliographer. We congratulate Mr. Charles Perry Fisher, the librarian, on the way in which he has accomplished his task.

FACTORS DETERMINING BACTERIAL VIRULENCE.

In certain of the reports from the pathological laboratory of the Ministry of Health—as, for example, in those dealing with the complement fixation test in syphilis and bacteriological studies on the pneumococcus—the authors, in addition to presenting their own researches, have undertaken a comprehensive survey of the literature of the subject, and passed in review rival theories and opposing hypotheses, commenting on their merits or indicating their deficiencies. Such general discussions have great value. A bacteriological problem is often attacked by different research workers from different points of departure: they may be armed with different weapons of technique, their aim directed at different objectives and inspired by different plans of campaign. An "eye witness" of the assault, not himself a participator, is more competent to adjudicate on the issue and may provide a narrative of historical value, of general interest to all and fertile in suggestions for future policy. In his essay on "Factors determining bacterial virulence," which forms part of one of the recent publications of the Ministry of Health,[1] Dr. Eastwood has recorded no researches of his own, but has provided a dissertation on a problem of immunity which has provoked considerable controversy in the past. The periodic fluctuations in bacterial virulence which to some unknown degree may be responsible for the rise and decline of epidemics, the peculiar immunity of certain species of animals to bacteria highly virulent to other species, the mysterious impulse in obedience to which the normally harmless saprophytes of the human body invade and penetrate the mucous membranes, have not hitherto been satisfactorily explained by the antigen-antibody theories of immunologists. The most refined serological tests have failed to discriminate between the bacterial structure of virulent and non-virulent members of the same bacterial species. "Habit of growth" provides no explanation, for saprophytes may, without apparent reason, swiftly strike and swarm through vital tissues, on the surface of which their innocuous existence has long been tolerated. The presence of some adjuvant may be necessary to permit bacteria to invade the tissues and become pathogenic. This is no new conception, and in his report Dr. Eastwood recalls evidence which bears on this question, directly and indirectly. No positive assertions can be made—there is insufficient unanimity of opinion—but one line of thought has led him to the following hypothesis. It may be assumed that an important distinction between a virulent and a non-virulent strain of bacteria lies in the fact that the former interacts with its animal host in such a way as to produce an environment favourable to bacterial growth within the tissues, whereas the latter fails to do so.

[1] Reports on Public Health and Medical Subjects. No. 22. Issued by the Ministry of Health. H.M. Stationery Office (2s.) or through any bookseller.

ANCIENT CHINESE MEDICINE.

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine held on October 26th, with Dr. R. J. Reece, the President, in the chair, Dr. W. Perceval Yetts read a paper entitled "Pestilence and leechcraft in ancient China." He discussed a period stretching from 5,000 years ago down to the third century of our era. The beginnings of Chinese medicine, he said, went back far beyond the range of authentic history. Accordingly Dr. Yetts, without attempting to sift fact from myth and legend, gave the current traditions attributing the art of healing, like other fundamental achievements of civilization, to the three great culture-heroes of the race—the Emperors Fu Hsi, Shên Nung, and Huang Ti. He next read a translation of the opening passage of what was probably the oldest medical treatise extant in China. Therein the chief medical adviser of Huang Ti deplored the general physical and moral decadence of society as it existed more than twenty-six centuries B.C. Dr. Yetts went on to describe the elaborate State medical service under the Chou dynasty, which flourished for eight and a half hundred years from the twelfth century B.C. An interesting circumstance was the use by the Chinese at those remote times of antiseptics for the treatment of infected wounds. The account included two other government departments concerned with preserving the public health of ancient China. They comprised the court wizards and the court exorcists; and it was shown that their successors still, after some 3,000 years, function as protectors against the demons of disease. The standard of qualification and the status of medical men were next discussed. Apprenticeship and the acquisition of approved prescriptions were the recognized methods of preparing for professional practice. The status then was no better than in less ancient times. In the Chou period doctors were classed with a number of others "who professed particular arts for the service of their superiors." The list ran as follows: "Prayer-makers, writers, archers, carriage-drivers, doctors, diviners, and artisans." The earliest undoubted mention of an epidemic referred to one which occurred in B.C. 243; it did not specify the nature of the disease. Some famous doctors of antiquity were next passed in review. There was a legend of an operation performed under an anaesthetic as early as the fifth century B.C., and a more authentic account of a similar event is assigned to the third century A.D. Probably hemp was the drug. After speaking of methods of diagnosis, Dr. Yetts outlined forms of treatment under the headings drugs, diet, acupuncture, and physical exercises. The paper ended with a few words about the bibliography of ancient medical literature in China. The paper was illustrated with lantern slides.

A discussion followed in which the President, the Chinese Minister, Dr. Culpin, Dr. J. C. McVail, Sir Denison Ross, Dr. Major Greenwood, Dr. Lee, and Fleet Surgeon W. E. Home took part.

TREATMENT OF LATE NEURO-SYPHILIS AND DISSEMINATED SCLEROSIS.

A meeting of the Liverpool Medical Institution was held on October 25th, with the President, Dr. J. Hill Abram, in the chair, when Dr. A. C. Ransome read a paper on the treatment of late neuro-syphilis and disseminated sclerosis.

Dr. Ransome gave the results of his treatment of those two classes of organic nervous diseases in Manor Hill Neurological Hospital. Cases of tabes, tabo-paresis, and early general paralysis of the insane were divided into two groups for treatment according to the condition of the cerebro-spinal fluid. Those with a high cell count, a tabo-paretic gold curve, an excess of globulin, and a positive Wassermann reaction were given intrathecal injection of reinforced salvarsanized serum, while those with a luetic gold curve, a lower cell count and globulin excess, and a positive Wassermann reaction were given neo-kharsivan or mercury oxycyanide by intravenous injection. Both groups received the same after-treatment of mercury and potassium iodide by the mouth. The clinical results of treatment agreed very closely with the effects on the condition of the cerebro-spinal fluid. In this the reduction of lymphocytes and of globulin and the flattening out of the gold curve were very marked, and were accompanied by the cessation of pains and crises, by increased control of sphincters, and in some cases by ability to return to work. Lantern slides were shown illustrating the condition of cases before treatment, after treatment, and after an interval of a year.

The reports of thirteen cases treated by intrathecal salvarsanized serum showed that 8 had improved, in 3 there was no change, one was worse, and one case was transferred. Twenty-six cases treated by intravenous neo-kharsivan and mercury oxycyanide showed 9 improved, in 11 no change, and 6 left hospital. Thus intrathecal treatment appeared to be more efficacious than intravenous, in spite of the fact that the former group were more advanced clinically and pathologically. Thirty-six cases of disseminated sclerosis were treated by intravenous injection of silver salvarsan on the assumption that the disease was caused by a specific spirochaete distinct from that causing syphilis. The results were: 14 improved, in 10 no change (including 5 only recently treated), 9 left hospital, and 3 died of intercurrent disease. While allowing for errors of observation, possible remissions, for the concomitant effects of massage, exercises, healthy surroundings, etc., Dr. Ransome considered that the result of this treatment was encouraging and worthy of further trial.

Dr. Douglas Bigland thought that too much weight had been placed upon the colloid gold reaction, which was notoriously unreliable on occasions. This test was most useful when it agreed exactly with the other spinal fluid reactions. While agreeing that good results might be obtained from intrathecal therapy, yet he had obtained just as good effects with drugs administered by the intravenous and oral routes. He considered that when two methods of treatment gave approximately equal results the simpler, the less expensive, the less painful, and the more generally applicable one should be used in preference to the one which had not those advantages. In his opinion the effects of mercury, especially when administered by inunction, were little short of marvellous in certain forms of neuro-syphilis.

Dr. Baker Young said that the advocates of intrathecal therapy claimed that advanced cases of neuro-syphilis could be benefited and in some cases enabled to return to work, while in others the improvement would allow them to resume home life. Cases in which a paretic curve with the gold sol was persistent, in spite of treatment, were invariably fatal and particularly prone to suicide. Intrathecal therapy was indicated in early cases which showed an abnormal fluid. Fordyce said that at least 25 per cent. showed changes even after intensive treatment intravenously. If those cases were then treated intrathecally the fluid became normal and the natural inference was that a potential tabetic or paretic finale had been avoided.

Dextrocardia.

Dr. John Hay and Dr. H. Wallace Jones read a note on dextrocardia. Dr. Wallace Jones said that the term "dextrocardia" in its widest sense was applied to a heart beating in a more or less permanent manner in the right half of the thorax. The condition had been known from ancient times, but the modern application of the *x* rays and electro-cardiograph had made the diagnosis one of comparative ease. He classified the varieties as follows:

1. Inversions ("mirror image" of the heart). (*a*) Complete. (*b*) Incomplete: (1) Transposition of viscera with heart in the normal position. (2) Complete inversion of the thoracic organs, and the liver situated in the middle line. (3) Inversion of the heart only.
2. Dextro-versions (heart displaced to the right without inversion of the cavities). (*a*) Occurring during foetal life. (*b*) Acquired since birth.

He showed records of four cases, two cases of complete transposition with inversion of the main deflections in lead I of the electro-cardiograph, and two cases of acquired dextrocardia not due to any obvious cause, with normal electro-cardiograph records.

Syringomyelia.

Dr. T. W. Wadsworth read a note on a case of syringomyelia—a patient who died, aged 51, from a pontine haemorrhage. On *post-mortem* examination there was an extensive

These products of interaction between bacterium and host are antigenic, as can be shown by using for immunization the sterile exudate from a fatally infected animal, but the antigenic properties of these products differ from those of purely bacterial antigens and give rise to different antibodies. The struggle between bacterium and host may be regarded as depending on the balance between the output of (1) material which favours bacterial growth, and also acts antigenically, and the output of (2) antibody to this material. "Relative increase of (1) means that the bacteria grow well in the body of their host, and are likely to retain this capacity for vigorous growth if they are transferred directly to a new host. Relative increase of (2) means restriction of bacterial growth and consequently protection for the host." The foundations of this hypothesis are that when bacteria grow in animal tissues special substances are formed resulting in an environment favourable to further bacterial growth; that these special substances act antigenically, and against them the host may manufacture special antibodies. Lest it should be suspected that we are now being introduced to yet another new antibody, of which the number already taxes the memory of the most erudite immunologist, it may be pointed out that the conception of these substances has many resemblances to that of "aggressins" and "anti-aggressins." Dr. Eastwood has found support for his hypothesis from an analysis of the work of many schools of research.

THE SOUTH AFRICAN INSTITUTE FOR MEDICAL RESEARCH.

THE South African Institute for Medical Research at Johannesburg has a research division and a routine division. The cost of the research division is met by contributions of equal amount from the Union Government and the Witwatersrand Native Labour Association; the routine division is maintained out of the revenue earned from services rendered for payment and from the sale of vaccines and serums. The annual report of the institute for the year ending December 31st, 1922, states that the cost of maintenance of the research division accounted for £9,944, and the routine division £17,272, but the total revenue of this division was £18,993. Some of the main activities of the research division of the institute are concerned with diseases met with also in this country. Epidemic meningococcal meningitis was prevalent on the Witwatersrand from June to September, affecting more especially several of the mining compounds, but also to some extent the general population, both white and coloured. In August the monthly death rate per 1,000 from meningitis amongst the native labourers rose to 0.32, the highest rate hitherto recorded. Forty-eight strains of the meningococcus were obtained from the cerebro-spinal fluid of three European and forty-five African native patients, but twenty-nine of these strains did not belong to any of Gordon's four types. In South Africa there appears to be a rising incidence of infections due to aberrant strains, a fact of some importance since this alteration of types has a direct bearing on the efficiency of antimeningococcal serum, and complicates its production for general use. A ready method for preserving the viability of the meningococcus for transmission in culture to other laboratories has been devised; the whole of a twenty-four hour growth of meningococci from a blood agar slant is planted into a tube of heated ("chocolate") human blood agar whilst the latter is still liquid at a temperature of 40° C. In order to test the possibility of controlling the incidence of cerebro-spinal meningitis amongst native mine labourers by means of prophylactic inoculation twenty-four were inoculated—eighteen subcutaneously and six intravenously—with a meningococcus vaccine. The blood serums of these cases were repeatedly tested for the presence of agglutinins, but in no instance could a trace of agglutination be detected. This entirely negative result does not, of course, preclude the possibility of some immunity having been produced. An outbreak of epidemic influenza which occurred in Johannesburg and the Transvaal afforded an opportunity for search for a filter-passing virus. Naso-pharyngeal washings in normal saline were taken from fifteen patients, in eleven instances within twenty-four hours of the onset of the disease. The washings were passed through filter candles and the filtrates cultured anaerobically in Smith-Noguchi medium. After a period of six to eight days, in the tubes from five of the cases, minute bodies were observed in enormous numbers. Stained films from these were subsequently sent to Dr. Mervyn Gordon and he has advised the institute that the minute bodies therein are indistinguishable from those cultured and described by him. Attempts were made to infect human beings with the filter-passing organism, nineteen individuals volunteering for the experiment. A definite attack of influenza occurred in one individual, the temperature rose to 100° F. or over in two others, with a definite leucopenia in one of them. As the report remarks: "The results obtained in this experiment are by no means sufficiently conclusive to incriminate unequivocally this filter-passing organism as the cause of influenza," although they provide encouragement to persevere with this line of research. An investigation has been undertaken into the effect of freezing on the vitality of the cysts of tapeworms found in "measly" beef and pork. A temperature ranging from −6° C. to −18° C. for a period of about ten weeks is necessary to destroy the vitality of all the cysticerci in carcasses of beef and pork. For safety a margin should be allowed in this period of freezing, and it is suggested that slightly infested beef or pork must be frozen for at least twelve weeks before the meat may be regarded as sterile with respect to cysticerci. The freezing of meat for human consumption at such a low temperature and for such prolonged periods interferes with the nutritive value and subsequent keeping properties of the meat, so that when a carcass is heavily infested it should not be used for human food even after freezing for twelve weeks. These are but three of the many different researches undertaken by workers at the institute during 1922 of which an account is given in the report. The remainder of the report is concerned with the work of the routine division. The total number of investigations carried out during the year was 27,439, an increase of 4,247 on the number for 1921, and three times the figure for 1914, the first year of the institute. All kinds of bacteriological, chemical, and histological examinations are undertaken by the institute. The total number of autogenous vaccines prepared during the year 1922 was 758, and the amount of stock vaccines prepared and issued to store totalled to a volume of more than half a million cubic centimetres!

THE ENERGY OF THE ATOM.

IN his presidential address to the Röntgen Society on November 6th Sir Oliver Lodge took for his subject "X rays and the atom." It was, he said, now quite clear that inside the atom there were definite energy levels—a kind of staircase—at any of which the electrons could rest or revolve in stable equilibrium. When occasion arose an electron could drop from one level to another within the atom and thereby emit a characteristic radiation or spectrum. Why there should be these energy levels, or intervals of stability, no one had yet attempted to explain, and in the absence of explanation it was justifiable to make surmises. He supposed that the nucleus of the atom was in a state of violent rotation about its axis, that the state of circulation in that neighbourhood was comparable with the velocity of light. He even went so far as to assume that the normal ether contained a constitu-

gliosis of the central region of the cord extending from the upper cervical cord to the lumbar region. In the cervical and mid-dorsal regions there were large cavities near the central canal, not lined by ependyma. The patient had manifested symptoms of syringomyelia for over twenty years, and carried on his occupation as a labourer up to three years of the time of his death. His hands were claw-like, with many scars, due to old painless injuries and burns, some of the latter being recent; tactile sensation was almost normal, but there was loss of sensation to heat, cold, and pain, especially of the hand. There was well marked scoliosis and spasticity of the legs; towards the end he became ataxic. No arthropathy, perforating ulcer, nor nystagmus was present.

DISSEMINATED SCLEROSIS.

The Royal Medico-Chirurgical Society of Glasgow met on October 19th, with the President, Dr. Maitland Ramsay, in the chair, when a discussion was held on the pathology, symptomatology, and treatment of disseminated sclerosis.

Dr. Douglas Adams in an opening paper briefly reviewed the literature of disseminated sclerosis, and referred more particularly to recent results obtained in an investigation which was being carried out in the Pathological Department of the University and Western Infirmary of Glasgow in collaboration with Drs. E. M. Dunlop, J. W. S. Blacklock, and J. A. W. McCluskie. In a considerable number of cases paralysis had been transmitted to rabbits by the injection of blood or spinal fluid from patients suffering from the disease, and had been passed from rabbit to rabbit, both by direct inoculation and by passage through culture. Spirochaetes were found in the organs of seven of the inoculated animals both by dark ground examination and by staining, though examination of the cultures employed yielded negative results. These results were regarded as confirming the view that the disease was infective in origin. Emphasis was laid on the necessity for early diagnosis, and in this connexion the value of the colloidal gold reaction was urged. The results of intensive antispecific treatment of fifty cases were referred to. In many cases considerable clinical improvement had been noted and this had coincided with a modification of the colloidal gold curve in a negative direction. In the majority of cases the subsequent absolute or relative freedom from relapses during a period of three years was striking. The investigation was being continued under a grant from the Medical Research Council.

Dr. J. W. S. Blacklock described in more detail the various experiments performed, and said that when blood or spinal fluid from cases of disseminated sclerosis had been inoculated directly into rabbits about one-third of the animals developed nervous symptoms. Emulsion of the central nervous system of these paralysed animals produced nervous symptoms in a proportion of cases on inoculation into other animals either directly or after passage through Noguchi's medium. No nervous symptoms had been noted in over 200 normal control animals kept under observation for periods varying from four months to over a year, nor had paralyses developed in animals inoculated with various protein substances. He considered it probable that a virus was present in the blood and cerebro-spinal fluid of these patients which was capable of existing in the central nervous system and of producing paralysis in a proportion of the animals inoculated. The pathological lesions that had been noted in the central nervous system of the inoculated animals were: (1) Cellular infiltration, chiefly under the ependyma of the ventricles. (2) Degeneration of nerve tracts—this had been observed only in one animal which had lived for over a year after the onset of paralysis; the other animals which had shown nervous symptoms had lived for too short a time after the onset of such symptoms to allow definite pathological changes to occur. (3) Petechial haemorrhages. (4) Multiple lesions of the nature of softening.

Dr. Brownlow Riddell referred to the frequent occurrence of slight and transient eye symptoms in the early stages of the disease, and urged the importance of a critical interpretation of such symptoms in a case presenting no other apparent clinical feature. The surprisingly slight attention paid by the average patient to transient eye symptoms, with the speedy recovery therefrom, and the absence of any other sign or symptom, combined to present a clinical picture often underestimated or attributed to a functional, hysterical, or digestive origin. Dr. Riddell then discussed in detail the various symptoms, including diplopia, acute retrobulbar neuritis, nystagmus, and optic atrophy, and described a number of illustrative cases.

Professor C. H. Browning, in commenting on the results of the experimental work, said that the small proportion of successful transmissions was not surprising in view of the insusceptibility of both man and animals to the disease. He emphasized the fact that the virus persisted in the culture media which had been inoculated with blood from cases and kept over long periods in the incubator, and was inclined to the opinion that the pathogenic agent was a living organism or the product thereof. He then referred to the value of the colloidal gold reaction as a means of early diagnosis and of controlling the results of treatment.

Professor Robert Muir, in referring to the pathological and histological changes in the disease, said that while they were very definite they yet presented certain peculiar characteristics. The essential features at an early stage were (*a*) a disappearance of the myelin sheaths, (*b*) a persistence of the axis cylinders, and (*c*) an absence of Wallerian degeneration. These changes occurred in patches which were often sharply cut off, as though by a knife, from the surrounding healthy tissues. The process was peculiar and quite unlike a true sclerosis. The colloidal gold reaction in the cerebro-spinal fluid he considered would mark a real advance, if completely established, and would prove of great assistance in controlling treatment. Referring to the etiology, he was of the opinion that, while a great many facts supported the infective theory, the state of the experimental work was as yet too uncertain for complete proof. While hopeful, it was not conclusive.

The annual meeting of the West Kent Medico-Chirurgical Society was held on October 12th at the Miller General Hospital, Greenwich, when Dr. W. H. Payne, the retiring president, vacated the chair to Dr. E. G. Annis, M.O.H. for Greenwich. Mr. C. A. Joll showed two specimens of carcinoma of the rectum: (1) from a woman aged 65, who suffered from mucous stools, tenesmus, and haemorrhage, and (2) from a man, aged 64, who suffered from pain and diarrhœa; he also reported a case of fibro-sarcoma of the thigh muscle, without any glandular involvement, the tumour being an encapsulated cyst. Dr. H. Pritchard showed a young woman, aged 24, who developed a streptococcal empyema fourteen days after childbirth; an abscess developed in the left buttock; the lung was not involved. He pointed out the rarity of a primary streptococcal pleurisy. The case was treated by opening, drainage, and antistreptococcal serum. Dr. M. Davidson showed a case of pernicious anaemia, with blood and nerve lesions. Injections of iron cacodylate were given, and also arsenic by the mouth.

A meeting of the Bath Clinical Society was held at the Royal United Hospital on October 5th, with Dr. W. P. Kennedy, President, in the chair, when Dr. R. G. Gordon read a paper on the "Difficult Child." He dealt with the types of difficult behaviour in children both in infancy and in later life. The importance of the attitude of the parent was emphasized. The causes of failure of integration of the personality leading to difficulty in adaptation to life were classified under three headings in relation to the proper functioning of the cortex: (1) Failure of development—mental deficiency; (2) disease of the cortex, especially congenital syphilis and epidemic encephalitis; (3) inherent lack of proportion in dispositions leading to psychological maladaptations. Illustrative cases were described. Dr. R. Waterhouse showed a case of anterior poliomyelitis with a meningitic origin. Mr. A. L. Fuller showed a case of webbed fingers treated by a graft from the thigh. Mr. J. S. Levis showed three specimens—one of hydronephrosis due to a calculus blocking the ureter, the second a heart showing four active valves, and the third an epithelioma of the liver. Mr. A. L. Fuller showed a specimen of a gall bladder, shrivelled and partly calcareous, the size of a pea, and a gall stone the size of a walnut, removed from the common duct in the same patient.

tional rotation, and that upon this, when a pair of electric units were being somehow generated, two equal opposite rotations were superposed, one in opposition to the original rotation, giving a net result of zero, and the other in the same direction, accelerating the velocity. In any case it might readily be granted that around the nucleus there was an ethereal circulation essential to the existence and behaviour of the nucleus, very intense close to the nucleus and decreasing with distance, according to some vortex or ethereal law. This whirl might be stratified; it might continually decrease in speed as distance from the centre increased, and its strata might be described as gravitational or electrical levels. If an electron entering the whirl found itself on one of those levels it could be carried forward by the fluid at that place in a state which satisfied its own requirements. It could abandon itself passively to the fluid of which it was a part, and be not only in equilibrium but at rest. Thus there might be within the atom a permanent circular orbit free from radiation and quite stable until some disturbance occurred. Such a level might be expected at regular intervals whenever the vortex velocity and the attracted electronic velocity had the same value. At the intermediate places there would be no equilibrium, and there the electron would either fly out or fly in according to the circumstances of its propulsion. A particle either entering the atom from outside or being precipitated from one orbit into another within the atom would, starting from radial rest, arrive at any given stratum at an excess speed. It might puncture the stratum and go on, but if it were held it could only be held by overshooting the mark and being brought back again, so that it would perform a series of isochronous oscillations, while its radial energy was being converted, part of it into tangential energy and part into radiation. The restoring force at any point would depend on the speed of the whirl there, and would naturally be more vigorous as the centre was approached. He gave some reasons for supposing that the frequency of this oscillation would be proportional to the energy to be radiated, and that the radiation of energy would be as the square of the restoring force. It might be said, he concluded, that this was shady *ad hoc* reasoning, whereby assumptions were made to explain other assumptions, but the physics of the present century had been so full of assumptions that a few more might be permissible, especially those made with the ultimate object of reducing their number. In response to a vote of thanks, Sir Oliver spoke further of the vast progress in physics of recent years. In physics anything five years old was ancient history. This had been a remarkable quarter of a century, and if the work continued at its present rate the world would, twenty-five years hence, know infinitely more than it knew now.

THE BACTERIOLOGY OF SCARLET FEVER.

In the Journal of October 27th (p. 772) some of the recent research work which has been carried out on the bacteriology of scarlet fever was passed in review, and it was noted that a number of different investigators, amongst them Professor G. Caronia and Dr. M. B. Sindoni, have isolated bacteria of the coccus type from the blood and throats of scarlet fever patients, and these organisms, they claim, have a causal relationship to the disease. It does not, however, follow from this that each investigator is dealing with the same type of organism, and Dr. W. Mair has called our attention to the fact that the organism which, according to Caronia and Sindoni, bears a causative relation to scarlet fever is a minute anaerobic diplococcus which grows only on certain media. Professor Caronia informs us that he has cultured the organisms which he believes to be the agents of scarlet fever and measles on culture media of Di Cristina's type (broth-ascitic fluid-human red corpuscles) and of Tarozzi-Noguchi's type. The exact classification of bacteria of the coccus group is a lengthy occupation. To prove that two cultures, apparently of the same species, are identical, necessitates the employment of serological tests and the exchange of cultures between different laboratories. But there are points of dissimilarity which appear in the description of the organisms isolated by some of these investigators which serve to separate them without reference to this more exacting court of appeal. Thus, whilst Gordon, Bliss, Tunnicliff, and Dick were working with a haemolytic streptococcus, Caronia and Sindoni were dealing with a small anaerobic diplococcus. A more exact classification of this latter organism is impossible at present, but we were wrong in referring to it as a streptococcus.

The Thomas Vicary Lecture before the Royal College of Surgeons of England will be delivered on Friday, December 7th, at 5 p.m., by Sir Arthur Keith, F.R.S., the conservator. The subject of the lecture will be the life and times of William Clift, first conservator. Clift, a Cornish boy, was, in February, 1792, sent with an introduction to John Hunter, who took him as an apprentice without fee on the understanding that he was to write and make drawings, to dissect, and take part in the charge of the museum. Twenty months later Hunter died, but Clift was continued in his employment by Hunter's executors, and in 1800, when the Royal College of Surgeons was incorporated, it appointed Clift to be conservator of the museum. Altogether he was connected with the care of the museum for more than fifty years; he died in 1849.

At the anniversary meeting of the Royal Society on November 30th it will be proposed to re-elect Sir Charles Sherrington, G.B.E., M.D., as president, and Sir David Prain, C.M.G., M.B., as treasurer. Among the members proposed to be elected to the council are Sir Frederick Andrewes, M.D., Professor T. R. Elliott, M.D., and Professor D. Noël Paton, M.D. The King has approved the award of a Royal Medal to Professor C. J. Martin, C.M.G., M.B., for his researches on animal metabolism.

We regret to announce the death on November 5th of Dr. T. H. Green, formerly physician to Charing Cross Hospital and author of a textbook of pathology well known to many generations of students. Dr. Green, who was in his 81st year, was one of the oldest Fellows of the Royal College of Physicians, having been elected in 1875.

After the morning service on Armistice Day (Sunday, November 11th) the Assistant Director Medical Services, London District, and a detachment of the Royal Army Medical Corps will deposit a wreath on the R.A.M.C. war memorial tablet in Westminster Abbey.

At the opening meeting of the University of Paris for the session, on November 24th, honorary degrees will be conferred on eight distinguished foreign men of science; among them are Professor Golgi of Pavia, Dr. W. W. Keen, formerly professor of surgery in the Jefferson College, Philadelphia, Professor Arrhenius of Stockholm, and Sir J. J. Thomson of Cambridge.

At the quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland, to be held at the house of the Medical Society of London on November 22nd, Professor D. C. Winckler will give an address on the psychiatrical and neurological teaching at the Dutch universities, especially at the University of Utrecht, where he is the director of the psychiatric-neurological clinic.

Reviews.

THE MEDICAL HISTORY OF THE WAR: PATHOLOGY.

The latest of the series of volumes of the official medical history of the great war, that dealing with *Pathology*,[1] has a historical as well as a scientific interest. In the later years of the war a most efficient service was evolved whereby physicians and surgeons were able to call in the aid of skilled pathologists and bacteriologists, whether working in the well-established base hospitals or under the more primitive conditions existing at casualty clearing stations or field ambulances. At each halting place of the sick or wounded soldier expert pathological assistance was available, and, though the patient passed on from one unit to another, he carried with him documents recording the investigations carried out in the laboratories of the hospitals through which he had passed, and he often arrived at his destination accompanied by reports describing intricate chemical, histological, and bacteriological examinations performed in the forward units. It is interesting to learn from what humble origin this elaborate organization was evolved. Sir William Leishman tells us in the first chapter of this volume that prior to 1914 no central pathological organization existed in the army, nor had one been contemplated in war establishments. In spite of the comparatively recent experience of the South African war no essential increase or change in the scale of establishment of pathologists had been introduced, and all that was laid down was that each general hospital of 1,040 beds should include in its equipment a well-appointed bacteriological laboratory, and that this should be placed in charge of one or of two officers detailed as bacteriologists. When war broke out the War Office limited itself to the provision of personnel and equipment, leaving it to the medical directorate to employ these to the best advantage. Appointments to the posts of bacteriologists of general hospitals on mobilization were made by the Director-General's staff from such regular specialists as were available, and afterwards from temporarily commissioned officers who had had experience in bacteriology.

The supply of the first group was very soon exhausted: of all the regular officers who had qualified as specialists in bacteriology before the war no more than four remained at this work by the time the campaign was six months old. Practically all the routine pathological work was done therefore by temporarily commissioned officers. The grave problems raised by the unexpected prevalence among the wounded of tetanus, gas gangrene, and the other forms of sepsis led, in October, 1914, to the appointment of Sir William Leishman as adviser to the Director-General of the medical services in all matters relating to pathology and the employment of serums and vaccines. This post he held with great distinction until April, 1918, when he was relieved by Colonel S. L. Cummins.

The need for delegation of part of the duties of supervising and co-ordinating the work of the laboratories became manifest towards the end of the war, and authority was given for the appointment of an assistant adviser in pathology to each army and to each of the principal bases. Under their supervision worked the medical officers in charge of mobile laboratories and the pathologists at base and general hospitals. The dimensions to which the service grew are made apparent by the facts that twenty-five mobile bacteriological laboratories were supplied to armies overseas, and that at the end of 1917 pathologists were attached to 75 of the 85 hospitals serving the British armies in France.

No provision had been contemplated in the war establishments for the installation of central laboratories, to be devoted to research problems, and freed from the burden of routine duties. Fortunately the elasticity or, as William Leishman puts it, "the fortunate absence rigidity" of the system allowed the situation to be me different ways, and at No. 13 General Hospital, Col Sir Almroth Wright was able to establish by deg what was essentially a research laboratory, devoted in main to the study of the pathology and treatment wounds. Research work in other subjects was organi by the formation of committees of inquiry, who enlis the services of pathologists specially qualified in the p ticular lines of research required, and who held meeti from time to time to draw up programmes of resea and make the necessary arrangements for their effect conduct. This brief outline of the organization of t pathological service, drawn from the full and interesti records in the first chapter of this book, illustrates t way in which the scientific side of the medical servic developed from very simple beginnings to the compl system which worked so successfully in the later stages the war.

The remainder, and greater portion of this volum records the advances made in the pathology of wounds an diseases of the war. Sir Almroth Wright's brilliant r searches on the mechanism of physiological protectio against infection of wounds are concisely described in chapter entitled "The Physiology of Wounds." Th experience of the war taught us a great deal about anti septics, and led to the employment of many new varieties but experience also demonstrated the limitations of anti septics, and led many to hold the opinion that the mos effective agency to invoke in order to destroy septic micro organisms is the physiological power of the blood. These simple truths might, perhaps, have been stated in simpler language, for most readers will have to consult a glossary of scientific terms in order to understand such a sentence as that which appears on page 57: "The proper concep tion of drainage is arrived at when it is regarded as a kataphylactic operation whose object is to abolish ecphylactic conditions, and bring the phylactic powers of the blood into action upon the infecting microbes." It is true that these expressions are explained elsewhere in the chapter.

In a chapter on "Tetanus in its Statistical Aspects" it is pointed out that the mortality from this disease fell from 63.5 per cent. for 1914-15 to 37.9 in the 1916-19 period. Statistics of the incubation period show that symptoms manifested themselves in most cases between the sixth and eleventh days, but, on the other hand, there were some which developed as early as the second day after the wound, and others which did not develop until the forty-fifth day. The great importance of the early injection of antitetanic serum is emphasized by both figures and charts. The mortality rate in France in 1916, 1917, and 1918, in protected cases, was 66.5, as against 83.5 unprotected, and in England 22.5 as against 53.3.

Remarkable figures are contained also in the chapter on the enteric fevers. At the beginning of the war soldiers were only inoculated against the typhoid bacillus, but later on a mixed vaccine against both typhoid and paratyphoid fever was introduced with excellent results. A chart of the incidence of these fevers shows that the typhoid rate fell from 80 per 10,000 in December, 1914, to *nil*, and the paratyphoid from about 38 per 10,000 in January, 1915, to practically *nil*.

Much was learnt about the pathology of dysentery, both amoebic and bacillary, during the war. In regard to the former type, the new knowledge acquired of the habits of *Entamoeba histolytica* led to relaxation of many of the stern methods of isolation of individuals found to be harbouring this parasite, for it was shown that pathogenic amoebae are often found in the faeces of people who have never left this country, and that in the vast majority of cases infected people merely became healthy carriers of the organism. Obviously, therefore, there is no advantage to be gained by the isolation of carriers of amoebae; they can be set free in a community without grave risk of infecting others. The commoner form of dysentery in the war was the bacillary, and the chapter dealing with this

[1] *History of the Great War, Based on Official Documents. Medical Services: Pathology.* Edited by Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., Major-General Sir W. G. Leishman, K.C.M.G., C.B., F.R.S., LL.D., and Colonel S. L. Cummins, C.B., C.M.G., LL.D. London: H.M. Stationery Office. 1923. (Demy 8vo, pp. 600; illustrated. £1 1s. net, post free £1 1s 9d.)

THE YOKOHAMA EARTHQUAKE.

SOME MEDICAL EXPERIENCES.

BY

M. L. YOUNG, M.A., M.B.Cantab., M.R.C.S.Eng.

It may be of interest to relate some experiences of the recent earthquake in Yokohama, Japan, from a medical point of view. Descriptions of the catastrophe have reached the press over and over again, and it is unnecessary to repeat them. The loss of life has not, and cannot be estimated; the fact that the first shock occurred at a time when cooking was in progress for the midday meal undoubtedly added to the casualities, being responsible for the countless cases of severe burns, so many of which ended fatally, and the typhoon not only caused much death by drowning, but also prevented any attempt to rescue refugees by lifeboats for several hours.

All hospitals in Yokohama fell at the first shock, killing or wounding doctors and nurses, with the result that thousands of victims remained without any medical attention for many hours; indeed many hundreds who might have been saved must have been burned to death by the rapidly spreading fire. This enforced delay added also to the appalling sepsis which confronted us when refugees eventually began to arrive on the ships.

The British ship *Dongola* of the Peninsular and Oriental Steam Navigation Company was at the time lying in Yokohama harbour; she is admirably equipped with medical arrangements, but unfortunately her store of dressings had been depleted after the outward voyage, and this added greatly to the difficulties of handling such large numbers of wounded.

Within a short space of time after the first shock, Yokohama was hidden from our view; dense clouds of smoke from burning wreckage and columns of flame eclipsed everything. The harbour was as usual full of lighters, mostly built of wood, many of which contained Japanese cargo workers, both men and women. These were in extreme danger, owing to the increasing typhoon. Many were completely swamped, with much loss of life, but it was possible to rescue from the water some of those who were comparatively close to the ship; such were our first casualties, mostly in a state of collapse. They yielded to simple remedies, and eventually recovered.

After an enforced delay of some hours, it became possible to lower lifeboats, and rescue parties set out to the shore; they brought refugees of all nationalities in their hundreds back to the ship; the majority were damaged, and many extremely badly hurt. Most of the wounds had no covering, and it was evident that sepsis would be present in an appalling degree. Our first case of extreme urgency was an English boy, aged 11 years, whose right arm was smashed in many places, being merely pulp as far as the insertion of the deltoid muscle. The arm was extremely dirty and the child's general condition was so bad that nothing could be done at the time but to give brandy and morphine and to place the limb in a bath of hydrogen peroxide; some hours later it became imperative to remove the arm; the general condition had improved somewhat, and amputation was performed. Owing to the hopeless conditions, the lack of dressings, and the fact that there was no anaesthetist on board, this took two hours; and some five or six hours later the boy died of shock. In another case, in which the hand only was involved, amputation was performed later with satisfactory results.

Broken bones were numerous, mainly legs and ribs, and unfortunately the fractures were mostly compound and comminuted. A great number of cases of acute conjunctivitis, due to long exposure to smoke, were treated. A great many cases required hypodermic injections of morphine, of which there was luckily a good supply; any form of sterilization of syringes or needles was, however, impossible, owing to lack of time, and yet it is interesting to note that under the very dirty conditions in which drugs were given hypodermically no additional sepsis resulted. The stitching up of countless wounds with dirty catgut and hurriedly cleaned instruments also had satisfactory results. The stock of ordinary antiseptics was exhausted rapidly, and until help arrived from the French ship *André Lebon* no iodine was available, and even the supply obtained from this source was absurdly inadequate. The cutting up of sheets and pillow-cases furnished excellent bandages, but the lack of cotton-wool was serious, and frequently to pad splints was impossible. Of stimulants there was no shortage; over forty bottles of brandy and whisky were consumed by the 500 refugees on board within the space of forty-eight hours.

The case of a young Russian child, though deplorable, is of interest; how her injury occurred we could not find out (the problem of trying to understand the many different languages was impossible). She arrived with what appeared clinically to be an appendix abscess developing rapidly into acute general peritonitis; there were no external bruises nor signs of injury; on exploration the abdomen was found to be full of blood, due to a ruptured liver; very little could be done and the child eventually died.

Injuries to joints were common, the most severe being that of a British woman, whose knee-joint was laid open by the falling of part of a building; the wound of course rapidly became infected, and she died on board ship; amputation might conceivably have saved her life, had it been possible to perform it. The Chinese refugees, who on the *Dongola* numbered some hundred and fifty, were in many cases very badly hurt, but none sought help and none uttered so much as a groan; one Chinese woman entered into the first stage of labour while on the voyage from Yokohama, and eventually asked for help. The fortitude and patient suffering of these Chinese men and women were truly extraordinary; one of the women, having a fractured humerus, carried in her arms a baby a few days old only; even in her great anxiety for her child she was patient until the arm could be set.

There were no nurses on the ship, but the British and American women gave of their help so untiringly and worked so well that many lives were saved which otherwise must have been lost. The clothing problem was exceedingly difficult, so many of the refugees being merely in rags. It was possible to supply every refugee in whatever part of the ship with food in plenty owing to the admirable organization of the steward's department.

Our voyage from Yokohama took twenty-four hours, and on arrival in Kobe the Japanese authorities gave every possible aid; excellent arrangements in that place had been made, and we were able to carry out the long task of disembarking the wounded without great difficulty. The more serious cases were conveyed by stretchers across the gangway to ambulances, and on to the International Hospital, where British doctors and sisters in charge of that establishment worked unceasingly to relieve the suffering. The large Oriental Hotel was used as a centre for sorting out the less serious cases, and for relief work, bathrooms and staterooms were rapidly turned into temporary hospitals, and here much valuable medical work was done by Japanese surgeons. British women, themselves refugees in many instances, were everywhere in evidence, giving their voluntary aid unceasingly; many of these women had lost their husbands and children, but I think that the great work they were doing helped for a time to check their tears.

I have said little of matters other than medical. The earthquake itself caused a violent up-and-down movement of the *Dongola*, which resulted in a few minor casualties amongst the crew. Several ships were involved, particularly the *Empress of Australia* and the French *André Lebon*, both of which had narrow escapes from destruction, being moored alongside the burning wharf. Perpetual danger threatened all vessels in the harbour; collision seemed imminent time and again owing to the typhoon and to the fact that visibility was so bad. Lighters and sampans, mostly ablaze, were driven in hopeless confusion amongst the ships by the wind, and the masses of burning oil which poured from the shore upon the surface of the water were a source of intense anxiety. The majority of vessels, however, suffered but little damage, and were finally able to convey thousands of refugees away from the stricken area.

disease will be of great value to those who wish to obtain an outline of the present state of knowledge with regard to the different bacilli capable of causing dysentery, the most reliable methods of laboratory diagnosis, the treatment of dysentery carriers, and the mode of spread of the disease.

We have a discussion occupying twenty-three chapters of the pathology of many different diseases, such as typhus, cerebro-spinal fever, influenza, trench fever, spirochaetal jaundice, acute infective polyneuritis, gingivitis and Vincent's angina, war nephritis and encephalitis. It would occupy too much space to comment on all these, but the interesting and well written chapter on tuberculosis deserves special mention. The tuberculosis mortality rate was higher among men of the Labour Corps of the various countries than those of other units, and the surprising fact may be deduced from the statistics that the incidence of the disease was lower amongst the more urbanized and highest amongst the more isolated and scattered peoples. In the Portuguese troops, coming from a country where industrialism is less developed than in England, both incidence and mortality were much higher than amongst the British. In the Chinese labour units the number both of cases and of deaths was greater than amongst the Portuguese, though less than amongst the East Indians.

The war is blamed for having interfered with many scientific activities, for having discouraged scientists in the prosecution of their researches, and for having retarded the evolution of scientific knowledge. Many of the subsidiary sciences of medicine were not so affected by this gigantic upheaval, but advanced with increased acceleration to assist in solving the urgent problems the war brought in its train. In particular, pathology and bacteriology undoubtedly benefited greatly by the experience of the war, and the practical application of the advances in knowledge made by workers in these kindred sciences played a most honourable part in the successful prosecution of the war, as all readers of this volume of the medical history of the war will agree.

RADIOLOGY OF THE ABDOMEN IN CHILDREN.

THE third volume of the Annals of Roentgenology, entitled *Digestive Disturbances of Infants and Children Roentgenologically Considered*,[2] is the work of Drs. KERLEY and LE WALD in collaboration. The fact that the former is a consulting physician to a hospital for infants, whilst the latter is Professor of Roentgenology at the New York University, adds considerably to the value of the work from the diagnostic standpoint, and ensures a comprehensive view being taken both of the individual diseases and of their *x*-ray demonstration.

The book commences with a short note on the surgery of infants by Dr. William A. Downes, and following this is divided into two main portions. The first of these, the text, consists of about eighty pages profusely illustrated with photographs of pathological specimens, and, to show technique, with radiographs, and with drawings of operative findings. In this part descriptions of the various diseases illustrated occupy the main portion of the text and references are made throughout to the second part of the book, which is an *x*-ray atlas. Although dealing entirely with conditions in infants, no attempt has been made to draw too sharp a line, and many radiographs of adults have been used to emphasize some of the points discussed.

There is an interesting chapter on technique which, by means of illustrations, shows the methods of administering opaque food to infants who cannot be persuaded to take food in the normal manner. Then, following a short chapter on the oesophagus, the stomach itself is dealt with fully: congenital pyloric stenosis, pylorospasm, chronic dilatation without spasm or pyloric stenosis, ptosis, and syphilis, are all discussed. The concluding portion is devoted to the various conditions of the bowel found in infants, including the swallowing of foreign bodies. The chapters on non-rotation of the colon and hernia of the diaphragm are particularly useful.

The atlas contains fifty-four excellent plates which illustrate radiographically all the conditions met with; facing each plate is a description of the case, of the *x*-ray examination, of the operative findings, and a short comment on the whole. This is printed in English, French, and Spanish, and a liberal use has been made of lettering and arrows to assist study of the radiographs.

This book is one of a series of monograph atlases which is being issued under the editorship of Dr. James T. Case; they are intended to supply a kind of post-graduate course in special subjects, and to form reference books which should be of value to radiologists as well as other medical practitioners. It is a pleasure to handle and read such a book as this; the text is in very legible type, printed on thick glazed paper with good spacing and margins, and the numerous illustrations are of the highest quality and magnificently reproduced; the general arrangements leave nothing to be desired. No radiologist at any rate can afford to be without it.

[2] *Digestive Disturbances of Infants and Children Roentgenologically Considered.* By Charles G. Kerley, M.D., and L. T. Le Wald, M.D. New York: Paul B. Hoeber. 1923. (8 × 10½, pp. xxiii + 81; 54 plates, 166 figures. 12 dollars.)

THE LIFE-HISTORY OF THE BED-BUG.

IN 1892 the late Mr. Edward Saunders published his *Hemiptera-Heteroptera of the British Islands*, in which he gave keys for the identification of the species of British bugs, and good descriptions of the adults. But he made little or no attempt to deal with the larval stages or the life-histories of these insects. Mr. E. A. BUTLER, in the preface to his new book, *Biology of the British Hemiptera-Heteroptera*,[3] tells us that it is intended to supplement, and not to supplant, that of Saunders. His aim has been "to gather together into one book all the information that has been amassed by various observers, whether in the British Isles, on the Continent, or in America, about the early stages, the life-history and the habitats, habits and distribution of our British species." In all these respects Mr. Butler has succeeded admirably, and British entomologists are under a great debt of gratitude to him for placing at their disposal so much interesting and valuable information about a suborder of insects which has been decidedly neglected hitherto.

About 470 species of heteroptera have been recorded in the British Islands, but, although many of these are of much economic importance, medical interest in this country is confined almost solely to the bed-bug, and other British species of the genus *Cimex*. Of the ova, larval stages, life-cycles, and habits of these, Mr. Butler gives a very full account. Although the bed-bug has not yet been definitely proved to transmit disease to man, it must be regarded as a potential danger, since it is known that various pathogenic bacteria and the protozoan parasite of kala-azar can live in the gut of this insect. Further, the bed-bug demands attention on account of the singular modes of coitus and fertilization which occur in it. It is regrettable that Mr. Butler has only referred so briefly to the work of Berlese, and not at all to that of Major F. W. Cragg on this subject. Even if Berlese's theory of "hypergamesis" is untenable, the observed facts as to the fate of the large excess of spermatozoa received by the female bug in successive acts of coitus are of great biological and physiological interest. As Major Cragg's paper (*Ind. Journ. of Med. Research*, vol. viii, 1920-21) is not included in Mr. Butler's bibliography, it is possible that he has overlooked it.

Medical practitioners whose work lies in the tropics will desire to have some acquaintance with other families of bugs than the *Cimicidae*. Several species of Reduviids and Aradids bite man, and, in the case of the former family, are transmitters of forms of trypanosomiasis. Although, naturally, these exotic forms are not referred to in a book on British Heteroptera, Mr. Butler gives so much informa-

[3] *A Biology of the British Hemiptera-Heteroptera.* By Edward A. Butler, B.A., B.Sc., F.E.S. London: H. F. and J. Witherby. 1923. (Sup. roy. 8vo, pp. viii + 682; 7 plates, many figures. £3 3s. net.)

THE HEALTH OF THE SCHOOL CHILD.

We referred last week (p. 828) to the publication of the report of the Chief Medical Officer of the Board of Education on the Health of the School Child in 1922.[1] Having given a general view of Sir George Newman's introductory chapter, in the following paragraphs we deal with the remaining eleven chapters.

In 1922 routine examinations were made of 1,751,122 children, and special examination of 635,628 children considered by parents, teachers, or care committees to show signs of physical or mental defect. Altogether 46 per cent. of all the children at school were examined in the course of the year. Including private practitioners and dentists, the number of officers engaged in the work was 2,162, and of these 226 were women. School nurses, whole- or part-time, numbered 4,135. Parents, it is stated, are learning that while the home is the centre of improvement, the school is a valuable agency, and are contributing to the cost. Dr. Kaye of the West Riding holds that "the head teachers' interest is the cardinal necessity of successful work"; the school medical officers vouch for the value of school attendance officers. Voluntary care committees, as testified by Sir William Hamer, are of great service in following up cases. A special report was prepared on the following up of 100 sick children over a period of ten years, and the graphic story of one of these children occupies several entrancing pages of the Chief Medical Officer's report.

The Young Child.

Sir George Newman estimates that 80 to 90 per cent. of children are born healthy, but that 35 to 40 per cent. of those admitted to school at 5 years of age have physical defects which could have been prevented or cured. The problem, he thinks, is ripe for further consideration in respect of "prevention and amelioration consistent with economy and the prevention of waste." Regulations for conducting nursery schools were issued in 1919, but their establishment is retarded by the need for public economy, and only twenty-four (ten of them in London) have been recognized by the Board; but numerous hopeful "experiments" are being made. Day nurseries are valuable for health and hygiene, though they do not commonly include educational provision.

The reports of school medical officers for 1922 show that, despite the need for national economy, much good work is being done. School sanitation is still in many cases defective, and, as pointed out by Dr. Mulholland (Swinton and Pendlebury), the child's training in hygiene is indirectly hindered by the spectacle of school premises with closed windows, defective illumination, lack of fresh air, and obsolete and unclean lavatory and sanitary conveniences. The teaching of hygiene is vigorously discussed in the report, and the concluding paragraph must be quoted in full:

"I am satisfied that the effective teaching of hygiene in each school and to each class is of the first importance in all grades of schools—elementary, secondary, proprietary and public schools. If for eight or nine years the child is taught of what personal and public health really consist, immense and incalculable good will result. The child and young adolescent have got to be *trained* in the way of health and physical efficiency. In order to secure this two things are necessary. (i) First, *the teacher must be equipped in the subject.* He is not born with the knowledge: it has to be acquired. A great responsibility rests upon the Training Colleges to provide this preparation for the teacher, a responsibility which I regret to say is not fully appreciated by some of the Colleges, as is proved by many of the answers to the final examination papers in hygiene. The ignorance of some of the candidates is profound; what then are we to expect from the children they instruct? College authorities should give this subject careful attention, and arrange for it to be taught by competent persons who understand the whole question of physical education, including hygiene. (ii) Secondly, *the health instruction in the school must be adequate.* It should be not only information, but direction; it should be not only intermittent and theoretical, but continuous and practical. Every week some definite guidance should be given and repeated until habits are formed. Until hygiene is a habit and a way of life it is of little avail."

Physical Education.

The time given to physical education in the schools is gradually increasing, and special attention is given to it in the training colleges. Of the local education authorities 77 in a total of 317 now employ 133 organizers and assistants, who do not themselves teach the children, but give advice, demonstrations, and encouragement to the teachers. Teachers' classes and vacation courses are held under the direction of the organizers, and may be taught by them. The training is carried on under the direction of the medical department of the Board, which has a staff of inspectors consisting of three men and seven women.

Open-air Education.

The principal forms in which education in the open air is practised are: (1) classes in the playgrounds of elementary schools; (2) classes in public parks and open spaces; (3) school journeys to the seaside or country in charge of teachers; (4) holiday or school camps; (5) open-air classrooms; (6) open-air day schools; and (7) residential open-air schools of recovery. The movement has received the active support of the more progressive local education authorities. It is not costly and ought to be more generally employed.

The Cost of the School Medical Service.

The items by which the total cost of the School Medical Service is made up include salaries of doctors and nurses, travelling expenses, drugs and apparatus, spectacles, and contributions to hospitals and other institutions. The total was in 1912-13, £285,993; in 1913-14, £325,735; in 1914-15, £411,428; in 1920-21, £1,330,182; and in 1921-22, £1,391,606.

The Value of Medical Inspection.

Sir George Newman expresses the opinion that the purpose of the School Medical Service is being fulfilled; though the rate of advance is not so rapid as some may desire, there are no signs of retrogression, and in certain directions the evidence is conclusive of well maintained improvement. In 1920 the percentage of children found defective was 47, and in 1922, 42.2. The subject is discussed in detail under the headings of uncleanliness, vision, and tuberculosis. The service "has achieved signal success in its fight with unclean conditions of body and head existing among school children." Yet it has to be admitted that sometimes the same children come back verminous time after time, so that correction of home conditions is, as urged by Dr. Barlow (Wallasey), fundamental to permanent success. In London in the earlier years the problem was gross infestation, but efforts "have now resulted in the reduction of the cases of body vermin to the small proportion of two in a thousand of the children examined." In girls of 8 years of age perfectly clean heads were present in 79.3 per cent. in 1922, and in only 67 per cent. in 1913.

The statistics given show curious variations in the prevalence of defects of vision. Derbyshire had 12 per cent. of defective cases and Hampshire only 4.4, and in county boroughs the range was from 25 per cent. in East Ham to 5.4 per cent. in Hull. The incidence is much heavier in girls than boys. This is ascribed to difference in the occupational pursuits of the sexes in childhood. Spectacles were prescribed in 24,407 cases, and obtained in 21,266. Mr. Bishop Harman declares that "there is perhaps no range of disease which shows a closer correspondence with dirt than the surface diseases of the eye," and freedom from the various forms of conjunctivitis and lid infections "may be taken as a barometer of that most distinguishing feature of civilization, personal cleanliness." Upwards of 500 ophthalmic surgeons were engaged in school work during the year, principally at school clinics. In many towns squint constitutes a fifth to a quarter of the defects of vision in school children. Mr. Claud Worth says that nearly 75 per cent. of cases of squint appear before the end of the fourth year—that is, before school life begins. Usually when first seen by the school doctor vision is defective or lost, so that there should be "the earliest possible detection and treatment." Glasses can be used with negligible risk at a very early age.

Tuberculosis in active and obvious form is not frequent among children of school age. In 1922 the cases of the pulmonary form reported by local education authorities numbered 19,797, and of crippling due to tuberculosis 11,717. The number of active cases is thought to be about 1.5 per 1,000 children of school age. In London arrangements are

[1] H.M. Stationery Office. Price 1s. 6d. net; by post 1s. 8d.; or through any bookseller.

tion about the families to which they belong that a perusal of his book will be decidedly helpful to workers in the tropics. A list is given of the British Heteroptera, but there are, unfortunately, no keys for their identification. It is true that the author disclaims any intention of supplanting the work of Mr. Saunders, but, considering the high price of Mr. Butler's volume, it seems rather unreasonable to expect the student to purchase another equally expensive and rather scarce volume, in order that he may find out the names of his captures.

Mr. Butler's handsome book is very well printed and produced. It represents an excellent example of the best form of natural history book, written by an accomplished entomologist, who has studied the living insect, and is not merely content to make a collection.

RECONSTRUCTIVE SURGERY OF THE UPPER LIMB.

Dr. Steindler's book on *Reconstructive Surgery of the Upper Extremity*[4] is one of a series of surgical monographs published under the editorial supervision of Drs. Lewis, Pool, and Elting. We understand that the five monographs on very diverse subjects are only sold in sets. This rule must surely be discouraging to the surgeon who seeks information on only one of the subjects and does not want the other four books.

In his preface the author says that it is written as a record of personal experience rather than as a textbook. Bearing this in mind, we are prepared to find gaps in the subject-matter of the book where the author's personal experience has not covered the whole of the subject. With these limitations the book may be taken as a valuable and practical guide.

The first chapter is on subacromial bursitis. This disorder does not bulk nearly so largely in orthopaedic literature in England as recently in the United States. The author gives statistics of twenty-one cases of which only eleven were treated, two of them by operation. Five were cured. Fixation in splints or plaster is recommended for acute cases, open operation is regarded as necessary in resistant cases and physiotherapeutics in all. The author's attitude to birth palsy is judicious. The etiology of the condition is various and often obscure. Sever's operation of open tenotomy to correct deformity is said to give better results than operations on the brachial plexus, for which the indications are by no means clear at an early age, when only nerve suture is likely to succeed. Four cases of congenital elevation of the shoulder are recorded. In all the deformity was far more complicated than the title implies, and all were treated by massage and manipulation and gymnastic exercises without operation.

As was to be expected, Dr. Steindler has had considerable experience of the deformities following anterior poliomyelitis. In flail elbow, shoulder, and wrist he has had good results from arthrodesis in the positions of choice. In spastic paralysis Stoffel's operation has given some good results, but arthrodesis of the wrist and plastic operations for flexion contracture of the thumb are preferred. Training, of course, plays a large part in after-treatment. For tuberculosis of the elbow resection in adults and conservative treatment in children gave the best results. The same principles are applied to other joints of this extremity. The chapter on congenital malformations and deformities is full of interest, for the author appears to have had a rich experience, but it is not possible to summarize it in this notice. Traumatic deformities are also well described and discussed and some interesting peculiarities are recorded. There is a useful bibliography to each section of the work and many photographs, some of which, however, are not very instructive, but the diagrams of operative procedures are clear.

[4] *Reconstructive Surgery of the Upper Extremity.* By Arthur Steindler, M.D., F.A.C.S., Professor of Orthopaedic Surgery, Iowa State University Medical School. Surgical Monographs, under the editorial supervision of Dean Lewis, A.B., M.D., Eugene H. Pool, A.B., M.D., and Arthur W. Elting, A.B., M.D. New York and London: D. Appleton and Company. (Sup. roy. 8vo, pp. xix + 310; 50 plates. £6 5s. the set. Issued as sets only.)

NOTES ON BOOKS.

The new number of *Brain*[5] contains an account by Dr. Douglas McAlpine of the histological examination, conducted in the pathological laboratory of the National Hospital for the Paralysed and Epileptic, Queen Square, of two cases of the Parkinsonian syndrome following encephalitis lethargica. The most constant lesions were subacute inflammatory changes and recent perivascular haemorrhages. In one case the substantia nigra showed marked degenerative changes, and the observations are discussed in the light of fourteen such cases reported in the literature. In six cases of encephalitis lethargica calcification in the anterior part of the globus pallidus was found, in one instance as early as the fourth day of the disease. This paper is illustrated by a coloured plate. Another paper in this issue is by Dr. F. M. R. Walshe, neurologist to the medical unit of University College Hospital, who deals with variations in the form of certain reflex movements. Papers on cerebellar localization by Dr. Sven Ingvar of Lund (Sweden), and on lesions of the central nervous system in osteitis deformans by Dr. W. G. Wyllie, and a few notes from recent publications, complete the number.

The thirty-second edition of the Charity Organization Society's *Annual Charities Register and Digest*[6] has appeared. This useful reference book supplies a classified dictionary of charities of all kinds in London or available for the population of London. The charities are divided into those that give relief in affliction (for the blind, deaf and dumb, insane, epileptics, incurables, etc.), relief in sickness (general and special hospitals, medical and surgical homes, and surgical aid societies), relief in distress—(1) permanent (homes for the aged and incapacitated, pensions, homes for youths and children, and educational institutions), and (2) temporary (shelters, and institutions giving relief in money and in kind); reformatory relief (including prisoners' aid societies), miscellaneous charities, including, for instance, training farms for the unemployed, and charities for the protection of the helpless; and, lastly, spiritual institutions. Excluding missionary and religious institutions, which had an income of £3,768,814, the gross income of the institutions enumerated in the *Register* for the year 1921 was £13,654,466. This large sum, however, hardly gives a correct view of the true income of the metropolitan charitable institutions; the voluntary contributions included in this amount to £5,716,943, which sum rather represents income in the sense in which it is colloquially applied. The volume is carefully compiled and well indexed, and gives useful information which cannot easily be found elsewhere.

In view of the opportunity afforded by the war of carrying out on a vast scale both new and old forms of treatment and technique, and in view of the results obtained, Dr. E. M. Foote has revised his *Textbook of Minor Surgery*.[7] He has, for example, given accounts of the Carrel-Dakin treatment and of the treatment of burns by paraffin wax, though the author has done well not to introduce hurried chapters on war wounds, as have the authors of many other books. We would have expected more to have been said on the subject of shock, and that the indirect methods of blood transfusion might have been mentioned. The regional method of dealing with the minor ailments of the body naturally leads to a good deal of repetition, and the book will on this account perhaps be of the more service to the casualty officer, the house-surgeon, and the general practitioner, who are concerned with the prompt treatment of such lesions. For the student who is up for examinations the book cannot be so strongly recommended, as the information is too scattered, and he would be better advised to adhere to his own textbooks, in which the classifications are according to systems. In some places the context assumes a certain amount of surgical knowledge—for instance, Nélaton's line is mentioned, although it is not explained, and signs, symptoms, and pathology are not arranged concisely enough to favour ready retention, or in a manner likely to meet the train of thought of the examiner. However, the student might do well to read up the chapter on bandaging, which is better described and illustrated than in most of our own textbooks. It is surprising to find that such old friends as Perthes's, Schlatter's, and Kohler's diseases have not crept into this edition. To those involved in the daily practice of minor surgery this volume still remains a good source of reference and a helpful guide in the matter of practical detail.

[5] Vol. xlvi, part iii. London: Macmillan and Co. (6s. net.)

[6] *The Annual Charities Register and Digest.* Thirty-second edition. London: Longmans, Green and Co., and Charity Organization Society. 1923. (Demy 8vo. pp. xx + 533. 7s. 6d. net.)

[7] *A Textbook of Minor Surgery.* By Edward Milton Foote, A.M., M.D. Fifth edition. New York and London: D. Appleton and Co. 1923. (Med. 8vo, pp. xxxi + 845; 440 figures. 35s. net.)

in force for co-operation between the school service and the tuberculosis dispensaries. Six local education authorities maintain schools for pulmonary cases, and other 27 residential institutions have been approved by the Ministry. For non-pulmonary cases one authority maintains two schools certified as "special," and 27 institutions are otherwise provided, of which 22 are "approved."

Secondary Schools.

The number of such schools inspected in 1922 was 850, and of pupils examined 115,000. The expenditure was £66,000. The work is on the same lines as in elementary schools, and so are the defects found. Deformities are relatively high and suggest that physical training and games are neglected.

RESEARCH WORK.

Sir George Newman urges that there is ample opportunity for field research work by school medical officers and that "no scientific man or woman engaged in the medical examination of thousands of children should be other than an investigator." That important opinion is given, it may be assumed, on the understanding that the school doctor will have time for such investigation, and will not be compelled to pass by with a sigh matters to which he would gladly devote intensive study if the conditions of his service made it possible. An interesting list of the more important investigations carried out in England during 1922 is given, and two inquiries of special value are reproduced in full. One was the prevalence of deformities resulting from rickets, by Dr. H. P. Newsholme, county medical officer of health for the North Riding of Yorkshire. The other was on a domestic outbreak of encephalitis lethargica at Eastbourne, by Dr. Allan C. Parsons, medical officer of the Ministry. Both are excellent bits of work. It is also pointed out that intensive medical work in schools revealed to Colonel James and Dr. Parsons that the malaria parasite might be found in English school children and that non-imported ague still lingers in a few districts in this country haunted by the anopheles mosquito.

TREATMENT OF ELEMENTARY SCHOOL CHILDREN.

Statistics are given showing the number of authorities which have made arrangements for medical treatment, the type of provision, the number and work of school clinics, and the conditions dealt with.

School clinics have been provided by 297 authorities; in London there are 57 clinics (called medical treatment centres) and in addition arrangements have been made with fourteen hospitals. In 1922 arrangements with hospitals were made by 186 authorities, and the number of hospitals undertaking subsidized work was 381. Eye defects, tonsils and adenoids, ringworm, minor ailments, and miscellaneous defects were dealt with.

Treatment of minor ailments was provided by 303 authorities; at Sheffield there were 174,000 attendances and 28,488 examinations. At Liverpool the attendances were close on 200,000. X-ray treatment of ringworm was provided by 145 authorities. In London ringworm cases are becoming less numerous. Middle-ear disease receives much attention, and three forms of treatment are prescribed: (1) the application of antiseptic or drying powders; (2) the coagulation of albumin by zinc ionization; and (3) surgical operation. Of 1,727,314 children medically inspected in "Routine Groups" in elementary schools, 4.6 per cent. were referred for treatment of tonsils and adenoids, and 4.7 per cent. more were kept under observation. In the "Special Group" of 624,318 children, 4.6 per cent. were referred for treatment and 2.6 per cent. kept under observation. In London the incidence of such cases is diminishing.

Stammering and other speech defects are treated by only a relatively small number of authorities. Classes have been established in Manchester, Barry, Smethwick, and London, with very considerable percentages of cure.

School Nurses.

The functions of the clinic have developed. It began as a treatment centre, but is now also a health centre and ought likewise to be a research centre. In addition it is now, in well organized areas, the administrative centre for the service. Staffing, equipment, and buildings should therefore, it is said, be on a sufficient scale. The school nurses' duty is to aid the school medical officer in his work and to co-ordinate that work with the activities of other departments dealing with public health.

Dental Inspection and Treatment.

Of 317 education authorities, 244 now provide dental work. The school clinics equipped now number over 600, and attendances in England and Wales in 1922 were 4,588,934; about 1½ millions of inspections were made by dentists, over a million cases were referred for treatment, over 570,000 were treated, and 137,000 re-treated. In ten years there has been a great and cumulative improvement. Apart from emergency treatment, school dentists should, it is held, concentrate on children between 6 and 8 years of age.

Orthopaedics.

The types of cases dealt with include (a) tuberculosis of bones and joints, (b) paralysis, and (c) congenital or acquired deformities—rickets, talipes, scoliosis, etc. Cripple children constitute 0.5 to 1.0 per cent. of the school population; nearly a third of the cases are due to tuberculosis. About 80 to 90 per cent. of the cripples are curable to the extent of enabling them to take part in industry, if the disability is dealt with early and competently. The provision for treatment includes hospital schools; orthopaedic and after-care clinics; physically defective or cripple schools; remedial exercise clinics, and vocational courses for persons over 16 years of age.

Defective Children.

Special schools for defective children are very expensive and the Board urges stringent economy. The number of defectives—blind, deaf and dumb, mental cases, tuberculous cases, cripples, etc.—totalled 152,100 in 1922, of whom 127,600 were found at elementary schools. There is accommodation for fully 40,000 in special schools throughout the country, including over 14,000 in London. There are 32 institutions recognized for training blind and other defectives over 16 years of age.

The Mentally Abnormal Child.

Two types of mental abnormality are recognized—the dull and backward, and the feeble-minded. If the best is not made of them the result is apt to be unemployability, delinquency, and crime. In London the number of "backward" school children between ages 8 and 14 is estimated at 10 per cent. If the same percentage applies, the total for the country will be not less than 600,000. The large majority can be taught in ordinary elementary schools, especially in special classes under special teachers. Reference is made to the tests for mentally defective children, and it is noted that "educational" and "intelligence" tests give mutually confirmatory results, but Mr. Shrubsall states that shyness, obstinacy, or irritability may affect their application. It is believed that in every 1,000 children in average attendance there are twelve "educable" mentally defectives, or, say, 50,000—certainly not less than 30,000—for England, whereas the special schools have only 16,200 places. Estimates differ as to the percentage that can become fit for remunerative work. The duty of the school medical officer is to classify cases and enable his authority to "clear" them.

School Meals.

Power to supply meals was given to local education authorities in 1906, and in 1914 they were authorized to provide them during holidays. The degree to which these powers have been exercised has varied between year and year; the maximum was reached in 1921-22, when 190 authorities fed 592,518 children at a cost of £983,182; of this amount £15,822 was received from parents. The cost for 1922-23 is not known yet, but only 148,536 children were fed, and the total expenditure to be recognized by the Board was limited to £300,000, the responsibility of the guardians of the poor being pointed out, as school meals are not intended to be a form of poor relief.

On the question of the nutritional condition of children while wages were high during the war, opinions of medical officers vary, but most of them believe there was improvement. In 1922 health and physique were at least as good as

In *How our Bodies are Made*[8] Dr. R. M. WILSON talks in simple conversational language to very young people; the copious illustrations in the text have some attractive original features; thus an illustration of a healing wound represents the leucocytes as "white submarines mending a cut in the thumb by turning themselves into bricks," and the gastro-intestinal tract and its contents are shown as a continuous lake and rivers with tiny ships floating down on the stream. Many medical men will probably think this little volume suitable for their future successors.

The *Pocket Cyclopaedia of Nursing*,[9] edited by Dr. R. J. E. SCOTT, is a useful little reference book for nurses. The subjects with which it deals are arranged in alphabetical order with headings in heavy print at the top of each page in order to simplify reference. This collection of useful information which might be required by a nurse comprises such varied subjects as the technique of an intestinal anastomosis, the removal of stains from linen, Atwater's caloric requirements, the Binet-Simon tests, and the Schick test. The information on each subject is clear and concise, and should prove of great help to the intelligent nurse.

[8] *How our Bodies are Made.* By R. McNair Wilson, M.B., Ch.B. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1923. (Cr. 8vo, pp. viii+246; 113 figures. 5s. net.)

[9] *Pocket Cyclopaedia of Nursing.* Edited by R. J. E. Scott, M.A., B.C.L., M.D. New York. New York: The Macmillan Company. 1923. (3½" × 6¼", pp. 746; 40 figures. 14s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

TWO NEW DRUGS.

MR. W. H. MARTINDALE, Ph.D., has recently put on the market two interesting new drugs, aspriodine and sedasprin.

Aspriodine.

The formula of aspriodine is $C_6H_3I.O.CH_2CO.COOH$, and it contains 41.47 per cent. iodine and 58.53 per cent. aspirin. It is an insoluble, practically tasteless white powder which is not affected by weak acids, but which is readily split by weak alkalis into iodine and aspirin. In consequence of these properties it is not dissolved in the stomach and does not produce gastric irritation, but is broken up in the intestine. Iodine appears in the urine within a short time of taking a dose. Aspriodine therefore combines the therapeutic properties of aspirin and iodine in a stable definite chemical compound. The dose is about 5 grains three times a day after food, but this dose may be increased if desired.

Sedasprin.

Sedasprin ($C_6H_3Br.O.CH_2CO.COOH$) contains 30.86 per cent. bromine and 69.14 per cent. aspirin. Like aspriodine, it is an insoluble white powder, stable at ordinary temperatures, insoluble in weak acids but rapidly dissolved and split by weak alkalis. The process of its absorption is similar to that of aspriodine. The compound has the combined properties of bromides and aspirin, and therefore should be useful in a wide range of clinical conditions in which it is desired to give a mild sedative and analgesic. The dosage indicated is from 5 to 10 grains three times a day.

Both drugs can be obtained from the firm of W. Martindale, 10, New Cavendish Street, London. W. The price of both is the same, as follows: Tablets (5 grains), 25, 2s. 6d.; 100, 7s. 6d. Cachets (5 grains), 24, 5s.

THE SEMON LECTURE.

THE Semon lecture of the University of London was delivered in the Hall of the Royal Society of Medicine on November 1st by Dr. A. LOGAN TURNER, who took as his subject "The advancement of laryngology and otology: a plea for adequate training and closer co-operative action."

After briefly reviewing the position of laryngology in this country in Semon's early days in London in the late seventies, the lecturer proceeded to the main subject of his address, which dealt with a consideration of the teaching of the specialty. The occasion seemed to be very appropriate for its deliberation, as the period was one in which educational changes had been effected and the teaching of laryngology and otology had become a compulsory subject in the medical curriculum. The subject was discussed under three heads: first, the education of the student of medicine; secondly, the education of the young specialist; and thirdly, the education of the teacher. The three were intimately linked together.

Under the first head, Dr. Logan Turner dwelt upon the advantage to the medical student of obtaining some theoretical and practical knowledge of the commoner diseases of the throat and ear, and the method of dealing with their primary treatment; of recognizing the symptoms which indicated the spread of local infection and the dangers arising therefrom; and the importance of estimating the significance to be attached to symptoms and signs indicative of the existence of systemic disease or a central nerve affection. The preventive treatment of disease in the throat and ear should also be duly emphasized.

The education of the young specialist was a problem of some difficulty, and the question was undoubtedly an economic one for some, and its financial aspects could not be altogether ignored. In every case the course of special training should be preceded by a period devoted to the study of general medicine and surgery obtained by means of a house-physicianship and house-surgeoncy in a general hospital, while some experience in general practice would be of value. The period of special training, which might reasonably cover three years, should include not only clinical experience in a special department, but should comprise laboratory training in pathology and bacteriology; the study of the gross and minute anatomy of the brain in its relation to the specialty, the cranial nerves and their central connexions; the physiology and physics of olfaction, audition, and equilibration; and some knowledge of phonetics. This instruction should be carried out under the control and guidance of qualified teachers in the subjects, who would be prepared to provide the necessary certificates. Clinical experience in an eye department and in the wards of a physician specially conversant with nervous diseases would form a useful part of the training. Six months would be well spent abroad in centres where anatomical material for dissection and operative courses were more easily obtained, and where opportunities for endoscopic work on dogs and the human subject were available. If diplomas were to be conferred, the regulations governing them should exact certificates showing evidence both of clinical and scientific training along these lines. At this point the lecturer dealt with certain suggestions bearing upon the question of diplomas and the Fellowship examinations.

The education of the teacher involved the problem of the better organization and equipment of the ear and throat departments, and increased facilities both for clinical and laboratory research. The lecturer referred to the advantages which the pupil derived from coming in contact with the teacher who was also an investigator educating himself through his own researches. Research work would become facilitated if the work of the staff of the department was co-ordinated and more equally subdivided, so that each member had more time and leisure, and thus retain more energy to pursue the work of investigation. If the junior members were encouraged and properly directed more could be accomplished than had hitherto been done. As the result of such co-ordination it might be possible to establish some co-operative action between the various throat and ear departments in the country, and clinical research along the lines of collective investigation would yield information of real scientific value. A closer working alliance between these departments and other departments of the hospital, and between them and the workers in the laboratories, would lead to the advancement of the specialty in Britain. There were lines of research awaiting co-operation between the laryngologist and the otologist, on the one hand, and the physiologist, the biochemist, and the pathologist, on the other. Veterinary science and the large field of inquiry embraced under the term of comparative anatomy offered great scope for fresh lines of co-operative effort. To maintain an attitude of complacency combined with a sense of complete satisfaction towards things as they exist would inevitably lead to a halt in the onward march of progress. In education there was no finality.

before the war. Sir George Newman thinks this may be due partly to an increased sense of parental responsibility, partly to insurance and union and other payments, and partly to the supervision and assistance of the school medical officers. The £300,000 provided much "supplementary" food, and probably "a substantial amount of the excessive school feeding undertaken in 1921-22 was not necessary to health or life."

PHYSICAL EFFICIENCY AND JUVENILE EMPLOYMENT.

One of the objects of the School Medical Service is to fit the child physically for industry and to prevent premature employment. The Education Act of 1921 forbids the employment of a child under 12 for gain, and limits the employment of children under 14 on school attendance days, besides giving local education authorities power to make by-laws as to morning and evening and Sunday employment. Of 317 such authorities, 297 have made by-laws. The Board issued a set of questions to the authorities, and the replies show (1) that certain unsuitable employments—in public-houses, slaughterhouses, and barbers' shops—have been stopped; (2) that certain permitted employments are controlled and supervised, and their juvenile workers periodically reinspected; (3) that most authorities require a medical certificate of the suitability of the employment proposed, that nearly all have adopted a system of registration, that many make employers responsible for waterproof garments and footwear; (4) that prompt treatment of defects is secured; and (5) that partly employed children attend school in a condition enabling them to benefit by the attendance. Much advice is given as to the suitability of proposed whole-time employment; and prospective employers may be advised as to physique, temperament, intelligence, and personality, so that not only shall the worker be fit for the work, but the work shall be the best for the worker.

WEYMOUTH AND DISTRICT HOSPITAL.

OPENING OF NEW X-RAY DEPARTMENT.

THE James Miller Memorial Wing, which takes the form of a new and elaborate x-ray department, in memory of the late Dr. James Miller, for many years on the staff of the hospital, was opened on Saturday, November 3rd, by Sir Humphry Rolleston, K.C.B., who was supported by Dr. A. E. Barclay of Manchester. Apologies were received from Sir Charters Symonds, K.B.E., who was unfortunately indisposed, and others.

Previous to the opening ceremony, about fifty of the leading practitioners of the county, and some of the prominent residents of the town, were entertained to luncheon by the chairman of the hospital, Mr. A. Clarke. The opening ceremony took place at 3 p.m. at the hospital, in the presence of a crowded gathering. Mr. Clarke made a few introductory remarks as to the development which had taken place at the hospital. In introducing the President of the Royal College of Physicians and Dr. Barclay, he said how fortunate the town was in having men so eminent in their profession to address them.

Sir Humphry Rolleston's Address.

Sir HUMPHRY ROLLESTON began by remarking that at a time when financial stress was forcing many hospitals to close wards the addition of a wing for an expanded x-ray department spoke well for the generosity of the Weymouth public and the energy of that hospital's authorities. This important improvement was appropriately dedicated to the memory of Dr. James Miller, who for fifteen years devotedly served the hospital, and died within its walls on November 9th, 1918, from lung complications of influenza. Like many unselfish men of his profession, he neglected himself in order to care for others, and went about his work with a temperature of 104° F.—a sacrifice which he certainly would not have allowed anyone else to make. Always willing to help in any capacity, generous and sympathetic, he was the friend of the poor, but did not let his light shine prominently before men. Often such a life had its only memorial in the gratitude, genuine though necessarily transient, of the poor; fortunately his relations, colleagues, friends, and patients had determined to perpetuate the good work he had silently carried out by erecting and equipping a new x-ray department. Röntgen of Wurzburg discovered x rays when working with a Crookes's high vacuum tube electrically excited in November, 1895, and it was therefore a great Englishman, Sir William Crookes, whose work rendered this discovery possible. Röntgen died on February 10th last, and thus had the satisfaction of seeing the enormous advances that his observation had rendered possible, not only in pure science but in its practical application, especially in the art of healing. Those who were in practice before radiology became the handmaiden of medicine and surgery knew what a revolution had taken place in the accurate detection of disease. Unlike many great advances in medicine, the use of x rays was at once taken up most enthusiastically, and, though its professional application took some years to develop on account of many technical difficulties, it was never neglected or opposed. First employed for the detection of fractures, foreign bodies, and calculi, x rays were in 1896 applied by J. Macintyre of Glasgow to the diagnosis of intrathoracic disease, such as aneurysm; about ten years later pyelography came into vogue. Sir Humphry Rolleston then gave a few examples showing that advances were constantly being made. The introduction of gas into the abdominal, cranial, or even other cavities before an x-ray picture was taken was now employed to define more clearly the position of a tumour. Jacobaeus's thoracoscopy and division of pleuritic adhesions under the x rays opened new possibilities in the treatment of pulmonary tuberculosis by artificial pneumothorax; Sicard's method of localizing the level and extent of spinal fractures, adhesions, or tumours obstructing the intrathecal space by means of injections of lipiodol before the spine was x-rayed was a most promising aid to diagnosis first reported in this country by Percy Sargent. The demonstration of gall stones had been followed by that of other pathological changes in the gall bladder, and the discovery by Forsell of Stockholm that the mucous membrane of the gastro-intestinal tract underwent active movements, apart from the coarser contractions of the muscular coat, and thereby controlled the distribution and regulation of the contents of the bowel, held out important possibilities.

In diagnosis the x rays had provided an additional sense or new eye, and their extension of the field of vision was comparable with the advance made when microscope lenses and telescopes were first introduced. In the twenty-eight years since x rays were discovered the mental attitude of clinical workers had gradually undergone a change, the magnitude of which was only realized when a medical man found himself in some place where x rays were not available for help in a case of doubtful diagnosis.

X rays were not so widely employed or so well established in treatment as in diagnosis. In some skin diseases and superficial tumours their beneficial influence had been proved beyond question, and the autolytic effect of irradiations had been utilized in uterine fibromyomas, prostatic hypertrophy, erythraemia, exophthalmic goitre, metrorrhagia, lymphadenomatous and other enlargements of glands, and chronic tonsillitis, and good results in other affections might confidently be anticipated. But remedies powerful for good were not without risk when employed in large doses, and the dangers attaching to x rays were now fully recognized.

In conclusion, Sir Humphry Rolleston said that, important as was a thoroughly complete and up-to-date equipment, the first essential was that there should be a competent radiologist in charge of the department, and the Weymouth and District Hospital was most fortunate in having the services of Dr. Rodier Heath, who for fifteen years had been the pioneer in that town, which thus provided a valuable centre for radiological work.

Dr. F. H. RODIER HEATH, the medical officer in charge of the hospital, outlined the progress of x-ray work in the town, and said that from a very small street where he began his work fifteen years ago—when all they had was one small room with a 10-inch coil—they had gradually developed to their present state of efficiency, as evidenced by the fact that exposures which formerly took two minutes could now be done in a fraction of a second. He had no hesitation in saying that the equipment at Weymouth was well up to the standard of any department in the West of England. He said how much the presence of such distinguished men as Sir Humphry Rolleston and Dr. A. E. Barclay would help on the work of the department for which he was responsible, and added that he had incurred a debt to Dr. Barclay he could never repay for much valuable help for many years past. He looked upon the magnificent x-ray department at Manchester as his ideal.

Dr. A. E. BARCLAY, of the Royal Infirmary, Manchester, expressed his pleasure in supporting his friend Dr. Rodier Heath's good work, and outlined the progress of x-ray work in Manchester from the time—some fifteen years ago—when he first took charge of the department and they had only one small room and a dark room. At present they had nine sets of apparatus and a large staff of experts. X-ray work required a highly skilled specialist and the work called for a trained eye and brain. During the daily work at the Royal Infirmary, Manchester, there was an interval of half an hour, during which they

has not yet been ascertained. It was first noted in 1897 in New Guinea, but it has been observed also in Siam, Java, Madagascar, in both French and British Guinea, and in Algeria. Drs. Castellani and Tejera describe a skin disease of which we have not previously heard. It occurs in Venezuela, where it is called "cute" and is said to be fairly common. Bright yellow patches with little or no desquamation appear, sometimes in childhood, and very slowly spread. It is thought to be identical with an infection described by Castellani in Ceylon under the name of tinea flava. Spores were observed in scrapings from the yellow patches, but no fungus growth could be obtained from them.

AT the meeting of the Society for the Study of Inebriety to be held at 11, Chandos Street, W.1, on Tuesday, July 10th, at 4 p.m., Professor A. Louise McIlroy will open a discussion on the influence of alcohol and alcoholism upon ante-natal and infant life.

A MEMORIAL to the late Dr. Murdoch Mackenzie was unveiled on June 22nd in the Isle of Lewis Hospital, of which institution he was one of the founders and for twenty-six years its medical superintendent and devoted friend.

THE very fine collection of Hispano-Moresque pottery made by Mr. Francis W. Mark is to be sold at Christie's on July 10th. It contains some rare pharmacy jars of the fifteenth century. Part of the collection was exhibited last summer at the Royal Society of Medicine's social evening.

THE University of London Press announces for early publication an illustrated volume on *The Diseases of the Breast*, by Willmott H. Evans, M.D., F.R.C.S., surgeon to the Royal Free Hospital.

A SECOND (revised and enlarged) edition of Choyce's *System of Surgery*, in three volumes, is announced for early publication by Messrs. Cassell.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

"G. T." inquires if there is any hospital in the British Isles where a native of Sierra Leone, who is an M.A., B.Sc., and M.B., B.S., could obtain a house-surgeon's appointment. Failing such, could the graduate be attached as a pupil to learn the work of house-surgeon and at the same time obtain an insight into hospital administration?

UNCERTIFIED MIDWIVES.

"OXON." writes: (1) Is a nurse who holds certificates of proficiency in midwifery, but has not passed the examination of the Central Midwives Board, eligible for registration as a midwife? (2) In the event of her being eligible, am I as a doctor permitted to allow her to conduct cases without my actually being present at the confinement?

*** (1) No woman (other than a registered medical practitioner) can act as a midwife in England or Wales unless she holds the Board's certificate. This certificate she can now only obtain by passing the Board's examination or by being enrolled by virtue of holding the certificate of either the Central Midwives Board for Scotland or the Central Midwives Board for Ireland, obtained as a result of training and examination equivalent to the standard adopted by the Board. (2) If a medical practitioner were to allow an uncertified woman to conduct cases without his actually being present at the confinements, the woman would be liable to be prosecuted and the doctor to be reported to the General Medical Council for "covering" an uncertified woman.

INCOME TAX.

"L. B. S." bought a practice as from May 1st, 1921. There appears to be some difficulty in the way of an assessment on the three years' average of his predecessor; "L. B. S." has supplied an account of his cash receipts and expenses to the inspector, who declines to take the receipts on that basis, and claims to add thereto the value of the debts outstanding at the end of the year. He also declines to allow a deduction for removal expenses. The proper basis is of course the average of the three previous year's profits, and if those figures are not available, the profits of the current year are useful only so far as they may serve to indicate what that average probably amounted to, or, if the profits have fallen off, as a basis of adjustment to meet that special case. The inspector's point about the necessity for taking bookings into account during the early years holds good; income tax is payable on profits earned and receivable even though they have not in fact been received. The claim to a deduction for removal expenses cannot be upheld as there is judicial authority against it; the expense is not incurred so much in carrying on the practice as in acquiring it.

"H. E. G." replaced a 10-h.p. S. car by a 10-h.p. F. costing £662; the cost of a car of similar make and the same horse-power as the S. is estimated at £600. He has claimed to deduct £600 – £100 allowed for the old car, net £500. The inspector of taxes says he is not entitled to replacement cost but to depreciation—for example, £220 (cost of old car), less £100—that is, £120 only.

*** It is beyond dispute that a professional man is entitled to cost of replacement and not to depreciation—which in the long run would be of greater benefit. In the official evidence given before the Royal Commission on the Income Tax it was stated that the cost of replacement would be measured by the expense necessary to replace a machine, and that where that amount exceeded the original cost no restriction would be enforced, except that where the expenditure was incurred partly for improvement *the portion* so incurred could not be allowed. Assuming that a 10-h.p. car of similar quality and type to the S would cost £600 when the F. was bought, our correspondent is correct in claiming to deduct £500.

LETTERS, NOTES, ETC.

MESSRS. BOOTS of Nottingham have issued a list of chemicals of guaranteed purity for use in research. The majority of the substances in the list are manufactured by the firm.

CORRECTION.

DR. GORDON NORRIE of Copenhagen calls attention to an error in the annotation on the prevention of ophthalmia neonatorum in Denmark published in the JOURNAL of June 23rd. In the fourth line from the end (p. 1062) is a quotation which should read as follows: "it is impossible by prophylaxis to prevent the infection taking place after birth"—that is, in the days after the birth.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 34, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 12.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the *British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.*

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be *accompanied by a reference.*

NOTE.—It is against the rules of the Post Office to receive *poste restante letters addressed either in initials or numbers.*

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

1. Treatment of Diabetes with Insulin.

N. B. FOSTER (*New York Med. Journ. and Med. Record*, May 16th, 1923, p. 591) points out that the treatment of severe diabetes with insulin must be cautiously commenced in determining precisely the appropriate dose for each individual, since one individual may react more readily than another to any given dose. Insulin shock occurs when the blood sugar falls below 0.05 per cent., and the development of coma can be controlled by intravenous injections of glucose. It is advisable for future comparison to estimate the degree of severity of the disease, and this can be done by giving one litre of milk a day for three days, and then estimating the total glucose and nitrogen in a twenty-four hour specimen of urine. Since it is impossible to tell how much insulin will be required to control the glycosuria treatment should commence with small doses, and by examining each voiding of urine the proper dose can be estimated. The dose is not excessive while sugar is present in the urine, but as soon as it disappears the only guide then is the blood sugar. If after an initial dose of five units three times a day half an hour before meals it is found that sugar is still being excreted in considerable amounts the dose can be gradually increased, but if the sugar rapidly disappears the dose should be diminished, or even stopped for a few hours, to be recommenced on a reduced dosage. In the treatment of diabetics with surgical complications insulin treatment gives most satisfactory results by converting serious surgical risks into comparatively safe procedures, it being often found on the subsidence of the infection that the diabetes is so slight as to be controlled by dietary without requiring further insulin treatment. A definite ratio appears to exist between total carbohydrate in the diet and the number of units of insulin used, and this ratio is individual and must first be determined for each case.

2. Hyperglycaemia in Diabetes.

M. ROSENBERG (*Klinische Wochenschrift*, May 14th, 1923, p. 925) refers to the blood examinations carried out in recent years, which have shown that after the consumption of a sufficient amount of carbohydrates hyperglycaemia occurs. But in health this remains low and soon disappears, whilst in diabetes the hyperglycaemia is greater and persists longer. The author thinks that the passage of carbohydrates into the duodenum leads to a reflex stimulation of the liver (through the autonomic nervous system), and that in diabetes the marked blood sugar reaction after the consumption of sugar is due to an increased excitability of the liver. His observations show that this reaction may be produced not only by carbohydrates but also by albumin. In the normal condition usually the change in the blood sugar, if present, is slight. In diabetics, however, who are sensitive to albumin, 100 grams of cooked beef may cause a definite increase in the blood sugar. Fourteen cases of diabetes are recorded in which this test was carried out. In 6 cases of the milder forms (not sensitive to albumin) it produced no abnormal increase of the blood sugar in 4. In 8 severe cases of diabetes (sensitive to albumin) 100 grams of cooked beef produced a greater increase of the blood sugar; in 3 of these it was equal to the hyperglycaemia produced by carbohydrates in equivalent quantity (36 grams of white bread).

3. Spa Treatment of Diabetes.

F. RATHERY (*Paris méd.*, April 21st, 1923, p. 355) states that every case of diabetes should not be sent to a spa, but that a judicious choice should be made of the proper patient to send, as very serious symptoms may occur as the result of untimely treatment. The following cases are unsuitable: (1) patients with well marked acidosis in whom coma may occur on the slightest provocation, such as the fatigue caused by the journey, change of habits, and the spa treatment itself; (2) cachectic cases complicated by tuberculosis; (3) azotaemic or cirrhotic cases. All other diabetic cases may be sent to spas, provided the following rules are observed: (1) The patients should not consider that spa treatment renders all other treatment unnecessary, as so frequently occurs. Some fondly imagine that a season at Vichy is sufficient and do not follow any regimen treatment during the rest of the year. (2) During their stay at the spa they must follow a rational treatment based on an appropriate regimen and hydrotherapeutic and physiotherapeutic principles. The spas suitable for diabetics may be classified as follows: (1) alkaline stations, such as Vichy; (2) arsenical stations, such as La Bourboule and Royat; and (3) lavage stations, such as Contrexéville, Vittel, and Evian.

4. Treatment of Chronic Nephritis.

L. CHEINISSE (*Arch. de med., cir. y esp.*, May 19th, 1923, p. 289) states that in spite of the profound changes that have taken place in the dietetic treatment of chronic nephritis, following the introduction of salt-free diet which has resulted in a more liberal regimen, a number of articles of diet are still prohibited. Some, indeed, such as mussels and shellfish, which were previously recommended, are to be forbidden owing to their high chloride content, quite apart from the fact that they frequently contain toxic substances which are specially injurious to nephritic patients. Many clinicians also condemn the use of fish, but this prohibition is only justified by the rapid tendency to putrefaction of this article of diet. Slovtzov has shown that the albumin in fish presents certain advantages as regards organic exchanges. If one can be absolutely certain of its freshness fish may be allowed, especially fresh-water fish, which does not contain more than a few centigrams of sodium chloride per kilo, whereas salt-water fish contains an excess of salt, some as much as 4 grams of sodium chloride per kilo. Venison, salted and preserved meat, broth, meat juice, and fermented cheese must be absolutely forbidden. Among vegetables, cabbage, asparagus, radishes, and cress should be forbidden owing to their irritating properties, as well as spinach, tomatoes, and sorrel, on account of their large proportion of oxalic acid. Potatoes and haricot beans, which contain a smaller quantity of oxalic acid, may be permitted. Mushrooms are very prejudicial to nephritic patients, their consumption being followed by an increase in oedema, albuminuria, and pathological elements in the urine, especially red corpuscles and a considerable aggravation of the general condition. As regards drink, patients with Bright's disease were formerly recommended to drink as much as possible so as to promote diuresis. To-day, however, it is generally taught, especially by the school of Widal, that the ingestion of a large quantity of water may be injurious, since there is a risk of fatiguing the heart and increasing the dropsy. As a rule it will not be prudent to exceed one and a half litres in the twenty-four hours, and the quantity of fluid should be reduced in advanced cases with cardiac dilatation. Water, tea, and coffee may be given, but spirits and wine should be avoided, or only small quantities of white wine, which contains less alcohol and tannin than red wine, may be given well diluted with water.

5. Clinical Experience with Quinidine.

C. S. BURWELL and FR. DIEUAIDE (*Arch. Intern. Med.*, April, 1923, p. 518) record the results of their observations with respect to the improvement in the circulation after the normal cardiac rhythm had been restored by treatment with quinidine. Sixteen cases are recorded. The circulation was first restored, as much as possible, by rest; and in most cases digitalis was given, but it was discontinued before the quinidine was administered. A small preliminary dose of quinidine was given to test for idiosyncrasy to the drug; then 2 grams were given daily in five doses of 0.4 gram each, at intervals of two hours. Of 16 cases of auricular fibrillation treated with quinidine sulphate, 14 (or 88 per cent.) reverted to the normal rhythm; in 8 of these cases the regular rhythm has persisted; in 6 it persisted for more than six months. In the cases remaining persistently regular there has been a marked improvement in the patient's health. Hence, in patients with auricular fibrillation who cannot be brought to a satisfactory degree of circulatory efficiency by the usual therapeutic measures, an attempt to restore the normal rhythm by quinidine is justified by the hope that the patient's health will be improved thereby. The results published in medical literature by various authors show that in a total of 606 cases treated, the normal rhythm was restored by quinidine in 339, or 55.9 per cent. Two grams of quinidine sulphate may be given daily, without severe toxic symptoms; and such doses give a higher percentage of successes than smaller doses. Death occurred in 3 of the cases recorded—in one it was due to embolism from an intra-auricular thrombus. So far as is known the danger associated with the use of quinidine is due to embolism from an intra-auricular thrombus, following the onset of normal auricular activity.

were served with coffee, and this half-hour was of the utmost value because during that time they met the members of the surgical and medical staffs and discussed their cases.

Mr. H. H. Du Boulay, the senior surgeon of the hospital, proposed a vote of thanks to the speakers, and this was seconded by Dr. James Macpherson Lawrie, Deputy Lieutenant of Dorset, to whom the present fine building owes its existence. Lord Ellenborough, chairman of the Dorset County Hospital, also spoke and added his testimony to the great assistance which the x-ray department at Dorchester—also under the charge of Dr. Rodier Heath—had been to the medical and surgical staffs.

The New Installation.

At the close of the meeting an inspection was made of the new wing. The main room is a large and lofty one, well lighted by three large windows fitted with wooden roller blinds to exclude the light. Electric fans are used for keeping the atmosphere pure. There is a Snook transformer fitted with auto-control and time switch, capable of an output of 80 milliampères through the tube; a screening stand, radiographic couch, and various tube stands; and a special couch for use with the Potter-Bucky diaphragm. In another room is a 16-inch coil used for therapeutic work, and great attention has been paid throughout to provide ample protection for the operators. Coolidge tubes are used for treatment and diagnosis and water-cooled and Macalister Wiggin tubes for radiographs. The department also contains the usual dark rooms and office. The apparatus was supplied by Messrs. Newton and Wright and the Cox-Cavendish Electrical Co. The erection and design were carried out by Mr. T. H. Escott, electrical engineer, Weymouth. The Weymouth and District Hospital is a fine modern building, standing in its own extensive grounds, with a private nursing home attached, and is situated just outside the town.

Paris.

[From Our Correspondent.]

As the leaves fall so do the doctors return. The medical world of Paris begins to wake up, and the medical societies are announcing their first meetings for the session. It is curious to observe the change the war has worked in the habit of life of the Paris doctor. Nowadays the word "*vacances*"—what you would call the long vacation or the autumn holidays—expresses for us a right if not a duty. Many indeed are the doctors, and among them some of the busiest, who give themselves leave for two good months. Their patients agree that it is necessary, and as a matter of fact all sections of society do very much the same. Then, for goodness' sake, let not our foreign brethren take study leave in Paris in summer; the *mot d'ordre* there is—go easy.

At that time of year the centre of medical activity is transferred to our thermal stations. There it is intense. Never have our watering places been so thronged, so sought after, as during the summer just passed; all of them are publishing statistics; each one of them is a record.

The causes are manifold. One is that the war sent marching through France millions of men who then learnt to know their own country. Another is that when suddenly our health stations were converted during the war into great centres of hospitalization they had to be thoroughly equipped for the work, and to their previous therapeutic resources was added an arsenal of new methods for physical treatment. In this way they have won quite a new sort of reputation. There has grown up in the public mind a very remarkable belief in what are called natural methods—light, water, air, the simple life—and the belief in chemiotherapy has correspondingly declined. Every day some patient will say with a certain naïve air of superiority, "I don't take drugs," and this type of patient is predestined to go to a spa, where a scheme of treatment has been systematically planned out and the indications for the use of the waters published far and wide.

International conditions have been especially favourable to France this year. The German spas have not been able during this time of instability to attract visitors, even though the least of them might, when he handled the German currency, fancy himself a millionaire. Moreover, the exchange conditions have brought to France crowds of visitors who in former times would never have dreamt of making the journey, but who nowadays find themselves able to live luxuriously in the best hotels at prices lower than those of their ordinary life at home. The spas in Czecho-Slovakia have suffered from a cause the converse of this, for in that country exchange rates have considerably improved but there has been no corresponding fall in prices. They have been deserted in favour of greater but poorer rivals. *Beati pauperes.* This unexpected success did not take the French watering places by surprise; their response to the demand on them was limited only by the accommodation available.

Another consequence of the movement which has carried these crowds to thermal stations has been its effect on members of the profession. A well recognized law of political economy is here once more in operation. Some of the most distinguished doctors, certain of a successful career whatever road they took, have chosen that of thermal medicine, which once upon a time was rather despised. The development of hydrology has been quickened by these reinforcements. No longer is it considered sufficient merely to observe patients who present themselves for spa treatment or to build a special clinic. A new spirit of inquiry is evident, and the thermal stations have become centres for research and original investigation. A hospital of a thermal station provides the nucleus round which the laboratories can cluster. There is a rich clinical material in the innumerable patients, constantly replaced by newcomers from all parts of the world. The scaffolding for the study of preventive medicine of the future is being put up in the French watering places, which are serving also as links in the chain of international medicine, so that we can claim that medicine is playing a great part in maintaining the entente, the cordiality of which does not depend on the humour of political virtuosos. The old tradition that medicine knows no frontiers is being revived. It was in England that this sentiment of the international solidarity of medicine first gained strength; it was in the heart of a British member of the profession that the dream of an international society of hydrology was formed; and it was the brain of another which brought the idea to fruition; it was received enthusiastically in France, which was only sorry that it had not originated the idea.

England and Wales.

Vital Statistics for 1922.

The Registrar-General's Statistical Review for 1922 is a very "figurative" volume[1]—nearly 500 pages packed full of numerals, not as an appendix to something, but only with a table of contents preceding the figures. The salient features are as follow. The births in the year were 780,124, being 68,690 fewer than in 1921. They yield a birth rate of 20.4 per 1,000 living, this being the lowest rate yet recorded. The deaths were 486,299, being 27,600 more than in 1921, and yielding a rate of 12.8 per 1,000. In 1921 the rate was the lowest on record, 12.1, and 1920 also had a lower rate than 1922, so that 1922 stands only third in order of healthiness as measured in this fashion; nevertheless any of these rates would, if he could come to life again, excite the astonishment and admiration of Dr. William Farr, the first of the Somerset House statisticians, and in this country the father of the modern science. He separated out from the rest of England all the areas which had an exceptionally low mortality, and classed them under the title "healthy districts." And the figure which he chose as the criterion of healthiness was the death rate of 17 per 1,000 per annum. Such places were set on a pedestal for the emulation of the rest of the country. Later there had to be made a new standard, and 15 per 1,000 was adopted. The change is indeed wonderful. As to infant mortality, the total deaths under one year of age were 60,121, equal to a death rate of 77 per 1,000 births. That is the lowest rate ever recorded in this country, and, making every allowance for seasonal influences in respect of summer diarrhœa and epidemicity of children's acute infectious diseases, the 77 rate represents

[1] Tables, Part I. Medical. H.M. Stationery Offices. (Royal 8vo, p. 491. 15s. net, by post 15s. 6d.)

A WEALTHY Persian merchant, Haji Mohammed Hussan Namazi, has recently presented to Shiraz a maternity hospital to provide twelve to fourteen beds, and has promised £100 a month towards its upkeep. Though not a Christian he has placed it under the care of the Church Missionary Society. Medical work was begun by the Church Missionary Society in Shiraz last February, and Dr. Emmeline Stuart, a Glasgow medical graduate, who went out at that time, will be in charge of the hospital. The desire of the donor is that the training of midwives should also be undertaken.

THE late Mr. Frederick Wolfe, solicitor, of York Gate, Regent's Park, N.W., has by his will bequeathed £2,000 to the Middlesex Hospital, as to one-half for the Endowment Fund and one-half for the Cancer Research Fund; £1,000 each to Charing Cross Hospital for the Endowment Fund and King Edward's Hospital Fund for the Endowment Fund, £500 each to the Cancer Hospital, Fulham Road, and the National Hospital for the Paralysed and Epileptic. He also left £100 to every hospital to which he had been an annual subscriber for at least two years preceding his death. The contingent residue of the estate is to go as to one-third to Charing Cross Hospital for the Endowment Fund, two-thirds to the Middlesex Hospital, one being for the Endowment Fund and the other for the Cancer Research Fund.

IN Brazil it is estimated that more than 18,000 persons are bitten by snakes every year, and that 4,000 deaths occur annually from this cause.

ACCORDING to a report of the State Department of Health of South Carolina, U.S.A., an average of over two persons a day are bitten by rabid dogs in that State, and a campaign is being begun to persuade the State legislature to pass a law to compel owners of dogs to have them vaccinated against rabies. The number of persons bitten by rabid dogs has increased from 176 in 1912 to 769 in 1922, and 3,088 persons have received the Pasteur treatment during that period.

DR. JEAN PAUL LANGLOIS, professor of physiology in the University of Paris and editor of the *Revue Générale des Sciences*, died recently at the age of 62.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

DR. GRAHAM GRANT asks to be told of a good intestinal antiseptic for an obstinate case of mucous colitis. He has tried salol, beta-naphthol, castor oil (in large and small doses), dimol, charcoal (the most useful), and lavage with quinine solution; but violent attacks of diarrhoea of an offensive type still persist and debilitate the patient.

TREATMENT OF NEURO-FIBROMATOSIS.

"M.B., F.R.C.S." has under his care a girl, aged 19, who is suffering from neuro-fibromatosis. Small tumours began to appear at the age of 7, and at present there are small, soft, fibrous nodules all over the body, arms, and legs, and some on the forehead and neck; the largest is about the size of a pigeon's egg and the smallest of a pea. The skin is of a yellow tinge with patches of brown pigmentation; some of the larger swellings are bluish in colour and appear to be of a naevoid nature. The girl is mentally developed, but at times moody and irritable; she does not appreciate her defects, and wishes to go into society. Among other things the following have been tried: arsenic, thyroid extract, pituriglandular extracts, excision of the nodules (reported to be fibromata). It is quite impossible to excise all the nodules. Our correspondent asks for suggestions as to (1) the treatment of the condition; (2) any sphere of life in which the patient would not be conscious of her defects. It is unnecessary to take expense into consideration.

ETHYL CHLORIDE-CHLOROFORM SEQUENCE.

DR. A. W. BURTON (South Africa) writes: May I ask for an expression of opinion on the question of the administration of the sequence of ethyl chloride and chloroform for general anaesthesia? British textbooks make very little reference to such a sequence. An American author (Gwathmey) refers to the sequence as a dangerous one, to be avoided at all times. The special points I should like answered are: (*a*) Is such a sequence more dangerous than the administration of chloroform alone on an open mask? (*b*) Is it wise to administer ethyl chloride in a closed inhaler and to follow up with chloroform on an open mask? (*c*) Would any element of risk be minimized by administering ethyl chloride by the open method and then chloroform by the same method? I acted for many months as anaesthetist in a large hospital in the United Kingdom, and must admit that I never once saw such a sequence used, neither did I ever hear of such ever having been used at any time.

INCOME TAX.

Income from Abroad.

"AUSTRALIAN," referring to the reply given to "Victorian" in our issue of November 19th, 1921, asks whether income tax is not collected in this country on the whole of the Australian income less the amount of the Australian tax.

*** The position is as follows: Income arising from securities, stocks, shares, and rents is chargeable to tax on the full income accrued—less the allowance for Dominion income tax—except where the taxpayer concerned is either not domiciled or not ordinarily resident in the United Kingdom. "Victorian" was in the latter class of persons, and as such was entitled to compute his liability on the basis of the sums received in the United Kingdom.

Interest on Unpaid Purchase Money.

"J. D. W." is paying part of the purchase money payable for a practice in instalments, interest being paid from time to time on the amounts outstanding.

*** It is presumed that the interest is payable at a fixed rate per annum. In that case the purchaser should deduct tax at the standard rate on paying the interest to the vendor; the Income Tax Acts provide for this very clearly, and also lay down the definite rule that "interest" must not be deducted in computing the income tax payable on the profits. The purchaser will thus have to account to the Revenue for the tax (as part of the tax paid under Sch. D) whether or not he exercises his right of deducting tax from the interest he pays.

LETTERS, NOTES, ETC.

THE DANGER OF AMYL NITRITE IN COLLAPSE.

A CORRESPONDENT at a recent dental exhibition saw capsules of amyl nitrite being sold along with other drugs for the relief of shock and collapse. He writes to mention a case he recently observed where after the administration of nitrous oxide and oxygen the patient passed into a state of dangerous collapse, with a scarcely perceptible pulse and inaudible heart sounds. Amyl nitrite was given by the anaesthetist, but seemed rather to aggravate the condition; it was improved by the subcutaneous injection of strychnine and digitalis. He questions the propriety of using such a drug as amyl nitrite in the condition.

CANCER AND CARIOUS TEETH.

BRIGADIER-GENERAL F. E. BURNHAM (Winnipeg) writes: A recent issue of the BRITISH MEDICAL JOURNAL contains a note on cancer and carious teeth, by Dr. R. J. Love (Staplehurst, Kent). During a residence of fourteen years Dr. Love found no cancer among the natives of South Africa, and puts forward the theory that carious teeth are the cause of cancer. In this connexion it may be of interest to report that the White Cross treated 20 135 half-starved Albanians in the city of Scutari. They had pyorrhoea. Their teeth had fallen out from scurvy and famine, but among them there was found only one case of cancer, and no case of diabetes or appendicitis.

THE British Drug Houses, Ltd., have issued a pamphlet entitled *Clinical Pathology and the Use of Stains*, which, in addition to giving a price list of standard microscopic stains, includes some useful practical hints on bacteriological, haematological, and histological methods.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 36, 37, 40, 41, and 42 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 247.

a triumph of well directed infant welfare work. The natural increase of population by excess of births over deaths was 293,895, equivalent to a rate of 7.6 per 1,000 living.

The Banks Memorial Lecture.

Sir Arthur Keith, F.R.S., delivered the Banks Memorial Lecture of the University of Liverpool on November 1st. The Vice-Chancellor (Dr. J. G. Adami) presided, and there was a large attendance of medical men and students. In introducing the lecturer, the Vice-Chancellor set forth the circumstances in which the memorial lecture was instituted, and Sir Arthur Keith added some personal traits of Sir William Banks culled from a paper—largely autobiographical in character—which Banks had written. The lecture, an account of which is given elsewhere (p. 888), dealt with the origin and nature of hernial formation. It was illustrated by freehand drawings and its delivery was accentuated by appreciative applause by all present. In the evening the biennial dinner of the Liverpool Medical Institution took place. Dr. J. Hill Abram was in the chair and Sir Arthur Keith was the guest of honour. Its success was largely due to the efforts of Dr. Murray Cairns, who unfortunately was not able to be present.

The London County Council's New Mental Hospital.

The eleventh mental hospital under the control of the London County Council, which is now approaching completion, is to be known as the "West Park Mental Hospital"; the name originally chosen, and since abandoned, was the "Epsom Common Mental Hospital." Although the hospital is not yet ready for occupation, so many questions in connexion with equipment and administration are arising that it has been deemed advisable to appoint, without delay, the first medical superintendent, who is Dr. Norcliffe Roberts. He has been a deputy medical superintendent in the mental hospitals service, and has acted recently as medical superintendent at the Ministry of Pensions Neurological Hospital, Epsom. The salary is £1,200 a year (based on pre-war economic conditions, with the emolument of an unfurnished house (rates, taxes, and water supply free). The salary is subject to certain temporary additions, in accordance with the cost of living scale, which bring it at the present time to a total of £1,419.

Health of Birmingham.

The birth rate in Birmingham in 1922, based on a population of 927,844, was 21.5 per 1,000, and the death rate from all causes 12.1 per 1,000. The infant mortality rate was 86 per 1,000 births. The highest birth rate (30.8 per 1,000) was in St. Mary's ward, the highest death rate (16.7 per 1,000) in St. Martin's and Deritend ward, and the highest infant mortality rate (117 per 1,000) in St. Mary's ward. The extension of the city boundaries at the beginning of the present century by the inclusion of a large number of outlying districts has naturally caused a fall in the recorded death rates, which might well be more apparent than real. It is satisfactory to find therefore that in Birmingham as at present constituted the death rate from all causes has fallen from 15 per 1,000 in 1906 to 12.1 in 1922, and that the infant mortality rate has fallen during the same period from 157 per 1,000 births to 86 per 1,000. One of the most pressing needs of Birmingham appears to be an increase in the number of houses for the working classes. Overcrowding, writes Dr. Robertson, is still very acute, and a large number of houses must be erected before the overcrowding is reduced. Some of the overcrowding and discomfort which at present exist is about as bad as it is possible to imagine in a civilized country not in a state of war. Instances are reported in which father, mother, and four or more children have to live and sleep in one room, often an attic, with inadequate cooking accommodation, with no proper food store, no water supply, and no means of getting rid of slops. During the three years 1920-22 the corporation erected 2,279 dwellings, and about a thousand were built by private enterprise, the latter mostly of the small villa type. In ten wards in the city with a total population of over 350,000, not a single house was built during the three years. Dr. Robertson urges the necessity for proceeding energetically with the erection of dwellings by public enterprise. It is at present useless to expect help from private enterprise, for the reason that the private investor who used to put his capital in this type of investment is now hedged round by so many restrictive conditions contained in recent legislation that an owner of small house property has always been regarded in the eyes of the people as a rapacious individual to the proper care of whose property not the slightest regard need ever be paid.

The prevention of tuberculosis is prominent among the activities of the Birmingham health department. Among the duties of the tuberculosis visitors are those of inducing patients to obtain early treatment, and of inculcating the general principles which tend to prevent the spread of the disease in the home. During 1922 they found among the 2,040 primary cases visited no fewer than 1,054 patients who shared a bed with another member of the family, 269 were sharing a bedroom, and in fifty cases fresh air was not being obtained by means of open windows. In order to remedy the crowding of the healthy with the affected members of a family sets of beds and bedding are supplied to patients through the public health department, sometimes on loan and at other times at cost price or on the hire-purchase system. Among 228 samples taken from milk produced outside the city, 8 proved to contain living tubercle bacilli. Visits by a veterinary inspector to the farms concerned resulted in the slaughter of seven cows giving tubercle-infected milk. The scheme under which the cows of certain dairy farms from which milk is sent to Birmingham are tested periodically with tuberculin was continued during 1922 with respect to 19 herds. The newly tested cows and those tested for the first time numbered 427, and of these 104 failed to pass the test.

Scotland.

Centenary of Royal (Dick) Veterinary College.

The Royal Veterinary College at Edinburgh celebrates this month the centenary of its commencement. It began in November, 1823, as the Highland Society's Veterinary School, with a course of lectures by William Dick. In 1916 the College removed to new premises which had been erected near the University, but the funds necessary to complete the new college buildings have not been forthcoming since the war and the centenary is being made the occasion of a special appeal to the public for help. The proceedings will begin on Tuesday, November 27th, with an "at home" in the Veterinary College, when Sir John MacFadyean will present a portrait of William Dick, the founder, to the College, and Dr. Theobald Smith will give an address on comparative pathology. On Wednesday, November 28th, an oration will be delivered by Sir John MacFadyean and afterwards there will be a dinner at the Royal College of Surgeons. From Thursday, November 29th, to Saturday, December 1st, a bazaar is to be held in aid of the College Building Fund; it will be opened on successive days by Earl Haig, the Duchess of Atholl, and Lady Craig.

Housing in Scotland.

A statement recently issued by the Scottish Board of Health shows that the houses completed in Scotland in connexion with the State-aided housing schemes down to September 30th, 1923, numbered 22,469 houses, and those under construction 3,143. Under the private subsidiary scheme 2,280 houses had been completed, and in connexion with these the Scottish Board of Health had paid out £545,590 in subsidies. A memorandum issued to the Town Council of Edinburgh states that 1,724 houses have been or are in process of being erected. Of these, 246 are of two rooms, 1,029 of three rooms, 266 of four rooms, and 83 of five rooms. The total expenditure of the Corporation was about £1,250,000, of which about 84 per cent. was borne by the State. There is stated to be an urgent necessity for 1,000 new houses, and unless some new system of building is discovered to meet this emergency the reconstruction of slum property is doomed to further postponement.

The Bradshaw Lecture

ON

MELANOSIS

(MELANIN: MELANOMA: MELANOTIC CANCER).

DELIVERED BEFORE

THE ROYAL COLLEGE OF SURGEONS ON NOVEMBER 8TH,

BY

W. G. SPENCER, O.B.E., M.S., F.R.C.S.,

SURGEON TO WESTMINSTER HOSPITAL.

(With Special Plate.)

THE subject of this lecture, Melanosis, in some of its aspects has engaged the attention of former lecturers and of contributors to the Museum of the College.

I propose to relate briefly some recent observations from which there has been obtained an increase of knowledge as well as indications of the lines along which further research is desirable.

Some races of mankind have developed a pigment, melanin, which together with a free secretion from the skin serves to protect the central nervous system against the effects of excess of sunlight, and enables such races to work under the sun in the tropics, because the pigment prevents injury from the ultra-violet light rays. Races inhabiting colder regions, with much less pigment in the skin, have scattered collections of pigmented cells—melanomas. These have the characteristics of "congenital rests," which, although they show no outward change, yet as life goes on undergo an insidious degeneration. Without any sharp line of demarcation the degeneration may pass to the formation of a new growth—melanotic cancer.

Subject to individual differences this malignant change tends to arise in the later periods of life. In horses which turn white with age melanotic cancer supervenes with increasing frequency the longer the animal lives. In man melanotic cancer is a relatively rare form, but it has the peculiarity that two factors are associated—a proliferation of cells and a multiplication of the melanin pigment. The degeneration of the "congenital rest" into melanotic cancer cannot be prevented, nor the further course of the disease controlled. Once the malignant change has started, even although there is no clinical manifestation of it, a metastasis sets in forthwith. The secondary growths, however, displace rather than infiltrate, so that the metastasis may not become apparent for a long while. In addition to those on the surface there are collections of pigmented cells scattered in deeper structures which may be likewise regarded as "congenital rests." Through various causes, moreover, pigmented patches may be acquired which also may tend to undergo malignant degeneration.

Recent chemical observations have overcome to a large extent the difficulties concerning the analysis of melanin. A colourless melanogen by oxidation becomes a coloured melanin and is closely allied in composition to adrenaline. Both are connected with other protein derivatives which have the same feature—that of changing into coloured substances as the result of oxidation. Used as histological stains some of these serve to demonstrate the presence of melanogen in epithelial cells by converting it into melanin. Again, substances contained in coal tar, allied to those derived from proteins, when introduced into animals cause melanin to form, as well as giving rise to cancer.

Concerning the history of melanosis I limit myself to noting some of the contributors to the Museum and former lecturers.

Hunter examined the skin of a negro by macerating it, and found that it separated into three layers—corneous, mucous, and fibrous; the pigment was situated in the mucous layer, which rapidly liquefied and the pigment then collected as a sediment. The skin on the dorsum of the negro's foot was deeply pigmented, that on the sole hardly pigmented at all. The same layer in the skin of a white boy became pigmented after exposure to the sun. Hunter removed a melanotic tumour from below the jaw; such tumours were then included with those styled "fungus haematodes," as in the Museum specimen by Langstaff in 1812. Hunter was the first after Aristotle to advance knowledge concerning the Cephalopoda. The oldest of his specimens, still preserved, is the part of a huge calamary which Banks and Solander picked up off Cape Horn on Cook's first voyage. Hunter's observations included the discovery of the organ of hearing, and his collection supplied Owen with material for his classical descriptions.

William Lawrence, in 1818, in his lectures on physiology, zoology, and the natural history of man, described the varieties of the coloured races of mankind and aimed to put forward a rational view of the coloration of the negro. The negro was then held to rest under a primaeval curse, and the lecturer raised a storm of prejudice. Lawrence is now regarded as one of the founders of anthropology, and his lectures as a mine of carefully collected facts. Darwin completed the explanation. He said in his *Descent of Man*:

> "Hence it occurred to me that negroes and other dark races might have acquired their dark tints by the darker individuals escaping during a long series of generations from the deadly influence of the miasmas of their native countries."

Darwin gave to the Museum the painting of the piebald negro boy from South America; Everard Home that of the albino tiger; Jonathan Hutchinson a number of illustrations of leucoderma, vitiligo, and partial albinism. The important *Monograph on Albinism in Man* by Pearson, Nettleship, and Usher, reproduced these and other illustrations in the Museum, and the monograph includes references to much of the subject of this lecture up to 1911.[1]

Following Hunter, the occurrence of melanotic tumours began to be noted by veterinary surgeons; the earliest illustration in the Library, that by Noack in 1820, exhibits melanotic disease in the ano-genital region of a grey mare (Fig. 11). In the same year Fawdington published a coloured lithograph representing melanotic growths in man. In 1847 Haycock described internal tumours in a horse. The classical description of melanotic cancer was given by Paget in his lectures between 1847 and 1852; it was based on specimens still preserved in the Museum and in that of St. Bartholomew's Hospital. The Museum also contains important illustrations by Jonathan Hutchinson besides those already mentioned—for example, drawings of melanotic whitlow, of the unequal distribution of pigment in melanotic growths, and of the senile freckles which may become malignant.[2] Chimney-sweeps' cancer attracted the attention of English surgeons from Percival Pott to Butlin, who devoted three lectures to the subject in 1892. Since then there have come researches relating to the influence of gas-tar products, both as regards pigment formation and the production of cancer in mice. Mr. Sampson Handley, in a Hunterian lecture in 1907, described the spread of the melanotic pigment from the new growth to the surrounding tissues, and along lymphatics to lymphatic glands.

THE ORIGIN OF MELANIN PIGMENTED CELLS FROM EPIDERMIS.

The epidermal origin of the melanin pigment and of the pigmented cells admits of demonstration in several ways, as well as the transference of such cells from the epidermis into the dermis and deeper tissues. On the other hand, that cells definitely mesoblastic in origin can form pigment so long as no malignant change has set in is not demonstrable, the property of the non-cancerous mesoblastic cell being limited to the taking in of melanin pigment by the cells acting as phagocytes. When melanotic cancer has once started, then the mesoblastic cells take part in it, so much so that the structure of secondary growths resembles sarcoma.

The Formation of Melanin Pigment in the Cytoplasm of the Epithelial Cells lining the Ink-sac of a Cuttle-fish.

The formation of melanin pigment in the cytoplasm of epithelial cells occurs in the ink-sac of Sepia.[3] It is a process which was evolved in palaeozoic times; Belemnites, mesozoic relations of Sepia, had an ink-sac measuring up to a foot in length. The remains of the Cephalopoda and of the great lizards which fed upon them are found in strata between the coal measures and the chalk. The Museum specimens were found crushed flat in the Oxford clay at Christian Malford and were described by Owen. His description includes that of the ink-sac, the muscular

Report of Midwives Board for Scotland.

The annual report of the Central Midwives Board for Scotland, covering the year to March 31st, 1923, states that the total number of midwives enrolled in Scotland is 5,477, of whom 2,157 have been admitted after examination by the Board, and 3,320 exempted as holding recognized certificates or through having been in bona-fide practice at the passing of the Act. The number of these midwives actually practising at the present time is about 3,000. The names of eight women were removed from the roll during the year. A proposal to increase the period of midwifery training to twelve months in the case of untrained women and to six months for those holding certificates in general nursing has been approved as a general principle, and the Board will make arrangements with the English Board to put it into force if the sanction of the Board of Health to the scheme is obtained.

Ireland.

Melanosis Derived from the Eye.

The first meeting of the Ulster Medical Society for the session was held in the Medical Institute, Belfast, on October 25th. Mr. R. J. Johnstone, M.P., F.R.C.S., introduced the incoming President, Dr. W. St. C. Symmers, Professor of Pathology in Queen's University, Belfast. The new president proposed, and Dr. Calwell seconded, a hearty vote of thanks to Professor Johnstone for his labours for the Society; this was passed by acclamation. Professor Symmers then gave an address. He began by making sympathetic reference to the deaths of members of the Society that had occurred during the past year—Dr. Mary Slade, Dr. Alex. Burns, Dr. W. MacDermott, Dr. H. L. Warwick, and Dr. M. O'Malley. The address consisted of a lucid explanation of a very large number of specimens from three oxen slaughtered in the city abattoirs; they were instances of generalized pigmentation, which Professor Symmers traced from an enormously thickened pigmented layer behind the retina; the optic nerve was deeply stained and a cross-section under the microscope showed a beautiful tesselated appearance, where the pigment had been carried in the lymph stream of the nerve. The brain, the lungs, larynx, and some portions of the liver and kidney were affected; the cartilage of the larynx and bronchi were slightly coloured, as were also lymph glands, the heart, the arachnoid membrane of the brain, and the theca of the cord. He was unable to explain why the pigmented layer behind the retina had become so enormously hypertrophied, but suggested that the pigment, which was very insoluble, had been carried by the lymph stream back by the optic nerve till it finally reached the main lymph channels and so entered the general blood circulation. The lymph spaces in the optic nerve and adjacent parts were crammed full of this pigment, which saturated the pia mater and radiated out into nerves. This form of melanin proved very insoluble and non-irritating. One of the animals was known to be blind. In ochronosis, cartilage was pigmented, but in these cases only the cartilages of the larynx and trachea. Melanotic sarcoma was a dark sepia brown; this was black. He had never seen a similar affection in the human being. Mr. Kirk proposed, and Dr. T. Houston seconded, a very hearty vote of thanks to the President for his address.

Free State Army Pensions Act.

It has been stated that the Army Pensions Act, passed by the Oireachtas, is to come into full force at an early date. An Army Pensions Board has been constituted, and an Army Pensions Office has been opened at 34, Molesworth Street, Dublin, to which all applications will be made for wounded soldiers' pensions, or for allowances and gratuities due to the widows, children, or dependants of National soldiers. The setting of the machinery of the Army Pensions Act in motion will involve the passing of a supplementary estimate by the Dail, and, in all probability, the Minister for Finance will ask for the money at an early date.

Mr. Cecil Lavery, B.L., has been appointed Chairman of the Army Pensions Board. Other members will be: (1) a representative of the Ministry of Defence, probably General Mulcahy; (2) a representative of the Army Medical Services, almost certainly Major-General Morrin. In addition, there will be members who will interview applicants, etc. Applications must be made through the Ministry of Defence, and the verification of claims will be carried through the Adjutant-General's Office. The scheme of the Pensions Act is comprehensive.

It provides "for the payment of wound pensions to members of Oglaigh na hEireann, including the Army and the Irish Volunteers, and also of the Irish Citizen Army of 1916." Thus the Act embraces the whole service period of the Irish Army back to Easter Week, 1916, but pensions can only begin from April 1st, 1922, when the National Army was first [illegible] with Irregulars. Pensions will be paid t[illegible] non-commissioned officers and men whose de[illegible] from 20 per cent. to 100 per cent. In the case of officers and men whose degree of disablement amounts to less than 20 per cent., lump-sum gratuities, not exceeding in the case of an officer £100, and in the case of a non-commissioned officer or man £60, may be determined. Wound pensions to officers range from £40 to £200 a year; in the case of non-commissioned officers and men from 8s. 4d. a week to 42s. a week. Additional sums are payable to married officers, and range from 3s. a week to 15s. a week, and to married non-commissioned officers and men additional sums of from 2s. to 10s. a week will be payable. The second schedule of the Act provides for the payment of allowances to the widows and dependants of deceased officers as follows:

Widow—£90 a year during widowhood and £120 gratuity on first remarriage. Each child—£24 a year while mother is living, and £40 if orphaned; 18 is the age limit for boys and 21 for girls. The amount expended on the education of the children between the ages of 12 and 18 will be refunded, but must not exceed the annual sum of £35. Other dependants, to the number of one in each case, will receive £1 a week.

The allowances to the dependants of soldiers are as follows: Widows—17s. 6d. during widowhood, and a gratuity of £45 10s. on first remarriage. Children—5s. a week for first child while mother in living; 8s. 6d. a week for orphaned children, same education facilities as in officers' allowances in certain cases. There also is provided a pension of 15s. a week for a soldier's dependent mother, or for a father who is over 60 years of age, or who is incapacitated by ill health. Only one such allowance, however, is payable.

Correspondence.

THE UNIT SYSTEM IN SURGERY.

Sir,—As the head of a "surgical unit" I am interested in Mr. Souttar's letter in your issue of October 27th. I write here of the general desirability or otherwise of the unit system; not of our own recently established unit in the Welsh Medical School, established in a hospital where there was previously no regular clinical teaching, where organization is still in progress, and where there are naturally special problems and difficulties. On the general question I consider it an improvement to appoint in a large teaching hospital someone as organizer of surgical work and director of surgical teaching. This can and should be done without interfering with the position and full liberty of the rest of the surgical staff, to whom the "director" should be really an assistant. I regard the term "unit" as ill chosen; the whole surgical staff should be the unit. The director looks after the surgical side of the hospital. He has assistants, he has an "office." He has his beds and out-patient department. With his colleagues he constitutes a "Board of Surgical Studies," under which he sees to the distribution of work, facilitates the observation of different groups of cases, and organizes teaching and research. Laboratories, library, record office, and workshops are under his supervision. The work of the many surgical special departments is known to him and by him integrated with the general work. There is one harmonious body of men working by diverse methods for the advancement of surgical knowledge. There is no overlapping and full co-ordination.

The director helps in effecting the integration of the earlier with the later (clinical) studies and in maintaining liaison with the medical side. As a professor in the university of which the school is a part, he helps to bring to the school academic advantages. In teaching he knows and watches the career of every student and guides each through his studies.

I visualize such a man as about 45 years of age on appointment. One who has had good experience of hospital work, of pathology, of research, and of specialist surgical practice. I condemn—what may possibly arise in the future—a man

fibres, and a drawing of a Belemnite restored. In one specimen the eight uncinate arms are preserved (Fig. 1). The dried black pigment was proved to be identical with the ink of Sepia by Francis Chantrey. After triturating and dissolving it he made a sepia drawing which a distinguished painter pronounced to be tinted with Italian sepia of the best quality.

In Sepia the ink-sac is a diverticulum from the rectum, the fluid being discharged, however, towards the head. There is an orifice, duct, collecting sac or reservoir, and a loculated fundus formed by infolding of the sac walls where the ink is secreted. Mr. Burne has kindly given me stained sections which exhibit the epithelial lining, the cells, and pigment in all stages of formation as follows (Figs. 2 and 3).

(*a*) Columnar epithelium rests on a basement membrane; the cells have oval nuclei, with one or more nucleoli, many of which are dividing, surrounded by an alveolar arrangement of the cytoplasm. (*b*) The nuclei are in the deeper part of the cell; in the cytoplasm around the nuclei are dark dots which tend to lengthen out into rods, arranged perpendicular to the basement membrane. (*c*) The superficial ends of the rods have broken off into dark granules or have run together into black droplets, which occupy the superficial portion of the cell. Unpigmented cytoplasm having an alveolar arrangement surrounds the nucleus in the deeper part of the cell. (*d*) The superficial portion of the cell has become distended with pigment; it disintegrates on the surface like goblet cells of the intestine, and the liberated pigment mixed with mucus collects in the reservoir. The inky fluid is highly diffusible so that it affords the maximum amount of obscurity around the animal. An octopus being repeatedly irritated, at first ejects inky fluid, then fluid less black, until finally the fluid discharged is quite colourless. The fluid has also poisonous properties—a lobster turns on its back, helpless to resist.

Pigmented Cells Produced in the Epidermis Passing Down into the Dermis and Deeper Tissues.

In embryo frogs branched pigmented cells develop in the epidermis and pass downwards into subepithelial tissues.[4] The ova of frogs are at first unpigmented, then granules of melanin appear in the cytoplasm and serve to protect against the harmful effects of sunlight whilst the ova are floating in the water; for frog embryos at the time of the closure of the neural tube have been killed by exposing them to ultra-violet light rays.[5] Exposure short of a lethal dose causes the rayed epidermis to increase in thickness and multiplies the amount of pigment in the deepest layer of cells. At this stage the epidermis of the back of a tree-frog embryo exhibits numerous branched cells containing pigment, whilst under the epidermis there are no pigmented cells at all. At the next stage the branched pigmented cells push down processes through the basement membrane into the dermis (Fig. 4). The body of the cell with its nucleus follows, so that there is then a bridge between the epidermis and dermis (Fig. 5). Subsequently pigmented cells are to be seen lying in the dermis with a process stretching up into the epidermis. Finally all the pigmented cells may be found beneath the epidermis (Fig. 6).

The Formation of Melanin Pigment in the Eyeball.

Melanin pigment begins to appear in the epithelial cells forming the outer layer of the optic cup in the embryo chick at the forty-second hour of incubation, in the fourth month of the human foetus. Particles of pigment arise within the cells distinct from the nuclei; at first grey, the particles become black and rather rod-shaped. The pigmentation begins in the equatorial zone of the future eyeball and spreads forwards more rapidly than backwards. There is formed a single layer of hexagonal pigmented cells, lying external to the rods and cones, with numerous processes into which pigment particles pass as the processes stretch down between the rods and cones. About the eleventh day in the incubated chick, in the seventh month of the human foetus, pigmented cells are found alongside the blood vessels of the choroid which has developed from mesoblast. The anterior margin of the retinal pigmented epithelium grows forwards beyond the ora serrata to furnish the pigmented cells of the uveal layer of the ciliary bodies and iris. The full pigmentation of the posterior layer of the iris is not complete at birth.

Scattered Foci of Melanin-pigmented Cells in Deep Tissues.

The pigmented cells of the epidermis and of the eyeball serve a useful purpose; no useful purpose has been assigned to collections of pigmented cells scattered among internal structures.

It may be explained that scattered foci of pigmented cells have reached their position during embryonic development.[6] Embryos of fish such as larval eels are at first transparent and pigment can be seen to develop in the eye and epidermis whilst the blood is still colourless. Embryos of bony fish in which the cartilage has been stained to contrast with the melanin pigment serve to demonstrate that pigment cells spread out from around the neural groove and canal in accordance with the segmentation into the metameres (Fig. 7). There is a primitive arrangement of pigmented cells on the surface along dorsal, ventral, and lateral lines and into the radiations of the fins. Sections through such embryonic fish exhibit deeper collections of pigmented cells, also corresponding to the metameric divisions. Stripes, patches, and markings on the coats of higher animals suggest a connexion with the primitive vertebral segments of the embryo.

It seems, therefore, a rational explanation that melanin pigmented cells, whether superficial or deep, have primarily developed around the neural tube, originally for the protection of the central nervous system. The pigmented cells have spread first into the epiderm, then deeper into the mesoblast of the immediate neighbourhood, and further have been carried away in the parietal and visceral layers of mesoblast along with outgrowing nerves, especially sympathetic nerves. Upon this the following classification is based.

A. *Skin.*—(1) *Epidermis:* Melanin pigment in the cells of the rete Malpighii, to a less extent in those of the rete spinosum, in the corresponding epithelial cells which produce shafts of the hair, also in the dendritic cells of Langerhans lying between the foregoing. The pigmentation of the epidermis varies from a deep black on exposed surfaces of the negro, to be hardly perceptible on most of the skin of blond races when not exposed to sunlight. Yet white races always show considerable pigmentation in the ano-genital skin and the areolae of the nipples.

(2) *Dermis:* Pigmented cells with branched processes occur singly, in scattered groups, in patches and sheets. Some lie close under the epidermis, some adjacent to the subcutaneous tissue. They originate as dendritic cells which have penetrated from the epidermis downwards into the dermis, whether already pigmented melanophores, or as colourless melanoblasts which become pigmented in the dermis. The mesoblastic cells of the dermis, as distinguished from cells of epidermal origin, have phagocytic properties and take up pigment freed by the breaking down of epidermal cells. The pigment may be so finely divided as to appear merely a dusky stain, or in the form of granules which pass from the epidermis along lymphatic channels. In lower animals the pigmented cells of the dermis serve a useful purpose in addition to the protection against excess of sunlight—colour is changed voluntarily and reflexly, in mimicry of surroundings; colour serves to differentiate species, and to distinguish sex during the breeding season. The subepidermal pigment cells are closely connected with radiating muscular fibres and nerve fibres, and under the control of the central nervous system, through sympathetic nerve fibres, cause changes in colour: on the one hand pigment granules collect in the body of the cell; on the other hand the pigment spreads out into the cell processes, the action being similar to that of the cells of the retinal epithelium covering the rods and cones. The differences in colour are partly due to the circulation of blood and to the varying translucency of the overlying skin; hence the change of colour in the dying and dead fish. Whatever the useful purposes served by pigmented cells in the dermis of animals, in human beings the scattered remnants are of no use. Groups of pigmented cells are found deep in the skin, especially of the back in the sacral region. This is the case to a small extent in blond races, but is much more marked among Mongolian, Eastern Asiatic, and Mediterranean races. Infants for some time after birth exhibit bluish, violet, or mulberry-coloured patches, scattered over the sacrum, buttocks, or even the shoulders. There may even be stripes reminiscent of vertebral segmentation. The patches are bluish rather than black, although the pigment in the cells is melanin. This is an optical effect of the semi-translucent overlying skin, as when tattooing is done with indian ink. As the skin thickens after birth the patches gradually become invisible, generally before 2 years of age.[7 8]

taking the post who has had no experience of private practice and whose career has been purely hospital, laboratory, and academic.

With regard to research, some of the director's time can be definitely set aside, granted efficient assistance in other work and when organization is complete. Every new patient and every operation brings opportunities for original research.

Private practice should, in the ordinary sense, not be allowed. In a provincial town at all events the most amicable relations with hospital colleagues are best assured by the professor-director not competing with them. His ordinary working time will be fully occupied and he should be fresh and vigorous for his work, which will not be the case if, for example, an exhausting hospital day is followed by a journey into the country to operate on a suppurating appendix. If the hospital has a private clinic then the director can take his share in its work, including, say, half a day once a week for private consultations at the hospital. Thereby he largely maintains his experience of the whole field of practice, his abilities in all directions are recognized by his students, and there is some addition to his emoluments, all this rendering the appointment more attractive. The pay should be adequate, such as will attract good men from a line of private practice in which the earnings are large. Choice will be limited if only those with a private income apply. The director should be able to maintain as good an external and social position as his hospital colleagues. Incidentally his "budget" should include grants in aid of visits to other clinics.

I am writing of one attached to a hospital of the metropolitan type, but the necessarily utilitarian aspect of such a hospital does not usually provide the best and most diversified material. The ideal is a university hospital which, while fulfilling a public need, is wholly a constituent of the university medical school and is specially organized for research and teaching. I recognize the special difficulties in London, but that they are not insurmountable is shown, for example, by the organization of the surgical unit at *University College Hospital*.

In conclusion, I refer to certain points in Mr. Souttar's letter. I find it remarkable that at the London Hospital there are "empty beds" which cannot be filled. Here we have a "waiting list" of some 800 surgical patients, and I imagine most hospitals have such lists. A general hospital has to take what comes and special interests of the staff can only be met to a limited extent, although co-ordination and good will among the staff and exciting the interest of outside practitioners can, from time to time, provide groups of cases. Unless he has an exceptionally large number of beds, the director would, I think, have usually to forgo such groups; his beds should illustrate all aspects of surgery, particularly because he is likely to handle students at the beginning of their clinical work, starting them on good general lines. I agree with Mr. Souttar in what he implies that—whatever its defects—the surgical teaching in this country at the present day is at least as good as can be obtained elsewhere. I join him in commending the responsibility under supervision which the student assumes at the beginning and throughout his clinical training. With him I condemn the system which limits the student to the lecture theatre and approve the student's immediate contact with patients in wards, at operations, and elsewhere.

The so-called "unit system" is on its trial, but when it has passed through its period of probation I believe that, under some better name, it will win through.—I am, etc.,

A. W. SHEEN,
Professor of Surgery and Director of the Surgical Unit, Welsh National School of Medicine; Surgeon, the Royal Infirmary, Cardiff.

October 25th.

SIR,—Mr. H. S. Souttar's letter on the unit system at the London Hospital must be extremely interesting to all those who are engaged in the teaching of the senior subjects of medicine. Mr. Souttar alludes to the difficulties with which he has been confronted and suggests that these may be peculiar to the London Hospital or to himself; but it would seem more likely that they are not due to the unit system *per se*, but to the attempt to introduce it into one of the English hospitals, all of which have hitherto been conducted on very different lines. A new method of teaching or work which differs, or should differ, very considerably from that hitherto in force in English hospitals, is bound to create difficulties.

It is obvious that such a system is workable since the Rotunda Hospital at Dublin has for a long period been in effect an obstetric unit, worked very much on the lines which obtain on the Continent. The fact that the Master of the Rotunda receives his remuneration from the fees of pupils is immaterial; the important difference is that he is allowed to engage in private practice so long as his hospital duties are properly carried out. The duties of the assistant masters and the extern and pathologist are carried out very largely in the manner adopted in Continental units.

Although the system of the Scottish universities—Edinburgh, Glasgow, Aberdeen, and St. Andrews—is not precisely the same, it would seem that the unit system could be established in them with very few minor alterations.

There is no doubt that the head of a unit must always have a considerable amount of routine work to do, but this applies to such subjects as anatomy, physiology, and pathology with almost equal force. In these departments, however, the system has been followed for some years so that it has been possible to adopt the lines of least resistance. There should be little doubt that with a more extended experience in the departments of medicine, surgery, and obstetrics these difficulties would be solved.

As regards private practice, it appears a mistake to debar the head of a unit from consultation work. It has always seemed curious that while the head of a unit is not debarred from any other form of activity in his spare time he is not allowed to undertake consultation work in his own specialty, which is at any rate a means of enlarging his experience.—I am, etc.,

Clifton, Bristol, Oct. 31st. WALTER C. SWAYNE.

OPTICAL ESTIMATION OF BLOOD SUGAR.

SIR,—In the BRITISH MEDICAL JOURNAL of October 6th (p. 600) Mr. W. F. Lloyd put forward the suggestion that the refractive index of serums could be used in the estimation of their sugar content.

Having at our disposal a Pulfrich refractometer capable of accurate measurements—the instrument is graduated to read one-tenth of a minute of arc—we have followed up the suggestion, and, as a result of our investigations, consider that a method for the estimation of blood sugar based solely on the variation of the refractive index of serum is impracticable.

In the course of our investigations we made a series of determinations of the refractive index of dilute solutions of sugars. The values obtained are indicated in Table I. The value for the refractive index of cane sugar given in this table is the mean of three readings taken on different days and corrected to 20° C. The temperature coefficient used was 0.00008 per degree Centigrade (the temperature coefficient for water).

TABLE I.

Strength of Sugar Solutions.	Refractive Index.		
	Dextrose.	Cane Sugar.	Cane Sugar (Landholt and Börnstein).
1.0 per cent.	1.33346	1.33342	1.3344
0.4 ,, ...	1.33357	1.33350	—
0.3 ,, ...	1.33333	1.33331	—
0.2 ,, ...	1.33325	1.33322	—
0.1 ,, ...	1.33312	1.33309	—
Average variation per 0.1 per cent.	0.00015	0.00015	—

Too much reliance should not be placed on the value of the fifth place of decimals, as the following readings, taken on different occasions, show:

0.1% Sugar ...	1.33304	0.2% Sugar ...	1.33325
	1.33309		1.33319
	1.33314		1.33324
Average ...	1.33309	Average ...	1.33322
Diff.	±0.00005	Diff.	±0.00003

B. *The Eyeball.*—When fragments taken from the retinal pigment epithelium of an embryo chick are added to a cultivation *in vitro* of small pieces of living tissue, cells are seen to ingest granules of pigment.[9] This tends to show that the pigmented cells found outside the limits of the structures formed by the retinal pigment epithelium—namely, in the choroid and ciliary processes—may be derived from one of two sources: epithelial cells may have grown outwards from the original retinal pigment layer, or mesoblastic cells, fibroblasts, acting as phagocytes, may have ingested the pigment. In darker races scattered groups of pigmented cells are met with in the ciliary muscle, in the sclerotic, in the ocular conjunctiva, with much individual variation. In sheep in particular pigmented cells are carried along with ingrowing nerve fibrils into the limbus of the cornea.

C. *Collections of Pigmented Cells around the Central Nervous System.*—Patches of pigment occur scattered in the pia mater about the base of the brain and on the cervical and lumbar spinal cord. The condition is more noticeable in some animals, such as sheep; the brain of the crocodile in the Museum is enclosed by a dark sheet of pia mater. Symmers[10] noted in the course of *post-mortem* examinations of modern Egyptians a particularly well marked pigmentation of the pia mater. Melanin pigment is regularly present in the olfactory epithelium and in that of the labyrinth.

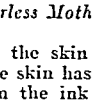
D. *Perineural, Perivascular, and Pericoelomic Groups of Pigmented Cells.*—These are found in the course of nerves, in nerve ganglia, in the wall of the heart and large blood vessels, in retroperitoneal and mesenteric connective tissue. In calves slaughtered for veal scattered pigmentation in the lungs, liver, along the trachea and oesophagus, in retroperitoneal tissue, along the sheaths of the sciatic and crural nerves, has attracted attention in the course of meat inspection. In full-grown cattle this becomes much less marked,[11] whether obscured by the thickening of tissues or because removed by absorption. In sheep melanin pigmentation is marked in periarterial and perineural tissues, in the endocardium and inner coat of the large arteries.[12] In the developing chick pigment is carried from the feathered areas inwards as far as the periosteum.

Chemical Formation of Melanin.

Note on the Chemical Relationships of Melanin.

The following formulae indicate possible steps by which melanin is formed.

(Revised by H. Wilson Hake, Ph.D.)

Methylamine	$NH_2—CH_3$
Ethylmethylamine	$CH_3—CH_2—NH—CH_3$
Ethylomethylamine	$CH_2OH—CH_2—NH—CH_3$
Propionic acid	$CH_3—CH_2—COOH$
Hydroxypropionic or ethylidenelactic acid	$CH_3—CH.OH—COOH$
Aminopropionic acid or alanine ...	$CH_3—CH.NH_2—COOH$
Hydroxyaminopropionic acid or serine	$CH_2OH—CH.NH_2—COOH$
Thioaminopropionic acid or cystein...	$CH_2SH—CH.NH_2—COOH$
Disulphide of cystein or cystin ...	$CH_2—S—CH\ NH_2—COOH$ | $CH_2—S—CH\ NH_2—COOH$
Phenol	C_6H_5OH
Catechol or pyrocatechin, and hydroquinone	$C_6H_4(OH)_2$
Tyrosin or hydroxyphenylalanine .	$OH.C_6H_4—CH_2—CH\ NH_2—COOH$
"Dopa" or dihydroxyphenylalanine	$(OH)_2C_6H_3—CH_2—CH.NH_2\ COOH$
Adrenaline or dihydroxyphenylethylomethylamine	$(OH)_2C_6H_3—CH.OH—CH_2—NH.CH_3$
Pyrrole	C_4H_4NH 
Indole or benzopyrrole	
Skatole or methylated indole	
Tryptophane or indole alanine	
Tyrian purple—dibromindigo	

The Formation of Melanin from a Colourless Mother Substance—Melanogen.

Melanin is obtained: (1) by macerating the skin of a negro—the total amount in the whole of the skin has been estimated not to exceed 1 gram; (2) from the ink of a cuttle-fish; (3) from a melanotic tumour. From whichever source there seems to be no essential difference in the melanin. In the course of analysis of melanotic fluid two portions may be distinguished—a sulphur-containing portion, and a portion blackened by oxidation. The amount of sulphur has been estimated to vary from 5 to 12 per cent., whereas in the original protein molecule the amount of sulphur does not exceed 2 per cent. In the living epidermis most of the sulphur is found in the keratin of the corneous layers, in the hair and feathers. In the breaking up of protein molecules the sulphur mostly passes into cystein and cystin. Freed from all traces of blood, melanin does not give the reaction for iron and the blood pigment has no part in its formation.

The idea of a colourless mother substance, melanogen, which becomes by oxidation melanin, originated with the discovery of Thormählen that the urine of patients suffering from secondary melanotic cancer of the liver turned dark on oxidation. The process occurs under simple exposure to the air, but is intensified by treating the urine with oxidizing agents.[56] Further researches have shown that melanogen is present in the basal layer of the cells of the epidermis, also in the epithelial cells of the hair follicles by which hair is formed, including the dendritic cells lying between.

Fresh pieces of dead skin, also sections of fresh skin cut by a freezing microtome, darken when kept for some days in an incubator. The darkening is much more rapid when the pieces or sections are exposed to ultra-violet light rays. Pieces of skin or sections made as above from brunettes or patients dead of Addison's disease are still further darkened. The same happens in dog's skin already darkened by removal of the adrenals. On microscopic examination this darkening is seen to be the result of the formation of granules of melanin pigment in the epithelial cells. Darkening by the formation of melanin from melanogen is also produced by chemical reagents. Solutions of tyrosin and of adrenaline act weakly; a much more active reagent was discovered by Bruno Bloch, professor of dermatology in Zürich;[12] it is nearly allied in composition to tyrosin. He named it for short "dopa," and obtained it from embryos of the broad bean. Fresh skin and sections cut with a freezing microtome treated with a 1 pro mille solution of "dopa" take on a smoky grey stain which deepens by the formation of brown and black granules (Fig. 8). The process is one of oxidation which is prevented by an atmosphere of nitrogen; it is favoured by warmth in an incubator, but inhibited by overheating. The darkening is restricted to the epithelial cells in the basal layer of the epidermis and to the cells forming the hair. The dendritic cells are best demonstrated in horizontal and oblique sections, when both the cells and their processes are seen to be deeply stained by the "dopa" solution (Fig. 9). The density of staining varies from cell to cell, and there are individual variations in accordance with the natural colour of the skin. The "dopa" reaction further serves to show that melanogen is absent from patches of leucoderma or vitiligo and from the skin of albinos; skin from such sources when treated with "dopa" solution fails to stain; neither the cells of the rete Malpighii nor of the hair follicles become darkened.

In the human foetus the "dopa" reaction is yielded by the cells of the epidermis and hair follicles before any appearance of pigment. The embryonic cells of the retinal epithelium before the commencement of the formation of pigment—that is, before the fourth month in the human foetus—are likewise stained by the "dopa" solution. On the other hand, pigmented cells in the choroid as well as those in the dermis are not further darkened by the "dopa" solution which tends to indicate in them the absence of melanogen, and that these connective tissue cells of mesoblastic origin are not melanoblasts, but merely melanophores. When melanin is injected subcutaneously such connective tissue cells take up melanin by a process of phagocytosis.

The cells in a pigmented naevus are deeply stained by the "dopa" solution, but so long as no malignant change has set in connective tissue cells are not affected (Fig. 10). When, however, melanotic cancer has supervened then there is a staining by "dopa," not only of epithelial but also of connective tissue, including endothelial cells. This may be taken to indicate that with the setting in of the malignant process there is a production of melanogen to excess.

Bloch holds that the conversion of melanogen into melanin is due to the interaction within the cells of an enzyme—namely, an oxidase, such as causes vegetable and animal materials to change colour. The activity of a melanin oxidase is in accordance with the fact that the

This variation, coupled with the possibilities of slight temperature variations during experiment, renders it impossible to estimate by this method differences of concentration less than 0.05 per cent. dextrose, while it is possible by many chemical methods to estimate variations of 0.01 per cent. or even 0.005 per cent. dextrose.

Another difficulty arises in that the refractive index of human serum is by no means a constant. The following serums—supplied by our bacteriological department—had all been treated identically. In numbers 1 to 4 the Wassermann reaction was negative, in 5 and 6 positive, and in 7 unknown. The proportion of positives and negatives in the pooled serums is unknown.

TABLE II.

	Refractive Index.	Difference from Average.
No. 1	1.35121	+0.00188
No. 2	1.35093	+0.00160
No. 3	1.34875	−0.00058
No. 4	1.34833	−0.00100
No. 5	1.34838	−0.00095
No. 6	1.34875	−0.00058
No. 7	1.34885	−0.00048
(a) Pooled	1.34940	+0.00007
(b) Pooled	1.34938	+0.00005
Average	1.34933	

It will be seen that individual serums differ from the average by amounts far greater than can be accounted for by any conceivable variation of the sugar content.

As blood serum is a complex solution the difference between its refractive index and that of water may be due to many substances. The chief of these are proteins, salts, and sugars. Considering the salt content as equal to a 0.7 per cent. saline and taking cerebro-spinal fluid as roughly representing serum less the proteins it is possible to get an idea of the importance of each factor.

	Refractive Index.
Water	1.33300
Cerebro-spinal fluid	1.33475
Serum	1.34933
0.7 per cent. NaCl	1.33409

The refractive index of serum may be regarded as made up approximately in the following way:

Water	1.33300
0.7 per cent. NaCl	0.00109
0.1 per cent. sugar	0.00015
Other organic substances (urea)	0.00053
Protein	0.01456
	1.34933

The alteration in the refractive index of serum produced by diluting the serum with 0.7 per cent. NaCl is shown below:

Percentage of Serum.	Refractive Index.
100	1.34940
90 (about)	1.34763
80	1.34596
70	1.34446
60	1.34331
50	1.34194

Average difference per 10 per cent. dilution 0.00149.

It will be seen that the dilution of only 1 in 100 of the serum will give an alteration well within the capacity of the instrument, and that for practical purposes the variation in refractive index may be considered as due to alteration in the protein content.

Further work is being undertaken to determine the importance of "the other organic substances" in causing variations in the refractive index of serum, and also with the view to ascertain the degree of correlation between the protein percentage and the refractive index in normal and pathological serums.—We are, etc.,

T. W. ADAMS,
Demonstrator of Physics.
W. W. PAYNE,
Parsons Research Fellow.
Guy's Hospital, S.E., Nov. 2nd.

ANTE-PARTUM HAEMORRHAGE AND ECLAMPSIA.

SIR,—No one interested in the etiology of eclampsia can have failed to have read of Dr. Bradshaw's case in your issue of October 20th or Dr. Johnstone's comments in your issue of October 27th (p. 784). Dr. Bradshaw supposes "that the association of placenta praevia and albuminuria is not uncommon"—and perhaps he is right. Whilst from his experience Dr. Bradshaw limits himself to this conclusion, Dr. Johnstone proceeds to the justification of the placental hypothesis. The association of albuminuria and accidental haemorrhage, he states, is a commonplace; and the usual interpretation that premature placental separation and haemorrhage result from the toxaemia. This interpretation he discredits; in Edinburgh, he says, several cases have been observed in which the albuminuria has not developed until after the partial separation of the placenta had become manifest. In placenta praevia, presumably, a partial separation of the placenta (with autolysis and bleeding) occurs; and poisons thus arise which, being absorbed by adjacent and still adherent cotyledons, reach the maternal blood and cause the toxaemia ending in eclampsia.

This argument, I submit, is erroneous. The declaration that accidental haemorrhage, at times at least, precedes the "toxaemia," is highly significant. It shows that the distension of the uterus (which occurs when such bleeding is concealed—and when it is not concealed the "toxaemia" is much less likely), and the hardness and tenseness of the abdomen which then result, precedes in time that change in the kidneys of which albuminuria is the mark. It is thus reasonable to conclude that the change in the uterus is the factor affecting the kidneys; but whilst all attention has been directed either to the state of the placenta or to the effect of blood extravasation on the uterine wall, the increase in volume of the uterus in such cases, and the effect this may have on other abdominal organs, has not been looked at. That a very great rise of pressure within the abdomen must occur is obvious; and that this is a factor in the genesis of eclampsia is shown by a consideration of the types of case eclampsia "selects." It is further supported by Dr. Johnstone's statement that "where the haemorrhage is followed by labour within a few hours, albuminuria is not observed . . ." My explanation is that with the emptying of the uterus the pressure falls; but Dr. Johnstone believes that in such case "the toxins have not had time to be formed in the dying portion of the placenta."

But the view that placental necrosis occasions that toxaemia leading to eclampsia, I submit, is untenable. In the first place no toxin (other than normal waste products) in the blood in pre-eclampsia or in eclampsia has ever been found; such has only been imputed. And next, apart from the difficulty of supposing that a particularly inimical poison is generated by dying or dead placental cells, and is absorbed by adjacent living placental cotyledons (in spite of their separation by the decidual processes which extend throughout the thickness of the organ), and so gets into the maternal blood, there is the occurrence of innumerable cases of infarct formation without any preceding sign of toxaemia to explain. There are also the cases of eclampsia cured by treatment with the continuation of the pregnancy to explain—even Dr. Bradshaw's case went on for another month, and was only terminated because of the bleeding. Above all else there is the occurrence of chorion-epithelioma, with metastases (in which many syncytial cells undergo autolysis), without this toxaemia arising.

The occurrence of eclampsia with placenta praevia does not support the view that placental necrosis is a cause or the cause of the pre-eclamptic toxaemia. It is not surprising that a multiparous woman with a placenta praevia should come to pass albumin in her urine; multiparous women are usually older than primigravidae, and their kidneys cannot be expected to be as sound. If the cause which occasions eclampsia occurs in a woman with placenta praevia, albuminuria will arise. Dr. Johnstone, in my opinion, misses the essential point—the type of woman affected with eclampsia. Dr. Bradshaw's patient was 35, and had had two children; whether she was a strong and muscular woman we are not told. Such, we know, if leading active lives (running the house), are very prone to eclampsia. I have previously shown that if eclampsia is not associated with great or rapid distension of the abdomen (and so increased intra-abdominal pressure) it is always associated with a strong muscular state and activity. The same association is found in cattle. In cows a disease essentially similar to eclampsia (so I understand) arises; limited to the parturient act, it occurs always in the best developed

"dopa" reaction does not occur in an atmosphere of nitrogen and is destroyed by heat. The milky juice of plants which yield lacquer is turned black by laccase; tryosin is made to change colour up to black by an enzyme, tyrosinase, found in many vegetable and animal materials. A familiar reaction is produced by an enzyme contained in red corpuscles on guaiacum in the presence of oxygen. The blood of some insects turns black on exposure to air from the formation of melanin.[14]

Another set of experiments has the same bearing. Quattini[15] injected pyrrole, also indole (benzopyrrole) and skatole or methylated indole, under the skin of rabbits, with the result that nine to eighteen days after the injection the skin of the animals became darkened by brownish lines and networks, spots and patches, along with an increased growth of pigmented hair. The pigment was very like melanin; it was not produced by the injection into an albino rabbit, nor in the white areas of animals having the skin partly white, partly coloured. In the albino rabbit the growth of hair was stimulated, but the hair remained unpigmented.

Tar painted repeatedly upon the skin of grey or brown mice for several weeks caused a pigmentation of the skin by the formation of melanin in the epidermis. This happens sometimes before the changes set in which lead up to cancer. In white mice, however, whilst precancerous and cancerous changes are produced a preliminary pigmentation of skin does not occur from the rubbing in of the tar. This appears to confirm the absence of melanogen in white mice.[16 17 37]

To demonstrate the presence of melanogen in melanotic cancer D'Agata injected pyrrole into non-pigmented tumours, rapidly developing secondary to a melanin-pigmented primary tumour in a dog. Pigment was afterwards found but was absent following control injections of salt solutions.[64]

Human melanotic cancer has not been transplanted into mice.

Clinical Observations on the Pathological Formation of Melanin.

The body louse, *Pediculus vestimenti*, when it punctures the skin with its haustellum to suck up blood, at the same time injects fluid from its salivary glands which produces a black spot of melanin pigment in the deepest layer of the epidermis. An emulsion of the insect's salivary glands has the same effect when injected; fluid from its stomach fails to do so. A man who presented the characteristics of phthiriasis had his back covered by black spots except over a white patch the size of the palm of the hand. This white patch, whether the result of congenital albinism or acquired vitiligo, had remained entirely unpigmented, owing presumably to the absence of melanogen.[18 19]

Women working in ill ventilated coal-tar factories, after inhaling fumes for a time, have exhibited a gradually increasing pigmentation of previously unpigmented skin.[20 21]

Arsenic taken by susceptible people to excess produces a pigmentation of the skin along with a keratosis affecting especially the palms of the hands and soles of the feet.[22 23]

In the earlier part of last century, when silver nitrate was administered freely by the mouth, or applied over long periods to the conjunctiva, argyria, an intra vitam staining by silver nitrate, occurred in some individuals. The face and other parts took on a patchy and diffused pigmentation of a slaty hue; the conjunctiva became bluish. When fresh skin, or sections of skin cut with a freezing microtome, are treated with a 1 pro mille solution of silver nitrate the silver nitrate combines with melanin pigment to darken it; afterwards there is a reduction to silver oxide. Catechol or pyrocatechin and its derivatives react with silver nitrate in the same way, and this is therefore another bit of evidence as to the composition of melanin.

Variations as to the presence or absence of melanogen in the skin may be held to account for individual differences in the pigmentation of the skin which follow the application of cantharides, the exposure of the skin to sunlight and artificial light rays—patches of leucoderma and vitiligo proving insusceptible. The effects of ultra-violet light rays also vary with the actual melanin already present—a brunette escapes sunburn, a blond suffers temporary irritation, or freckles are produced, temporary or persistent.

Increased pigmentation, general in causation, set up by changes in metabolism, appears to be connected especially with disturbances of endocrine functions.[24] Instances of this occur in connexion with the adrenals, exophthalmic goitre, liver diseases, and the female genital organs. The brown, waste, wear and tear pigment, found in the heart, liver, and under the mucous membrane of the colon consists of melanin, and the term "haemosiderin" is a misnomer.[25 26] Further, there is the increased pigmentation which supervenes in the course of various cachexias. A boy suffering from complications following scarlet fever had browning of the skin. Bits of his skin excised at intervals yielded the "dopa" reaction until the boy's general health began to improve. As the brown staining cleared off the "dopa" reaction weakened.

The peculiar form of increased pigmentation in young people undergoing sunlight and open-air treatment for tuberculosis appears to result from an improvement in metabolism. It is accompanied by increase of weight, muscular development, and a greater production of body heat so that clothing can be dispensed with. Gauvain[27] states that a failure to develop the pigmentation of the skin indicates a lack of resistance and a failure to overcome the disease. This, however, may be temporary, the increase in metabolism being checked until some latent source of sepsis is discovered and eradicated.

Adrenaline and Melanin Derived from a Common Mother Substance.

The note on chemical formulae and various preceding statements lead up to the explanation that the pigmentation which occurs in Addison's disease, also that in dogs after the removal of the adrenals, is due to the accumulation of a mother substance common to adrenaline and melanin. When the adrenals cease to take up this mother substance and convert it into adrenaline, the excess collects in the cells of the epidermis as melanogen to form melanin by oxidation. Pigmentation of a patch of vitiligo was obtained by injecting adrenaline, after which the patch was exposed to ultra-violet light rays.[28]

A solution of melanin was found to have the same effect on the blood vessels of a frog as one of adrenaline, only weaker; on the heart of a rabbit the solution of melanin exceeded in effect that of adrenaline.

Here I just mention the resemblances between the melanin produced in the ink-sac of Sepia and the Tyrian purple of the ancients, which some fishermen still use for marking their linen. Molluscs, Murex, and Purpura—*Murex brandaris* in particular—have a gland connected with the rectum composed of elongated columnar epithelium which secretes a fluid, originally colourless. The fluid under sunlight turns yellow, blue, reddish, violet, and purple. From the glands P. Friedländer[29] obtained dibromindigo in the form of crystals having a coppery hue. Roaf[30] found that fluid from the glands acted like adrenaline in raising blood pressure. In the course of preparation of the purple there was given off a sulphurous garlic-like odour, also a faecal odour such as is produced by substances allied to indigo; Pliny in describing the preparation of the dye spoke of this "virus grave in fuco."

Observations on the Loss of Pigment from the Hair.

Metchnikoff in his studies on Old Age assumed that pigment was actually withdrawn from the shafts of the hair, but subsequent observations have demonstrated that coloured, grey, and white hair are produced as such, according as the epithelial cells producing the hair also form melanin or not. Tales of the sudden blanching of hair may be treated with scepticism.

Observations regarding the growth of the summer and winter coat of the variable hare, stoat, etc., show that the change in autumn is due to a growth of non-pigmented hair whilst the brown hair of the summer coat falls out; early in the autumn, on separating the long brown hairs, short young unpigmented hairs are seen to be protruding from the skin. In the spring the variable hare gets rid of its winter coat, not only by licking, but by also "mouthing"

animals, in those that have "thrown quickly," in those with the best physique.

The teaching of all this is plain: it is that the toxaemia preceding and causing eclampsia is of mechanical origin—that its rise is to be mechanically explained.—I am, etc.,

London, W., Oct. 28th. R. H. Paramore, F.R.C.S.Eng.

THE TREATMENT OF HAEMORRHOIDS BY INTERSTITIAL INJECTIONS.

Sir,—I was very deeply interested in Dr. Dunbar's article on this subject in the British Medical Journal of November 3rd (p. 808), and was gratified to read that he also is practising this method of treatment with such uniform success, because his experience confirms my own, which has extended now over some nine years and which covers about 4,000 cases.

I was sorry to read, however, that Dr. Dunbar employs only a 10 per cent. solution of carbolic acid in liquid extract of hamamelis. Personally, I always use a 20 per cent. solution of carbolic acid in equal parts of glycerin and water, and I have found this to be far more rapid and certain in its effect than the weaker solution which Dr. Dunbar employs. I have treated a patient recently, who had been under the care of another surgeon, who had given him no less than eleven injections of the solution mentioned by Dr. Dunbar. He continued to suffer haemorrhage from his piles throughout this lengthy treatment, and was still losing blood at every defaecation when he consulted me. This haemorrhage stopped finally after the very first injection of the 20 per cent. solution, and his haemorrhoids had entirely disappeared after five injections at intervals of a week. I have frequently tried solutions weaker than 20 per cent. and have invariably found that the effects are less rapid and perfect. It would be a great pity if the progress of the method were retarded by the adoption of too weak a solution.

Dr. Dunbar falls into the common mistake of attributing the success of the treatment to a process of thrombosis. I have pointed out repeatedly (in my recently published book and in previous articles in this and other journals) that injections do not cause thrombosis, but that they act by setting up an aseptic inflammatory process in the submucous coat of the bowel, which compresses the veins and by its ultimate contraction obliterates them and causes adhesion between the coats of the bowel. That thrombosis does not occur, as stated by Dr. Dunbar, is shown, I think, by the almost complete absence of pain in the majority of cases, and by the complete absence of such complications as embolism, pylephlebitis, and pyaemia, which would be certain to occur occasionally if thrombosis were the usual result of injection. It is just because it is believed by those who have not tried the method that thrombosis is likely to be set up by injection and that embolism and pyaemia are therefore likely to occur in a definite proportion of the cases, that there has been so much reluctance to give the method its proper place as the treatment of choice for haemorrhoids. If Dr. Dunbar's statement that "The thrombosis produced extends along the veins until they perforate the coats of the rectum" is left uncorrected, it will have the effect, I fear, of making his readers extremely nervous of recommending patients to undergo treatment by injection. If thrombosis were really the result of injection of carbolic acid into haemorrhoids, it would be difficult to see why more than one injection should be required. Amongst the 4,000 cases which I have treated by this method, I have only had one definite instance of thrombosis.

I join issue with Dr. Dunbar also when he states that not more than three piles should be treated on any one occasion. I have repeatedly treated as many as six piles at one sitting and have used as much as 40 minims of 20 per cent. carbolic acid, but I have not yet met with a case of carboluria as a result.

If Dr. Dunbar will try the solution I recommend, I venture to predict that his results will be even better than those he records in his very interesting paper, and that he will find that even in the worst cases the symptoms of prolapse and haemorrhage will cease from the moment of the first injection and that his patients will need only from three to six injections at weekly intervals, instead of an average of nine or ten injections usually recommended by those who use the solution Dr. Dunbar employs.

I, like Dr. Dunbar, have tried other solutions, such as that of the hydrochloride of quinine and urea, but I have always returned to the 20 per cent. carbolic acid in glycerin and water, because I find my results are incomparably better with that than with any other.—I am, etc.,

London, W.C., Nov. 3rd. Arthur S. Morley, F.R.C.S.

THE USE AND ABUSE OF OBSTETRIC FORCEPS.

Sir,—With your permission I would like to refer to the discussion on the use and abuse of forceps by the Section of Obstetrics and Gynaecology, reported in the Journal of October 6th.

During the meeting it was manifest that there were two sides debating. The actual point of divergence of opinion, though amply illustrated, was never, I believe, put into words. This crux was "maternal distress," and I submit that it is the estimation of this factor by each individual practitioner that finally governs the use of forceps in general. Instances of gross abuse of this indispensable instrument, such as Mr. Comyns Berkeley quoted, came as a shock to many of his audience, and it is greatly to be hoped that they are rare.

As to the incidence of prolapse, this unfortunate condition undoubtedly follows spontaneous as well as assisted labour. May it not be more the result of labour prolonged beyond the point of ready recuperation in the individual circumstances of each patient? If so, the earlier application of forceps at times actually may be a prophylactic measure; further, the blame attached to the instrument in a proportion of cases may really be due to the delay in its use.

May I also remark that certain figures which I quoted for Caesarean section only applied to those in which all hope that the uterus was still uninfected had been lost before operation?—I am, etc.,

R. Kelson Ford, M.B., B.S.

Municipal Maternity Hospital, Southsea, Nov. 4th.

LARGE PLEURAL EFFUSION.

Sir,—The cases of large pleural effusions described in the issues of the Journal of October 20th and 27th induce me to send some notes of one of mine, which I think may prove to be interesting.

In May, 1910, I was asked to see a young man who had left hospital a week before, and who was supposed to be dying. His relatives stated that they had been told that he was suffering from an incurable solid tumour of his lung. The left chest was dull all over, heart displaced to the right, the glands in the anterior and posterior cervical triangles, axillae, and groins were enlarged, and the skin bronzed. The temperature was normal, but he said that he was subject to "attacks of shivering." He denied having had syphilis, and there was no history of lymphadenoma or tuberculosis in his family. The sputum never contained tubercle bacilli.

A hypodermic needle proved that there was fluid in the left pleural cavity, and with a Dieulafoy's aspirator I removed enough to fill an ordinary wash-hand basin to an unsafe level, and partially fill another. The amount unfortunately was not measured, but must have been at least twelve pints. Three days later I aspirated ten and a half pints, and twice each week, during the succeeding two months, eight to nine pints were withdrawn at each paracentesis.

In the third month the chest refilled so rapidly that it was necessary to increase the number of tappings to three, and then four weekly, and this continued, until at the end of the fifth month he died of coma.

After the first few tappings the patient, far from experiencing discomfort or fear, expressed a wish for a daily paracentesis, watched with interest all that took place, would assist if permitted, and looked forward to twenty-four hours of relief, and even enjoyment.

He was tapped forty-seven times, which is unique for Hodgkin's disease, tubercle, or any other disease as far as I can learn, and the total amount of fluid removed should constitute a record.—I am, etc.,

Bournemouth, Oct. 29th. J. F. Dwyer.

W. G. SPENCER: MELANOSIS (MELANIN: MELANOMA: MELANOTIC CANCER).

Fig 1.—Belemnite with ink-sac and eight uncinate arms, in Oxford clay. (Museum specimen.)

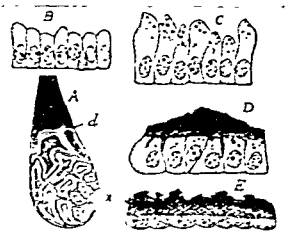


Fig. 3.—Diagrams from Dalgren and Kepner. A, Ink-sac; x, loculated fundus; d, reservoir; B, C, D, E, stages of melanin formation.

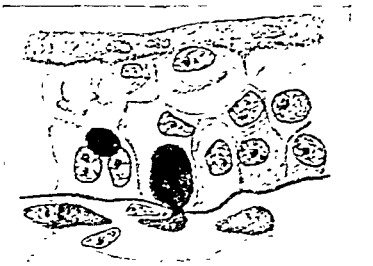


Fig. 4.—Tree-frog embryo: section from back. Melanophore in epidermis with process stretching down into dermis. (Kornfeld.[4])

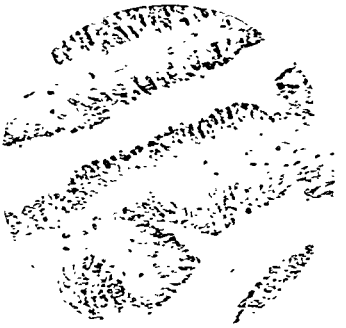


Fig. 2.—Loculated ink-sac of sepia in section: epithelial cells exhibiting stages of melanin formation. (Mr. Burne.)

Fig. 8.—Normal blond skin—vertical section. Melanogen in basal cells of epidermis stained with "dopa": melanophores in dermis not stained; nuclei counterstained green. (Bloch.[13])

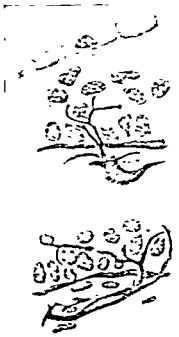


Fig. 5.—Tree-frog embryo—later. Melanophores in dermis with processes extending up into epidermis. (Kornfeld [4])

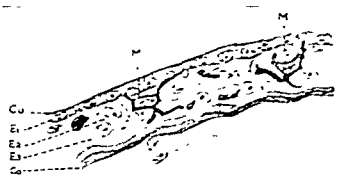


Fig. 6.—Tree-frog embryo: skin, subcutaneous tissue, muscle. All melanophores in subcutaneous tissue. (Kornfeld.[4])

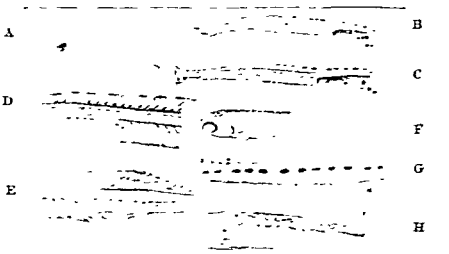


Fig. 7.—Embryonic bony fish—cartilage stained; segmental arrangement of melanophores. A, Atherina: melanophores lateral lines. B, Atherina: melanophores dorsal, lateral, and ventral lines; radiations fins and branchiae. C, Atherina—older. D Atherina: longitudinal section showing spinal cord, notochord, somites, and intersegmental lines. E, Atherina: fin radiations and intersegmental lines. F, *Alburnus lucidus*: metameric arrangement of melanophores. G, *Alburnus lucidus*: melanophore in each segment. H, Box boops—2 cm. in length; golden stripes when full-grown. (Bolk.[6])

SIR,—I would also like to record a case of large pleural effusion which came under my notice in August, 1918, whilst doing temporary duty at a prisoners of war hospital at Manchester. A German, who no doubt had been rather overlooked owing to the rush of surgical work, had been in the medical ward some weeks, and was reported by the sister as "not much wrong with him." He was getting up every day, and acting as orderly and generally assisting with cleaning, etc., in the ward. I was almost passing him over as he had been passed over before, for he did not look very ill and hardly complained of any symptoms. But on questioning him he said he felt a very slight pain on the left side of his chest and was rather short of breath on exertion. When he had undressed I immediately noticed obvious bulging on the left side. I aspirated the chest with a Potain's aspirator and withdrew a gallon less three ounces of serous fluid. He felt quite fit and much relieved at the end of the operation and was doing well four days afterwards. After that time I was unable to follow the case, as I was ordered to France again.—I am, etc.,

ALLAN DEWAR,
Captain, late R.A.M.C.

Tuxford, Notts, Nov. 3rd.

CHRONIC INTESTINAL STASIS AND CANCER.

SIR,—Sir Arbuthnot Lane in his address on chronic intestinal stasis and cancer published in the BRITISH MEDICAL JOURNAL of October 27th, and in a previous letter to the *Times*, seems to imply that cancer has no other cause than chronic intestinal stasis and that all efforts to discover the origin of cancer which are not based upon this view are mere waste of time and money.

That cancer requires a suitable soil for its development is now perhaps generally admitted, but that that soil is provided solely by the action of intestinal toxins is open to question. How, one may ask, do the toxins of intestinal stasis affect the incidence of cancer upon the scar of an old x-ray burn, upon an old scar of lupus, or upon an old syphilitic scar? What have intestinal toxins to do with the pre-cancerous conditions of the skin due to arsenical dermatitis or to the prolonged contact with tar?

It might indeed be argued that these pre-cancerous conditions of the skin, induced by various agents, render the affected part more susceptible to those intestinal toxins which prepare the way for cancer. In that case, those whose skins have unfortunately been burnt by x rays or damaged by chronic arsenical poisoning should be able to avoid the subsequent development of cancer by adopting a primitive diet and by swallowing liquid paraffin!

But how can one explain the occurrence of kangri cancer of the abdominal walls in natives of Kashmir, among whom the incidence of cancer is above that of other native races, not as the result of a civilized diet, but because they have the habit of wearing next the skin of the abdomen kangri, or vessels containing live charcoal, which by constant burning of the skin produces a pre-cancerous dermatitis?

Without denying the influence of intestinal stasis in producing cancer of the digestive tract, is it not just as reasonable to suppose that cancer in these parts may be secondary to damage resulting from local inflammatory conditions brought about by stasis, as it is to affirm that degenerative changes due to hypothetical toxins prepare the way for cancer not only in the digestive tract but in all other parts of the body also?—I am, etc.,

H. G. ADAMSON.

London, W., Nov. 6th.

MENSTRUAL DISABILITY.

SIR,—I notice in the JOURNAL for October 13th a letter from Lady Barrett, in which she states: "Now happily the more rational life lived by women to-day has so altered the incidence of pain and malaise during menstruation that, whatever may have been the fact in the past, recent investigation shows that a very small minority of women suffer from any such disability."

My own experience has been the very opposite to this. Since the war I have been very much impressed by the number of girls who are brought to me suffering from great disability during menstruation. Not only that, but the mothers have asked me why so many girls do suffer so much now; because when they were young they hardly ever heard of such a thing.—I am, etc.,

H. FOXTON.

Uttoxeter, Oct. 20th.

LATE RESULTS OF OPERATION FOR CANCER OF THE BREAST.

SIR,—The Medical Society of London has appointed a committee of surgeons to investigate the later results of operations for cancer of the breast. The scope of the inquiry at present is being limited to cases of patients who are known to be alive not less than ten years after the primary operation for undoubted cancer.

A preliminary inquiry has already brought to light the existence of a number of such cases, and the Society is therefore encouraged to make a wider appeal.

The committee would be obliged if any medical practitioner, who has not already been approached, having personal knowledge of any such cases, would communicate with the Honorary Secretaries of the Society.—We are, etc.,

T. P. LEGG,
F. LANGMEAD,
Honorary Secretaries.

11, Chandos Street, Cavendish Square, W., Oct. 27th.

Obituary.

PETER WALLWORK LATHAM, M.A., M.D., F.R.C.P.,

Consulting Physician, Addenbrooke's Hospital, Cambridge; formerly Downing Professor of Medicine.

MANY among the generations of Cambridge medical men during the last sixty years ending 1912 will be reminded by the announcement of Dr. P. W. Latham's death of a once familiar figure in the streets of their Alma Mater, and will feel that a link with the past has gone. For the last ten years he had lived in retirement in London, but still maintained relations with old friends and attended meetings of a social medical club within the last year.

He was born on October 21st, 1832, at Wigan, the eldest son of John Latham, a medical man in that town, but was not related to the famous physicians John and Peter Mere Latham. After serving as apprentice to his father, he continued his medical education at Glasgow, and in 1854 went up to Caius College, Cambridge, where he obtained a scholarship in the following year; in 1858 he was 19th Wrangler in the mathematical tripos, and in 1859 was placed first in the first class of the natural sciences tripos with distinction in no less than five subjects—chemistry, physiology, physics, comparative anatomy, and botany—a record that has never been equalled. He then worked at St. Bartholomew's Hospital, and in a very short time, in 1860, was elected a fellow of Downing College, Cambridge; in the following year he proceeded to the degrees of M.A. and M.B., became a member of the Royal College of Physicians of London, and in April, 1862, was elected assistant physician to the Westminster Hospital.

His professional life in London, however, was short, for in 1863 he returned to Cambridge as physician to Addenbrooke's Hospital and medical lecturer at Downing College. The subject of pulmonary tuberculosis then attracted his attention, and in 1864 he read his M.D. thesis "On the early symptoms of phthisis and the means best adopted to prevent or arrest its development," but unlike his son, who also took up this study at about the same time in his career, he did not make it his life's study. *Nervous or Sick Headache* was the title of a small book, published in 1873, containing two lectures given at Addenbrooke's Hospital, in which he urged the importance of bracing up the bodily and nervous systems in the intervals between the attacks by strychnine, iron, and cod-liver oil. *Quain's Dictionary of Medicine* also contained an article by him on this subject. From 1868 to 1874, when he was elected Downing professor of medicine, he acted as deputy for his predecessor Professor W. W. Fisher, who had held the chair since 1841. Probably realizing that a lengthy tenure of office may have its drawbacks for the University, Latham resigned the chair after twenty years' service in 1894; during this period he played an active part in the medical school of the University

W. G. SPENCER: MELANOSIS (MELANIN: MELANOMA: MELANOTIC CANCER).

FIG. 9.—Normal blond skin—horizontal section. Dendritic cells of Langerhans deeply stained by "dopa." (Bloch.[13])

FIG. 10.—Normal blond skin. Rugose mole stained by "dopa." (Bloch.[13])

FIG. 11.—Ano-genital region of grey mare with melanotic disease. (Noack, in Library.)

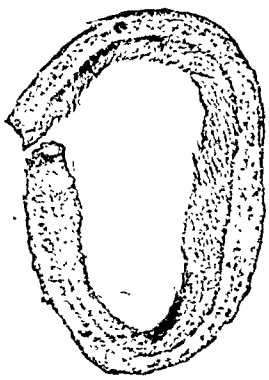


FIG. 12.—Hair'ess skin under tail of white horse. Collections of melanophores around deep coiled ends of sweat glands. (Jaeger.[11])

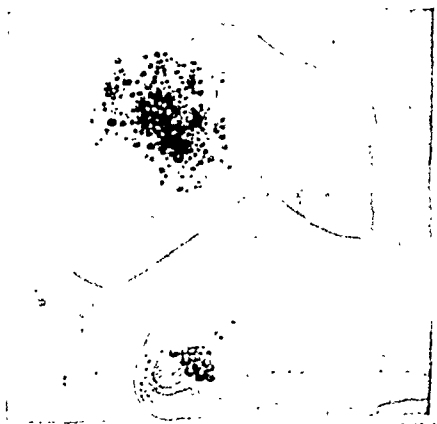


FIG. 15.—Clustered melanotic growth: skin of thigh and melanotic whitlow. (J. Hutchinson, drawing in Museum.)

FIG. 13.—Vertical section through surface of mole which had become malignant. Pigmented cells penetrating downwards from epithelium. (W. G. S.)

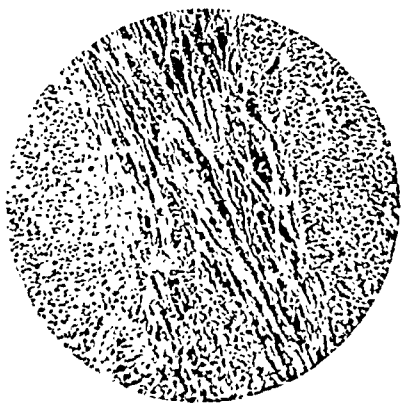


FIG. 14.—Deeper portion of same. Pigmented cells which have become oval and spindle shaped, cut some longitudinally, some transversely. (W. G. S.)

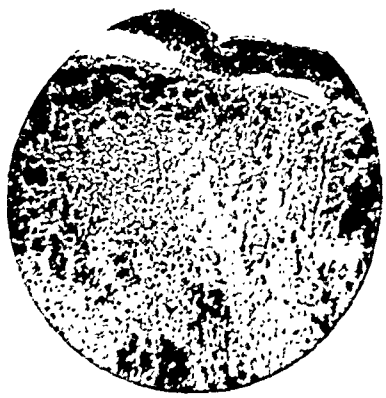


FIG. 16.—Melanotic cancer spreading from pia mater into brain. (W. G. S.)

then reaching its high success under the leadership of Sir George Humphry and Sir Michael Foster, with whom, however, he did not always see eye to eye. In 1899, at the age of 67, he voluntarily resigned his post as physician to Addenbrooke's Hospital after thirty-six years' service, remaining in Cambridge until 1912, when he settled down in London. In May of this year he moved to 15, Royal York Crescent, Clifton, Bristol, where he died on October 29th, just a week after his ninety-first birthday.

At the Royal College of Physicians, of which he became a Fellow in 1866, and at the time of his death was the Senior Fellow on the list, Latham played an unusually prominent part for a country Fellow, being senior censor (1894) as well as censor (1887-8) and councillor (1886). His Croonian lecture for 1886 "On some points in the pathology of rheumatism, gout, and diabetes" contained a number of formidable-looking chemical formulae, and gave the results of his work on the formation of uric acid previously published in 1884. Two years later he delivered the Harveian Oration dealing with micro-organisms and blood infection. At various times he wrote, as a general physician should, on various aspects of medicine, such as the *Pathology and Treatment of Typhoid Fever* (1893) and on *Rheumatoid Arthritis* (1905), in which he advocated continuous counter-irritation of the spine by blisters applied in the neighbourhood of the cervical and lumbar regions.

In his prime Latham was a handsome and striking personality with a pleasant and genial manner, and was fond of social intercourse. As a careful and sound physician he for many years deservedly enjoyed a large practice in and about Cambridge. His independent mind made him a keen fighter, and he sometimes expressed his views with such conviction that the opposition remained unconverted, if not confirmed in their opinions. But these are matters of long ago and they are mentioned only to show the vigorous mentality of the veteran physician who in his day was a notable character in Cambridge.

H. R.

The funeral took place on November 1st at Canford Cemetery, near Bristol; it was attended only by relatives and intimate friends; the service was conducted by Bishop Clifford.

PERCY WHITTINGTON SAUNDERS, M.B.Toronto, F.R.C.P.Lond.,

Physician to the Royal Free Hospital.

Within three days the Royal College of Physicians has lost its oldest and also one of its junior Fellows. On October 29th Dr. P. W. Latham died full of years and honours. On November 1st Dr. Percy Saunders passed away at the age of 46, just as the strenuous toil of years was reaching fruition. Born and educated in Canada, he gained the degree of M.B. (with gold medal) at the University of Toronto in 1902. Having decided to try his fortune in London, he came to this country and took the M.R.C.P. After holding a succession of posts at the City of London Hospital for Diseases of the Chest, he became connected with the National Hospital for the Paralysed and Epileptic, Queen Square, where he was in turn house-physician, pathologist, registrar, and assistant physician. In 1913 he was appointed assistant physician to the Royal Free Hospital. He contributed a number of articles on neurological subjects to medical literature. During the last five years his health suffered severely from several attacks of influenza, but he finally succumbed, after a long illness, to an obscure form of malignant disease.

Such are the bare facts of his professional career, but they entirely fail to convey any adequate idea of the enormous amount of work Saunders accomplished during the twenty years he spent in London. How well that work was done is sufficiently shown by the way in which he was promoted from post to post at the hospitals with which he was associated, and by the high professional position he attained after coming to this country as a total stranger, to make his way solely by his own merits, without any influence whatsoever. In everything he undertook he gave of his best, working incessantly to the utmost limits, and frequently beyond the limits, of his none too vigorous physical powers. Often, after a long afternoon spent in seeing out-patients and teaching students at the Royal Free Hospital, he would proceed to "The National" to do some work as registrar, would then give a lecture to nurses, and finish up by reading and writing well into the early hours of the morning. Absolutely conscientious in everything he undertook, his colleagues knew that anything he promised to do would be done thoroughly and well to the smallest detail, no matter at what expenditure of time and trouble. In disposition he was singularly shy and retiring, entirely lacking in the arts of self-advertisement and pushfulness. It was no easy matter to penetrate his natural reserve, but once known he was the most faithful of friends, only too ready to sacrifice his own interests on behalf of others, and seemingly incapable of an unkind or ungenerous word or action. His death is a grievous loss to the hospitals he served so faithfully. His sun has gone down while it was yet day, but the influence of his example and of his character will live. Those who knew him best, when they think of the apparent tragedy of his premature death, will recall the lines of Tennyson on another such loss:

> And, doubtless, unto thee is given
> A life that bears immortal fruit
> In those great offices that suit
> The full grown energies of heaven.

WILLIAM HALL, M.R.C.S.,

Leeds.

We regret to record the death of Dr. William Hall, at Headingley, Leeds, on October 31st, in his 90th year. Dr. Hall was the son of a well known Leeds medical practitioner, Mr. Matthew Hall of Wortley, and was born in 1834. When his father died, at the early age of 40, William Hall, although only in his 15th year, was apprenticed to Dr. Radcliffe of Leeds, and in the cholera and typhus epidemics of 1848 and 1849 worked night and day among the poor inhabitants of Leeds. In 1850 he became a surgical dresser to Mr. Sam Smith, surgeon to Leeds Infirmary, and two years later he was dresser to Mr. Teale. He obtained the diploma of M.R.C.S.Eng. and the L.S.A. in 1855, at the age of 21; subsequently he was a clinical assistant to Sir William Gull at Guy's Hospital, and also worked at the Lariboisière Hospital, Paris. He went into practice in Leeds, and became honorary surgeon to the Leeds Women and Children's Hospital and lecturer on midwifery and diseases of women and children at the Leeds School of Medicine; he also held the appointment of factory surgeon for seventeen years. It may be noted that Sir Arthur Mayo-Robson began his distinguished career in Leeds as Dr. Hall's junior partner.

Dr. Hall had a serious illness in 1897, and soon after retired from practice. Not for long, however, was he content with a life of leisure, and on recovering his health he devoted his energies to improving the conditions of the poor children of Leeds. He was one of the pioneers of the child welfare movement and began on an experimental scale the system of providing free meals daily to poor school children. Within a few months he examined 1,600 board school children in Leeds, and found that 600 of them suffered from rickets and had bad teeth; he soon had convincing proof of the efficacy of supplying those children with free meals. The Bradford City Council, as a result of Dr. Hall's experimental work, set a precedent by deciding that poor school children should be fed out of the rates, and Dr. Hall lived to see his pioneer work completed by the passing of an Act of Parliament empowering educational authorities to feed necessitous school children. He also founded the Leeds Barefoot Mission in 1904, which provided clogs and clothing for the children of the poor.

Dr. Hall married Miss Bowe, of Richmond, Yorkshire, who predeceased him, and he is survived by two sons and one daughter. The elder son is Dr. R. H. Hall of Leeds, who succeeded to his father's practice, and the younger son is Mr. Basil Hall of Bradford, president-elect of the British Medical Association.

We are indebted to Sir Clifford Allbutt for the following tribute to Dr. Hall's memory:

When in the early sixties of last century I settled in Leeds Mr. William Hall was gathering around him a substantial junior family practice; while I was living chiefly on

FIG. 3.—Multiple closed fractures of all four limbs, splinted and suspended for permanent treatment. This patient was blown by a shell through two walls of a house, and sustained seventeen complete fractures.

FIG. 1.—First-aid treatment of any fracture of the lower limb, showing the "pin" passing through the hook and a "shoulder suspension bar" suspending the Thomas splint and limb.

FIG. 2.—Showing the method of first-aid splinting of any fracture of the lower limb—in this case one of the middle third of the femur—with a window cut in the clothing.

FIG. 4.—Two screws in the tibia whose axes are oblique by elevation.

FIG. 5.—Antero-posterior view, showing displacements of a fracture of the radius.

FIG. 6.—Antero-posterior view, showing replacement of fragments and plate, after operation.

FIG. 7. Lateral view, after operation.

FIG. 8. Antero-posterior view. The patient was discharged from hospital to full duty.

FIG. 9.—Lateral view of the same case on discharge from hospital.

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hope. The senior family practices then were of Mr. Joseph Teale, Mr. Wheelhouse, and the brothers Price. As these gentlemen gradually retired Hall moved into the chief position, for he possessed just the blend of qualities proper for family practice; and furthermore a punctual, methodical, faithful way of quietly fulfilling his daily and hourly duties. I suspect Hall never lost a patient save by departures from the district and by deaths in the ordinary course of nature which even he was unable to prevent. Thus practice grew solidly around him. Brilliancy was not in his way, nor adventure; but he was fully competent, of large and various experience, sound in work, kindly and quietly sure of himself. Such a man wins the steady confidence of all who have need of him; and these were many. As his practice grew Hall was able to secure able partners, one of the first of them being Mayo-Robson. I remember at one of our consultations Robson confided to me his love for surgery, and his longing to risk all then present prospects in pursuit of it.

It is interesting to think how beneficent a life is that of such a family physician; for half a century perhaps the aid, the guide, and the solace of hundreds of sufferers young and old. But Mr. Hall was no less effectual as a public benefactor. He worked devotedly during the several typhus epidemics in Leeds, as I, who was then the sole Honorary Physician of the Fever Hospital, knew well. Moreover as Surgeon to the Women and Children's Hospital he was strongly moved to help children, and was, I believe, the first of those who moved in the provision of "school meals." In the joy of seeing hundreds of rosy thriving children from the slums he had his reward. And, modest as he was, one hopes that in the peace of his retirement he had some consciousness of having lived a worthy, faithful, and very useful life.

The death occurred on October 23rd of Dr. Arnold Heigsorn, after an operation for appendicitis. Dr. Heigsorn was one of the Belgian refugees, who, in the early days of the war, abandoned a lucrative practice in Antwerp, where he specialized in radiology, and together with his family fled to London. Soon after his arrival he volunteered for service in the Belgian Army Medical Service, but owing to glaucoma his offer was not accepted. The condition of his eyes gradually became worse, and after several operations he was left with only a very limited visual field in his left eye. Dr. Heigsorn was a man of wide culture, and had a charm which attracted and gained the admiration and affection of all who came in contact with him, either socially or professionally. These will feel a sense of genuine sorrow at his early death. He leaves a widow and two children—a son aged 16, and a daughter 7 years old.

Professor Carl von Hess, Director of the Munich Ophthalmological Clinic, died recently at the age of 60.

Dr. Heinrich Bircher, a well known authority on military surgery and organizer of the Swiss Army Medical Corps, has died recently at the age of 73.

Universities and Colleges.

UNIVERSITY OF OXFORD.

At a congregation held on November 1st the degree of Bachelor of Medicine (B.M.) was conferred on A. L. B. Stevens.

Inaugural Lecture.—The Whitley Professor of Bio-Chemistry, Dr. R. A. Peters, will deliver an inaugural lecture in the examination schools on Wednesday, November 14th, at 5 p.m. The subject of the lecture is "A Wonderland of Chemistry."

UNIVERSITY OF DUBLIN.

SCHOOL OF PHYSIC, TRINITY COLLEGE.

The following candidates have been approved at the examinations indicated:

Final M.B., Part I.—*Materia Medica and Therapeutics; Jurisprudence and Hygiene; Pathology and Bacteriology:* *J. F. Wilde, T. W. MacDowell, T. C. Foster, W. J. A. M'Mahon, Mary C. Livingston, C. F. D. M'Caldin, Gladys M. A. Lowry, W. H. Coon, P. Coleman, R. T. Cronin, Mary Galvin, G. A. Miller, J. J. Cusack, Augusta M. Young, W. O. Warrington.

In Completion.—G. P. Bamford, D. J. Cussen, J. Cussen, E. C. Dudgeon, C. J. du Plessis, R. W. Harte, L. W. R. Haskins, J. M. Johnston, O. Lord-Flood, R. H. M'Keag, K. F. Mackenzie, W. H. Maguire, H. M. Nevin, D. N. Power, F. M. Purcell, J. StClair, I. Strasburg, F. J. Swanepoel, C. Wilson.

D.P.H., Part I.—*Chemistry, Bacteriology, Physics, and Meteorology:* F. Stevenson, W. B. E. M'Crea, G. C. B. Robinson, R. Seale.

Part II.—*Sanitary Engineering Practical Sanitary Report, Hygiene and Epidemiology, Vital Statistics and Public Health Law:* F. Stevenson, W. B. E. M'Crea, P. M. J. Bobbett, G. C. B. Robinson, R. Seale.

* Passed on high marks.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

The licence of the College has been granted to C. H. Newman and Miss Muriel A. Stephens.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

The following candidates, having passed the necessary examination, have been duly admitted Licentiates in Midwifery of the College: B. C. Dasgupta, Cecily M. E. Maude.

The Services.

No. 14 STATIONARY HOSPITAL.

The fourth annual dinner of the medical officers of No. 14 Stationary Hospital will be held on Friday, December 14th, at the Trocadero Restaurant, Piccadilly, at 7.45 p.m., under the chairmanship of Lieut.-Colonel J. R. Harper, C.B.E. The honorary secretaries are Lieut.-Colonel H. M. Perry and Dr. H. L. Tidy, 39, Devonshire Place, W.1.

BELFAST UNIVERSITY SERVICES CLUB.

The fifth annual Armistice Dinner of the Belfast University Services Club is to be held in Thompson's Restaurant, Donegal Place, Belfast, this day (Saturday, November 10th) at 7.15 p.m. The address of the honorary secretary is University Union, Belfast.

The annual general meeting of the club will be held in Thompson's the same evening at 6.30.

DEATHS IN THE SERVICES.

Lieut.-Colonel Edward Fawcett, Madras Medical Service (ret.), died at Blackheath on November 1st. He was born on March 17th, 1847, the son of John Fawcett, of Augharoo, Fermanagh, and educated in Dublin, taking the L.R.C.S.I. and L.K.Q.C.P. in 1863 and the F.R.C.S.I. in 1879. He entered the I.M.S. as assistant surgeon in 1869, attained the rank of brigade surgeon lieutenant-colonel in 1894, and retired on December 28th, 1899. He served in the Burma war of 1886–87, was mentioned in dispatches in G.G.O. No. 434 of 1887, and received the frontier medal with a clasp.

Major Edgar John Cecil McDonald, Indian Medical Service, died at sea on October 29th, aged 43. He was the son of the late Mr. C. E. McDonald of Ealing, and was educated at King's College Hospital; he took the M.R.C.S. and L.R.C.P. in 1904. He entered the I.M.S. as lieutenant in 1905 and became major in 1915. He was serving in civil employ in Assam.

Medical News.

A telegram to the *Times* from its Toronto correspondent announces that a committee has been formed to organize a Banting Medical Research Foundation on lines similar to those of the Medical Research Council in England. The committee hopes to raise altogether from one to two million dollars, and Dr. Banting intends to contribute 10,000 dollars out of his share of the Nobel Prize.

An announcement appears in our advertisement pages informing those who desire to participate in the Government grant for scientific investigations for 1924 that their applications must be received by the Clerk to the Government Grant Committee, Royal Society, Burlington House, W.1 (from whom printed forms of application can be obtained), by January 1st next.

On October 26th the Prince of Wales visited the Dundee Royal Infirmary. He was received by Mr. J. C. Buist, president; Mr. A. B. Gilroy, vice-president; Mr. Harold S. Sharp, chairman; and Dr. H. J. C. Gibson, medical superintendent. After the presentation of members of the directorate, matron, and officials, he visited Ward 4, where Professor Stalker, Dr. L. H. Henderson, and the sister-in-charge were presented. He was thereafter conducted to a ward set apart for surgical diseases in children; Professor L. Turton Price, F.R.C.S., Dr. James Dallas, and the sister-in-charge were presented. The Prince made special inquiries concerning the prevalence of tuberculosis, and evinced great interest in learning that the directors of the Royal Infirmary possess the Sidlaw Sanatorium, Auchterhouse, which accommodates about fifty children who suffer from this disease. The chairman pointed out the operation theatres, *x*-ray and electro-therapeutic departments now in course of construction, the erection of which has been made possible by the munificence of Mrs. Marryat.

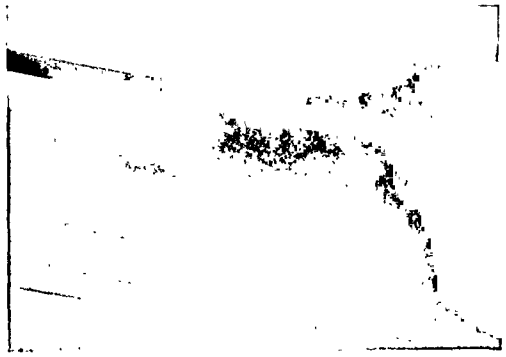

FIG. 10.—Open comminuted fracture from the result of a motor cycle accident abroad on March 13th, 1921. Admitted on December 10th, 1921, with wounds healed and malunion, as shown in the lateral view.

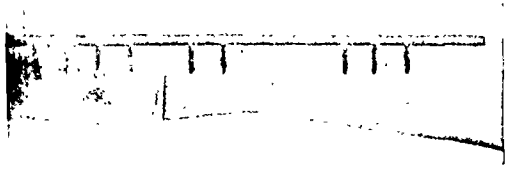

FIG. 11.—The antero-posterior view of the same case after replacement of the fragments and plating on January 31st, 1922.

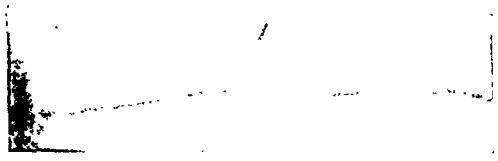

FIG. 12.—The antero-posterior view on discharge from hospital to his home, as a walking case, without any shortening, on March 27th, 1923.

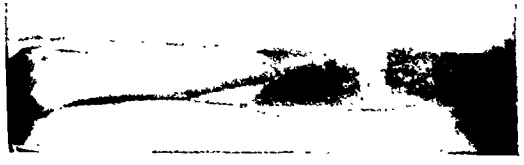

FIG. 13.—The lateral view of the same case, showing alignment and a portion of patella and knee-joint.

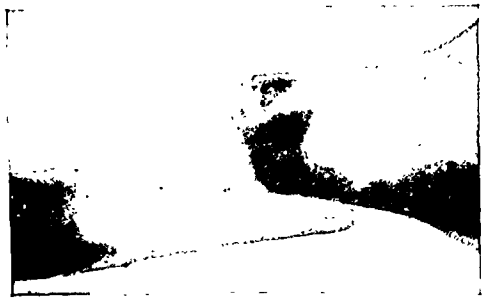

FIG. 14.—Antero-posterior view of a closed fracture of the lower third of femur with lateral displacement of fragments, which were entangled in muscle to such an extent as to render reduction by external manipulation impossible.

FIG. 15.—Lateral view of the same case, showing marked backward displacement of lower fragment.

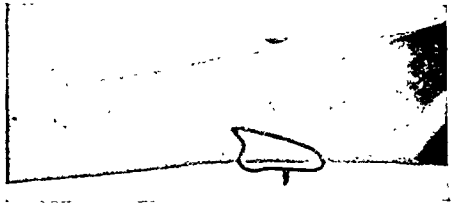

FIG. 16.—Antero-posterior view after operation of wiring, combined with splinting.

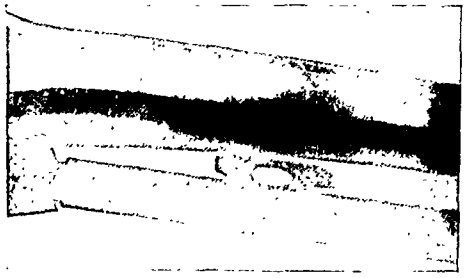

FIG. 17.—Lateral view of the same case after operation of wiring; a portion of the wire loop can just be seen above the bars of the Thomas splint.

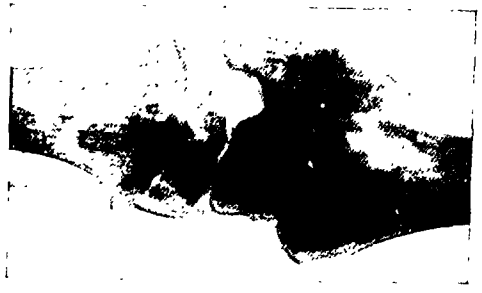

FIG. 18.—Antero-posterior view of the displacement in a closed fracture of the femur involving the knee-joint.

FIG. 19.—Antero-posterior view of the replacement and the fragments held together by means of a plate, screws, bolt, and nuts.

THE Fellowship of Medicine and Post-Graduate Medical Association has arranged a refresher course in general medicine and surgery from December 3rd to 15th at the Hampstead General Hospital, with which will be associated the Hospital for Epilepsy and Paralysis, the North-Western Fever Hospital, and Paddington Green Children's Hospital. The course will be a whole time one, and will include work in all departments. There will also be a course in neurology at the Hospital for Epilepsy and Paralysis, Maida Vale, of which further particulars will be announced later. Full information can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole Street, W.

THE annual dinner of the Cambridge Graduates' Club of St. Bartholomew's Hospital will take place on Wednesday, November 21st, at 7.30 p.m., at the Hotel Victoria (King Edward VII Rooms), with Dr. W. Langdon Brown in the chair. The honorary secretaries are Dr. H. N. Burroughes and Mr. Reginald M. Vick.

THE Glasgow University Club, London, will dine at the Trocadero on Thursday, December 6th, at 7.30 p.m., when Lieut.-General Sir W. B. Leishman, K.C.M.G., F.R.S., will be in the chair. Any Glasgow University men, not members of the club, who would like to attend are requested to communicate with the honorary secretaries, 1, Harley Place, N.W.1.

THE first Lloyd Roberts Lecture at the St. Mary's Hospitals, Manchester, will be delivered by Professor A. Donald, M.D., on Friday, November 23rd, at 5 p.m., in the lecture theatre. Members of the medical profession are cordially invited to attend.

AT a sessional meeting of the Royal Sanitary Institute at the Town Hall, Ipswich, on Saturday, November 17th, at 10.30 a.m., discussions will take place on sewage disposal and on tuberculosis in milk. In the afternoon visits will be paid to various municipal undertakings.

AT the opening meeting of the Illuminating Engineering Society to be held at 8 p.m. on Tuesday next (November 13th) at the Royal Society of Arts reports will be presented on recent progress, and a number of novelties, including the Irwin colour filter system and new types of motor-car head lights, will be exhibited.

WE are asked to announce that a concerted effort on behalf of the British Empire Cancer Campaign is being made throughout the Dominions. The Wellington (N.Z.) Branch of the British Red Cross Society reports that an intensive "cancer campaign" has been organized for the middle of this month in the city. The co-operation of the Newspaper Proprietors' Association has been secured and permission has been given to advertise the campaign free of cost on the tramways. In this country a continuous flow of subscriptions is reaching the offices of the British Red Cross Society. Contributions should be sent to the Hon. Sir Arthur Stanley, British Red Cross Society, 19, Berkeley Street, London, W.1, or to any of the branches of Lloyds Bank.

THE opening of the new school of dental surgery at King's College Hospital will take place at Denmark Hill on Monday, November 12th, at 4.45 p.m. The inaugural address will be given by the Right Hon. F. Dyke Acland, M.P., chairman of the Dental Board.

DR. A. V. HILL'S inaugural lecture as Jodrell Professor of Physiology at University College, London, on "The Present Tendencies and the Future Compass of Physiological Science" will shortly be published by the University of London Press.

THE Manchester Children's Hospital, by special permission of the King, will in future be known as the Royal Manchester Children's Hospital.

A PAPER communicated to the Royal Society by Professor T. B. Wood on November 1st reported some experiments by Mr. T. Deighton which led to the conclusion that the basal metabolism of a pig from 75 days upwards was greater in mid-youth than at any other time of life, and that the metabolism after the ingestion of food reaches a maximum after five hours and then declines. A curve of basal metabolism showing its variation with age favoured the conclusion that the increase of metabolism in youth is directly ascribable to growth. In this respect also the pig seems to resemble man.

THE Catherine Gladstone Home at Mitcham has been brought up to date by the Marie Celeste Samaritan Society of the London Hospital, which will maintain and manage it as an annexe of the hospital. It will be formally opened by the Minister of Health at 3 p.m. on Monday, November 19th.

DR. T. P. THOMAS of Brecon was entertained at dinner on October 25th in recognition of his valuable services as honorary secretary of the County Panel Committee, and to commemorate his occupancy of the office of high sheriff. He was also presented with an inscribed silver coffee tray from his medical colleagues.

THE Prince of Wales, as President of the Royal Northern Hospital, Holloway, will open its new casualty department (which is the war memorial of the borough of Islington) on November 27th. Contributions amounting to £12,000 have been received towards the cost of the department, but a further £4,000 is required to open the building free of debt.

THE first lecture of the one hundred and seventieth session of the Royal Society of Arts will be held on Wednesday next, November 14th, at 8 p.m., when M. Edouard Belin will give an address on the electric transmission and reproduction of writing, designs, and photographs without wires. On November 28th Sir H. J. Gauvain will speak on the effect of sun, sea, and open air in the treatment of disease; and on December 5th Dr. A. W. Hill, F.R.S., Director of the Royal Botanic Gardens, Kew, will give an account of the work done there.

THE annual dinner of the London (Royal Free Hospital) School of Medicine for Women will be held at the Savoy Hotel on the evening of Thursday, December 6th.

THE annual dinner of the past and present students of the Royal Dental Hospital of London will be held at the Trocadero Restaurant on Saturday, November 24th, at 6.30 p.m. for 7 precisely, when Mr. G. Northcroft, O.B.E., will preside.

AT the meeting of the Tuberculosis Society to be held at the Margaret Street Hospital, London, W.1, on November 16th, at 8 p.m., Professor Leonard Bernard will give an address on tuberculosis in France.

A MEETING of the Medico-Psychological Association of Great Britain and Ireland will take place on Thursday, November 22nd, at 11, Chandos Street, Cavendish Square, W.1. The chair will be taken by the President, Dr. Edwin Goodall, C.B.E., at 2.45 p.m.

DR. HENRY SALOMON of Leicester has for the second time been awarded, by the Ministry of Health, a Government grant for successful vaccination.

WE are asked to state that the *Textbook of Pathology* by Delafield and Prudden reviewed in our issue of November 3rd (p. 818) is issued in this country by Messrs. John Bale, Sons, and Danielsson.

UNDER the will of Miss Florence Carver, whose father was for many years prominently associated with the Nottingham lace trade, the Nottingham General Hospital will receive a legacy of £40,000.

THE "Toll" system of dealing with short-distance trunk calls, introduced by the Post Office some time ago, has resulted in a marked growth in the traffic. The average daily number of calls to places within the area now covered by the "Toll" exchange was 14,000 before the introduction of the "Toll" system, and it is now 24,500. The Post Office asks us to state that some hundreds of demands are still made each day for "Trunks," although the exchange required is reached by the "Toll" system. It is in the interests of telephone users to avoid the delay thus caused; they are therefore advised to consult the list of exchanges in the "Toll" system shown in the preface to the London Telephone Directory before asking for a short-distance call.

THE Senate of Uruguay recently confirmed a revaccination bill making revaccination obligatory every ten years.

THE fiftieth anniversary of the founding of the New York Laryngological Society will be celebrated on November 15th. This organization, now the Section in Laryngology of the Academy, is believed to be the oldest society in existence of the department which it represents. In connexion with the celebration there will be an exhibition representing the important contributions made to the progress of laryngology in the city of New York.

THE twentieth congress of the Italian Society of Dermatology and Syphiligraphy will be held in Rome from December 20th to 22nd. The subjects to be discussed are herpes (Dr. Mariani) and the various preparations of bismuth in the treatment of syphilis (Dr. Truffi). Further information can be obtained from the secretary, Dr. V. Montesano, Via Campo Marzio 69, Rome.

THE two hundredth anniversary of the death of the celebrated anatomist Antonio Maria Valsalva was celebrated on September 23rd at his birthplace, Imola, in Northern Italy.

DR. L. EMMETT HOLT, vice-president of the American Child Health Association, has been appointed visiting professor of pediatrics to the Peking Union Medical College by the Rockefeller Foundation. Dr. Holt is to conduct a three months' course of lectures, introducing the latest methods in the treatment of child diseases to Chinese medical practitioners.

THE Department of Health of New York City has prohibited the retail sale of veronal, veronal sodium, luminal, luminal sodium, sulphonal, trional, or tetronal except on the written prescription of a registered medical practitioner.

hair, some of which hairs are found in its faeces. Under the long unpigmented hair of the winter coat, short pigmented hairs are to be found.[1]

Loss of the Pigmented Hair in Grey Horses followed by Melanosis.

Grey horses after the age of ten years tend to become white owing to the loss of pigmented hair, including the hair of the mane and tail. With increasing age these animals develop some form of melanotic cancer with such increasing frequency as to give rise to the statement that *if a white horse lives long enough some degree of melanotic* new growth will be found on a complete examination after death.[21] Horses which keep their hair dark very rarely suffer. The skin covered by the white hair is likewise unpigmented, but the pitch-black pigmented skin, free from hair, of the ano-genital region, mammae, scrotum, and folds of the prepuce, also the margin of the lower lip, remains unaltered. This deeply pigmented hairless skin is a site of predilection for the starting of melanotic disease (Fig. 11). It is first noticeable as small black nodules which run together into tumours and then come to be embedded in a general thickening which later has the characteristic appearance of rugose elephantiasis. Preceding this naked-eye appearance there have been found microscopic changes; when vertical sections are made through the skin under the tail of an aged white horse isolated pigmented spots may be seen, in particular near the deep coiled ends of the sweat glands (Fig. 12). On the other hand, examination of the same skin taken from an old horse which has retained pigmented hair fails to discover such collection of pigmented cells. The melanotic disease does not extend superficially beyond the black hairless areas, but removal is only practicable in the case of melanotic elephantiasis of the folds of the prepuce. The inguinal glands enlarge early, but remain circumscribed and do not infiltrate. The two commonest external manifestations of secondary disease are in the parotid region, and between the scapula and spine, deep in the rhomboid muscles. Similar instances occur in human beings; a case of scapular metastasis was described by Cairns.[22] From the ano-genital and inguinal regions the disease spreads to pelvic and lumbar glands, to the abdominal and thoracic viscera. Black cords and chains of nodules are found in the retroperitoneal tissue, masses in the spleen, etc., at the root of the lungs, and around the base of the heart. There is a marked absence of general wasting, the animal working until it dies suddenly. The enormous growths cause mechanical obstruction by displacement of tissues without general infiltration. Whilst in human beings the growths commonly remain solid, in horses they are often cystic. Haycock wrote his note with the black fluid contained in one of the cysts, just as Cuvier drew a sepia with the animal's ink. A cystic tumour of the spleen or lung may rupture and cause immediate death of the horse.

Congenital Melanomas becoming Melanotic Cancer.

Pigmented naevi exhibit melanin granules in the basal layer of the epidermis, and to a variable but much smaller extent in the rete spinosum. Moles which are rugose on the surface have fewer rows of cells in the rete spinosum, and an increased thickness of the corneous layers.

The original structure of the pigmented naevus consists of a regular arrangement of cells, the epidermis being clearly distinguished from the dermis. During adult life there is a slow degeneration, variable in degree, to be recognized by a full examination of a number of specimens.[23] The epidermis and dermis become less sharply defined; there are branched pigmented cells in the dermis, some are epithelial cells which have dipped down, some connective tissue cells which have taken up pigment freed by the breaking down of epithelial cells (Fig. 13). Free granules of pigment are found in lymphatic spaces and cells may have a dusky stain. These changes are to be noted before any sign of cancer, but also in the areas surrounding the commencement of cancer.[24]

The malignant growth begins in the lowest layer of the epidermis, and resembles either one of the varieties of rodent ulcer or squamous-celled carcinoma. Just as sections of chimney-sweeps' cancer show granules of soot in the cells growing downwards,[25] so also in melanotic cancer the growing margin of cells exhibits melanin granules. As the epithelial cells grow down into the dermis they tend to assume an oval or spindle shape (Fig. 14), later on an alveolar arrangement; they break into lymphatics, invade the wall of blood vessels, and set up haemorrhage.

The masses of melanotic cancer in lymphatic glands and internal organs are composed of oval and spindle cells. Whilst recent observations indicate epidermal cells as those which commence the malignant change, the appearances of the tumours have led them to be termed sarcomata. Paget, *in his lectures, generally used the term "melanotic cancer,"* and I have followed him in that respect. Discussion has proceeded much on the same lines as earlier debates concerning the origin of the elements composing a scirrhous cancer of the breast, also as regards the cancers produced by rubbing tar into the ears of animals.[26 27]

Melanomas are very common among darker races, indeed more so than among white races, yet this does not render them prone to melanotic disease. No great stress can, perhaps, be laid on this point, because such races are generally reported to be less susceptible to cancer in general. Seligman[1] noted among natives of New Guinea that pigmented moles were common on all parts of the body, both in men and women. Yet no case was seen or heard of in which a pigmented mole had tended to spread or give rise to tumour formation. Among 8,000 hospital surgical in-patients belonging to dark races in Constantinople[28] there were 390 cases of carcinoma, 125 of sarcoma, and 3 of melanotic cancer; two of the latter had grown from the relatively unpigmented sole of the foot, and one involved the gall bladder after the patient had suffered from what had been called piles. Among 12,000 surgical out-patients there were no cases; among 2,000 eye cases there were two—one originating in the conjunctiva, the other in the ciliary body. The occurrence seems likewise rare among negroes in the United States; the only case I have noted, one described by Gilchrist,[29] began on the relatively unpigmented sole of a negro, as in the two Constantinople cases.

An exceptional case was seen by me in conjunction with Dr. Redmond Roche. A boy aged 5 was the son of brunette parents both of whom presented numerous superficial pigmented moles; on the dorsum of one of the boy's toes was a superficial ulcer with a black surface which had been treated as a chilblain. On two *other toes were quiescent pigmented moles.* In the corresponding groin was a gland enlarged to the size of a hazel nut. Examined after excision the ulcerated mole exhibited pigmented cells and haemorrhages in the base of the ulcer; the corresponding enlarged gland showed foci of pigmented cells and haemorrhages. The other two proved to be quiescent epithelial melanomas. I cannot give a subsequent report on the case, but at such an age malignant disease may be considered out of the question.

Pigmented spots acquired after puberty or late in life may also become malignant. Hutchinson described several varieties. By 1886 he had seen half a dozen cases of melanotic whitlow; many more instances have been described since that date, all remarkably alike, and all pursuing a malignant course (Fig. 15). They are instances of melanotic squamous-celled carcinoma. The specimen described by Bowlby[40] occurred on the great toe—half is in the College Museum, half in that of St. Bartholomew's Hospital. In Csaki's case the toe-nail from childhood had separated on many occasions before melanosis set in.[41]

Hutchinson also described the senile freckles, lentigo senilis, which occasionally become malignant.[2 42] The clinical course and structure of the growth is then as a rule that of rodent ulcer followed ultimately by a metastasis.

A slight puncture of the skin may leave a pigmented spot which subsequently becomes the seat of melanotic cancer. In Eve's case a woman at the age of 27 ran a splinter into the hypothenar eminence, and a black spot persisted there for twelve years, until after being again accidentally pricked. Melanotic cancer then started, of which she died eleven months later.[43] Two of the Museum specimens are from a man aged 55 in whom melanotic cancer supervened from a puncture by a horn under the jaw three months before. The man died of the disease fifteen months after the injury.

Metastasis of Melanotic Cancer.

Once the malignant change has started metastasis follows, whether it becomes apparent soon or late; there are extra-

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6. Cerebral Tumour Simulating Lethargic Encephalitis.

H. CLAUDE, H. SCHAEFFER, and T. ALAJOUANINE (*Paris méd.*, April 14th, 1923, p. 337) record the case of a woman, aged 49, who presented symptoms of somnolence and stupor accompanied by diplopia and ptosis, followed by a certain degree of rigidity resembling post-encephalitic Parkinsonism. Headache did not occur until four days before death, and there was no vomiting; the fundus was not examined. Death, which took place four days after lumbar puncture, was probably due to haemorrhages within the tumour caused by sudden decompression. The autopsy showed a large glioma in the right cerebral hemisphere invading the lenticular nucleus, optic thalamus, internal capsule, cerebral peduncle, and third ventricle. In their comments on the case the authors remark that the opposite error may be committed, epidemic encephalitis being mistaken for cerebral tumour. Sands reported three cases of encephalitis with papilloedema at first diagnosed as cerebral tumour in which the favourable issue revealed the true condition. E. Farquhar Buzzard and J. G. Greenfield (BRITISH MEDICAL JOURNAL, November 20th, 1920, p. 782) have shown that the principal symptoms of lethargic encephalitis are merely due to their localization, and are not, properly speaking, specific. The diagnosis between cerebral tumour and lethargic encephalitis is to be made by the coexistence of other evidence of infection, and especially by the course of the disease. Papilloedema is frequent in cerebral tumour and rare in lethargic encephalitis, and the cerebro-spinal fluid is under tension in cerebral tumour but not so in encephalitis.

7. The Treatment of Vasomotor Rhinitis.

J. KRAGH (*Ugeskrift for Laeger*, May 10th, 1923, p. 339) has treated with success three cases of vasomotor rhinitis on the assumption that this condition is an anaphylactic phenomenon comparable with hay fever and asthma. He gave small quantities of a non-specific protein, choosing peptone for this purpose. The first patient was a woman, aged 25, who for several years had suffered from attacks of sneezing, itching in the nose, a watery secretion from it, and periodic obstruction. Though she could not eat eggs, which made her skin itch, withholding eggs from her dietary did not affect the nasal symptoms. She was given 35 cg. of peptone half an hour before each of her three meals, and after a couple of days all the symptoms disappeared. This treatment was continued for ten days. After it had been discontinued for another ten days the symptoms returned, and giving peptone by the mouth now proved futile. She was, therefore, given it by intramuscular injection, 5 grams of peptone in saline solution being injected once a week for five weeks. After the first injection the symptoms disappeared completely, and she regained the sense of smell which she had lost for several years. When the treatment was discontinued she relapsed, but the symptoms were not as severe as before. In the two other cases the beneficial results lasted much longer, and one of the patients was still symptom-free six months after the institution of treatment.

8. Angina Pectoris.

J. PAL (*Wien. Arch. f. innere Med.*, Festnummer, Bd. vi, Heft 1, 1923, p. 153) discusses the cause, symptoms, and treatment of angina pectoris, and states the conclusions drawn from his own experience in a large number of cases. He regards angina pectoris as an angiospastic crisis in the region of the coronary vessels and the root of the aorta. The special excitability of this region is, he believes, brought about by changes such as mesaortitis, arterio-sclerosis with obstruction of the orifices of the coronary arteries, endocarditis of the aortic valves, or may be only functional. When this special excitability exists, psychical excitations or sensory irritations (cold and pain) are easily reflected on this critical zone. The attacks are accompanied by circulatory phenomena, vascular crises with increased blood pressure, or cardiac crises. Only in very exceptional cases is a sinking of the blood pressure observed. The vasomotor nature of the attacks is indicated not only by the prompt action of drugs causing dilatation of the coronary arteries (caffeine, theobromine, atropine), and of general antispasmodic drugs (papaverin, akineton, and nitrites), but also by the influence of warmth and fever. In one of the cases which the author records in detail the effect of febrile conditions in always arresting the attacks temporarily was clearly shown. In the treatment of angina pectoris the author attaches much importance to warmth, and especially to the drinking of hot water. If this fails he regards the intravenous injection of certain drugs as the most suitable treatment on account of their immediate action. He recommends papaverin, akineton, and novatropine, and a combination of papaverin and novatropine (troparin), which may be injected intravenously without danger.

Surgery.

9. Perforation of Gastric Ulcer by Stomach Tube.

THAT gastric lavage, or even the passage of a stomach tube for a gastric analysis, may be a dangerous procedure in the presence of a chronic perforating type of ulcer, and that the trauma arising from the use of the stomach tube may cause an acute perforation of a chronic ulcer, is shown by a case reported by G. SCHWARTZ (*Journ. Amer. Med. Assoc.*, May 26th, 1923, p. 1520). Because of pain in the pit of the stomach, a physician advised gastric lavage. When the stomach tube was passed, the patient had an agonizing pain in the pit of the stomach, and felt faint. The tube was withdrawn and the patient allowed to recline for a while, after which he felt slightly better. He was then taken home and given a hypodermic injection (presumably morphine), and spent a fairly comfortable night. On arising in the morning he felt weak and had a slight pain in the pit of the stomach. For breakfast he had two soft-boiled eggs, one biscuit, and a cup of warm milk; in a few minutes he fell to the floor with a cry of agony and fainted. When the author saw him the patient was in profound shock, and the abdomen presented a typical picture of perforated ulcer. The abdomen was opened; it was full of a sero-purulent fluid; the eggs and milk which the patient had had for breakfast were free in the abdominal cavity. There was a large perforation, which easily admitted the ring finger, and which was large enough to admit a stomach tube on the anterior wall of the stomach near the lesser curvature, and about 2½ inches from the pylorus. The gastro-hepatic omentum had made a feeble attempt to encircle the perforation, which, however, was too large to permit its being sealed from the general peritoneal cavity. The perforation was closed with a double purse-string suture and a piece of the gastro-hepatic omentum sewn over it for added protection. No gastro-enterostomy was done because the patient seemed moribund. All the fluid in the peritoneal cavity was aspirated with the suction apparatus, one drain being placed in the kidney pouch, and another in the pelvis through a suprapubic stab. The patient received nothing by the mouth for five days, but was given 1,500 c.cm. of physiological sodium chloride solution subcutaneously daily, with a continuous rectal drip of 5 per cent. glucose and sodium bicarbonate; he was permitted fluids by the mouth on the sixth day. He made an excellent recovery and was out of bed and taking a soft diet on the thirteenth day.

10. The Surgical Treatment of Infantile Paralysis.

CAPRIOLI (*La Pediatria*, April 1st, 1923, p. 382) says the aim of treatment in post-paralytic equino-varus is (1) to re-establish the equilibrium of the antagonistic muscles, and (2) to bring the foot back into the best possible position. Whereas many surgeons prefer to straighten the deformity first and then deal with the muscles by transplantation of tendon, or otherwise, the author says that he gets better results by first treating the muscles and tendons, and then, three or four weeks later, he proceeds to forcible straightening. This is done in four stages: (1) Dorsiflexion of the foot, (2) external rotation with the os calcis fixed, (3) forcible pronation, and (4) straightening of the plantar arch. Photographs are given of the various manœuvres, and details of 8 cases so treated are added, with a bibliography of 36 references to recent literature on the subject.

11. Cholecystectomy for the Sterilization of Typhoid Carriers.

C. ARND (*Schweiz. med. Woch.*, April 26th, 1923, p. 423) has attempted to stamp out an endemic of typhoid fever in an asylum by performing cholecystectomy on certain of its inmates. Altogether 15 typhoid or paratyphoid carriers were thus treated, and 8 out of 10 typhoid carriers were found no longer to harbour typhoid bacilli in the stools after the operation. None of the 5 paratyphoid carriers was sterilized by this operation, and, curiously enough, two persons who had been typhoid carriers before the operation, and who ceased to be so after it, were now found to be paratyphoid carriers. An observation which somewhat detracted from the reputation of cholecystectomy for this condition was the finding that the gall bladders of four of the typhoid carriers were perfectly sterile. This was also the case with three of the five paratyphoid carriers. As the author points out, it is difficult to account for the disappearance of typhoid bacilli from the stools of a person whose gall bladder has been found to be sterile on removal. This experience suggests that patients may often cease to be carriers spontaneously, and that good results have been claimed for cholecystectomy in a certain number of cases in which the same result would have occurred had no operation been undertaken.

12. Association of Surgeon and Radiologist in Bone Grafting.

ST. J. D. BUXTON (*Arch. of Radiol. and Electrother.*, March, 1923, p. 289) remarks that the aid given to the surgeon by radiography in the diagnosis of fractures and diseases of bone is an outstanding feature of the progress of medical science. Bone grafting may be used for non-union, fibrous union, to fill gaps, or in cases of false joints. The question of one-stage or two-stage operations is a debatable point among surgeons, but it seems politic to adopt a two-stage operation in certain cases. Where there is much scarring this is first treated by excision, and metal, if present, is removed with a gouge. Gross deformity should be corrected before grafting when due to loss of bone substance. The graft is best taken from the inner surface of the tibia and consists of periosteum, compact tissue, and medulla. The method of implantation depends on several factors. An intramedullary graft is an excellent splint and is useful for single bones, as the humerus or femur. In forearm bones an intramedullary graft at one end and a lateral inlay at the other is useful. It is better to avoid wires or plates if possible. Plaster is put on and left for six weeks and the condition examined by *x* rays. Failure to obtain union may be due to latent infection causing suppuration in the wound or lack of nourishment of the graft due to deep scar and skin cicatrices. Fracture of the graft may be due to trauma. The common fracture of the graft occurs during the first three months owing to osteoclasis proceeding too rapidly, and an area of rarefaction is produced across the graft which falls apart; it appears where the graft joins the proximal fragment of the host bone and is seen usually in the humerus, ulna, and tibia. The value of radiology in watching the progress cannot be exaggerated. Skiagrams indicate for what period a splint should be worn, and any untoward occurrence can be exactly diagnosed by a study of the photograph.

13. Latent Mastoiditis.

L. REVERCHON (*Arch. Internat. de Laryng., Otol. et Rhinol.*, March, 1923, p. 286) defines latent mastoiditis as a process of mastoid osteitis eventually pointing through the cortex or causing grave complications without any previous signs of mastoid disease. It has been shown that owing to the presence of a fold of mucous membrane at the aditus the tympanum and the antrum may be almost independent cavities. This may be so marked that there may be mastoiditis without otitis, or as so commonly happens, otitis without mastoiditis. Luc considers that latent mastoiditis is always due to a separate and independent infection, which is often bilateral. If any otitis accompanies the condition it is usually insidious in character and may be suppurative or catarrhal. If there is a perforation or if a paracentesis has been performed, no matter how carefully the pus may be cleared away, it always reappears from the mastoid cavity through the perforation and in astonishingly large quantity. This flow is very often intermittent in character owing to the bad drainage at the aditus. In these cases there is often a perforation in the postero-superior quadrant, sometimes at the apex of a nipple-like process. The abscess may work through to the surface very quickly, or may take five, six, or more weeks. Some cases appear to have gone on for several months before showing any localizing symptoms. The apex is sometimes affected while the antrum is healthy, but usually both are involved. The dura mater and the sigmoid sinus are sometimes exposed and may be invaded with the usual complications. The patient is vaguely unwell—complaining of heavy headaches, loss of appetite, and inability to work. When signs and symptoms are observed pointing to a latent mastoiditis it is advisable to explore at once the mastoid process and clear out any diseased tissue. A large cavity is the usual result of this procedure, but it very quickly closes up and the suppuration ceases.

14. Rarity of Appendicitis among the Chinese.

P. WEISCHER (*Zentralbl. f. Chir.*, June 2nd, 1923, p. 872) quotes the words of Professor Perthes: "The fact that the question of appendicitis does not arise in China arouses the suspicion that it is connected with diet," and reports his own experience in confirmation of this. The author was attached to the polyclinic for Chinese at the Catholic Mission Hospital at Tsingtau from 1915 till 1923, during which time there were 86,000 admissions, almost entirely from the poorest classes. Only two cases of appendicitis occurred, and these chronic. In one of these, a man of 28, the lumen of the diseased appendix contained a *Trichocephalus dispar*. The other case was that of a Chinese woman of 29, who, as sister of an order, had lived for many years on a European diet. In this case there were two faecal concretions in the appendix, and numerous adhesions about the caecum.

Obstetrics and Gynaecology.

15. The Combination of Pituitrin with Morphine in Labour.

J. MENNET (*Schweiz. med. Woch.*, June 7th, 1923, p. 549) has found that the judicious combination of morphine with pituitrin gives excellent results under certain conditions. When labour has lasted a considerable time and there are signs of secondary uterine inertia the injection of pituitrin may do more harm than good; to whip up the tired uterus with pituitrin at this stage may defeat its own object. Under these conditions it is advisable to secure a period of rest by comparatively large doses of morphine—that is, 0.5 to 2 c.cm. of a 1 per cent. solution. After the rest thus secured it may even be unnecessary to give pituitrin as the labour pains may now be powerful. If they are not pituitrin should be given by subcutaneous or intramuscular injection; it is useless to give it by the mouth. Another indication for combining the two drugs is great excitement on the part of the patient, who may be exceptionally sensitive to pain. Morphine not only deadens the pain but may actually increase the effectiveness of the labour pains, which have been inhibited by the patient's abnormal sensitiveness to pain. Thus, whether morphine be given alone or in conjunction with pituitrin, it is an important aid to the successful completion of labour, and it should be borne in mind that pregnant women tolerate large doses of morphine with impunity. The author is so impressed with the potency of pituitary extract for evil as well as for good that he, very properly, urges his fellow practitioners never to let midwives give it on their own responsibility, and he deplores the fact that in Switzerland midwives are apt to give both pituitrin and pituglandol without consulting a doctor.

16. Cerebral Haemorrhage in Eclampsia.

ACCORDING to LEVANT and L. PORTES (*Gynécol. et Obstét.*, 1923, vii, 4, p. 332), haemorrhage in the central nervous system is a rare complication of eclampsia, only 48 cases having been reported in which the diagnosis was verified by autopsy or lumbar puncture. In twenty years' experience at the Baudelocque Clinic the incidence has been 2.7 per cent. Meningeal haemorrhage, superficial or ventricular, is more frequent than purely intracerebral; mixed forms are relatively common. Clinical indications pointing to cerebral haemorrhage in an eclamptic patient are: (1) sudden death, following an acute asphyxial condition; (2) hemiparesis which may affect face, arm, and leg, or may be manifested in conjugate deviation and inequality of the pupils without other signs; (3) an abnormal persistence of coma, especially after delivery; with this may be associated the thermal signs noted by Boissard—namely, a rapid fall of temperature from 104° or 105° to 95° or 96°, or more often a transient diminution of about 1.5°, followed by a steady rise to 104°–105°, when death ensues. Recovery from hemiplegia is rare, and may be accompanied by aphasia. Incomplete and transitory hemiplegia points to a haemorrhage confined to the meninges. Lumbar puncture has considerably greater diagnostic than therapeutic significance.

17. The Formation and Diagnostic Value of Cutaneous Striae during Pregnancy.

P. SFAMENI (*Zentralbl. f. Gynäk.*, May 5th, 1923, p. 720), reviewing the literature and also making use of his own experience and experiments on the subject, states that striae may be found in three different situations—on the abdominal wall, on the breast, and on the thighs. The striae occurring on the abdominal wall are practically always to be found during the last three months of pregnancy, and the author makes a special point of the fact that these striae are not produced by abdominal distension alone, or by the deposition of fat in the subcutaneous tissue alone, but by a combination of the two, which occurs in a very short space of time. Thus striae are not usually found when the abdomen is distended by a tumour or by ascites. Breast striae are due to the laying down of fat and also to the hypertrophy of the lacteals during pregnancy, the glandular structures causing the internal fat to be displaced anteriorly. The author states that both of these kinds of striae are linked up with pregnancy, and their medico-legal value is indisputable. being true striae gravidarum. As regards striae on the thighs, they have no diagnostic significance in pregnancy as they are only due to a hasty deposition of fat and are not present by any means in all pregnant women; they occur often in the non-pregnant and even in men. Thus the author shows that these three varieties of striae are of different origin and constitution and have different values in the diagnosis of pregnancy.

ordinary instances of delay in its appearance. Coley reported 91 cases treated by excision, also by his toxins, radium, and x rays. The primary treatment of a pigmented mole which had begun to spread failed, whichever of the above means was used.[44] In Küttner's Klinik from 1890 onwards there were 39 cases of melanotic cancer. Of 26 submitted to operation 4 survived the first operation for five years, soon after which 3 died of generalized melanotic cancer.

A few individuals appear to present an extraordinary resistance to the extension of the cancer.[45]

Chauvin operated four times upon a woman in the course of twenty-two years.[46] At the age of 28 a brown mole which had ulcerated was removed from the right naso-labial furrow; it exhibited under the microscope the structure of melanotic cancer. Four years later a similar nodule was removed from the right malar region, and two years subsequently a further recurrence at the same spot. For the fourth time, the patient being then 48, two nodules of melanotic cancer, placed on the line of the lymphatics in the course of the facial artery, were cut out. There was then no sign of lymphatic gland enlargement or of metastasis.

Eve[47] described the case of a woman who twenty years before had a melanoma cut out from the dorsum of the hand. There was a recurrence *in situ* ten years later, and a second recurrence at the end of twenty years, when there were in addition metastatic growths in the axilla and on the temple.

Mr. Jonathan Hutchinson, junr., verbally informed me that he saw a woman who for ten years had discharged a melanotic fluid from the stump after the removal of the eyeball by Tay for melanotic cancer.

A widely diffused pigmentation of the skin has occurred in the course of generalized melanotic cancer. Cases have been described by Fergusson, Legg, Matsunga,[47] and Tietze. Such increased production of melanogen and melanin has been previously emphasized.

Melanotic Cancer of the Eyeball.

Both in men and animals there occur abnormalities of pigmentation in all grades down to complete albinism. The parti-coloured iris is a slight abnormality; the so-called "wall eye" is common in the horse, and includes a greater abnormality affecting the uveal layer in the choroid and ciliary bodies. But in the most complete albinism the retinal pigment epithelium is constantly normal.[1]

Mr. Foster Moore, in the course of routine examinations of the ocular fundus, has noted patches of pigment, which, however, had given rise to no defects of vision. The patches are situated near the optic disc not more than two diameters of the disc away, having an area of a quarter to four times that of the disc. They have a homogeneous colour, likened to that of blue ointment, an oval or circular contour, and a feathered edge with the retinal vessels, normal in character, crossing in front. One patch examined *post mortem* showed a structure corresponding with a mole in the skin, and so these patches appear to be congenital in origin. The patches remained quiescent under observation, and no relationship with melanotic cancer has been established.[48]

In spite of the frequency of "wall eye" in horses, a melanotic cancer of the eyeball is rare even in the grey horse which turns white.

Melanotic cancer arises in the eyeball as a rule after middle life. Whilst it generally arises from the pigmented layers within the eyeball, it may start external to the eyeball in the conjunctiva or eyelid, when it may be in a congenital or acquired spot of pigment.[52] It has often followed upon an injury, but the onset may be delayed.

In Lawson's case the eyeball had been injured and shrunken for twelve years.[49] In Keown's case the patient had been for long exposed to an excess of electric light.[50] In Pfingst's case the disease occurred in two brothers;[51] in Silcock's in a mother and daughter. In Robinson's case a pigmented spot appeared on the outer surface of the upper eyelid and gradually spread over the forehead and cheek; later there was extension to the mucous membrane within the cheek and to the opposite eyelid.[53]

Melanotic cancer as a rule has advanced so far before the eyeball was removed that patients have died of metastasis even although there has been no recurrence *in situ*. The usual course is for a secondary mass in the liver, etc., to be attended by melanuria and to cause the patient's death within three years.[54] Death may, however, be delayed; there may even be extraordinary delay—namely, for 10, 12, 16, 17, and even 24 years in Olbert's case.[55] Except after melanotic growths of the eyeball, melanotic cancer of the liver with melanuria is rather the exception, otherwise one might almost believe such prolonged intervals to indicate an origin *de novo*.[56]

Melanoma and Melanotic Cancer of the Hard Palate.

Congenital patches may be noted on the hard palate, also on the inner aspects of the cheek and tongue in dark races—for example, Dravidian races in India. They have also been stated to appear for the first time in middle life and afterwards to spread. When cut out early the structure is found to be that of quiescent melanomas. More than twenty-five cases have been recorded of melanotic cancer of the hard palate. Treatment by excision, x rays, radium, diathermy have all alike failed to arrest the spread of the disease.[57]

Melanotic Cancer of the Abdomen.

Melanotic cancer in the abdominal cavity is usually secondary. As to a primary origin in the abdomen recorded cases have not been completely investigated—for example, as to the possibility of a supposed benign mole in the skin having undergone a malignant change discoverable only by microscopic examination. With this reservation melanotic cancer has been described as arising in the suprarenal capsule on one or both sides, in the ovary, urinary bladder, and gall bladder. The general explanation would be that the origin has been in one of the congenital patches of pigment which have been classified as perineural, perivascular, pericoelomic.

Melanoma and Melanotic Cancer in the Ano-genital Region.

This is an area which exhibits some pigmentation even in blond races. Pigmented moles are common on the external genitals of dark women, and in Indian women pigmented patches have been noted on the wall of the vagina and cervix uteri. Eardley Holland collected fifty-two cases of melanotic cancer of the vulva, of which number only one woman was free from signs of recurrence after three years.[58] A melanotic cancer of the vulva may be secondary; in Doran's case it followed upon an adrenal tumour, and he included references to two similar cases. A melanotic cancer of the penis is of rare occurrence: Shattock showed how readily the unpigmented glans of the negro becomes pigmented when uncovered. Primary melanotic cancer of the anus has been in its earlier stages confused with piles. In the negro the pigmentation of the skin is sometimes continued irregularly within the anus, and such an explanation may be given of the starting of a melanotic cancer in the rectum.[59] In Heaton's Museum specimen a man aged 48 had had haemorrhoids for twenty-five years when melanotic cancer set in, and after his death seven months later there were found invasion of lympathic glands and a nodule of melanotic cancer on the surface of the liver.

Perineural Melanotic Cancer in the Pia Mater of the Brain and Spinal Cord.

In a few cases it has been possible to define the situation in which the growth started. In Hirschberg's case it commenced at the level of the eleventh dorsal vertebra;[63] in Ogle's case in the pineal body, when the pigment may be related to the so-called median eye of the lizard Hatteria or Sphenodon.[60] MacLachlan described an extensive pigmentation associated in children with multiple pigmented naevi on the skin.[61] There were small pigmented nodules the size of millet seeds scattered along the course of the blood vessels of the pia mater and of the ependyma of the ventricles.

Generally at *post-mortem* examinations melanotic cancer has been found widely disseminated in the pia mater with multiple tumours, when it has not been possible to identify the actual starting point (Fig. 16). There has been a relative absence of signs, largely due, as in Babinski's case, to the growth not infiltrating but displacing the original tissues.[62] I exhibit specimens in which it was impossible to discover the seat of origin of the disease.

A woman, aged 36, had suffered vaguely in her head for four months. On admission to the Westminster Hospital a diagnosis of increased intracranial tension from multiple new growths was made. The patient was not relieved by decompression. The pia mater over the under surface of the medulla, pons, cerebellum,

In the report of the War Office Committee on Shell Shock, 1922, it is recommended that only fit men (Grade I) as judged by the pre-war standard should in future be enlisted into the regular army. It is, however, obviously of great importance to be able to estimate not only a man's physical condition at the moment, but also the likelihood of his manifesting bodily endurance when exposed to physical strain. This is particularly the case in respect of officers of the Royal Air Force; at the end of 1916, for instance, the carrying of aerial warfare to higher altitudes imposed additional strain on pilots, and breakdown became more frequent. In order to ascertain whether such an estimate could be made by means of medical examination, a special investigation was undertaken under the auspices of the Medical Research Council, and it was shown to be possible to differentiate the fit man who is likely to endure from the man who either will not stand strain well or will invariably break down under it. These results form in large part the basis of the methods of selection in the Royal Air Force to-day, and confirmatory evidence of their value is continually forthcoming. It is now possible not only to exclude those who are physically unfit for the arduous duties of flying and combatant service, but also by periodic examination to withdraw from service such as are in need of rest, at a stage before real breakdown has occurred.

Full details of the routine tests now in use, other than those employed for the elucidation of special conditions, are given in the official Air Ministry publication dealing with the medical examination for the Royal Air Force. These tests in no way displace the general clinical examination, but merely serve as adjuncts thereto.

The chief points to which attention must be paid in the assessment of physical efficiency and bodily endurance are—(1) respiratory efficiency, (2) circulatory efficiency, and (3) general nervous stability as regards control through the centres of respiration and circulation, and cerebral and psychical control.

Respiratory Efficiency.—The practice of measuring the upper chest expansion on inspiration should be abolished or at least combined with a measurement at the level of the floating ribs, which is more important. Correct inspiration consists in the contraction of the diaphragm attended with an upward movement of the lower ribs, and is the type prevalent in individuals who possess the greatest bodily endurance. If inspiration be properly performed correct expiration naturally follows, but it should be borne in mind that expiration is under muscular control, and it has been shown that it is on the expiratory rather than the inspiratory side that individuals tend to fail as the result of strain.[1] With regard to the value of spirometry in the assessment of physical fitness there is no doubt that the usual instrument gives very inconstant results, and there is, moreover, still a divergence of opinion as to what constitutes the normal vital capacity. It is, however, a distinct advantage to be able approximately to estimate the vital capacity, and for this purpose the author compares Dreyer's tables with one prepared from the results of Cripps, Greenwood, and Newbold. In this way an idea is obtained as to what vital capacity should be for the standing height, sitting height, weight, and chest circumference of the individual in regard to Dreyer's figures. The vital capacity should equal his Class A, or, preferably, exceed this class by 300-500 c.cm. When the vital capacity falls much below this, respiratory insufficiency is certainly present. Observation proved that officers who could not fly high possessed a small vital capacity, and especially those who were suffering from flying strain. In the latter the diminution in vital capacity was shown to be due to an inability to expire sufficiently to empty the lungs to the full extent. The fit individual is possessed of a good vital capacity mainly because he has this power of adequately emptying his lungs by expiration. In the individual who is respiratorily inefficient the vital capacity is considerably reduced by prolonged physical effort and his "ventilation capacity" is decreased (residual air increased, and the ratio of vital capacity to residual air diminished). Thus the respiratorily fit person is one who, in response to physical effort, is able to maintain his "ventilation capacity" at a relatively high level over the whole period of performance. Diminution in ventilation capacity further involves a relative increase of carbon dioxide and decrease of oxygen in the alveolar air.

The partial pressure of carbon dioxide and oxygen plays a considerable part in determining the time over which an individual can hold his breath.[2] In the fit subject it requires a considerably greater diminution of the partial pressure of oxygen to induce symptoms of respiratory instability and circulatory embarrassment (violent desire to breathe, quickened heart rate, increased blood pressure, congestion of the face) than in one who is suffering from fatigue or lowered efficiency. Similarly with an increased percentage of carbon dioxide. Both the 40 mm. Hg test and the breath-holding test may, therefore, be taken as affording indications of the ventilation capacity of the individual and of his susceptibility to changes in the alveolar partial pressures. Stable control by the respiratory centre is an important factor in bodily endurance, and the above tests are of value in assessing respiratory efficiency in this respect. In an individual of adequate respiratory capacity the time of holding the breath without undue discomfort is, in the breath-holding test, 69 seconds; in the 40 mm. Hg test, 50 to 55 seconds. The expiratory force test is of value as showing the condition of the expiratory musculature; generally respiratory insufficiency is indicated when the reading falls below 110 mm. Hg, and it is certainly significant of general physical inefficiency when it fails to reach 80 mm. Hg.

Circulatory Efficiency.—A pulse rate, at rest, above 84 (not due to temporary excitement) is characteristic either of nervous instability or of physical insufficiency. As regards the latter, it was found, for instance, that by special exercises for one month the average standing pulse rate of a number of "weedy" recruits was reduced from 95 before training to 79 after training. A quick pulse rate (96 or above) is frequently an expression of nervous instability, particularly a quick pulse associated with a respiratory rhythm. Such persons are not, generally speaking, suitable for arduous service duties, and frequently break down.

The arterial pressures afford important information. If, in the absence of any clinical signs of disease in a person of 20 to 25 years of age, the systolic and diastolic pressures are persistently high and the pulse pressure exceeds 50 mm. Hg (for example, SP 160, DP 104, PP 56), the individual may be regarded as having a "nervous temperament" and as not likely to stand great physical and mental strain. In certain cases such pressures are due to excessive indulgence in alcohol over a prolonged period, and the other tests for physical efficiency, particularly those for nervous stability, will then be found to give unsatisfactory results. As regards low diastolic pressures, one below 70 mm. Hg combined with a pulse pressure of more than 50 mm. Hg is indicative of lack of physical stamina for flying duties. Such subjects are particularly liable to faint in the air, and the same holds true to a less extent as regards physical endurance on the ground. The fit individual is one in whom the margin of fall of the diastolic pressure is in the neighbourhood of 30 mm. Hg (that is, a diastolic pressure of 80 mm. Hg) before the fainting pressure is reached. In subjects with a low diastolic pressure a contributory factor of great importance, and one that is insufficiently appreciated, is the accumulation of blood in the abdominal veins in the upright posture. In this condition the systolic output is reduced and becomes insufficient to maintain an adequate diastolic pressure, although the arterial systolic pressure remains normal. As affording information of this condition the pulse response during the 40 mm. Hg test is of great service: In a fit subject there is little alteration of the initial pulse rate over a period of fifty to sixty seconds, and the arterial pressures are not greatly raised (30 to 40 mm. Hg to 160 to 170 mm. Hg). In the less fit, on the other hand, the test produces a greater and more rapid elevation of the arterial pressures (for example, to 180-200 mm. Hg), while the pulse rate rapidly increases to 120-130 or more. This increase is maintained when the total rise of pressure is not abnormally high, but is succeeded by a marked and often abrupt fall of pulse rate when the arterial pressure is increased to a high point—for example, 220-240 mm. Hg, a point which appears to be constant for each individual. The fall is possibly due to

and olfactory lobes presented a dark brown greenish staining. The cortex of the cerebrum, pons, and cerebellum under the pia mater exhibited numerous black nodules and spots. There were melanotic tumours in the base of the left lung, in the liver, in the retroperitoneal tissue, and adherent to the outside of both suprarenal capsules, the substance of these organs being unaltered.

Melanotic Cancer in the Olfactory Mucous Membrane.

I have already stated that melanin pigment is of regular occurrence in the olfactory epithelium and in that of the labyrinth. Mr. de Santi has recently removed a melanotic cancer growing high up on the nasal septum, and the patient so far has no recurrence. The case is an extremely rare one. Mr. Arthur Cheatle has informed me that the occurrence of a melanotic growth in the labyrinth is not known to him.

CONCLUSION.

Experience incident to the removal of a large number of melanomas is similar to that in connexion with other varieties of new growths. Free and early excision is not followed by recurrence *in situ* except in malignant cases where the disease has already spread widely. Simultaneously with the change from melanoma to melanotic cancer there is a detachment and degeneration of cells producing metastasis which exhibits itself later on.

The general bearing of recent observations suggests the hope that further chemical research may arrive at a means of controlling the disease by therapeutic measures.

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DIFFICULT MIDWIFERY IN GENERAL PRACTICE.*

BY

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IN reading a paper and opening a discussion on such a comprehensive subject as difficult labour, I intend to limit myself to certain conditions and varieties of difficult labour which occur most frequently. In some of these the treatment has altered during recent years, and what was the accepted practice twenty years ago is now changed or considerably modified.

I would begin by emphasizing the fact that the importance of the obstetric branch of the art of medicine has of late been recognized in all the teaching schools. Less than twenty years ago the hospital student gleaned a few rudimentary facts from some small manual and proceeded to attend cases on the district with but a sketchy knowledge of the essential principles; the student of the present day attends the lying-in ward of his hospital day and night for a month before being allowed to attend cases on the district; and instead of an optional two months he is obliged to act as clinical clerk in the obstetric department for four months. Thus, by adequate instruction on normal cases and a considerable experience of abnormal cases, he comes to realize two very important things: first, the value of patience and the danger of interference in straightforward cases; and secondly, the importance of correct diagnosis in a difficult case so that the appropriate treatment may be carried out.

What the newly qualified doctor of the present day finds difficult is how to apply his hospital methods to general practice. For whereas in the hospital maternity ward time is no object, this is very far from being the case in private practice, and the doctor is found to be confronted at times with the problem of what is the best thing to do "in the circumstances." Sometimes forceps are applied before the suitable time has really arrived. In others, version has been performed. Sometimes all goes well, but at others the result is disastrous. The only real remedy lies in providing sufficient maternity beds in hospital in all towns for cases of difficult labour. Until such a time arrives I think it is fair to say that most doctors are to be congratulated on the skill and ingenuity displayed in conducting a busy midwifery practice. No doctor with surgical inclinations would dream of starting to remove an appendix in an ordinary bedroom, but there is no doubt that this is safer than many operations of difficult labour. In order to justify this assertion I would state that the mortality due to, and resulting from, childbirth is still very high for a "purely physiological" process, as it is termed.

The death rate per 1,000 births in 1920 was 4.1 (of which about 2.25 were directly due to abnormal labour, and 1.87 to puerperal sepsis of which the cause was often difficult labour).

Next, I will digress from the subject of my paper in order to speak about a theme of the greatest importance—namely, the prevention of difficult labour; and herein lies the most important advance in the practice of obstetrics.

The Prevention of Difficult Labour.

Ante-natal clinics have been formed and are still being formed all over the country, where the care of expectant mothers is carried on with great zeal. In the ante-natal clinic of to-day the pregnant woman is examined from time to time so as to exclude any possibility of difficult labour arising unforeseen. In noting the important points some such scheme as the following is used:

Scheme for Notes.

Age.
Date of last menstrual period.
Expected date of confinement.
Previous pregnancies or labours, with their character.
External Measurement: Interspinous. Intercristal.

* A paper read before the Dover and Folkestone Branch of the British Medical Association.

reflex slowing of the heart rate owing to stimulation of the depressor nerve endings in the aortic arch through raising of the blood pressure due to the increased flow of blood to the right side, caused by the abdominal effort necessary to sustain the column of mercury.

Certain subjects display a combination of these results as regards arterial pressure readings—namely, a high systolic and a low diastolic pressure: for example, SP 150, DP 60, PP 90. Such individuals are "highly strung" as regards nervous stability and markedly inefficient as regards physical stamina. From the point of view of air work, such subjects present an interesting response to rotatory movement; when they are rotated ten times in twenty seconds the pulse is greatly increased in rate, the SP pressure rises but the DP falls, and fainting may ensue. In certain individuals who are relatively physically efficient the rotation induces a marked rise of both systolic and diastolic pressures, and such individuals are probably liable to suffer from nausea and vomiting in the air.

The abdominal wall plays an important part in counteracting the influence of gravity in producing abdominal venous congestion in the upright posture, and it is impossible to over-estimate the importance of a good-toned, mobile abdominal wall in maintaining efficient circulation and respiration, and thereby preserving physical efficiency. When the abdominal wall is lax and ineffective the supply of blood to the heart during exercise will be insufficient, owing to the large abdominal pooling of blood, and the heart will therefore, to meet the demands of the body, be obliged to pump a relatively small supply of blood at a quicker rate. Such increased heart rate is frequently regarded as a sign of myocardial insufficiency, whereas in many such cases it is due to an efficient heart making the best use of a poor supply of blood. Such a condition is often found in persons who have returned from the tropics.

The ill effects of gravity are further counteracted by the tonic contraction of the splanchnic arterioles. Information as to the tone of these vessels is afforded by the pulse when the subject rises from the sitting to the standing posture. Generally speaking it may be taken as true that the greater the increase in pulse rate, and the more prolonged the quickened rate, the greater the insufficiency.

Circulatory efficiency may be assessed as follows: (1) A normal steady heart beating about 72 a minute, not unduly increased in rate by exercise and returning quickly to normal steady rate. (2) A pulse pressure of 40-50 mm. Hg associated with a well sustained diastolic pressure (about 80 mm. Hg). (3) Absence of abdominal pooling in the venous reservoir due to the effects of gravity on the circulation owing to poor tone of the abdominal belt of musculature.

Stability of General Nervous Control.—The importance of stability of the circulatory and respiratory centres in the maintenance of physical efficiency has been indicated above. General nervous stability plays a great part as regards bodily endurance. The tests employed in the R.A.F. are considered to be sufficient to reveal the condition of physiological or psychical control. Thus tremor is evidence of some disordered functional state. Tremors of the eyelids alone are usually indicative rather of a highly strung disposition or the result of legitimate stress, such as overwork or strain of occupation; tremors of fingers and hands rather of illegitimate stress, such as excessive indulgence in tobacco or alcohol; while tremor of both eyes and fingers generally signifies nervous instability due to a combination of the above causes. As regards the knee-jerk, a so-called brisk or exaggerated response is not in itself necessarily an indication of nervous instability, but a condition not infrequently called "exaggerated knee-jerk," attended by a convulsive movement of the whole body, indicates loss of general control, and has nothing to do with tendon reflexes. This "exaggerated knee-jerk" is usually associated with a state of anxiety, conscious or subconscious. The tests of standing on one foot with the eyes closed, and of balancing a rod on a flat board, elucidate the condition of central control rather than the condition of "muscle-sense" or "vestibular stability"; failure in them, therefore, indicates some want of afferent or efferent control.

In many instances it is the failure of the control through the medullary centres which predisposes to breakdown of the higher centres.

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SOME ASPECTS OF NORMALITY; WITH SPECIAL REFERENCE TO THE SELECTION OF RECRUITS.

BY

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Our knowledge of the diseases to which man is subject is being added to continually, and in all probability at no period in the history of the human race has that knowledge been so complete as it is at the present time. All diseases and defects must be considered abnormal, and while our knowledge of such abnormalities is ever increasing, our knowledge of what may be styled "normal man" does not appear to have increased to the same extent. There are only a few generally accepted standards of normality, in spite of the advantages to be derived from the possession of such standards. No accurate assessment of the degree of any abnormality is possible without a standard of that which is normal. In the past we have been content to express the physical or mental attributes of the individual in such abstract terms as "good," "bad," and "indifferent."

Standards of normality are essential not only in estimating the degree of abnormality from which, as medical men, we may know an individual to be suffering: they are of importance for comparative purposes to those who have the care and upbringing of the rising generation entrusted to them; they should prove of great help in life insurance from an actuarial point of view; and they are indispensable to any scientific selection of recruits for the various arms of the fighting services.

Definition of Normality.

Before proceeding further it will be well, perhaps, to try and define what is meant by "normality," as applied to man.

When we speak of an individual having normal physique or normal mental capacity, we infer that the stature, weight, physical proportions, and mental attributes of that individual represent a normal average of the race to which he belongs. Further, it may be desirable to subdivide the races into different classes, in order to obtain a standard of normality for that particular section of the community. It is not possible to lay down standards of normality suitable to all races; a standard suitable for the native races of Central Africa would be quite unsuitable for the assessment of the inhabitants of these isles, and vice versa.

Physical Normality.

In the past physique has been regarded as one of the most important factors with reference to the selection of recruits for a fighting force, and in ancient warfare involving hand-to-hand fighting there can be no question that the side with the better physique possessed the advantage; but with the advent of long-distance projectiles this advantage has been minimized, whilst at the same time the "frightfulness" of modern warfare, with its accompanying nervous strain, has focused attention on the importance of psycho-physical and psycho-physiological characters. The soldier nevertheless remains a beast of burden, compelled at times to carry a weight of equipment far in excess of any load he has been accustomed to in civil life, and in addition he may be called upon to undergo fatigue, extremes of temperature, and climatic exposure under the most favourable conditions for contracting disease.

Abdominal Examination:
Height of fundus uteri; waist girth.
Lie and presentation of the foetus.
Foetal heart.
Size and situation of the foetal head, and whether it is engaged or can be made to engage in the brim of the pelvis.

Vaginal Examination:
Whether there is any abnormality of the soft parts.
Whether the sacral promontory can be felt; if so, the diagonal conjugate must be measured.
Whether the foetal head is engaged.
Whether there is any tumour in the pelvis.

Examination of the Urine:
This examination should be made during the seventh month and repeated about the thirty-sixth week, or more often if necessary.

At or soon after the thirty-sixth week it will generally be possible in a normal woman with a normal pelvis to say that labour will be normal.

This examination, carried out as a routine in all cases, is absolutely indispensable in first pregnancies, where special precautions have to be taken to deal with the following abnormalities: contracted pelvis; large foetus; breech presentations; other abnormal presentations.

This brings me to the first cause of difficult labour—namely, the contracted pelvis.

Contracted Pelvis.

Extreme degrees of contracted pelvis calling for Caesarean section are rare. Slight degrees of pelvic contraction are common and perhaps one of the commonest causes of difficult labour. For if the contraction be slight, examination during the last week or two of pregnancy may reveal nothing obviously wrong; when labour starts, however, the head fails to descend through the brim of the pelvis and early rupture of the membranes may occur. In such cases it is most important to make preparation for a long labour, and to make a firm resolution not to apply forceps until it is certain that the woman is unable to deliver herself unaided. In the early stages it is important to empty the bowels by castor oil and an enema, and to keep the bladder emptied, and maintain the patient's strength by light nourishment at frequent intervals. The keynote of the treatment is to allow time for the head to mould. The patient generally requires rest and sleep during such a labour, and this is best ensured by giving an injection of half a cubic centimetre of omnopon with scopolamine, repeated in an hour if necessary. There is no drug or combination of drugs so valuable, in my opinion, owing to its certainty of action. Forceps should be withheld until the following indications are present:

1. Foetal distress.
2. The head is sufficiently moulded and low down in the pelvis to allow a reasonable chance of delivery.
3. Maternal distress.
4. Commencing oedema of the vulva or vaginal orifice.

Cases in which these rules are disregarded are far from uncommon in the crowded districts of London; the patient, generally a primigravida, is sent up to hospital by her doctor because he has failed to deliver her with forceps. On examination she is found to be suffering from shock, but the os uteri is not completely dilated. An injection of omnopon and scopolamine is given and after a few hours' rest or sleep spontaneous delivery not uncommonly occurs.

Large Size of the Foetus and Foetal Head.

This is as common or commoner than contracted pelvis as a cause of difficult labour, and results in many cases from post-maturity. I have recently been much impressed with the frequency and importance of prolonged pregnancy. The normal period of gestation is 280 days, or forty weeks from the first day of the last menstrual period, but it is not infrequently prolonged a week or two. The foetus thus becomes unduly large and its head abnormally hard, so that when labour does come on it is difficult and prolonged, there is tearing of the maternal soft parts, and risk of injury to, or death of, the infant. Such difficulty can be prevented by terminating labour at the appointed date. This can be brought about by a simple scheme of treatment, provided that the details are carried out with care and precision. The scheme, which may be called the "Intensive Method of Induction," is as follows:

On the expected date of confinement, first thing in the morning, say 7 o'clock, one ounce of castor oil is given; the result is best if it is given emulsified in a cup of very hot milk. After this a light breakfast is allowed. One hour later a hot bath is given for about fifteen minutes, the patient being immersed up to her waist. After this a tight binder is applied. One hour later a copious enema of soap and water is given. One hour later 10 grains of quinine sulphate are given with a hot drink. If labour does not start within two hours, 10 grains more of quinine sulphate are given with a hot drink, and this may be repeated again two hours later.

During the past six months this method has given uniformly good results in the obstetric ward of the London Hospital, and in other private cases directly and indirectly under my care, not only for women at term, but also as a means of inducing premature labour. In the event of the treatment being unsuccessful in its object it may be repeated in forty-eight hours and supplemented by two or three small injections of pituitrin. If this treatment is unsuccessful a second time, labour may be brought on by the introduction of bougies. In addition to the cases where pregnancy is prolonged, there are those in which it is advisable to bring on labour a week or two before full term because the foetal head has not engaged and seems to be getting large. There are also the cases of pelvic contraction in which premature induction of labour has to be carried out about four to five weeks before term.

Breech Presentation.

Next, I would like to mention the difficulties resulting from breech labour. These include primary and secondary uterine inertia, prolonged labour, and extension of arms, legs, and head. There is generally no real risk to the mother except that of a torn perineum, but there is a definite risk to the foetus especially in first labours, in which the mortality is certainly over 10 per cent. It is, therefore, important to prevent breech labour in primigravidae; this can be done by performing external version before labour starts, and converting the breech into a vertex. The most suitable time at which this can be done is the thirty-fifth week.

Ante-partum Haemorrhage.

Of recent years the treatment of ante-partum haemorrhage has followed much more conservative lines than formerly. First, it is important to find out whether the bleeding is accidental or whether it results from placenta praevia. If the placenta cannot be felt by the finger passed through the cervical canal into the uterus the case should be treated as one of accidental haemorrhage and an expectant policy adopted for at least twenty-four hours. The patient is put to bed—in a hospital or nursing home if possible—and a hypodermic injection of morphine is given. Plenty of fluid may be taken by the mouth and in severe cases rectal saline may be given. The essentials are rest and warmth, so that the patient may recover from shock and the tone of the uterus may be restored. In many cases labour starts within twenty-four hours and spontaneous delivery takes place. If labour does not come on and fresh bleeding occurs, the best treatment is to rupture the membranes or to give an injection of pituitary extract. Either method will generally be followed by the onset of labour within a few hours. The advantage of rupture of the membranes is that labour is pretty certain to come on without delay; the disadvantage of pituitary extract is that its effect may wear off after a few hours and the uterus may again become atonic. If rupture of the membranes is followed by pains which are weak and infrequent there is no objection to giving an injection of pituitrin as well.

The same method of treatment may be followed in some cases of placenta praevia, but more often the bleeding is severe and recurrent, if not continuous, so that steps must be taken to stop the bleeding by inserting a Champetier de Ribes's bag or by performing version and bringing down a leg. But here again there are many cases which do very well if the membranes are ruptured and a tight binder applied. The treatment of placenta praevia by

The soldier of the future must be not only physically normal but psychologically normal.

When attempting to formulate a standard of physical fitness for the enlistment of recruits there are certain points which must be borne in mind. Our standards of physique must be framed so that the average trained soldier approximates the normal physique of the mass population from which he has been recruited. If we try to select only those recruits who are above the average in physique, we shall find that we are involved in two difficulties—first, that an insufficient number of recruits will be forthcoming; and secondly, that better physique has been obtained at the expense of medical efficiency. These two points require to be considered in somewhat greater detail.

The average stature of the general population, according to Sir Arthur Keith, is approximately 67½ inches, and according to the same authority some 50 per cent. of the population have a stature ranging between 65½ and 69½ inches. Unfortunately we have no available statistics for our own forces of the relationship between stature and disease; but some exceedingly interesting and instructive figures showing the proportionate measurements of recruits and soldiers in the late war who suffered from special diseases have been prepared by the United States Army Medical Service[1] and have an important bearing on this subject.

It was found that the average stature of soldiers suffering from varicose veins, varicocele, pulmonary tuberculosis, goitre, haemorrhoids, and all heart troubles was greater than that of the general population. This fact leads one to the conclusion that an increase in stature above the normal is not necessarily followed by a corresponding increase in the size and efficiency of such important internal organs as the heart and the lungs. Furthermore, those who were markedly under the average stature of the general population showed a greater tendency to disease the result of faulty nutrition and development, as evidenced by the larger percentage of cases of flat-feet, defective teeth, defective vision, etc.

It is my opinion, therefore, that, other things being equal, the physical efficiency of any body of men will be governed to a large extent by the ratio of their individual height to the normal average height of the general population. A body of men in which the majority of individuals approximate 66.5 inches will, other things being equal, be physically and medically more efficient than a similar body of men in which the height of the individual ranges from 60 to 72 inches or more. I would go further and state that the normal man of from 66 to 69 inches in stature has a better expectation of life than the man of six feet and over.

The standard of height for the recruit on enlistment must be fixed with reference to his age and his probable ultimate height as a soldier; it may also be necessary to use the height standard as a means of regulating the influx of recruits according to the supply and demand; nevertheless the adoption of a minimum height standard above the normal height of the general population for certain selected corps is economically unsound, as it may lead to physiological inefficiency.

The size of the individual as measured by his stature is of great importance when we are considering other physical characteristics, which when combined in the proper proportion give us a picture of the physically normal man. This question has been discussed fully in a paper I had the privilege of reading before the Royal Society of Medicine.[2] Briefly, I think we may state that the generally accepted opinion at the present time is that in the normal man all proportions of his body have a distinct relation to one another, and that the old method of using age as the factor for expressing the relationship was fundamentally wrong. On the other hand, if we use some physical factor—as, for instance, stature or trunk height—we shall find that in the normal individual an increase in stature is followed by a proportionate increase in weight, chest girth, etc., in fact all parts of his body. For instance, it is erroneous to infer that because two youths of, say, 18 years of age both weigh 124 lb., they are equally efficient as regards their weight. One youth may be 62 inches in height and above the normal weight for his height, and the other may have a stature of 72 inches and be much below the normal weight for his height.

By using stature as the factor we can show that in the normal individual every increase in height should be followed by a proportionate increase in every other physical characteristic.

Let us see what bearing the foregoing remarks have with regard to the fixing of the physical standard for the selection of recruits. I do not think we shall be far wrong if we assume that the average normal man from the mass population may vary in stature from 65 to 70 inches. The average height of all recruits at the Central London Recruiting Dépôt during the past three years has been 66.2 inches.

If we could select all our recruits from youths having a stature between 65 and 70 inches, there is no doubt in my mind that increased physical and medical efficiency would be the result. There is no question that men of excellent physique do exist who have a greater stature than 70 inches, but the fact does not affect my contention that a greater percentage of "fits" will be found amongst those who approach the average of the general population.

Having fixed a standard of height for your recruit the next point is to estimate the fitness of the individual by a study of his physical proportions, and this is the point at which I am at variance with the regulations for recruiting for the army. The normal individual will show a definite relationship between his height and his other physical proportions, and I am convinced that if an individual is normal in this respect he is as physically perfect as any man can be, and suitable as regards his physique for enlistment into any branch or corps of the navy, army, or air force. This, however, is not the generally accepted opinion in the army. They would appear to be of opinion that a separate race or species of man exists specially suitable for each corps. A guardsman of the same age, weight, and height as an infantryman is expected to have a chest girth 1½ inches larger. A cavalry man of the same age and height as an infantryman is expected to be heavier and have a larger chest girth. An artificer in the Royal Artillery or driver in the R.A.S.C. (H.T.) is expected to be heavier and have a larger chest girth than the weight-carrying infantryman. At the present time there are ten different tables, showing the physical equivalents or "tests" required for the different corps of the army. My contention is that such a multiplicity of tests is unnecessary and misleading, and shows an absence of scientific principles. To meet the supply and demand a minimum height standard for different corps may be desirable and even a necessity; but the selection of recruits as to their other physical characteristics should be according to one standard only, that of normality.

It may be asked, How is the question of physical normality affected by age? The answer is that during the actively growing period—that is, up to 21 years—the question of age need not be considered. The physically normal youth of 70 inches should weigh approximately 140 lb., and have a chest measurement at rest of some 33 inches, no matter what is his age—17, 18, 19, or 20 years.

A table of physical equivalents (see p. 925) showing the normal relationship between the more important proportions of the body to the stature is essential to a scientific assessment of physical fitness. Such a table may be made applicable to youths varying in age from 3 to 21 years, and any marked deviation from the normal requires careful investigation before such an individual can be passed as fit.

The relationship between weight and height is, I think, the most important index of physical efficiency, more especially when it can be ascertained that any deficiency in weight is not due to underfeeding or actual starvation. A large percentage of individuals who show a deviation from the normal in regard to their weight will show other signs of defective physical development sufficient to brand them as "unfit," but a fair proportion may present no other

Caesarean section is but rarely indicated, and should be reserved for special cases, as follows: (1) When the patient is a primigravida with a rigid undilated os and central placenta praevia, and the foetus is known to be alive. (2) When the patient is a multipara who has lost a lot of blood and can ill afford to lose any more. If I might emphasize one point in the treatment of ante-partum haemorrhage it is that the condition is one in which the advantages of treatment in a hospital or nursing home are very great.

Version.

I have already mentioned the value of external version during the later weeks of pregnancy to convert a breech presentation into a vertex. In such cases it may be easy, but an anaesthetic is often required. Version is also the correct treatment for a transverse lie, and in certain cases of placenta praevia. Version should never be performed to effect delivery when the presentation is a vertex and forceps have failed to effect delivery, for in such a case there is great danger of rupturing the uterus. This danger is very real in a transverse lie if version is attempted late in labour. Whenever the uterus is becoming irritable, and the pains are strong and frequent and cannot be completely abolished by anaesthesia, it is unsafe to attempt version. In such a case the foetus is nearly always dead, and its life need not be considered as in any way comparable with the mother's safety. Delivery should therefore be effected after perforation of the foetal head in a vertex presentation, or after decapitation for a transverse lie.

In placenta praevia and in accidental haemorrhage the uterine wall may be weak in places and easily ruptured if any force is used in performing version. Version should not be persevered with if reasonable attempts are unsuccessful, as the failure may be due to insufficient liquor amnii.

Post-partum Haemorrhage.

As in ante-partum haemorrhage, the cause of post-partum haemorrhage is generally (1) uterine exhaustion or lack of tone; (2) some placenta or membranes left behind in the uterus. In my opinion a most important predisposing cause of these two conditions is chloroform when given in fair quantity for a prolonged period, especially if pushed to a sufficient extent to allow the application of instruments. There is nothing which abolishes uterine contractions so quickly and effectually as chloroform, or, to a lesser extent, ether; and if the anaesthetic is given for any length of time there is likely to be difficulty in the third stage owing to deficient uterine contractions and post-partum haemorrhage will occur.

Post-partum haemorrhage is also likely to follow the overdistension of the uterus by twin pregnancy or hydramnios. In such cases, therefore, it is very important to keep very careful watch over the uterus for at least an hour after the delivery of the infant, and to have preparations in hand for a hot vaginal and intrauterine douche. If haemorrhage occurs after the expulsion of the placenta a hypodermic injection of pituitary extract should be given at once, and should be followed by a hypodermic injection of ergot.

Caesarean Section.

The comparative ease and safety with which Caesarean section can be performed has led to a considerable increase in the number of the operations. The scope of the operation has been widened to include not only the extreme cases of contracted pelvis, but also cases of pelvic contraction of a minor degree, of malpresentations, of eclampsia, of placenta praevia, and of accidental haemorrhage. The increased frequency with which the operation has been performed during the last few years has been accompanied by, first, an increased maternal mortality, and secondly, a considerable number of unfavourable post-operative sequelae of which the most serious is rupture of the uterine scar in a subsequent pregnancy. The result is that the pendulum has begun to swing in the opposite direction, and the number of cases of Caesarean section, in the London hospitals at any rate, has dropped considerably. The indications for Caesarean section should certainly be as definite as for any other major operation. Before Caesarean section is undertaken the following points should be ascertained: (1) that the foetus is alive; (2) that the foetus has no reasonable chance of delivery *per vias naturales;* (3) that the labour is not far advanced; (4) that there is no undue risk to the mother. The great risk in the operation is sepsis from the uterus, resulting in death of the mother from peritonitis or septicaemia, or breaking down of the abdominal or uterine wound. If any sepsis be present the uterine wound will not heal well so as to leave a good scar. Weakness of the scar may also result from inefficient suture of the uterine wound. There is no operation in which it is more important to have favourable conditions for the carrying out of a perfect aseptic technique. The risk of a weak scar has of recent years been overcome by making the incision into the uterus through the lower uterine segment after pushing down the bladder. The objection to this is that the operation is more difficult, and if the child is large it may be difficult to extract. The incision has much to recommend it, and I consider it a marked advance on the old incision. Caesarean section in cases of eclampsia has a high mortality, among hospital patients at any rate, and is performed less frequently than formerly. Caesarean section in cases of central placenta praevia or severe accidental haemorrhage is, in my opinion, a good method of treatment in picked cases.

Unreduced Occipito-posterior Position.

The difficulties likely to arise in connexion with an occipito-posterior position result from uterine inertia, prolonged labour, and the application of forceps. Following these there may be a torn perineum, torn cervix, or injury to the bladder, and permanent weakness of the pelvic floor resulting from difficult forceps delivery. There is also a possibility of rupture of the uterus during forceps or manipulations. The correct treatment consists in making sure of the diagnosis when the condition is suspected, and promoting flexion of the foetal head during the first stage, by posture. If the occiput does not rotate after a reasonable time in the second stage an anaesthetic should be given and the head, with the body of the foetus, should be rotated. If reduction cannot be performed and the head is well down, tentative and judicious trial of axis traction forceps may be made. If the head does not descend with gentle traction, perforation of the foetal head should be performed.

After the paper there was a discussion, and questions were asked by many members present. In reply Mr. Luker pointed out that he did not think that any harm resulted from giving drops of chloroform during the latter part of the second stage, but he wished to emphasize the danger, in his opinion, of large quantities for any length of time.

ACUTE LUMBAGO TREATED BY THE INJECTION OF QUININE AND UREA.

BY

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Of common minor ailments there is none which may be more completely paralysing than acute lumbago. In an instant an individual in the full vigour of health may find himself unable to make the slightest movement of the trunk without the most exquisite pain, and he may remain confined to bed for weeks as an absolute cripple. Even in the slightest cases, though the acute symptoms may pass off in a few days, it will be ten days at least before he can stoop with freedom and comfort. In severe cases the slightest movement, or even a sudden noise, may induce a spasm of pain, with a violent contraction of the lumbar muscles, a reflex attempt at protective fixation. The contraction may last for several seconds, and only slowly and cautiously will the patient allow the muscles to relax.

An attack is often brought on by a chill following exertion, such as may occur from sitting in clothes damp from perspiration. An attempted movement produces a spasm

Hypothetical Table Based on over 5,000 Observations showing various Standards of Normalities for Males of the General Population under 21 years of age, calculated from the Stature in Inches.

Stature.	Sitting Height.	Weight without Clothes.	Chest measurement at rest.	Food* requirements in Calories.	Approximate Age.
37 in.	21.74 in.	31.4 lb.	19.622 in.	1,156 C.	3 years.
38 "	22.112 "	32.91 "	20.015 "	1,225 "	
39 "	22.486 "	34.53 "	20.409 "	1,236 "	4 "
40 "	22.862 "	36.25 "	20.804 "	1,369 "	
41 "	23.24 "	38.10 "	21.1 "	1,444 "	5 "
42 "	23.62 "	40.05 "	21.493 "	1,521 "	
43 "	24.02 "	42.11 "	21.885 "	1,600 "	6 "
44 "	24.385 "	44.28 "	22.285 "	1,681 "	
45 "	24.772 "	46.55 "	22.685 "	1,764 "	7 "
46 "	25.16 "	48.95 "	23.086 "	1,849 "	
47 "	25.55 "	51.45 "	23.433 "	1,936 "	8 "
48 "	25.942 "	54.06 "	23.891 "	2,025 "	
49 "	26.336 "	56.78 "	24.295 "	2,116 "	9 "
50 "	26.732 "	59.61 "	24.7 "	2,209 "	
51 "	27.13 "	62.55 "	25.106 "	2,304 "	10 "
52 "	27.53 "	65.60 "	25.513 "	2,401 "	
53 "	27.932 "	68.75 "	25.921 "	2,500 "	11 "
54 "	28.336 "	72.03 "	26.33 "	2,601 "	
55 "	28.742 "	75.41 "	26.72 "	2,704 "	12 "
56 "	29.15 "	78.9 "	27.131 "	2,809 "	
57 "	29.55 "	82.5 "	27.543 "	2,916 "	13 "
58 "	29.972 "	86.21 "	27.955 "	3,025 "	
59 "	30.386 "	90.03 "	28.37 "	3,136 "	14 "
60 "	30.802 "	93.95 "	28.785 "	3,249 "	
61 "	31.221 "	98.0 "	29.201 "	3,364 "	15 "
62 "	31.64 "	102.15 "	29.618 "	3,481 "	
63 "	32.062 "	106.41 "	30.035 "	3,600 "	16 "
64 "	32.486 "	110.78 "	30.455 "	3,721 "	
65 "	32.912 "	115.26 "	30.875 "	3,844 "	17 "
66 "	33.34 "	119.85 "	31.296 "	3,969 "	
67 "	33.77 "	124.55 "	31.718 "	4,096 "	18 "
68 "	34.202 "	129.36 "	32.141 "	4,225 "	
69 "	34.636 "	134.28 "	32.565 "	4,356 "	19 "
70 "	35.072 "	139.31 "	32.99 "	4,489 "	
71 "	35.51 "	144.45 "	33.416 "	4,624 "	20 "
72 "	35.95 "	149.7 "	33.843 "	4,761 "	
73 "	36.492 "	155.06 "	34.271 "	4,900 "	21 "

* Formula for estimating the daily food requirements of the average youth expending an average amount of energy $(H-3)^2=C$ when "H" equals the stature in inches and "C" equals total food requirement in large calories.

obvious defect, and other causes must be sought to account for the weight deficiency. Incipient tuberculosis, heart disease, and defective teeth are among the more common disabilities associated with deficient weight.

With regard to the chest girth, in my opinion too great an importance has been paid to this measurement in the past. It is very difficult to obtain accurately corresponding measurements of the chest girth, even when we adopt the chest measurement at rest as the standard, but it is more difficult by far to obtain any accuracy of the degree of expansion, and when we have obtained this measurement it is of no value as an indication of vital capacity. The most that can be said of the measurement of the chest girth is that it is a useful index of physical development when considered in conjunction with other characteristics, and that a chest girth in excess of the normal may be associated with an asthmatic tendency. Chest girth below the normal and not associated with any other defect is of no great significance and is generally rectified by training. Deficient chest girth *plus* deficient weight is, however, a positive index of inefficiency, which is quite likely to remain in spite of training.

These few illustrations of the use of standards of physical normality in estimating physical efficiency will show, I think, that they possess some real value, not only to those of us who are interested in recruiting, but also to the medical profession in general; but much work needs to be done in the way of producing further standards by means of which we may construct an accurate picture of normal physique at any period between the ages of 3 and 21.

From a recruiting standpoint we must bear in mind that normal physique does not necessarily mean normal physical capacity; as a general rule they are closely associated, but, in addition to having normal physique, a soldier, sailor, or airman must be physiologically and mentally normal in order to be able to perform his duties with the highest degree of efficiency.

PHYSIOLOGICAL NORMALITY.

It is not possible in the scope of this short paper to do anything but touch in the briefest manner possible upon questions of physiological normality. There would appear to be scope, however, for much useful research directed towards establishing more accurate standards of normality for certain physiological processes. For example, we are content as a rule to accept as the normal temperature of the body that indicated by placing a thermometer in the mouth. Such a method is far from accurate and does not record the changes of body temperature which are constantly occurring, due to alterations in metabolism, the result of food, exercise, fatigue, etc. Such changes can be shown only by taking the rectal temperature, when the normal resting and optimum working temperature for the individual may be ascertained. Some investigations carried out by the writer a few years ago would tend to show that temperament and internal temperature are closely associated. The healthy plodding and somewhat lethargic individual had a rectal temperature at rest some two or three degrees below the temperature of the somewhat neurotic individual. Whilst the rise of internal temperature, the result of exercise, in the one case was a matter of one or two degrees until an optimum was reached, in the other the rise was more sudden, reached a greater maximum, was liable to fluctuations, and took a longer period to return to the normal. It is possible that further investigation into the association of internal temperature and temperament may help in the elimination of individuals liable to break down from shell shock and the allied war neuroses.

It will be noticed in the table that the food requirements of the normal youth are shown in relation to his stature. These figures were prepared empirically on the hypothesis that the total energy output of the body is proportional to its length. It is, of course, recognized that such figures are of no value in estimating the actual food requirements of individuals for whom the rate of growth and activity are an unknown quantity, but they are of practical value in estimating the food requirements in schools and institutions where the daily ration is fixed according to schedule; in such cases the average height of the boys to be fed is the only factor necessary in determining the food value of the total ration sufficient to give each boy a diet commensurate with his physiological requirements. Recently Holt of America[3] has published a similar method of calculating the food requirements from the body weight, and his results are comparable with those given above.

PSYCHOLOGICAL NORMALITY.

It has been mentioned above that the "frightfulness" of modern warfare, *and the likelihood of this "frightfulness"* increasing in the future, makes it imperative that those who are psychologically abnormal—in other words, those individuals liable to break down from functional nervous diseases—should be eliminated from our armed forces as recruits and not as trained fighting men. It has been stated that over 20 per cent. of all the soldiers discharged for disability from the British Army during the great war had one or another of the disorders grouped under the term "shell shock," "neurasthenia," or "war neurosis."

The evil, however, is not limited to the number of inefficients and to the waste of money in training men who break down from this cause. The danger of enlisting such cases is in their power to spread their inefficiency amongst others, resulting in hysterical mass movement, loss of moral, and possibly panic.

A large number of men who break down under the nervous strain of warfare do so from a fear of the unknown. Modern war methods, such as aeroplane bombing, gas, tanks, etc., are not conditions to which the average individual has become inured. A gas attack involving the same number of daily casualties as occurred in our last influenza epidemic would, without any doubt, have caused a panic amongst the civil population. It is in this connexion that the soldier's training is so useful. While at his training he should be familiarized with the weapons and noises of modern warfare, so that the unknown quantity of their frightfulness is eliminated.

There is nevertheless a large proportion of individuals in

of pain, and after that free movement is impossible. The pathological basis is very obscure and probably involves a number of different factors. The circulation in the muscles, diminished by cold, is unable to remove the waste products resulting from recent activity. Probably the muscle responds to stimuli by an irregular spasm, and a few of its fibres are torn from their origin. This conception would at least explain the fact that it is almost always at a point of attachment that tenderness is most marked.

Though the sudden onset is strongly suggestive of a traumatic origin there is usually a slight but definite constitutional disturbance, and it seems probable that the trauma would be ineffective in the absence of some error in general metabolism, perhaps due to a low grade of infection. But the local symptoms are so severe as entirely to absorb the patient's attention. A close examination will indeed show that the source of these symptoms is even more narrowly localized than the patient imagines, and that the pain spreads from a very small focus characterized by exquisite tenderness to deep pressure. This focus may be situated anywhere in the lumbar muscles, and in addition to its excessive sensitiveness may be marked by a slight local swelling, with an oedema which pits on pressure.

The precise localization of the focus of pain naturally suggests some local form of treatment, and a large number of methods have been recommended. Radiant heat, dry cupping, heavy massage, the insertion of long needles, and the actual cautery, all have their advocates, but the more lenient methods are tedious, whilst the more drastic are somewhat oriental. It occurred to me that the injection of a local anaesthetic would be a rational method to employ, and could at least do no harm. I was scarcely prepared, however, for the instantaneous cures which I have observed, and still less for their permanence.

The anaesthetic I chose was quinine and urea hydrochloride in 1 per cent. solution, and I selected it because of the length of time, up to several days, for which the anaesthesia may last. I thought at first that the action might be purely mechanical and I tried normal saline solution, but the effect proved to be only transitory. 5 c.cm. of the solution is injected through a long fine needle into the centre of the tender spot; within ten minutes the acute pain has entirely disappeared and the patient can move freely; a sense of stiffness remains, and a curious feature is that the patient may complain of a general malaise. It has seemed to me probable that some constitutional disturbance is a regular feature of the condition, but that it is masked by the severity of the local pain.

The following cases illustrate clearly the method employed and the results.

A lady, aged 45, was suddenly seized with severe pain in the right loin. The pain came in spasms so severe that whilst they lasted the right leg appeared to be paralysed and the possibility of a lesion of the lumbar roots was even considered. She lay in bed unable to move, the slightest attempt at movement provoking an attack of pain. Massage, radiant heat, and moist heat only gave partial and temporary relief. Below the iliac crest and just external to the right sacro-iliac joint was an area about the size of a florin, slightly boggy to pressure, and exquisitely tender. Into this area a hypodermic needle was passed till it reached the bone, and 5 c.cm. of a 1 per cent. solution of quinine and urea hydrochloride was injected. Ten minutes later the patient found that she could move without producing a spasm, and in two hours she could get up and walk. There were no further spasms, and beyond a feeling of stiffness which lasted for ten days she declared herself cured.

A lady, aged 52, passing through London was seized with violent pain in the lower right lumbar region on attempting to rise from bed in the morning. She had had a previous attack of lumbago which confined her to bed for three weeks (under the care of an osteopath who informed her that she had dislocated her sacro-iliac joint!). There was a tender spot just external to the right sacro-iliac joint, and as the case was one of moderate severity I tried the injection of 5 c.cm. of normal saline solution. Marked relief followed, but only lasted a few hours. An injection of quinine was, however, followed by complete relief, and two days later she was able to travel. A month later she wrote to tell me that she had had no further pain and was perfectly well.

It seems to me that a method at once so simple and so safe ought to be generally known and that it must have extensive applications. I have little doubt that it would be equally effective in those similar cases of torticollis and pleurodynia where a localized tender spot is always a marked feature.

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THE EFFECT OF PARATHYROID ON THE BLOOD SUGAR CURVE AFTER INSULIN.

BY

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WINTER AND SMITH have recently reported[1] that when insulin and parathyroid are injected simultaneously into rabbits, convulsions (due to reduction of the amount of sugar in the blood) ensue in a much shorter period and with a much smaller dose of insulin (one-third to one-fourth of the normal dose). I applied these results to the human subject, and found that parathyroid was almost, if not quite, as efficacious when given by mouth, and in the cases reported below this method was used. The procedure in all the cases was the same. The patient was not allowed any food beyond clear soup for five hours before injection. The parathyroid and insulin were administered, and the first blood taken within five minutes, and blood-sugar estimations were carried out hourly from that time to the end of the observation period. No food was given until after the last estimation.

CASE I.

H. S., male, aged 36. Diabetes diagnosed two years ago. He was treated on a modified Allen diet, but was careless, and persistently overstepped it by small amounts. He had got worse of late, and developed marked ketonuria in July, without any alteration of diet.

Twenty units of A.B. insulin given alone. Blood sugar: 0.310, 0.265, 0.227, 0.162, 0.155, 0.187, and 0.234 per cent.

Twenty units of A.B. insulin with four 1/10 grain parathyroid tablets. Blood sugar: 0.329, 0.257, 0.196, 0.141, 0.118, 0.102, 0.136, and 0.169 per cent.

CASE II.

J. A., male, aged 45. First symptoms in February, 1922. Was thirsty, and lost over 2 st. in weight. Was treated on old lines with codeine, and restriction of bread. Improved for a few months, but lost ground again towards the end of the year. Admitted to the infirmary in January, and was given three doses of insulin, and put on to the Allen dietary. Was a bad patient and did not adhere to his diet. Returned again in September, and was treated with insulin.

Twenty units of insulin given alone. Blood sugar: 0.342, 0.292, 0.256, 0.201, 0.216, 0.238, and 0.277 per cent.

Twenty units of insulin with twelve 1/10 grain tablets of parathyroid. Blood sugar: 0.329, 0.236, 0.195, 0.149, 0.125, 0.091, and 0.081 per cent.

CASE III.

H. R., female, aged 55. Chronic case. Had had glycosuria for four and a half years to her knowledge. Had been thirsty occasionally, but main complaint was pruritus. Present weight 13 st.; had been 17 st. The blood sugar curve was definitely diabetic.

Twenty units insulin given alone. Blood sugar: 0.362 per cent., missing, 0.214, 0.156, 0.172, and 0.224 per cent.

Twenty units insulin with ten parathyroid tablets. Blood sugar: 0.339, 0.246, 0.182, 0.125, 0.107, 0.091, 0.088, and 0.122 per cent.

CASE IV.

L. S., male, aged 23. In January this year he showed typical symptoms. He was treated by a modification of the Allen diet, and improved greatly. In July he felt worse again, and it was found that his tolerance had dropped from 95 grams carbohydrate to 60. He was readmitted, and given insulin, with marked benefit and slight increase in weight. Unfortunately, being worried about the necessary expense, he dropped the insulin, and became worse again.

Fifteen units insulin given alone. Blood sugar: 0.284, 0.243, 0.216, 0.153, 0.167, and 0.202 per cent.

Fifteen units insulin with six parathyroid tablets. Blood sugar: 0.322, 0.246, 0.191, 0.153, 0.124, 0.104, 0.118, and 0.143 per cent.

CASE V.

M. M. W., female, aged 26. Diabetes was diagnosed at Christmas, 1922, but she had symptoms for a considerable time previously. Refused to come into hospital until quite recently, and had had practically no treatment hitherto.

Fifteen units insulin given alone. Blood sugar: 0.410, 0.326, 0.229, 0.277, 0.229, 0.242, and 0.283 per cent.

whom a nervous instability is either inherent or the result of incipient disability, and it is with regard to these cases that every effort should be made to eliminate them from the fighting forces. The most suitable place for this to be done is at the training dépôt, where, by watching the behaviour characteristic of the recruits in conjunction with their physiological response to improved environment and training, and their ability to receive instruction, a very useful guide as to the recruits' psychology may be obtained, but at the same time much may be done at the recruiting dépôt to eliminate those who are mentally deficient or nervously unstable.

The mental tests devised by Binet provide a very useful basis for standardizing the degree of mental efficiency necessary for a recruit on enlistment, and also for classifying recruits according to their mental capacity; it is not possible, however, to adopt a classification of this nature in a voluntary army, but it is quite feasible to introduce a minimum standard of mental capacity below which no recruit will be enlisted. Such a mental test should aim at arriving at the normal mental capacity of the general population, which, in all probability, is not more than a 12- to 14-year mental age, according to the Binet-Simon method. A list of mental tests suitable for recruiting purposes is given in an appendix. These have been selected mostly from *The Measurement of Intelligence*, by Terman, and have proved to be of some help in actual practice at the Central London Recruiting Dépôt.

The objection to mental tests is that the results are of little value in inexperienced hands, and should be carried out, if possible, by psychological experts. Recruits who are liable to break down from war neurosis are frequently suffering from some incipient disease, also they may present signs of some physiological derangement, such as exaggerated reflexes, functional heart trouble, etc., which indicates the importance of the standards of physiological normality mentioned above.

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[3] Emmett Holt: *Food, Health, and Growth.*
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APPENDIX.

MENTAL TESTS FOR RECRUITS.

Test No. 1.—Ball and Field Test.

Procedure: Let us suppose that your cricket ball has been lost in this round field. You have no idea what part of the field it is in. You don't know what direction it came from, how it got there, or with what force it came. All you know is that the

ball is lost somewhere in the field. Now take this pencil and mark out a path to show me how you would hunt for the ball so as to be sure not to miss it. Begin at the gate and show me what path you would take.

Nos. 1 to 5 are samples of "superior plans," satisfactory at 12 years.

(For a pass, recruit must equal 1 to 5.)

Test No. 2.

Repeat 5 digits backwards. (1 of 3. Read 1 per second.)

3-1-8-7-9..... 6-9-1-8-2..... 5-2-9-6-1.....

Procedure: Listen carefully. I am going to read some numbers to you, but I want you to say them backwards. For example, if I should say 1, 2, 3 you would say 3, 2, 1. Do you understand? Ready, now; listen carefully, and be sure to say the numbers backwards.

(Marking: One out of 3 passes.)

Test No. 3.—Clock Test.

Clock. (2 of 3. Error must not exceed 3 or 4 minutes.)

6.22 ..... Time required .....
8.10 ..... Time required .....
2.46 ..... Time required .....

Procedure: Suppose it is 6.22 o'clock—that is, 22 minutes after 6. Can you see in your mind where the large hand would be, and where the small hand would be?

Now suppose the two hands to change places, so that the large hand takes the place where the small hand was, and the small hand takes the place where the large hand was. What time would it be then?

Scoring: Two or three problems must be solved within following range of accuracy: 4.30-4.35, 1.40-1.45, 9.10-9.15.

Test No. 4.

Procedure: Listen carefully. I want you to imagine that you are with a companion, drifting in an open boat, at sea.

When you started your journey you had two buckets full of fresh water.

The first day you drank the water contained in one bucket.

The next day your companion set fire to his clothes whilst lighting a cigarette. What are you going to do?

(Fails if he throws the bucket of fresh water over his companion. Passes if he pushes him into the sea. Full marks if he fills empty bucket with sea water and uses that.)

Test No. 5.

If a lad's wage is 20s. a week and he spends 14s. a week, how long will it take him to save 300s.?

If 2 pencils cost 5 pence, how many pencils can you buy for 50 pence?

At 15 pence a yard, how much will 7 feet of cloth cost?

(Score: Should pass 2 out of 3, allowing a minute to each problem.)

Test No. 6.

Repeat 28 syllables. (1 of 2 absolutely correct.)

a. Walter likes very much to go on visits to his grandmother, because she always tells him many funny stories.

b. Yesterday I saw a pretty little dog in the street. It had curly brown hair, short legs, and a long tail.

Procedure: I am going to read a sentence to you. Listen carefully, as I want you to repeat it to me without a single change of any sort.

(Marking: Pass if one sentence is repeated without a single error.)

DISCUSSION.

Group Captain MARTIN FLACK stated that all precautions possible were taken to put candidates for the Royal Air Force at their ease and to distract their attention while the pulse rate was taken. The history of athletic prowess was important in a candidate.

Lieut.-Colonel N. J. CRAWFORD RUTHERFORD asked for information on the following points: (1) Could a standard by arrived at to eliminate the number of recruits discharged under six months' service as unfit owing to middle-ear disease? In spite of auroscopic examination of all recruits on enlistment discharges for middle-ear disease continued to head the list. (2) The advisability of simple mental tests on enlistment. He remarked on the usefulness of having a record of the recruit's mentality on enlistment to prevent subsequent discharges as "mental inefficients," as the recruit's mental attitude towards soldiering might alter.

Lieut.-Colonel W. SALISBURY-SHARPE agreed that marked deviations from the average of stature, either above or below, were disadvantageous to the individual. With reference to hearing tests, the only satisfactory watch was a stopwatch which could be started and stopped without audible click. The recognized standard instrument for ticking sounds was the acoumeter; this should be heard at a distance of fifteen feet in an ordinary room.

Fifteen units insulin with ten tablets of parathyroid. Blood sugar: 0.356, 0.288, 0.231, 0.177, 0.143, 0.119, and 0.106 per cent., and after a four hours' interval, during which she was given 20 grams of carbohydrate, 0.259 per cent.

From the above cases it is evident that parathyroid extract exerts a very definite action on the blood-sugar curve after exhibition of insulin. Whether this will be of any importance as regards treatment is not yet clear. Parathyroid alone does not appear to have any action on the blood sugar; such changes as have been noticed could easily be explained as the result of starvation.

Further investigations are in progress to ascertain the therapeutic possibilities of the combination.

I am indebted to Professor W. E. Hume for Case ii.

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British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF NAVAL AND MILITARY HYGIENE.

Surgeon Rear-Admiral Sir PERCY WILLIAM BASSETT-SMITH, K.C.B., C.M.G., F.R.C.S., R.N.(ret.), President.

RECENT CHANGES IN FRACTURE TREATMENT.

BY

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(With Special Plate.)

I HOPE you will forgive me if I say at the outset that this extremely important branch of orthopaedic surgery has never, in my opinion, received adequate attention in our medical schools. The unsatisfactory results of the treatment of fractures which consequently occurred in practice once prompted a celebrated surgeon to declare to his class: "Bones are not filled with marrow, but with base ingratitude."

When I was a student I remember the late Professor Chiene of Edinburgh advising us, in one of his lectures, to pass along our fractures to rivals practising on the opposite side of the street. In this sadly humorous manner our distinguished teachers warned us, at the earliest possible moment, that fractures would often prove difficult matters to deal with, and that, even in their skilful hands, the results were not always satisfactory. They were, of course, speaking of the treatment of fractures on what we now call "the old lines."

The very commencement of the twentieth century, however, marked an epoch in the history of fractures, for Professor Roentgen's discovery of *x* rays in 1895 and its application to the study we are now discussing wrought a wonderful change in our methods of treatment. X rays enable the surgeon to see the actual condition of the fractured bone, and the radiograph is to the orthopaedic surgeon what the ophthalmoscope is to the ophthalmologist and the cystoscope to the urologist. By its correct application he gains information as to the true state of affairs in the condition with which he is dealing, analogous, in diagnostic value, to the exploratory laparotomy of the abdominal surgeon. Still more recently the experiences of the war subjected the accepted modes of treatment to a supremely severe test, exposed their weaknesses, and forced us to evolve new methods as well as improve the old.

Surgical specialists, and others who have taken a special interest in fractures, work under ideal conditions for obtaining the best results, for the former—by holding hospital appointments—and the latter—by private enterprise—are in possession of the essential first-class *x*-ray equipment and a sufficiently varied selection of splints to assist them. To these the remarks I am about to make do not apply. They chiefly concern the practitioner who is not conveniently near an up-to-date *x*-ray apparatus and who lacks a free choice of splints.

Without good *x*-ray plates or films, however, it is impossible to be sure of obtaining the best results, because a great variety of pathological details may be learnt from a careful study of them, for instance:

1. The presence of a fracture.
2. Its variety and the position of the fragments.
3. A coexisting dislocation of or other injury to a joint.
4. The presence and situation of gas gangrene and of air in the soft parts.
5. The formation and character of callus and the solidity or otherwise of new bone formed.

The condition should be studied from the original films or plates and, preferably, when dry. In a print most of the minute details will be less apparent. The surgeon in charge of the case should himself examine the plates first and diagnose the pathological conditions existing. He may then consult an expert radiologist and see how far their readings coincide. The surgeon who first reads the radiographer's report and then studies the photograph is less likely to acquire the power to perceive accurately the details of abnormalities present.

I would like to say a few words about the method of taking *x*-ray photographs.

1. Antero-posterior and lateral views should always be taken whenever possible, and stereoscopic pictures should only be relied upon in those situations which are inaccessible from two planes—for example, where the limbs join the trunk.

2. If a fractured limb be properly splinted, either externally by the approved method, or internally by plating, it can be *x*-rayed without the slightest alteration taking place in the position of the fragments. If the proceeding causes the patient any pain it is evidence of inefficient splinting.

3. In operation cases no more dressing than is consistent with aseptic safety should be in the neighbourhood of the injury at the time it is photographed, as the more material the rays have to penetrate the less clear the detail of the picture will be. On this account the sectional dressings are very suitable as, by their use, a minimal amount of dressing is placed between the limb and the supporting flannel bands.

4. When the limb is *x*-rayed it is also advisable to replace the metal clips which secure the supporting flannel bands by sterile safety-pins, otherwise the shadow thrown by the clips in the lateral view may obscure important features of the picture.

5. By noting the positions of these safety-pins and by placing some parallel to and others at right angles to the side bars of the splint it is possible to localize on the surface of the limb the position of the particular displacement, foreign body, or fragment of bone, information which will help considerably in deciding how to deal with it.

6. Whenever possible the photograph should include a view of one or more standard bony features, such as the trochanters, patella, etc.

7. The most convenient and economical size of photographic plate for the long bones of the lower limb is one measuring 15 by 7½ inches.

8. In the early stages of the treatment of a fractured limb it is essential to have a mobile *x*-ray plant which is capable of taking photographs with the patient in his bed and without interfering in any way with the extensions.

If such a mobile plant were available, and placed at the service of any practitioner who required it, in my opinion it would be a great advantage to the patient and profession.

THOMAS'S SPLINT.

Of all the forms of fracture-treatment apparatus which were called upon to stand the supreme test of the great war, it is the universal opinion of the surgeons who went through that ordeal that Thomas's splint alone fulfilled all requirements. In the earlier stages there were many of our profession who had no recollection of ever having seen a Thomas's splint used in the treatment of a fracture, although, it should be noted, these did not include any who had studied under the teaching of Sir Robert Jones.

Professors of surgery to-day cannot say enough in praise of the incomparable advantages of Thomas's splint over

AEROPLANE ACCIDENTS.

BY

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[*Abstract.*]

The points to be considered in classifying aeroplane accidents are, first, the causes; secondly, the type or in which part of the flight the cause was initiated; and, lastly, the actual damaging factor.

Causes of Aeroplane Accidents.

These may be considered under the following headings:

(1) Defect in the aeroplane.
(2) Error of judgement in flying.
(3) Loss of head.
(4) Brain fatigue.
(5) Fear.
(6) Physical illness.
(7) Unavoidable causes.

(1) This cause amounts to mechanical failure of some part of the aeroplane, and can be subdivided into (*a*) breakage in the air, and (*b*) engine failure. If the engine fails in the air a forced landing is compulsory, but given a fair height—2,000 feet or more—the pilot can usually select a good landing place. One of the commonest examples of aeroplane accidents is engine trouble just after leaving the ground, and in trying to turn back the pilot loses flying speed and the aeroplane falls to the ground.

(2) Error of judgement in flying is the commonest cause of aeroplane accidents, and of the many examples of this, perhaps the commonest is when on landing the pupil misjudges his distance from the ground and strikes the ground at a varying angle, usually overturning and wrecking the machine. It is difficult to estimate and account for these errors of judgement. In some cases the error may be due to insufficient instruction, and in other cases it may be found on examination that the pupil's standard of vision is below normal; but, on the other hand, the pupil may be physically fit, have normal vision and good balancing power, and in the latter cases it may be a case of delayed reaction times.

(3) Loss of head occurs fairly frequently and accounts for a considerable number of accidents. The pupil in his new occupation of flying is at high tension, and under the sudden strain of an emergency his power to reason and act synchronously may momentarily lapse, and there is seldom time to correct the error made.

(4) In contradistinction to loss of head the pupil in brain fatigue reaches the stage where he has neither the power to reason, decide, or act; a state of mental inertia supervenes. This is due to repeated stimuli received by his brain in rapid succession in his flight—he feels alone, and that he cannot manage to control the aeroplane; he feels helpless, and in a stupor awaits events and takes little part in the aeroplane's control. As a rule, if it occurs, the pupil, even if he should escape injury, soon gives up flying; he is not of a temperament suitable for flying.

(5) Fear, at least in a degree sufficient to disturb flying, is rarely experienced in the air on the first few solo flights, the mind being far too much occupied and concentrated on details of flying and watching the various instruments.

(6) At an air station medical inspection of the pilots and pupils at regular intervals reveals any organic disease that might lead to loss of consciousness in the air. Flying on an empty stomach may cause faintness, and as in schools flying commences at dawn all pupils are first provided with a good meal, while on long flights pilots are provided with tabloid forms of nourishment.

(7) From time to time unavoidable causes of accidents arise. The terrain in certain areas may be unsuitable and conceal obstacles, while in some aeroplanes the view of the ground in certain positions may be limited.

Type of Accidents.

The term "type of accidents" has been suggested to describe the part of the flight in which the cause of the accident was initiated. A flight may be divided arbitrarily into three parts: first, the getting off the ground into the air; second, in the air with the various turns, figures of eight, spirals, etc.; and third, the landing. The commonest type of accident is on landing.

Actual Damaging Forces in Aeroplane Accidents.

The injuries sustained are akin to most high velocity accidents, but are usually more severe, as greater speed is used in aviation. They include the following: (1) Injuries due to crushing, where some part of the pilot's body gets crushed between parts of the wrecked aeroplane or between the engine and the earth. (2) Injuries due to collision with the ground, as when the pilot is thrown out or hits the ground with his head in turning over in and with the aeroplane. (3) Injuries due to impact with different parts of the aeroplane, as when the head is violently jerked forward and strikes the edge of the nacelle on the aeroplane's impact with the ground. (4) Injuries from fire. (5) Drowning and immersion effects in seaplane work. (6) Suspension effects, as when the pilot is suspended head downwards in an overturned aeroplane and is unable to loosen his safety belt; in many crashes the sudden impact of the pilot's body on the safety belt causes abdominal injuries. (7) Poisoning from petrol fumes.

Safety Belts, Helmets, and Goggles.

With regard to the use of safety belts endless discussion has taken place among aviators. My own opinion is that before leaving the ground all aviators should see that their safety belts are fastened and should be familiar with the method of their quick release. The belts should never be undone in the air, but a difficult question arises whether to release the belt near the end of a glide before landing. Safety helmets are of undoubted value in school work and should be worn by all pupils. In a crash they certainly prevent scalp wounds and the side flaps protect the ears from injury. Most aviators wear goggles, but there are still some who prefer to fly without them. I certainly think that goggles should always be worn; there is no doubt that flying without goggles is apt to set up a spasm in the eyes.

First Aid at an Air Station.

The sick bay or dressing station should be in full view of the aeroplane, with a look-out man supplied with field glasses always on duty during flying hours. Immediately a crash or forced landing occurs the look-out man telephones to the sick bay, notifying the steward of the exact site of the occurrence, and proceeds with a stretcher to the accident. With the stretcher is taken an emergency tool-case, which includes crowbars, wire cutters, saw, fire extinguisher, etc. The steward dispatches the ambulance with which two sick-berth attendants go, and with them is a bag containing morphine, hypodermic syringes, chloroform, brandy, first-aid and picric acid dressings, etc. If the injured person is conscious and in much pain morphine should be injected and the patient conveyed quickly to the dressing station, where his injuries should be examined and treated; chloroform may have to be given, as it acts more quickly than morphine.

The Nature of the Injuries Received.

Surgical work in connexion with aviation in general differs but little from that in military and civil life. The difference is mainly one of degree, in that one is mostly called upon to deal with the results of high velocity accidents associated with falls at varying angles and from various heights. Burns are among the most severe forms of injury. The cold at high altitude is extreme, and aided by the rapid transit through the air is apt to cause frost-bite easily. In a large proportion of aeroplane accidents the occupants receive injuries to the face, owing to the impact throwing their heads forward. Fractures of both bones of the leg and fractures involving the ankle-joint are very common.

any other in the treatment of fractures of the lower and upper extremities, for it is the only splint which enables the surgeon to apply in a perfectly efficient, simple, and satisfactory manner the all-important principle of extension. To some medical men the name "Thomas" was only associated with bone-setting and quackery, when it should have brought at once to their minds a genius who, by his invention of the "Thomas knee-splint," produced the greatest mechanical non-operative advance in the treatment of fractures which any man has added to our surgical equipment.

I have frequently noticed that patients erroneously associated this splint with the famous hospital of the same name, although Thomas the surgeon was in no way connected with that institution; but I feel convinced that the work of Thomas, which has been the basis of all modern success in the treatment of fractures, which has so mitigated pain and saved limbs, and which has so averted bony, nervous, vascular, and muscular troubles, will gain for that brilliant surgeon full and complete recognition as long as any records exist.

First-Aid Treatment.

Efficient first-aid treatment is of the utmost importance to the patient, and this necessitates—(1) training of first-aid workers; (2) supply of suitable apparatus.

The beginning and the end of the treatment of a fracture of a long bone is—(1) to replace the broken ends at the earliest possible moment; (2) to keep them in a position until Nature has joined them together; and (3) to maintain the nutrition and function of the soft parts by massage, electricity, etc.

The reduction of fracture displacement can usually be achieved by manipulation—that is, by persuading the broken ends of the bone to retrace the unnatural path they have taken; and this is effected by making one fragment a fixed point, then bringing the other into its correct anatomical position and keeping it there by exerting a steady, even, and never relaxed pull. This is the fundamental rule which underlies the efficient treatment of all fractures of long bones, and it is in this way alone that the tragedies of shortened and otherwise deformed limbs can be averted. The proper time to apply this extension to the limb is on the spot where the wounded man fell on the battlefield, or the civilian was run over in the street, and not at the regimental aid post or field ambulance in the one case, or in the city hospital in the other. This can be done with ease by means of Thomas's splint, and I wish to emphasize this point all the more because I notice that in the official St. John Ambulance manual *First Aid to the Injured*, 1921, published three years after the war, there is no mention of Thomas's splint or the way in which it is applied. Police, railway companies, institutions, and many other public bodies which are interested in training in first aid, accept this manual as the standard work upon which to depend for guidance, and it follows that, in the absence of any reference to Thomas's splint, a vast number of first-aid workers are never trained in the use of the only splint which was found of universal and inestimable value in the great war.

I shall now ask your indulgence while I describe the first-aid treatment of, say, a fracture of the middle of the femur, as a typical example of the principles involved.

Each first-aid party should carry a Thomas's knee-splint. This appliance consists of an oval iron ring, united obliquely to a length of round iron which forms the side-bars and the end of the splint. The iron ring is well padded and covered with leather. The splint can be used on either leg. It can be carried conveniently and comfortably by threading the closed stretcher through the ring of the splint and tying the side-bars to the poles. Two men are required to apply the splint, and for the sake of clearness I shall refer to these as the "operator" and the "assistant."

The operator places his right hand round the heel of the injured leg and, while exerting an even steady pull on the leg and gently lifting it, he uses his left hand to support the leg at the seat of the fracture. The assistant then carefully threads the ring of the splint over the foot and, with his right hand, grasps the ankle, takes the extension on the leg, and thus releases the operator's right hand. The assistant runs the splint up the leg until the ring reaches the operator's left hand, when he passes his own left hand through the ring and relieves the operator's.

The operator now controls the splint which he pushes up the leg as far as it will go—that is, until the ring rests against the bony prominence of the tuberosity of the ischium.

Leaving the splint and leg in charge of the assistant the operator prepares a mechanical means of maintaining extension. He takes a pointed metal pin or skewer, about 12 inches long, and passes it obliquely through the boot so that the skewer lies between the sole of the foot and the sole of the boot. The correct angle is attained when the outer end is about 1½ inches nearer the toes than the inner end. When in position this "extension pin" rests on the side-bars of the splint and allows the limb and foot to be in external rotation. A piece of bandage or tape is attached to each end of the pin, and these are taken the one under and the other over the side-bars and tied in the V at the end of the splint (see Fig. 1).

When this manœuvre is completed, the assistant, with his right hand, keeps the end of the splint raised so that the leg is clear of the ground, and, with his left hand, still supports the site of fracture. The operator takes a 6-inch bandage and, having fastened one end to the outer side-bar of the splint near the ring, passes it from side to side underneath the limb, and alternately over the inner and outer side-bars, until the whole limb, supported by the bandage, is comfortably suspended between the side-bars of the splint.

The patient can now be lifted on to the stretcher without danger of further injury to the limb. This done, a suspension bar should be applied to the foot of the stretcher and the splint suspended from it (see Fig. 2).

What has been effected is this: The ring, pressing against the ischial tuberosity, fixes the upper fragment of the fracture. The side-bars and the end of the splint being in one rigid piece, it follows that the traction put on the foot by the pull exerted between the extension skewer and the end of the splint must draw the lower fragment away from the upper in the long axis of the limb, thus making it impossible for further shortening to occur. The force required to reduce a fracture of the femur and maintain the ends of the fragments in apposition is very great, especially in the case of a simple fracture, and should only be applied when the patient reaches the hospital or other place where he is to receive prolonged treatment. In the first-aid stage all that is aimed at is the fixation of the fragments and not necessarily complete reduction, for if a very strong pull be exerted on the foot through the boot ulceration and possibly gangrene may result.

For the purpose of transport, the leg is now fixed more securely in the splint by fitting pads of cotton-wool in the spaces between the splint and the sides of the knee and ankle and applying a bandage over all, so as to include the side-bars of the splint, the limb, and the padding. The case is now ready for removal to a hospital or to the patient's home for further treatment.

Too much emphasis cannot be laid upon the fact that careful and correct first-aid treatment given in the manner described, immediately after the accident, will ensure that the fracture and the patient will come before the surgeon in the very best possible condition for further active surgical treatment.

Transport of a patient with a fractured bone insecurely fixed will certainly add to his pain and therefore increase the shock, and may also lead to any of the following serious complications:

1. The muscles, blood vessels, and nerves are liable to be lacerated and a closed fracture may be converted into an open one.

2. Manipulation is more painful.

3. Extension, which is absolutely essential, cannot be safely applied in sufficient degree to a limb which is tense with extravasated blood, for the application of extension to a limb the vitality of which is already endangered by distension may determine the onset of gangrene. Never-

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ACUTE INTESTINAL OBSTRUCTION DUE TO AN UNUSUAL FOREIGN BODY.

I was called in to see a man, married, aged 48, who was suffering from obstruction of the small bowel of some days' duration. He was vomiting large quantities of foul-smelling brown fluid and was collapsed. On admission to hospital he told me that four days previously he had swallowed, for the purposes of a bet, a rubber preventive (condom) two-thirds filled with fluid and tied at the free end.

I operated immediately and found this object completely obstructing the small bowel about eight inches from the ileo-caecal valve. I removed the obstruction; there was a considerable amount of free fluid in the abdomen and the bowel above the obstruction was very distended and congested.

S. B. Chambers,
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MELAENA NEONATORUM: RECOVERY.

Many fatal cases of melaena neonatorum have been reported in the medical journals, but up to date very few of successful treatment. The subject of this note was the first-born child of strong, healthy parents. The mother had been operated on by Mr. Comyns Berkeley on February 1st, 1922, for uterine myomata. Labour at full time commenced on Friday, September 21st, 1923, and terminated on Tuesday, September 25th. No liquor amnii was seen.

The child, a male, which weighed just under 5 lb., was very thin and the skin very dry and shrunken. At 9 a.m. on September 26th he began to vomit blood and passed a motion containing much blood. At 10 a.m. I injected subcutaneously 2 c.cm. of haemoplastin (Parke, Davis and Co.). Melaena recurred in the afternoon, so at 6 p.m. I repeated the dose and bleeding did not recur. On October 31st I circumcised the child, which weighed 7 lb. 5 oz., and injected 2 c.cm. of haemoplastin as a precautionary measure. There was no abnormal haemorrhage. The mother had no rise of temperature after labour and made a rapid and normal recovery, but was not able to nurse the child.

Bedford. W. Gifford Nash, F.R.C.S.

TREATMENT OF TETANUS.

The following case of tetanus may be of interest in view of Mr. J. A. Hayward's letter in the British Medical Journal of September 8th (p. 439).

On the afternoon of July 25th G. H., aged 7, was playing in a street gutter when he caught his foot in a grating, receiving a deep wound on the under surface of the right great toe. He remained at home a week, being attended by his own doctor, who employed cusol and hydrogen peroxide.

On the seventh day his parents noticed that he suddenly became fretful and was unable to open his mouth properly. The condition appeared to improve during the day, but next morning (August 2nd) there was definite rigidity of the muscles of mastication; 1,000 units of tetanus antitoxin were then administered and the patient was sent to the Edinburgh Royal Infirmary.

On admission it was noted that he lay with head slightly retracted, that the masseter muscles were contracted, the teeth tightly clenched, the expression anxious, and the forehead beaded with perspiration. Temperature 97°, pulse 128. The right great toe was black and gangrenous in its distal half. There was a deep wound running across its under surface almost severing it. Under chloroform anaesthesia the foot was cleansed with spirit and iodine. During this procedure the distal half of the right great toe dropped off. Amputation was therefore performed at the metatarso-phalangeal joint, a slip of dental rubber introduced, and the flaps partially approximated. Antitetanus serum was then administered—10,000 units (concentrated) intrathecally, 3,000 units intravenously, 9,000 units intramuscularly, and 1,500 locally about the base of the toe—a total of 23,500 units.

The next day there was marked opisthotonos; spasms of limbs and facial muscles at frequent intervals throughout the day. He was unable to swallow anything. Rectal feeding was carried out and chloretone, gr. x in olive oil, administered per rectum morning and evening. Under chloroform anaesthesia 10,000 units were injected intrathecally and 6,000 units intramuscularly.

On August 4th the spasms were limited to the face; opisthotonos still marked; temperature 102°, pulse 136. He was very fretful and woke frequently with piercing shrieks.

On August 5th the spasms were still limited to the face; opisthotonos less marked; temperature 100°, pulse 120. He was able to open his mouth about half an inch, and take liquid nourishment. Bowels moved only after an enema. Under chloroform 6,000 units of antitoxin were injected intramuscularly.

The following day, after a fairly good night's rest, the temperature was settling. Under chloroform 1,500 units were injected intrathecally and 7,500 units intramuscularly.

The pectoral region had been selected for the intramuscular injections, but an urticarial rash appeared over the front of the chest on August 6th. This was overcome by varying the site of injection to the thighs and buttocks, a few days' rest being sufficient to allow the rash to clear. Daily intramuscular injections were continued till August 16th, the dosage being reduced from 6,000 to 4,500, and finally to 3,000 units. Anaesthesia was employed on each occasion till the dosage had decreased to 3,000.

Opportunity was taken under the relaxation of the anaesthetic to clean the mouth and tongue, which had become thickly coated. The patient took plenty of liquid nourishment, but it was over a fortnight before he could swallow solids. Constipation was a marked feature throughout, and mild aperients were given regularly. The temperature and pulse settled by the tenth day. He was left exceedingly weak and could not sit upright in his cot for three weeks. The characteristic risus sardonicus persisted till about six weeks after admission.

He was allowed up on the twenty-sixth day, but was very unsteady on his legs. He improved rapidly thereafter, and was discharged on September 25th, strong and well—expression practically normal and toe healed.

In this case 89,000 units of antitoxin were administered over the course of fourteen days (39,500 in the first forty-eight hours)—21,500 intrathecally, 3,000 intravenously, 64,500 intramuscularly and locally. Apart from the chloretone on the second day and the numerous anaesthetics, no other drug treatment was employed.

Prophylactic doses of antitoxin have been used as a routine in this clinic since the war, and this case is only the third seen in 9,500 surgical cases. Only one of the three developed in the hospital—a gunshot wound in 1913.

I am indebted to Mr. J. W. Dowden, surgeon to the Royal Infirmary, Edinburgh, for permission to report the case.

Edinburgh. Harold K. Corkill.

Reports of Societies.

CONSTIPATION FROM THE GENERAL PRACTITIONER'S POINT OF VIEW.

A discussion on constipation, its causes, results, and treatment, from the general practitioner's point of view, took place at the meeting of the Medical Society of London on November 12th, with the President, Dr. Herbert Spencer, in the chair.

Dr. H. Des Voeux, in opening, said that the profession should lay it down as a canon of sound and healthful existence that the bowels could and would act daily and naturally, without medicament or extraneous help. There was too much of the attitude of the physician who said, "Well, thank God, we have the bowels to treat." When the speaker was young it was thought that a daily evacuation was essential, and the unnatural corollary was that purgatives and laxatives were freely and thoughtlessly administered. This doctrine, slightly modified, still remained, certainly with regard to the nursery, where tender infants were constantly dosed for any slight ailment. In practice about half the doctor's work was connected with the stomach and bowels. Individual members of the profession had little power to prevent the occurrence of diseases of the heart or lungs, but in those of the stomach and the bowels they had ample means of prevention. The rectum and bladder, which he might describe as the ground floor back and front of the body, had much the same functions to perform, but the former was subject to the conscious interference of the mind, while the latter was governed almost unconsciously. The reflex action of the bladder could only be restrained for a short time, whereas the rectum could be controlled to suit convenience, with the result that the number of cases of bladder trouble dealt with was infinitesimal compared with those of trouble of the bowel. A healthy bowel meant a healthy body. The druggist's shop provided a sop to Cerberus, which, once thrown, must be repeated at intervals. Constipation began early in life, but not until the age of three or four did the full development of symptoms usually attract attention. The simplest definition of constipation was the retention in any part of the bowel of the unused or unusable food

theless, our aim must be to reduce the displacement without delay.

4. Another serious complication is the entanglement of the ends of the fragments in the surrounding muscle and fascia. When this cannot be rectified by manipulation, it constitutes the only condition which can prevent the reduction of displacement by mechanical means and which necessitates reduction by open operation.

END-TREATMENT.

From the point of view of treatment, a fracture of a long bone must be considered not only as a solution of continuity of the osseous matter involved, but also as a lesion possibly affecting skin, muscle, nerves, bone, and joints in the vicinity.

The ideal treatment of a fracture should have for its object complete anatomical reposition of the injured tissues and complete restoration of functional power to the affected part. It should therefore be the surgeon's aim to produce as the end-result of his efforts a limb which corresponds to its uninjured fellow both in function and appearance. The same general principles underlie the treatment of fractures of all long bones, and in their treatment the same results should be sought after.

The war produced an over-abundance of all varieties of fractures, open and closed, complete and incomplete, and these again were transverse, oblique, spiral, impacted, non-impacted, multiple, and complicated with every imaginable combination (see Fig. 3).

From this colossal collection of material we, from 1914 onwards, gradually gained a vast and unique experience, which definitely proved the necessity for prolonged extensions, brought about the rebirth of Thomas's knee-splint, and improved it with many additions, such as extension prop, footpiece, skate, etc., necessary for the correct alignment of the fragments, to quote only a few of the many advances which now ought to be common knowledge.

When a man with a fractured femur is lying flat on his back the sound limb and the upper fragment of the broken bone are rotated outwards at the hip to an angle of about 40 degrees. Considering this fact, it is extraordinary how large a number of fractures of the leg bones have been treated with the foot in a vertical position, with the result that the lower fragment is rotated inwards on its long axis, and when union occurs and the patient resumes the erect position the lower part of the limb and the foot are markedly rotated inwards.

In each case the actual amount of external rotation of the upper fragment can be estimated with considerable accuracy by studying the position of the small trochanter in the *x*-ray plates. The photograph should include the upper ends of both femora, with the foot of the uninjured limb pointing vertically upwards.

The information gained from this position of the small trochanter is also useful for another reason. It is very occasionally found that, in fractures of the middle third of the femur, the damage done may be such that muscular action counteracts the natural tendency of the limb to rotate outwards. In some cases it may just neutralize this tendency, and, in this position, the upper fragment will correspond to the vertical position of the foot. In other cases this muscular action may be still more pronounced and may actually produce internal rotation of the upper fragment corresponding to the foot being rotated inwards.

In every case the *x*-ray photograph to which I have referred will make the position quite clear to the surgeon, and he will be able to arrange accordingly the angle at which the foot is to be splinted.

Permanent extension is obtained by the use of glue, screws, or callipers. With careful attention glue will be found to meet requirements in about 50 per cent. of cases, but in some it will not give the necessary extension without blistering, and consequently screws or callipers must be employed.

In my experience the most satisfactory means of maintaining prolonged continuous extension in the treatment of a fracture (especially in the case of the lower limb) is by exerting adequate mechanical traction upon screws inserted into the tibia, radius, and ulna.

The operation is performed without removing the leg from the Thomas splint. The skin and the side-bars of the splint having been sterilized with 3 per cent. picric acid in methylated spirit, a longitudinal incision, half an inch in length, is made down to the bone, on the inner side of the tibia, halfway between the anterior and inner borders. The tibia is then drilled in an outward direction, the drill being held so that the point is inclined slightly towards the foot. It passes through the hard bone and medulla and just far enough to bite on the medullary surface of the hard bone on the opposite side of the canal. The drill is then removed, and a round-headed steel screw 2½ inches long by 1/6 inch in diameter, held in Lane's screw-holding forceps, is placed in the hole in the bone and screwed home until it bites on the far side of the medullary canal (see Fig. 4).

The second screw, for the outer side of the tibia, requires an incision made nearer either to the foot or the knee than the first screw, and also nearer to the anterior border of the tibia. This incision is made in a transverse direction and the small amount of intervening muscle is cut across. The bone is then drilled and the screw inserted in the same way as described for the screw on the inner side.

The wounds are covered with a dry gauze and 3 per cent. picric acid dressing, which is punctured so as to allow the heads of the screws to pass through, and secured in position by a bandage. As soon as one or two turns of this bandage have been applied the extension tapes are placed in position. These consist of a double length of sterile tape, attached to an oval brass ring which is placed over the screw, and the remainder of the bandage is then applied so as to include these rings. The tapes are then tied over the foot-extension prop, in the same way as gauze extensions are fastened.

The nearer the brass rings are to the skin, and therefore to the bone, the more effective will the extension be, and there will also be less tendency for the pull to bend the screws by leverage. The upper parts of the tapes are covered with vaseline to prevent the picric acid from rotting the tape and save the screws from getting rusty.

It has been stated that traction should not be taken from the leg alone, on account of the danger of stretching the ligament of the knee-joint and producing a loose knee. This danger is quite theoretical, and a stiff knee will result if passive and active movements are not commenced at the proper time.

Having now complied with the first essentials in the treatment of a fracture of a long bone—namely, to apply extension below the seat of injury and to immobilize the limb—the next question for the surgeon to consider is the plan by which the patient may be most comfortably circumstanced for a prolonged stay on his back in bed, having in view the fact that he must be easily accessible for nursing and dressing purposes without interfering with the line of extension and consequent danger of alteration in the position of the fragments. This question of the physical comfort of the patient is all-important, for the more comfortable he is the more quietly and contentedly he will lie. The risk of disturbance of the fragments will be proportionately less and the organization of the soft parts and the formation of callus will be proportionately expedited. The practical way to obtain all these advantages is to suspend the splint and limb (see Fig. 3).

Reference has already been made to suspension of the limb, in the earliest stages of treatment, by attaching the splint to a suspension bar which fits over the sides of the stretcher, but a rather more elaborate apparatus is desirable when the patient is put to bed in the place where the end-treatment is to be carried out.

SUMMARY.

To sum up these remarks on non-operative treatment, I would like to repeat the following points:

1. The main object to be kept in view is union with exact apposition of the fragments. The importance of this cannot be exaggerated, for, although one cannot even then say that perfect function will be restored, and although every surgeon has seen cases in which good function is associated with defective alignment, yet

that had been ingested. It was absurd to be satisfied with the answer of the patient that there was a daily motion. In the majority of cases the amount passed was probably not the totality of the contents of the big bowel; there was a residuum. In the normal bowel the sensation of faeces in the rectum was uncomfortable and led to evacuation; the civilized bowel had been educated to neglect this feeling. If the patient could not diagnose his own constipation it became the doctor's duty to neglect the patient's opinion and decide for himself. Until the diagnosis of constipation was taught, the disease would continue unabated. For some years, with a certain amount of success, he had been trying to diagnose the condition without *x*-ray examination. If faecal elements were felt in the rectum or colon the patient was constipated; this diagnosis was possible and not difficult provided the abdominal wall could be relaxed. He thought that a further step might be taken; if the colon in part or whole was constantly distended the diagnosis of constipation was justified. Beyond these two signs he had not discovered any of use, apart from the series described by Sir W. Arbuthnot Lane. The speaker went on to point out the evils of overfeeding in children, especially deprecating such expressions as "nourishing food," "digestible food," and "feeding up." All food ought to contain a considerable proportion of indigestible substances, for this part of the ingesta passed through from one end to the other and acted as a gentle stimulus. The contents of the colon ought to be indigestible and bulky. Yet as much as possible of the things which were considered indigestible, such as skins of fruit and vegetables, like apples and potatoes, stalks of such vegetables as cabbage, and the skins of animals, were rigidly and purposely excluded from the diet of young children; in his view they ought to be included. The time had come for a complete revision of the dietary to be recommended. The contest they had to wage might be described as in favour of apples against milk; milk had been placed in the position of a goddess to be worshipped; it was time she was dethroned. With proper attention to children, the incidence of constipation and its consequences would tend to diminish, but this result could come about only with the growing up of the new generation, and the doctor was left to face the problem in the adult population. He had two alternatives—diet and medical treatment by enemas or drugs assisted by massage and physical exercises. The best method was by diet. His own belief was that people could eat as much as they wished, provided that the food passed through quickly enough, and that all the residuum was cleared daily. It was a mystery how much the Englishman would spend on the main drain of his house while he paid no attention at all to his own main drain, which was the commencement of the house drain, though unfortunately disconnected! The body should be exercised daily. All systems of exercise had the drawback of taking up too much time, and the great majority of those who began them gave them up after a few weeks or months. He advised a few exercises which had been modified from those taught him at school by the old drill sergeant, and of these he showed the Society a cinematograph representation. They consisted in swinging the arms at first backwards and forwards and presently right over the head, then rapid leg movements up and down, followed by bending the body backwards and forwards, and finally rapidly alternating the body between an upright and a squatting posture. Each of these movements should be repeated twelve times, and the whole series should not occupy more than three minutes. They were suitable for young and old, they worked every joint in the body, they called for frequent and deep respiration, and the heart had to put out its best to carry them through.

Dr. Walter Broadbent considered that the most important cause of constipation was repeated neglect of the stimulus to defaecate, particularly after the morning meal. The upper rectum and sigmoid as a consequence of that neglect became atonic. The condition often originated in infancy through the carelessness of mothers and nurses. Artificial foods, especially dried milks, encouraged constipation. The addition of a little cream to each bottle would help matters, or liquid magnesia or petroleum, or syrup of figs might be needed. Babies should be encouraged to have an action every day soon after a feed. Small children should also be set down at stool soon after breakfast every morning, and not be allowed to go out to duty or play before this was accomplished. Up to a few years ago there was a great difference in the incidence of constipation as between the sexes, it was rare in males, and very common in young women. Now there was a marked improvement in young women, due, he thought, to the more hygienic corset, to better sanitary arrangements in girls' schools, and to the increased athleticism of girls. In old people there was a kind of constipation characterized by diarrhoea, a small amount of faeces being evacuated frequently. The cause was a large and solid mass of impacted faeces which often could not be evacuated without special measures. The first thing to consider in the treatment of constipation was diet. The early morning cup of tea was a helpful institution; porridge at breakfast, especially when made with coarse ground oatmeal, was also helpful, and so was the glass of hot water last thing at night. It was imperative that there should be a regular time every day for the movement of the bowels. It must be soon after a meal, and should be after breakfast. Only if all such methods failed must resort be had to drugs.

Dr. D. M. Barcroft said that in approaching the subject of constipation it was important to be quite clear whether they were dealing with a disease or merely with a symptom. To his mind there was no such disease as constipation, and researches could not go very far before it was realized that constipation was a symptom only. From the diagnostic point of view the symptom constipation was not of any value. If one looked through a System of Medicine constipation would be found to figure as one of the symptoms in the picture of the great majority of diseases described. So much was this the case that occasionally one found such a condition as typhoid fever ushered in by constipation rather than diarrhoea. It was the general experience that a patient who was confined to bed and was forced to use a bed-pan, necessitating a horizontal position, was unable satisfactorily to evacuate the bowels. If posture was a factor in successful defaecation might not it be a factor also in preventing minor degrees of constipation? The most satisfactory posture was with the thighs acutely flexed, which gave a measure of protection against rupture, and at the same time enabled the voluntary muscles which took part in the act to function to the best advantage. Defaecation called for a combination of the voluntary and involuntary mechanism. It was always the terminal event in a series of involuntary muscular efforts. In initiating the process of digestion it was found that from earliest infancy the taking of meals must be at regular intervals. In no other way could satisfactory digestion reasonably be expected. A similar regularity was called for in the case of defaecation. There were some individuals who normally had two evacuations a day, others normally would go for two or three days with only one evacuation, but the vast majority of mankind got on best with one evacuation a day. In the natural state the call to stool could be promptly answered, but in the civilized condition it was often impossible to answer the call immediately. The wise course was for the patient not to become dependent on the call for evacuation, but to establish a habit whereby the evacuation took place at about the same time each day. In this way a better combination of all the forces at work would be arrived at than by the more haphazard method. It was surprising how the habit of regular defaecation became established, and how such a change of circumstances as from summer time to winter time or the reverse would disturb the action, so that the bowel required several days to adjust itself to the altered hour. Some measures taken to correct constipation by forcing muscular contractions were likely to make the condition more pronounced.

Dr. W. W. Stocker agreed that constipation was a symptom and not a disease. It was caused by prolonged retention of faeces in the intestines and rectum. Sometimes faecal colic occurred, when large masses accumulated in the colon, and death might even be caused by intestinal obstruction. Faecal tumours had to be very carefully distinguished from malignant growths. Constipation, when not due to mechanical obstruction, resulted from the

Operating humidity: 2
Operating temperatur
Storage temperature:

statistics prove undeniably that good functional results will follow in direct proportion to the success which has been attained in the endeavour to restore a broken bone to its original natural form. The finding of the British Medical Association Fracture Committee in 1912 was that 90 per cent. of good anatomical results were followed by good functional results, and my experience entirely supports that finding.

2. Each new fracture is a fresh problem, and its diagnosis and treatment cannot be controlled by a set of rules which were formulated, and did excellent service, at a time when the surgeon's vision had to be projected through his finger-tips. As I have said, x rays must be used at every stage if one is to be certain of obtaining the best results.

3. When the surgeon has to deal with a complete fracture he knows that the fragments can be displaced in any of the three dimensions of space. Unless he selects a splint which will permit of these fragments being replaced through these dimensions he cannot expect a good result from his treatment. This requirement alone disposes of such spints as Liston's, McIntire's, Cline's, internal right-angled splints for the arm, and plaster-of-Paris. In my opinion these and similar forms of apparatus ought not to be used, and should be discarded from our equipment for treating fractures, because imperfect results can only be expected to follow their employment.

As I have already said, Thomas's splints fulfil all requirements, with such modifications in minor details for the arm and the leg as are necessitated by the anatomical differences in the limbs. These splints will permit of the indispensable extension; they correct the main displacement, and their side-bars allow the surgeon free access to the site of fracture, so that he is able, with the aid of x rays, to complete any replacement of the fragments which the splint itself has not already accomplished. Thus, if after extension has been applied the x-ray photographs reveal the presence of lateral deformity, he can move either fragment in the required direction by passing a loop of bandage round the limb at the level of the displaced piece of bone and gently applying traction until the lateral error is corrected. To maintain the correct position the bandage can then be fastened to the side-bar.

Antero-posterior displacement can be corrected by a transverse band passing from side-bar to side-bar either in front of or behind the limb, according to the direction in which it is necessary to move the fragment.

No other splint of which I have knowledge will give the surgeon such absolute control over the fragments.

Open Operation.

When it is difficult or impossible to reposition the fragments by non-operative means, and it is necessary to deal with the case by open operation, I use Sir Arbuthnot Lane's technique.

Plating.

Using very light plates and splinting the limb at the same time give very satisfactory results. I make it a practice to use plates only as temporary internal splints, and aim at removing them at an early date, although this will naturally depend upon the bone that is fractured (see Figs. 5, 6, 7, 8, 9).

In the case of the tibia, applying the plate to the subcutaneous surface of the bone, and removing it on about the seventh day by opening the original incision, has given good results. For complicated fractures long plates are used, and these I leave in position for a month or six weeks, but subject to x-ray readings indicating good callus formation (see Figs. 10, 11, 12, 13).

Personally, I am not in favour of leaving plates permanently *in situ*, as they are liable to cause trouble sooner or latter.

Wiring.

Wiring a fracture has certain advantages over plating:

1. A smaller incision is required, less tissue is damaged, and less detachment of muscle from bone is necessary.
2. Wire is more easily applied and removed.
3. A very much smaller foreign body is introduced into the tissues.
4. Wire presses on a very much smaller area of bone, and is therefore less likely to interfere with the blood supply of the bone in its neighbourhood (see Figs. 14, 15, 16, 17).
5. It can be used and has produced good results in septic cases in which plates cannot be employed, and in some cases wiring has been known to save limbs which would almost certainly have been lost if treated in any other way.
6. Wiring combined with splinting makes it easier to correct the deformity and maintain the fragments in perfect anatomical position.

Bolting.

In certain complicated cases, especially in the neighbourhood of joints, it will often be found that wiring and plating are not sufficient to meet the case. In such cases I have found it more satisfactory to immobilize the bone fragments by means of a bolt which can be used alone or in combination with Lane's plates.

The accompanying illustrations (Figs. 18 and 19) show an L-shaped fracture into the knee-joint treated in this way.

SOME GENERAL REMARKS ON SURGERY IN THE ROYAL NAVY.

BY

SURGEON CAPTAIN D. W. HEWITT, C.B., C.M.G., F.R.C.S., R.N.

SURGERY has been practised in the Navy ever since the Navy began to exist; anyone who visits the old *Victory* here can see for himself the operating table in the cockpit where amputations were performed at the battle of Trafalgar, and where Nelson lay dying. It is only within comparatively recent years, however, that "set" operations have become the daily routine in naval hospitals.

Although Walter Reid had operated for aneurysms some time previously, the year 1900 really marked the birth of modern naval surgery. Previous to this men requiring operative treatment were invalided and transferred to civil hospitals.

The records of Haslar, the oldest of our naval hospitals, bear evidence that it was in 1900 that the first serious abdominal operations were performed; and it is a point of interest to note that one of the hospital sick berth staff was the first patient to have his appendix removed by a naval surgeon in a naval hospital. The actual amount of surgery done for some time afterwards varied with the initiative and courage of the staff of the hospital.

The Navy has always been a conservative service and the medical branch is no exception. Every innovation had therefore to be introduced with the greatest care and tact, and the pioneers had to guard against the least suspicion of carrying out experiments on the personnel of the fleet. They could only follow slowly, therefore, in the wake of the civil hospitals, and before attempting anything new had to be in a position to prove that there was ample justification for any surgical measures they might adopt—and, more than that, they could not afford to have failures. All the more credit, therefore, was due to them for their courage and initiative. For instance, during those early years the administration of a general anaesthetic was a most important function at which the medical officer in charge of the hospital had to be present.

The naval surgeon has always, perhaps, occupied a unique position in having to grapple unaided with all sorts of surgical difficulties in all parts of the world. He may find himself in a small ship off the west coast of Africa, or up a river in the wilds of China, suddenly confronted with organizing single-handed arrangements for an expedition miles inland. Dressings have to be provided, transport for the wounded arranged, and operations performed with little or no skilled assistance. It speaks well for him that he has been able so often to emerge triumphant from such difficulties.

To-day naval hospitals compare favourably, both as regards equipment and personnel, with similar civilian establishments, and the work carried out in them is practically the same. It is of a varied nature and only restricted

impairment of the peristaltic action of the intestine, weakness of the rectal nerves, or excessive obesity. Sedentary habits also contributed. The speaker criticized the modern lavatory, which made a squatting position impossible. It might be that the construction of the lavatory was one of the great causes of constipation in modern life. A simple adjustable lavatory seat should be in every house where there were children. In how many houses were the lavatory seats suitable for children of school age? Where the case was very chronic a normal saline draught—one quart—taken at seven o'clock in the morning would act within half an hour. The lubrication of the bowel and contents was often necessary, as the faeces were dry and hard.

Dr. EDWARD FURBER said that constipation began in infancy. The nurse and mother were probably constipated themselves, and therefore they did not realize how important it was to educate the child. The child was too frequently scolded over the matter, and all its associations were thereby made unpleasant to him; it might even figure in his nightmares. Among the causes of constipation was a painful condition of the anus which was frequent in infancy after hard constipated action. In adults constipation due to drugs taken from vicious habit should not be overlooked. The speaker exhibited an American apparatus designed for a colon douche.

Dr. PERCY SPURGIN quarrelled with the ordinary conception of what was known as constipation, which was defined as a packing together of the contents of the bowel. Constipation appeared to him to be an inability to evacuate a quantity of faecal débris corresponding to the solid food taken. Apart from surgical or pathological conditions, constipation was to his mind entirely a habit, and due to various causes. It was not in any sense of the word a disease, but, like many habits, if neglected it might become a disease. The cause must be separately considered in the case of children, adolescents, and adults. In children, he agreed with previous speakers, it was due almost entirely to the fault of the mother or the nurse, their want of perseverance and firmness. The child was encouraged in the bad habit of putting off the natural function. On the other hand, there were many children who appeared, curiously enough, to be wilfully obstinate, and who would not evacuate even when held up. There, again, the mother did not persevere. From this failure a whole series of troubles took their rise, leading to serious results in later life. Afterwards came the misuse of aperients as a contributing cause. Proper dieting was the natural and reasonable treatment of constipation, and aperients were grossly misused, especially by those people who thought that every advertisement they saw in the newspapers was going to be a panacea. Unsuitable dietary and faulty exercises were factors which accounted for much constipation among children. Some people thought that by violently exercising the child they were going to induce its muscles to work, whereas what they were doing was merely fatiguing the musculature. In the very small child irregularity of the hour of defaecation was almost the natural thing. In the older child this irregularity should be discouraged in favour of regular habits. In adolescents want of supervision was an important cause of constipation. There was too much hurrying to school. Among grown-up people there was a widespread failure to realize the necessity for regular habits, not only in eating, drinking, and sleeping, but in evacuating the contents of the bowel. He maintained that it was the irregularity of the hour at which the grown-up person went to stool which had a very marked effect on occurrence of constipation. For the headache which nearly always arose from these troubles there was a growing tendency nowadays for the general public to treat themselves with aspirin, and against the misuse of aspirin in this connexion he felt it very necessary to make a protest. If people would take the old-fashioned "blue pill" instead of aspirin their headaches would get better far sooner. Liquid petroleum was very useful for the child, and so, with certain reservations, was syrup of figs. One thing which he had used very much was phenolphthalein, which in reasonable doses was an excellent drug. Mr. Squeers, who dosed his boys on brimstone and treacle, based his treatment on common-sense lines, for the boys were being fed not on the most ideal diet, and Mr. Squeers rightly considered that to get rid of undue waste it was well to give something partially palatable and a reasonable laxative. To encourage a proper muscular action of the intestine it was necessary to tone up, either by massage externally or medicines internally. He had found that a mixture of nux vomica and soda, or occasionally magnesium carbonate, and always a little belladonna, had a marvellous effect. The belladonna relieved the spasm which frequently occurred in constipation, and which was itself a further cause. Cases of very bad constipation should be dealt with by enemas.

Dr. MORELAND MCCREA was inclined to make a finer division of age periods, from the point of view of causes of constipation, than had been made by preceding speakers. In the first decade of life (apart from the year of infancy), during which constipation occurred about equally in both sexes, the chief cause was laziness and lack of habit formation. Defaecation was associated in the child mind with threats, which was a pity. In the second decade constipation was much more common in the female than in the male, and the causes were principally the greater shyness of the female and the fact that there were still not enough sanitary conveniences in girls' schools. In the third decade he thought the condition still more common in the female, and here again shyness played a part, also want of habit, and at this period one began to see the constipation which was caused by pelvic disorders. In the fourth decade there were still more females than males among the sufferers, though the incidence was increasing among males; among females the commonest cause now was the loss of muscle power after confinements. In the next decade cases among males occurred with fair frequency, the cause being loss of tone. By the sixth decade the sexes were about equal. Here, in the case of women, constipation was apt to be caused by the hypothyroidism of the menopause. As to treatment he was strongly in agreement with those speakers who looked with abhorrence on aperients. He thought also that too much reliance was placed upon foods for children so made as to leave no residues. Exercise from the second decade onwards did a great deal of good. A very mild saline every morning was extremely beneficial, and he also praised the merits of cascara.

The PRESIDENT, in closing the discussion, referred to the need for more attention to lavatory construction, especially from the point of view of children. Dr. DES VOEUX, in replying, criticized the contention of some speakers that constipation was a symptom only, and not a disease. It was curious that a mere symptom should cause all the diseases which had been mentioned. He believed it might truly be described as a disease, or if not a disease it certainly acted like one.

PYKNOLEPSY.

AT a meeting of the Section of Neurology of the Royal Society of Medicine held on November 8th, Dr. W. J. ADIE read a paper on pyknolepsy, a form of epilepsy in children with a good prognosis. He first described a case of his own, in which all the features seemed to point to a diagnosis of epilepsy, but which showed certain peculiarities—the great frequency of the attacks from the beginning, their sameness, their uniform mildness, and their obvious harmlessness. Prolonged treatment with bromides, luminal, and other remedies had produced no effect on the attacks. He had asked himself whether this case could be one of so-called pyknolepsy. The attacks had ceased soon after and had not recurred. Such an experience had stimulated him to search the literature and he had found that nothing had been written on the subject in England. Friedmann had first described the disease in 1906 in a paper entitled "On non-epileptic absences or short narcoleptic attacks." He was followed in 1907 by Heilbronner, and in 1921 Friedmann returned to the subject, giving a very favourable account of the after-histories of his original cases. Since then numerous papers had been written on the subject, chiefly in Germany. Friedmann states that the disease has only one symptom—the attacks. These begin suddenly in healthy children between the ages of 4 and 10 years and recur with

in type by the fact that no women or children are admitted. Although most of the surgery is of an emergency character amongst young and vigorous men, at the same time the dockyards and pensioners provide work of a different kind, and everything which comes along is now done as a matter of course.

Examination of the naval medical blue book (*The Health of the Navy*) for the year 1912 (a peace year, and therefore uninfluenced by the abnormal conditions during and after the war) demonstrated that here at Haslar 1,793 operations were performed under general anaesthesia.

The whole question of surgical treatment in the Navy is closely associated with that of hospital ships and hospital trains. All fighting ships in the Navy above a certain size carry one or more medical officers and are provided with a small hospital, called the sick bay, where the crew receive first aid and can be treated in bed for minor complaints which do not necessitate their transference to a hospital. The medical officers are assisted by male nurses, called sick berth staff, one or more according to the size of the ship. The larger vessels are also supplied with an operating room where urgent work can be done, and an *x*-ray machine. Each ship, therefore, of any size, is more or less self-contained and carries about its own small hospital with staff and equipment.

Experience has proved, however, that major cases can only be successfully and properly treated in a shore hospital or hospital ship, and that there are several reasons why it is preferable to get the patient away as soon as possible from the fighting unit.

This brings us to the question of hospital ships. Recent service in the naval hospital ship *Maine* with the Mediterranean Fleet has convinced me that a hospital ship is a most valuable asset to a fleet. She can go wherever required and form a floating hospital on the spot, where serious cases can be transferred instantly, and where skilled nursing is always available, obviating the necessity of transport to shore hospitals over perhaps rough country and in foreign lands.

The great war has had a most stimulating effect on naval surgery generally. It brought naval medical officers face to face with all sorts of new surgical conditions, and the constant association with some of the foremost surgical experts in the United Kingdom was most helpful and has left its mark on the service to-day. It is satisfactory to note that the impressions formed by several of these men, with their vast experience in civil hospitals both in the metropolis and all over the country, were very favourable to the work done by naval surgeons throughout the war. After the battle of Jutland the treatment of the wounded in some of the ships engaged was found to be so excellent that nothing further was necessary on their admission to hospital.

In naval hospitals the work is organized by the Surgeon Rear-Admiral in such a way that an experienced operating surgeon, usually a surgeon captain or a senior surgeon commander, is always on duty and available for any emergency operation. These operating officers reside in the hospital precincts, and as they have no other duties of any importance to interfere with their work operations are always carried out with the least possible delay. As an example of this, a marine who was route marching and fell out sick at 10.30 a.m. had his perforated gastric ulcer sutured before 12 noon.

It is interesting to compare the conditions under which operations take place in a naval and a civil hospital. In the Navy, practically speaking, the individual is always under the supervision of a medical officer, and it is rare to find one who is not a skilled clinician. Emergencies are promptly recognized and as promptly transferred to hospital, as there is a very complete organization for this work.

As far as the patient is concerned, he is usually a young healthy individual; he has no cares or anxieties; there is no economic question, and he usually accepts the ministrations of his surgeon in the same spirit as he accepts the orders of his captain. It is this attitude all the way through which accounts for the exceptionally favourable results which follow operative treatment, there being long series of appendices and perforated gastric ulcers without a death or any untoward symptoms. When convalescence has been established the naval surgeon is in the fortunate position that he has complete control over his patient's diet, exercise, and on the performance of his duty for so long as he considers necessary. The patient is not cast out of hospital as soon as his sutures are removed, as may happen in civil hospitals.

As the naval hospital is a convalescent home as well as a hospital, should further residence in the hospital be undesirable, the patient can be sent home on sick leave for any reasonable period; indeed, it would be difficult to imagine more ideal conditions for surgical practice, both to the patient and to the surgeon.

It is true that the type of operation is limited by the class and sex of the patient dealt with, but the operations are varied enough.

On ten days (taken at random from the operating book) we have the following:

Two laparotomies for general peritonitis following appendicitis; 4 hernias; 5 varicose veins; 2 tonsillectomies; 1 aural polypi; 2 mastoidectomies; 1 hydrocele; 1 perineal abscess; 3 appendicectomies; 2 axillary abscesses; 1 nasal polypi; 1 wiring fractured patella; 1 ventral hernia; 1 amputation of middle third of forearm; as well as 5 other operations for various forms of sepsis.

Formerly specialists were not encouraged in the Naval Medical Service; every medical officer was supposed to be capable of treating efficiently any type of case that came along. The fact that a man should try to specialize was too often considered tantamount to an effort on his part to evade sea service or to get an easy job. Nowadays all this is altered, and there are men with high and special qualifications in various branches of surgery both in shore hospitals and with the fleets. Ophthalmology, ear, nose, and throat work, and genito-urinary surgery are all under surgeons who have been carefully trained, and our *x*-ray, electro-therapeutic, and orthopaedic departments are well up to date. Dental surgery has also come in for full recognition as a separate department, and we have now several qualified dental surgeons with full equipment in our large shore establishments and hospitals, as well as afloat.

Members of the sick berth staff are trained to assist in all the departments, and as they are specially selected from this excellent and intelligent body of men they soon become remarkably efficient and are a great help to the officers in charge.

I have endeavoured in this short paper to demonstrate to those of you who are unacquainted with the Naval Medical Service the rapid progress of naval surgery during comparatively recent years, and I think a walk round Haslar will convince most of you that we in the Navy are not far astern of our brothers ashore.

Time does not permit me, much as I should wish, to go into the question of treatment of several surgical problems, but I should like to bring forward as subjects for discussion the treatment of two acute affections which are common in the Navy to-day, and in my opinion, are becoming more so—namely, perforating gastric and duodenal ulcers (especially as regards the draining of the peritoneal cavity), and the methods of operating in cases of appendicitis.

Finally, I desire to thank my friend and colleague, Surgeon Commander J. R. Muir, M.B., R.N., for helping me in this paper.

SOME CONSIDERATIONS IN THE ESTIMATION OF PHYSICAL EFFICIENCY.

BY

GROUP CAPTAIN MARTIN FLACK, C.B.E., M.B., M.A.

[ABSTRACT.]

IN 1920 the report of the Ministry of National Service showed that, by the ordinary methods of medical examination, there was, in round numbers, in respect of 2,425,184 recruits, a shortage of 825,000 Grade I men, an excess of 61,000 Grade II men, the enormous excess of 575,000 Grade III men, and 190,000 Grade IV men. Nor were the results any more satisfactory as regards youths of 13.

great frequency, up to a hundred daily, in spite of careful treatment. After persisting for different periods from a few weeks to many years they seem to disappear entirely. Neither the physical nor mental development of the patients is affected. A uniform mildness characterizes the attacks, which consist in an inhibition of the higher psychical processes lasting from five to ten seconds. Speech and voluntary movements cease, but automatic movements remain. There are never any convulsive movements and consciousness is not completely lost.

Dr. Adie said that the contrast between the prognosis in these cases and cases of ordinary epilepsy in children was remarkable, according to prevalent ideas. He had been able to find cases recorded in the literature where freedom from attacks for as long as ten years had occurred. Could such cases be described as ordinary epilepsy? The spontaneous recovery which appeared to be the rule in pyknolepsy was most unlike ordinary epilepsy. In epilepsy the prognosis was especially bad in cases with repeated minor attacks and where no response to treatment obtained. And yet this was exactly what took place in these cases where the prognosis was so invariably favourable. In pyknolepsy the acme of the disease was attained at once and its most characteristic feature was the monotony and the uniform mildness of the attacks that might recur daily for many years, without the occurrence of any change in the type of attack. Mental deterioration and psychical defects, so common in epilepsy, did not occur in this other form of disease. Such great differences in the two conditions were not to be ignored. The name "pyknolepsy" suggested by Schröder was suitable as it emphasized the closely packed or aggregate attacks which were typical of the condition.

He proceeded to give some further details showing that the onset of the disease was between 4 and 10 years; its duration had varied from seven weeks to ten years, with a mean of nine years. The actual onset was sudden, almost explosive in some cases, the frequency of the attacks very constant for each case. An equally sudden termination was the rule. The most important single feature of the attacks was their extraordinary monotony. The absence of any result from treatment was so typical of the disease that a favourable response to treatment was not consistent with a good prognosis. There did not appear to be any association with a family history of epilepsy, alcoholism, or nervous disease. Such symptoms as clonic movements, however slight, vasomotor disturbances, mental distress, palpitations, lassitude, or confusion after the attacks were quite foreign to the condition and were, on the other hand, more suggestive of true epilepsy. At the onset there was nothing in the attacks to distinguish them absolutely from epilepsy, and a certain amount of observation was required before a final opinion could be given. Actual falls and involuntary micturition was to be regarded with great suspicion. Until we had greater experience it was better to restrict the term "pyknolepsy" to cases that conformed absolutely to type. Abroad the condition had been accepted as being a disease *sui generis*. He himself would be content if he had succeeded in conveying the lesson that there did exist a form of epilepsy which was associated with a good prognosis.

DIURNAL INCONTINENCE OF URINE IN WOMEN.

A MEETING of the Brighton and Sussex Medico-Chirurgical Society was held on November 1st, with Dr. ELIOT CURWEN, the President, in the chair, when Mr. H. F. SEYMOUR read a paper on diurnal incontinence in women.

Mr. Seymour said that this form of functional incontinence of urine was very common in women over 40 years of age, especially those who had borne children. It occurred only when some effort was made which produced sudden abdominal strain, such as coughing or sneezing, or some movement which involved a sudden jerk. Women were inclined to bear this uncomfortable symptom philosophically, as one of the after-effects of childbirth, thinking nothing could be done to relieve them. The symptoms being so common, it was surprising that British gynaecologists had paid so little attention to it. Mr. Victor Bonney had lately ventilated the subject in a very able paper, from which Mr. Seymour quoted, and a series of diagrams were shown giving the anatomical relations of the parts involved. It was pointed out that the causative factor was the relaxation of that layer of unstriped muscle fibres known as the pubo-cervical muscle-sheet, which normally supported the female bladder, and that it was the anterior third of that sheet which sagged in its relaxed state and so allowed the momentary displacement of the urethra, causing the incontinence. The incontinence was more likely to occur when the bladder contained very little urine. The vesical sphincter in women was very weak and easily dilatable, and after having been dilated to a great extent incontinence did not result.

Regarding treatment, Mr. Seymour stated that palliative measures were of no use as there was no kind of pessary which would be found to help. He gave a description of an operation for reinforcing the unstriped muscle fibres beneath the urethra by means of buried sutures of an unabsorbable material, inserted transversely after exposing the urethra by means of a vertical incision through the anterior vaginal mucous membrane. The operation was reported to be successful in the great majority of cases and recommended for all patients above 45 years of age who were distressed by this symptom, where there was no contraindication. It was sometimes necessary to combine with this simple operation an anterior colpoplasty if a cystocele were present at the same time.

Mr. Seymour then went on to consider another subject, the treatment of retroversion of the uterus, under three headings: (1) no treatment at all; (2) palliative measures; and (3) surgical means. (1) When a retroverted uterus caused no symptoms there was no need to treat it. (2) Regarding palliative measures, pessaries were of considerable value in the treatment of retro-displacements of the uterus, but they had only a limited field of usefulness. Pessaries should never be used for a long time in patients with a tendency to pelvic neuroses as they were often made worse by their use. Pessaries were most useful in the retroversion of early pregnancy, holding the uterus as they did in a normal position, and preventing an early abortion or incarceration of the gravid uterus. Again, pessary treatment was often called for during the puerperium when the uterus was retroverted on account of subinvolution. (3) The various operations which had been designed for the relief of retroversion were discussed and described in detail. Mr. Seymour advocated the intraperitoneal round ligament shortening operation, which was a modification of Gilliam's method. This operation done through a Pfannenstiel incision was, he believed, wellnigh faultless, and gave the best results. Moreover, it was a particularly suitable procedure during the years of potential childbearing and in no way interfered with normal labour.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of the Aberdeen Medico-Chirurgical Society was held on November 1st, with the President, Dr. ALEXANDER OGSTON, in the chair, when Dr. W. F. CROLL showed a child aged 8 years with her heart on the right side; the electro-cardiogram showed that the case was not one of dextrocardia, but the lung condition did not appear sufficient to explain the irregularity. He also showed a case of aortic stenosis with delayed conductivity and endocarditis lenta. Dr. ANNE MERCER WATSON and Dr. A. G. ANDERSON demonstrated two cases showing the late sequelae of encephalitis lethargica which presented the syndrome of a mid-brain lesion. Dr. H. J. A. LONGMORE showed a case of acroparaesthesia.

A man of 63 complained of pain, swelling, and stiffness of the hands and lower half of both forearms while at rest; there was no alteration in sensation, and the general physical examination was negative except for a persistently high blood pressure; the condition was relieved by active muscular movement. Treatment by vasodilators and other means, including high frequency, had been without result. Dr. Longmore pointed out that the case was apparently the converse of intermittent claudication, and suggested as the diagnosis acroparaesthesia associated with vascular degeneration.

Professor ASHLEY MACKINTOSH read a note on a case of Brown-Séquard's paralysis of traumatic origin, and showed radiograms confirming the diagnosis of a lesion at the level of the fifth cervical vertebra. A short discussion of the cases followed.

18. Treatment of Fibroids.

F. NAVARRO BLASCO (Anal. de la Soc. Gin. Esp., 1923, p. 73, in *Arch. de med., cir. y esp.*, June 9th, 1923), who records three cases of hysterectomy for fibroids after treatment by *x* rays, maintains that *x*-ray treatment of fibroids is not so harmless as is supposed by patients and some medical practitioners, but that it may give rise to various complications, such as intestinal ulceration and peritonitis. In most cases, he says, it is a blind method of treatment and has the great disadvantage of producing sterilization. Surgical treatment is indicated for fibroids which are subserous, submucous, painful, of large size, suppurating, degenerating, causing compression, complicated by adnexitis, perimetritis, pyosalpinx, ovarian cysts, or umbilical hernia, as well as those occurring in young women or cases of doubtful diagnosis.

19. Gonorrhoea in Women.

J. A. MCGLINN (*Therapeutic Gazette*, April 15th, 1923, p. 229) considers that the majority of acute cases of gonorrhoea in women are overtreated, and that local treatment in chronic cases is usually a waste of time. The aim of treatment is to destroy the organism and prevent its growth by changing the soil of its habitat. Since the primary infection is generally in the cervix its canal must first be cleansed of discharge with bicarbonate or hypochlorite solution, and then dried with hot air or swabs before applying any germicide, the best being a warm 1 in 2,000 solution of aniline gentian violet. Frequent douching of the vagina with hot normal saline or 1 in 5,000 hot permanganate solution is necessary to prevent its reinfection from the cervix, and in order to retard the growth of the bacteria its soil should be changed by yeast suppositories. The discharge, which persists even after the cervix and vagina are gonococci-free, can be overcome by keeping the vagina dry by packing it with Fuller's earth overnight and washing it out in the morning. Urethral involvement is best treated with argyrol solution, and in involvement of the glands of Bartholin no treatment will avail short of opening up the ducts and treating the tract directly. In chronic cases the disease is latent in the cervix, Bartholin and Skene glands, and local treatment by long-continued use of the usual applications is useless because the germs are so deeply embedded that they can only be destroyed by the actual cautery or the application of radium. Involvement of the glands of Skene necessitates laying them open and cauterizing their entire surface, and the glands of Bartholin should be completely dissected out or destroyed by the cautery. Post-operative treatments should be given to prevent the danger of cervical stenosis after cauterization.

Pathology.

20. The Pathogenesis of Intestinal Infectious Ulcers.

S. YANAGISAWA (*Kitasato Archives of Experimental Medicine*, February, 1923, p. 33) gives the results of a series of experiments on mice and guinea-pigs undertaken in an endeavour to throw some light on the mode of production of the infectious intestinal ulcers of man. It occurred to the author that the subject could only be satisfactorily studied by adopting in his experimental work the path of infection as it occurs in man, and accordingly he administered by the mouth bacilli which he was able to isolate from accidental epidemic intestinal ulcers in the mouse. By this means intestinal ulceration was successfully produced, and was exactly similar to that encountered in typhoid fever, appendicitis, and the like. Microscopical appearances indicated that the infection was enterogenic, and no evidence of a haematogenic origin was found. On reaching the lumen of the bowel bacteria enter the crypts and there, especially at the neck of the crypt, penetrate between the epithelial cells of the subepithelial layer; then, by way of lymph spaces, they reach the tissue surrounding the follicles, and eventually penetrate the latter and produce an abscess. The author offers several suggestions as to the manner in which the bacteria penetrate the epithelial covering. First, the stagnating organisms in the lumen of the crypts may develop substances which injure the epithelium and lower its resistance to infection; secondly, the epithelium just above the follicle is irregular and deficient in goblet cells, a characteristic of low resisting power; thirdly, an extensive absorption of bacilli by leucocytes was observed. The stages in development of the experimental ulcers were as follows: within forty-eight hours hyperaemia and slight erosion of epithelium could be made out; within seventy-two hours there was a phlegmonous inflammatory process with hyperplasia of the follicular tissue, cellular infiltration, and more or less advanced necrosis; in ninety-six hours these changes had greatly increased—the stage of ulceration and abscess formation. In the guinea-pig the eventual tendency was towards a definite process of healing by granulation, resulting in the production of a scar, whereas in field-mice the most common termination was perforation.

21. The Importance of Metallic Salts in Immunization.

VERY interesting results have been obtained by L. D. WALBUM and J. R. MÖRCH (*Ann. de l'Inst. Pasteur*, April, 1923, p. 396) in the production of diphtheria antitoxin in horses and goats by the administration of various metallic salts during the period of immunization. It was found that the intravenous injection of manganese chloride or of cobalt chloride—particularly the former—resulted in the production of an antitoxin of considerably higher titre than that usually obtained. Not only, however, was this effect obtained when the salt was given at the same time as the toxin, but if it were injected altogether apart from the toxin, during the period when the antitoxin content of the serum was declining, it gave rise to a sudden ascent in the titre of the serum. The manganese injected into the blood stream rapidly disappears from the circulation, and is largely excreted by the intestinal mucosa. In horses receiving daily injections of the chloride the manganese content of the different organs was found to rise proportionally to the quantity of the metal administered. A close relation was established between the ability of the liver to retain manganese and the ease with which antitoxin was elaborated by the animal. The effect of certain metals on the production of agglutinins to *B. coli* in the rabbit showed that there was a correlation between the atomic weight of the metal and the quantity of antibody obtained. Just how the metals act in the mechanism of antibody production is not clear, but certain observations rather suggest that their function is of a catalytic nature.

22. A New Sero-diagnostic Method of Cancer.

A. CABANIS and C. FOULQUIER (*C. R. Soc. de Biologie*, April 21st, 1923, p. 1011) report the results of a study they have made with a view to confirming the value of the sero-diagnostic test for cancer, which was published recently by Botelho. Their technique was the same as that originally recommended, except for the substitution of a 5 per cent. solution of lactic acid for the formalinized citric acid. Their observations included an examination of 140 serums—18 from patients affected with cancer, 34 from cases of diverse nature, 6 from lying-in women, and 82 from the venereal department. In 77 per cent. of the cancer cases the reaction was positive. It was also positive in 59 per cent. of the cases suffering from diverse affections—affections which included such diseases as liver abscess, benign tumours, Pott's disease, anthrax, uraemia, and typhoid fever. Of the lying-in women, 5 gave a positive reaction, while of the 82 serums from the venereal department only one positive reaction was found. From an analysis of these figures the authors find that in every case in which the urea content of the blood exceeded 0.5 gram the reaction was positive, and they are inclined to regard the reaction as determined by the effete products which poison the organism in certain diseases. It is not specific for cancer, nor does it distinguish between a benign and a malignant tumour; as the test is positive, however, in 75 to 77 per cent. of cancer cases, they consider that it may be worth while employing it as an aid to diagnosis.

23. Hepatic Insufficiency in Enterocolitis.

FOR the last two years R. SAVIGNAC and M. DE FOSSEY (*Bull. et Mém. Soc. Méd. des Hôpitaux de Paris*, May 24th, 1923, p. 719) have been studying the question of hepatic insufficiency in cases of enterocolitis. Their mode of procedure has involved the estimation in the urine of the nitrogenous distribution, Maillard's coefficient, urobilin, and the biliary pigments and salts, and in the blood the amount of cholesterin, the degree of cholaemia, and the presence of digestive haemoclasia, with in some cases the estimation of the titre of the sugar, of the residual nitrogen, of the nitrogenous relationship, and of the resistance of the red blood corpuscles. The patients under consideration numbered 17, and were suffering mostly from colitis, either with diarrhoea or with constipation. In no fewer than 13 of them signs of hepatic insufficiency were found, generally indicated by hypercholesterinaemia, hypercholaemia, digestive haemoclasia, or by disturbance of the nitrogenous relationship. Dividing the functional alterations into two main categories—those affecting the biliary metabolism and those affecting the nitrogenous metabolism—they find that it is the former which are the more marked. They were unable to establish any definite relationship between the various functional disturbances, so as to obtain a measurement of the degree of hepatic insufficiency, nor were they successful in correlating the different signs with the clinical type of disease studied.

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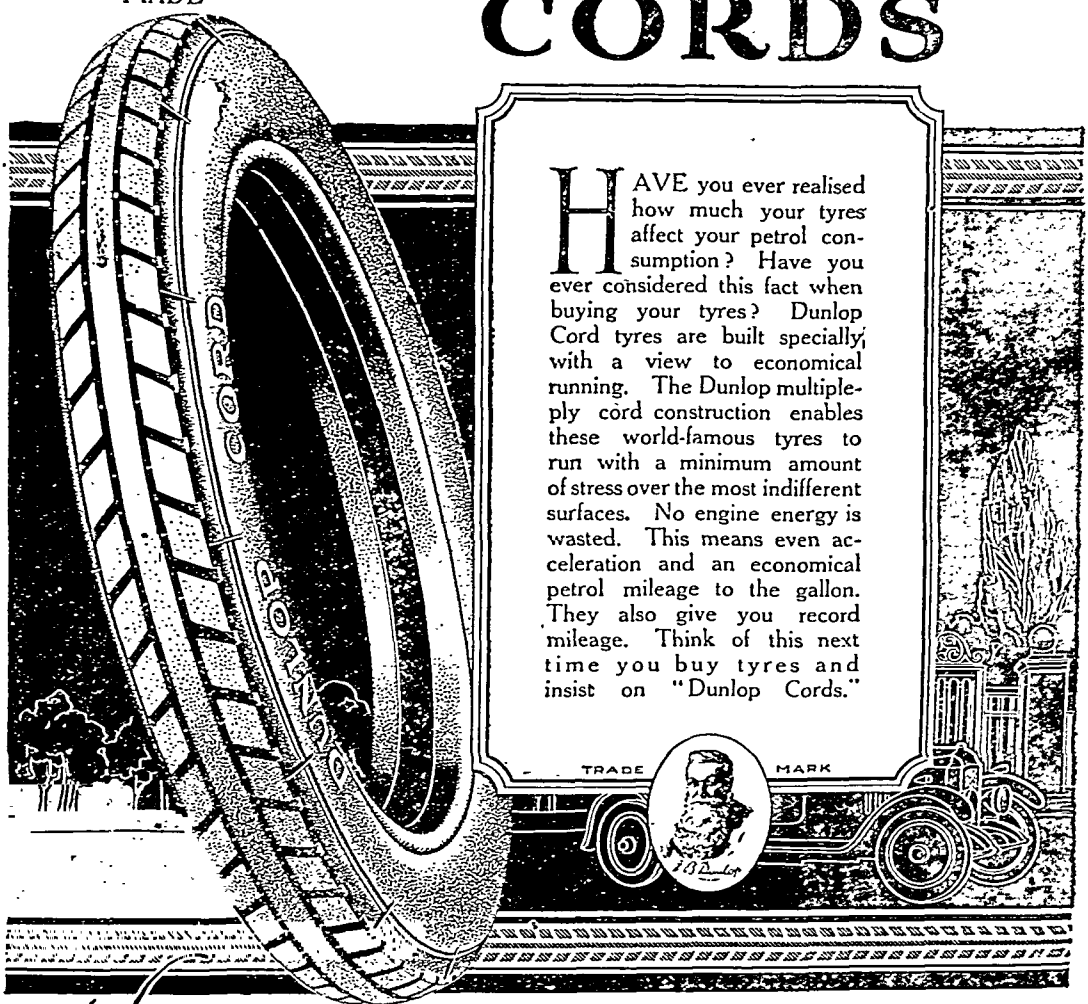

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Reviews.

DISEASES OF THE BREAST.

DISEASES of the breast have attracted a host of writers and investigators, and judging from the number of recent publications the popularity of the subject is certainly not on the wane. Mr. WILLMOTT EVANS in his recent book entitled *Diseases of the Breast*[1] has endeavoured to describe the present state of knowledge, and has not hesitated to express his own views on many of the problems which remain unsolved. Although no new or startling facts are revealed, he has drawn widely from the literature, and discussed the subject with considerable adroitness. A pleasing feature of his book is the number of illustrations. In all there are 106, of which fifteen are coloured. Mr. S. A. Sewell is firmly establishing his reputation in the art of illustrating anatomical specimens. Not only is the anatomical structure of his drawings true in detail, but the setting is artistic, and the stereoscopic effect well accentuated. The early chapters deal with the anatomy and physiology, examination, and anomalies of the breast. The nipple is discussed in four chapters, then follow the various inflammations of the breast, cysts, and tumours; diagnosis, prognosis, and operations for carcinoma of the breast are then discussed. The concluding chapters deal with skin grafting, the history of operations for mammary carcinoma, the treatment of inoperable cancer, and the diseases of the male breast. In the chapter on anomalies of development there are some interesting remarks and quotations on mammary deficiencies and redundancies. Attention is drawn to the anomalies of the sterno-mastoid, and sometimes of the ribs in the condition of amazia. Paget's disease is discussed under two heads—the eczema type and the psoriasis type. As to the etiology Mr. Evans quotes Sampson Handley, who considers that carcinoma starts in the smaller ducts and that the eczema is secondarily caused by lymphatic obstruction.

All the various views on the causation of chronic mastitis are considered. The one favoured by the author is that it is due to chronic toxaemia, and his dictum on the treatment is that when in doubt it is better to remove the breast than wait for carcinoma to develop.

On the subject of metastases in bone from carcinoma of the breast the author expresses agreement in the main with Sampson Handley's permeation theory, although he is inclined to think that embolism is responsible for some of them. It is surprising that the recent work of Piney has not been included; it supports the view that the blood stream is responsible for the dissemination of bone metastases. He has pointed out that these secondary tumours arise in the red marrow at the proximal ends of the long bones. Here the blood stream widens out and is slowed, factors favourable to the lodgement and growth of malignant cells in circulation. Moreover, he can find no evidence of lymphatics in bone to sustain Sampson Handley's theory. Mr. Evans draws attention to the fact that the ordinary carcinoma cell is larger than a pulmonary capillary, and that *a priori* secondary carcinoma in the lung should be common, which is not the case. Later we are asked to accept the permeation of cancer cells along lymphatics and their transcoelomic migration. Why, then, cannot we assume that these cells permeate through the capillaries in the same way, and in circumstances—the alternate expansion and collapse of the lung—far more favourable to their propulsion?

The author quotes what seems to be a convenient method of distinguishing quickly morbid growth from healthy tissues. It consists in immersing the part removed for ten minutes in 5 per cent. nitric acid. The tumour and gland substance then appear as a white opaque mass, while the surrounding fibrous tissue and fat become swollen, homogenous, and clear. The etiology of carcinoma is well discussed, and the author expresses the opinion that only the parasitic theory of the origin of malignant disease can offer an adequate explanation of all the phenomena to which a malignant growth can give rise.

This book forms a valuable contribution to the literature on this subject, it is well up to date, and at the same time gives all the practical detail so indispensable so far as the diagnosis and treatment are concerned.

HEART DISEASE AND ITS TREATMENT.

So much has been written on diseases of the heart in recent years that one is tempted to doubt the necessity for any new publication unless to communicate some fresh discovery. Dr. W. D. REID of Boston considers that the very greatness of the advance in recent years necessitates the redrafting of our knowledge of the subject so that the newer facts may be correlated with older methods that have stood the test of time, and this he has attempted to do in his book on *The Heart in Modern Practice*.[2] He also thinks that the time has come to depart from the common plan of dealing with diseases of the heart from the structural standpoint and that an attempt should be made to discuss them from the etiologic aspect, so that several chapters need not be read to find out the effect, say, of syphilis on the circulation, even though the plan at times leads to some overlapping.

The book is divided into five sections. The first deals with preliminary considerations; it treats of the anatomy, physiology, and methods of examination, physical and graphic, and closes with a chapter on the classification of heart disease. Illustrative tracings from the polygraph and electro-cardiograph are given, but the polygrams are not always sufficiently clear to make them really useful for diagnosis to those who have not already a knowledge of these methods. In his classification the author deals first with types of disease according to their etiology, then with functional conditions, and lastly with structural lesions. In the succeeding sections these three groups are treated more in detail. The allocation of chapters to rheumatic heart disease, cardio-vascular syphilis, arterio-sclerotic heart disease, irritable heart, and other conditions, constitutes the best feature of the book, though the reader will look for a little more detail in parts. In the section on functional conditions it would have been better to have the illustrations alongside the text, where they would be particularly useful. The fact that most are given in the first section hardly meets the convenience of the reader.

The last section deals with treatment in general, although this subject has been taken up in other parts of the book. In discussing digitalis therapy the Eggleston method is described in detail as being the standard in America. There is an appendix of about 65 pages devoted to illustrative cases, but many of these could have been curtailed without diminishing their value. There are many good points in the book, and the few plates illustrating structural conditions are well produced. We hardly think, however, that it is destined to become popular in this country.

A CONDENSED ENCYCLOPAEDIA.

Lippincott's Quick Reference Book for Medicine and Surgery[3] by Dr. REHBERGER is frankly a compilation. The author claims nothing as his own in the work except the plan, the selective judgement employed, and the great labour involved. Its matter is culled from modern medical teaching and coloured by the varied experience of one who has been an isolated country doctor, and feels that he knows the needs of the general practitioner. He has aimed at accomplishing a critical sifting of the important modern literature, a selection of all that is useful and needful in bedside therapeutics, and a rearrangement of this mass of knowledge for purposes of quick reference, making it immediately available for practical needs. The magnitude of the undertaking may be gauged from the fact that the book, consisting of eleven parts, deals, in encyclopaedic form, with the following subjects: (1) General medicine and surgery, including the diseases of infancy and childhood; (2) gynaecology; (3) genito-urinary diseases; (4) obstetrics; (5) skin diseases; (6) diseases

[1] *The Diseases of the Breast.* By Willmott H. Evans, M.D., B.S., B.Sc., F.R.C.S. London: University of London Press, Ltd. 1923. (Demy 8vo, pp. xii + 495; 106 figures. 27s. 6d. net.)

[2] *The Heart in Modern Practice: Diagnosis and Treatment.* By William Duncan Reid, A.B., M.D. Philadelphia and London: J. B. Lippincott Company. 1923. (Med. 8vo, pp. 352; 5 plates, 27 figures. 25s. net.)

[3] *Lippincott's Quick Reference Book for Medicine and Surgery.* By George E. Rehberger, A.B., M.D. Philadelphia and London: J. B. Lippincott Company. 1922. (Sup. roy. 8vo; 151 figures. 63s. net.)

ountry, and yet it could not be excluded either on the rounds that it was secret or that it lacked backing by a ualified medical man.

The rule that articles are to be advertised to the medical rofession only is absolutely worthless as a guarantee gainst fraud. Advertising to the public direct is xpensive, whilst advertising to or even circularizing the nedical profession is relatively cheap. Hence it may pay etter for a firm to confine itself to the medical profession.

The same form of advertisement will not of course appeal qually to the lay mind and the medical man, but a skilled dvertiser can exploit the latter as easily as the former. This danger became acute some years ago in America. quote some remarks by Dr. G. H. Simmons, editor of the *ournal of the American Medical Association.*[4]

"It has become a recognized fact in the patent medicine field hat the easiest and cheapest way of reaching the public is through he doctor. Let me quote a paragraph that appeared in *Printer's nk*, an advertising journal (about 1903): the words are those of patent medicine man and they are not directed to the medical rofession. 'But the patent medicine of the future is one that vill be advertised only to doctors. Some of the most profitable emedies of the present time are of this class. They are called roprietary remedies. The general public never hears of them hrough the daily press. All their publicity is secured through the nedical press, by means of the manufacturers' literature, someimes gotten out in the form of a medical journal, and through amples to doctors. . . . The original bottle is given to the atient; he sees that the remedy does him good, and when he eels a trifle run down again he goes to a drug store and buys nother bottle, not troubling the doctor. He meets a friend on he street who is not looking well. 'I know exactly how you eel,' he says. 'Now just go and buy a bottle of . . . Best thing n the world. My doctor prescribed it for me, so it isn't a patent nedicine.' In this way the names of remedies advertised only to hysicians get abroad to the general public. The proprietary nedicine of the future, though, will be advertised through these hannels. The medical papers will reap the harvest and the hysician himself, always so loud in the denunciation of patent nedicines, will be the most important medium of advertising at he command of the proprietary manufacturer."

Dr. Simmons concludes: "Have you ever seen an arraignment f this evil by its enemies which equals this cynical statement by ts friends?"

This quotation is, I think, sufficient to show that there re no simple rules by which the medical profession can rotect itself against exploitation.

There is, as I have said, a vast range of proprietary nedicines varying from valuable scientific preparations, uch as the best brands of organic arsenical preparations, down to the lowest form of quack frauds. The law is mpotent, and medical men have got to make up their ninds what they are prepared to recognize and what to eject. Huge commercial interests are involved. Obviously n unscrupulous manufacturer will consider what types of hronic diseases are particularly refractory to treatment, nd choose in preference those which are painful and afflict vell-to-do patients. Such diseases are, of course, the despair of the general practitioner, and he will be ready to ry anything that can possibly be of benefit. In preparing he remedy the manufacturer will probably select some new cientific discovery, which is a novelty and whose powers re still undefined. It is a great advantage of course if he substance is such that there is no easy method of testng its purity or activity. The rest is easy—a commercial nterest is there ready to boom the preparation and it is nobody's business to check the statements made.

Obviously the general practitioner—who is not an anaytical chemist, nor an experimental pharmacologist, nor a ecret inquiry agent—has no means of testing the inherent robability of a new remedy. On the other hand the exploiters of a new remedy have the power of money behind hem to promote the sales and profits.

As regards the attitude of medical men to doubtful proprietary remedies the following extracts from the Select Committee on Patent Medicines are of interest:

Para. 29. "With regard to advertisements in the medical press, e consider that adequate censorship has not in all cases been xercised, as indeed was admitted by Dr. Cox, the representative f the British Medical Association, and instances to this effect ill be found in the evidence we received.

Para. 47. ". . . We have learned . . . to our great surprise that ersons of influential social positions and small means will sell he use of their names to advertise secret remedies; that large sums f money are expended in canvassing medical men; that many edical men give testimonials (with the use of their medical ualifications, but without the use of their names) to proprietary and secret remedies, and allow themselves to be made, as a man declared in a public address, 'the catspaw and fool fraternity of the secret remedy'; and that there are men who prescribe to their patients remedies of this c whose composition they are themselves largely ignorant had evidence in two cases of medical men acting as d of companies manufacturing secret remedies."

The evil of proprietary medicines developed perhap greater extent in America than in this country. Th first became obvious about 1879, and early in this c the position was defined as follows by Dr. Simmons:

"Conditions in this regard had become so disgrace that there seemed to be no statement too silly, no claim travagant and no falsehood too brazen for use by those wh *the advertising literature* that physicians are asked to re believe. . . . In brief this business, the annual profits of run into millions, has grown until the use of proprietary me by many physicians has almost displaced the use of the inc official drug. It has checked advance in scientific mett treatment, inhibited intelligent clinical observation and de an optimism that is unwarranted by facts, an optimism more fatal than the most radical therapeutic nihilism. Bu and worse than all, this commercialized materia medi blighted our literature by debauching our medical journa even by tainting our textbooks."

These are strong words and picture an evil son worse than any that we have in this country to-day evil produced, however, a reaction in America, and were taken to check it, whereas in our country flourishes unchecked.

The American Medical Association in 1905 appoi council on pharmacy and chemistry composed of l chemists, pharmacologists, and clinicians. These ex all proprietary remedies and published a list and d tion of all such remedies as conformed to certain rules. This list is published annually under the t *New and Non-official Remedies*, while rejected sub are dealt with in other volumes.[5]

The rules of the Association were roughly as follow

The drug must not be of secret composition, must advertised directly to the public, and must not be adv indirectly to the public by means of literature sen the bottle stating the disease it is intended to cur *name must not suggest therapeutic claims, no* ranted, exaggerated, or misleading statements as therapeutic value must be made, and no article is ac which is useless on account of its unscientific compo Of these rules the last two are obviously largely n of opinion, but are perhaps the most important of al

The American medical practitioner, therefore, who luded by specious advertisements into recommendin useless nostrum has only himself to blame, since he is against the considered advice of a body of expert op

In other countries also an attempt has been made up some machinery to judge the claims of advertisen proprietary articles. The *Medical Journal of Aus* for example, has arranged to conduct analyses of Aus proprietary products submitted for advertisemen Holland the Rijks-Instituut voor Pharmaco-therap Onderzoek has conducted a series of analyses on and proprietary preparations.[7] In the case of the combined chemical, pharmacological, and clinical test been undertaken, providing very valuable informatic this country valuable work has been done by the *La* publishing chemical analyses of proprietary preparat

Over ten years ago the British Medical Associati a particularly valuable public service in publishi two excellent volumes *Secret Remedies: what the and what they contain.* The British Medical Assoc moreover, has passed a series of resolutions regardi parations which it is prepared to accept for adv ment. The most important regulations exclude adv ments containing any demonstrated false statemen preparations the principal ingredients of which are n closed to the profession, and preparations which are tised elsewhere in a misleading or objectionable man

The British Medical Journal, the organ of the A tion, finds it necessary, however, to print below its to advertisements the statement, "It must be unde that the acceptance by the British Medical Asso that an advertisement does not imply a recommen and that no responsibility is accepted with reg the accuracy of the statements therein contained."

of the eye, (7) ear, (8) nose, and (9) throat; (10) orthopaedics, including fractures and dislocations; and (11) drugs—the whole field of practical medicine except psychiatry. To confront the solid phalanx of modern medical works and bring it within the covers of a single volume of not more than 7 lb. in weight (the pages are not numbered) is a decided *tour de force*. To the practical utility of the work the author himself bears witness, and in presenting it to his fellow practitioners he expresses the hope that it will be as useful to them as it is to himself.

That great condensation in the descriptions should be a character of a work of this kind is inevitable, although there are considerable differences observable in the amount of detail given under the various headings, depending, doubtless, on the relative importance attached to each subject by the author, from the point of view of general practice. It is possible that in some instances condensation has been excessive. For instance, taking a few examples at random: no room has been found for clear distinction between cervical and corporeal carcinoma of the uterus, nor for the important diagnostic information to be obtained from inspection and palpation of the cervix in that disease; the entire subject of carcinoma of the breast is dismissed in some one hundred and thirty-six words; and some seventy-five suffice for carcinoma of the oesophagus. No mention is made of the complications of the latter disease, such as perforation of the bronchi, although these probably appear under other headings. On the other hand, many subjects are dealt with in considerable detail. Such is the case with regard to food values, to which ten pages are allotted; the details given extend to such matters as the percentage of fat in chicken-gumbo. For ascertaining information on isolated facts the book should prove of great use, but in the fundamental matter of the knowledge of what may be called the natural history of diseases the general practitioner will still resort to other works in his library.

SANITATION IN INDIA.

McNally's Sanitary Handbook for India,[4] revised by Major A. J. H. RUSSELL, has now become one of the recognized textbooks for students in the Madras Medical College and for the classes of sanitary inspectors. It is addressed primarily "to the educated classes, in the hope that it may afford them information which is important to all and which may serve to benefit them and, through them, the great uneducated masses of the people." The inculcation of the principles of sanitation is the main object of the volume; detailed descriptions of various types of sanitary structures, such as latrines, are therefore omitted. Although written for the Madras Presidency, it applies, with a few exceptions, to all parts of India, and it is nearly as applicable to tropical countries generally. It should, therefore, prove of value in England to medical and civil officers and others who are preparing to go to India or other tropical regions. Written in clear language and dealing with the broad principles of the subject in close association with practical requirements, the book might be read with advantage by English students as an introduction to the more detailed study of hygiene. In India, where even in large towns the majority of the population lives in tiny mud huts, it would seem hardly possible to overestimate the importance of disseminating knowledge of the kind contained in this book. The value of propaganda work has during recent years come to be more and more recognized and is now classed among the regular duties of the medical officer of health. The whole of the health officer's staff of sanitary inspectors is directed to assist in this important duty and every effort is made to co-operate with voluntary workers' associations. No advance in hygiene can be looked for until the sanitary conscience of the people is awakened, and for this the education of the masses needs to be taken in hand. Of the truth of this no better illustration could be given than the native attitude in regard to water pollution. There is no lack of good principle in this matter, for water pollution was forbidden by the ancient religions. Valmiki says, "there is no higher sin than that of polluting drinking water." Although the views of the ancient teachers is in complete accordance with modern views of sanitation, very little attention is paid by the orthodox to their excellent injunctions. A valuable suggestion, applicable to other countries besides India, is that the rudiments of hygiene should be taught in all elementary schools; and some sensible remarks are made relating to the manner of introducing reforms. Existing arrangements, it is stated, faulty though they be, should not be destroyed until efficient substitutes have been provided. Small and partial measures can often be carried out where larger are impossible, and such measures are by no means useless if they are the first steps to further improvement; but, unfortunately, in India "the best" has been too often the enemy of "the good," and as a result even small and partial advances have been indefinitely postponed.

[4] *McNally's Sanitary Handbook for India*. Sixth edition, revised and rewritten by A. J. H. Russell, M.A., M.D., Ch.B., D.P.H., D.T.M., Major I.M.S. Madras: Government Press. 1923. (Demy 8vo, pp. viii + 476. 4 rupees 8 annas.)

THE PSYCHOLOGY OF REASONING.

BOTH the general reader and the student of psychology will be glad to possess in English form *The Psychology of Reasoning*[5] by E. RIGNANO, Professor of Philosophy in the University of Pavia. The book, which has been carefully translated by Winifred A. Holl, owes its origin to the sense of uneasiness and discontent into which the author was thrown by the perusal of some of the best treatises on logic—that science which Russell has described as "one in which we never know what we are talking about, nor if what we say is true." These treatises failed to explain the nature of the logical or reasoning faculty, though purporting to indicate the laws which govern its proper functioning. In order to arrive at an understanding of what reasoning essentially is, the author analyses the simplest and most elementary forms of the process, such as are made use of in the affairs of everyday life. From the study of such cases he arrives at the conclusion that reasoning is nothing else than a series of operations or experiments performed mentally; we do not perform them actually because, by a series of similar experiments that have been really accomplished in the course of our previous experiences, we already know their respective results. The final experimental result, observed with the mind's eye, constitutes the "demonstration" or "conclusion" of the reasoning. This enables us at once to understand why, when we start from certain premisses in agreement with facts, we are able to arrive at results similarly in perfect agreement with other facts; in short, how it is possible for the logical process to give us a representation of reality; the reason being that the logical process is identical with the perceptual reality itself, operated by means of the imagination instead of actually. The author's explanation, further, enables us to trace with great clearness the sources of error and fallacy to which the reasoning process is subject. It has been said that reasoning cannot lead to new discoveries, since we start with premisses consisting of facts already known and since the conclusion is implied in the premisses. The author disposes very effectively of this objection by showing that the imagination proceeds by creating new combinations with old mnemonic elements, and that many of the greatest discoveries have been made in this way, new combinations of old facts indicating conclusions not previously known and which have subsequently been verified by actual experiment. Having ascertained the nature of the reasoning process, the author proceeds to trace its development from the concrete to the abstract form, and in this connexion he makes some interesting observations on the notion of "concepts" and their graphic representatives the "common nouns." The first terms in language are stated to have been common nouns, the use of which was to furnish an "affective classification" of objects—that is to say, a classification based on the needs or interests of the individual. The word "poison," for instance, represents no object, but a class of multifarious objects all possessing one point of affective significance.

[5] *The Psychology of Reasoning*. By Eugenio Rignano. Authorized translation by Winifred A. Holl. London: Kegan Paul, Trench, Trübner and Co. 1923. (Demy 8vo, pp. viii+325. 14s. net.)

sures which have been taken in England are of value, I think that it is clear from what I have said that ing short of an organization conducting extensive nical and pharmacological tests, and in certain cases clinical tests, is sufficient to give reliable information he really important point—namely, whether the therac claims made for a proprietary remedy are based on onably satisfactory evidence.

merican experience has demonstrated that it is pos- to provide such a source of information, and that it f great service to the medical profession, but it has shown that the work is difficult and expensive, and that ffective it is certain to arouse furious opposition from vested interests it injures.

he object of my paper is to convince the Section of desirability—nay, even the necessity—of having some nization in this country to perform a similar work.

REFERENCES.

eport from the Select Committee on Patent Medicines, H.M. Stationery , 1914. [2] *Rev. Méd. de la Suisse Romande*, 1920, p. 533, and 1921, p. 131. *Suisse de Méd.*, 23, No. 7, 1923. [4] G. H. Simmons, *Journ. Amer. Med.*, 48, 1645, 1907. [5] *New and Non-official Remedies* (annual); *Nostrums Quackery*, vol. i, 1912, and vol. ii, 1921; *Propaganda for Reform*, vol. i, and vol. ii, 1921; *Journ. Amer. Med. Assoc.*, Chicago. [6] Blackburn: *Journ. of Australia*, April 2nd, 1921. [7] *Mededeelingen van het Rijksinstituut voor Pharmaco-therapeutisch Onderzoek*, Leiden, 1921-1923.

England and Wales.

TUBERCULOSIS IN LANCASHIRE.

report for 1922 by Dr. G. Lissant Cox, central erculosis officer for Lancashire, has some interesting tures. In a chapter on the distribution of pulmonary erculosis in Lancashire in different localities and in erent industries, it is demonstrated that there is a rked difference between the spinning and the weaving rricts of the county. Pulmonary tuberculosis is much re prevalent in the male population of the former (the hum district) than in the latter (Blackburn and rnley). Between Blackburn and Burnley themselves re is also a considerable difference, both the male and female population of Blackburn being remarkably nune, though even Burnley has rates appreciably below se for the whole of the administrative county. The lanation suggested for the difference is that in the rnley district the number of men employed in mining l quarrying (4,836) is three times as many as in the ckburn district, while, if the comparison be confined the two county boroughs, the difference is fully nine to . In the predominantly rural areas of Lancashire the e is 36 per cent. below the county average. If house ommodation be taken as the criterion it is found that, as s to be expected, overcrowding, as amongst the St. Helens ss workers, the central Lancashire coal miners, and Widnes chemical workers, is accompanied by a heavier erculosis mortality than where living conditions are ter. Another tuberculosis problem dealt with relates contacts. Of 1,626 "house contacts" examined, 79 re diagnosed as definitely tuberculous, 57 of them being lmonary cases and 22 non-pulmonary; evidence for the rectness of the diagnosis is submitted in the report. ere the patients with whom the contacts lived were pen" cases many early or unsuspected cases were dis- ered, but including all classes of patients the infection contacts was at the high rate of 48.6 per 1,000.

Dr. Lissant Cox reports on a third question of constant erest—the value of sanatorium as compared with home atment. After certain necessary explanations of his ssification, he goes on to analyse 3,948 histories of ults who began treatment during the five years 1914-18, conditions being stated as at the end of 1922. Of 881 atorium cases and 728 non-sanatorium cases in the ly and intermediate stages with negative or absent tum, 16 per cent. of the former and 42.6 per cent. of latter had died. Next, as to cases of positive sputum, 1,286 sanatorium patients 66.2 per cent. were dead by end of 1922, and of 953 non-sanatorium cases 84.8 per t. It is pointed out that both for sanatorium and home es early diagnosis is very important, and that absent or gative sputum means longer capacity for work and better chance of survival. Cases with positive sputum in the age period 15-25 years have a higher mortality than any others. There has been an improvement in respect of notification. In 1918, 13 per cent. of the fatal cases were not notified during life; in 1919, 16 per cent.; in 1920, 13 per cent.; in 1921, 10 per cent.; and in 1922, 8 per cent. But surely a lower rate still can be achieved, even though the 8 per cent. is much better than in various other places, where omissions range from 12 to 41 per cent.

HEALTH OF LIVERPOOL.

The city of Liverpool covers an area of 33 square miles, and at the middle of 1922 the population was estimated at 823,095. The birth rate during 1922 was 26.1 per 1,000, the death rate from all causes 14.6 per 1,000, and infant mortality rate 14.3 per 1,000 births. The birth rate in the Woolton district, where there is a population of about 10,000, was as low as 15.8 per 1,000, but in the Scotland district, with a population of 46,000, it was 37.2. The death rate in these two districts was respectively 9.8 and 19.9 per 1,000, and in the Exchange district, with a population of 36,000, it was as high as 23 per 1,000. There is a like disparity as regards the infant mortality. In Woolton this rate was equal to 53 per 1,000 births, in the Scotland district 120, and in Exchange 133 per 1,000. In the preface to his report Dr. E. W. Hope expresses the opinion that the infant mortality rate is always the index of the sanitary condition of an area. There would appear, therefore, to be plenty of work still to be done by the sanitary authority in the worst parts of Liverpool. Few if any local authorities have paid more sustained attention to the housing of the working classes than the Corporation of Liverpool. During the past three years it has erected over 5,000 houses, and 500 bungalows have been converted from army huts; but there are still several thousand applications for houses from persons housed under bad conditions but who are well able to pay reasonable rents for accommodation if it could be found. Referring to those families who live in one room Dr. Hope considers that such conditions are gravely prejudicial to the public health and welfare of the city. There is, he says, an increased demand upon the hospitals for treatment of minor ailments which under ordinary conditions could be dealt with at home, and requests for admission to maternity hospitals or homes increase for the same reason. The risk of the spread of tuberculosis is accentuated, and many instances occur in which persons, after leaving a sanatorium, quickly relapse into their former condition on returning to their overcrowded rooms.

The great increase during recent years in the population of many large towns contiguous to each other has led to difficulties in administration and in some cases to avoidable expenditure. Within the past two years an attempt has been made by the Merseyside county boroughs of Liverpool, Bootle, Birkenhead, and Wallasey to overcome these difficulties by some scheme of co-operation. Pending general agreement on a large scale by the councils concerned the medical officers of health have agreed that in the event of any disease scheduled under international agreement arising in any part of the area of their administration, the fact should be forthwith reported to the port medical officer for communication to the consular body or bodies. It was also agreed that in the event of such outbreak assuming grave proportions the medical officer of health of the area in which the case arose should on request be entitled to assistance from the staff of any other of the riparian authorities.

The conditions under which animals are slaughtered in Liverpool are anything but satisfactory. The 17 private slaughterhouses are said to be well conducted and kept in good condition, but many of them are situated in cramped and congested positions, and are not suitable for the purpose to which they are put. The central abattoir, which covers an area of seven and a half acres, is in such an unsuitable position and the buildings are so congested that Dr. Hope strongly urges the erection of a modern abattoir and meat market in keeping with other branches of public health work in the city. He compares by means of excellent photographic illustrations the modern slaughterhouse in Edinburgh with the Liverpool buildings. If the Liverpool

Concepts, therefore, are concluded to be, not things of a perceptual order, but groups of affectively equivalent things.

In order to verify the results of his analysis of the nature of reasoning, the author undertakes an examination, from a psychological point of view, of the logical process as it is shown, he considers, in its highest forms in mathematical reasoning. He argues that the fundamental nature of reasoning, as a series of merely imagined operations or experiments, remains without change even when an abstractness pushed to its extremest limit and an excessively complex symbolic form might at first sight seem to conceal this fact.

Although the explanation given of the nature of the reasoning process is relatively simple, the process itself, the author admits, is complex and the resultant of the interplay of a variety of mental activities. To obtain an understanding of the psychical phenomena of which reasoning consists, it therefore became necessary to analyse these phenomena and to reduce them, as it were, to their lowest terms. Thus the author, proceeding from the more to the less complex phenomena, finally arrived on the one hand at sensorial mnemonic reproductions (evocations of past sensations), and on the other at affective tendencies. It was possible to regard either of these as the most elementary of all psychical phenomena on whose interplay all the others depended, but Professor Rignano has succeeded to his own satisfaction in relating both to a quite general and fundamental property of life, which he had already emphasized in his biological writings. The result has been that the work which was conceived as devoted entirely to reasoning has ended as a treatise on Psychology. The fundamental property referred to is "the tendency of the organism to maintain or to restore its stationary or normal physiological state," and the manner in which the whole superstructure of psychology is built up on this single foundation cannot fail to interest the reader.

THORPE'S DICTIONARY OF APPLIED CHEMISTRY.

A NEW edition of a standard work of reference tends ordinarily to follow the lines of previous issues in general character and features. A new arrangement may in some cases be evolved based on the experience gained of the needs of persons who have used the earlier edition, or an expansion of subject-matter may be rendered necessary by new discoveries; but, if after the work has passed through successive editions, and any tendency to variation is followed by a return to type, it is a sure criterion that the work is deserving the appellation of "standard." This rule applies eminently to THORPE's *Dictionary of Applied Chemistry*, of which Volume IV[6] has been issued. In it the quality of the work is well maintained in the character of its contents and in the completeness and recency of the information given. Containing as it does a mass of information known to chemists a generation ago it might have been expected that under certain headings, notably those referring to common materials like limestone, a simple reprint from the last edition would supply all the needful data. Revision has, however, been extended even to subjects of this kind, and signs are everywhere evident that close attention has been given to adding what is likely to be useful and deleting what is of doubtful value. Only a comparison side by side of the articles in this edition with those in the last will show how well the work of revision has been done. Several contributors to the last edition are represented by articles in the present. These include E. F. Armstrong, Herbert Ingle, A. G. Perkin, T. Rose, and L. J. Spencer; among the new contributors are G. Barger, to whom has been allotted a number of articles on vegetable substances having economic relation to medicine; C. T. Bennett, who has revised the subject of essential oils; and H. E. Watt, who has dealt with nux vomica and opium. The article on opium includes a summary of the newer facts relating to the constitution of morphine and contains much to interest those who have been attracted to this subject by the hope of finding an explanation of physiological action in chemical constitution. The monograph on matches is a classical article. It might have been fittingly bound in a separate cover and would have formed a complete treatise on the manufacturing aspect of the industry. As, however, it contains much other matter than applied chemistry, and since available space forms the chief embarrassment to compilation, there is here an obvious danger of inroad in favour of non-chemical technology on the space properly due to chemical matters. In this connexion it is to be noted that whereas no less than twenty pages are devoted to matches, the subject of margarine occupies not much over three. Apart from the subject of matches there is no conspicuous redundancy of matter disproportionate to the scheme governing the whole dictionary. When it is realized how closely the methods and secrets of chemical manufacturers are guarded, the total sum of information here published is very remarkable. It is clear that the new edition is to be fully worthy of its predecessors.

[6] *A Dictionary of Applied Chemistry.* By Sir Edward Thorpe, C.B., LL.D., F.R.S., assisted by eminent contributors. Vol. IV. Revised and enlarged edition. London and New York: Longmans, Green, and Co. 1922. (Med. 8vo, pp. viii + 740; illustrated. 60s. net.)

NOTES ON BOOKS.

The Causes of Cardiac Failure[7] is one of the series of Harvard Health Talks delivered in the medical school of Harvard University to give the public modern guidance on important medical subjects. Dr. W. H. ROBEY points out that it is and always has been quite unscientific to give "cardiac failure" as a cause of death, and adds "in signing a death certificate the best trained physicians have not within the lifetime of many of us given such a meaningless cause." In New York and Massachusetts the death rate from heart disease is higher than that from tuberculosis, but rheumatic fever has become less common, probably from increased attention to oral sepsis. Dr. Robey rightly lays much stress on the prevention of cardiac disease by the detection and removal of focal infections, and describes as potential heart disease the conditions of recurrent infection that may attack, but have not yet damaged, the heart.

The June number of the *Annals of Medical History*[8] has on its cover the portrait of Joseph Leidy (1823–91), the wonderfully versatile naturalist who became Professor of Anatomy at Philadephia in 1853. According to Dr. W. S. Middleton's interesting sketch of his life, Professor Leidy—a relative of Franz Leydig, the well known Bonn biologist—bore a strong resemblance to the conventional Christ in facial expression and was frequently so addressed by children; in addition he appears to have been one of the most charming and modest of men, intellectual giant though he was. This centenary article forms an appropriate sequel to that of his professorial chief and predecessor, William Edmonds Horner, contributed to the spring number of this periodical by Dr. Middleton. The frontispiece is a reproduction of Bernardino Luini's painting of Saint Roch, the patron saint of the plague-stricken, with a bubo on his left thigh; there is an illuminating note on the saint by Dr. Charles Greene Cumston of Geneva, the president-elect of the Fourth International Congress of the History of Medicine, to be held at Geneva in 1925. The stirring story of Louis Heermann's thirty-two years' service in the United States Navy, well told by Captain F. L. Pleadwell and Lieut.-Commander W. M. Kerr, contains a picturesque description of New Orleans when Heermann went there in 1810, only seven years after it was acquired from France. Dr. J. Preston Maxwell and J. L. Liu give an interesting analysis of a Chinese household manual of obstetrics, written about A.D. 1661, which, though not constantly up to date, lays much stress on pre-natal treatment, which is stated to be so good that no medicines are needed. The "Outlines of the History of Medicine in Lower Canada" is the title of an elaborate article by Dr. M. Charlton, the first instalment of which deals with the conditions under the French régime (1608–1759).

Dr. CECIL WEBB-JOHNSON's book on *Diet for Men*[9] is a popular work which forms a companion volume to *Diet for Women* by the same author. After an introductory chapter in which the inadequate instruction in dietetics in medical education is stigmatized, the writer discourses pleasantly of the various forms of diet, the use of alcohol and other stimulants, diet in sickness and obesity, the effect of emotion on food, the diet of a man over 40, and kindred topics.

[7] ...rvard Health Talks, No. 11. By ... Medicine in Harvard University. ...versity Press. 1922. (Fcap. 8vo, pp. 45. 4s. 6d.)

[8] *Annals of Medical History.* (Summer Number, 1923.) Vol. v, No. 2. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber Inc.; London: Baillière, Tindall and Cox. (8¾ × 13½, pp. 85–183; illustrated. Subscription in Great Britain, £2 2s. for four numbers.)

[9] *Diet for Men.* By Cecil Webb-Johnson, M.B., Ch.B. London: Mills and Boon, Ltd. 1923. (Post 8vo, pp. v + 192. 5s. net.)

is to maintain its reputation as a progressive ority it cannot afford to ignore the well timed ie medical officer of health.

TER AND SALFORD HOSPITALS SHILLING FUND.

ie and Duchess of York recently visited to receive a cheque representing the total scribed to the Lord Mayor's Shilling Hospital en Councillor Cundiff took office as Lord Mayor return made from thirteen Manchester and pitals and found that their finances were in a s condition. He opened a shilling fund hoping o million shillings, and, organized by Mr. Watson, £73,000, or 1,466,000 shillings, had been by three-quarters of a million subscribers. The is the largest ever raised for a charity in ', and the sum was sufficient to liquidate all the e Manchester and Salford hospitals.

MEDICAL MAYORS.

wing are among the medical men elected mayors ber 9th: Alderman Dr. W. J. Caie (Bury St. Dr. H. J. Campbell (Dartmouth), Dr. J. W. rnley) re-elected, Dr. W. I. Fern (Congleton), nne Griffith (Pwllheli), Dr. H. Jackson (Wands-elected), Dr. W. G. Mortimer (South Molton), T. Ramsay, J.P. (Blackburn), re-elected, Dr. J. ichdale), Dr. T. B. Scott (Bournemouth), Dr. J. R. pswich), Dr. Robert Turner (Bootle).

Scotland.

INBURGH ROYAL INFIRMARY WAITING LIST.

at meeting of the managers of Edinburgh Royal it was reported that 1,765 cases were awaiting to the institution at November 1st. This is said argest number ever recorded, and means virtually patients were waiting for the evacuation of each bed. The statements about waiting lists at ospitals, when made in the usual form, are some-leading. A patient whose admission is not a f urgency must frequently in a busy general vait for a few days, or it may be a week or two, ice can be found for him in the wards. Yet the l retention of names on a waiting list for several months is often merely a convenient method, not ; of argument, of expressing the opinion that the uestion are unsuitable for treatment in the wards. allowance is made, however, it cannot be doubted he case of hospitals where large waiting lists are t feature it is likely that a certain proportion of nts would be benefited by speedier admission, and e may be adversely affected by prolonged delay. ght be done both in the direction of reducing the of waiting patients and of accelerating the de-of milder cases under treatment in hospital by the ent of almoners or similar officials to investigate mstances of those who enjoy the benefits of the pitals.

DEAN INGE IN EDINBURGH.

Sands was in the chair at the inaugural address ession of the Philosophical Institution of Edinburgh in the United Free Church Assembly Hall, gh, on November 8th, by the Dean of St. Paul's, ce on national decay and regeneration. Dr. Inge t in spite of all that historians had written the of the fate of nations remained very obscure. ion brought with it an arrest in human evolution. early stages of civilization, what might be called n or the higher savagery, a considerable selection r of higher types had usually taken place. Until ent times the most vigorous and successful classes supplied more than their share of the next genera-here had always been in England a large class of beggars, and wastrels, but the enormous death the towns kept them down and they were not ed and encouraged to multiply as they were to-day. The most important fact of the nineteenth century had been the prodigious increase of wealth and of population. Natural selection had been almost entirely suspended, and a population grew up with no traditions, social or religious. This was a totally new phenomenon in history. One kind of natural selection was favoured by modern life—that against disease. The modern man might be physically a poor creature, but he had developed a new power of resisting microbes. Non-microbic diseases had increased, since people must die of something. Thus cancer had trebled and diabetes had doubled the number of their victims. The expectation of life after 55 or 60 was stationary, though the general death rate was little more than half what it was sixty years ago. This was partly due to sanitation and medical skill, but partly also to increased adaptation to town life. It had created the menacing problem of over-population, with a million unemployed to feed out of the taxes. The decline in the birth rate from 36 in 1878 to 20 in 1922 had prevented a social revolution and the death of many millions by famine, but it was in itself dangerous because it was steadily impairing the quality of the people who were breeding from the bottom and dying off at the top. It was a bad symptom that the lowest birth rates were those of doctors, ministers of religion, and teachers. There would be less ground for alarm if the skilled workman was filling the cradle, but it was the slum dweller, the subman, and the untaxed dole-receiver who was the father of the next generation. The highest birth rate of all was that of the feeble-minded. The only healthy class which had a high birth rate was that of the miners. In indicating tendencies to regeneration the lecturer expressed the view that the antisocial attitude of the labour organizations was not likely to be permanent. As this class came to exercise more power it would develop more sense of responsibility. The orgy of wastefulness which at present crippled the national resources was the natural result of a system under which one class levied the taxes and another paid them. When the masses realized that it was not to their interest to fill the island with degenerates and unemployables there might be a great change in public policy. There was no reason in the nature of things why the working population should be revolutionaries or enemies of science, nor was there any reason why science and idealism should dislike and distrust each other.

Ireland.

QUEEN'S UNIVERSITY CLUB, LONDON.

A LARGE informal meeting of students and graduates of the Queen's College and Queen's University, Belfast, was held at the Hotel Belgravia, Victoria, S.W., on Thursday, October 18th. It was unanimously decided that a Queen's University Club, London, be formed, and a committee was appointed to draw up rules and to arrange for another meeting at as early a date as possible. The first annual dinner dance of the club, which is being preceded by a short business meeting of members, will be held at the Criterion Restaurant on Thursday, December 13th. Graduates and former students wishing to become members or to receive invitations are requested to communicate with the honorary treasurer, Mr. R. A. Kerr, 17, Wimpole Street, W., or the honorary secretary, Mr. W. McK. H. McCullagh, 152, Harley Street, W.

DEATH OF DR. WALLACE BEATTY.

We regret to announce the death of Dr. Wallace Beatty, which occurred on November 8th at his residence, 38, Merrion Square, Dublin, after a very brief illness. Only a few days earlier he was engaged in his medical duties; a heart attack, complicated by influenza, was the immediate cause of death. He was one of the leading members of the profession in Ireland, a most painstaking and skilful practitioner, and one of the most lovable of men. As chief physician of the Adelaide Hospital, where he succeeded the late Dr. Little, he enjoyed the respect and esteem of the medical and nursing staffs and of his patients. Dr. Beatty was born in 1853. He received his earlier education at the

Nova et Vetera.

AN EIGHTEENTH CENTURY PRACTITIONER'S LEDGER.

Through the courtesy of Mr. C. F. Harriss, Solicitor of Newport, Salop, who is Secretary of the Shropshire Panel Committee, we have been able to look through the professional ledgers of an eighteenth century medical practitioner, William Coyne, of Holywell, Flintshire. These leather-bound volumes, three in number, are of uniform size and cover a period of more than a quarter of a century; the earliest entries refer to the beginning of the year 1746 (O.S. 1745), and the last are dated December, 1773. All that Mr. Harriss can say about the books is that he found them when clearing out one of the attics of his office, where he has every reason to suppose they had lain for over a hundred years. The firm of solicitors of which he is now the head dates back to the eighteenth century, and the distance from Newport to Holywell across the Welsh border is not great.

In shape and size the ledgers correspond with a country doctor's day-book of the present day; the pages are faintly ruled for the dates, and for pounds, shillings, and pence; the entries are in several handwritings of varying legibility. Mr. William Coyne was evidently a country apothecary in a good way, and, like so many of his contemporaries, he not only compounded and supplied drugs, but prescribed remedies and visited patients. Occasional entries show that he dressed wounds and set fractures; records of venesection ("V.S. in brach. 1s.") are fairly frequent; of midwifery practice there is no trace. The records make it plain that, though sparing in phlebotomy, he drugged his patients as copiously and as often as any practitioner of the time.

The ledgers form a straightforward record of things supplied and charged for, with little or no comment, and scarcely any touches which reveal anything of the man himself. The various accounts are arranged under the name of the householder or that of the individual patient. Many of these were persons in humble circumstances—gardeners, joiners, miners, and such like—but the practice would nowadays be described as "mixed." The more prosperous patients included members of the landed gentry, a merchant or two, "Mrs. Jones next door," several "officers," many farmers, and the local exciseman; grocers and butchers and publicans, a perruque-maker, and, in short, every kind of tradesman, large or small; together with the local attorney and schoolmaster and other professional men.

The mainstay of the practice was the head of the house of Mostyn. As is seemly, the first folio of the first volume opens with the record of William Coyne's enormously long account with Sir Thomas Mostyn, of Mostyn, and his successor in the baronetcy. During the twenty-eight years covered by the ledgers, many of Coyne's patients were members of the Mostyn family, who are prominent in the district to this day. Thus, the eleventh baronet, Sir Pyers Mostyn, has a seat in Flintshire, and Lord Mostyn, the third baron, owns Mostyn Hall, Holywell. Sir Thomas, and after him Sir Roger, were a considerable source of revenue to Mr. Coyne: scarcely a week passed without several items being charged to the baronet's household account. The usual fee for a journey to Gloddeth was one guinea, and five shillings to Mostyn Hall. In addition to this visiting fee, the baronet was debited with various amounts for medicines supplied on the same day to any members of the family or of the retinue or of the livestock who happened to be ailing at the time. Thus on one very moderate afternoon Master Daniel, Master Tommy, and Miss Mostyn (who was bled as well) all needed doses of Pulv. Alterat.; Betty the housemaid had Haust. Purg.; and Flor. Sulphur. and Bol. Armen. were prescribed for occupants of the stable. The household was large and the outdoor servants and other retainers numerous. Mr. Coyne's patients among the indoor staff included the housekeeper and the cook, footmen, housemaids, laundrymaids, dairymaids, kitchenmaids, and turnspits, together with the Rev. Mr. Edwards the domestic chaplain, Mr. Lloyd the steward, and Mrs. Trim the nurse; the outdoor staff included gamekeepers, grooms, coachmen, ploughmen, postillions, husbandmen, poultry women, cowmen, carters, and stable-boys. Besides these, Sir Thomas Mostyn made himself responsible for medical attendance upon unidentifiable persons such as Mr. Wynne and Mr. Blundell, who may have been visitors or perhaps resident librarians, and upon ancient retainers described as "Old Ellis," "Old Richard," "Old Mostyn," and the like. The account was discharged in lump sums at odd times by the house-steward.

Another long account, which drags on from folio to folio in the third volume, is that for visits and medicines to the household of Lord Grosvenor at Halkin. Some loose sheets of paper, preserved with the ledgers, include a stained and blotted fragment from the day-book of 1757; also a list of Mr. Coyne's principal patients in the year 1769 together with the sums due to him from each. On this appear the names of Lord Grosvenor, Sir Roger Mostyn, Bt., the Dowager Lady Mostyn, Sir Watkin Williams Wynne, Bt., and a considerable sprinkling of the clergy.

Looking through the ledgers we find entered up under the various patients' names innumerable pills, juleps, electuaries, mixtures, draughts, powders, boluses, drops, infusions, decoctions, linctuses, apozems, elixirs, and stomachic tinctures; also outward applications—plasters, balsams, liniments, embrocations, blisters, dressings; and, every now and then, the administration of a clyster. Manna was often supplied, presumably for the nursery. The endless tale of dull medicaments is relieved by occasional items such as "Fruct. limon. ii, 4d.," "Six large bladders," "A bottle of bitters, 4s.," "Best gold leaf, 2 books, 3s. 6d." In Widow Morrell's account "a quire of writing peaper, 6d." appears several times; and, stranger still, Edward Roberts, Esq., of Denbigh, is debited with a silk plaid waistcoat at £2 2s.

Mr. Coyne's surgical practice was not extensive. It was confined for the most part to emergencies, such as the reduction of fractures and dislocations, and attention to injuries. At rare intervals we find records of minor operations; for example, "opening ye sinus and dressing," "opening a tumour in his groin," "scarifying," "amputat. digit. and cure."

An astonishing account is that of Miss Salisbury. It opens in the third volume under date November 18th, 1769, and continues through fifteen folios, each containing fifty or more separate entries. The last item is dated June 10th, 1771, but the record, though broken at that point, was continued in another volume, lost long since. Between those two dates, some eighteen months apart, never a week passed, and seldom a day, without Miss Salisbury receiving a draught or some aromatic spirits or a bottle of Bristol water from the attentive Mr. Coyne. She paid him £53 odd on February 23rd, 1771, and owed about £15 when the account passed into the next ledger.

One of the folios contains "an account of what goods came in for the year 1771." From this it appears that Mr. Coyne's stock-in-trade was mainly replenished from two sources—Mr. Wilson, druggist of Chester, and Mr. Ellams, druggist of the same city. Goods to the value of £4 11s. 2d. were bought from the former, including four shillings' worth of corks and half a guinea's worth of gallipots. Mr. Ellams's account was larger—nearly £14. Phials costing £1 17s. 2d. were purchased from Mr. Seamen of Warrington, and supplies of "selter" water and other unnamed commodities came from a Mr. Hegg. On April 29th forty-seven pounds of butter were bought for a guinea!

Before concluding this note it should be mentioned, perhaps, that Mr. Coyne was very lenient in his charges to the clergy for professional services and medicines. One parson's bill, containing twenty-three items, amounted to no more than 11s. 3d., and another was charged nothing at all. Professional colleagues (Dr. Parry of Caerwys, and Mr. Blount, a neighbouring apothecary) were treated with the same consideration; sometimes a small charge was made for drugs supplied, but more often nothing. The third ledger closes sententiously with a Latin tag, written in a large copper-plate hand on the inside of the cover:

Sic transit gloria mundi.

Royal School, Dungannon; in 1872, when he entered Trinity College, Dublin, he obtained the second place. His college career was brilliant; he obtained a Royal Scholarship in 1872, a Classical Scholarship in 1875, and a Medical Scholarship in 1877. His professional education was conducted in the School of Physic, and the Adelaide, Rotunda, and St. Mark's Hospitals. In 1876 he graduated B.A., in 1879 M.B. and B.Ch. In 1885 he obtained the Licence of the College of Physicians, in 1886 the Membership, and in 1887 the Fellowship. He was house-surgeon to St. Mark's Hospital, medical officer to the Dublin Throat and Ear Hospital, and demonstrator of anatomy in the Carmichael College, in which he was later lecturer on pathology and medicine. In addition to his other appointments he was honorary professor of dermatology in Trinity College. Dr. Beatty was the author of several papers which he read before the Royal Academy of Medicine. These dealt with the pathology of lead poisoning, the action of mercury in diseases of the heart, and with other subjects of purely medical interest. Quite recently he published a valuable work on skin diseases. Dr. Beatty married, in 1888, a daughter of Dr. Samuel Edge, of Granstown House, Queen's County. Of this marriage there were five sons. One, Eric, served in the Royal Dublin Fusiliers, and was killed in the war. Two other sons also served in the war—one in the Royal Dublin Fusiliers and the other in the Artillery. Another son entered the Indian Civil Service.

ADMINISTRATION OF THE MEDICAL CHARITIES ACTS IN COUNTY MAYO.

A subcommittee of the Castlebar District Council, appointed to consider the changes made by the Local Government Department with regard to the administration of the Medical Charities Acts on a county basis, has made a report from which the following are extracts:

We are of opinion that medical charities services should be administered by the Rural District Council, and all the appointments thereunder made by the District Council, subject to the approval of the County Board of health. In like manner outdoor relief should be administered by the Rural District Council, and the funds for these two services should be, as heretofore, a union charge, and estimated and provided for by the Rural District Council. The making of these charges county-at-large charges is not a step, in our opinion, calculated to guarantee economy, and the administration of these services by local councillors, conversant with all the local circumstances, is a guarantee that there will be proper supervision and careful spending of the rates collected from the people of the district concerned. As regards boarded-out and hired-out children's services, we also think these services should be placed with the Rural District Council. During the period the above three services—Medical Charities, Outdoor Relief, and Boarded-out and Hired-out Children—were temporarily discharged by the District Council on the abolition of the Castlebar Board of Guardians, matters were conducted with efficiency and economy, resulting in general satisfaction to the ratepaying public.

Correspondence.

ANTE-PARTUM HAEMORRHAGE AND ECLAMPSIA.

SIR,—The letters of Dr. Johnstone (October 27th, p. 784) and of Dr. Paramore (November 10th, p. 800) raise some points of interest. As Dr. Johnstone points out, the association of eclampsia with placenta praevia, if established, supports the views on this toxaemia which I advanced in 1914. In 1921 Miller and I published a series of cases exhibiting this association, and Miller has since collated 49 cases of placenta praevia with albuminuria in 37 per cent. and eclampsia in 3. The evidence is therefore strong.

Placenta praevia is thus brought into line with the placental separation of accidental haemorrhage in which toxaemia is common. The evidence of placenta praevia, moreover, throws on the problem a clearer light than has hitherto been available, for here the detachment of the placenta, to which the toxaemia is intimately related, is patently mechanical in origin and is, in point of fact, usually due to the tearing away of the placenta from its moorings by the stretching incidental to normal labour.

Where the *normally* situated placenta is detached the toxaemia is invariably intense and often eclamptic if the placenta is retained in the womb for some time (concealed accidental haemorrhage), whereas if the detachment is followed quickly by extrusion toxaemia is slight or absent. Dr. Miller has noted the same striking facts in placenta praevia, and in Dr. Bradshaw's record, which originated this correspondence, the same sequence is present.

The body of facts can, I believe, be adequately explained only on the view that the poisons are generated rapidly in the devitalized and disintegrating placenta and gain an immediate and easy entrance to the maternal system via the circulation of the adjacent healthy organ.

Dr. Paramore challenges this view in his interesting letter with arguments to one or two of which alone space will permit me to reply. While recognizing the importance of the severity of the toxaemia in concealed accidental haemorrhage, he thinks that the distension of the womb by the accumulating blood causes toxaemia by pressing on the kidneys and other abdominal organs. This view is disproved by the fact that there may be intense toxaemia where the concealed clot is no bigger than an apple, apart from the fact that the acute and often extreme distensions of general medical and surgical practice are never associated with eclampsia. Even if such an explanation were available in accidental haemorrhage it is surely inapplicable to placenta praevia. Here Dr. Paramore imperfectly shelters his prejudice under the statements that "it is not surprising that a multiparous woman with a placenta praevia should come to pass albumin in her urine: multiparous women are usually older than primigravidae and their kidneys cannot be expected to be as sound." The scientific insufficiency of this evidence is apparent.

If anything is clear it is that in the eclampsia both of accidental haemorrhage and of placenta praevia there must be some common factor. There is such an obvious common factor in a mass of devitalized placenta disintegrating in the womb.

If it is established that in placenta praevia the sequence is mechanical separation, then disintegration of the placenta, then eclampsia, the argument which led me to trace the same sequence in accidental haemorrhage gathers added volume. Albuminuria and eclampsia are, I believe, the disease of pregnancy because the large placental organ, dependent as it is on a rapidly improvised and vulnerable blood supply, is peculiarly exposed to damage and death by factors that may be purely mechanical in nature. What these factors are in the ordinary case is still matter for conjecture. That they undoubtedly operate by causing placental death is proved by finding that in a case of eclampsia (and the same applies to accidental haemorrhage and placenta praevia), where a sufficient time elapses before labour, massive necrosis is invariably present. Where early labour takes place this necrosis is not recognizable. These findings point to the view that the poisons are produced during the early disintegration of the dying organ.

I have elsewhere shown that in accidental haemorrhage there may be indisputable evidence of venous blockage. In one such case that died of eclampsia the uterine wall supplied by the ovarian vessels on one side was in a state of acute strangulation. In the placenta the changes characteristic of necrosis were found involving nearly half the organ where it had been uplifted by the retroplacental clot.—I am, etc.,

Edinburgh, Nov. 11th. JAMES YOUNG.

CARBON MONOXIDE A PREDISPOSING CAUSE OF PULMONARY TUBERCULOSIS.

SIR,—Dr. Hazleton's article (October 27th, p. 763) is of much interest to me because, as a member of the Macclesfield Town Council, I have been endeavouring recently to draw the attention of our local authority to the danger to public health of gas leakages, especially where the monoxide content is high. In this town the percentage is 18. I am informed that in some places it is more—for example, 22 per cent. in Oldham. Macclesfield is an old town, and I am well familiar with the circumstance that faulty fittings and escapes from small pipes, and even from mains, are not unknown.

I placed much medical evidence before the public, both in and outside the council, feeling impelled to do this by the fact that I have had three cases in my practice this year

British Medical Journal.

SATURDAY, NOVEMBER 17TH, 1923.

MELANOSIS.

The function of pigment in the biological world appears to be similar to its function in the industrial world: it is either decorative or protective. One kind of painter adorns our drawing-rooms with works of art, whilst another preserves wood and iron work with a protective coat of coloured varnish. The delicate shades on the feathers of birds, the ingenious camouflage of certain insects, and the varied colours of the coats of other animals serve as an ornament, inciting admiration, or as a protection, acting as a warning or a disguise, or as a defence against the rays of the sun.

The pigment melanin is of great interest in human pathology because of its presence in the tumours melanoma and melanotic cancer. Mr. W. G. Spencer, in his Bradshaw Lecture on melanosis published this week (p. 907), with a large series of illustrations on a special plate, declares that there is no essential difference in the melanin which may be obtained by macerating the skin of a negro, or from the ink of a cuttlefish, or from a melanotic tumour. The pigment is formed from a colourless mother substance melanogen, which becomes oxidized to melanin. Melanogen is constantly present in the skin, as is shown by the fact that sections of dead skin slowly darken in colour, due to the formation of melanin; the same process may take place in living cells as the result of exposure to the sun or the action of chemical reagents. Melanogen is the normal precursor of melanin, and the presence of melanogen can be demonstrated in the cells of the epidermis and hair follicles of the foetus and in the embryonic cells of the retinal epithelium before any appearance of pigment. When injected into the circulation a solution of melanin appears to possess properties very similar to those of adrenaline, and Mr. Spencer is of the opinion that the pigmentation which occurs in Addison's disease, and also in dogs after the removal of the adrenals, is due to the accumulation of a mother substance common to adrenaline and melanin. The interference with the normal function of the adrenals, whereby they fail to take up this circulating mother substance and convert it into adrenaline, appears to lead to the deposition of large quantities of melanogen in the cells of the epidermis, to form melanin by oxidation.

The function of melanin, like that of other pigments, is either decorative or protective, but it is only the latter function which need concern us at present. The secretion of the ink-sac of the cuttlefish is discharged into the water to obscure the movements of the fish by colouring its surroundings. The deep brown pigment sepia may be obtained by dissolving the dried contents of the ink-sacs in dilute ammonia or soda solution, and reprecipitating with hydrochloric acid. Mr. Spencer describes the formation of this pigment in the cytoplasm of the epithelial cells lining the ink-sac of the cuttlefish, and illustrates the production of this melanin pigment. A different example of the protective properties of melanin pigment is provided by the arrangement of the granules in the ova of frogs; at first they are unpigmented, but later granules of melanin appear in the cytoplasm and serve to protect against the harmful effects of sunlight whilst the ova are floating in the water. In the human foetus melanin pigment begins to appear in the fourth month in the epithelial cells forming the outer layer of the optic cup; in the seventh month pigmented cells are found alongside the blood vessels of the choroid which has developed from the mesoblast; the full pigmentation of the posterior layer of the iris is not complete at birth.

The pigment which is produced in the epidermis and the eyeball has a protective function and serves a useful purpose, but of what value are collections of pigmented cells in deeper structures? Probably none at all in the fully developed animal, though they may have been of value at an earlier period. Thus in the embryos of bony fish the pigment cells spread out from around the neural groove and canal in relation to the primitive body segments, and a similar explanation may account for the stripes, patches, and markings on the coats of higher animals. Such considerations have led Mr. Spencer to formulate the following hypothesis: "It seems, therefore, a rational explanation that melanin pigmented cells, whether superficial or deep, have primarily developed around the neural tube, originally for the protection of the central nervous system. The pigmented cells have spread first into the epiderm, then deeper into the mesoblast of the immediate neighbourhood, and further have been carried away in the parietal and visceral layers of mesoblast along with outgrowing nerves, especially sympathetic nerves."

The physiological formation of melanin is therefore capable of explanation, but the pathological production of this pigment is shrouded in the mists which obscure the development of all new growths. We know of certain agents which are capable of oxidizing the melanogen normally present, and which accordingly appear to increase melanin pigmentation. The black spots which follow the bites of the body louse, the pigmentation which is produced by excess of arsenic, the development of freckles after exposure to the sun, appear to belong to this category. In certain disorders of the endocrine glands increased pigmentation may occur, and an explanation has already been offered for the darkening of the skin which occurs in Addison's disease, by assuming that melanogen is deposited in the epidermis instead of being converted by the kidneys into adrenaline. A curious example of the "banking up" of melanin pigment is provided by the tumours so frequently appearing in grey horses, which in old age tend to become white through the loss of pigmented hair. No change takes place in the unpigmented skin, but any area, such as the ano-genital region, of normally pigmented skin is likely to become the site of a melanotic tumour.

The insidious change whereby a congenital melanoma assumes the character of a melanotic cancer remains a mystery, but research has shown that migration of branched pigmented cells may precede any sign of cancer. Wounds of the skin which have resulted in a small pigmented area may after years of quiescence suddenly assume the character of a malignant melanotic growth.

Variations in the amount of pigment in the eye are very frequent. The name "wall eye" is applied to a condition observed, particularly in the horse, in which there is a large amount of white showing, or where there is absence of colour in the iris or a dense opacity of the cornea. The expression, it may be noted in passing, is derived from the Icelandic word for a beam or sty in the eye. But such variations in pigment rarely lead to melanotic cancer. When such

hich appeared to me to be examples of slight monoxide oisoning.

The chief result of my remarks was a somewhat strongly orded article in the *Gas Journal* of August 22nd, 1923, hich used no argument, but honoured me by devoting a olumn and a half explaining to its readers that I really new nothing of the subject, the headline being "The Laird nd the carbon monoxide bee."

I was well on the way to arousing local public atten-on to the desirability of having as small a monoxide per-entage as possible in our town's supply when I was faced ith a statement from Dr. Leonard Hill, which apparently ad been procured specially to meet my criticisms, to the ffect that "the belief that health can be damaged by the ontinued inhalation of very small leaks of coal gas is, hen, wholly an unfounded one."

As this statement seems quite a reversal of the ideas of Dr. Hazleton and many others, I think it would be in the ublic interest if steps were taken to issue an authoritative tatement as to whether continued inhalation of minute uantities of coal gas is hurtful to the human organism or ot, taking into account the length of time of inhalation nd the percentage of CO in the gas. I should also like o know if CO is a cumulative poison or not. I was taught hen a student that it was, but Dr. Leonard Hill seems to ast doubt on this point.—I am, etc.,

JOHN N. LAIRD, M.A., M.D., D.P.H.

Macclesfield, Nov. 11th.

LABYRINTH DEAFNESS.

SIR,—In the BRITISH MEDICAL JOURNAL of November 10th (p. 867) Dr. Dan McKenzie, discussing the presence of the signs of nerve deafness in cases where only simple lesions of the conducting apparatus are to be found, says:

"As to the manner *in which simple lesions of the conducting* apparatus unaccompanied by cochlear changes may induce the phenomena we usually associate, and with reason, with cochlear and other diseases I am ignorant. Here we come upon one of the gaps in our knowledge."

As this is a gap which I believe I am able to fill I feel justified in asking you to insert a brief account of my own explanation of this problem, which I have now been investigating for many years, and have not hitherto published.

Any irritation, overstimulation, or infection produces an immediate vascular congestion of the middle ear. A familiar example is the intense flushing of the tympanic membrane after syringing. Considering the vascular supply of the ear, it is obvious that any dilatation of its blood vessels cannot be confined to those of the conducting apparatus alone. The blood vessels of the labyrinth must also dilate. The perilymph in the bony labyrinth communicates with the cerebro-spinal fluid in the subarachnoid space by means of the aqueduct of the cochlea. Through this aqueduct runs also a small blood vessel. The calibre of the aqueduct differs within wide limits in different individuals. In some it is a mere capillary tube. Any dilatation, therefore, of the vein which passes through it will tend to narrow the passage available for the flow of perilymph, and in individuals in whom the tube is of capillary size will entirely occlude it, thus producing a glaucoma of the labyrinth with its accompanying tuning-fork signs of labyrinthine deafness, though the lesion is entirely confined to the conducting apparatus. The endolymph in the membranous labyrinth is affected in exactly the same way as the perilymph in the bony labyrinth, for the aqueduct of the vestibule through which the minute ductus endolymphaticus enters the cranial cavity to end in the sacculus endolymphaticus is also traversed by a blood vessel, which by its dilatation shuts off the membranous labyrinth from its minute safety valve, the afore mentioned sacculus endolymphaticus. The facts explain the occurrence of labyrinthine signs in some cases of middle-ear deafness and not in others. The patient with a large size perilymph exit from the bony labyrinth does not suffer its occlusion by the vascular congestion which accompanies middle-ear disease, and therefore presents no signs of nerve deafness if his conducting apparatus is alone at fault.—I am, etc.,

F. PEARCE STURM, Ch.M.

Ear and Throat Clinic, Leigh, Lancashire, Nov. 10th.

VACCINATION PROPAGANDA.

SIR,—I am indebted to you for pointing out (Noven 3rd, p. 826) that the 165 *deaths from* vaccination du the period 1906-20, referred to in my article (Br MEDICAL JOURNAL, September 29th) *include* deaths f sepsis or erysipelas following vaccination, and I regret inadvertently I *gave the opposite impression.*

The Registrar-General's present practice, as expla by you, of classifying deaths from sepsis or erysi following vaccination (and presumably arising as indirect result of vaccination) under *the head of* diseases instead of, as formerly, under the head of "(effects of vaccination," *is, in my opinion, to be regre* It may be more "consistent," but it is certainly op the serious objection that it rather tends to obscur real loss of life due to vaccination, in spite of the that in the text, in a *separate volume, the other d* are mentioned. It is common knowledge that the ma of the deaths due to vaccination result from some fo superadded bacterial infection which has gained acc the system through the vaccination wound, either a time of the operation or subsequently, rather than simple vaccinia. And, after all, *the consideration* should weigh with us in considering the arguments fo *against infant vaccination*, and the one which cer weighs with the bereaved parents, is, "Would this have contracted *erysipelas, septic poisoning*, etc., which it died, if it had never been vaccinated?"

You next criticize my statement that "we" (im the medical profession) "opposed the conscience clau all we were worth." I admit that I ought to have it clear that I included under the term "cons clause" *the clause as modified by the Act of 1907* I think that a majority of the medical profession *strongly opposed* even to the original conscience and honestly believed that it was a retrograd *dangerous step.* Subject to the qualification I hav tioned my statement that a *serious decrease in vacci followed is, of course, correct. Lastly, you say:*

"Most fortunately for the public welfare the type of sm *in this country has commonly in* recent years been mild. T done much to avert the punishment which would have f the neglect of vaccination had the European variety of the continued to prevail."

I wish to suggest that the fact that the (European or Asiatic) variety of small-pox (and against this type that compulsory infant vaccinati originally enacted) has not continued *to prevail is n accident*, but that it is the result of the greatly in preventive measures which are now so actively whenever the disease breaks out, and in spite neglect of infant vaccination. Again and again the past nineteen years has the severe type of the been introduced into this country, often under stances, such as failure to recognize the first cases seemed highly conducive to its spread. The outbr the East End of London, notably in Mile End in 1 in Poplar and Stepney last year, are instances in Yet the disease has practically always been stam without its attaining serious epidemic proportio his last annual report for the County of London Sir Hamer draws a contrast between the experience of last year and the experience in 1901. He writes:

"In 1901 . . . the defence was not sufficiently strong disease gained foothold and spread with rapidity. During the following year nearly 10,000 cases occurred. . . . It here to note the defects of organization against small-p permitted the disease to penetrate London during 190 defects centred mainly round one factor, namely, the difficulty which had been felt in . disease. . . . In consequence *many* mained unisolated and at large a counter attack against small-pox was, therefore, paralyse delay in arriving at a diagnosis. . . . *That was what* again and again, and this led, in 1901-3, to the loss of 1 and an *incalculable expenditure* of money. [It will be n Sir William Hamer makes no suggestion that it was n infant vaccination which caused the epidemic.] Ha mischief brought its own remedy. The late Dr. T. F. after ten years' research formulated a method for re *small-pox promptly* and accurately. . . . Since 1901 th been a few restricted outbreaks . . . any of which mig have developed into a repetition of the events of 1901 improved organization and *more efficient* administration."

malignant disease does occur in the eye it generally arises from the pigmented layers within the eyeball, and develops as a rule after middle life.

The occurrence of melanotic cancer in other regions of the body—such as the hard palate, the abdomen, the ano-genital region, and the pia mater of the brain and spinal cord—is difficult to account for. It is easy to find a satisfactory explanation for the physiological development of melanin pigmentation; it appears in obedience to definite laws and serves a useful purpose. We are in complete ignorance of the laws which govern the pathological development of this pigment in melanotic cancer. Vague hints and slender clues may be furnished by a study of comparative pathology, and these are worth pursuing. But the uselessness of tumour growths is their most baffling property, for, just as crime is most difficult to detect when there is no apparent motive, so morbid processes are most difficult to understand when they have no obvious object.

THE INSURANCE CRISIS: THE DECISION.

The special Conference of Representatives of Local Medical and Panel Committees, called by the Insurance Acts Committee to consider the Minister of Health's revised offer, was held on Wednesday, November 14th. It will be remembered that the Minister's offer, conveyed in a letter published in the Supplement of November 3rd (p. 209), contained certain declarations and two alternative proposals. Sir William Joynson-Hicks declared in the first place that medical benefit is a primary benefit and that there is no title to additional benefits until this and the other primary benefits—sickness, disablement, and maternity—are provided. In the second place he declared that the remuneration of practitioners is a matter to be considered on its merits and agreed by negotiations between the Minister and the profession. In regard to the immediate question of remuneration the Minister offered, alternatively, a guaranteed fee of 8s. 6d. for five years, or a separate and immediate inquiry into the appropriate capitation fee for 1924.

At the reassembling of Parliament on November 13th several questions on this subject were put to the Minister of Health, who in his replies indicated that a fuller statement from him might be expected on Thursday after the decision of the Panel Conference. In the meantime he informed the House of Commons that if the offer he had made was accepted by the Conference he proposed to lay on the table a White Paper on the whole subject, which would include an actuarial report. Upon this Sir Ryland Adkins asked, "Is it an agreement assented to by the Approved Societies?" To this the Minister made the following significant answer: "No, sir. I, as Minister of Health, after fully considering the whole matter, have made alternative proposals to the doctors. If either of these proposals is accepted legislation will be necessary, and I hope to have the responsibility of bringing in that legislation and submitting it to the House."

The Panel Conference, having "heard great argument about it and about," resolved by 141 votes to 29 to accept the Minister of Health's offer. The Conference then discussed the advantages and disadvantages of the Minister's two alternatives *a* and *b* embodied in his offer. After close debate, revealing differences of opinion, alternative *b* was accepted by 123 votes to 49. A motion to accept the Minister's offer, including alternative *b*, was then put to the meeting as a substantive resolution and carried unanimously. The result of the Conference is therefore the acceptance on behalf of insurance practitioners of a special Court of Inquiry to be set up by the Minister as soon as possible and instructed to report on the capitation fee to be paid as from January 1st next. The contract will be made on the basis of the fee recommended by the Court of Inquiry, the Government undertaking to go to Parliament for the necessary legislative sanction and the profession undertaking to accept the recommendation.

THE BRADSHAW LECTURES.

The Bradshaw Lectures at the two Royal Colleges in London were delivered this year at the Royal College of Physicians by Dr. John Hay, physician to the Royal Infirmary, Liverpool, on November 1st, and by Mr. W. G. Spencer, surgeon to the Westminster Hospital, at the Royal College of Surgeons; the latter lecture is published this week (p. 907), and we hope to give some account of Dr. Hay's lecture, which was concerned with the prognosis of angina pectoris, in an early issue. The lectures were founded by his widow in 1880 in memory of William Woods Bradshaw (1801-66), who became a member of the Royal College of Surgeons of England and Doctor of Medicine of Erlangen in 1833, a Fellow of the Royal College of Surgeons in 1854, an extra-Licentiate of the Royal College of Physicians in 1841, and a member in 1859. In the Bradshaw Lecture for 1910 (vide British Medical Journal, December 10th, 1910) at the Royal College of Physicians, Dr. Newton Pitt, in giving some details and a photograph of Dr. Bradshaw, mentions that at the mature age of 43 years he matriculated at Newton Hall, Oxford, and was granted a degree without examination. He was an M.D. and D.C.L. of that university, and is described as "a cultivated, refined, and somewhat eccentric man with a rather theatrical manner who never did much practice." His wife was the widow of a wealthy jeweller at Andover, whose money was to be forfeited in the event of remarriage, but after purchasing the reversion she and Dr. Bradshaw married and settled down at Reading. As originally directed the lectures were to be given on the anniversary of Dr. Bradshaw's death, August 18th, but in 1891 the sanction of the Charity Commissioners was obtained to depart from this date. These annual lectures were given for the first time in 1881, and at the Royal College of Physicians the late Dr. Vivian Poore took for his subject "The nervous affections of the hand"; other lectures notable for bringing new information to the notice of the profession were the late Professor W. S. Greenfield's "On some diseases of the thyroid gland" (1893), which gave the first full account of the histological lesions of the gland in exophthalmic goitre, and Sir Thomas Barlow's "Infantile scurvy and its relation to rickets," the completeness of the description being responsible for the name "Barlow's disease," a term perhaps less familiar in this than in other countries. It may also be noted that exophthalmic goitre formed the subject-matter of the two other Bradshaw Lectures at the same College by Professor George Murray in 1905 and by Sir Hector Mackenzie in 1916.

PSYCHIATRIC PROBLEMS OF THE FUTURE.

An address which touched on many subjects and gave to each of them a philosophical significance was delivered to the Section of Psychiatry of the Royal Society of Medicine on November 13th by the new president, Dr. T. B. Hyslop. He traced the progress of psychology since his presidency of the Section of Psychological Medicine at the British Medical Association meeting in London in 1910. During the intervening years the civilized portion of the globe had undergone such a violent upheaval that the thoughts of every person must have been drawn to the question

There is only one consideration that I wish Sir William had added to his excellent summing up of the situation, and that is this: in almost every instance, where we are dealing with the severe (Asiatic) type of the disease, the cases which are overlooked, and which cause the trouble he refers to, will be found to be mild modified cases in once-vaccinated subjects whose vaccination has "lapsed." Had these cases been unvaccinated the attack would have been much more severe and their nature much more obvious, and almost certainly they would not have been overlooked. I am convinced that sufficient importance has not hitherto been attached to this consideration. I agree with Hewlett and Nankivell when they say:

"Given that the staff of the health department is sufficient and that the provision of hospitals . . . is adequate, the control of small-pox is more easy among a population that is entirely unvaccinated than among one that is partially and insufficiently vaccinated."—*Principles of Preventive Medicine*, p. 306.

They go on to recommend universal revaccination as the ideal, but if we cannot have universal revaccination it looks as if our present system was worse than useless!

It is not surprising that the present ultra-mild American type of small-pox is proving so difficult to deal with in view of the ease with which the disease is overlooked. Fortunately, however, the mildness appears to be inherent and breeds true, so little injury to health is caused. Indeed, it is very possible that we shall come to regard it as a "para"-small-pox. But if this is so we are clearly not justified in using the horrors of the old severe Asiatic type of small-pox as an argument for insisting upon the necessity for universal infant vaccination as a protection against the new ultra-mild American small-pox.—I am, etc.,

Leicester, Nov. 6th. C. KILLICK MILLARD.

** We refer elsewhere to Dr. Millard's letter.

ATTITUDE IN CATHETERIZATION OF THE BLADDER.

SIR,—Why is it so easy for a bladder to get infected from catheterization of a patient in bed in spite of most scrupulous aseptic and antiseptic precautions, and yet one so often meets or hears of patients who have been in the habit of passing a catheter on themselves for many years without any precautions as to asepsis or antisepsis and without any marked signs of cystitis?

May it not be due to drainage of the bladder, in the latter case from its most dependent part, and in the former case from a point which is not its lowest part? Most patients who pass the catheter for themselves do so either standing or sitting up; but they are in the prone position when the catheter is passed on them.—I am, etc.,

October 25th. H. E. BAMBER.

ASTHMA DUE TO INSECT POWDER.

SIR,—The answers to the two questions asked by Dr. Coke (November 3rd, p. 841) are as follows: (1) The patient's sensitiveness to dog hair was not tested, since she had frequently been closely associated with dogs, but asthma had only resulted from a combination of dogs and insect powder. (2) The powder was tested on a normal arm with a completely negative result.—We are, etc.,

J. R. GARRATT,
Dublin, Nov. 10th. JOSEPH W. BIGGER.

BUTYN AS A LOCAL ANAESTHETIC.

SIR,—As an addendum to Dr. William Hill's notes on butyn (November 10th, p. 876) it should be stated that this substance cannot be used exactly as cocaine. Quite a small quantity of the solid laid on a sty produced white sloughing of the conjunctival surface, and violent chemosis followed, although it was washed off in a few seconds. Considerable care should therefore be exercised in the use of the stronger solutions, and the solid regarded as a possible escharotic for mucous surfaces, causing violent inflammation in some cases.—I am, etc.,

London, W, Nov. 10th. JAMES KERR.

SIR,—The article by Dr. William Hill (November 10th, p. 876) coincides in every way with my experience of butyn. I was unable to procure, in time, a supply of the anaesthetic to do justice to the preparation, so withheld the answer to the inquiry of the Cocaine Substitutes Committee of the Ministry of Health.

On a series of minor operations on the nose and throat I have found butyn inferior to cocaine; striking examples being on the same patients in whom both sides of the nose required interference to practically equal degrees, using on one side cocaine, and on the other butyn 5 per cent. The comparative comfort and discomfort in certain cases was very evident, the patients in these cases volunteering the statement that in one case the discomfort was much greater. Of course, the anaesthetic used was not divulged to the patient.

In eye operations butyn is very satisfactory as an anaesthetic, but there are two disadvantages: excessive smarting on first application, and hyperaemia of the conjunctiva, especially in certain individuals. I hold that cocaine is still dominant in eye, throat, and nose operations.—I am, etc.,

ARNOLD FERGUSON, F.R.C.S.Ed.,
Surgeon to Diseases of the Eye, Throat, Nose, and Ear to the Jersey General Hospital.
November 16th.

PAY OF MARRIED I.M.S. OFFICERS.

SIR,—I have read with interest recent letters from officers of the R.A.M.C., and venture to make similar remarks regarding the pay and allowances of married officers of the sister service to which I belong.

Married officers in the Indian Medical Service, in common with all married officers in other branches of the service in India, receive no married allowances, but identically the same pay and allowances as unmarried officers. Their expenses are not less than double, and in the case of married officers with families more than treble, those of unmarried officers. They are obliged to keep up two establishments for six months in every year when their wives and families are forced to go to the hills on account of the prejudicial effect of the climate in the plains during the hot weather. The move to the hills and back is alone sufficient to cause great anxiety; the rents of houses are exorbitant, food and necessaries excessive in price, and servants demand enormous wages. All this is well known to the Government of India, which has, up to the present, done nothing to alleviate the sufferings of married officers.

India is becoming day by day a country in which a married European officer cannot hope to live with any self-respect, as he is expected to give the best years of his life towards serving a Government which will not realize that he must necessarily be in a constant state of anxiety regarding the present and the future of his family and himself.—I am, etc.,

October 24th. MAJOR I.M.S. (MARRIED).

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on November 9th the following medical degrees were conferred:

M.B., B.CH.—L. B. Hartley, R. C. Hewitt.
B.CH.—T. M. Thomas (admitted by proxy).

UNIVERSITY OF LONDON.

AT a meeting of the Senate held on October 24th Mr. Geoffrey E. Duveen's offer of £10,000 for the establishment of a University lectureship in otology was accepted and the thanks of the Senate were accorded to the donor for his generous gift. It was reported that Mr. Duveen had suggested that the first holder of the lectureship should be Mr. Richard Lake, F.R.C.S., surgeon to the ear, nose, and throat department of University College Hospital.

The Academic Council reported that Professor F. Wood Jones had intimated his inability to accept the University professorship of anatomy, tenable at St. Bartholomew's Hospital, to which he was appointed in May last.

It was decided that for the second examination for medical degrees, Part I, in March, 1924, the syllabus in force in 1923 be adopted; and that in and after 1924 the M.B., B.S. examination for internal and external students be held in November–December instead of October.

Mr. H. J. Waring has been elected chairman for 1923–24 of the Brown Animal Sanatory Institution Committee.

The University medal in Branch III (psychological medicine) of the M.D. examination for internal and external students, July, 1923, has been awarded to P. C. P. Cloake (London Hospital) and in Branch IV (midwifery and diseases of women) to P. J. Veale (University College Hospital).

whither humanity tended. Evolution and devolution were constant throughout the universe, but the human mind curiously claimed exemption for itself from the process of devolution. Men noted with complacency the rise and fall of nations and civilizations, knew that worlds were born and died, and in their rational selves were aware that this world must conform to its allotted destiny; yet we were blind to its ultimate devolution. The philosophical conclusion arrived at from the data of physics and psychology was that mind in its ultimate essence was coextensive with energy. From Myers's doctrine of the subliminal self there had followed a flood of conjectures, some of which appeared to be legitimate. Sir Oliver Lodge endorsed the view that the individual was but an incomplete fraction of a larger self, a portion only of the whole self, which was in intimate contact with matter. Dr. Hyslop agreed with the view that in the association of spirit with matter the incarnation of something pre-existent appeared to be a reality, and that the gradual utilization of matter by pre-existing life or spirit might really occur. He asked that in dealing with such problems a greater measure of tolerance should be shown. He next dealt with the attempts which had been made to localize mental states to certain physical areas; these attempts had not so far had much success. By destroying or severing the connexions of any of the cortical areas existing activities might be cut off or the results of former activities rendered inert, but beyond that it was not possible to go. With further advances in knowledge of the data of consciousness and of brain structure there might be formed some definite doctrine of cerebral localization, but the answer of cerebral anatomy and physiology to the question of the localization of consciousness had been of little value hitherto. The activity of the sense organs was undoubtedly determined originally by cosmical means outside the body, but those means had to be changed and modified before they could determine consciousness. Even though the ideal elements of science were reached there would till be no explanation of how the physical organism eveloped specific forms of motion upon which consciousness was superimposed. The nerve cell, in his view, consisted of two distinct elements, one neuroplasmic and the other trophoplasmic. He saw in each nerve cell nothing else than modifications of the neuroplasmic fibrillae and the trophoplasmic adjuncts. Each cell was but a station or junction where the neuroplasmic fibrillae were structurally continuous and had for their common use a comparatively large trophoplasmic process. The long discussion as to the individuality of the neuron lost its difficulty to a great extent when these two factors were considered—a continuous neuroplasm, and a trophoplasm which was contiguous, and acted through its relations to the neuroplasm or its dependence on biochemical or other influences from without. The neuron theory had never been adequate, and it ought to be supplemented by the trophon theory. The trophon was to all intents and purposes a structural and functional equivalent to a pulsatory lymphatic heart, deriving its activities and energies from chemico-physical changes within the neuroplasm. The trophons were probably during life subjected to pressure due to various causes, including mechanical. It was reasonable to conjecture that mental abnormalities were due to the disruption or short-circuiting of currents in nerve tracts originating in either the trophon or the neuron. Dr. Hyslop held to the view that the nervous system was a mechanism for the transmission of force, and not a generator of force. The nerve fibrillae were purely conductors in function. The nerve cell or the trophon did not initiate energy, but simply supported, protected, and nourished the fibrillae. The progress of psychiatry had been slow and laboured. It was not to be compared with the progress of surgery and certain departments of medicine. But the methods of Freud and his disciples had during the last few years led in some instances to a more thorough understanding of various mental states. The study of the physiology of the nervous system had shown the value of the experimental destruction or excitation of the accessible microscopical parts, but the anatomical facts, instead of elucidating the problems of the physical basis of mental processes, had tended rather to increase the difficulty of understanding the complex mechanism of the nervous system. Science and religion were coming more and more into accord as the knowledge of realities became more manifest, and it was not out of the question to think that a creative and an emergent evolution might be shown to be in complete agreement. Science needed the background of eternity.

CANCER CURERS.

THERE are in most big towns persons who profess to be able to cure cancer by drugs to be taken internally, or by local applications—"without the knife," as the saying is—but it is probably in rural districts and in their small market towns that the curers by lotions, ointments, and plasters most flourish. They do much harm; they are the cause of great suffering, physical and mental, but their practice is not illegal, and while they avoid certain obvious pitfalls they can continue so long as the local public is willing to believe their promises. Occasionally, however, they are not sufficiently astute to avoid the long arm of the law. A case heard recently in the Doncaster County Court before His Honour Judge R. W. Turner presents certain features, particularly the terms of letters written by the defendant, which are worthy of note. The following account is founded upon reports in the *Yorkshire Herald* and the *Yorkshire Post*. The case came on first on October 24th; the plaintiff, the wife of a labourer in the village of Bentley, sued the defendant for the return of £11 paid to him for the cure of cancer, which had not been carried out. The defendant issued a circular in the form of a letter in the course of which he said, "I am willing and prepared to accept any cancer case and to cure them thoroughly without any operation whatever. . . . After I prove my abilities I will sell my remedy to any medical gentleman or physician for a reasonable sum or stand in with them. . . . No cure no pay." The case was adjourned to enable the claim to be amended. At the second hearing, on November 7th, the claim was for the return of £11 fees for the treatment of cancer, damages for breach of warranty, and damages (£50) for pain and suffering. The plaintiff, who had been a patient of Dr. Ashurst of Bentley, was found by him to be suffering from a tumour which was not cancerous. He recommended her to go to the Sheffield Infirmary; she was there offered admission with a view to operation, but refused. She then went to see the defendant. He was not at home, but afterwards wrote her a letter, dated June 23rd, as follows:

> Dear Madam,—Guaranteed. Call about 12.30 p.m. Sorry I was not at home this evening on your calling. To speke candid I am scarcely at home, allways on the prowl or detained. Some persons want me. But nevertheless as a servant of the Most High God. The blessing that He as bestowed upon me more than mankind I only wish all blessings to go to my God of the Heavins. If you can pay me each week for the drugs that you require to destroy all the roots, the fangers, and to draw the cancer cord away, I will cure your boosom, chest, and system and make a sound cure of you; then give me for my trouble what you can afford and oblige.—Yours obediently,
>
> David Williams.

On June 28th the defendant called and examined the plaintiff, and told her that she was suffering from cancer, but he could cure her in a month or six weeks; she agreed to pay him £2 a week. He supplied her with a lotion, a green ointment, which brought on boils and blisters, and

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

AT the annual meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on November 5th the following office-bearers were elected:—President: Dr. T. K. Munro. Visitor: Mr. J. H. Pringle. Treasurer: Mr. J. H. MacDonald. Honorary Librarian: Dr. E. H. L. Oliphant.

The following, after examination, have been admitted as Fellows: G. F. Andeen, P. C. Banerjee, John Hare.

Obituary.

THOMAS PRIDGIN TEALE, M.B., F.R.C.S., F.R.S.,

Consulting Surgeon, Leeds General Infirmary.

WE have to record with deep regret the death of Mr. Thomas Pridgin Teale of Leeds, on November 13th, at the age of 92. He was a link with the past, for he had been Sir William Bowman's assistant during the Crimean war, and was the oldest Fellow of the Royal College of Surgeons of England, having obtained that diploma in May, 1857. He lived a very full life, being interested in many things outside his strictly professional duties; he gained, indeed, a considerable reputation as a general sanitarian at a time when the organization of public health work was still in its infancy.

Thomas Pridgin Teale, who was born at Leeds June 28th, 1831, came of a surgical stock. His grandfather, Thomas Teale, was a practitioner of much repute and success in Leeds, and his father was Thomas Pridgin Teale, F.R.C.S., F.R.S., who married Frances, daughter of the Rev. Charles Isherwood, some time Fellow of Magdalen College, Oxford. Thomas Pridgin Teale the elder was born in 1801 and died in 1867. He was one of the founders of the Leeds school of medicine, and lecturer there for twenty years, chiefly on anatomy and physiology, and he was surgeon to the Leeds General Infirmary from 1833 to 1864. It was he who devised Teale's operation for amputation with a long anterior and short posterior rectangular flap (1853); the plastic operations in the treatment of cicatricial disfiguration of the face after burns; and a method for dealing with a torn urethra. He was one of the first six Crown nominees to the General Medical Council.

Thomas Pridgin Teale, the subject of the present biographical sketch, was sent first to Leeds Grammar School; in 1844 he went to Winchester, and from there in 1849 to Brasenose College, Oxford. He graduated B.A.Oxon. in 1852, and M.B. 1856; he had taken the M.R.C.S. in the previous year. He was a medical student at King's College, London, but immediately after taking his degree was appointed lecturer in anatomy and surgery at the Leeds school of medicine; this post he retained until 1876. He became surgeon to the Leeds General Infirmary in 1864. There he established a very high reputation as a surgeon and teacher, and his retirement from the active staff in 1884 caused great regret. His chief surgical writings were on the treatment of diseases of the eye, and he delivered the Bowman lecture before the Ophthalmological Society of London in 1893 on the abandonment of iridectomy in extraction of hard cataract. He also wrote papers on the extraction of soft cataract by suction (*Ophth. Hosp. Reports*, 1864), and on atropine and mercury in acute iritis (Ibid., 1860). His chief contributions to general surgery were on the surgery of tuberculous glands of the neck, an inquiry in which he was associated with his life-long friend Sir Clifford Allbutt, who was for many years his medical colleague at the Leeds General Infirmary.

At the Annual Meeting of the British Medical Association in Leeds in 1889, under the presidency of Mr. Wheelhouse, Mr. Teale delivered the address in surgery, choosing as his subject "Detail in Surgery"; in it he described from his large experience some practical points he had found of much assistance in his own work. One thing on which he insisted was the importance of ligaturing an artery in two places before its division between the two ligatures. In this way he maintained that he got physiological rest of the artery and avoided secondary haemorrhage. He also recommended the use of Lister's sounds in preference to the older methods of treating stricture of the urethra, and had some advice to give on drainage of wounds and on the proper way to administer ether.

Teale, though primarily a surgeon, was a very imp member of the public health section of the commu his day. Thus he was president of the health sec the Social Science Congress at Huddersfield in 1883, corresponding section of the British Medical Asso at Liverpool in 1883, and of the Association of S Inspectors of Yorkshire 1888-9.

His best known work was, perhaps, that entitled *I to Health: A Pictorial Guide to Domestic Sanitary I* It was published in 1879. It ran into four editions and was translated into French and Spanish, and by Princess Christian into German. The book was re elaboration of a lecture delivered before the Leeds sophical and Literary Society in 1877. He had come conclusion through his own professional experienc probably one-third, at least, of the incidental illness kingdom, including much of childbed illness and s the fatal results of surgical operations in hospit private houses, was the direct result of drainage and that they could and ought to be prevented. sure that the medical profession were, as a general lamentably ignorant about house sanitation and p lived in badly drained houses themselves, and his obj to stir up public feeling on this most important s The lecture was delivered by request six times in and twice in neighbouring towns. The interest taken lecture and the discussion to which it gave rise taugh that if proper domestic sanitary arrangements were obtained the public must be educated in details of d sanitary matters, and should be shown the absolute n for good workmanship as well; the best way to driv points home was to show the people in a simple, symp and unmistakable way the faults of sanitary const which it is within the power of landlord and te distinct from the public authorities to remedy and The design, therefore, which he set before himself in his book was to represent pictorially every importa to which domestic sanitary arrangements are liable, do this in the most forcible way irrespective of drawing. The points in each of the fifty-five plates t it was desired to attract attention were drawn in lines so that the eye might fix upon them first, and th lines more faintly. The course and escape of sewe were indicated by blue arrows, and escaping sewa also coloured. The whole effect of the drawings striking even now, and the book must have had remarkable influence at the time in arousing public in such a highly important subject.

In addition to hammering sanitation of this kind public, Teale gave his views on ventilation. As sa should begin at home, or, to change the metapho doctor should grease the wheels of his own whee before telling another person that his squeaked, Tea chapter on ventilation was concerned with a window tion in the roof of a doctor's brougham. He had h a hinged window opening backwards, in the roof carriage for some ten years and recommended it str his medical brethren. They would get pure air, wi draught, and light for reading; from this the trans the proper ventilation of houses was easy. The sy adopted in his own house and recommended for others was to place a Tobin's tube with section about equal to that of the chimney pot in eac because air must be provided to go up the chimne next question was how to clean the air and excl dirt. He had long seen that if air was to pass th screen without retardation of current the area screen must be fifteen to twenty times that of the of the Tobin tubes which it supplied. He t carried his tubes from the cellar through the f the various rooms with inlet of air in the cellar a screens in the ceiling of the cellar supplying hi There were, however, manifest inconveniences in method, so he asked the tube makers to try and se air in the tubes, the screen to be at least ten times t of the section of the tube and the section of the tu equal to the section of the chimney pot. This was putting the screen in the tube diagonally from top to In subsequent editions of his book the tubes were within more reasonable limits of space.

also put on a plaster. During this treatment she suffered much pain. Mr. John Adams, public analyst, Sheffield, said that the lotion was partly ammonia; the ointment blue vitriol, sugar of lead, and bread; and the plaster mainly tar. For the defence it was urged that the defendant had used a method described in John Wesley's *Common-sense Medicine for Common-sense People*. When the judge remarked that science had advanced since then, the reply was that the method was a resuscitation of an old-world remedy for cancer, and that evidence of some success could be produced. The judge did not accept this statement, observing that the evidence at present was that there is no cure for cancer. In giving judgement the judge said that the defendant had had the money and must return it to satisfy the terms of his advertisement, "No cure no pay." These classes of people, he went on, were always talking of their alleged successes, and there was a class of people who always believed them. The judge entered a verdict for the return of the £11, with £30 for pain and suffering. The judge said that the case was important to the public, and gave costs on Scale C, with qualifying fees for the analyst and the doctor. The judge's observations were so much to the point that it does not seem necessary for us to add anything by way of comment.

WINTER SPORTS IN FRANCE.

FEW people associate the Riviera with snow and winter sports, but in the article on wintering on the French Riviera published a year ago (October 28th, 1922, p. 815)—an article which deservedly attracted much attention and has been helpful to many, both would-be visitors and their medical advisers—it was pointed out that there were many places in the Alpes Maritimes where a true mountain climate could be reached within an easy journey of the Mediterranean. The writer of that article had in mind chiefly the use of such places to escape the summer heats, but we learn from a leaflet on winter sports in France that one place at least in that district is laying itself out to attract winter snow-lovers. This is Peira-Cava, at an elevation of 4,757 feet, within 40 kilometres of Nice, from which it can be reached by motor omnibus. The French are, in fact, showing a great deal of enterprise in establishing winter sports stations. The two highest are in the Pyrenees—Font-Romeu and Luchon-Superbagnères; both, curiously enough, are 5,906 feet high, and at both new and well appointed hotels have been built. Font-Romeu is in the Eastern Pyrenees and is surrounded by forests; it can be reached from Paris in thirteen hours. Bagnères-de-Luchon in the Central Pyrenees (fifteen hours from Paris) is a well known summer watering place with thermal sulphur springs, at a height of 2,066 feet; Superbagnères stands in an open situation 3,840 higher up; it is reached by a funicular railway in about an hour. In addition to the large new hotel there, every class of hotel is to be found at Bagnères-de-Luchon itself. Cauterets, also in the Pyrenees, hitherto known as a summer resort, is now seeking to attract the winter visitor also; it has the advantage of presenting a considerable choice in hotels, but it is only 3,363 feet high, which some will think not high enough. The jumping-off place is Pau. St. Pierre de Chartreuse, a village on the road from Grenoble to the monastery, is described as a quiet place having arrangements for sports; it is 3,117 feet above sea-level. Another high-lying place in quite a different district is Mont Revard, at an elevation of 5,068 feet; it is eighty-five minutes by a mountain railway from Aix-les-Bains, of which it seems to be looked upon as an annexe, but it has a small hotel of its own. Mégève (3,750 feet) in Savoy is said to be especially good for ski-ing, and there is always Chamonix (3,409 feet), where the winter sports section of the eighth Olympic Games is to be held this winter, when the annual international ski-ing competition organized by the French Alpine Club will take place for the French challenge cup. Full information about all the places mentioned and how to get to them can be had from the Office Français du Tourisme, 56, Haymarket, London, S.W.1.

VACCINATION PROPAGANDA.

WE publish elsewhere in this issue a letter from Dr. Killick Millard with reference to the editorial article entitled "Vaccination propaganda" in our issue of November 3rd (p. 826). Dr. Millard accepts our correction of his error as to 165 deaths attributed to vaccinia; but as to his other erroneous statement with regard to the conscience clause he makes a defence of which he gave no hint in what he wrote in the JOURNAL of September 29th (p. 564). He there spoke of the conscience clause "proposed as a result of the Royal Commission's report"; he was therefore referring to the clause of the Act of 1898, not to the altered clause in the Act of 1907. In his letter published this week he introduces fresh matter. By his quotation from Sir William Hamer's report he shows that he appreciates the great value of the Ricketts-Wanklyn method of diagnosis for the prevention of epidemics; but he goes on to say that he is convinced that further aid in dealing with small-pox of the old type would be obtained by refraining from the practice of infant vaccination, because then an attack of small-pox would be more severe and therefore more easily diagnosed. "Had these cases," he writes, "been unvaccinated the attack would have been much more severe and their nature much more obvious, and almost certainly they would not have been overlooked." Such severity would of course be attended by more pitting of the skin in the event of recovery, and by a higher mortality among persons attacked. The vicarious beneficiaries would be the children of parents who in no case would have had them vaccinated, either through mere neglect or through disbelief in vaccination. In short, certain children are to be immolated on the altar of diagnosis in order to protect other children whose parents refuse to give them the protection of vaccination. It is apparently for their sake that those who would otherwise have been submitted to vaccination are to be left unprotected. The sympathy of everyone will be with the bereaved parents of infants who have been infected with sepsis or erysipelas after vaccination, however the infection may have been brought about. But are we to have no sympathy with the proposed victims of easier diagnosis? On the one hand, erysipelas is a rare sequel to a measure of the greatest protective value. On the other, severe small-pox might be the result of omitting to bring influence to bear in support of the protective operation.

AGGLUTINATION OF DIPHTHERIA BACILLI.

THE Ministry of Health has issued a paper[1] by Dr. W. M. Scott on the agglutination reaction of diphtheria bacilli. It is a contribution to practical questions concerning the carrier problem and to the discrimination between pathogenic and non-pathogenic types of the bacillus. These types are indistinguishable by cultural and morphological tests; Dr. Scott set out to determine whether they could be distinguished by their serological behaviour. In studying 265 strains he found eight main serological groups, but there was evidence of other groups not identified. Six of these groups contained only toxigenic strains, while the remaining two included toxigenic and non-toxigenic cultures. The unidentified strains and also the non-virulent (but otherwise typical) strains were much commoner amongst contacts and carriers than amongst

[1] It forms part of No. 22 Reports on Public Health and Medical Subjects. Issued by the Ministry of Health. H.M. Stationery Office (2s.) or through any bookseller.

Other pieces of popular writing were the address which he delivered as president of the health section of the Social Congress at Huddersfield in 1883, on "Hurry, worry, and money—the bane of modern education"; a pamphlet on the economy of coal in house fires published in 1866; and a lecture on the principles of domestic fireplace construction, delivered at the Royal Institution in 1886. The titles of these are sufficient clue to their subject-matter.

He was elected a Fellow of the Royal Society in 1888 and made Honorary D.Sc.Leeds in 1904. He was a Crown Representative on the General Medical Council from 1876 to 1901.

He married first, Alice, daughter of the Rev. W. H. Teale; she died in 1891; and secondly, Jeannie, daughter of D. C. Jones, Esq., of Tamworth. He leaves four sons and four daughters. One of the sons carries the medical instincts of the family into the fourth generation.

DAVID W. FINLAY, B.A., M.D., LL.D., F.R.C.P.,

Emeritus Professor of Medicine in the University of Aberdeen.

DR. DAVID WHITE FINLAY, whose death at "Balgownie," Helensburgh, on November 4th, we regret to record, was Regius Professor of the Practice of Medicine at the University of Aberdeen for over twenty-one years.

He was born in Glasgow eighty-three years ago, and was educated at Glasgow High School and Glasgow University, where he graduated B.A. in 1860 and M.D. (with commendation) in 1864. He took the D.P.H. of Cambridge in 1883, and was elected F.R.C.P.Lond. in 1885. He also studied for a time in Vienna. For some years he held the appointment of physician to the Middlesex Hospital, and was lecturer on clinical medicine, forensic medicine, and public health in the medical school. He was also physician and afterwards consulting physician to the Royal Hospital for Diseases of the Chest in London. In 1891 he was appointed Regius Professor of the Practice of Medicine in the University of Aberdeen, and physician to the Aberdeen Royal Infirmary. He was appointed Dean of the Faculty of Medicine in 1907. When in 1912 he retired from the chair he became Emeritus Professor, and the University afterwards conferred upon him the honorary degree of LL.D. He took a keen interest in the affairs of the University, and in 1900 he represented it at the bicentenary celebrations of Yale University, where he received the honorary degree of LL.D. In 1908 King Edward VII appointed him one of his honorary physicians in Scotland, and in 1911 King George V conferred a similar honour upon him. He was the representative of the University of Aberdeen on the General Medical Council from 1901 to 1911. He contributed many articles to the medical journals and to the transactions of medical societies, and he was the author of the article on pneumothorax in Allbutt's *System of Medicine*. During the war he held the rank of temporary lieutenant-colonel R.A.M.C., and was in charge of the Scottish National Red Cross Hospital at Bellahouston, Glasgow.

His chief recreation was yachting, on which he was a recognized authority, and he published several works on the subject, including, in 1910, *Reminiscences of Yacht Racing and Some Racing Yachts*. He was a member of the first council of the Yacht-Racing Association and of the Royal Clyde Yacht Club and other yacht clubs. He married a daughter of the late Mr. Stephen Thompson, shipowner, of London, and had two sons and four daughters.

We are indebted to Dr. ASHLEY MACKINTOSH, the present Regius Professor of Medicine in the University of Aberdeen, for responding to our request for a tribute to Professor Finlay's memory, as follows:

I shall always be glad and proud to think that I was a pupil and, later, a colleague of Professor Finlay. When he was appointed Regius Professor of Medicine at Aberdeen in 1891, it was felt to be no little gain to have secured a man who was a graduate of another Scottish university and had already gained considerable experience of medical practice and teaching in a great London medical school. And the result justified the expectation.

As a teacher he was eminently careful, lucid, and direct. His systematic lectures were illustrated and amplified by a series of excellent lantern slides. In his clinical teaching he followed largely the Socratic method of question and answer, and his students quickly learned that a straight question demanded a straight answer—nothing else would satisfy our teacher. By example, as well as by precept, he taught the necessity of following Sydenham's "method" of careful, close, continued observation of diseases. He insisted on accuracy—"the old Hippocratic ἀκρίβεια"—in his students as in himself; he could tolerate almost anything rather than slipshod work. And if, at times, interest did appear to be sacrificed to detail, this was surely a fault in the right direction in a teacher. Through all his work he had the saving grace of quiet, dry humour, and his students knew that he took a keen and living interest in them and their welfare. He was a loyal supporter of the movement to secure a better arrangement of hours for clinical study at the infirmary. I can testify that his interest in his old students and in the university generally was fully maintained up to the end of his life.

As a man and friend, Professor Finlay was loyal, downright, and sincere; he did his work and said his say without fear or favour. When he retired in 1912, Aberdeen University lost a distinguished professor and teacher, a sound and wise counsellor. His death will leave in the hearts of his former pupils and other attached friends a sense of very real loss. I can never forget his uniform kindness, thoughtfulness, and courtesy and how very much I owe to him.

We are glad also to be privileged to publish this eloquent note on Professor Finlay's sterling qualities as a man:

"Ane by ane, they gang awa'," as George Macdonald has it in his beautiful line, and the medical profession is the poorer by the passing of David Finlay, a true Scot, a man of sterling worth, and a steadfast friend. One of the old school, he had all the courtesy and repose of the Victorian—a noticeable and pleasing feature in these hectic Georgian days. Upright and honest to a fault; a hater of side, sham, and shoddy; ever imbued with a high sense of duty; constant to the task in hand; meticulous in detail, and somewhat impatient of the working of minds less well ordered than his own; a man of firm determination, and to some stern, but to those who knew him rich with the milk of human kindness and endowed with a keen sense of humour—such was "Dauvit," as he was affectionately called by a generation of students. To his sterling work at Marischal College and in his wards at the Royal Infirmary, a competent authority will bear testimony. As Emeritus Professor he continued to take an active interest in the Aberdeen Medical School, and on leaving the Royal Infirmary he presented a large number of medical books and periodicals as a reference library for the resident staff. From the Silver City by the Sea he went to Glasgow, and thence to Helensburgh, where from his house of Balgownie—a name redolent with memories of Aberdeen—he could look out upon the well-kent waters of the Firth of Clyde, for he had ever felt the fascination of "the many-sounding sea," and on the title-page of his interesting book, *Reminiscences of Yacht Racing*, had inscribed Byron's lines, which might well have been written of himself:

> "And I have loved thee, Ocean! and my joy
> Of youthful sports was on thy breast to be
> Borne, like thy bubbles, onward; from a boy
> I wanton'd with thy breakers—they to me
> Were a delight. . . ."

He and his brothers from their youth upwards had been fond of boating, and had owned and raced many yachts on the home waters of the Clyde and elsewhere. One of these, the *Kilmeny*—a prominent picture on his study wall—was described by an authority as "by far the best boat of her inches ever built," and "for a combination of speed and power the best craft that Fife ever turned out." When the "excitements and striving" of racing gave place to "the more sober, but still pre-eminently satisfying and health-giving pleasures of cruising," he sailed his yacht among the Western isles, and wrote eloquently of the beauties of Skye, of the hills of Mull and Morven, and of the cliffs of Rum—scenes which appealed strongly to his sense of the picturesque, and remained with him an imperishable memory. Seascapes were his favourite pictures, and of these he had many, while enlarged photographs of white-winged yachts sailing on waters havened by Highland hills covered the

convalescents and acute cases. The non-toxigenic strains which conformed to the ordinary microscopic and cultural standards of *Bacillus diphtheriae* were also found to respond to the serological tests of virulent bacteria proving membership of this species; but this was not the case with the strains which are commonly described as "atypical diphtheroids," a fact which provides further evidence that such strains are not true diphtheria bacilli. A study of the relationship of different antigenic types of diphtheria bacilli to different epidemics showed evidence of association of particular epidemics of diphtheria with particular serological groups of the bacillus.

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

The fifth congress of the Far Eastern Association of Tropical Medicine was held in September at Singapore, and was attended by over 300 medical practitioners, representing fifteen countries. The president of the congress was the Hon. Dr. A. L. Hoops, principal civil medical officer, Straits Settlements. The association was founded in 1908, when a small gathering of medical men met at Manila, and the first congress was held in the same city in 1910. The second congress was held at Hong-Kong in 1912, and the third congress at Saigon in 1913. The war caused a lapse of eight years, and the fourth congress was held in 1921 at Weltevreden in Java. It is intended to hold the next congress two years hence in Tokio, at the invitation of the Japanese Government. In his presidential address Dr. Hoops gave a brief survey of the work that had been done in the last twenty-five years in tropical medicine, and indicated the directions in which further work was still necessary. He said that for the widespread practice of preventive medicine an educated public, co-operating with educated medical officers, was required, and the mainstay of prevention in rural districts must be the rural practitioner. He insisted that there was nothing inherently unhealthy in a tropical climate, and there was no reason why the figures of the death rate and infant mortality rate in England should not be approached in the tropics.

WOMEN'S MEDICAL SERVICE FOR INDIA.

The Council of the Countess of Dufferin's Fund has issued its thirty-eighth annual report on the work of the National Association for supplying medical aid to women in India. The publication includes the ninth annual report of the Women's Medical Service for India. At the beginning of 1922 this service consisted of 38 medical officers with 4 temporary officers. The number of women medical students was 436, and there were altogether 400 women practitioners of medicine in India, as many as 145 hospitals being staffed by women alone. These figures indicate the great advances which have been made in providing medical aid by women since 1885, when the Dufferin Fund was formed. Large areas are, however, still unprovided with medical relief by women. Statistics compiled by the public health departments of the various provinces show a large excess of deaths among women at the child-bearing age, pointing to a high mortality at the time of childbirth. Moreover, infant mortality in India is still excessively high. The Council of the Fund thus summarizes the chief needs of the country as regards medical aid by women: (1) A far greater number of hospitals staffed by women; (2) a far larger supply of Indian women doctors both for hospital and private work; (3) more opportunity of post-graduate work to keep up the standard of professional knowledge; (4) training schools for nurses and midwives in connexion with every women's hospital; (5) more funds for the working of the hospitals in order that thorough and efficient work may be carried on; (6) a constant supply of women doctors, nurses, and midwives to take up preventive work in connexion with maternity and child welfare in all parts of the country.

The first David Lloyd Roberts Lecture will be delivered at the Royal College of Physicians of London on Tuesday, November 20th, at 5 p.m., by Mr. Edmund Gosse, C.B., LL.D. The subject of the lecture is "Personal relations between medicine and literature."

Sir William Macewen was the guest of the California Academy of Medicine, San Francisco, on September 20th, on his way to Australia as representative of the British Medical Association at the Australasian Medical Congress. He addressed an assembly of about 150 medical practitioners, among whom was Dr. Ray Lyman Wilbur, president of the American Medical Association.

On Thursday, November 29th, at 5.30 p.m., Sir W. J. Collins, M.D., will give a lecture at University College, London, on the life and doctrine of Sir Edwin Chadwick. Tickets of admission can be obtained on application to the Secretary of the College.

Sir Donald MacAlister, K.C.B., Principal of the University of Glasgow and President of the General Medical Council, has been appointed a Deputy Lieutenant of the city of Glasgow.

Medical Notes in Parliament.

[From our Parliamentary Correspondent.]

The General Election.

On the reassembling of the House of Commons on November 13th, Mr. Baldwin announced that he had decided to advise His Majesty to dissolve Parliament on Friday, November 16th, which means that a general election will take place on Thursday, December 6th. He explained that this resolve was taken on account of the grave problems of unemployment, and because he had reached certain conclusions he could not act upon unless he were relieved of the pledge given by Mr. Bonar Law as affecting the present Parliament. He thought that as in these circumstances a general election was necessary, it should take place at the earliest possible time. Hence the choice of date.

It is hoped that the new House will meet on December 10th for the swearing-in of new members, and after two or three days will adjourn until the end of January, when the business of a new session will begin.

The Government majority over all other parties in the House of Commons at the present time is 73. One result of the declaration of fresh policy by Mr. Baldwin is that the two wings of the Liberal party have come to an agreement to work together.

The Panel System.

Sir Kingsley Wood asked the Minister of Health on November 13th whether he could state the present position of the negotiations with the doctors on the panel lists concerning their duties and remuneration; and whether he had conferred with the approved societies in relation to such matters. Sir William Joynson-Hicks replied he had now made two alternative offers to the doctors, which would be considered by the conference on November 14th. As regards the second part of the question he stated that for some months past a series of consultations had been taking place with the Approved Societies' Consultative Councils of England and Scotland, and, in addition, conferences had been held with representatives of the various important groups of approved societies in Great Britain in relation to both duties and remuneration.

In reply to further questions, Sir W. Joynson-Hicks said that if his offer was accepted he hoped to lay on the table a White Paper on the whole subject, including an actuarial report. Asked whether the agreement had been assented to by the approved societies, Sir W. Joynson-Hicks said, "No, sir. I, as Minister of Health, after fully considering the whole matter, have made alternative proposals to the doctors. If either of these proposals is accepted legislation will be necessary, and I hope to have the responsibility of bringing in that legislation and submitting it to the House."

walls of his study. Most of these were his own work, for he was an expert in artistic photography.

When the war clouds darkened his retreat he took service, at the age of 75, in a naval hospital on the Clyde, and later became lieutenant-colonel and O.C. the large Scottish Red Cross Hospital in Bellahouston Park, Glasgow. There he did excellent work, but occasionally found the trivialities and circumlocutions of the War Office rather trying, and the twistings and twinings of red tape foreign to his methods. For one to whom it had almost been a religion to "call a spade a spade" it was somewhat difficult to understand why it was an offence not to style it "Shovel, Army, Field Pattern Mark 1," or why rank should be regarded as anything but just "the guinea's stamp." But he did his bit and saw it through; and retired to Helensburgh, where he spent the evening of his days in his garden and among his books, happy in the society of his wife and family, ever interested in medical affairs, busy with his carefully arranged records and papers, and in active correspondence with his friends in Aberdeen, whose medical school was often in his thoughts.

During his early years on the Clyde, his busy practice in London, and his twenty-one years of professorial work in Aberdeen, he led a strenuous and useful life, and retired full of years and honours, admired by many and respected by all. Even when well into "the borrowed years" he bore the growing burden of his age manfully, and still keen and alert did the work that fell to his hand, till at the sunset, with his eyes set towards

> "The dim, dark sea, so like unto Death
> That divides and yet unites mankind,"

there came to him "the one clear call," and he "put out to sea."

J. S. R.

WILLIAM HARRISON CRIPPS, F.R.C.S.,

Consulting Surgeon to St. Bartholomew's Hospital.

By the death of Mr. Harrison Cripps, the medical profession loses a surgeon who, in his younger days, was one of the great pioneers of the successful surgery of the abdomen and rectum in this country.

Born on January 15th, 1850, of an old Gloucestershire family, William Harrison Cripps was the second son of Henry William Cripps, Q.C., sometime Recorder of Lichfield, and Julia, the eldest daughter of Charles Lawrence. One of three sons, all, as their careers in after life have shown, of very exceptional ability, Cripps would have risen to the greatest eminence in any profession he had cared to take up. Henry, his eldest brother, was a prominent member of the Parliamentary Bar; his younger brother is Lord Parmoor. He received his medical education at St. Bartholomew's Hospital, and obtained the M.R.C.S.Eng. diploma in 1872. He was immediately appointed house-surgeon and continued on the active staff of the hospital until, as the senior surgeon, he resigned in 1909 and became one of the consulting staff. He became a Fellow of the Royal College of Surgeons in 1875. After serving in the Medical School as demonstrator of anatomy, he was appointed surgical registrar in 1879, and was elected an assistant surgeon to St. Bartholomew's in March, 1882. It was during the later period of his time as assistant surgeon that Cripps attained the zenith of his fame both as an operator and as a teacher, and many generations of old Bart's men still remember and appreciate his famous and humorous teaching in the out-patient room. As a monument of his kindness of heart and ever-readiness to help his juniors, the memory of those gratuitous classes, which he took in the evenings at his own house, will ever remain in the minds of his old pupils.

In 1892, whilst still in the out-patient department, he was appointed surgeon to the women's wards, at that time in the care of Sir Francis Champneys. This rather specialized branch of abdominal surgery seemed dearer to Cripps's heart than his general work, and for many years he filled rather a curious and anomalous post with the greatest success. Much of it was undoubtedly due to the mutual feelings of admiration and real affection with which he and Champneys regarded one another. In January, 1902, on the resignation of Alfred Willett, he became a full surgeon to the hospital. From 1880 to 1890 he had served as surgeon to the Great Northern Hospital and the Royal Free Hospital. He practised as a consultant in Stratford Place, W., devoting himself more especially to the surgery of the abdomen and rectum.

For his monograph on *Carcinoma of the Rectum* Harrison Cripps was awarded the Jacksonian prize by the Royal College of Surgeons of England in 1876. Great credit is due to Cripps for his strong advocacy at that time of the operation of inguinal colostomy, both as a palliative measure and as a preliminary to the extensive perineal and trans-sacral excisions which he favoured. His work was done before the days of the combined abdomino-perineal methods, and it is interesting to note that modern surgical teaching is rather inclined to revert to those operations, which, in his capable hands, gave such excellent results. He was elected to the Council of the Royal College of Surgeons in 1909, served as a member until 1920, and was vice-president for the years 1918 and 1919. He served on the Finance Committee, in which capacity his remarkable business acumen was of the greatest assistance; he was also a representative of the College on the executive committee of the Imperial Cancer Research Fund.

Among his better known writings are *Ovariotomy and Abdominal Surgery*, published in 1898; *Cancer of the Rectum: The Possibility of Extirpation*, the fifth edition of which appeared in 1913; and *Diseases of the Rectum and Anus*, fourth edition, 1913. At the Annual Meeting of the British Medical Association at Liverpool in 1912 he opened the discussion on the surgical treatment of rectal cancer. In view of the present-day teaching of the value of temporary caecostomy in some cases of obstruction, an article of his entitled "Temporary typhlotomy for intestinal obstruction," published in the British Medical Journal in 1893, is especially interesting.

Always a strong man, and confident of his ability to carry out his own virile ideas, Cripps may occasionally have wounded the more tender susceptibilities of some of his colleagues, but, concealed beneath a cynical exterior, lay a great and kind-hearted personality. A man of many parts, perhaps his sense of humour will remain in the minds of his friends as one of his stronger attributes, and this happy trait he retained even up to the final day of his last illness. To his simplicity of technique, his gentleness in the handling of tissues, and the sound and careful organization of the many details of an operation must be attributed much of his success as a surgeon. Cripps always knew what he wanted to do and did it in the simplest, quietest, and most gentle manner without one unnecessary or purposeless movement. Possessing a great fund of knowledge on many subjects, he was a brilliant and interesting conversationalist, whose like is seldom met with in the present day. In brief, it may be said of him that he was a great autocrat, a fine surgeon, and a good sportsman—than which no higher praise is possible.

H. W. W.

Sir Francis Champneys, Bt., writes: Having been asked to send a contribution to the obituary notice of Mr. Cripps, I gladly do so. I only knew him well after my return to St. Bartholomew's on the death of Dr. Matthews Duncan. In accordance with custom, the physician-accoucheur, who was answerable for all cases admitted to his wards, asked for the help of one of the surgeons to do such operations as he desired to assign to him. These operations were specified by me as abdominal sections, except Caesarean sections, and were performed by Mr. Cripps for many years. All human beings are very compound, and this mixture tends to make individuals interesting as well as puzzling. Cripps had at least three well marked strains: there was the surgeon, the domestic individual, and the very keen man of business. It was with the two first that I was best acquainted. Others will speak of him as a surgeon with more authority than I; but I saw so much of his work in my special department that I do not think that anyone had better means of judging it. Cripps was a born surgeon. As regards an opinion, the importance of facts fell naturally into proportion in his mind, and he was generally right. As regards operative work, he was rapid without being hurried; he had beautiful "hands," firm and gentle; he was absolutely concentrated

COMMERCIAL INFLUENCES IN THERAPEUTICS.

BY

A. J. CLARK, M.D., F.R.C.P.,

PROFESSOR OF PHARMACOLOGY, UNIVERSITY COLLEGE, LONDON.

On taking the chair as President of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine on November 13th, Professor CLARK, after thanking the Section for the honour it had done him, gave an address on the influence of commercial interests on therapeutics, in the course of which he made the following observations:

Certain work, done during the past few years, in examining widely advertised proprietary medicines, impressed upon me the light-hearted manner in which some firms made sweeping therapeutic claims for their products; claims in support of which they had little or no direct evidence. In addition I found that even when evidence was laboriously collected which indicated that these claims were erroneous, it usually made no difference in the advertised claims. This naturally caused me to inquire what safeguards existed in England to ensure that the claims made in advertisements of drugs were at least not demonstrably false. I found as a matter of fact that no such safeguards exist. Reputable firms, out of regard for the good name of their firm, are, of course, careful what claims they make in advertisements, but this is the only safeguard that exists.

I may say at once that, in my opinion, this state of things is extremely prejudicial to the progress of therapeutics, and that it is highly desirable that the medical profession should devise some sort of organization for its own protection in this regard.

The exploitation of therapeutics by large commercial concerns really only developed in the latter half of the nineteenth century. It is true that a company was formed in Paris shortly before the Revolution for the large-scale production of the Thériac, the famous mediaeval cure-all, but this company perished in the Revolution. Modern methods of advertising have enabled the exploitation of the public on a far vaster scale than formerly; moreover, a company with extensive capital can employ more skilled assistance in conducting propaganda, and hence there is a general tendency for the cruder forms of exploitation to disappear and to be replaced by much more refined methods. The production of drugs on a large scale has, of course, brought many very important benefits to medicine, for it has rendered possible the production of drugs of uniform quality, and has been of great help in the organized search for new remedies. But although the capitalization of the drug industry has rendered important services to medicine it is idle to deny that it has also introduced serious new evils.

It was recently estimated that the capital employed in America in making secret remedies was larger than that employed in the legitimate drug trade. In England it was estimated that in 1913 more than £4,000,000 was spent on such remedies, and that the trade spent £2,000,000 in advertising. I quote these statements as evidence that there exists a very powerful and extensive trade which exploits the public; as I shall show later, there is no guarantee that this trade may not turn its attention to the medical profession if it conceives that such exploitation will yield quicker profits than exploitation of the general public. At present the medical profession has practically no organization available for its defence against such a move.

It is important to note that the law affords no protection whatever to the public or to the medical profession against any form of exploitation by proprietary medicine vendors as long as they avoid the laws against obscenity. The law on the subject was summarized in the report of the Select Committee on Patent Medicines in 1914[1] as follows:

Para. 22. "The situation, therefore, as regards the sale and advertisement of patent and proprietary medicines and articles may be summarized in one sentence as follows. For all practical purposes British law is powerless to prevent any person from procuring any drug, or making any mixture, whether potent or without any therapeutical activity whatever (so long as it does not contain a scheduled poison), advertising it in any decent terms as a cure for any disease or ailment, recommending it by bogus testimonials and the invented opinions and facsimile signatures of fictitious physicians, and selling it under any name he chooses, on the payment of a small stamp duty, for any price he can persuade a credulous public to pay."

The Committee also came to these additional conclusions:

Para. 55. "(7) That the existing law is chaotic and has proved inoperative, and that successful prosecution for fraud in the advertisement and sale of secret remedies is fraught with the gravest difficulty, though the Public Prosecutor has perhaps not sufficiently tested the powers of the existing law in respect to such cases.

"(8) That consequently the traffic in secret remedies, except as regards scheduled poisons and the grosser forms of impropriety, is practically uncontrolled in this country."

The objection will at once be raised that these paragraphs refer to the blatant frauds advertised in the lay press, frauds which the medical profession has consistently denounced, and which really are of little concern to medical men. Unfortunately it is impossible to make any easy definition which will divide these blatant frauds from proprietary medicines of highest therapeutic value. These extremes are so utterly dissimilar that it is hard to believe that there is any relation between them, but every possible intermediate grade exists, and it is a matter of utmost difficulty to establish any formula to determine which proprietary articles should be recognized by the medical profession and which should be condemned. There is in fact no definite line that can be clearly drawn between quack medicines and legitimate proprietary articles.

There are, of course, certain classes of articles that the medical profession can condemn at once.

In the first instance secret remedies require no discussion, for it is contrary to every professional tradition for a doctor to prescribe a remedy of whose composition he is ignorant. The advertisement of a secret remedy is, however, merely an indication of a lack of ingenuity and imagination on the part of the manufacturer. Nothing is simpler than to give a formula and to claim either that one of the ingredients is obtainable only by the manufacturer, or that the value of the medicine depends upon the exquisite skill with which the ingredients are prepared and compounded.

As an example of a non-secret proprietary remedy one may take the preparation sold by Mr. C. H. Stevens. Stevens first sold remedies for pulmonary tuberculosis in South Africa named "Sacco" and "Lungsava." He then came to London and claimed that his preparation was not a secret remedy in that he was willing to give the formula to any doctor who requested it. The formula was stated to be 80 grains of Umckaloabo root and 13½ grains of Chijitse to every ounce, prepared according to the *British Pharmacopœia* methods. Careful inquiries by the British Medical Association expert in South Africa failed to show the existence of Umckaloabo or Chijitse, nor could any record of them be found in any work on pharmacy. The Select Committee on Patent Medicines examined Stevens's cure (para. 43) and the Government Chemist gave the following analysis:

	Sample First Bottle.	Sample Last Bottle.
Proof spirit	19.5 per cent.	19.5 per cent.
Solid matter	2.8 "	3.4 "
Mineral substance (ash) ...	0.2 "	0.2 "
Glycerol (approximately)...	10.7 "	17.8 "

"No alkaloids or resins were found. The solid matter corresponds with the colouring and extractive substances of an ordinary wine. The samples are therefore essentially mixtures of wine and glycerol."

Stevens brought an action against the British Medical Association for statements made regarding his remedy in *Secret Remedies*, and as the Select Committee notes, "the defendants pleaded justification, and the jury found for the defendants." In 1915 the "cure" appeared in the United States as the "U.P. Extract" exploited by the Umckaloabo Chemical Company of New York City.

During the past three years articles have appeared in the Swiss medical journals, in which Dr. Sechehaye[2,3] is reported to state that he has treated numerous cases of tuberculosis with Umckaloabo, and that it has acted as a real specific in tuberculosis. It would appear that these articles and conclusions are being broadcasted to the medical profession of this country.

I have spent so much time on this particular case because it is an example of a non-secret remedy supported by an article by a medical man published in a reputable journal. The Government Chemist's report is sufficient evidence that this is not the type of proprietary article that we would wish to see supported by the medical profession in this

on his work, never flurried, always unruffled and prompt in the face of a mishap. In the subsequent management of a case he was never out of the way in case of emergency unless (as when called away) he had made ample provision; in short, his patient was able to feel that she was never out of his mind until she was well. As regards his non-professional side, he was an unusually kind and sympathetic friend, in joy or in sorrow. In the holidays, when his delight was to fish, he always took care of his guests first, and put himself last. There was another side of him which was known only to very few, and to which he never referred to me—namely, his care for his poorer patients. It was his *wont to follow* their fortunes on their discharge from hospital, and to help pecuniarily those who needed help, his reason being that, as they had helped him indirectly to prosperity, it was only fair that they should not be forgotten.

Mr. F. R. Cross, surgeon to the Bristol Eye Hospital, and reader in ophthalmology in the University, writes:

My friendship with Harrison Cripps dated from the time that we were fellow residents in King's College Chambers. He was in the engineering department, and would no doubt have done well, as he had a mechanical turn of mind and showed ingenuity in the invention of instruments—one that was exhibited at the Royal Society on the "continuous registration of heat," and others.

Yet he was drawn towards surgery, became a student at St. Bartholomew's, rapidly qualified, and was demonstrator of anatomy. His natural ability and industry were aided by a quiet self-confidence that always characterized him. Thus almost directly after he passed the examination for the Fellowship of the College of Surgeons he gained the Jacksonian prize for an essay on "Cancer of the rectum and its cure by excision." This was followed by a book that started his successful career in this branch of work: it was illustrated by many drawings by Mrs. Cripps and himself taken from microscopical sections he had made from his cases. But more than this, he was a good all-round surgeon and teacher. Perhaps not a man of many friends, he was very sociable, and hospitable to those he knew well. He was a good shot and fisherman; and as a younger man he enjoyed what time he could give to a day's hunting, particularly with his father's private pack of harriers near Parmoor. Later on, when he took a lease of Abbotsford, the house was, during the long vacation, filled with his friends for whom he found daily amusement on the grouse moors, or in salmon fishing in the Tweed. His hospitality was unbounded—his great care seemed to be to think for the individual interests of his many guests, leading the way in sport by day, and in the evening keeping us all together, by cheery conversation at dinner or by the fireside. This hospitality was continued year by year, and afterwards when he purchased Glendaruel in Argyllshire.

In 1905 he was elected to the Council of the College of Surgeons as a substitute member for three years, but was not re-elected. With characteristic courage, however, he tried again in 1909, was successful, and remained a member until 1920. He was well fitted for the independence that characterizes the actions of the members of Council; while his long experience as a hospital surgeon, his sound common sense and knowledge of business, were of great service. I look back with pleasure to the times I spent with him and many of our friends, and with gratitude to Cripps and Mrs. Cripps for hospitality in London and Abbotsford, and later when he became the Laird of Glendaruel; there it is that he is lying now in peace, surrounded by the valleys and mountains that he loved so well.

THOMAS HENRY GREEN, M.D., F.R.C.P.,

Consulting Physician to Charing Cross Hospital and to the Hospital for Consumption and Diseases of the Chest, Brompton.

The death of Dr. Thomas Henry Green on November 5th in his eighty-second year removes one who loyally served Charing Cross Hospital Medical School for thirty-five years; for no less than twenty-eight years of that period he was physician to the hospital. He was educated at University College Hospital, became M.R.C.S. in 1864, M.B.Lond. in 1865 with first-class honours in medicine, and proceeded to the M.D. in 1866. After holding various posts at University College Hospital and that of medical registrar at the Hospital for Sick Children, Great Ormond Street, he was in 1868 elected assistant physician to *Charing Cross Hospital*; this migration from University College to Charing Cross Hospital was imitated in 1871 by Sir R. Douglas-Powell and the late Dr. Vivian Poore, and in 1876 by Sir Thomas Barlow. From 1874 to 1902, when he retired and became consulting physician, he was full physician, and the excellence of his clinical teaching will long be held in grateful remembrance by many generations of old students of the hospital, who, it is said, found it unnecessary to read any textbook of medicine for examinations provided they attended Green's clinical teaching. As lecturer on pathology and morbid anatomy he set a high standard of teaching from the time he joined the hospital staff until 1887, and from 1870 to 1874 he was in addition curator of the museum.

At the Hospital for Consumption and Diseases of the Chest, Brompton, he was elected on June 17th, 1875, together with his colleague at Charing Cross Hospital, Dr. J. Mitchell Bruce, assistant physician, becoming physician in December, 1888, and consulting physician in February, 1903. He became a member of the Royal College of Physicians of London in 1867 and a Fellow in 1874, and was Censor (1900-1), Senior Censor (1904), Councillor, and for eight years an examiner. At the time of his death he was sixth in seniority on the list of Fellows.

Green was a representative hospital physician of the best contemporary type with a solid basis of morbid anatomy for his clinical practice. Of a retiring disposition he was seldom in evidence, and less so in the later part of his professional career, possibly as the result of a serious illness from which he made a complete recovery, than in his earlier days. At the old Pathological Society of London he was secretary (1875-6), vice-president (1886-8), and served twice on the Council (1871-3, 1878-9). He was also on the Council (1886) and a referee for papers (1882-1906) at the Royal Medico-Chirurgical Society, and when the Royal Society of Medicine started he was one of the first vice-presidents (1907-8) of the Section of Medicine. He also served on the Council and made four contributions to the *Transactions* of the Clinical Society of London. From comparatively early days he was widely and chiefly known as the author of *An Introduction to Pathology and Morbid Anatomy* which first appeared in 1871 (12mo, pp. xvi and 304; 60 figures) and has now passed its jubilee in the much expanded thirteenth edition under the direction of Drs. W. C. Bosanquet and G. S. Wilson (1923, 8vo, pp. 624; 244 figures). Embodying the teaching of Virchow, under whom Green had worked, it was rightly regarded by students as a standard textbook and was translated in 1876 and again in 1886 into Japanese. After Green gave up the pathological lectureship the handbook was edited by a succession of his colleagues; the edition of 1889 was brought out by the late Mr. Stanley Boyd, who was followed by the late Dr. Montagu Murray, and then by Dr. Bosanquet, who in 1917, in conjunction with Professor W. W. C. Topley, was responsible for the twelfth edition.

In 1876 he published a small book of 103 pages on *The Pathology of Pulmonary Consumption*, which consisted of three lectures given in the previous year at the Brompton Hospital. This contained illustrations from his book on pathology and expressed views originally put forward four years previously in a series of papers in the *Medical Times and Gazette*. Quain's *Dictionary of Medicine* contained an article by him on inflammation of the lungs, and he made various, but by no means numerous, contributions to the medical journals.

This bare record shows the events in the life of a conscientious physician who was content to do the day's work without any further ambition than to have earned his own self-respect.

HENRY WHITBY PHILLIPS, M.D.,

Croydon.

Henry Whitby Phillips was a son of the late Charles Phillips of Atherstone, Warwickshire, and a brother-in-law of the late Dr. G. A. Gibson of Edinburgh. He studied at Edinburgh, and graduated M.B., C.M. in 1881. He took the diploma of M.R.C.S.Eng. in the same year.

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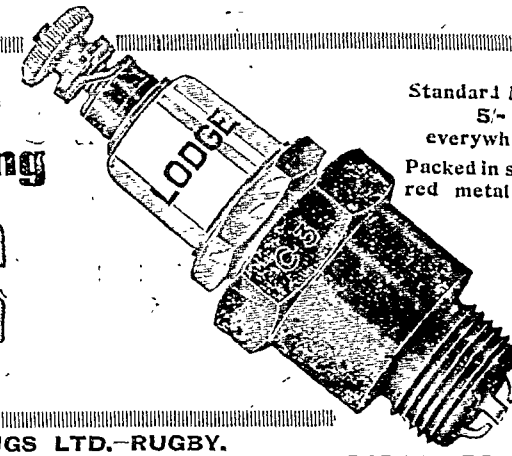

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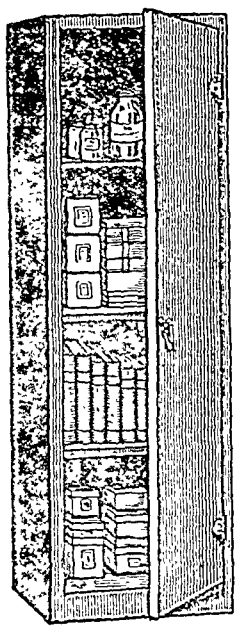

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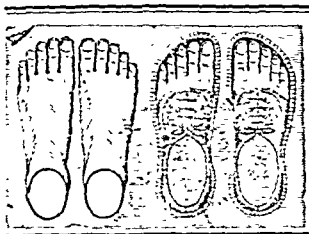

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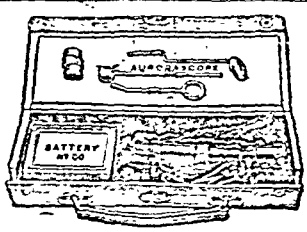

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A British Medical Association Lecture

ON

THE EXPERIMENTAL BASIS OF ENDOCRINE THERAPY.*

BY

A. J. CLARK, M.C., M.D., F.R.C.P.,

PROFESSOR OF PHARMACOLOGY, UNIVERSITY COLLEGE, LONDON.

THE laboratory worker and the clinician naturally regard therapeutic measures from a slightly different angle, since the former is concerned chiefly to know what facts can be considered as fully proved, and the latter wishes to know what measures offer a fair chance of benefiting patients. The history of therapeutics teaches us, however, with no uncertain voice, that once speculation and imagination get free from the restraint of rigidly controlled observation there is no limit to the distance which they may wander from the paths of truth. Complex systems of treatment based on inaccurate deductions have repeatedly been built up, and have been almost universally accepted and followed until some advance of knowledge, or even some change in fashion, has sufficed to upset the whole system, and the treatment has been universally discarded and often has come to be regarded as not only useless but actually harmful.

When considering any system of treatment it is very necessary to distinguish clearly between that part of it which is definitely proved and that part which is based merely on plausible deductions, and in no case is this attitude more essential than when considering the recent developments of endocrine therapy.

The discovery of the function of the organs of internal secretion opened up a whole new field of physiology, and this knowledge led to brilliant and dramatic successes in the treatment of thyroid deficiency. This initial success suggested boundless possibilities in the use of organ extracts, and endocrine therapy has gone forward on the assumption that extracts of every other organ of internal secretion ought to yield results comparable to those obtained from thyroid therapy. There has been every temptation for therapeutic practice to outrun scientific fact, and in addition commercial enterprise has certainly done its full share in assisting in the development of endocrine therapy. The result is that endocrine therapy is coming to bear a suspicious resemblance to mediaeval magic; the savage believes that eating the heart of his enemy will confer on him the virtues of this enemy, and the more enthusiastic vendors of endocrine remedies suggest that the consumption of extracts of practically any organ will cure diseases of that organ. The general line of thought and the extent of scientific foundation are about the same in both cases.

These considerations indicate how essential it is in the case of endocrine therapy to examine the evidence closely and distinguish clearly between the remedies whose use is based upon definite evidence, and those whose use is simply based on inference. The subject of endocrine therapy can be divided into two fairly distinct divisions: (1) substitution therapy—that is, the administration of the extract of an organ in order to compensate for the deficient secretion of the organ; and (2) the use of extracts of tissues as pharmacological agents, when there is no question of substitution for a deficient secretion.

The use of adrenaline as a vaso-constrictor and the use of pituitary extract as an oxytocic are examples of the second class of action. In these two particular cases extracts of endocrine organs are used, but active pharmacological agents can also be obtained from other kinds of tissues. For example, Abel and Macht[1] found that the poison gland of the toad, *Bufo agua*, contained 6 per cent. of adrenaline and also bufotoxin, the latter being a digitalis-like substance which produced the same therapeutic action as digitalis. This example is interesting because it shows how erroneous it is to assume that, because a tissue contains a specific substance with interesting and powerful pharmacological actions, therefore this agent must be an internal secretion.

Substitution Therapy.

Substitution therapy is the most important division of endocrine therapy, and it is advisable to consider the postulates that should be fulfilled before we can assume that an organ extract acts in this way. Gley[2] has laid down three conditions which should be fulfilled before it is assumed that an organ produces an internal secretion.

1. The histological condition. The organ must contain secretory cells in intimate relation with the blood vessels and without any duct for external secretion.
2. The chemical condition. A specific chemical substance must be identified both in the organ and also in either the venous blood or lymph coming from the organ.
3. The physiological condition. The venous blood or lymph coming from the organ must produce the pharmacological actions produced by the specific substance.

Gley[2] has recognized that these conditions are so severe that they would rule out most of the endocrine organs, and has suggested that in default of the above conditions two other concurrent tests may be accepted—namely, (1) the destruction of the gland produces deficiency symptoms which present a clearly defined syndrome; and (2) this syndrome is relieved by grafting of the gland or by administration of organ extracts.

These tests of Gley's are framed to test the physiological actions of organs, but from the point of view of pharmacology slightly different tests are required. For example, even if grafting of a gland produces benefit in a deficiency syndrome, it does not follow that the administration of organ extracts will be successful.

Endocrine therapy may be considered to rest on a solid scientific foundation when the following conditions are fulfilled: (1) The destruction of a gland produces a characteristic syndrome. (2) The administration of extracts of the organ relieves this syndrome. (3) Some chemical or pharmacological test exists by which the activity of the extract can be recognized and if possible be measured. It is important to realize that even if the first condition is fulfilled it does not follow that the second condition will also be fulfilled.

An endocrine organ may fail to produce an active extract for several reasons. (1) The action of the gland may be in part or entirely a detoxicating action, in which case the administration of gland extracts will have no effect. (2) The gland may secrete its internal secretion as rapidly as it is formed. In such a case the gland will contain no store of internal secretion and its extracts will be inert. (3) The active principle may be so labile that it cannot be isolated.

In any of the above three cases grafting of the gland may be expected to relieve deficiency symptoms, but administration of gland extracts will produce no effect. All the known hormones are relatively unstable bodies, although some are much more unstable than others, and it is interesting to consider that Minchowski, as early as 1889, showed that removal of the pancreas produced diabetes, but it was more than thirty years before anyone succeeded in isolating the active principle of the pancreas in a stable form. Another difficulty is that it is necessary to discover the correct method of administering organ extracts, for in many, if not most, cases these are destroyed in the gut before absorption.

These considerations show how wide is the step between proving the effects produced by deprivation of an internal secretion and the discovery of the correct method of isolating and administering an extract to cure this deficiency. Unless some test exists by which the activity of an organ extract can be recognized these difficulties are almost insuperable.

So-called endocrine remedies have been prepared from every tissue of the body, but it is only necessary to consider those organs which fulfil the first condition—namely, that

* Delivered before the Cambridge and Huntingdon Branch of the British Medical Association.

Shortly after graduation he became house-physician to the late Dr. George Balfour in the Royal Infirmary, Edinburgh. After holding various other hospital appointments he graduated M.D. with honours in 1886. He then settled in Croydon, where he rapidly established himself in an extensive practice, and remained for thirty-four years. During the war he served as an officer of the Volunteer Force, in the Surrey Royal Army Medical Corps, and was granted the honorary rank of major, receiving on retirement the thanks of the Army Council. He was also on the staff of the Croydon War Hospital, and was latterly entrusted with the organization of a volunteer ambulance corps. Not content with this he made several attempts to serve overseas, and the fact that he was prevented from going abroad by the age regulations and on account of medical reasons was a great disappointment to him.

In the midst of a busy life he found time for many interests. He was a member of the Alpine Club and a skilful and intrepid climber, and year after year he spent his holidays among the mountains, and had ascended many of the more inaccessible peaks in the Swiss and French Alps. Though the loss of an eye, supposed by some to have been due to several attacks of snow blindness, prevented him from continuing to indulge in his favourite hobby, he still kept up his interest. He was an enthusiastic member of the Pepys Club, and was actively interested in several literary and art societies. Believing to the fullest extent that a medical man should be well instructed and well read, amid the wide circle of his interests he kept himself fully abreast of the recent advances in medicine and surgery. In the company of a sympathetic listener he was at his best in his Alpine garden on a summer evening, pointing out his most choice and favourite specimens and telling tales of his beloved mountains; or, wandering through the dim twilight of one of our ancient cathedrals, delighting his audience with his profound knowledge of religious architecture. Those who met him quickly recognized him as a man of great enthusiasms and wonderful versatility, of broad views and independent thought, a lover of all things beautiful, whether the work of nature or of man. Those who were privileged to know him intimately remember him as kindly and gentle, more especially to those most needing his assistance, preserving through his life the same high ideals with which he first set out on his journey, and supporting through the later years of his life an ever-increasing ill health with indomitable fortitude and without complaint.

The late Dr. William Hall of Leeds.—In response to our request Sir James Crichton-Browne has sent the following brief note: "I have seen nothing of the late Dr. William Hall of Leeds for forty years. While resident in the West Riding I met him many times in consultation, and found him a wise, broad-minded, and thoughtful physician, sympathetic and judicious and of refined and genial presence. He took an active part in the campaign against overpressure in elementary schools and the pernicious system of payment by results, and shamed us by his demonstration of the superior hygienic conditions under which Jewish children are reared. He was a delightful friend, a worthy member of the shining professional hierarchy in Leeds in those days."

Dr. Henry Lionel Smith, of Mottingham, Eltham, who died in a nursing home at Blackheath on November 3rd, aged 80, had had a much more varied experience than falls to the lot of most men of his profession. He was the eldest son of the late Henry Joseph Smith, F.R.C.S.I., of Donaghmore House, Queen's County, Ireland, was educated at the Ledwich School, Dublin, and took the L.R.C.S.I. and L.K.Q.C.P. in 1866, and the M.R.C.P.I. in 1885. He began his career in the service of the Hudson's Bay Company, when he was stationed at Moose Fort, at the southern end of Hudson's Bay; he then went to Australia, where he was for some time district surgeon at Albany, West Australia; and finally served in South Africa, where he was surgeon to the Mashonaland Police; saw active service in the Mashona rising, and received the medal for that campaign; afterwards he held the posts of district surgeon and M.O.H. at Bulawayo, the capital of South Rhodesia.

The well known bacteriologist and hygienist, Dr. Karl Flügge of Berlin, has recently died, at the age of 75.

Professor Friedrich Martius, formerly director of the Rostock University Medical Clinic, and a well known writer on achylia gastrica and the relation of heredity and constitution to pathology, died recently, at the age of 73.

The Services.

DEATHS IN THE SERVICES.

Colonel Sinclair Westcott, C.B., C.M.G., [illegible] Queen Alexandra's Military Hospital, [illegible] aged 64. He was born at Plymouth [illegible] educated at St. Bartholomew's Hospital, and took the M.R.C.S. in 1880, and the L.R.C.P.Edin. in 1881; he took the D.P.H.Dublin in 1899. He entered the R.A.M.C. as surgeon in 1882, he attained the rank of colonel in 1912, and retired on December 26th, 1917. He was medical officer of health at Hong Kong during the plague epidemic of 1895 in that colony, the first outbreak of the great visitation of plague which has ever since been more or less endemic in the Eastern hemisphere, and has ravaged India almost continuously since it was first detected in Bombay in 1896. He served in the South African war from 1899 to 1902, and took part in the defence of Ladysmith. Afterwards he was in charge of a general hospital, with the temporary rank of colonel, served in the operations in the Orange River Colony, was twice mentioned in dispatches, in Sir George White's dispatch of March 23rd, 1900, and Sir Redvers Buller's of November 9th, 1900, both published in the *London Gazette* of February 8th, 1901, and again in the *London Gazette* of September 10th, 1901. He received the Queen's medal with three clasps, and the King's medal with two clasps, and the C.M.G. In the war of 1914–18 he served first as A.D.M.S. of the First Division, and afterwards as D.D.M.S. of the First Army Corps, was six times mentioned in dispatches, in the *London Gazette* of December 4th, 1914, June 22nd, 1915, June 15th, 1916, and May 29th, 1917, and received the C.B. in 1915. He was also a Knight of Grace of the Order of St. John of Jerusalem. From 1918 to 1920 he served under the Ministry of Pensions as a deputy commissioner of medical services. In 1898 he married Ethel Constance, daughter of Colonel the Hon. Robert Bradshaw, and widow of D. Gifford Ottley, and leaves one daughter.

Colonel Geoffrey Craythorne Hall, Bengal Medical Service (ret.), died at Bexhill on October 27th. He was born at Grahamstown, South Africa, on August 27th, 1848, and educated at Guy's Hospital; he took the M.R.C.S. and the L.R.C.P.Edin. in 1871, and the F.R.C.S. in 1894. He entered the I.M.S. as assistant surgeon on March 30th, 1872, and attained the rank of colonel on December 2nd, 1901, but retired less than a year after. Before entering the service he had taken part in the Franco-German war of 1870–71, serving in a field ambulance, and received the German war medal. In India, after a few years' military duty, he entered civil employ in the North-West, now the United Provinces, and spent almost the whole of his service in the jail department of these provinces. For the greater part of the time he was superintendent of the large central jail at Naini, near Allahabad, but rose to be Inspector-General of Jails in the province. While at Naini he founded an ophthalmic hospital at Allahabad, kept up by private subscriptions, and for many years had a great reputation as an ophthalmic surgeon. He was the author of a number of small books on eye surgery—books which, without being very scientific, were of great help to the young civil surgeon beginning to do eye surgery in a district hospital remote from the help or advice of more experienced officers: *Causes of Blindness in India*, 1879; *Eye Diseases of Children*, 1884; *Complications of Cataract Operations*, 1886; *Senile Cataract*, 1899; *When to Wear Glasses*, 1900.

Medical News.

The new session of post-graduate courses and demonstrations for 1923–24, arranged by the Faculty of Medicine of the University of Sheffield, commenced on Friday, November 16th, and will be continued on Tuesdays and Fridays at 3.30 p.m., with the exception of a break from December 18th, 1923, till January 25th, 1924. The lectures will be announced in the weekly diary published in the Supplement.

We may remind readers that the lecture by Professor Strandberg of Copenhagen, on the results of treatment of rhino-laryngological tuberculosis by the Finsen light bath, will be delivered before the Royal Society of Medicine on Monday, December 3rd, at 5.30 p.m.

A report by the medical committee of the Canadian Social Hygiene Council on the standardization of the diagnosis and treatment of venereal diseases has been issued by the Department of Public Health at Ottawa. The committee consisted of thirty-five medical men and women under the chairmanship of Dr. Edmund E. King of Toronto, and the editorial supervision of Dr. J. J. Heagerty, chief of the Division of Venereal Disease Control in the Dominion

Males	30
Females	5
Aortic valves diseased in	34
Mitral stenosis (uncomplicated)	1

stolic blood pressure (35 V.D.H. patients not included)—

	Males.	Females.
Under 150 mm. Hg	73	10
150-179 ,, ...	62	12
180-199 ,, ...	28	10
200 mm. Hg and over...	43	27
	206	59

stolic blood pressure 180 mm. Hg and over—

Males	71 in 206 = 34.5 per cent.
Females	37 in 59 = 62.7 ,,
Total ...	108 in 265 = 40.7 per cent.

my series there were in all 309 patients up to the end ily, 1923—243 males, 66 females, or 1 : 3.7. Table I information concerning the type of patient, the height e systolic blood pressure, and the incidence of valvular se. There were 35, or 11.3 per cent., in whom I had a diagnosis of valvular disease of the heart. There definite aortic regurgitation in 26, and some degree of c obstruction in 10 patients.

nong many points of interest there are two which icularly attract our attention: (1) the relation of the ro-cardiographic findings to prognosis, and (2) the nosis and prognosis of minor angina.

Definition of Angina.

fore considering these two points a general but cursory ey of the problem may be permitted, and it would be to state at once what the term "angina" signifies.

angina pectoris I have in mind an arresting form of iac pain, substernal rather than submammary, in which patient is conscious of a sense of oppression, or con- tion, which may reach a high grade of intensity, even ndition of intolerable anguish. This pain has certain recognized lines of radiation and is often induced by t or emotion. There are in addition characteristic asso- ed symptoms not invariably present—notably the sense mpending death, and indescribable anguish of mind mpanied by varying vasomotor disorders, such as cold ts and deathly pallor.

is well to remember that the information desired by patient and his friends refers more often to the duration fe than to the mode of death, although the latter is not equently the subject of their inquiries.

Mode of Death.

e first important factor when considering the mortality recognize clearly that an anginous patient does not ssarily die in an anginal seizure, but frequently from r and less dramatic causes. A number pass away quietly eir sleep without apparent distress. On the other hand, h may be sudden and painless apart from sleep. In n the final event is probably that of fibrillation of the tricle, and is without any direct relation to an anginal ck. A large group is that formed by those who die the death of progressive cardiac failure. Then there are e who succumb to cerebral haemorrhage, while a few die a uraemia with its protean manifestations, and, as one ld expect in a malady which may persist for years, many from causes remote from the angina and its associated ological conditions.

have been able to obtain information concerning the le of death in 65 patients. Only 32.3 per cent. died in mmediately after an anginal attack, but another 24.6 per t. died either in their sleep or suddenly—a total of 37 ients. Twelve died from cardiac failure, and 16 from a iety of causes, some [illegible] independent of the anginal ndition. Th[illegible] below.

Diseases of kidneys	3
Diabetes	1
Cerebral haemorrhage	2
Gangrene of legs	1
Gangrene of lungs	1
Influenza and bronchitis	1
Pneumonia	1
Suicide	1
Sarcoma	2
Senility	1
Pernicious anaemia	2

If we accept the view that sudden death in these patients is usually due to fibrillation of the ventricle, and the clinical and experimental evidence favours this supposition, it is of interest to consider the factors predisposing to this lethal tumult of the myocardium. This has a definite bearing on prognosis.

Professor J. A. MacWilliam pointed out in August last that the exciting cause of fibrillation is "an increased demand on the powers of the heart and more or less stress on the organ"—for example, muscular effort or emotional excitement. Fortunately such factors leave the normal heart unaffected and are capable of inducing fibrillation only when the heart is in an abnormal condition of excessive susceptibility.

Certain drugs such as digitalis increase the liability to fibrillation, and there are probably other drugs and abnormal conditions with a similar tendency, but a "prominent part in the setting up of abnormal susceptibility to fibrillation must be assigned to defective coronary blood supply." The condition of the coronary arteries is therefore one important factor to be considered when estimating the liability to sudden death.

The liability to death *during* an anginal seizure in any particular case is almost incalculable, and I frankly admit that I know of no certain rule by which one can decide as to the probability of a sudden, dramatic, and painful exitus. An increase in the frequency and severity of the attacks is obviously ominous, but even when this has appeared uncertainty is not removed. An anginal seizure may come like a bolt from the blue. The first attack may be the last, with possibly no premonitory sign or signs to indicate that death is on the threshold. It is also well recognized that the severity and gravity of the initial seizure give no indication of the liability to an early recurrence, though in the presence of the attack itself, confronted by the physical and mental distress, it is difficult and almost impossible to take this dispassionate view. If, however, the patient survives the first stormy onset years may pass before there is any recurrence of a comparable severity.

While recognizing the elusive and incalculable element of uncertainty and frankly admitting the possibility of a sudden and terminal anginal seizure, I believe that the expectation of life in these patients can be predicted with some degree of justifiable confidence. The outlook depends on the integrity of the myocardium, and the health of the general arterial tree. It will depend also on the degree of co-operation given by the patient, who must be honest with himself and prepared to live down to the level of his damaged organs.

Death is often the outcome of the associated conditions and the cry of the heart is nothing more than the signal that it also is involved in the general depreciation. Whatever indicates a tendency to cardiac failure is of significance, and search must be made for every evidence of myocardial disease or functional impairment.

[The lecturer then dealt with the effect of transient toxaemias on the myocardium and referred to dyspnoea and the pulsus alternans as evidence of myocardial inadequacy. The grave significance of the alternating pulse was emphasized.]

High Tension.

In patients suffering from angina the significance of hypertension apart from the possibility of associated kidney disease lies in the fact that a raised blood pressure adds

Department of Health. The report recommends that all laboratories, including university laboratories, doing Wassermann tests, shall be licensed by and under the supervision of the Provincial Board of Health, and urges private, university, hospital, municipal, and provincial laboratories, in the use of these tests, to adopt recognized methods, so as to approach uniform results for the purposes of comparative study.

THE memorial to the late Professor Sir German Sims Woodhead at the Cambridgeshire Tuberculosis Colony, Papworth Hall, consists of a new pathological laboratory and x-ray department. It will be opened on Thursday next, November 22nd, at 2.30 p.m., by the Hon. Sir Arthur Stanley, G.B.E. The hospital, hostels, workshops, and village settlement will be open to visitors from 2 to 4.30 p.m.

DR. GEORGE CHAPMAN, of Hall Green, Birmingham, has celebrated this month his 100th birthday. He was a member of the British Medical Association for forty-five years. The Lord Mayor of Birmingham has sent him a congratulatory letter.

THE Schörstein Memorial Lecture will be delivered by Dr. Gordon Holmes, C.M.G., in the Anatomical Theatre of the London Hospital Medical College, on Monday, December 3rd, at 4.15 p.m.; the subject selected is some symptoms of cerebral irritation.

THE Duke of Bedford (President) and the General Committee of University College Hospital are giving a dinner at the Savoy Hotel, London, on Tuesday next, November 20th, when H.R.H. Prince Henry will be in the chair. Further information can be obtained from Dr. Walter W. Seton, University College, Gower Street, W.C.

THE annual dinner of the London School of Tropical Medicine will be held at the Hotel Victoria on Wednesday, November 21st, under the presidency of Sir Ion Hamilton Benn, deputy chairman of the Seamen's Hospital Society and the School.

THE annual dinner of the Medico-Legal Society will be held at the Holborn Restaurant on Friday, December 14th, at 7 for 7.15 p.m., when the president, the Right Hon. Lord Justice Atkin, will be in the chair.

THE bi-annual dinner of the Aberdeen University Club, London, will be held on Tuesday, November 27th, at Gatti's Restaurant, with Lord Elphinstone in the chair. The principal guest will be the Right Rev. Professor G. Milligan, D.D., D.C.L. The hon. secretary, Dr. Anstruther Milligan, 11, Upper Brook Street, W.1, will be very pleased to hear from any past or present graduates, men or women, wishing to attend the dinner.

ADMIRAL OF THE FLEET EARL BEATTY will preside at a festival dinner in aid of the Royal Northern Group of Hospitals to be held at the Mansion House on Wednesday, November 21st, at 7.30 p.m. The particular object of the dinner is to help to reopen seventy beds now closed.

AN exhibition of scientific novelties will be held at King's College during the Christmas holidays, from December 29th to January 9th inclusive, between the hours of 2 and 9 p.m. Experiments and demonstrations will be given continuously during this period and illustrated lectures will be delivered by Professor Cheshire, Professor Winifred Cullin, Sir Richard Gregory, and others. The proceeds will be given to the King Edward's Hospital Fund for London.

THE annual meeting of the Medical Officers of Schools' Association will be held at 11, Chandos Street, W.1, on Thursday, November 29th, at 5.15 p.m., when Dr. H. Crichton Miller and Dr. H. C. Cameron will open a discussion on the nervous child.

IN his recent presidential address to the Bolton and District Medical Society Dr. John Johnstone surveyed the medical history of the town, dealing particularly with the characters of the medical practitioners who had lived in it. It was remarkable, he said, how many Bolton medical men had belonged to the same families, twelve families having provided thirty-four medical practitioners among them. In 1814 there were known to have been two medical men in Bolton, while at present there were eighty-five practitioners, including seven ladies.

SIR JAGADIS BOSE, F.R.S., director of the Bose Institute, Calcutta, will deliver a lecture at the Royal Society of Medicine on Thursday, December 6th, on assimilation and circulation in plants. The chair will be taken by the president of the Society, Sir William Hale-White, at 5.30 p.m., and the apparatus used will be demonstrated in operation.

DR. LOUIS C. PARKES will take the chair at a meeting at the Royal Sanitary Institute (90, Buckingham Palace Road, London) on Monday, November 26th, at 5 p.m., when Miss Muriel A. Payne, honorary secretary of the International School of Nursing and Child Welfare for Russia, will give an address on sanitary relief work in that country.

DR. LOCKHART STEPHENS, on his retirement from the post of medical officer of health for Emsworth, was entertained at a complimentary luncheon on November 6th, when he received a presentation from the members and officers of the Warblington Urban Council.

THE League of Remembrance was established to perpetuate the memory of the war hospital supply dépôt movement, which was so successful during the war. It maintains a supply of medical and surgical requisites and clothing for hospitals and other institutions engaged in the promotion of health or social welfare; it also provides financial assistance to the widows, children, and other dependants of officers who fell or were incapacitated in the war. The organization is maintained as a nucleus to be made available for mobilization or expansion in cases of national emergency, and it provides instruction by lectures in connexion with matter relating to the objects of the League. The headquarters of the League are at 1, Marlborough Gate, London, W.2, and include a dining room, club rooms, and work rooms. There are various classes of members, and subscriptions range from 2s. 6d. to 2 guineas.

A POST-GRADUATE course in oto-laryngology will be given in Vienna during the fortnight beginning Monday, December 3rd. Full particulars can be obtained from Dr. Kronfeld, Porzellangasse 22, Vienna IX.

THE seventy-fifth anniversary of the foundation of the Amsterdam Medical Society in 1843 was celebrated by a banquet and by an interesting historical loan exhibition. The Amsterdam Medical Society is now the Amsterdam Section of the Netherlands Medical Association.

AN institute for physical therapy and orthopaedics will be opened in Moscow in December.

IN New York, as in London, scarlet fever has shown a marked decrease this year. From January 1st to September 19th 6,832 cases have been notified, as compared with 8,522 cases during the corresponding period of 1922.

A CANCER INSTITUTE has been established in New York by the Commissioner of Public Welfare as part of the work of his department, and a series of clinical conferences of medical practitioners are to be held at which unusual cancer cases will be presented. The Institute is equipped for 200 patients.

UNDER the will of the late Elizabeth Skillern of Leyton, the London Hospital will, after payment of legacies, receive the residue of her property, which it is expected will amount to nearly £4,000.

THE Dutch Pediatric Society will hold its winter meeting at Amsterdam on November 25th, when the subject of empyema will be discussed.

JUPILLE, the second patient to be inoculated by Pasteur against rabies, has recently died. He held a post at the Pasteur Institute of Paris from its foundation until his retirement in 1918.

THE American Committee of Jewish medical practitioners has made a donation of £1,000 to purchase a piece of ground at Jerusalem for the erection of the medical faculty of the Jewish University.

A CONGRESS of tropical medicine was recently held at Saint Paul de Loanda in Portuguese West Africa on the initiative of the Portuguese Government; the subjects discussed were the organization of medical attention to the natives and the treatment of ankylostomiasis, malaria, sleeping sickness, etc. The next congress will be held in January, 1927, at Dakar.

A REGULATION has been passed by which every man and woman in greater New York who comes in personal contact with the public handling of food must obtain a licence from the department of health certifying that he or she is free from contagious and infectious disease; it is estimated that about 160,000 persons will require licences.

DR. C. V. PIRQUET has resigned the post of head of the department of pediatrics of the University of Minnesota, U.S.A., after holding it for two weeks, and has returned to Vienna. Dr. v. Pirquet stated that he had a feeling of homesickness for his Vienna hospital and was unable to adapt himself to the new conditions; moreover, the plans for a hospital, which were necessary for his researches, required a considerable time for completion.

IN Germany only 9 cases of small-pox and 22 of typhus occurred in the first six months of 1923, as compared with 199 and 358 respectively in the corresponding period of 1922.

THE sixteenth congress of the Russian Surgical Society will be held at Moscow from May 3rd to 8th, 1924. The subject for discussion will be pulmonary surgery, including abscess, gangrene, tuberculosis, and treatment of wounds of the lung. From January 3rd to 10th there will be a congress at Petrograd for pathology, experimental pedagogy, and psychoneurology.

to the load which the heart carries, and in addition is generally associated with a diffuse arterio-sclerosis; so that this type of patient is predisposed to cardiac distress and cerebral accidents. Even so, the careful figures of Mackenzie[3] indicate that the expectation of life in anginal patients is not materially modified by an associated high blood pressure. This is an unexpected finding. In his series the mortality curve of those patients with a systolic blood pressure of 180 mm. Hg and over followed very closely that of the mortality curve of the whole series, though, if anything, death occurred a little earlier in his high blood pressure cases. The impression I have formed is that if it be found possible to modify even slightly an excessive blood pressure the symptoms of the patient are ameliorated, but I do not find that the expectation of life has been appreciably increased.

I have records of the age at death and duration of anginal symptoms in 60 patients. In 26 the systolic blood pressure was 180 mm. Hg or over—in them the average age at death was 60.8 years, and with only two exceptions death occurred between the ages of 50 and 70. In the other 34 patients the systolic blood pressure was below 180 mm. Hg, and the average age at death (59.5 years) varied only slightly from the high pressure group.

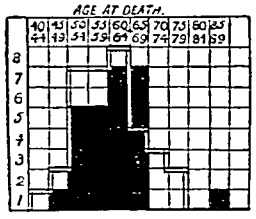

FIG. 1.—The 26 squares in black represent patients with a systolic blood pressure of 180 mm. Hg or over. The 34 squares surrounded by the double line represent patients with a systolic blood pressure below 180 mm. Hg.

In each patient I have carefully inquired for the earliest manifestation of pain, and I was surprised to find that the average duration of life from the first appearance of anginal pain was in fact shorter in the low pressure group. It was three and a half years, as compared with four and one-seventh years in the high pressure group; Fig. 1 shows graphically the age at death in the two groups.

THE ELECTRO-CARDIOGRAPH IN PROGNOSIS.

Within recent years the functioning power and integrity of the myocardium have been investigated by means of the string galvanometer, and attempts have been made to correlate changes in the shape of the electro-cardiogram with prognosis. The fullest reports dealing with this have been from the Mayo Clinic at Rochester by F. A. Willius;[2] and B. S. Oppenheimer, N. A. Rothschild,[4] J. E. MacIlwaine, J. B. Boyd Campbell,[5] and others have published interesting figures bearing on this subject.

Hitherto clinically the electro-cardiograph has been chiefly of value in analysing the various forms of arrhythmia. There are reasons for believing that in it we may find valuable assistance in prognosis. An electro-cardiogram represents graphically the variations in electric potential associated with each contraction of the heart. A normal systole is a co-ordinated contraction of the myocardium in response to a stimulus reaching it along well recognized channels. Under normal conditions the stimulus does not reach the whole myocardium simultaneously, but in an ordered sequence. It flows along the conducting channels and reaches the various areas of the myocardium at such time and in such a manner that the resultant systole of the whole heart is an efficient co-ordinated movement. Any break in the functional continuity of the conducting channels causes a deviation from this orderly sequence. These deviations are revealed in the electro-cardiogram. An abnormal electro-cardiogram therefore indicates that the fibres or groups of fibres composing the heart muscle did not contract in their proper relation one to the other. The commonest cause for this is some organic change in the myocardium, damaging or destroying the junctional tissues, the A-V bundle, and Purkinje system, but functional block due to some temporary cause may be solely responsible.

An outstanding example of this change in the electro-cardiogram curve is met with when disease obliterates one branch of the A-V bundle. There is then a complete alteration in the ventricular complex. There are also numerous other less dramatic deviations which have a definite significance. These are shown in Fig. 2.

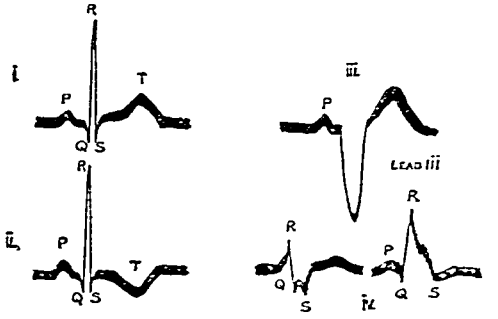

FIG. 2.—i. Represents the normal electro-cardiogram: P is due to systole of the auricles; Q.R.S. and T to systole of the ventricles. ii. Shows inversion of the T deflection, or "T wave negativity." iii. Represents the diphasic complex resulting from a lesion in the right branch of the bundle. The curve is reversed in a lesion of the left branch. iv. Two examples of "spread" of the Q.R.S. complex: compare these with the normal Q.R.S. in i. and ii. Inversion of T is only of significance in the absence of digitalis medication.

It is suggested that such abnormalities in the electro-cardiogram can be utilized in arriving at a prognosis. Willius started with the assumption that there is a relationship between an abnormal electro-cardiogram and the expectation of life, and he arranged those patients yielding an abnormal electro-cardiogram into three groups:

1. With significant "T wave negativity," an inverted T.
2. With aberration or spreading of the Q.R.S. complex in all derivations.
3. With coexistence of these abnormalities, the electro-cardiogram combining 1 and 2.

Under each of these headings patients were arranged in clinical groups, and a careful series of controls collected comparable in age, sex, clinical type, and degree of decompensation. The total number of patients observed was 686 over a period of five and a half years. I have abstracted his figures dealing with angina; they are as follows:

TABLE III.

					Control.			
	Total.	Heard from.	Dead.	Mortality.	Total.	Heard from.	Dead.	Mortality.
A. *Inverted T:* Leads 1; 1, 2; 2, 3; 1, 2, 3	58	45	27	Per cent. 60.0	58	43	11	Per cent. 25.5
B. *Q.R.S. 0.10 secs.:* All leads	10	9	6	66.6	10	6	2	33.3
Combination: A + B	13	11	10	90.9	13	11	3	27.2
Grand total ..	81	65	43	66.0	81	60	16	27.0

We see therefore that Willius dealt with 81 cases of angina manifesting certain definite abnormalities, and with 81 controls, patients comparable in every way except that their electro-cardiograms were normal. He obtained full information concerning 65 patients, and of these 43 died—giving a mortality of 66 per cent. In the 81 controls full information was obtained in 60, of whom 16 were dead—a mortality of 27 per cent.; that is to say, a mortality of 66 per cent. against a mortality of 27 per cent.

Willius has no hesitation in stating that the higher mortality is the result of vascular degeneration of the obliterative type, and he considers that the abnormalities in the electro-cardiogram are directly caused by these degenerative processes. We cannot take this view as proved, though I believe we may fairly say that, other things being equal, an abnormal electro-cardiogram indicates the probability of degenerative changes in the myocardium, and in consequence a diminished expectation of life.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

Wear and Tear of Car.

"D. W." has been advised by his accountant that he cannot claim any allowance for annual depreciation of his car by wear and tear, but is entitled only to deduct as a professional expense the cost of renewal as and when incurred.

*** The advice is correct. The distinction in this matter between a "trade" and a "profession" is inequitable, but is the legal result of the existing statutes. The Royal Commission on Income Tax recommended that the distinction should be abolished, but it still exists.

Renewal of a Car.

"G. C. H." is in disagreement with the inspector of taxes about the renewal of a car; the inspector refuses to take into account the fact that the cost of cars rose during the period covered by the use of the original car, with the result that when a better car was bought the *whole* of the cost was not attributab e to the improvement which was effected by the transaction.

"J. W. H." also asks a similar question.

*** An official witness before the Royal Commission on the Income Tax gave two examples of an allowance for renewal of a machine—vide Volume I, page 63, of the Evidence. The first made it clear that a rise in cost would not carry any restriction of the allowance if a similar machine were purchased, and the second shows that where an improved and more costly machine is purchased the transaction is to be regarded as twofold—that is, renewal *pro tanto, plus* improvement. In "G. C. H.'s" case the facts form a combination of the two examples quoted and seem, therefore, to require the treatment that he claims.

LETTERS, NOTES, ETC.

THE ADMINISTRATION OF CHLOROFORM.

DR. J. T. MACLACHLAN (Glasgow) writes: If chloroform is to be administered safely and fearlessly, certain fundamental principles must be observed, as follows: (1) No two people are alike as regards their tolerance for chloroform; each has his or her safe dose. (2) In order to find out the safe dose, chloroform must be administered slowly, and the dose gradually increased until the patient is under. (3) When the patient is under, chloroform should be suspended, perhaps only for a few seconds; the art at this stage consists in giving from time to time just sufficient to maintain anaesthesia. If these fundamental principles are obeyed, no death should occur from chloroform. A Skinner's mask is preferable to a towel, which hides the face; some masks are too large. The mask selected should be divided by imaginary lines into four quadrants, and one of the lower quadrants should be selected on which to drop the chloroform. I believe if this simple rule is adopted it is not at all likely that an overdose will

be given. If the patient coughs, it is a sure sign the chloroform is being rushed; the mask should be then lifted off the face for one inch or so for a few seconds. In the early stage of the administration it will be noticed that the patient's lips get rosy, and as long as they are so the anaesthetist may go ahead. Should they get blanched, chloroform must be instantly stopped, and ether dropped on the mask instead. A drop bottle containing ether must therefore be carried. The two accidents that may arise in the administration of chloroform, but which will not arise if the above rules are attended to, are asphyxia and syncope. Asphyxia gives timely notice; the patient gets blue. We must then stop the chloroform, pull out the tongue, lower the head, and slap the chest vigorously with a towel dipped in cold water, not forgetting artificial respiration. If syncope sets in there is no time for syringes or electricity. The proper thing to do is to invert the body suddenly by raising the table two or three feet, and getting the blood to rush to the head. The chest, especially over the heart, should be slapped violently with a wet towel. But these conditions should never arise.

ETHYL CHLORIDE-CHLOROFORM SEQUENCE.

DR. G. A. H. BARTON (London) writes: May I be allowed to reply to the queries of Dr. A. W. Burton (November 10th, p. 966) regarding the use of ethyl chloride as an induction agent? About 1904 I devised what I called the C.E.-ethyl chloride-chloroform induction sequence, and read and published papers on the subject, and later published a small monograph (*A Guide to the Administration of Ethyl Chloride*, H. K. Lewis and Co.) in which the method was fully described. Substituting ether for chloroform, I came to use the same sequence for open ether administrations. An account of this C.E.-ethyl chloride-E. sequence is given in a later publication (*Backwaters of Lethe*, H. K. Lewis and Co.). In 1912 Hornabrook (*Open Ethyl Chloride Anaesthesia*: Arbuckle, Waddell, and Fawckner, Melbourne) of Melbourne published some work he had done on somewhat similar lines, but th[illegible] iples differ. In my method (semi-open) a[illegible] narcosis is obtained, and it is during the [illegible] anaesthesia that this becomes merged into the permanent chloroform or ether narcosis. In Hornabrook's (purely open) method the aim is rather to bemuse the patient and stimulate his respiratory centre, thereby hastening the intake of chloroform. So far as I know only two textbooks allude to this induction sequence, and in both it is, or was, attributed to Hornabrook. Closed ethyl chloride followed by chloroform I tried originally and gave up as dangerous, and the same method was, I believe, practised and abandoned by Silk. It is probably this method that Gwathmey condemns. The semi-open method I use or the quite open one of Hornabrook is safe, certainly safer than a simple chloroform induction. I base this statement on an experience, including ether as well as chloroform cases, of nearly ten thousand inductions by my method.

DR. HAROLD SNAPE writes: I was anaesthetist before the war to the Manchester Children's Hospital, and for years, as a regular procedure, used an ethyl chloride-chloroform sequence or ethyl chloride-chloroform ether mixture sequence. I used a special inhaler consisting of a rubber bag connected with a plated tube bent at a right angle, its other end attached to a closed mask or facepiece; opposite to the straight piece of tube, leaving the bag, was a small shutter, which I opened to squirt the ethyl chloride into the bag and then shut. The inhaler was then ready for use and was applied till the child was under; it was then taken off and chloroform or chloroform-ether mixture administered on an open mask. By this means there was great saving of time and absence of struggling and excitement. I should not have continued with this method had it not been perfectly satisfactory. I would advise the chloroform or chloroform-ether mixture to be given very slowly to begin with as the breathing is so rapid and full with the ethyl chloride that unless this is fully realized an overdose is easily administered. I had one death with ethyl chloride alone in a case of tonsils and adenoids which I have not previously reported and which may be of interest. The patient was a boy, 12 years old, and after the operation was over came round, shouted, and sat up on the operating table and then collapsed and died. I diagnosed "status lymphaticus" as the cause of death, and the *post-mortem* examination proved this to be correct.

DR. H. J. VAN PRAAGH (London) writes: It may interest Dr. Burton to know that I started inducing with ethyl chloride early in 1917, when anaesthetist to the Cambridge Hospital, Aldershot, and that I have carried it out ever since. My technique is to spray 10 c.cm. ethyl chloride on to an open mask of six layers of gauze, and to follow it up with C.E., and finally open ether. In my opinion a closed inhaler should never be used. My colleague, Dr. Scott, I believe I am right in saying, used the same method. I have never had any trouble or anxiety with this procedure and find it a great saving of time, and a very pleasant method of induction from the patient's point of view.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 36, 37, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 335.

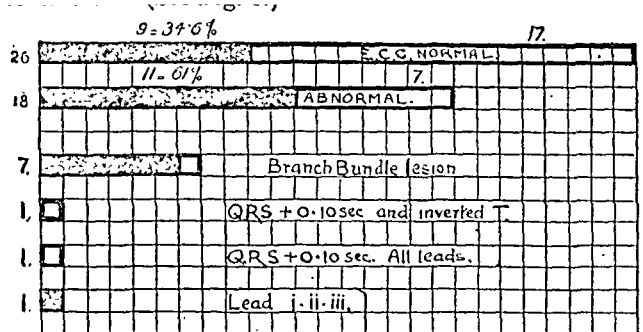

FIG. 3.—This chart gives the deaths occurring in 44 patients suffering from angina. The figures to the left indicate the number of patients in the corresponding column. The black spaces indicate the dead.

Of these the electro-cardiogram was normal in 26. Nine are dead (one dying from pernicious anaemia), giving a mortality of 34.6 per cent. Of the 18 showing definite indications of abnormal conduction 11 are known to be dead —a mortality of 61 per cent. In 7 there was clear evidence of branch bundle block—6 are dead. The duration of life after the onset of anginal symptoms was relatively short in each of the six. Of the 44 anginal patients there were 18 in whom it has been possible to determine the duration of the anginal symptoms from their onset up to death. In 11 with a normal electro-cardiogram the average duration of life from the onset of anginal pain to death was four and six-eleventh years; whereas in the smaller group of 7 abnormal electro-cardiograms the expectation of life was only two and four-seventh years.

These figures, though small, definitely corroborate the results obtained by Willius, MacIlwaine, and others. To me they are convincing, and bring us back to our original standpoint. We can find sure ground on which to base our prognosis in the integrity of the heart and arteries. The mortality in angina pectoris varies with the health of the myocardium.

Angina Minor.

Than Sir Clifford Allbutt there has been no writer who has laid greater emphasis on the importance of confining the term "angina" to a group of cases in which there is as the pathological basis a lesion of the presigmoid area of the aorta, nor one who looks more suspiciously at any diagnosis which does not conform strictly to type. Yet even Sir Clifford admits and emphasizes the gravity of minor angina, and no one has more aptly coined phrases to convey the sinister significance of certain slight and transient symptoms.

If I interpret Sir William Osler[6] correctly he considered the term "angina minor" as applicable to the neurotic, toxic, and vasomotor groups, and excluded those patients presenting signs of cardio-vascular disease. I do not think this is a satisfactory use of the term. Angina minor indicates rather a transient or mild attack of true anginal pain, but of so moderate and mitigated a severity that there is a risk of it being passed over as of little moment.

Such cases I desire to emphasize, for they are neither uncommon nor without importance. In them the prognosis is often gravely at fault, in most instances because of an incorrect or an inadequate diagnosis. The symptoms are not recognized as anginal, and their ominous significance is overlooked. The cardiac origin of the symptoms, even when suspected, is too often dismissed and some other explanation is offered, because on examination no evidence may be forthcoming of cardio-vascular disease. The diagnosis must therefore be made in many of these patients on the subjective manifestations alone.

discriminate, or the minor may come as an aftermath echo of a previous major attack. Such are of a partic interest to every clinician, because the nature of malady has then been openly declared.

An accurate prognosis depends upon the recognition of significance of these minor anginas. It is remarkable frequently one elicits a history of slight substernal pai other discomfort, sometimes in peculiar and unusual si which arises as the result of effort, exposure, or exc ment, in patients who in the end present the typical clin picture of grave angina.

It is not surprising that these early manifestations often misinterpreted. For example, the first indicatio angina in a man of 60 was a pain situated just below level of the thyroid on each side of the trachea, gripp in character and induced by exertion; in a few months was accompanied by substernal pain of a moderate tensity. Six months from the onset he was suddenly se by paroxysms of anginal pain, lasting with vary intensity for twelve hours, during which his life despaired of.

As typical examples of a minor angina the follow will serve:

(1) A man of 64 complained of a gripping pain of mode intensity and a sensation of pressure, unaccompanied by dyspnoea. The pain was substernal at the level of the space and covered an area the size of a crown. It was ind by walking and ceased at once when he stood still. If he sisted pain and numbness appeared in the left forearm and He first suffered in this way for two years and had been u continuous treatment for "indigestion."

(2) In another patient, a man of 56, the first indicatio trouble dated back to December, 1920, and consisted in pain a the chest at the level of the nipples brought on by walkin a slight incline. If he stood still it subsided. It cease trouble him, but recurred in March, 1921, when a diagnosis made of "indigestion," but, as the doctor said, "with m reservations." A fortnight later he had five attacks of s angina arising in the same area and accompanied by pain ex ing from the tip of each shoulder down the arms to the thu He thought he was dying during the acme of the attack and left emotional and depressed.

It would be easy to relate many similar instances w the slight and transient symptoms were followed by overwhelming distress of unquestioned angina.

The only safe course is to view with suspicion ever over middle age whose "indigestion" is induced by e or exposure to cold, and fades away on the cessatio stress or when the patient gets comfortably warm. S a history calls for careful examination of the whole ca vascular system. This discomfort is usually substerna sense of tightness over the lower third of the sternum, s times confined to the area of the xiphisternum, more ra definitely localized in the epigastrium, "the pit of stomach." This feeling of weight or oppression ma transient or of some duration. It may be the precu of a devastating seizure or jog the memory of the pat and remind him of a former and terrible experience. peculiar feelings of imprisoned flatus lodged behind lower third of the sternum, or the sensation of food ha "stuck on the way down," are suggestive.

It is often true that with these substernal sensat there is an element of ill defined uneasy apprehension have seen sixteen patients in whom the pain was defini localized in the epigastrium, or took the epigastriu its starting-point—spreading upwards behind the ster if the patient persisted in the effort which induced pain. It is no adequate explanation to pass this of being in every case nothing more than hepatic or o colic, though I admit that such an error in diagnosis occur, and this possibility must be carefully considered. one most typical case of epigastric angina, in which autopsy was made, the stomach, duodenum, and bladder were found free from any disease.

It should be remembered that even when pain in epigastrium is the dominant feature of the anginal att there are often additional symptoms, such as cramp-like other sensations in areas indicating the cardiac origi the epigastric pain, which in doubtful cases would

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

337. Erythredema Polyneuritis.

D. PATERSON and J. G. GREENFIELD (*Quart. Journ. Med.*, October, 1923, p. 6) describe the so-called "pink disease"—*erythredema polyneuritis—with notes of five cases.* Occurring between the ages of 4 months and 3½ years, an initial febrile coryza with slight bronchitis is followed by extreme mental misery and irritability, with insomnia and an obstinate anorexia leading to loss of weight. At the same time the rash appears as a diffuse erythema, most marked on the hands, feet, cheeks, nose, and forehead, which become red and swollen, with the appearance of oedema, but without pitting. There is marked perspiration of a mouse-like odour, and the hair falls out. There is no actual paralysis, but there is great muscular hypotonia with loss of tendon reflexes and anaesthesia over the extremities. The disease affects males slightly more than females, and the poor and well-to-do alike, and it has a widespread geographical and climatic distribution. While not appearing to be a deficiency disease, or due to food poisoning, or infection by the diphtheria bacillus, it seems to occur more frequently during and after influenza epidemics. In two cases examined *post mortem* the microscopic changes showed peripheral neuritis with chronic inflammatory changes in the spinal cord and nerve roots, the sensory nerve fibres being affected more than the motor. The prognosis is good, and unless the patient dies from asthenia due to anorexia or from complications complete recovery takes place in from three to nine months. Treatment is mainly symptomatic, to overcome the anorexia by careful nursing and the insomnia with hypnotics; small doses of arsenic and strychnine are beneficial.

338. The Prognostic Value of Serum Phenomena in Diphtheria.

G. W. RONALDSON (*Brit. Journ. Child. Dis.*, July–September, 1923, p. 129), in his Glasgow M.D. thesis, points out that the prognostic importance of serum phenomena in diphtheria, which was first emphasized by J. D. Rolleston in 1904, has not received the attention it deserves. He gives tables showing that in spite of the enormous doses used the incidence *of serum phenomena in very severe cases of* diphtheria is less than in the milder forms, even after exclusion of cases which terminated fatally before the usual time of appearance of the serum rash. While there is no doubt that increased dosage raises the incidence of serum manifestations, diphtheria toxin exercises an inhibitory influence both on their frequency and intensity. In very severe cases of diphtheria the serum rash is late in development, scanty or entirely absent, whereas a serum reaction of any kind is greatly in favour of the patient. Even a few spots round the site of injection may give grounds for hope, while a well marked urticarial eruption is an excellent prognostic. The occurrence of a secondary rash, which is often accompanied by joint pains and pyrexia, is a still more favourable sign, a severe type of paralysis being very unusual in such cases.

339. Thyroid Medication in Pruritus Genitalis.

A. BREGMANN (*Schweiz. med. Woch.*, August 23rd, 1923, p. 801) notes that there are certain cases of pruritus genitalis in which it is impossible to find any local or general disease to account for it. He suggests that in such obscure cases the glands of internal secretion may be to blame, notably the ovaries and thyroid. In support of this hypothesis he refers to three cases in which thyroid medication was remarkably effective. The patients were women between the ages 37 and 39, and the pruritus genitalis from which they suffered had been very troublesome for several months and had failed to respond satisfactorily to conventional local treatment. Narcotics had also been given, but without permanent benefit. Treatment with dried thyroid substance was instituted, the gland being obtained direct from a slaughterhouse, and 0.1 gram of the dried substance being given every day. The symptoms were less troublesome within a week, and after two weeks they had disappeared completely. The pruritus gradually returned after this treatment had been discontinued for two to three weeks, and when it was resumed the symptoms ceased again in a few days. It was found that only 0.05 gram of dried thyroid substance given daily was sufficient to prevent the return of the disease, which came and went with the discontinuance and resumption of the thyroid medication.

340. Mercurial Poisoning from a Freckle Cream.

A. ALEXANDER and K. MENDEL (*Deut. med. Woch.*, August 3rd, 1923, p. 1021) record the case of a woman, aged 40, who was in the habit of using a mercurial ointment for freckles. She went from one physician to another complaining of headache and pain in the back, dragging pains in the limbs, diarrhoea with tenesmus, insomnia, and general debility. The diagnoses varied from rheumatism to neurasthenia, hysteria, and endocrine disturbances. The urine contained no albumin or sugar, but there were traces of mercury. The ointment was at last suspected, and it was calculated that she must have rubbed in about 0.17 gram of precipitated mercury daily, and that in the course of six years she must have used about 360 grams. The ointment was discontinued and aperients were prescribed, together with sulphur and electrical baths. Three weeks later the patient was considerably better, the urine no longer contained mercury, and the headaches and pains in the limbs had diminished much. This improvement continued during the following months, and fifteen months after the ointment had been discontinued she again felt physically quite well, but her mental vitality was still somewhat reduced. The freckles from which she had been wont to suffer, and for which she had taken the mercurial ointment, no longer troubled her. The author cites this case as a warning example of the harm that may be done when chemists repeatedly renew prescriptions without any medical control.

341. Acute Suprarenal Insufficiency.

N. J. SCHIERBECK (*Hospitalstidende*, August 8th, 1923, p. 557) records in detail two fatal cases of acute suprarenal insufficiency. The signs and symptoms in these cases were remarkably uniform. In both there was abdominal pain with diffuse tenderness in the lower abdomen, a small soft pulse, an appearance of profound toxaemia, cyanosis and coldness of the limbs. In neither case was the correct diagnosis made before death. In both cases it might have been made had the blood pressure and sugar content of the blood been investigated, and in one case, at any rate, the patient might have been tided over the crisis of a laparotomy and general anaesthetic had the correct diagnosis been made and injections of adrenaline been given. In both cases *extensive caseation of the suprarenals was found, and in* neither were signs of severe tuberculosis found elsewhere. As the author points out, Emile Sergent of Paris has been teaching since 1898 that acute suprarenal insufficiency is a definite morbid entity which deserves recognition and the knowledge of which will explain many an obscure case characterized by the sudden onset of lassitude, general malaise, headache, abdominal pain, vomiting, a small and soft pulse, a low blood pressure, hypoglycaemia with (in some cases) diarrhoea, hypothermia, convulsions, and loss of consciousness.

342. Sodium Citrate as a Vascular Drug.

L. CHEINISSE (*Arch. de med., cir. y esp.*, September 1st, 1923, p. 410) remarks that sodium citrate is employed not only for facilitating transfusion of blood, but is also of value in arteritis obliterans, intermittent claudication, Raynaud's disease, and congestive conditions due to the menopause. In Buerger's disease or thrombo-angeitis obliterans intravenous injections of 250 c.cm. of a 2 per cent. solution of sodium citrate are given, at first daily, and after a month every three or four days. In six cases so treated by Steel recovery took place after 50, 85, 69, 15, 48, and 30 injections respectively. Although complete functional recovery cannot be expected when advanced gangrenous lesions are present, the intravenous injection of sodium citrate relieves pain, checks the progress of the gangrene, and produces a spontaneous elimination of the necrosis and a cure of torpid ulceration. The drug can also be given successfully by the mouth provided large doses are administered and the treatment is continued for a sufficiently long period. A dose of 3 to 4 grams a day is the minimum that can usefully be given in severe cases. Ozo's patient received 1 gram every two hours. Until recently sodium citrate was chiefly employed to prevent coagulation, but Neuhof and Hirschfeld of New York have advocated it as a haemostatic. It is only when there is an excess of citrate in relation to a given quantity of blood that suspension of coagulation takes place. Intramuscular injection of a 30 per cent. solution of sodium citrate sterilized in the autoclave in doses of 30 c.cm. (or of 15 c.cm. into each buttock), preceded by an injection of novocain, has proved

only appear when the effort inducing pain is continued in spite of the warning initial distress, and as the patient improves under treatment physical effort may fail to do more than provoke the primary epigastric ache. A few examples may be quoted:

(3) A male, aged 64, with a high blood pressure, experienced a dull aching pain in the epigastrium whenever he walked fifty or more yards, followed by pain between the shoulder-blades, principally to the left of the spine. Simultaneously he felt an aching and numbness down the outer side of the left arm with occasionally an aching in the neck on each side of the larynx and trachea. (Fig. 4.)

(4) Male, aged 52. In this patient walking brought on severe pain in the epigastrium at "1" in the figure. (Fig. 5.) He experienced a sensation of being constricted in that area. This pain passed through to the back about the level of the angle of the scapula and was felt there as a broad horizontal band. It then spread over the front of the chest—area indicated by 3—and a cramping pain passed down the left arm in a narrow strip to the thumb. An attack lasted three to fifteen minutes and caused him to break out into a cold sweat. Under treatment the attacks became much less frequent and markedly less severe with great diminution in the area involved. The pain became focused in the epigastrium. The acute pain in the chest and the cramp-like feeling down the arm were no longer induced by effort. He died sixteen months after coming under observation.

The description given by patients of their epigastric sensations varies considerably. It has been described as "pain and tightness with a gripping sensation" which disappears on "easing off"; "an awful pain, induced by hurry, worry, or excitement." In another man the pain

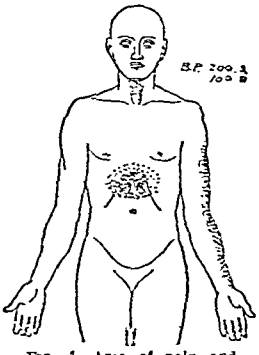

FIG. 4.—Area of pain and tenderness induced by walking 50 yards; also pain in the back.

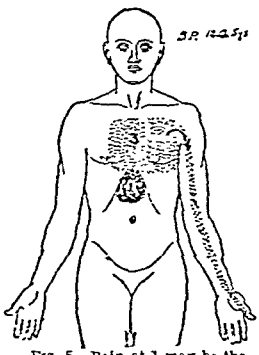

FIG. 5.—Pain at 1 may be the only response to effort.

was in the xiphisternal area and an inch or two below—"Pain, tight and very severe attended by apprehension, with numbness in the arms and once or twice accompanied by vomiting."

The following case combined several features of interest in prognosis:

(5) J. J., aged 56, compained of pain in the pit of the stomach when he walked. This pain, which was not severe, passed up a few inches behind the lower third of the sternum and simultaneously he experienced a sensation of numbness and weakness in the left arm. (Fig. 6.) During an attack he was conscious of a difficulty in breathing, but there was no increased frequency in respiratory movements. He was a big hefty man weighing over 15 st. The blood pressure was within normal limits, and there was no evidence of valvular disease, though the heart was moderately enlarged. Area of cardiac dullness five inches to the left of mid-line, and the peripheral vessels definitely sclerosed. His symptoms dated from an attack of influenza some nine months previously. The pain was never agonizing, nor was there any fear of impending death. He had noticed that the attacks became more and more easily induced. The electro-cardiogram showed the typical diphasic complex of branch bundle lesion.

Here was a man who had never had any severe or devastating pain, and in whom the chief site and area first to be attacked was the epigastrium. The pathological lesion was progressing and there was an ominous abnormality in the electro-cardiogram. He had a month in bed with apparent benefit. The attacks became fewer in number and less easily induced. However, seven weeks from the date of his first visit he died in a severe attack of major angina which lasted an hour, and which came on while he was lying placidly in bed.

The erratic or eccentric anginas may take some peculiar forms. In each, however, the symptoms are associated with effort and tend to diminish on cessation of the exciting cause. Sometimes the first and possibly the only discomfort is felt in the face, neck, or wrist. In other patients a fullness and sensation of bursting in the eyeballs is the first response to physical strain. The pain may begin in the back between the shoulders and, as in a man of 57, pass across the axilla round to the right nipple area, and extend down the right arm as far as the elbow. This man, after many attacks similar to the above, died in a severe seizure seven months after coming under observation.

When the pain appears to evade the sternal area and is focused in one or other shoulder and upper arm, possibly in the elbow or wrist, it is not uncommon to find that the patient has been under treatment for neuritis or muscular rheumatism. Careful cross-examination usually elicits a straightforward statement that these scattered pains bear a definite relationship to physical effort, and sometimes a history of one or more attacks of frank angina can be obtained.

(6) W. P. H., a man of 75, for the last eight years had suffered from attacks characterized by a feeling of tightness behind the sternum and a sensation of discomfort sometimes becoming *almost* a pain, which tended to spread to the left shoulder and down to the elbow. Walking uphill or against a wind would induce this discomfort. Latterly the pain had been more easily excited, and on one or two occasions within the last six months had occurred while the patient was in bed—always an ominous sign. When the pain was present his breathing was quite easy and there was no element of apprehension. Physical examination showed a systolic blood pressure of 160 mm. Hg, and a diastolic pressure of 80 mm. Hg; the size of the heart was within normal limits, and there was no variation in sounds. Heart rate 80 per minute. He was apparently a healthy man with the exception of this discomfort, a discomfort which was clearly that of minor angina. It was only in the last

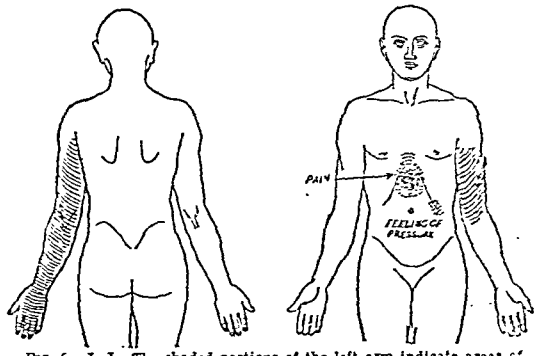

FIG. 6.—J. J. The shaded portions of the left arm indicate areas of numbness, dull pain, and weakness.

twelve months that the symptoms had in any way forced themselves upon his notice, though, being an extremely careful man, he had sought advice with regard to them eight or nine years ago. In the end he was seized with major angina, which lasted off and on all through one day, ending fatally.

The following history of four brothers is worth recording as an excellent example of the familial liability and its importance, while it emphasizes some of the points we have been discussing. The father died at 83, cause unknown. The mother died at 62 from a stroke. She had suffered from an initial stroke three years previous to her death. I have notes of the four brothers, three of whom I have seen.

(1) In November, 1919, I saw J., the first, aged 60½. He complained of pain, epigastric in site, brought on by walking. Five years earlier, when this pain first began, he was treated for indigestion. Latterly the pain had radiated upwards from the epigastrium into the jaws and throat, and to a point just inside the left elbow. This last pain occurred independently of the thoracic disturbance. Systolic blood pressure 160 mm. Hg, with pulsus alternans—indicating a grave prognosis. He died suddenly in an attack of angina in December, 1921.

(2) The second of the four brothers, A., aged 56, complained in February, 1920, of tightness on breathing, especially after walking, and a sensation of a "swollen lump" under the left nipple "too big for the chest"; also of pain which he described as indigestion situated at the angle of the left scapula, independent of meals, but induced by effort. Pain spread from this area into the left arm and down to the elbow. He gave a history of syphilitic infection in youth, and he had noticed that the present anginal symptoms dated from an attack of influenza in June, 1919. There was a moderate degree of arterio-sclerosis and the systolic blood pressure was 190 mm. Hg. Since Christmas last he had suffered from an aching smart in the left arm and middle fingers, and in April his symptoms became more severe for a while, especially the bursting sensation over the cardiac thrust. The rate of the heart was then 72 per minute, the systolic blood pressure 200 mm. Hg, diastolic 110 mm. Hg.

(3) Another brother, T., aged 62, consulted me in December, 1919. He was not conscious of any limitations; could dig, walk, and work.

useful in internal haemorrhage, including haematemesis, traumatic haemothorax, haemoptysis, traumatic rupture of the liver, and in haemorrhages following operations on the rectum, bile ducts, compound fractures, and the like. Owing to its destructive action on the blood platelets sodium citrate is contraindicated in conditions accompanied by deficiency of platelets, especially haemophilia and purpura. Moreover, owing to its tendency to cause a greater fragility of the red corpuscles, it is also contraindicated in haemolytic conditions such as pernicious anaemia.

343. Bacillus acidophilus Milk.

H. A. CHEPLIN, C. D. POST, and J. R. WISEMAN (*Boston Med. and Surg. Journ.*, September 20th, 1923, p. 405), from investigations into the therapeutic effects of *B. acidophilus* milk in toxic intestinal conditions, show its value when implanted in the alimentary canal as the dominant organism by the oral administration of the milk culture in proper amounts. The bacillus, while it does not produce gases or toxins, suppresses *B. coli* and inhibits such toxicogenic microbes as the enterococci, *B. welchii*, *proteus*, and *putrificus*. Experimental evidence in nine cases established its beneficial influence upon constipation, diarrhoea, and mucous colitis, toxic symptoms being relieved with the regulation of the bowels and disappearance of mucus. The *acidophilus* milk was prepared by the method of Cheplin and Rettger, living 24 to 36 hour cultures being administered daily in addition to the ordinary diet, 1,000 c.cm. of the milk culture with 50 to 100 grams of lactose being ingested in three equal doses two to three hours after meals. It is essential that a minimum averaging 50 billions of viable organisms should be given daily for at least six weeks, and it must be borne in mind that the ingestion of relatively few bacilli will not lead to implantation and bodily improvement, and administration in tablet form is useless. While it is not claimed as suitable for every gastro-intestinal disturbance, careful acidophilization of the enteric tract by means of *B. acidophilus* milk is recommended as a valuable means of therapy in toxic intestinal conditions.

Surgery.

344. Vaccine Treatment of Chronic Osteomyelitis.

T. ROVSING (*Hospitalstidende*, August 8th, 1923, p. 563) has treated 23 cases of chronic or relapsing osteomyelitis with vaccines since 1915. In 16 of these cases the infecting organism was the *Staphylococcus aureus*. In the remaining cases *Staphylococcus albus* or the typhoid or paratyphoid bacillus was found. In the overwhelming majority of cases a surprisingly rapid improvement was effected, a complete cure being achieved even in cases which had persisted for ten or twenty years. With regard to the choice of vaccine, the author considers a stock vaccine definitely inferior to an autogenous vaccine, but in some cases the former has to be resorted to. When the osteomyelitis is complicated by sequestra these should be removed by the surgeon, but in none of the author's cases was the osteomyelitis thus complicated. Although he is enthusiastically in favour of autogenous vaccine treatment in the chronic or relapsing stage of the disease, he is very doubtful as to the value of this treatment in the acute stage; for in this stage the violent and localized infection does irreparable damage in a few hours, and vaccines do not act rapidly enough to check the disease in this virulent phase. All the three cases in which the typhoid or paratyphoid bacillus was found responded well to treatment with autogenous vaccines, although in one of these cases the osteomyelitis had persisted for over twenty years.

345. Pylorectomy in Gastric Ulcer.

M. MADLENER (*Zentralbl. f. Chir.*, August 25th, 1923, p. 1313) has obtained good results by pylorectomy in three cases of gastric ulcer in which the lesion was situated some distance from the pylorus. The ulcers were not excised, but in addition to the pylorus a portion of the duodenum 1 to 2 cm. in width and a small part of the antrum were removed. The duodenal stump was then anastomosed to the stomach. The ages of the patients, who were all women, were 45, 48, and 49. In all three cases pylorectomy was followed by a reduction of gastric acidity. In the first the diminution was slight; in the second the free acidity fell to a quarter of its original value; and in the third complete anacidity resulted. The change in the gastric chemistry is closely associated with a change in motility, there being a considerable delay in the evacuation of the gastric contents for some weeks after the operation. Madlener points out that the view is no longer held that gastric or duodenal ulcer is cured by excision. Although the ulcer is removed, the disease, or rather tendency to the formation of gastric ulcer, persists, for which there is no certain remedy. The best treatment, however, consists in producing a complete change in the secretory mechanism of the stomach by removal of the pylorus. As a rule, this change is well tolerated, and it is found that the pylorus, though not ulcerated, has become hypertrophic as the result of spasm and is the site of chronic gastritis.

346. Myelitis following Genito-urinary Infection.

F. P. CURRIER (*Journ. of Nerv. and Mental Dis.*, September, 1923, p. 201) describes three cases seen in the neurological clinic of the University of Michigan, in which patients suffering from an infection of the genito-urinary tract developed, after operation, symptoms pointing to an involvement of the central nervous system. In the first two cases the condition developed within a few days of operation, but in the third case the onset was delayed for a period of two months, during which daily bladder irrigations were carried out. Briefly, the symptoms were those of a transverse myelitis, and included pain or numbness in the lower limbs, followed by slight paresis and a varying degree of alteration in the motor and sensory reflexes in the region affected; in one instance there was pain over the bladder and frequency of micturition. The infection appeared to be of a mild type, with a tendency to recovery, and pain and paresis were never severe. The site of the pain localized the lesion to the sacral and lumbar regions of the cord, and, as this is the section from which the genito-urinary system derives its nerve supply, the author, whilst admitting absence of definite proof, assumes that infection travelled directly along the nerves to the meninges of the cord, later involving the cord itself. The cases are presented in support of similar views expressed by previous observers, whose findings are quoted.

347. High-frequency Treatment in Internal Cicatricial Strictures.

H. PICARD (*Klinische Wochenschrift*, September 24th, 1923, p. 1796) recommends heat treatment or diathermy, produced by high-frequency currents, in the treatment of cicatricial strictures of the oesophagus, urethra, and rectum. By diathermic treatment anaemic, hard, inelastic scar tissue becomes vascular, soft, and elastic; the author has applied this treatment to the internal strictures just named. In the case of the oesophagus an elastic metal bougie was used as the internal electrode, and the other indifferent electrode was a plate on the chest or back at the level of the stricture (technical details are given). Three cases of oesophageal strictures are recorded in which excellent results were obtained. Also in two cases of urethral stricture in which the treatment was tried good results were obtained. Strictures of the rectum of syphilitic or gonorrhoeal origin are especially suitable for treatment by this method (the internal electrode is introduced into the rectum, the indifferent electrode is placed on the abdomen and back). Two very successful cases are recorded. Though recurrence of symptoms may occur later the temporary results have been very satisfactory, and the author thinks a further trial of the treatment should be made.

348. Splenectomy in Chronic Thrombocytopenic Purpura Haemorrhagica.

N. E. BRILL and N. ROSENTHAL (*Amer. Journ. Med. Sci.*, October, 1923, p. 503) advocate the treatment by splenectomy of chronic thrombocytopenic purpura haemorrhagica. Symptomatically the disease is characterized by cutaneous petechiae, and purpuric and ecchymotic spots, accompanied by haemorrhages from the gums, nose, intestines, and kidneys, owing to the vulnerability of the capillaries. The bleeding may be intermittent or continuous, gradually exsanguinating the patient. Though found chiefly in youth, it may occur at any age, and it is not hereditary. An acute attack may be fatal in a few days or disappear after two or three weeks, or it may become subacute or chronic, with bleeding from the nose and gums which resists all attempts at stopping. The blood shows a marked diminution or even absence of platelets (thrombocytes), and though the clotting time is normal the clot does not shrink, while the bleeding time is prolonged to more than ten minutes. In two cases, a boy and a girl, suffering from the chronic intermittent type, splenectomy was performed with excellent results, the immediate effects of operation being cessation of bleeding from all mucous surfaces and a rapid increase in the number of platelets—from 6,000 to 270,000 per cubic millimetre in one case, and from 400 to 60,000 in the other. Although thrombocytopenia may return, the capillary bleeding remains cured, possibly from the removal of a toxin manufactured by the disordered spleen which interfered with the tonus function of the endothelial capillary cells. The disease appears to be an involvement chiefly of the spleen and bone marrow, and the results of splenectomy will

he has "reminders" if he hurries or is flurried. "A form of acute indigestion, if you understand me," was his description, the pain being substernal, about the level of the nipples. It passes away at once if he stands still.

(4) The *fourth* brother is 61 years old. He has not consulted me, but his doctor tells me that for five years he has suffered from anginal pain in the left arm, and in the beginning of June last he had a severe attack.

This is a remarkable series. The earliest symptoms were of significance, also the sense of oppression caused by walking, the sensation of something too big for the chest, the pain about the angle of the scapula labelled "indigestion," the epigastric pain brought on by effort, and in one of the four the dramatic and fatal major attack preceded for seven years by varying manifestations of angina minor.

I have attempted to review our position when faced by patients suffering from angina who ask to be told what the future holds for them. I have tried to discover where help and guidance are to be found in estimating the mortality, knowing only too well that there can be no certainty about the outlook. It is admittedly brighter, however, in proportion to the degree of sensitiveness of the central nervous system, and becomes correspondingly graver when evidence is obtained indicating disease or degeneration of the myocardium.

The electro-cardiograph yields informative evidence of this nature, and it is found that the mortality in a series of patients is higher when certain well defined deviations from the normal electro-cardiogram are present.

Again, prognosis is often at fault because the significance of some of the slight and earlier manifestations are misinterpreted. These minor anginas have certain characteristics which should enable them to be recognized for what they are—symptoms often unobtrusive, yet significant and only yielding up their secret to careful cross-examination. They may be compared to a gesture, slight but ominous, and full of menace.

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INJURY TO THE SPLEEN: DELAYED HAEMORRHAGE.

BY

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AND

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THE following case has seemed to us worthy of placing on record on account of the unusual features which it presented.

History.

The patient, Mr. S., a powerfully built man of 23, was returning home on his motor cycle about midnight on September 5th, 1923, when he met with an accident. Exactly what happened the patient himself could not tell, but he thinks that his lamp went out, that his machine struck a bank at the side of the road, and that he was heavily thrown. He managed to crawl to a neighbouring house, where he was kept till the following morning, when he was conveyed to his lodgings about twelve miles away. He was seen shortly after his arrived by C. R. T., and though he was apparently quite conscious at that time, the patient stated that his mind was an absolute blank from the moment of the accident until the following afternoon. A careful examination by C. R. T. failed to reveal anything more than severe bruising of the back, chiefly in the neighbourhood of the left iliac crest. After examination he walked to his father's house, some hundreds of yards away. He was kept in bed and visited daily and there seemed to be very little the matter with him.

At 1 a.m. on September 9th, in response to an urgent summons, C. R. T. visited him and found him suffering from very severe abdominal pain; pulse 120, temperature 101°. The abdomen was

enema was given immediately after his arrival, and a colossal evacuation resulted. He was seen again in the ev found to be quite comfortable and both pulse and tempera settling satisfactorily. On September 10th he was quite comfortable, and in the evening a dose of castor oil was g

The following morning, September 11th, he appeared particularly good spirits, joking with the nurses and a more food. About 9.30 a.m. he was seated on the bed-par suddenly collapsed into the bed, the radial pulses vanishe face assumed an ashen hue. He was seen (for the first the accident) by C. J. G. T. at about 10.15 a.m. He was state of profound collapse, his extremities were cold, ghastly, and no pulse could be felt; the lips were blanche was not restless. There was no distension of the abd tenderness, no local or general rigidity, and no dullness in but liver dullness was completely absent. There were no signs in the chest. It was thought that internal haemorrh be taking place, but there were no signs to indicate where case he seemed to be dying, and the giving of an anaesth then was was entirely out of the question. The foot of th elevated, but in view of the possibility of bleeding salines given. He was seen by C. R. T. at 12.15 p.m.; his pulse palpable (92), but the colour was still very bad; he was restless and there were no abdominal signs. At 1.15 p.m. was 84; there was acute tenderness and board-like rigidi epigastrium. Liver dullness was still absent. As a h "indigestion and flatulence" had been volunteered by a r tentative diagnosis of perforation of a duodenal or gas was made. C. R. T. and C. J. G. T. saw him together at when his general condition was substantially the same, b now extremely restless, almost violent, rolling about the b ing and complaining of acute abdominal pain. It was imp examine him at all carefully as he would not lie still for a seeming to find greatest relief when lying curled up on side. He was still in a state of extreme shock. In vi circumstances it was agreed that laparotomy offered though an exceedingly slender, hope of recovery. The epigastric rigidity and tenderness with loss of liver appeared to justify a diagnosis of perforation of the bo upper abdomen, probably either duodenum or stomach we were completely at a loss to account for the very stage of shock.

Operation.

The abdomen was opened at 4 p.m. by C. J. G. T., as C. R. T. The anaesthetic, CE_2 and open ether, was adm by Dr. H. J. S. Morton. The incision was made through upper rectus, but as soon as the peritoneum was expos clear from the dark discoloration beneath it that a co haemorrhage within the abdomen had occurred. There w rush of blood when the parietal peritoneum was divided. hastily mopped away and a rapid examination of the duodenum, liver, colon, and mesenteries showed that the the bleeding was not in any of these organs; it the evident that the blood was passing upwards and forw the left hypochondrium. The spleen was palpated and the posterior surface at the lower pole was felt. The incision was accordingly closed in layers as quickly as pos speed being now absolutely essential, the splenic r approached through a subcostal incision parallel with t margin, the muscles being cut right across and no atte to separate their fibres anatomically. No difficulty was ex in delivering the spleen into the wound, and the tear c be seen, resembling a deep puncture measuring about hal in diameter and extending for about one inch into the p organ. As soon as clamps had been applied to the pedi venous infusion of saline into the left arm was comm C. R. T. and continued until the operation was complet spleen was quickly removed, the pedicle securely ligat the wound closed by through-and-through silkworm gut reinforced by an intermediate continuous layer of strong catgut which included peritoneum, muscle, and aponeurosi

The Spleen.

On examining the spleen after removal it was seen addition to the tear already referred to, there were t extensive linear tears of the lower pole, each of them r fully an inch in length, involving the parenchyma of t but not the peritoneal coat. There had been some smal of bleeding from both of these, stretching the peritoneum causing it to give way. The largest tear easily admitted a

Subsequent Progress.

The patient quickly rallied after the operation and the tration of rectal salines, but for some days he was troublesome, throwing himself about in complete abando to get out of bed, and so on. The abdomen was consider tended for forty-eight hours, but pituitrin injections and t enemata brought relief, the size of the stool being again of comment. The temperature was irregular for a couple but both wounds healed soundly, and he left the hospita four weeks after the operation. A blood count taken before he was discharged showed: Haemoglobin 90 per c cells 3,700,000, leucocytes 10,300. Differential count: phonuclears 69 per cent., lymphocytes 20 per cent., larg nuclears 7 per cent., basophiles 1 per cent., eosinophiles 3

probably be better in those cases in which the spleen is very large than in those with smaller spleens. The operation is a life-saving measure in grave cases, and evidence points to its being curative. Although transfusion is useless in treatment, it is wise for this to be done before and after operation as a means of avoiding further loss at operation, and of preventing shock afterwards.

349. Simple Ulceration of the Small Intestine.

M. CHABRUT (*Paris méd.*, August 11th, 1923, p. 124), who records two cases in women aged 25 and 54, states that simple ulceration of the small intestine is hardly ever recognized until perforation occurs, and in almost every case the perforation gives rise to general peritonitis. In 17 cases of simple ulcer of the small intestine collected by Combes, the jejunum was affected in 7 and the ileum in 10. Leotta could find only 22 undoubted examples of the condition on record, and in every case but one, in which the ulcer was not discovered until the autopsy, general peritonitis was present. On the other hand, Bergeret has described a case in which, sixteen hours after the onset, adhesions were found between the intestinal coils sealing up the perforation. In the two cases recorded by Chabrut the ulcers were certainly not due to a new growth, nor was there any evidence of syphilis or tuberculosis, but both the patients developed the symptoms suddenly in the midst of apparently perfect health. Recovery took place in both cases after operation, at which a localized pelvic peritonitis was found, due to perforation of an ulcer in the ileum.

350. Haemorrhage in Nephrotomy.

B. FEY (*Paris méd.*, August 4th, 1923, p. 106) distinguishes the following three varieties of haemorrhage connected with nephrotomy: (1) haemorrhage in the course of the operation due to incision of the kidney substance; (2) primary haemorrhage due to inadequate haemostasis; (3) secondary haemorrhage, of which the cause is obscure, but probably connected with the production of infarcts in the nephrotomized kidney. This form of haemorrhage is much the most important and most difficult to control. Haemorrhages occurring in the course of the operation are controlled first by making the incision in the so-called bloodless zone, which corresponds to a line passing 1 cm. behind the outer border of the kidney; and, secondly, by a temporary haemostasis which is effected by compression of the renal pedicle. After removal of the renal calculus temporary haemostasis should be replaced by a permanent one. Haematuria is constant for the first two or three days after nephrotomy and ceases on the fourth or fifth day, but in some cases it becomes much more profuse so as to endanger the patient's life. A permanent haemostasis should therefore be carefully carried out at the end of the operation by an exact apposition of the lips of the incision with catgut sutures. Legueu has found that all kidneys which had been excised for secondary haemorrhage after nephrotomy showed an infarct round which most of the haemorrhagic lesions were situated. It is probable, therefore, that an infarct plays a part in the production of secondary haemorrhage, though the exact mechanism is obscure. The prevention of infarction should be carried out by making the incision in the bloodless zone and avoiding rupture of anomalous arteries on removal of the kidney outside the wound. When once secondary haemorrhage has occurred the only effective treatment is nephrectomy, although naturally the ordinary methods of controlling haemorrhage must be first tried.

351. Hernia in Children.

CRAGLIETTO (*La Pedriatria*, October 1st, 1923, p. 1041) publishes his experience in the treatment of hernia in children. He has operated on 582 children (625 operations), of whom 515 were male and 67 female; the hernia was strangulated in 8 cases; 64 children were under 1 year of age. He points out the advisability of watching the children some few days before operation, in case they might be developing some other malady. He used chloroform almost exclusively as the anaesthetic, as he found ether too irritating. In only one case could serious symptoms be attributed to chloroform. Lately he has used pure alcohol (95 per cent.) as a disinfectant in preference to iodine. Unless there is uncertainty as to the contents of the sac he does not open it. Exceptionally he found the testis in one sac, and in 3 cases miliary tubercle was freely deposited on the sac wall. All the cases healed by primary intention except 5. The total mortality was 4, and in 2 of these death was not due to the operation. The hernia was umbilical in 13, ventral in 1, and epigastric in 1. Relapse was only noted in one child of 5½ years who had been operated on four years previously. Whilst the author does not deny that some cases are cured by a truss, he is strongly of the opinion that, unless contraindications are present, radical cure is the best course.

Obstetrics and Gynaecology.

352. Bacterial Infection of the Urinary Tract complicating Pregnancy and the Puerperium.

FROM a series of 34 cases of urinary infection, which could be classed clinically as pyelitis, J. HEWITT (*Journ. Gyn. and Obst. Brit. Empire*, vol. 30, No. 3, Autumn, 1923, p. 390) draws the following conclusions: The acute type of pyelitis, though often misdiagnosed for some time owing to the resemblance of the symptoms to appendicitis, malaria, influenza, etc., and the unobtrusiveness of the bladder symptoms, is always treated as a serious case, as the woman is definitely ill; but this is not so in the chronic type, which often passes unrecognized for a long period, the patient's only complaint being backache and slight frequency of micturition, often preceded by headache and malaise for a week or two. Albuminuria is only present in the acute cases. Coliform organisms are present in over 90 per cent. of cases, but, as Leith Murray says, must not be taken as diagnostic of the disease without the presence of pus. According to the author the diagnosis can be made for certain only by finding pus cells and organisms in a single drop of uncentrifuged urine. As regards treatment, hexamine combined with acid sodium phosphate was first tried, with very unsatisfactory results, pregnancy being interrupted in 11 out of 19 cases. The author therefore advises the alkaline treatment, first recommended by Frank Kidd, and gives sodium bicarbonate 60 grains with potassium citrate 20 grains every two hours for several days, and then every four hours, the patient being encouraged to drink plenty of fluid as well. With this treatment pain is relieved even in the acute cases in thirty-six to forty-eight hours, and the pulse and temperature usually become normal in about four days. The pus is diminished markedly by the alkali treatment, but bacilluria persists, and this is treated in about fourteen days' time by the hexamine treatment. It is important not to begin this latter treatment until all symptoms have disappeared and the pulse and temperature have been normal for some time, otherwise exacerbations of the disease are apt to occur and death has even been known to take place owing to a too early administration of the hexamine. The patient is kept on the latter treatment for the duration of the pregnancy to prevent recurrences, which are liable to occur either in the same pregnancy or in succeeding ones. With this treatment 14 cases out of 15 went to full term. If hexamine fails to prevent a recurrence, which may happen, the combination with an autogenous vaccine is advocated.

353. Venesection in Pre-eclamptic Conditions.

A. J. POWILEWICZ (*Journ. de Méd. et de Chir. Prat.*, October 10th, 1923, p. 609) remarks that bleeding, universally employed in the treatment of eclampsia, and even of its antecedent toxaemic manifestations, during the eighteenth century, was almost abandoned during the course of the ensuing hundred years. Nevertheless venesection, if properly controlled by measurement of the arterial blood pressure, constitutes a valuable mode of treatment, and one which is practically free from danger, in cases of pre-eclamptic toxaemia with hyperpiesis. The blood should be taken away slowly to permit of vasomotor readjustment. At the Baudelocque Clinic the blood pressure is taken repeatedly in every pregnant or parturient patient who shows albuminuria or suffers from oedema or other pre-eclamptic sign of toxaemia; a tension of 200 mm. or more is regarded as an indication for venesection, the mean amount abstracted being 600 to 800 grams. In one series of 92 cases of albuminuria, of which 13 were associated with a notable hypertension, four patients had a blood pressure of over 200 mm. and were bled; none of the series suffered from convulsions. It is necessary to watch the patient carefully for some time after venesection; a further rise of arterial tension may necessitate a second bleeding, and in an occasional case the patient after labour, especially if this be attended with much haemorrhage, may suffer fleeting syncopal attacks.

354. The Importance of a Bacteriological Examination after a Febrile Abortion.

O. MEILI (*Schweiz. med. Woch.*, September 6th, 1923, p. 842) publishes statistics in support of his thesis that the choice between conservative and operative treatment in cases of febrile abortion should depend on the findings of a bacteriological examination of the contents of the uterus. He argues that when this examination fails to reveal streptococci or staphylococci which liquefy gelatin, it is safe to remove at once the contents of the uterus. Such removal tends to hasten recovery. Should, however, the germs already referred to be found within the uterus in a case of abortion

COMMENTS.

The case is rather extraordinary on account of the long latent period between the accident and the onset of acute symptoms. In the light of later knowledge it seems possible that the meteorism and acute pain of the early hours of September 9th may have been due to some bleeding taking place, but it could only have been very slight in amount as no obvious signs of internal haemorrhage were caused. The first real signs, and these exceedingly sudden and severe in their onset, were delayed until the morning of September 11th—that is, more than five days after the original injuries were sustained. We have not been able to make any very exhaustive survey of the literature, but certainly none of the well known textbooks of surgery which we have consulted make any mention or give so much as a hint that such a latent period as this may occur after injuries to the spleen.

Our theory—for what it is worth—as to the train of events in the case is as follows: When the accident occurred, the first impact caused a violent blow in an upward direction directly on the lower pole of the spleen. This blow was probably caused by the point of the handlebar driving upwards beneath the ribs. The rider was then shot clear and in his fall sustained those bruises to the back which at first appeared to be his only hurt. The violent blow to the spleen caused the pulp to tear in the three places found at operation, but did not tear through the peritoneum, which, as it were, acted as a tourniquet to the injured surfaces and prevented anything more than a slight subserous haemorrhage. What determined the sudden violent bleeding on the morning of the sixth day must have been the giving way of the peritoneum over the largest tear; the haemorrhage here had probably been more extensive and the peritoneum thus weakened by stretching. The extra rise of intra-abdominal pressure caused by the act of defaecation may well have brought this about. It is difficult to find any explanation for what happened in the early hours of September 9th, unless there was a very small leak of blood into the general peritoneal cavity sufficient to irritate and set up the enormous distension of the bowel, but quickly sealed off again.

Another interesting point is that the blood nearly all tracked forwards in front of the stomach and colon; very little found its way into the lower abdomen and the pelvis or into the left flank, hence the absence of any noticeable dullness when that point was being investigated. The track of the blood rendered the finding of the bleeding point a great deal more easy, so that this was a very fortunate circumstance.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

HENRY DEVINE, O.B.E., M.D., F.R.C.P., President.

PRESIDENT'S INTRODUCTORY REMARKS.

THE subjects selected for discussion cover a wide range and on the surface they appear to bear but little relationship to one another. This is not actually so, however, because they are all closely concerned with alterations or abnormalities of behaviour, and they are thus subjects of interest to neurologists, physicians, psychiatrists, and general practitioners. In the first place we shall consider those children, of whom there appear to be an increasing number, who are difficult, awkward, and sensitive; who react to life in an unusual and perplexing way; and who constitute a problem to parents, doctors, and teachers. Then we shall discuss an infective disorder, lethargic encephalitis, which is of peculiar interest and importance because it is liable to be followed by profound alterations in the personality. This subject is closely related to the one which will be discussed to-day, because the mental sequelae of lethargic encephalitis are particularly marked in children and include changes in temperament and moral character, instinct perversion, and dementia praecox-like states. Here it is possible to trace an intimate connexion between demonstrable biological disturbances and changes in behaviour; and this serves to remind us that what we call our "mind" is somehow or another embodied in the cells of our organism, so that when there is some alteration in reactions, attitudes, feelings, or thoughts we should not omit to seek for explanations along objective and biological lines. The last discussion on our programme deals with youth rather than childhood, and consideration will be given to those tragic breakdowns of young people whose lives often seemed so full of promise, and whose mental illness only too frequently ends in permanent and profound deterioration. I now wish to observe that those of us who spend our lives with cases such as these realize that, in many instances, we are not dealing with acute mental illness, but with the ultimate expression of morbid tendencies which have been developing since childhood. As psychiatrists we cannot undo the past, and I am convinced that it is in childhood that most can be done to prevent these "sensitives" from developing into psychotics during adolescence; it is in childhood that faulty habits of reaction and morbid tendencies stand the greatest chance of correction. It may be that in some instances, we do not know how many, these illnesses are the outcome of a biological inferiority; we should not regard them as inevitable, however, because we do not yet know how much can be done by treating the potential psychotic from early days and directing his life in the most suitable lines. Psychiatry is not the narrow specialty it used to be, and the psychiatrist is no longer compelled to plough a lone furrow or to solve unaided the most obscure problems of medicine. Perhaps we may look on this meeting as the symbol of the changed attitude of the medical profession to psychological medicine, which is now recognized to include the study of all abnormalities of behaviour however trivial they may seem. We have at this meeting a children's physician, a neurologist, and a psychiatrist who will introduce discussions on varying types and varying causes of abnormal behaviour. It is only thus by full and complete co-operation that we shall begin to solve our manifold problems.

DISCUSSION ON THE NERVOUS CHILD.

OPENING PAPER

BY

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IT is no easy task to open a discussion upon a subject of which the boundaries are so ill defined. Indeed, I can conceive of only one undertaking which is harder—to bring it to a close—and I understand that both these tasks have fallen to me. A parent, a pedagogue, a priest, a physician, a psychologist will each view the subject differently and raise different issues.

I propose to confine my opening remarks to two aspects of the question. I desire to place before you a description of certain peculiarities of physique and of posture which seem to me very constantly to accompany nervous instability in children. Secondly, I propose to examine briefly the rôle which parental management plays in provoking or controlling the particular abnormalities of conduct for which our advice is sought.

THE PHYSICAL ASPECT OF THE NERVOUS CHILD.

It is not often that good physique, a confident carriage, and a satisfactory circulatory system are found in com-

associated with fever, only conservative treatment should at first be adopted. The material on which he bases these opinions is partly obtained from the University Gynaecological Hospital in Zürich, where for some time the practice has been adopted of making a bacteriological examination of the contents of the uterus after a febrile abortion. Of the 55 cases of streptococcal abortion at this hospital conducted on conservative lines, not one terminated fatally. A study of the literature of such cases yielded information definitely in favour of the author's views. In one table he has collected the records of 252 cases of streptococcal abortion treated by operative means, and showing as high a mortality rate as 13.1 per cent. On the other hand, the mortality was only 2.6 per cent. among the 1,159 streptococcal abortions treated by conservative methods. The lesson of these observations is that so long as a streptococcal or staphylococcal (staphylococci liquefying gelatin) abortion is associated with fever, the use of a curette greatly increases the chances of a fatal issue.

355. Treatment of Hyperemesis Gravidarum.

LÉVY-SOLAL (*Journ. de Méd. et de Chir. Prat.*, October 10th, 1923, p. 685) remarks that in the absence of a specific mode of treatment remedial measures in hyperemesis gravidarum must be directed against (1) the toxaemia due to hepatic and endocrine disturbance, (2) the inanition and the acidosis provoked by the vomiting, and (3) the neuropathic state of the patient. (1) A diet of milk and vegetables should be tried, but if not tolerated milk or water should be given alone for twenty-four to thirty-six hours. Extracts of corpus luteum or of its lipoids (2 cg. of extract of corpus luteum in 1 c.cm. of physiological saline solution saturated with chloretone, injected every other day) and adrenaline in doses of 30 to 50 drops by the mouth have been given with some apparent success in the endeavour to rectify the disturbance of the ductless glands. (2) Acting on the view that the diminished carbohydrate intake associated with the persistent vomiting plays a secondary part in maintaining the acidosis, and therefore the nausea and the vomiting, Weill and Landat recommend rectal administration of 5 per cent. solution of glucose in blood serum. (3) Psychotherapeutic measures adapted to each particular case may be combined with rectal injections of 4 grams of chloral hydrate together with 100 grams of milk per diem. If these measures fail it is important not to defer for too long the moment at which abortion has to be induced. The indications for this are, first and chiefly, irregularity, hypertension, and persistent frequency (at 100 or more a minute) of the pulse; secondly, toxaemic manifestations, such as slight jaundice, dyspnoea, or psychic disturbances.

Pathology.

356. The Etiology of Chorea.

THAT chorea is due to a streptococcus possessing characteristic properties, among which is a selective action on the nervous system, is the opinion of E. C. ROSENOW (*Amer. Journ. Dis. of Children*, September, 1923, p. 223). As early as 1910 this observer found that the disease developed in a dog and a rabbit following intravenous injection of a streptococcus isolated from the blood of a fatal case of chorea. Both animals contracted a low grade meningitis; the rabbit, further, had lesions of the joints, and the streptococcus was recovered in pure culture from the cerebro spinal fluid. Similar results were obtained on four widely separated occasions after intravenous injection of a series of animals with cultures from tonsils during the acute stage of chorea, and again chorea-like symptoms, with lesions of the joints, muscles, and heart, were found in animals injected with the organism isolated from the joint fluid, blood, or infection focus of patients suffering from acute rheumatic fever. In recent experiments, using cultures of pus from the tonsils and exudate from the nasopharynx of cases of chorea, the same observer has found it possible to demonstrate that characteristic symptoms and localization of lesions (as seen at autopsy) are even more definitely obtained by intracerebral inoculation in rabbits, and, in dogs, by sealing up a dense suspension of the organism in the pulp canals of the teeth. The property on which localization depended was retained through three successive animal passages, after repeated rapidly made transfers of pure cultures, and up to three months in the teeth and brain of dogs. The symptoms produced showed a most marked similarity to those of chorea in human subjects, and the lesions in the central nervous system resembled in type and distribution those of man, being found principally adjacent to or within motor centres or motor tracts in the cerebrum, mid-brain, or cerebellum. Again, in extent and location the lesions frequently corresponded to the severity and type of the symptoms during life. On necropsy, the lesions of the heart valves, their location and histological appearances, were those of chorea in man. The organism, which was absent in normal tissues, was seen in numbers in or near the experimental lesions. These findings were checked by control experiments, similarly performed, with cultures of organisms isolated from cases of encephalitis, epidemic hiccup, ulcer of the stomach, and from the throats of normal persons and those suffering from poliomyelitis. It was found that in the control experiments localization rarely occurred in the heart valves, joints, or muscles, nor were the symptoms produced similar to those following injection of strains of chorea. The particular streptococcus giving the above results in animal experiment occurs as a diplococcus forming chains of medium length. It is free from [illegible] both as regards [illegible] was destroyed by cultivation under aerobic conditions.

357. The Action of Tuberculins made from various Acid-fast Bacilli.

E. LANGE (*Zeit. f. Tuberk.*, Bd. 38, Hft. 5, 1923, p. 334) has prepared tuberculins from various acid-fast bacilli, some of which were innocuous, saprophytic germs, and he has given intracutaneous injections of these tuberculins to fifty persons suffering from tuberculosis. The reactions to these different tuberculins were, on the whole, remarkably uniform, and the author suggests that the response of the tuberculous patient to the introduction of a variety of tuberculins into the skin is practically the same, whether the tuberculins are derived from pathogenic or innocuous acid-fast germs.

358. Does the Formation of Gall Stones depend on Infection?

T. ROVSING (*Acta Chir. Scand.*, September 4th, 1923, p. 103) answers this question in the negative, although, according to the teaching of Naunyn and his followers, the formation of every gall stone depends on an infection of the gall bladder. For the past thirty years the author has systematically examined every one of his 530 cases of gall stones coming to operation, withdrawing the contents of the bladder and (in some cases) excising part of its walls for a bacteriological examination. The contents of the gall bladder proved to be sterile in 314 cases (59.3 per cent.) and infected in 216 cases (40.7 per cent.). It has been suggested that an originally infected gall bladder may become sterile, the germs being locked up within the gall stones. Recently the author has undertaken bacteriological examinations of the interior of gall stones, but he has never found germs within them in cases in which the bile was sterile. The relative frequency of sterile and infected cases was practically the same when the cases were classified according to the nature of the gall stones. The author concludes that infection of the gall bladder is a complication and not a cause of gall stones, and he compares the condition of the gall bladder with that in the urinary bladder when it contains a calculus. No case has yet been recorded in which an infected bladder became sterile so long as a calculus remained in it, and this observation shows what an important factor stones are in maintaining sepsis. The evidence of the clinician is also in favour of the author's unbelief in gall stones being due to infection of the gall bladder; typical cases of cholelithiasis may be completely afebrile for several years and then suddenly show signs of sepsis, such as rigors and fever.

359. The Blood Picture in German Measles.

J. KANEKO (*Journ. Oriental Med.*, August, 1923, p. 112) examined the blood of 46 children suffering from rubella in the children's clinic at the Dairen Hospital in South Manchuria. Unfortunately little is said about the age of the patients, and remembering the inconstancy of the blood picture in infants it is necessary to accept his findings with some reserve. The red blood cells and the percentage of haemoglobin were found to be normal. On the other hand, there was a slight leucopenia, most pronounced in the eruptive stage, and continuing for about a week. The highest white cell count was 7,900 and the lowest 5,600 per c.mm. For this diminution the polymorphs were responsible, their percentage being diminished to between 30 and 45. The lymphocytes were correspondingly increased, there being but little alteration in the other white cells. An examination of the polymorphs for the presence of Dochle's granulations showed that these were not so frequently encountered as in the other exanthemata, and even when such granulations were to be found the proportion of cells showing them was rather low.

particular defects there is something about the carriage, bearing, and posture of the nervous child which arrests attention at the first glance. The nervous adult may by an effort square his shoulders and assume a confident air which may deceive. With the young child this is never so.

The Amyotonia of Nervous Exhaustion.

In most nervous children a want of tone in the skeletal muscles is so prominent a feature that a characteristic stance and posture result. The amyotonia affects especially the muscles which are concerned with the retention of the upright position and whose tone is constantly at work to counteract the action of gravity. Sherrington has shown that certain muscle groups especially serve this specific purpose. The stance of the nervous child may be described as the opposite of that which the drill sergeant inculcates so vigorously in the recruit, and it is to be noted that although the routine of drill at first sight appears to aim at a purely physical effect, experience shows that by achieving a confident carriage and a greater precision of movement, the recruit acquires what is more important—courage, promptitude, and presence of mind. As the recruit stands the head is held erect, the chest is expanded, the abdomen is retracted, the feet are close together and the body is inclined a little forward so that a vertical from the centre of gravity falls in front of the feet.

The stance of the timid and nervously exhausted child provides the contrast to this remedial and curative posture adopted in drill. The trunk is not braced by the muscles of the back. The weight is rather balanced upon the stance than supported by muscular tone. The feet tend to be separated. The shoulders are carried far back so as to bring the centre of gravity directly above the feet. There therefore develops, as in the amyotonia of a primary muscular dystrophy, a considerable degree of lordosis, while a secondary and compensatory curve in the cervical region becomes necessary to bring head and eyes forward into line. As a result of the lordosis the abdomen is pushed forwards into undue prominence while the chest recedes. Similarly the amyotonia of the shoulder muscles allows the weight of the dependent arms to depress the points of the shoulders, to separate the scapulae and to evert their inner border. Movement is often awkward and inco-ordinate, and a too great tendency to tumbles is a frequent complaint of the mothers. As in the greater weakness of a primary muscular dystrophy, there is relatively less power than normal of regaining balance by a sudden movement which averts a fall. This posture, resulting from the weakness or exhaustion of the "antigravity" muscles, appears designed to substitute for the support of muscular contraction a support which is maintained by balancing the weight upon the stance and which involves an exaggeration of the normal postural curves of the spine. Even so the maintenance of the upright position is clearly fatiguing for the children. They tend to lean against any support which offers—a wall, the table, their mother. They are constantly being urged to stand erect or to sit upright. The taller the child, the more striking is this failure to accommodate to the upright position. Under the age of 6 the lordosis is seldom very noticeable.

As a rule in these children the small muscles of the face and hands which serve to express emotional states are in constant movement and overplay, the lips twitching, the forehead wrinkling and the fingers writhing and plucking. In some of the worst cases, however, the absence of facial play has been very striking, while the expression has been that of complete exhaustion and apathy. Sometimes the child seems to have lost for the time being the desire or the power to initiate voluntary movements at all, and the limbs will stay passively for many minutes at a time in whatever position they are put. Confidence, precision of movement, endurance, and repose may be said to be muscu-

Pallor.

The myatonia of the nervous child is not confined to skeletal muscles. It clearly involves also the muscles of heart and of the blood vessels. Complaint is often m of pallor, constant or intermittent. After excitement exertion, specially when the body has been upright for length of time, the blood is prone to fall away from surface of the body, leaving the face pale and drawn w dark lines under the eyes. As a result of this vasomo anaemia the face has imprinted upon it a look of ill he which not only alarms the mother but provokes const comments from her friends and relatives. The subjec sensations of the child clearly vary with the circulat reactions in the skin, and when the pallor is extreme complaint is usually made that the child lies about listles is without appetite and appears depressed or tearful.

Albuminuria.

A postural or lordotic albuminuria is frequently fo if routine examination of the urine is made. It seem me in the highest degree unlikely that the lordosis mechanically, as has been maintained, by the produc of pressure upon the renal vein. I have been unabl substantiate the statement that by inducing lordosis means of a plaster jacket in a healthy child it is poss to produce albuminuria even in the recumbent posture. appears more reasonable to conclude that lordosis albuminuria are alike symptoms of the failure of mechanism by which the force of gravity is counteract It is usual to find that the feet and hands are cold cyanosed.

Abdominal Pain.

Complaint is often made of attacks of abdominal and sometimes of vomiting, synchronizing with the att of pallor and due generally to emotional excitemen fatigue. Now that operations for what is termed "ch appendicitis" are frequent, it is not unusual to that a child, complaining of these symptoms, shows scar of an appendicectomy operation. Syncopal att breathlessness, palpitation, extra-systoles, and train sick are other complaints which occur with great frequenc my notes of cases. If we encounter these children nervous, so excitable, so easily exhausted, with their fa posture and unstable circulatory reactions, and ob them solely with the eye of a cardiologist, we shall des them as suffering from "cardio-vascular asthenia" or "effort syndrome."

Enteroptosis.

If, on the other hand, we are more impressed by an group of symptoms to which I shall refer, we shall see as they grow to adult age become candidates for the o tion of colectomy or colopexy. With the passage of y and the permanent fixation of the postural defect, not difficult to demonstrate the increasing tendenc enteroptosis, due to the faulty postural reaction to gr and especially to the peculiarly lax and toneless abdo musculature. Constipation is a frequent symptom, b do not think we do a service to our understanding o condition by attributing either to the constipation the cardio-vascular asthenia a too great etiol importance.

Proneness to Catarrh.

Further mention must be made of the low imm which this type of child possesses against the co catarrhal infections. Cold-catching children seem to be divisible into two groups: those in whom we find enl ment of tonsils and adenoid vegetations, with chronic tion of the nasopharynx; and children who contin catch cold in spite of repeated operations upon nasopharynx, in whom the fault lies in the weakness o vasomotor defences. When the skin of a child is gl and warm from exposure to wind and sun, colds are s caught, but even a strong man is prone to contrac infection when his vasomotor tone has been weakene

A British Medical Association Lecture

ON

THE PATHOLOGY OF GASTRIC ULCER.

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BY

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PART I.—THE ETIOLOGY OF PEPTIC ULCER.

IT is now generally believed, on strong clinical and pathological evidence (Bolton, 1913[1]), that all chronic gastric ulcers arise in and from acute ulcers—that is, that all ulcers are rapidly formed in the first instance, a chronic ulcer being merely one which has been in existence for a certain length of time. Two etiological problems are thus presented—(A) the cause or causes of acute ulcer, and (B) the factors which lead to the persistence or non-healing of such an ulcer.

A. ETIOLOGY OF ACUTE ULCER.

The various factors, clinical and experimental, concerned in the production of acute ulcers fall into two categories: (1) those which act by producing injury (malnutrition, devitalization, etc.) of the gastric mucosa, and (2) the digestive action of the gastric juice.

1. *Causes which Act by Damaging the Mucosa.*

Experimentally, injury to the mucosa of such a kind as to lead to ulcer may be brought about in a great variety of ways. Clinically, also, many possible causes have to be taken into account. Whatever the agent, the most frequent mechanism appears to be by the production of a focus of necrosis, with or without a preceding focal haemorrhage, or the lesion starts as an inflammation of the lymphoid follicles.

(*a*) The theory of vascular blocking was one of the earliest to be put forward, and was a deduction by Virchow from the well known funnel-shaped character of many gastric ulcers. Such blocking might result from arterial embolism or venous thrombosis, with or without pre-existing disease of the vessel wall, but neither clinically nor experimentally is there any considerable body of evidence in support of this. The anastomotic connexions of the large and medium sized arteries of the stomach are so extensive and complete that it is practically impossible to produce ulcer experimentally by obstructing one or even several of them. It is possible, however, to produce typical acute ulcers by injecting into a gastric artery substances which will produce embolism in the small arteries of the mucosa and submucosa—for example, fat (Schridde, 1907[2]), or a suspension of lead chromate (Cohnheim, 1890[3]). Clinically it is not found that sources of sterile emboli are commonly present in cases of gastric ulcer, nor is venous thrombosis often met with except as a secondary or terminal event.

Vascular obstruction or stasis may also be brought about by spasm of the arteries or of the stomach itself. Durante (1916)[4] produced ulcers by section of the vagus or sympathetic nerves, or both, and he attributed his results to arterial spasm, due, he believed, to excessive production of adrenaline, while the acute duodenal ulcers of experimental adrenaline intoxication (Friedman, 1915[5]) may have a similar explanation. There is no definite evidence that vasomotor spasm is a factor in the production of ulcer in man, although on clinical grounds there is much to be said for it. As Hurst (1922)[6] points out, "something of this kind would alone explain the undoubted influence of sudden change of temperature in the production of relapses of gastric and especially of duodenal ulcer, and the frequent association of a poor peripheral circulation with gastric and duodenal ulcer."

Spasmodic contraction of the stomach itself, on the other hand, is a well known and common accompaniment of chronic ulcer, and one which may well exert a vicious influence on the lesion. There is no proof, however, that it is a cause of ulcer in the first instance.

(*b*) General nutritional factors in the etiology of gastric ulcer are now largely discounted. Bolton emphasizes the fact that there is no reliable evidence to show that chlorosis is etiologically related to ulcer as was once thought, "neither is there any evidence to show that an acute ulcer spreads more readily in anaemic patients." The terminal acute ulcers occasionally met with in cachectic subjects can be much better accounted for by a terminal infective hypothesis.

(*c*) Trauma by chemical or by physical agents is an undoubted cause of gastric ulcer, but from its supposed infrequency is generally regarded as of little clinical importance. The swallowing of caustic substances—strong mineral acids, silver nitrate, and the like—may be followed by ulcer, and Bolton has emphasized the possible importance in this connexion of the dietetic use of vinegar, acetic acid being a powerful protoplasmic poison even in dilute solution (2 per cent.). Mechanical trauma, whether from within or from blows on the abdomen, is even less important. It is well known that the stomach will tolerate in a quite remarkable way the presence in its interior of hard foreign bodies, such as knives and nails, without becoming ulcerated. From time to time cases are reported—for example, the recent case of H. E. Griffiths (1922)[7]—in which there is apparently a very close connexion between a blow on the abdomen and the development of gastric ulcer, and one has seen lesions of the stomach (focal haemorrhages and lacerations) in cases of traumatic death which might well have been the starting point of ulcer had the patient survived.

Thermal trauma, scorching or scalding from hot food and drink, has had much importance attached to it by some writers. Decker (1887)[8] produced gastric ulcer in two dogs by feeding them on gruel at 62° C., while Heiser (1922)[9] found that in 103 gastric ulcer patients there were only four who were not notorious for insisting on their food and beverages being served very hot, or they were very rapid eaters, or both.

(*d*) Bacterial infection and intoxication is, however, undoubtedly the most important direct cause of acute gastric and duodenal ulcer in man, as it is the method by which, particularly in the hands of Rosenow, some of the most remarkable experimental results have been obtained. It has long been known that acute ulcer might occur during the course of acute bacterial infections, as well as in other forms of toxaemia, but it is only within recent years that the importance of this connexion has been fully established (Gandy, 1899,[10] and Bolton, 1913[1]).

I have analysed a series of 53 cases of acute gastric and duodenal ulceration met with in the course of 1,500 consecutive autopsies. In 2 cases only were the ulcers the proximate cause of death—one a man of 42 years of age who died of mesogastric and mediastinal cellulitis due to three acute linear ulcers near the cardiac orifice, the other an infant of 4 months who died of haemorrhage from multiple duodenal ulcers. In half the cases (27 out of 53) acute septic disease was present; peritonitis from various causes 14, bronchopneumonia 6, empyema 3, pyelonephritis 2, and pericarditis and meningitis one each. The principal causes of death in the remainder were cancer (6), cardio-vascular disease (6), tubercle (2), corrosive poisoning (2), and syphilis (1).

Many writers have stressed the importance of less serious, localized forms of infection, both in relation to the etiology of acute ulcer and as a cause of acute exacerbations in chronic ulcer. Dental and tonsillar infections, appendicitis and cholecystitis in particular, have been incriminated on strong clinical evidence.

The clinical connexion between non-bacterial forms of intoxication and ulcer is much less clear, although in animals positive results have been obtained by the injection of a large variety of substances (arsenious acid, chloroform, snake venom, bile salts, gastrotoxic serum, etc.). There is, however, one form of ulcer in man which probably belongs to this class—that which follows extensive burns.

In a series of 6,800 autopsies there were 115 subjects dead of burns, of whom 57 were 20 years of age or over. In this group 2 cases only showed ulceration of the stomach or duodenum. In a child of 5 who died thirty-three days after extensive burns of the trunk and limbs there was a small acute ulcer in the pyloric region of the stomach. In a man

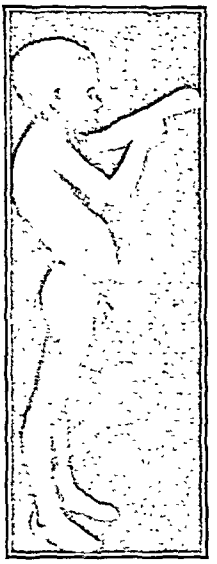

Fig. 1.

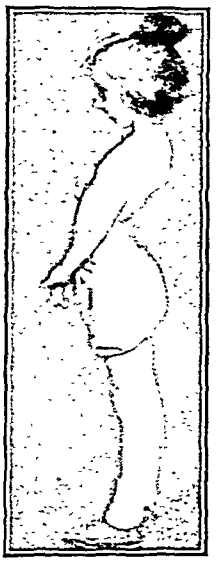

Fig. 2.

Fig. 3.

Figs. 1, 2, and 3, illustrating the weakness of the "antigravity" postural muscles which commonly accompanies nervous exhaustion or instability in children. The axis vertebra is in a vertical line above the heels, through which, rather than through the ball of the foot, the weight passes. The knees are hyperextended. There is a pronounced lumbar lordosis and a secondary forward curve in the upper dorsal and cervical region. The thorax is flattened from before downwards, the shoulders are depressed, and the vertebral border of the scapula is prominent. Fig. 1 shows the condition in maximum degree, Figs. 2 and 3 to the extent which is commonly met with.

some great grief. The aspect of these frail and debilitated children is not unlike that which may result in all of us after some exceptional strain, and the vasomotor collapse carries with it an increased tendency to infection. Of the deleterious result of infection in nervous children I need not speak. Each new pyrexial attack leaves behind it a visible increase in restlessness, in exhaustion, and in muscular weakness. From such a child, not every possible, but every proved, source of infection should be eradicated.

Irregular Temperature Curve.

Finally, I think there can be no doubt that it is in this type of child that we encounter a failure to achieve the monothermia of health. The skin temperature varies with the vascular reaction in the skin. When the child is pale and exhausted subnormal readings are the rule, but when flushed with excitement the reading often rises to 100° or even higher. An evening rise of temperature is not uncommon, and must not, I feel sure, be regarded as proof that the fear of consumption, so often aroused by the aspect of the child, is justified.

The Origin of Particular Nervous Symptoms in Particular Faults of Parental Control.

The study of the nervous child is to a great extent the study of his parents and of the powerful influences for good or evil which proceed from them to an unduly susceptible child. It is essential to realize the intimacy of the relationship between the mother's mind and the child's. However keenly interested we may be in the ailments of children as seen in hospital, and however skilled in their treatment, we shall fail altogether in the home if we do not appreciate or cannot control this influence of the mother which separates us from the child. In hospital we may learn much of the physical ailments peculiar to children; of functional nervous disturbances we shall see very little. The trained nurse, when she leaves the hospital and begins work in the homes, finds herself faced with new and strange problems, and it is not surprising that her want of resource in dealing with them is sometimes plain to the mother and a subject of complaint against her. How frequently, for example, do we encounter an absolute and successful refusal on the part of the infant, for many days, to leave its mother's breast and to take food offered in cup, spoon, or bottle. In hospital this difficulty, real and almost insurmountable in the home, is never encountered, and the proffered substitute is meekly accepted. A study of the child remote from the mother gives as a rule negative results. To see them together, to note the response of the child to the maternal traction, alone provides information. Let us examine some of the ways in which these influences proceeding from the parents show themselves in the conduct of the child.

The Suggestibility of the Child.

Consider first how open the young child is to suggestions of all sorts. He is quick to form ideas as to what is or is not characteristic of himself, yet at the same time he is without power of self-discrimination or self-analysis. He sees himself only in the eyes of his elders. Whatever is thought of him, said of him, even feared for him, that he rapidly becomes. The symptoms of functional nervous disturbance which are most rife among nervous children are those about which the mind of the ordinary mother is most preoccupied. They concern the sensitive digestive system and the urinary apparatus. Paralysis, anaesthesia, spasm are rare, and they are rare because it is not such disasters that are foreboded for the child. On the other hand, anorexia nervosa, nervous vomiting, pica, bulimia, polydipsia, constipation, nervous diarrhoea, enuresis, frequent micturition, and retention of urine are amongst the most common complaints. When a whole household is openly distressed by a child's refusal of food, by a failure to get the bowels open, or by a loss of control over the bladder, the child quickly catches the feeling of anxiety and distress and himself grows anxious and apprehensive about the matter. The mothers of nearly all children with persistent anorexia or enuresis are unduly despondent and pessimistic, and when maternal confidence departs maternal competence goes with it. The complaint that the child never has and never will eat, or that the bed is always wet, is repeated again and again with such conviction that the child doubts it no more than the mother and his behaviour is influenced accordingly. To reverse the suggestion is often straightway to produce a cure. To take an obvious pride in his increasing appetite and in the improving urinary control, to comment delightedly in his hearing upon his voracity and his continence is the only way to help. It is in general not what one says to children

of 50 who died thirteen days after very extensive burns of the trunk and limbs there were multiple acute ulcers in the duodenum.

A possible etiological connexion between burns and ulcer of the stomach and duodenum has long been recognized. The association, however, is rare; Bolton suggests once in every 25 or 30 cases of burns. A perusal of the literature suggests that in former years the combination was more common than now, possibly because burns more frequently became septic.

Experimentally, the work of Rosenow in particular goes far to establish the importance of bacterial infection in the etiology of gastric ulcer. So long ago as 1857 it was shown by Lebert[11] that acute gastric ulcers could be produced, as part of a general pyaemia, by the intravenous injection of pus. Later Letulle (1888),[12] Chantemesse and Widal (1888),[13] Charrin and Ruffer (1889),[14] and others produced a similar result by the injection of a variety of bacterial cultures or their filtrates (staphylococci and streptococci, *pneumococci*, *Bacillus pyocyaneus*, dysentery and colon bacilli, etc.). The presence of bacteria has been frequently demonstrated in the margins and floors of both spontaneous and experimental ulcers, but the possibility of these being secondary invaders has always to be borne in mind.

In 1913 Rosenow[15] reported a series of experiments in which the intravenous injection of streptococci of sufficiently low virulence not to cause a general infection was followed in a certain number of cases by ulcer of the stomach and duodenum. The ulcers were usually single and deep, with marked tendency to haemorrhage and perforation, and in many respects resembled gastric ulcer in man. The streptococci were obtained from various sources, but especially from infected tonsils, and it was shown that the ulceration was the result of a localized infection, with secondary digestion.

Later, Rosenow and Sanford (1915)[16] showed the almost constant presence of streptococci, often in pure culture, in the depths of chronic gastric and duodenal ulcers in man. The organisms isolated were of a relatively low grade of virulence, but tended to localize in the mucous membrane of the stomach and duodenum, producing circumscribed areas of infection, with haemorrhage and ulceration, in a high percentage of the animals inoculated.

In subsequent papers Rosenow (1915,[17] 1916,[18] 1921[19]) showed the remarkable specificity of these and other streptococci, which tended, in general, to reproduce similar lesions to those from which they had originally been recovered. To this phenomenon he applied the term "elective localization." He also demonstrated that streptococci from cases of appendicitis, cholecystitis, endocarditis, tonsillitis, and dental apical infection were specially liable to localize in the stomach and duodenum, with production of haemorrhagic areas and ulcers.

In a recent paper Rosenow (1923)[20] goes on to show that as in man, so in animals, spontaneous ulcer of the stomach is associated with the presence therein of electively localizing streptococci, which reproduced gastric lesions—ulcer, haemorrhage, and infiltration—in no less than 86 per cent. of the rabbits and dogs injected.

2. *The Action of the Gastric Juice.*

The strict limitation of peptic ulcer to the stomach, first part of the duodenum, jejunum (following gastro-jejunostomy), and, rarely, the lower part of the oesophagus, at once suggests that the gastric juice plays an important part in the etiology of this disease. Normally the living gastric mucosa possesses complete immunity to the digestive action of the gastric juice, but immediately a portion of it becomes devitalized, whatever the cause, then the dead or damaged part becomes acted upon by the gastric secretion, and is gradually removed by peptic digestion, an acute ulcer resulting.

The pathology of the process has been studied and the importance of the gastric juice clearly demonstrated by Bolton. By the intraperitoneal injection of a non-lethal dose of gastrotoxic serum—that is, the serum of an animal, of different species, which has been immunized against the gastric mucosal cells of the first—he was able to produce within twenty-four hours or less patchy necrosis of the stomach wall. After about forty-eight hours this necrosed tissue disappeared, leaving sharply punched out ulcers with clean bases, exactly comparable in distribution and appearance to the acute gastric ulcers of infective origin in man. If, however, the gastric juice was put out of action while the poison was acting, by the introduction into the stomach of a solution, over 1 per cent., of sodium bicarbonate no lesion of the stomach developed, even microscopical examination failing to reveal any pathological changes. Bolton has also shown, by experiment, that acute ulcer is much more easily produced in the digesting than in the resting stomach, and that in the former it is much more extensive in character. Moreover, ulceration produced in the presence of hyperacid stomach contents is much more extensive than that produced in a stomach whose contents are of normal acidity.

Recent experimental work by Mann, Kawamura, and Williamson (1922,[21] 1923[22]) has an important bearing on the relationship between acid stomach contents and the development of *duodenal* ulcer. By diverting the secretions which normally neutralize the gastric juice as it leaves the stomach to another portion of the intestine remote from the point of emergence of the acid, they were able to produce in dogs in a high percentage of cases typical subacute or chronic peptic ulcers in the intestinal (duodenal or jejunal) mucosa. These were quite comparable pathologically to the ulcers found in man.

It is obvious from these findings that while hyperchlorhydria, in man, will render conditions more favourable for the development of gastric or duodenal ulcer, yet it is by no means a necessary or essential factor. Gastric juice which possesses only the normal content of hydrochloric acid is quite able to play its part in the pathological process, although, as already shown, hyperacid juice has a much more powerful effect.

Examination of the stomach contents by the fractional method of Rehfuss shows that while hyperchlorhydria or a high normal figure is very commonly met with in cases of duodenal ulcer in man, it occurs in less than half the cases of gastric ulcer. Thus Moynihan (1923)[23] found that 73 per cent. of his cases of duodenal ulcer had a high hydrochloric acid content and only 21 per cent. of gastric ulcer cases. Bell's figures (1922),[24] at Guy's Hospital and New Lodge Clinic, are appreciably higher, especially in the case of gastric ulcer—79.4 and 45.8 per cent. respectively. About one-third of all cases of gastric ulcer are hypochlorhydric or achlorhydric, and about 10 to 12 per cent. of duodenal ulcer cases. It is perhaps worthy of note in this connexion that out of 150 cases of carcinoma of the stomach occurring in the present series of 6,800 autopsies, only 2 showed any evidence of simple ulceration at a distance from the growth, while in a series of nearly 40 cases of pernicious anaemia—one of the few diseases in which achlorhydria is constant—peptic ulcer, whether gastric or duodenal, was not once met with.

The importance of what he terms the "hypersthenic gastric diathesis" in the etiology of *duodenal* ulcer is strongly emphasized by Hurst (1922).[6] He points out that a certain proportion of healthy persons are hyperchlorhydric (10 per cent. of the healthy medical students examined by Bennett and Ryle, 1921[25]), and that some of them at any rate have also hypertonic stomachs. Such individuals, more often men than women, have an inborn variation from the average normal which manifests itself in hypertonus of the stomach with active peristalsis and rapid evacuation, and hyperchlorhydria with hypersecretion. In such people the "duodenal cap," by far the commonest site for chronic duodenal ulcer, is exposed, for several hours of each day, to an undiluted gastric juice of unusual acidity, and it only requires the intervention of one of the other factors already mentioned (especially bacterial localization) for a duodenal ulcer to develop. Hurst goes further than this: he believes that a duodenal ulcer cannot develop in anybody who has not this "duodenal diathesis."

Excessive smoking, which stimulates both the secretory and the motor functions of the stomach, is regarded by both Moynihan and Hurst as an important contributory cause of ulcer.

ly child. For him, the only one, so much is feared. herever he goes the air is full of warning. It is natural at he should interpret this excess of precaution as inditing the constant presence of danger. As the big dog proaches the child, it is enough to make a little movement protection to arouse in him the sense of danger. It is e parent who has unconsciously uttered the warning call. n the other hand, as Dr. John Thomson has pointed out, olhardiness no less than timidity is a reaction to faulty anagement. We all of us know children who are conantly performing strange and perturbing actions, climbing great heights, running away from nurses, and so forth, nd as the parents record the dreadful deed we are yet onscious all the time of a note of pride in the wrongoing. We have the feeling that they are convinced that no rdinary child would have had the foresight to plan and e daring to carry out so wild a project.

Without some knowledge of those who are responsible or the management of the child, his conduct must often ppear inexplicable. Very often the cause of the disrbance will be traced to the parent, its reflection only ound in the child.

Negativism in the Child.

The nervous, irritated, dominating child is prone to kick gainst the pricks. Many of the functional nervous symtoms for which advice is sought may be explained as due o "negativism," to the opposition set up by the child gainst the constant and too obvious traction exercised by he mother or nurse. Negativism grows and flourishes with fault of management to which I think we are all prone. t does not occur in the children of parents who are selfonfident and masterful, who habitually expect and receive mplicit obedience. Nor does it occur when the mother is ne of those placid light-hearted people who never bother, nd to whom punctuality and tidiness and the state of the rawing-room furniture seem matters of very little imporance. The negativistic attitude in children is aroused only hen there are frequent and repeated attempts at control nd a constant failure to achieve it.

It is especially, I think, when parents are tired and overrought that they fail to get the unquestioning obedience hich seems so desirable and so unattainable. It is not so nuch what is said as the tone in which it is said that natters. It is the mother's emotional state which is at fault. She is conscious that she has lost or has never had he power of controlling the child. In the struggle her strength is weakened by the fear that she will fail or the consciousness that she is failing. Children have no knowedge of the moods of their parents, though they may respond to them with almost uncanny certainty. With many women when domestic life proceeds smoothly, control in the nursery may be effective enough. It is only when the mother has lost her peace of mind that refusal of sleep or refusal of food or refusal to go to school becomes a formidable difficulty. If reproofs and appeals and unheeded expostulations are constantly passing from the mother, the child responds by developing what we call negativism. The common refusal of food is very often the response of the restless and irritated child to the excessive urging of mother and nurse. It is instructive to note that among the poor under similar conditions we often encounter the opposite fault. In these poor homes the price of food is not a negligible consideration. The child demands what the mother has not got. In response to his constant clamour the food is doled out grudgingly, with many comments on the vastness of his appetite. The child develops a habit of scavenging in the débris left by the other children. The neighbours come in to behold so prodigious an eater. Similarly, of eight cases which have been brought to me complaining of insatiable thirst only one had diabetes. In the other seven the demand for fluid grew only as a result [illegible] which it was conceded and light upon the origin of the common nervous refusa food among the children of the better-to-do. The c is urged and entreated to eat, while his refusal gives to clearly expressed distress and alarm. Often only t articles of diet are taken with relish which are doled sparingly because they are considered indigestible or un able. If a strong-minded woman with uplifted s attempt forcibly to administer the amount decided u retching and vomiting commonly results. I have k a child who would pause in his play and vomit as soo his nurse produced the white tablecloth for the nu table, a signal of the coming struggle.

Anorexia nervosa of this sort is peculiarly pron develop during the time when attempts are made to stitute a mixed diet given by spoon for the milk diet the bottle. More than one mother has painted for m following picture. To her infinite distress she found she could not induce the child to take food, in spi blandishments and many struggles. A trained nur grandmother, even that arch-authority a hospital s coming into the house, each in turn proved unsucce Finally the child more often than not would refuse the bottle. Only when asleep was it possible to feed Armed with the bottle of food, the mother would cre the side of the cot and wake him just sufficiently to i suction. If she overdid it, if consciousness comp returned, instantly the bottle was pushed away an cry "No! No!" broke out.

A boy of 10 was brought to me with the story th some time past he had lived entirely on water bi After the usual examination and a long talk with his and mother, I found myself explaining what I mea negativism. The father interrupted to corroborate i way. The boy, he said, was often sick in trains, a as he journeyed to see me, they decided that he had keep out of the luncheon car. He said he had nev so hungry. Allowed to join his parents, he was giv smallest possible helpings for fear of the dreaded trai ness. In the result the father and mother agreed th boy had then and there eaten a dinner such as he h eaten for many years. Unconsciously on this occasi suggestion with which the food was proffered ha reversed and with it the child's conduct.

It would not be difficult, I think, to show that this insane tendency to oppose plays a great part in the d ment of many of the symptoms of nervous unrest child. Its treatment calls both for a tightening a relaxation of discipline. The parents and nurse pass more into the background and allow the chi play. The cords against which he is straining n released. Only rarely should the parent make a sta insist, and then the intervention should be in irr force. No child who is habitually upbraided can himself. To indicate displeasure to a child ought momentous thing not easily passed over. It is sig that the first words which many children utter ar of reproof, "naughty" or "dirty," and even be can speak he can scold himself with gusto in the t his elders.

The Child's Love of Self-Assertion.

Closely connected with the child's proneness influences of suggestion and with his desire to op his instinct to assert himself, to attract attention self, and to make himself the centre of the picture often the desire of children to produce what the new call a "sensation" which leads to particular disturb conduct. The natural sense of inferiority which t in the presence of their elders normally leads to shy with certain temperaments it is compensated for b of what is called "showing off." In showing off we exaggerated desire to attract notice, and the adopted to achieve this end are innumerable an

B. Etiology of Chronic Ulcer.

The opinion has already been expressed that a chronic ulcer is merely an acute ulcer which has lasted a certain length of time. What, then, are the factors which prevent an acute ulcer from healing? In most of the experimental work which has been done on this subject the acute ulcers have healed with great readiness and in quite a short time (two or three weeks), and the difficulty has been, not to get them to heal, but to devise means to prevent them from healing—that is, to convert them into chronic ulcers, comparable to those met with in man.

The effect of diet has been studied experimentally by Bolton. He found that in cats a meat diet appreciably delayed the healing of acute gastrotoxic ulcers as compared with a control series of milk-fed animals. He attributes this to two factors: (a) the prolonged retention of meat food in the stomach, and (b) the more copious secretion of gastric juice induced by a meat diet.

In his next experiments Bolton first produced mechanical constriction of the duodenum in cats, and followed this up with the production of acute gastrotoxic ulcers, as before. In 10 out of 16 cats which survived these procedures, the effect was to cause a definite delay in the healing of the ulcers, which might amount to thrice the time taken for normal healing to occur. In no case, however, did a chronic ulcer result; healing was merely retarded to this quite moderate extent. Both Rosenow, and Mann and Williamson, on the other hand, have definitely succeeded in producing chronic ulcer by the methods already described, the one by streptococcal inoculations, the others by stopping the normal neutralization of the gastric contents by the pancreatic and other duodenal secretions.

Does the experimentally demonstrated relationship between delayed emptying of the stomach and delayed healing of acute gastric ulcer apply also in man? There is a certain amount of evidence that it does. Ulcers of the pyloric portion of the stomach are very liable to be associated with some degree of reflex pyloric spasm, with resulting undue retention of acid contents. Bolton and Goodhart (1922)[26] have further shown that pylorospasm tends to interfere with the regurgitation of alkaline duodenal contents into the stomach, and so to delay the process of intragastric neutralization, which according to Boldeyreff (1915)[27] is the normal method of control of hyperacidity. Both pyloric spasm and the hyperacidity which often accompanies it tend to induce hypermotility, while the ulcer itself is frequently associated with a localized abiding spasm in its immediate neighbourhood. It is reasonable to suppose that these factors exert an unfavourable influence on the ulcer.

The clinical effects of diet in promoting or retarding the healing of gastric ulcer are generally admitted, although opinions vary as to the degree of importance to be attached to this factor. The disturbances of gastric function, motor and secretory, which follow dietetic faults are of a kind which must undoubtedly interfere with the healing of a gastric ulcer whether or no they play any part in the initiation of the lesion. The mechanical effects of badly masticated food and the chemical effects of protoplasmic poisons like vinegar (Bolton) may be mentioned in this connexion.

The distribution of chronic gastric ulcers as compared with acute would seem to have some bearing on the question. Acute ulcers are widespread in distribution, although most common in the pyloric half, and they are very frequently multiple; chronic ulcers are almost invariably single, and the great majority (90 per cent. of the present series) occur along the course of the original gastric tube —that is, on or near the lesser curvature. This would seem to suggest that the factors which lead to chronicity differ in some way from those which produce acute ulcer in the first instance. The comparative fixity of the lesser curvature, and the greater degree of trauma and friction from stomach contents to which the "*Magenstrasse*" is subjected may possibly explain, at least in part, why acute ulcers in this situation are more liable to become chronic than those in other parts of the organ. Radasch's (1923)[28] recent study of the distribution of the oxyntic cells of the stomach fails to show any relationship to the distribution of either acute or chronic gastric ulcers.

In the case of the duodenum, the lodgement of highly acid juice for considerable periods of the day in the "duodenal cap" is probably an important factor in the conversion of acute into chronic ulcers. This would account for the preponderating localization of chronic ulcer in the first part of the duodenum in spite of the fact that acute duodenal ulcers are much more widely distributed.

[*The references will be found at the end of Part II, to be published next week.*]

The Bradshaw Lecture

on

ANGINA PECTORIS: SOME POINTS IN PROGNOSIS.

Delivered before the Royal College of Physicians of London

by

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Prognosis is one of the more fascinating aspects of medicine. It is a balancing of the probabilities and demands wide experience, intimate knowledge, and a keen sense of proportion combined with an instinctive capacity for weighing imponderables. Familial tendencies, the past history of the patient, the objective signs of actual disease, and those subtle but significant subjective discomforts pointing to depreciation of function must all be passed in review and their relative importance weighed before venturing on a verdict.

There are few conditions in which a clear statement as to the future is more anxiously demanded than where pain of an anginal nature has manifested itself. For the victim is conscious that in him "the unseen seat of life, and the target of death" is mortally attacked. There is with each attack an ominous trembling of the very foundations of a man's being, which leaves behind it a shaken and apprehensive soul.

The problem of assessing the expectation of life under these conditions is most difficult, and even after careful consideration of all the facts and an attempt to view the symptoms in their correct perspective, an accurate opinion is not easily attained, and where so much is uncertain we must seek for any solid ground on which to base our opinion.

I have recently reviewed the records of 309 patients in whom the dominant feature was pain of an anginal type, in an attempt to formulate the results of my personal experience, and have dealt with them more particularly in relation to prognosis.

Cause of Anginal Pain.

It is not my intention to enter either the debatable ground of the essential nature of angina or of the special pathological changes which are said by some to be causally inevitable. We are now dealing not so much with the interpretation of the pain in angina as with the mortality.

It will be generally conceded that anginal pain is the resultant of two factors: (1) afferent stimuli passing from the heart and aorta, and (2) the sensitiveness of the receiving apparatus—in other words, of those levels of the central nervous system associated with the heart and aorta; and it is to Sir James Mackenzie that we are more particularly indebted for the full appreciation of the importance of this latter factor.

From the interaction of these two we have pain, and the accuracy of prognosis will depend on a careful consideration of both, and a decision as to which of the two is dominant. The more exalted the sensitiveness of the segments involved, the more susceptible to stimulation, then the less ominous the outlook and the greater the ground for hope of a satisfactory response to treatment. On the other hand, the second essential matter for investigation is the reserve power of the heart, the health of the aorta, arteries, and myocardium, and also the permanent load on the heart of

perturbing. The particular form which the persistent effort to attract attention takes is not dependent in the least upon inherited peculiarities of disposition or tendencies to sinfulness but upon the personalities of those who are in charge. The crying child who endeavours to gain his way and dominate the household by the strength of his lungs is always the child of parents who are unduly distressed by his crying. The child who is "jealous" of his baby brother and who makes ceaseless attempts to do him damage is often the child of a mother who is unable to take him fearlessly to the newcomer. He is aware that the best way to attract attention to himself is to threaten his successor. Like the insane, the nervous child seems forced to do that which most distresses those who most love him, and he is commonly possessed of an almost uncanny sense of the vulnerable points of his parents.

A mother brought her little daughter of 12 to see me. "A charming child," she explained, "in every way, except for a morbid interest in blood, in death, and such gruesome subjects." As she told me this the child came into the room with a book in her hand. She had unlocked a bookcase in the waiting room and had abstracted a treatise upon diseases of the skin, profusely illustrated in colour. Here, then, was striking confirmation of the truth of the mother's complaint. Yet I doubt if she had paid much attention to the book or its contents. She had hailed it as an opportunity to disturb her mother and to make a sensation. So with the page well opened she sat down beside her mother waiting the moment when she should discover the dreadful picture. As her mother was busy talking to me she did not for some time notice the criminal and the book had to be pushed forward bit by bit before the expected cry of horror was evoked. The satisfaction of the child was complete and evident.

Of another child it was complained that when he lost his temper he rushed into his mother's room and hurled the crucifix to the ground. I do not for a moment believe that such an act meant more than that he divined that in this way he could make the biggest sensation so far as this particular mother, a woman of strong religious feelings, was concerned. It is instructive to note that in the society of the servants his proceedings were different. He had discovered, I suppose accidentally, in his struggles with his nurse, that a sensation could always be produced if he pulled her petticoats high enough. The screams and the expostulations and laughter of the servants made him feel thoroughly important, and it was this device which he exploited when in their company. His antipathy to religion with them was no longer evident.

It might seem reasonable to conclude that acts of impiety and acts of indelicacy in a boy of 6 years of age implied a highly abnormal state of mind, and were the expression of deep-seated and complex emotions and impulses. I have little doubt of the conclusions to which an analyst of the school of Freud would be irresistibly driven. I believe that in reality they meant no more than that the management of an egotistical child, determined to assert himself, was somewhat at fault.

In the symptom which I have particularly chosen for analysis, that of the common refusal of food, it is easy also to discern the part which this instinct of self-assertion plays.

A little boy was brought to me in a motor car. He was a striking example of this anorexia nervosa. He had not seen the car since a visit paid to his grandfather three weeks before, when at the midday meal his refusal to eat had created consternation. Clearly the recollection of the fray had lived pleasantly in his memory, for when the car came to the door to bring him to me, thinking he was on his way back to his grandfather's, he said at once "Not eat my dinner," a sentence which at the time had no meaning for his parents, but to which my explanation afforded the clue.

To understand the child, one must first understand the parent. The all-powerful influence proceeding from the parent must be utilized to strengthen, not to weaken, the child.

DISCUSSION.

Dr. C. McFie Campbell (Boston, U.S.A.) said that Dr. Cameron in his paper had dealt mainly with the physical aspects of the nervous child. It was a fact that children of this type were often to be found to be suffering from bodily disease, or perhaps from constitutional physical defect, and this might play an important part in the development of their nervousness. It was in these cases especially that the psychiatrist required the co-operation of the general physician, to whom he looked for further enlightenment upon this aspect of the problem. The psychiatrist was necessarily more often brought into contact with those children who, being in every way physically fit, exhibited disorders of conduct such as stealing, lying, temper, tantrums, and so on. Dr. Cameron had emphasized that in the development of such peculiarities of conduct the environmental influence, and particularly the attitude of the parents, played an important part. That this was so no one could doubt who has had personal experience of dealing with these cases.

It was important, however, to realize that the child was a complete individual with a mind of its own, and that it had to adjust itself, not only to the external difficulties of parental management and home conditions, but also to the internal difficulties inherent in the development of its own emotional life. It might in some cases be necessary to gain the child's confidence and to discover the internal emotional stresses if treatment was to be successful. With regard to the external situation, if this was to be dealt with adequately it might mean occasionally that the physician had to call upon the parents to reconsider the scale of their own ethical values. He believed that parents, as a rule, were ready to do this if they could be convinced of its importance to the welfare of the child; in fact, this argument might be more cogent than an appeal to the individual whose own welfare only was concerned.

Dr. Helen Boyle (Hove) said that, with regard to the stance of the nervous child, was it due to inherent congenital maldevelopment of the brain, analogous, though different in amount and possibly in quality, to that shown by Dr. Bolton in the brains of mental defectives? Or was it due to some defective development owing to faulty glands (as Sir Frederick Mott believed was the case in dementia praecox)? Or was it the stance of the disheartened child due to psychological causes? Might it be a mixture of one or more of these? It was the typical attitude of the fashionable woman of the post-war period, probably indicating truly the disheartened tired state of the women's minds, and thus being a fashionable presentment of the mood of the moment. Could this have been imitated by the children? In the last 40 children admitted to the Lady Chichester Hospital, Hove (for early nervous and borderland cases), in 20 the stance was bad, in 4 fair, in 16 good. In looking through the notes it struck Dr. Boyle that in those in which the stance was good they were cases who were letting off emotional steam in some way, making some sort of adaptation of life, and not so dominated by fear as the others. One talked almost incessantly, another stole, was cruel, very polite, destructive, and so on. Again, did this stance necessarily indicate more amyotonia than the normal attitude? Surely in both the child tried to get its centre of gravity over its feet. This could be done either as in the normal, by throwing the head up and back, the chest forward, and the abdomen back; or, as in the stance of the nervous child shown by Dr. Cameron, by hanging the head forward, the chest back, and the abdomen forward. Might this not have been started by shyly bending the head to hide the face? It was difficult to throw the chest out and hang the head too. Another point was that this faulty attitude tended to get well in some cases more quickly than would seem likely unless due to psychological causes. The desire, mentioned by Dr. Cameron, for self-assertion or for conquest of its surroundings was in many ways a valuable quality, but might lead to unpleasing results. Dr. Cameron felt that the handling of the child should be done as far as possible by the mother, and that she often needed help. The Parents' National Educational Union would be one way of reaching a certain

their deprivation produces a definite syndrome suggestive of deficiency disease. Such glands are nine in number.

Gland.	*Chief Effects produced by Destruction or Deficiency of Gland.*
1. The thyroid	Cretinism or myxoedema.
2. The parathyroids ...	Tetany, and derangement of calcium metabolism.
3. The islet tissue of the pancreas	Inability of tissues to utilize carbohydrates; hyperglycaemia and glycosuria.
4. The testicles	Eunuchism.
5. The ovaries	Premature menopause.
6. The suprarenal cortex ...	Asthenia, low blood pressure, and death in a few days.
7. The suprarenal medulla	The effects produced are doubtful.
8. The anterior lobe of the pituitary	Infantilism and obesity.
9. Posterior lobe of the pituitary	Increased carbohydrate tolerance. Diabetes insipidus (?).

Unfortunately only a few of these glands fulfil the second condition in at all a satisfactory manner. The evidence regarding the different glands is shortly as follows.

The Thyroid.

The evidence for substitution therapy in the case of the thyroid is practically complete. Administration of dried thyroid relieves the symptoms of thyroid deficiency, the active principle thyroxin has a known chemical formula and structure, and the activity of thyroid preparations can be estimated by physiological tests. Finally, it is known that thyroid extract produces its specific action when given by the mouth. In addition, hypertrophy of the thyroid produces a definite syndrome, and many of the signs of this syndrome can be produced by administering excess of thyroid gland.

The Parathyroids.

Unfortunately there is doubt whether the tetany produced by extirpation of the parathyroids can be relieved by administration of parathyroid. Biedl, for example, obtained consistently negative results in such experiments performed on cats.

The parathyroids are believed to have a double action—a detoxicating action consisting in the destruction of guanidine compounds, and a second action on calcium metabolism.

Vines[4] has reported valuable results from the administration of dried parathyroid in chronic sepsis. The preparation caused a rise in the calcium in the blood and a rapid clinical improvement. This action, however, is not of necessity an example of substitution therapy.

The Islet Tissue of the Pancreas.

As has already been mentioned, the connexion between the pancreas and carbohydrate metabolism has been known for more than thirty years, but the difficulty of extracting the active principle from the pancreas has only recently been overcome by the work of Banting and Macleod. Apparently the internal secretion of the pancreas can be temporarily replaced by the injection of insulin, and the use of insulin is a true case of substitution therapy.

It is instructive, however, to compare the difficulties attending the isolation and administration of insulin with the administration of thyroid. Dried thyroid given by the mouth is an effective means of substitution therapy in the one case, but in the case of insulin the discovery of a method for the extraction of the active principle was a matter of great difficulty, and even now when a suitable method has been discovered it is necessary to test every batch manufactured, since any small error in extraction will result in an inactive product; moreover, insulin has to be given hypodermically, for it is inactive when given by the mouth or when sprayed into the nose.

The Gonads.

The effects of castration or spaying have been known for centuries, and there is satisfactory evidence that many of these effects can be relieved by grafting of glands. The evidence as to the effect of testicular and ovarian extracts is, however, extremely unsatisfactory. Every imaginable claim has been made as to the action of these extracts, but all the more careful observers are very reserved in their opinions. Professor Murray[5] recently stated:

"There is very little satisfactory evidence that either testicular or ovarian preparations have any therapeutic action when injected or taken by the mouth. The development of eunuchism after removal of the testicles and the corresponding condition after removal of the ovaries are generally considered to be due to loss of internal secretion of the gonads. There is, however, no evidence that either eunuchism can be removed by the use of testicular extract or the signs of a premature post-operative menopause averted by taking ovarian tablets. The relief of subjective sensations has been reported, but this is not sufficient evidence."

The use of testicular extract was, of course, the first example of attempted substitution therapy, for it was introduced by Brown-Séquard in 1889. There is, however, to-day no satisfactory evidence that we have yet succeeded in obtaining a preparation from either the testicles or the ovaries which will produce a true substitution effect.

The Suprarenal Cortex and Medulla.

These conjoined glands present a remarkable and even paradoxical contrast as regards endocrine therapy.

We know that the suprarenal cortex is absolutely essential to life and that its destruction rapidly causes death. Nevertheless, we do not know for certain whether the cortex acts as an organ of internal secretion, or whether it has only a detoxicating action, and no one has obtained from it an active extract.

On the other hand, the suprarenal medulla contains the intensely active substance adrenaline. The chemistry and pharmacology of adrenaline have been fully worked out, and it is possible to make fairly accurate quantitative estimations of the adrenaline content of the medulla. We know, however, very little indeed as to the physiological action of adrenaline. Recent work makes it doubtful if the destruction of the suprarenal medulla produces any very definite effects, and Cannon,[6] in a recent paper, concluded:

"There is no satisfactory evidence that, in natural quiet existence, the suprarenal medulla gives off any secretion whatever. In times of stress it is brought into action by nerve impulses, and may then support the influence of the sympathetic system and have besides special functions of its own."

The evidence for successful substitution therapy in the case of either the suprarenal cortex or medulla is therefore very scanty. In Addison's disease there is destruction of both the cortex and medulla, but extracts of the suprarenals do not cure this condition, although adrenaline may produce some temporary benefit.

The Anterior and Posterior Lobes of the Pituitary.

Deficiency of the anterior lobe of the pituitary is believed to produce Fröhlich's syndrome—namely, infantilism associated with obesity and torpidity. Cushing[7] found that large doses of the dried lobe by the mouth produced benefit in this condition; in one case 1.2 gram daily was required and in another extreme case 20 grams daily were needed. Nothing is known, however, about the chemical properties of the active principle of the anterior lobe.

The posterior lobe contains several active principles of unknown chemical nature, but with very powerful pharmacological actions. The extract is of value in obstetrics as an oxytocic, as a vaso-constrictor in shock, and as a gut stimulant in prevention of tympanites; finally, it produces a temporary curative effect in diabetes insipidus. This last example appears at first sight to be a clear case of substitution therapy, since diabetes insipidus is frequently associated with injury in the pituitary region and with pituitary tumours. Recent work has, however, shown that diabetes insipidus and other symptoms attributed to the destruction of the pituitary by operation, injury, or tumour are probably due to interference with the adjacent portions of the brain.

Pituitary deficiency also produces increased carbohydrate tolerance, and Cushing found that this was abolished by administration of posterior lobe extract. The extract produced its action on hypodermic or oral administration, the relative activities being as one is to four. This is remarkable, for, as regards its other actions, the posterior lobe extract has little or no action if given by the mouth, although it will act if sprayed into the nose.

The above summary shows that only in a few cases is there a satisfactory experimental basis for the practice of substitution therapy. The evidence in the case of dried thyroid and of insulin is practically complete, and the deficiency

cases for which these extracts are used are comparatively [illegible] Pituitary extracts appear to have a definite effect substitution remedies, but the condition of pituitary ficiency is rare. The only example of the use of supra-[illegible]l extracts as agents in substitution therapy is the tem-[illegible]rary beneficial action produced by adrenaline in Addison's [illegible]ase. Dried parathyroid has an important action in [illegible]sing the content of calcium in the blood in chronic sepsis, [illegible] it is not certain if this is an example of substitution [illegible]rapy. It cannot be said that there is any definite [illegible]perimental basis for the therapeutic use of extracts of [illegible]e gonads.

In addition to the above actions there are various thera-[illegible]utic uses for endocrine extracts which have nothing to do [illegible]th substitution therapy. Examples of such actions are [illegible]e use of adrenaline as a styptic, or as a cardiac stimulant [illegible] sudden arrest of the heart, the use of pituitary extract [illegible] obstetrics, and the use of dried thyroid to increase meta-[illegible]olism and to decrease obesity.

Nothing has been said of the use of extracts of the spleen, [illegible] thymus, and the pineal gland, since in none of these [illegible]ses does removal of the gland produce any definite syn-[illegible]e, and hence there is no experimental basis for the use [illegible]f extracts of these glands as substitution agents.

Extracts of every tissue of the body have been put on the [illegible]arket, and it is possible to obtain from practically any [illegible]issue in the body extracts which, when injected, produce [illegible]harmacological actions; this does not prove, however, that [illegible]e glands from which the extracts were prepared have any [illegible]nternal secretion. Splenic extracts, for example, produce [illegible]ncreased movements of the gut, and so, indeed, do extracts [illegible] many other tissues of the body; this fact does not, of [illegible]se, prove that the spleen has any influence on the [illegible]ctivity of the gut in life, nor is there any reason to suppose [illegible]hat splenic extracts are superior for the treatment of con-[illegible]tipation to the numerous other drugs of known composition [illegible]hich can produce a similar action.

A general survey of the results of substitution therapy is undoubtedly disappointing, for the first discovery, the action of dried thyroid, is still of more importance than all subsequent discoveries put together. A comparison of the different endocrine organs suggests that a possible reason for this is that the thyroid gland shows certain unique features which are likely to favour the use of its preparations in substitution therapy. Histological examination shows that the thyroid is constructed to allow of storage of its secretion, whereas the anterior lobe of the pituitary is the only other endocrine gland which possesses a vesicular structure. A possible reason for this peculiarity is that the body is dependent for normal metabolism on a regular supply of thyroid secretion, but the thyroid can only produce thyroxin if supplied with iodine, and iodine is a relatively rare element.

Marine[3] has shown that a biennial supply of iodide is sufficient to prevent the development of goitre in children living in a goitre district. This suggests that the thyroid stores several months' supply of its active principle. This storage is of advantage in two ways in endocrine therapy—in the first place, very large amounts of active principle can be obtained from the gland, and in the second place a secretion that is stored is more likely to be stable than one which is passed out into the body directly it is produced.

A comparison between dried thyroid and insulin indicates a very great difference in the yield of active principle in the two cases. The human thyroid weighs about 25 grams, and a daily dose of about 0.3 gram of fresh thyroid is sufficient to keep many cretins in normal health (Murray[5]). This is with oral administration, and about a quarter of this dose would probably be sufficient if given hypodermically. These facts indicate that the thyroid stores more than one hundred days' supply of secretion. The human pancreas weighs about 125 grams, and this weight of pancreas will only yield a supply of insulin sufficient for two or three days' treatment of a severe case of diabetes.

The comparison cannot be pressed too far, but it has been tacitly assumed that the results obtained with thyroid medication ought to be repeated with the same ease with every other endocrine gland, whereas the difficulties attending the preparation of insulin, and the comparatively meagre yield obtained, are probably more nearly typical of endocrine secretions as a whole.

Substitution Therapy in Hyposecretion.

At least three-quarters of any endocrine organ must be destroyed in an animal in order to produce any certain evidence of deficiency disease; consequently it is extremely difficult to obtain experimental evidence of the effects of a partial deficiency of any internal secretion.

Various causes are known which produce destruction of certain of the endocrine organs—for example, tuberculosis of the suprarenals, tumours of the pituitary, lack of iodine in the case of the thyroid, acute infections in the case of the pancreas and parathyroids. There is, however, no evidence for the assumption that partial deficiency in the internal secretions is at all a common cause of disease. Since these glands help to regulate every activity of the body, it is perfectly easy to draw up schemes whereby the symptoms of practically all obscure diseases can be attributed to some disorder of internal secretion, but it is important to remember that such schemes, although interesting speculations, lack any definite proof.

Polyglandular Therapy.

The short review I have given indicates that the therapeutic action of only a few of the endocrine extracts is established with any degree of certainty, and it is interesting to consider what basis of proof exists for the polyglandular therapy that is becoming so popular. Typical polyglandular formulae usually contain some or all of the following preparations: dried thyroid, extract of the posterior lobe of the pituitary, thymus, adrenaline, and extract of testicles or ovaries. The remedy is usually given by the mouth.

Of these constituents the thyroid is beneficent if the patient chances to be suffering from thyroid deficiency, and in other cases there is usually too little present to do any harm. Pituitary extract is inactive when given by the mouth, except as regards its effect in reducing carbohydrate tolerance in cases of pituitary tumour deficiency; this action would be assisted by the thyroid, but it is difficult to see what benefit it would produce for the patient. Pituitary deficiency, as manifested by Fröhlich's syndrome or by diabetes insipidus, is very rare, and outside of these conditions there is no rational indication for the use of pituitary extract other than its usual use as a temporary stimulant to the uterus, gut, or blood vessels. It is not known whether the thymus even has an internal secretion, nor is it known whether its extracts have any therapeutic action. As regards adrenaline, it is not certain whether its secretion is essential for the normal health of the body. In particular we know that the low blood pressure and asthenia in Addison's disease are not simple results of adrenaline deprivation. Adrenaline, when given by the mouth, may be of benefit in gastric haemorrhage or to relax oesophageal spasm, but otherwise there are few actions that it has been shown to exert when given by the mouth. Finally, nothing is known for certain about the action of extracts of the gonads.

I suggest that the administration of a mixture of the above nature is as far removed from rational therapy as is the writing out of a charm on a piece of paper and giving that to the patient to swallow. I have assumed that the extracts on the market have as high a degree of potency as any that it is possible to produce. This is, of course, an unwarranted assumption, for in the case of those extracts where a test of activity has been found, and a correct method of extraction discovered, it frequently happens that some slight error in extraction may result in an inactive preparation being produced; this can occur, for example, with insulin and with extract of the posterior lobe of the pituitary. Obviously in those cases where there is no reliable test for the activity of extracts, it is impossible even to know which is the best method of preparation, and the odds against such preparations having any activity whatever are very heavy.

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Dr. W. A. Potts (Birmingham) said that it was necessary to make a thorough physical examination, including an investigation of the endocrine glands, although treatment by endocrine substance was only occasionally effective. Still in some of the cases of pallor, albuminuria, enuresis, and digestive crises small doses of thyroid might act like a charm. Usually the nervous excitable child suggested a hyperthyroid function, but that hyperthyroidism might be a defence reaction, which was a sign of weakness. With tremors, parathyroid might be useful, while for the overgrown pituitary, extract might be necessary, owing to previous overstimulation of that gland. On the psychological side the attitude of the parents to life was as important as their attitude to the child itself. Passionate parents might terrify the child even if their temper was not directed against him. Their lack of control was a bad example, and example rather than precept was the most important factor for psychological adjustment. So also the drinking parent scared the child and set him an example of not facing the problems of life. Bad adjustment between husband and wife produced tension in the child, and confirmed his impression that adult life was simply not worth living, so that he remained a "Mary Rose" or a "Peter Pan." In treatment hygiene came first. Fresh air was the best nerve tonic. Too many clothes were debilitating and demoralizing. Frequent feeding upset the digestion, and also had a bad psychological effect. The child must not be unnecessarily interfered with, but left to play naturally and to work out his own salvation. His life must be simple and hardy, not sensational. He must be trained to go into the dark without fear, though anything frightening must not be forced. For this there should not be a night-light, but a little light kindled in his mind. To diminish morbid fear and for many other reasons every child must receive simple teaching in religion and the origin of life from his mother. Teaching in both must be of the simplest kind, as his questions showed he was fit to receive it. If he was not taught that there was an almighty beneficent Power which would help him, the imagination every child had would fill the darkness with bogies and powers of evil. So also, if not taught in the right way at the right time about the origin of life, a bad companion might suddenly flood his mind with false teaching, terrifying in itself and possibly leading to bad habits. The possibility of such habits as cause or effect of nervousness must not be overlooked.

Dr. H. Crichton Miller (London) said that Dr. Cameron had given a very vivid picture of the nervous child. On the physical side they all recognized, no doubt, the identity of a type that was only too familiar to them all. He regretted that Dr. Cameron did not venture on some theory of etiology, however speculative. For his own part, Dr. Crichton Miller wished that so careful an observer as Dr. Cameron would undertake a series of tests in children of this group to demonstrate the normality or otherwise of their calcium metabolism. He suspected that they inclined to look too exclusively to skeletal maldevelopment for evidence of faulty calcium metabolism. The nervous child, as described by Dr. Cameron, might conceivably owe to this cause not only its amyotonia, but also other features of the syndrome. Were that to be substantiated recent observations, if confirmed, might lead them a step further on to a possible failure of parathyroid function as the essential etiological factor.

The nervous child, as Dr. Cameron described him, and as they accepted him, was by no means the only type to be found in the much wider class that the Americans described as the "problem child." Dr. Cameron had very rightly chosen the greatest factor in emotional maldevelopment—faults of parental control—to discuss alongside the wide, if vague, group of physical maldevelopments that made the nervous child. Let them by all means establish correlations between the physical and emotional wheresoever they could. Nevertheless, they must not mislead themselves. Failures of adjustment, functional neuroses, and defects of conduct could and did show themselves with notable frequency among children who did not conform in the least to Dr. Cameron's description of the nervous or amyotonic child. The "maternal traction"—as Dr. Cameron aptly called it—was often exercised so powerfully as to ensure failure of emotional development in children who were physically robust and in no way predisposed on the somatic side to failure on the psychological side.

It all came to be a question of the balance of opposing forces—the forces that made for growth and progression, and those that made for stagnation or regression. Among the forces that made for progress they had the inherent tendency of any growing thing to realize its destiny, to fulfil its function, and to attain to maturity; they had also all those emotional forces of the environment which lured the child on to growth, and which might be roughly classed under the heading of progressive idealism. On the side of progression also was the stimulus of social opinion, especially that of other children. On the other side they had the counteracting forces that made for regression—all those failures of vitality which neutralized the biological urge of growth, the menace of maturity, and the too alluring call of the cradle, or, as Dr. Cameron would say, the irresistible "maternal traction." There were some nervous children who, in spite of an excellent environment, failed to develop because, being of the amyotonic type, they never had sufficient vitality to achieve; their biological urge was a negative quantity, and the line of least resistance was their constant choice. They had to bring up their children in such a way that they should not feel that adult solicitude was to be secured by infantile helplessness, nor yet by exhibitionism and delinquency. Dr. Crichton Miller differed from Dr. Cameron when he said that "all the interest and remark are to be aroused by success." The really curative atmosphere was that in which normality was taken for granted; and the reaction of the adult to abnormality should always be to withdraw the limelight.

There was no symptom with more interesting psychological ramifications than that of enuresis nocturna. It was a condition in which archaic traditionalism still seemed to dominate their therapy. The unfortunate victims of belladonna poisoning, bougie treatment, and electro-therapeutics, were always the most difficult to cure—and little wonder. It was probable that the physical basis of this condition was thyro-pituitary deficiency. Be that as it might, the fact remained that no condition was more associated with suggestive factors. Most of the patients auto-suggested themselves into a chronic state of fear and shame, while the adult forces of hetero-suggestion were exemplified by the waterproof sheets, the 10 p.m. waking, and even the nightly prayer for deliverance! They must remember also that the symptom of nocturnal enuresis was the most complete symbol of infantility; it therefore served as the best defence against the dreaded implications of growth. He remembered a boy of 10½ who had been a life-long victim of this failing. He was an only child, and his mother was a widow. It was pointed out that his condition was becoming serious, because the child could not go to a boarding school till he had overcome it. It did not require a very elaborate investigation to reveal the fact that the symptom was serving as a defence against separation—not only for the sufferer, but for the mother. In point of fact, they both preferred this disability to the pain of separation, which was becoming imminent. They must also remember that to certain children this symptom gratified a feeling of importance, and a thirst for power, in that it was very obvious how much disturbance and trouble was caused. Then there were cases in which children had been told that unless they overcame their failing by a stronger effort of will they would find themselves ostracized from society and pariahs in the world. An instance of this was a boy aged 11 who was brought to Dr. Miller with a long list of misdemeanours, including meaningless thefts and unnecessary lies. He was as healthy as one could wish. All his life he had been a victim of nocturnal enuresis. His mother described one of his most incomprehensible delinquencies, which consisted in travelling from school to a station beyond his home, and then evading the ticket collector, and walking back. The fact was that the child was suffering from a profound sense of adult injustice. He believed that his enuresis was beyond control, and that therefore the threatened penalties of society were undeserved. The revenge motive stimulated him to "get his own back" from society by any means at his command,

It will now be found, on pulling gently on the tip of the nose, that the shape of the organ can be exactly reproduced, at which stage one realizes that the undercutting process has been sufficient.

It now remains to skin-graft the raw surface produced on the under surface of the skin of the nose, and for this purpose pressure must be applied by the method of Esser modified by various surgeons at Sidcup, and applied by me to this particular purpose.

Dental modelling composition is sterilized by boiling, and a sufficient quantity in a pliable state pushed in through the mouth opening into the cavity made by the undercutting process; but, before this—to prevent the moulding material passing to the post-nasal space—plugging should be inserted into the nose and left flush with the pyriform opening. The moulding material inserted may now be pressed up from the outside with the fingers, so as to reproduce the shape of the nose, but in order to allow for a certain amount of contraction of the skin graft it is better to overdistend the raw area at this stage.

While the moulding material is still warm the upright with expanded end, also heated, can be pressed into the mould and fixed by a screw to the dental splint. While the surgeon is manipulating the mould into a convenient shape the assistant pours cold water over the surface of the skin, or sprays cold water up the nostrils or through the mouth opening.

Fig. 9. Fig 10.

Fig. 9 shows the first stage of reconstruction — namely, replacing the tip of the nose into its normal position by division from its vicious attachments —in a case of extensive destruction of the nose. Fig. 10 shows the appearance of the patient after rhinoplasty by tube pedicle from arm.

The mould now sets hard, and can be withdrawn together with the upright portion of the splint. Sometimes difficulty is experienced in removing the mould, either because the opening from the mouth into the nose is not big enough, or because some of the moulding material has been expressed out of the nose into the anterior nares and sets there; this causes a sort of hook and prevents the removal of the mould. These little complications can be avoided during the setting of the mould by cutting off the excess portions with a hot spatula.

Examination of the mould will now enable the surgeon to see which portions of it have been in contact with the raw surface produced by the undercutting. They are usually confined to the whole of the front surface of the mould and the lateral portions of the back. It is this area that requires skin-grafting. The plugging inserted to prevent the mould being pressed to the back of the nose is now removed.

The removal of a large graft is the next essential. If the patient is a male, an area free from hair is chosen on the arm or forearm; if a female, the graft is taken from the inner side of the thigh.

It is of enormous importance, both for the success of the graft and for the ease of application, that the skin graft should be cut sufficiently large to cover the whole area in one piece. There seems to be no royal road to the successful cutting of big grafts, the personal factor of the surgeon, the patient's skin, and assistance, all being important, and the impersonal factor of the keenness of the razor being perhaps the most important.

The graft is now taken and stretched firmly over the whole surface of the mould corresponding to the raw area so that there are no wrinkles or slackness in the graft, the raw surface of the skin graft being, of course, outermost.

When the graft is a big and good one, the gloved thumb is the most useful spreader. When the graft is in shreds or smaller pieces, recourse should be had to non-rat-toothed dissecting forceps.

Care should be taken that the graft reaches well over the top to the back surface, so that when the graft and mould together are pushed into position there is no disturbance of the position of the graft on the mould. The wound is cleared of clot, and the mould with skin graft thereon is inserted.

It now remains to fix the upright of the splint and send the patient back to bed.

At the end of ten days the case is referred to the dental surgeon, who removes the mould gently and cleans up the cavity, when the whole of the raw surface of the nose will be found to be perfectly covered with skin. It is as big a certainty as there is in surgery.

Either the same mould cleaned up, or a fresh one made of black gutta-percha, is now inserted, and can be removed daily for another week or ten days by the doctor in charge of the case. At the end of this time the graft is quite firm, and the case can be handed to the dental surgeon to be fitted with a more permanent appliance. This is moulded by the dental surgeon so that the nose takes on a good shape, and the mould can be removed by the patient daily for cleaning.

In order that the mould should be removable there is naturally a displacement forwards of the upper lip, a deformity which must be endured until the final stage.

Fig. 11.—Showing author's modification of Italian rhinoplasty by tube pedicle.

The patient is sent home for two months, when the second stage is performed, which consists in the implantation of a cartilaginous bridge between the outer skin of the nose and the inner skin graft. Sometimes the cartilage can be put in through the columella, and sometimes through the glabellar region.

The appliance is now discarded, and the lip allowed to fall back into a normal position. If a permanent oro-nasal communication remains, sufficient of the opposing surfaces may be rawed to ensure its closure. The two cases (Figs. 1 to 8)* are published to illustrate the surprising results obtained by this method.

Class 3.

When there is destruction of the outside elements of the nose in addition to the above, the case develops into one of more or less extensive rhinoplasty.

The methods of rhinoplasty in specific cases differ little from those of any other destruction of the nose, save that in specific cases some small portion of the columella or portions of the bridge skin only may be destroyed. The scope of this paper does not admit description of the various methods of rhinoplasty.

The best result can usually be obtained by a combination of the method described under the second heading, coupled with the requisite grafting of the new columella or other portion: having carried out the two stages as described in Class 2, a columella was provided, and the final result was of a pleasing and satisfactory nature.

In another more extensive destruction of the bridge of the nose I was foolish enough to attempt to implant cartilage as a means of restoration, for although a satisfactory raising of the bridge occurred, the syphilitic character of the deformity remained, and the anterior nares still looked forwards instead of downwards. The

* Figs. 1 to 5 were reproduced in *Plastic Surgery of the Face* (Oxford Medical Publications).

even though they involved considerable trouble to himself. Dr. Crichton Miller mentioned three different aspects of one problem of the nervous child in order to show how varied might be the underlying causes at work, and therefore how useless it was to expect results from routine treatment.

Sir Robert Armstrong-Jones (London) was of opinion that the nervous child was a genus with several species, and this accounted for the varying physical symptoms presented—for instance, a limpness and consequent posture with amyotonia in some, whilst there was a definite tendency of katatonia and flexibilitas cerea in others. At any rate there was no doubt that these symptoms were the precursors to a later mental collapse unless taken definitely in hand and treated, and the indications for treatment must be based upon the "tripartite" aspect of man—namely, the bodily, mental, and spiritual or ethical. It was possible to cultivate the bodily only or mainly, and so obtain a physical Hercules but a mentally undeveloped person. It was possible to cultivate the mental and overlook the spiritual, so that one could see the moral monster. The aim of treatment must be based upon the three aspects. First, in regard to the bodily side, there must be adequate sleep. Rest was essential for these restless, unbalanced, easily fatigued, and excitable children. They should be in bed by 8 o'clock, and from 12 to 15 years of age must have twelve hours' sleep, and if not sleep they were resting whilst in bed on their back. These children were almost invariably light sleepers, and often experienced dreams and sudden starts or "screams." The room should be a quiet one and darkened. No lessons should be indulged in for an hour before bed. The primitive instincts were obvious in many of these nervous children. There was a fear of the dark, and the mother had an unusual power over the child towards dusk or the falling of darkness, and could do much to relieve and reassure the child and soothe its fears or correct its conduct. This was a very impressionable hour in child as well as in animal life, and rest and restoration could be greatly aided by a warm immersion bath before bedtime. As was well known, the skin was developed from the same parent embryonic layer as the brain, and every part of the skin was represented in the brain, so that light massage might greatly assist rest and sleep. The clothing must be light, and the clothing should be suspended from the shoulders and not the waist, the shoes should be comfortable, and no garters worn. All wet clothes should be changed at once. The food of the nervous child was important. Fruit was essential, and the juice of an orange was most restorative. The food should be at correctly regular intervals. The nervous system must be sustained at regular intervals, and there should be adequate fat and sugar; these could be well supplied in home-made toffee at meal times. The utmost attention should be given to the regularity of all the functions, and syrup of figs or fluid magnesia were good friends. Exercise should not be indulged in so as to produce fatigue. The hands should be encouraged by some mutual interest. The eye and hand went together as much as did hearing and speech. The hand was the companion to the eye. One of the chief senses connected with education was the muscular sense, and the muscular element of thought had hitherto been very inadequately worked out. The first development of attention was in muscular movements, and attention was the basis of the will, which must be strengthened in the nervous child. In a baby and in early life there was constant movement, and nothing was so characteristic of early infant life as its general undifferentiated muscular movements. As healthy growth proceeded some peculiar association of pleasure or pain was associated with some movement, and the mind was arrested, as it were, and a special impression was made on consciousness. This detention of the mind was the earliest growth of the will, for it tended to keep off or to inhibit some movements which were useless and random, and to fix the attention upon those that were useful; the recollection of this utility could be revived, so that purposeful movements occurred, and a deliberate adaptation and a desire resulted. The first act of will was attention, and when the attention of the child could be fixed it was the first stage in successful education and treatment. The attention was no special faculty and it was no separate activity; it was a detention of the mind and a concentrated activity of the conscious stream. There was a maxim in the proper upbringing of children: "Don't say 'don't.'" The iteration of "don't" was to suggest the opposite. The will to do came before the will not to do. They should not coerce the nervous child, but express disapproval by reasoning to it, use patience, and show an example, which was the best appeal. Contrariness was the most marked symptom of the spoilt child, and was often an indication of fatigue in the nervous child. If he was troublesome, let him see where his naughtiness and contrariness led to. If he was late for breakfast let him be left. If he refused food, send it away. If he refused to dress let him stay in bed. He believed the nervous child was very quick at self-discrimination and self-analysis, and he soon learned the value and results of retributive justive. Good and unperturbable temper was necessary in dealing with the nervous child, who was quick to realize approbation. The child learned that he could obey and disobey, and his imitative tendency would help him to remember a good example as a suggestion. Lastly, he believed strongly in encouraging a child to do the "right," to learn there was a right and a wrong, to show him he had the choice, and that a responsibility lay upon him to do the right. The feeling that there was someone very great and very mighty on whom he could lean as on his parents was a great factor in children's minds, and that this great Person was pleased with right conduct and grieved at the opposite appealed as a most powerful incentive and motive to right conduct. He believed there was in human beings a moral sense just as effective and powerful as the sense of sight or the sense of hearing. The four periods of life were a maxim: (*a*) the period of infant life, during which the senses were providing information and links of association, but which was mainly a period of reflex actions; (*b*) the perceptive period of discrimination and differentiation; (*c*) the period of intellectual growth, in which the attention, imagination, and memory were cultivated; and (*d*) the period of reflection, when unselfishness appeared and the growth of the will was perfected through self-control and reason—a period when the social spirit and the regard for others was being fully developed and perfected, and treatment must be based upon a recognition of these.

Dr. R. G. Gordon (Bath) said that the individual characteristics of the child were important from the psychological point of view. It might be interesting to consider the predisposition of nervous children, and for purposes of discussion McDougall's treatment of this was useful, though his claim for elemental characteristics of his instinctive reactions could not be substantiated. He described certain instinctive dispositions, such as pugnacity, fear, curiosity, sex, and so on, which were built up and integrated together to form the personality and character in the normal individual; these instinctive dispositions varied in their relative proportions, but only within certain limits. In the nervous child these dispositions were out of proportion and lacked proper integration. McDougall had shown how several of these might be combined to form compound emotions and sentiments, but did not sufficiently recognize the new and unique quality which emerged. When mercury and chlorine combined under certain conditions a new entity—calomel—emerged, but under other conditions a different entity—corrosive sublimate—emerged. In the nervous child it was often found that instinctive dispositions combined and emerged as some characteristic of behaviour different from the normal. Failure of general integration was another important factor in the make-up of the nervous child. The question to be answered was why these failures took place. From the neurological standpoint they must look to some failure in cortical function, for it had long been recognized in the motor and sensory realms that the cortex was essential for the integration and control of lower functions. More lately Bianchi had shown that the frontal lobes had to do with the integration and control of emotional dispositions. In the case of the nervous child there might,

method originated during the war by the speaker is more applicable in this class of case, and the first step should be a division of the nose horizontally above the alar cartilages. An incision is carried right through into the nasal cavity, and, laterally, above each ala until the tip of the nose, alae, and columella resume a normal position (Fig. 9). A large fistula is then apparent in the middle of the nose, the margins of which, after trimming, are treated by sewing skin to mucous membrane to prevent retraction of the tip.

The case is left for two months, at the end of which time reconstruction proper is carried out. Skin flaps, suitably designed, are hinged across the gap with the skin surface towards the nasal cavity to complete the lining of the new nose.

A shaped flap is then taken from the forehead, or, as in this case, from the arm, to complete the nose. (Fig. 11.) Two weeks later the pedicle is divided. It remains at a later date to trim the nose and to insert the new cartilaginous bridge (Fig. 10).

It is to be noted that there is undoubtedly a greater risk of gangrene occurring in a flap in a syphilitic case, which may be due to some change in the arterial walls.

I sincerely hope that these few remarks will induce the plastic surgeon to attack these syphilitic cases of nasal deformity with more definite principles and more gratifying success. Unless an adequate provision be made for the loss of the mucous membrane in these cases the appearance of the patient, however improved by the operation, will continue to be that of a typical syphilitic, who will still be shunned by his fellows. The patient should be under control by specific remedies, but a positive Wassermann reaction is not a contraindication to reparative proceedings.

ORGANOTHERAPY IN DISEASES OF THE EAR, NOSE, AND THROAT.

BY

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If one were to be asked to state in general terms what subject was engaging the attention of the greatest number of medical men at the present time, I think that the truest answer would probably be "endocrinology."

The influence of the endocrine organs on the economy is so widespread, and their derangements are so common, that specialists in every branch of medicine are bound to consider the question of hormonic dysfunction in relation to almost every morbid process, and to experiment freely with various glandular extracts to endeavour to determine whether any useful therapeutic effects are to be achieved by their exhibition. This applies not less to oto-laryngo-rhinology than to other branches, and I wish to present a few notes to this Section, in order if possible to arouse discussion and stimulate interest in the subject.

Some of us may, perhaps, be so interested in the surgical, operative, and manipulative side of our specialty that we tend to forget the claims of internal medication. While, naturally, a course of thyroid feeding would be useless, say, in a case of lateral sinus thrombosis, yet there are numerous conditions in which organotherapy forms a useful adjuvant to surgery; some in which it may be tried with a fair hope of success; and possibly a few where it may throw light on otherwise obscure problems of pathology and treatment.

There are so many organs which supply an internal secretion necessary to health, the manifestations of their derangements are so complicated, and the interactions of the various endocrine organs are so intimate, that it is difficult in many cases to lay down rules for the exhibition of the different glands, but I may perhaps be allowed to formulate certain general rules of endocrinology.

1. The endocrine organs may affect the organism unfavourably from (*a*) excessive secretion, (*b*) deficiency of secretion, (*c*) perverted secretion.

2. Alterations in the quantity or quality of the secretion of one organ may produce alterations in one or both directions in that of one or more other organs.

3. If an organ is secreting less of its particular fluid than is required for the needs of the body, feeding the patient with that extract will not only supply the deficiency at the time, but, if the process is a functional one, or mild organic, it will give the diseased organ a rest, and enable it to take up its duties in full later on.

4. An endocrine organ may enlarge on account of a demand made for an increased supply of its secretion, possibly from a distant part of the body. Feeding it to the patient will relieve the strain on the gland and enable it to keep its normal size.

Bearing these principles in mind, let us consider under what conditions the use of glandular extracts may be found useful in the treatment of diseases of the ear, nose, and throat.

McCarrison[1] has shown that intestinal and other sepsis causes an increased demand for thyroid secretion. This leads to increased thyroid activity, acinar proliferation, and round-celled infiltration, resulting in a goitre. The round cells undergo their usual transformation into fibrous tissue, the glandular elements are strangled, and finally a condition of hypothyroidism results, with an enlarged thyroid. The action and results of the round cells in these cases is very similar to the process seen in scirrhous cancer.

It is very interesting, in view of McCarrison's work, to notice how swollen thyroids associated with sepsis often diminish in size when the sepsis is cured.

Miss R. N. consulted me on January 25th, 1922. I need not detail her symptoms, etc., but the condition was one of post-influenzal empyema of the antrum of Highmore. The thyroid was distinctly swollen—the circumference of the neck was 37 cm. She had not noticed the swelling until I pointed it out. I washed out her antrum, and was successful in getting a clean sinus after two weeks' treatment. At this time the circumference of the neck had diminished by 2 cm. This may not seem a great decrease, but, as McCarrison points out,[2] "an increase of three-quarters to one inch represents a doubling of its volume, and a still further increase of a half to three-quarters of an inch a quadrupling of the gland's volume. These figures are approximately correct for necks whose normal circumference is 13 to 16 inches."

I have so often observed thyroid enlargement in cases of nasal and aural suppuration that I am now in the habit of prescribing small doses of thyroid extract from the first interview, as well for cosmetic reasons as to supply the increased secretion required by the body for the combating of the sepsis. Of this need the thyroid enlargement is the signal and proof. If the gland does enlarge the dose is increased.

McCarrison[3] points out the necessity for a careful search for septic tonsils or nasal sinuses in all cases of exophthalmic goitre. I may here remark that it is a difficult matter to get accurate measurements of the neck, and very easy to make a mistake. The best way is to take a definite point, fore and aft—that is, to place the tape over the vertebra prominens behind and the most prominent part of the gland in front. At present I have a young lady under my care who was tracheotomized in infancy. The scar makes a most valuable landmark.

Occasionally we see cases which may be referred to the pituitary. The amount of information which has been collected about this organ in recent years is astonishing. When preparing this paper I had the curiosity to look up the Halliburton's *Physiology* which I used in my student days. It is dated 1900. All that is there stated about the physiology and pathology of the pituitary is comprised in the statement, "A disease of the pituitary body produces the condition known as acromegaly, in which the bones of the limbs and face hypertrophy." Compare this with the fifty pages—one-seventh of the whole—devoted to it in Mason's *Endocrine Glands* published last year. I shall not enter into the complicated functions and relationships of this important organ further than to say that the headache and eye symptoms associated with some of its derangements have to be diagnosed from sphenoidal sinus disease. The headache comes on in the morning, may persist or pass off during the day, is deep-seated behind the eyes, is frequently associated with ocular symptoms, and has often a relationship with the menstrual function.

then, be something wrong with the frontal lobes. That there was nothing gross was obvious, because many of these children grew out of their troubles. It must be recognized that the adjustment at the level of the frontal lobes was very delicate, and almost anything might upset this. Cases might be quoted where this dysfunction of the frontal lobes was apparently induced by malnutrition and lack of vitamins, endocrine imbalance, infections (especially syphilis and encephalitis lethargica), and the influence of the environment. This last factor was by far the most important, and no treatment could be of any use unless the environment was considered. In treating a nervous child they must consider his make-up, and to do this they must use some analysis, but the elaborate technique of psychoanalysis had no place, for the child was quite incapable of grasping what the analyst was at.

Dr. C. F. Harford (London) said that Dr. Cameron had sketched the posture of the nervous child, and had shown that the crooked back was closely related to a warped mentality. He regarded courage, promptitude, and presence of mind as distinguishing features of the well trained recruit with his erect and alert bearing, a striking contrast to the timid child whose characteristics they were called upon to study. Dr. Harford proposed to advance another proposition, which was that the crooked eye was another mark of an unstable mentality. To illustrate his meaning he had selected a series of cases taken from one morning's experience during the present month in his consulting room in a provincial town which he visited once a week. In the ordinary course of his ophthalmic practice he was seeing cases referred to him by the school medical officer, when there walked in a mother with three children —a girl aged 13 and two boys aged 8 and 5—both of these latter having pronounced left internal strabismus. As it turned out, the girl also had left internal strabismus, which was not constant. The boys were instances of the two types of children already described to them, which, following Dr. Crichton Miller, Dr. Harford referred to as the suggestible and the rebel. The elder boy was essentially the rebel, always in trouble but absolutely unmoved by punishment, though caning seemed to be his almost daily portion. He had the dare-devil spirit, climbing into almost inaccessible places, running to horses' heads, and so forth. He was described as very nervous, and this was evident when Dr. Harford had to put some ointment into his eyes, a process which he resisted, although his brother and sister had been most amenable to treatment. The younger boy was the suggestible one, imitative to an extreme degree, so much that he had tried to cut off his hair in order to be like a master who was bald. He was, however, said to be obedient and helpful at home. The girl was fond of domestic pursuits—knitting, cooking, etc. Both boys were left-handed, particularly the elder. These children were members of a family of nine. The eldest brother, aged 22, in the Royal Marines, squinted as a child and was backward in speaking and was also left-handed, but he had grown out of all these habits. The mother squinted as a child, but otherwise there was nothing calling for comment upon her side of the family. The paternal family history was all-important. The paternal grandfather, who was deaf, was a most eccentric man. He married late in life, and lived to over 90 years of age. He had three daughters and two sons, but he would not support wife or family, the burden of which fell on his wife. The two sons were twins, one of them being the father of the family under review. He was the weaker twin, but he outlived his brother, who died at the age of 2. One of his sisters was left-handed, and another was so backward in talking that she did not speak until she was 6 years old. This family illustrated the point to which attention had been particularly drawn by Mr. Inman of Portsmouth,[1 2] as to the connexion of squint with left-handedness and stammering, with which they might link up all kinds of speech defect. On the same morning Dr. Harford saw a girl, aged 7, with right internal strabismus but without any significant family history. This child was in difficulties at school, for while she was brilliant in some subjects she was backward in others. She was a very lively child, excitable and emotional, and very fond of minding babies. He suggested that in her case, as in that of the girl already mentioned, the maternal instinct was developing, and that the ordinary school routine conflicted with their special tastes and gifts. The next case was a girl who had a squinting brother. He should have come to see Dr. Harford, but he suffered from diarrhoea whenever excited, and had been upset by the bad thunderstorm. This boy was described by his mother as an imp, recklessly climbing trees, but, on the other hand, one who cried too easily. These were cases which could be multiplied almost indefinitely, especially by Inman, and Dr. Harford was absolutely convinced that the incidence of squint might be regarded as one of the valuable clues to deeper emotional disturbances in which parental complexes, particularly on the father's side, might be looked for. One other reminiscence from the same consulting room might be quoted of two boys, both squinters, whom he saw on the same morning, some weeks previously. One was a veritable acrobat, the other a boy of an irritable disposition who, like his father, had no idea of patience, especially if it meant waiting for a meal. Clearly there was some family jar in this case.

These notes may be taken as a fair sample of the evidence which had been obtained in cases of squint during the past eighteen months in which Dr. Harford had sought to follow out the line of investigation suggested by Inman. His observations had been made in the ophthalmic outpatient department of a large general hospital, at a school clinic in the East End of London, as well as in school work outside London and in private practice. In each case the results had confirmed Inman's view. His object in putting forward this evidence in the present discussion was not so much to speculate as to the origin of squint as to suggest that its occurrence might form a valuable aid in the recognition of emotional conflicts which might influence profoundly the child's future. He had in three previous papers[3 4 5] considered at some length the relation of ophthalmology to psychology and psychopathology, and expressed the view that when this connexion was more generally recognized a new field for research would open up, which might be of great benefit in the recognition and treatment of those elusive disorders which they were investigating at that meeting. In the case of squint, mainly owing to Inman's work, they could link together the ocular defect and the psychological syndrome which accompanied it. He did not dispute the importance of errors of refraction and the necessity of correcting them where they existed, but they had to think of the child in general, and not only of the troublesome defect which was but one item in the case. In the opening paper three elements in the behaviour of children were singled out for special notice. These were: (1) the child's proneness to the influence of suggestion; (2) his desire to oppose; and (3) his instinct to assert himself, to attract to himself, and to make himself the centre of the picture. Each of these elements might be found in the history of squinting children, combined with some parental difficulty. If one endeavoured to select one factor which was common to all these cases it was fear, and when they spoke of the nervous child they usually meant the frightened child. Thus, if they passed to the question of treatment, since they were dealing with a psychological condition they must deal with it by some method of psychotherapy. As he stated last year in this same Section,[6] he was of opinion that some measure of analysis and of suggestion was common to all systems of psychotherapy, and that the final result of successful treatment was auto-suggestion. He believed that a carefully devised system of collective teaching in auto-suggestion, in which the parent was also included, offered the best prospect of dealing with the shy, reserved, irritable, or distinctly frightened child, and he hoped that all who were interested in the subject might be able to co-operate in some way in securing the best results. Dr. Cameron had alluded to the fact that the subject was one which claimed the attention of parents and teachers as well as the medical profession. The risk was that the two former classes should

I recently saw Mrs. S., aged 38; she has three children, the youngest 3½ years old. She menstruates every four weeks, for four days; flow somewhat scanty. She complains of deep-seated "boring" or "bursting" pain behind the eyes, especially on reading or sewing. The headache formerly began the day before menstruation, and ceased when the flow started, but for some months now has been almost continuous. She suffers from bad dreams. She has not noticed any increase or diminution in the amount of urine. Her carbohydrate tolerance is fairly high, about 130 grams. She has been getting stout for twelve months. She is and always has been sexually frigid. She wears glasses for reading and sewing which were prescribed by an optician. The nose was normal; no signs of intranasal pressure or pus. I referred her to Dr. Walter Sykes of Preston, for an opinion on her eyes. His report was: "The eyes are emmetropic, she gets full vision under homatropine. The fields are slightly contracted in both eyes, and the veins on the discs are very engorged." I put her on pituitrin whole gland tablets (Armour) and in less than a week all the headache had vanished. She is now able to read with comfort, and only takes the tablets for a week before menstruation begins.

I do not know whether cases of this type can in any way be correlated with those referred to by Sir StClair Thomson in the British Medical Journal of June 2nd of this year, where the sphenoidal sinuses have been opened for retrobulbar neuritis, and found to be healthy; but I think that this case opens up an interesting field for inquiry. Mrs. S. was certainly suffering from pressure on the optic tracts, and this pressure has been relieved, in my opinion, by taking the strain off the overworking pituitary. I quite admit that the time (three months) is too short to make any definite pronouncement, but I shall watch her future with interest.

In cases where we find a diminished power of conduction of the eighth nerve, it is not sufficient to label the case "labyrinthine deafness," order strychnine and massage, and pass it on to the group of uninteresting incurables. More particularly does this apply to the period of late middle life, before senility has set in. Each case should be examined on its merits and a more definite diagnosis arrived at. Among the more important causes are:

Haemorrhage into the labyrinth.
Leukaemia.
Syphilis.
Locomotor ataxia.
Concussion.
New growths affecting the labyrinth, eighth nerve, or brain.
Suppurative labyrinthitis.

With these I do not propose to deal.

Diabetes.
High blood pressure.
Low blood pressure (asthenia).
Climacteric deafness.
Neuroses, including hysteria, neurasthenia, and psychasthenia.
Hypothyroidism.

Many of the latter group are amenable to organotherapy.

Diabetes.

Since the researches of the Toronto school hormone therapy in the form of insulin injections has definitely come into being. I need not enlarge upon this subject, as we would probably refer such cases to an appropriate physician; but it is well to bear in mind that deafness may be the first symptom of an otherwise unsuspected glycosuria. I have seen several such, and thereby received a useful reminder that it is always necessary to examine the urine in cases of labyrinthine deafness.

Abnormal Blood Pressure.

I find that the sphygmomanometer is one of the most invaluable instruments in my armamentarium. No case of nerve deafness should be allowed to leave the consulting room without having the blood pressure estimated.

Cases of high blood pressure due to renal or cardio-vascular trouble we also generally refer to the physician, but there is a large group of cases termed by Sir Clifford Allbutt "hyperpiesis," in which the high pressure does not depend on heart or kidney disease, which the aurist may wish to treat. These people are often afflicted with nerve deafness, and that bugbear of the otologist, tinnitus. Here again the deafness may be the only symptom which the patient has noticed. It does not add to one's reputation if such a case is missed, and subsequently the cause is detected by a more wideawake colleague.

I am not going to be so foolish as to tell an audience like this that I know of a universal panacea for tinnitus, but I do state that many cases can be relieved, if due to high blood pressure, by appropriate treatment, including the exhibition of certain glandular extracts. Picture to yourselves the idea of a man, say about 50, well or excessively nourished, of full habit, inclined to stoutness, a good walker and golfer. He comes complaining of an annoying singing in his ears. Subjective tests show some loss of bone conduction, lowering of the upper tone limit, and the usual findings in cases of loss of conducting power in the auditory nerves. At the same time the deafness is greater than is usual for his age, and we can detect no other signs of premature senility. The female type generally is of stouter build, past the menopause, and complains, when questioned, of hot flushings and "done feelings." Physical examination is generally negative, except that the blood pressure is high, anything from 180 upwards.

There is not time in this short paper to discuss the whole pathology of the condition, but I may say that in my experience such cases, generally speaking, do well, not only as regards their general condition, but also as to the ears, on various hormonic remedies. It may be necessary to try several glands, or combination of glands, but it is worth persevering till a suitable line is discovered. Those which I have found most promising are the pancreas, thyroid, and the gonads. The condition may frequently be attributed to a hyperadrenia. Measures must be taken to diminish the adrenal secretion by attention to the bowels (frequent large high enemas are of great value), reducing the amount of animal foods and alcohol, attention to the general hygiene of bathing, exercise, and fresh air, and the diminution of mental strain and worry. Cannon has shown that the latter factor is an important one in the overstimulation of the adrenals. The problem is made more difficult by the fact that the male patients are usually, at any rate in the North, successful commercial men who have the strain of a big business on their shoulders, and are apt to be somewhat intemperate as regards both food and drink.

Pancreatic extract is recommended for two reasons: first, it assists in digestion, and tends to prevent thereby the formation of toxic bodies in the intestine which overstimulate the suprarenal capsules; and secondly, and more important, because the pancreas is a well recognized opponent of the adrenals.

It is a remarkable fact that high blood pressure is much less common in women before the climacteric than in men of similar age. Alvarez[4] attributes this to the controlling power of the ovaries, and it is precisely at the time when these organs go out of office that we find the blood pressure tending to rise in the female sex. A similar remark applies, though less definitely, to the male organs. It is therefore reasonable and useful to employ ovarian or testicular extract in high blood pressure deafness. Some work has been done suggesting that the gonads act best if administered to the opposite sex, but of this I have no personal experience. The thyroid, from its power of detoxication, de-aminizing, and clearing away cellular infiltrations, is a valuable adjuvant or alternative. These may be given separately, or in the combined tablets supplied by various firms.

Asthenical, Hysterical, and Neurasthenical Affections of the Ear, Larynx, and Pharynx.

These may be considered together. I need not dilate upon the symptomatology, which is perfectly well known to every member of the Section. During the past few years the number of cases of eighth nerve paresis due to influenza has been very great. Many observers consider that the post-influenzal asthenia is mainly due to adrenal exhaustion. Acting on this idea I have found great benefit is to be gained from giving adrenal gland in such cases. The whole gland appears to be more effective than adrenaline, which is the extract or active principle of the medullary portion. This may be explained on the hypothesis that adrenaline is actually formed in the cortex, and stored in the medulla. It is quite possible that other substances of as yet undiscovered properties are produced in the adrenal cortex.

The sexual glands bear a part in the etiology of the various neuroses which are as yet imperfectly differentiated, but which are included under the headings of neuroses, psychoses, psychoneuroses, hysterias, and neurasthenias. These have in many cases a psychological basis, and can best be treated by the various methods of suggestion—hypnotism, psycho-analysis, dream interpretation,

outstrip them in their knowledge of psychology. For the sake of the children it was of the utmost importance that the psychological issue should be kept in a prominent position in their discussion. At Glasgow last year he suggested at a meeting of that Section that the General Medical Council should be asked to include the teaching of psychology and psychopathology in the medical curriculum, and the President of the Section, Professor Robertson, put forward a resolution on these lines which was unanimously adopted by the Section.

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Dr. WILKINS pointed out that in the year 1926 additional school accommodation would have to be provided owing to the crop of armistice babies. Surely it would be advisable in every town of 30,000 people to provide an open-air day school. Nervous children improved immensely in such schools and did not cost the ratepayers an additional penny, as bandstands, parks, sheds, verandahs, etc., could easily be used. It would therefore be quite possible to do something for the nervous children of the poorer classes in our day and generation.

Dr. L. A. PARRY (Brighton) thought that single children were much more often of the nervous type than children of big families. No people ought to marry if they intended to have only one child, for this only child never had a fair chance. He also suggested that children of Jewish families were very frequently of the nervous type. The difficulties of treatment were great, for in the large majority of cases the parent was so largely responsible for the condition of the child, and while it remained in the same surroundings the chance of cure was minimized. One thing in treatment was at all costs to be avoided, and that was psycho-analysis. He agreed with Dr. Potts that some form of simple religious instruction was very important in every child's life, but was very doubtful whether instruction in "the origin of life" was either wise or necessary, especially in very young children.

The Rev. Dr. BHABHA (London) asked Dr. Parry as to the class of Jewish children he had referred to as being "nervous," because in his work at a large East End charity clinic in London about 80 per cent. of the patients were of the Hebrew race. From his experience he had not noticed any pronounced evidence of the "nervous child" among them, while he had come across many cases of the Gentile children who could easily be classed as "nervous," and he thought that this was entirely due to the alcoholic habits of the Gentile parent.

Dr. PETER MACDONALD (York) said that it was with extreme diffidence that he ventured to take part in this discussion, and his sole excuse was the connexion made by Dr. Cameron, in his opening address, between postural defects and the other defects of the "nervous child," and between postural defects and other defects in the adult. He was going to put unorthodox views before the Section and, in particular, was going to take the unorthodox step of recommending to the Section the study of the work of a man who was not a medical man; and he did this solely with the hope that he might interest sufficiently some members of the Section, who were far more competent to have an opinion than he, to induce them to investigate his work. His name was F. Matthias Alexander, and Dr. Macdonald knew of his work through one of his books, *Man's Supreme Inheritance*, through another, *Constructive Conscious Control of the Individual*, which was at present in the press, and through his personal services to Dr. Macdonald himself and others; and he regarded his work as epoch making. As relating to the subject of this discussion, Dr. Macdonald had learnt from him or, rather, through him, three things: (1) That man did not now know the erect posture, and possibly he had never learnt to acquire it consciously; (2) what the co-ordinated use of the muscular mechanism was, to secure the posture best for the moment; (3) and this was the important thing—he had learnt how to acquire knowledge of the co-ordinated use of such mechanism. As to (1), members of the Section would readily convince themselves if they would note, in observing their friends, that few of them who had reached the age of 50 had an abdominal girth which was less than their chest measurement, and that in those of their friends who were older they might observe a curvature of the top of the spine with the head carried downwards and forwards, which was usually considered to be the effect of old age. In all seriousness he asked the Section to consider if this might not be, not the effect of old age, but the cause of it. He said nothing about (2) at the moment, except that he denied point blank that the drill-sergeant's chest, which Dr. Cameron seemed to approve of, was a sound posture; and, indeed, in his out-patient department he took every opportunity, when the old soldier appeared, of pointing out his rigid protruding chest to his house-surgeon as the "characteristic military deformity." As to (3), it was an impossible task in a few minutes to do more than indicate Mr. Alexander's methods. Put shortly, however, by manipulation with his own hands he placed his pupil or parts of his pupil—his neck and chest, for example—in the posture he wanted him to learn; he painstakingly taught his pupil to allow him to do this passively; the pupil thus acquired a sense impression of the posture he wanted him to acquire; by repetition the pupil was enabled to register that impression and, once registered, he was able to reproduce it for himself. The reason for this method was that man learned a new thing only from experience, or, to speak paradoxically, he could not teach anyone anything except that which fundamentally he knew. Mr. Alexander's thesis was that man's control of his musculature, thinking processes, life functions generally, so far as they were subject to volition, was ordinarily an instinctive one; that instinct was a sound guide only in a stable or slowly changing environment, that in the rapidly changing environment of our developing civilization it broke down, and that for instinctive must be substituted conscious control. The effect of his training on health and disease was astounding, though he in no way professed to treat disease at all; he professed solely to be a trainer. Flat-foot became a trifling disability which simply disappeared. Asthma became ameliorated or removed; stammering was overcome; and Dr. Macdonald had seen a "nervous child," with much of the postural deformity Dr. Cameron had so ably shown in his slides, become a relatively supple, normal child.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

VICTOR BONNEY, M.S., M.D., F.R.C.S., President.

THE RELATION OF SYPHILIS TO OBSTETRICS.

BY

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IN a brief paper on the relation of syphilis to obstetrics there will be no need to deal with the very controversial and theoretical side of the manner of infection. These remarks, which lay no claim to any original work, serve merely to emphasize the importance of rather going out of one's way to look for ante-natal syphilis, to urge thorough and efficient treatment of the condition when found or suspected, and to draw attention to the extremely good results accruing from such treatment.

By way of introduction a series of the generally accepted figures of the relation of syphilis to marriage may be of interest.

27,000 deaths occur annually in England and Wales ante-natally and in the first week after birth (Amand Routh).

10 per cent. of all marriages involve a syphilitic individual.

etc.—beloved of our psychological friends; but many are due to a biochemical disturbance, as pointed out by Dr. Hurst at the Cambridge meeting in 1920. It would appear unwisable, therefore, to make an investigation of the organs of internal secretion in cases of hysterical deafness, functional aphonia, paraesthesia of the pharynx, etc., and treat the patient according to the findings. I am in the habit of prescribing mammary gland, ovarian extract, and adrenal gland in these cases, in many of them with the happiest results.

As it is in many cases impossible to say which of the endocrines is the *fons et origo mali*, a polyglandular blunderbuss must sometimes be used. This is the more necessary owing to the interactions of the ductless glands, many of which are as yet but imperfectly understood.

Mrs. O., aged 33, was referred to me by Dr. W. C. Rigby, for an opinion as to whether the severe headaches from which she suffered were due to any intranasal condition. She complained of a "thumping" occipital headache, coming on several times a week, worst on awakening, and very severe before the menstrual epoch. Menstruation was of the 28/3 type, scanty, and accompanied by much lumbar pain. She was also deaf, and had been told that both drums were perforated, and nothing could be done. The nose was normal; there was no sign of pus, obstruction, or pressure. The hearing for low tones on the right and for high tones on both sides was diminished. Bone conduction seemed to vary, being sometimes increased and sometimes diminished. Both drums showed a dry anterior perforation, with patent Eustachian tubes. At my suggestion she was given a compound tablet containing ovary, thyroid, and pituitrin. She experienced immediate relief from her headaches, and, what was even more interesting, her hearing improved in a remarkable way. I have not been able to get a detailed examination recently, but whereas at first I had to shout at her, in a few weeks she could hear an ordinary conversation—in fact her husband said she could hear too much sometimes.

Hypothyroidism.

One should always be on the look-out for cretinism in deaf-mutes. Scholz states that 30 per cent. of the endemic cretins seen by him were thus afflicted. Besides such cases of advanced hypothyroidism, we frequently observe ear symptoms, especially tinnitus, in the minor grades. Hertoghe of Antwerp points out[5] the prevalence of chronic benign thyroid insufficiency (myxoedème fruste) and the frequency with which the diagnosis is missed. The symptoms are numerous, and include: infiltration of the skin with waste products; it becomes puffy and ill nourished, dry, rough, and desquamating; perspiration is diminished. Dermatoses are common: eczema among children, acne at puberty, herpes, psoriasis, urticaria, and recurrent erysipelas among adults. The hair is scanty, thin, and ill nourished; bald patches and premature greyness are common. The outer half of the eyebrows often falls out (*signe de sourcil*). The nails are often striated, brittle, and crack easily. The teeth are bad, and decay early in children with deficient thyroid secretion. The basic metabolism rate is diminished, the patients feel cold more than the normal individual, and suffer from dead fingers and chilblains. Constipation, cardiac weakness, and slow pulse are common. Desquamation of the bladder epithelium with consequent enuresis, low urea output, and a tendency to acidosis are frequent. Among other symptoms may be mentioned irregular menstruation, headaches, rheumatism, swelling of the eyelids, and mental sluggishness.

All these symptoms are of course rarely seen in one patient, but when several of them occur in combination with tinnitus a course of thyroid feeding will in a very short time show the correctness or otherwise of the diagnosis. Where there is no apparent local or general cause for tinnitus and any of the above mentioned symptoms are present I find the thyroid extract is often of the greatest value.

I think that I have said enough to show that there is a wide field for investigation along these lines. Many mysteries of hormonic therapy have still to be solved. I am convinced that, while the failures are many, the successes are remarkable, and sufficiently numerous to suggest that it is due, not only to our patients but to the interests of our specialty, that this method of treatment should receive its proper meed of consideration.

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CORRECTION OF NASAL DEFORMITIES.

BY

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[*Abstract.*]

DR. EASTMAN SHEEHAN described his method of operating by the columella route for the correction of depressions of the nasal bridge and columella, and also for the correction of other nasal deformities, whether caused by disease or trauma. He illustrated successive steps of his technique by cinematograph films.

He recommended that before any surgical procedure was attempted a photograph and plaster cast should be made, so that the surgeon was enabled to make a more satisfactory study of the case, and a record was secured which proved of great value for the purpose of comparison during and after reconstruction. Rib cartilage was unrivalled as a means of support for depressions of the nasal bridge; it could be shaped to any desired pattern, it was easily handled, it had the power to combat infection, and was durable and permanent. In prolonged plastic operations a local anaesthetic was preferable, a 1 to 5 per cent. novocain solution having proved, in Dr. Sheehan's experience, the most satisfactory. If a general anaesthetic was employed he had found intratracheal insufflation of ether to be the best.

Operation.

After the skin had been prepared, the airway on each side was packed with dry gauze; a vertical incision was made with a small, sharp plastic scalpel through the centre of the columella, extending through the under surface of the tip of the nose down to the philtrum. The incision was then deepened throughout its full length, until the vertical edge of the septal cartilage was reached. The septum on both sides was then exposed for a short distance, and the cartilage, if deflected and blocking the airway, could be removed in part or in whole. The cartilage of the columella, if present, was next removed, and the loose tissue of the nose was then separated on each side of the nasal bridge up to the infraglabellar region, and a bed made for the reception of the graft. The exact length of the cartilage required was determined by accurate measurements, and a triangular piece of cartilage was excised at the proximal end of the graft for the purpose of bending it to a right angle after the graft was shaped to the desired pattern. The perichondrium was removed except at the angulation, its purpose there being to hold the long and short limbs of the graft together; the perichondrium was also left at the far end of the short limb, where it was allowed to flare out to either side in order to hold the end firmly in place by suturing it to the deep tissue of the upper part of the philtrum, thus preventing tension upon the sutured part of the columella. Two mattressed sutures of fine silkworm gut closed the columella, and the raw surfaces were carefully and accurately brought together with a lock-stitch of horse hair.

As a rule, no bandaging was necessary, and the sutures were removed on the fourth day. In hump deformities and deflected noses the same incision in the columella was made, but it was not necessary to extend the incision to the deep tissue of the philtrum, nor to separate the septal membrane.

In the plastic repair of nasal deformities due to syphilis, one of the most important advances was the general recognition that the lining was as essential as the external covering. The lining could be obtained by means of a skin graft of the Thiersch variety, wrapped round a model of "stent," and either sewn or held in place by a dental splint or similar appliance. If the loss of mucous membrane was extensive, better results would be obtained by transferring a pedicled flap of forehead skin, thus ensuring against contractions. In replacing the loss of mucous membrane with a Thiersch graft a small balloon was inserted in the nose, which, when inflated, exerted even and firm pressure on the transplant. After four days the balloon was deflated and removed, and the nose was kept clean for a further period of four days and then irrigated.

Mr. V. E. NEGUS (London) read a paper entitled, "A newly described function of the vocal cords." He said that the larynx, apart from sound production, performed other functions, notably those connected with respiration and deglutition. He adduced evidence, derived from a study of comparative anatomy, indicating that pronounced modifications had been evolved in the larynx for the purpose of fixing the thorax for forearm work. These changes occurred more especially in arboreal types of animals. As a practical application of his theory Mr. Negus suggested

75 per cent. of all offspring in a syphilitic family are infected (Jeans[31]), and 30 per cent. of pregnancies in such families end in death of the foetus at or before term.

40 per cent. of dead-born premature infants are killed by syphilis.

25 per cent. of all foetal deaths are caused by syphilis.

16 per cent. of stillbirths are directly due to syphilis (Eardley Holland).

Of syphilitic infants born alive 78 per cent. die in the first year, and of the remaining 22 per cent. many die in early childhood.

From Earle Moore's investigation of 200 cases,[6] of whom 178 had a positive Wassermann reaction and were pregnant, and 22 were non-pregnant mothers with syphilitic children, it was found that 22 per cent. had outspoken lesions of syphilis; in 72 per cent. syphilis was proved or strongly suspected by the history, physical examination, response to treatment, or subsequent course; in 21 per cent. all evidences of syphilis except a positive Wassermann reaction were lacking. Of the pregnancies in these cases, 41 per cent. proceeded to miscarriages or stillbirths and 20 per cent. gave living syphilitic children—that is, 61 per cent. produced syphilitic foetuses or children.

Modes of Infection of Mother and Child.

The more usual modes of infection may be classified as follows:

A. *Pre-natal* infection of mother or child. (1) The mother is syphilitic before becoming pregnant. (2) The mother is impregnated and infected at the same time, directly by the father. (3) At the time of impregnation the ovum only is infected, the mother either escaping or later acquiring the disease. (4) The mother being pregnant becomes infected.

B. *Intra-natal* infection of the child. A healthy child may be infected through a syphilitic genital canal.

C. *Post-natal* infection of the child—as by breast-feeding in a case where the mother was infected after the seventh month of pregnancy.

Relation of Syphilis to Ante-natal Supervision.

Most of the cases fall into one or other of the following groups:

A. *Manifested Disease.*—(1) In the mother, most commonly in the first or second stage. (2) In the foetus, according to Eardley Holland's investigation, from which he has classified them according as they show (*a*) signs of florid syphilis, (*b*) those with secondary attributes, (*c*) those with probable disease, (*d*) those with latent syphilis, in the group with "cause of death unknown."

In connexion with these cases Holland classed the evidence as primary, when the spirochaetes were found, and secondary in the following: (*a*) the maternal Wassermann reaction positive in 95 per cent.; (*b*) signs of syphilitic osteochondritis in 97 per cent.; (*c*) associated enlargement of the liver and spleen, of themselves of no value; (*d*) increased weight of the placenta; (*e*) typical histological changes in the placenta in 90 per cent.; (*f*) unequivocal syphilis in the mother; (*g*) birth of former known syphilitic foetuses.

B. *Latent syphilis,* from laboratory evidence of the Wassermann or Sigma reaction; and from examination of stillbirths, abortions, and placentae, or from probability according to the mother's previous history, with evidence of the father also or from previous children.

In connexion with latent syphilis it should be remembered that a history of primary or secondary disease is difficult and rarely possible; its absence is of no value. The obstetrical history is not reliable in any case, but all histories of abortion, stillbirth, neo-natal death, and later death should be gone into carefully to eliminate other causes. In the Wassermann reaction a positive one in any degree—that is, a 2, 3, or 4 *plus* reaction with an alcoholic antigen—demands antisyphilitic treatment, remembering that probably 1 in 100 normal people give a *plus* result, so that in unsuspicious cases a positive Wassermann reaction should be verified by a Sigma or a luetin test; in suspicious cases the Wassermann reaction of the father or of previous children should be taken, if reasonable evidence cannot be found to account for abortion, stillbirth, neo-natal, or later death, even if the blood test is negative, when a provocative Wassermann test and treatment should be instituted.

The examination of abortions is most disappointing, the spirochaete being rarely found even if the woman has had stillbirths crowded with them before.

In the examination of stillbirths Holland considers, in the absence of the spirochaete, when the maternal Wassermann test is positive, if the case falls into one of the four groups, syphilis should be diagnosed: (*a*) with chondro-epiphysitis and typical placental changes; (*b*) chondro-epiphysitis with typical placental changes and enlarged spleen; (*c*) chondro-epiphysitis and enlarged spleen; (*d*) typical placental changes and enlarged spleen.

Prognosis as Regards Modification of the Disease and Effect on Foetus and Foetal Appendages.

A. *The Time during Pregnancy at which Infection Takes Place.*—Fournier's figures are as follows:

	Foetal mortality. Per cent.	Morbidity. Per cent.
Pregnancy before infection	65	70
Conception with infection	75	90
Infection after conception	39	72

McDonagh thinks that if the disease is contracted before the end of the fifth month the child is bound to be infected; if at the fifth and sixth, half die, half do not; if at the seventh the child escapes, from which he makes the important conclusion that if the mother gets infected after the seventh month the baby must not be breast-fed to avoid the acquiring of the disease. It is generally agreed that the earlier in pregnancy the mother is infected the more likely is the pregnancy to come to an abrupt end.

B. *The Source of Infection.*—Fournier's figures are as follows:

	Foetal mortality. Per cent.	Morbidity. Per cent.
Father alone	28	37
Mother alone	60	80
Both as source	68	92

C. *The Age of the Disease in the Transmitter.*—During the first year gives the worst prognosis; then during the next three years. Of a series of 90 women pregnant during the first year of the disease only two gave birth to living children.

D. *Parity.*—Multiparae show signs of greater resistance, and of attenuation of the virus, which may be due to their containing more natural protective substances with each succeeding pregnancy.

E. *The treatment*—as regards (1) its time of commencement; (2) the nature and thoroughness of it; (3) the patient's general condition—as, for example, the state of the kidneys. Boas,[23] in a series of 483 children born to syphilitic mothers, finds the treatment of the mother influenced the children as follows:

	No. of Children.	Syphilitic.	Non-syphilitic.
Untreated ...	158	157	1
Mercury before pregnancy ...	87	78	9
Salvarsan before pregnancy ...	15	12	3
Mercury during pregnancy ...	111	80	31
Salvarsan before, mercury during, pregnancy	26	7	19
Salvarsan before and during pregnancy	7	1	6

Findlay[24] in 15 pregnant syphilitics with treatment established early, obtained 14 living children; the fifteenth child died during a difficult labour; further, no signs of disease were found in the children up to 7 years of age, and the Wassermann reaction was negative in all but one, which became weakly positive at seven years. Galliot, in 144 cases treated with salvarsan during pregnancy, obtained only 11 non-living children, or 8 per cent. Adams[3 33] since 1917 had 136 cases with 4 deaths of children (at 3, 14, 36, 60 days) and 8 stillbirths, the last 108 cases with 1 death at the sixtieth day and 3 stillbirths, of these 2 occurring in cases that had had no treatment, and only came in just before labour.

Effect of Pregnancy on Syphilis.

A. *Alteration in the Wassermann Reaction.*—Whitridge Williams considers this test unreliable, as it may change in either direction during pregnancy spontaneously, or from day to day; and also because of the occasional occurrence of a falsely positive during pregnancy followed by a negative after labour, which may be a provocative reaction: falls suggesting this may be due to an excess of unbalanced lipoid in the blood. The technique of the Wassermann test must be carefully studied, as results vary from different clinics; and again, for example, the ice-box method may be positive when the water-bath is negative.

B. *Protection from Manifestations.*—This may extend over a long period, and even with quite inefficient treatment several patients are clinically and serologically well.

that when complete rest of the larynx was required the patient should be instructed not only to keep silence, but also to refrain from forearm efforts. This paper, which is intended as a preliminary communication, as further researches are being continued by Mr. Negus upon the subject, will appear in the *Journal of Laryngology and Otology.*

Dr. J. A. Gibb (Maidstone) read a paper, derived from his own experiences, on the referred pain of nasal sinus disease. He said that the site to which pain was referred was often disregarded. The position and severity of the pain did not appear to depend in all cases on the severity of the disease of the sinus. He detailed the areas for the various sinuses, and quoted cases illustrative of his thesis. This paper also will appear in the *Journal of Laryngology and Otology.*

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

PAN-SINUSITIS AND SEPTIC THYROIDITIS.

The following case presents some features of interest, as the condition is comparatively rare; a somewhat similar case was recently reported by Sir StClair Thomson.[1]

A woman, aged 44, presented herself at the out-patient department of the Rochdale Infirmary on March 17th, 1923, complaining of severe occipital headache and marked tenderness of the thyroid gland. She stated that a year ago she became very susceptible to "colds," and shortly afterwards noticed some fullness of the lower part of the neck, in front. A week before attending at the infirmary she began to suffer from severe occipital headache and general malaise; the pain and tenderness of the thyroid gland began later in the same day. She had always been constipated. She looked acutely ill; the tongue was coated, temperature 100°, pulse rate 118. The thyroid gland was enlarged, firm, and very tender. There was no complaint of nasal discharge and the nose was not examined. She was admitted that day. Treatment by local application of heat to the neck was adopted, but the symptoms did not abate.

On March 21st Dr. E. H. Cox exposed the thyroid gland by a vertical incision, but apart from slight oedema of the overlying tissues nothing abnormal was seen. The gland itself was explored with a hypodermic needle and from each puncture a small quantity of serous fluid was withdrawn. A small drainage tube was left in position and the wound sutured. The symptoms greatly improved. Three days later the discharge from the tube became purulent. Seven days after operation the temperature, which had fallen to 98°, rose to 102°, the severe occipital headache returned and was accompanied by tenderness of the thyroid gland despite the abundant purulent discharge. These symptoms gradually abated and on April 11th she was free from symptoms except for a slight serous discharge from the sinus in the neck. On April 16th the severe occipital headache returned and her temperature rose to 102.2°. After a brisk purge she was free from symptoms and the remainder of her convalescence was uneventful. On May 19th she was transferred to the out-patient department, as there was still slight discharge from the sinus in the neck.

The fever and headache were treated on general principles, but throughout the illness great difficulty was experienced in keeping the bowels open. At no time during her illness did she complain of nasal discharge. The pus from the thyroid gland was not examined bacteriologically.

I had considered her infection to be of intestinal origin until I read Sir StClair Thomson's article. I then immediately requested Dr. P. A. Harry, ophthalmologist and laryngologist to Rochdale Infirmary, to examine her. He reported that there was pus in both middle meatuses, muco-pus in the left maxillary sinus, but none in the right, and that the anterior end of the left middle turbinate was enlarged and cystic. On June 28th he removed the anterior ends of both middle turbinates and the anterior end of the left inferior turbinate. The anterior end of the left middle turbinate was definitely cystic and showed evidence of chronic inflammatory changes. He also curetted the ethmoidal cells and pus was present in the scrapings from both nostrils. The patient is at present under treatment by Dr. Harry; she informs me that apart from slight discharge from the sinus in the neck she feels perfectly well.

I submitted the facts of the case to Dr. Harry, and he considers the occipital headache and the thyroiditis to be due to an acute exacerbation of the chronic nasal sinusitis. The fact that the patient noticed the thyroid enlargement simultaneously with her susceptibility to "colds" is of interest, as this may explain the origin of some of the rare cases of so-called "idiopathic" chronic inflammation of the thyroid gland.

[1] Acute Pan-sinusitis. British Medical Journal, June 2nd, 1923, p. 924.

My thanks are due to Dr. Harry for his observations on the condition of the nose, and to Dr. Cox for permission to publish this case.

Andrew Anderson, M.B., Ch.B.Glas.,
House-Surgeon, Rochdale Infirmary.

FACIAL PARALYSIS FOLLOWING HERPES FACIALIS.

The case of herpes with paralysis reported by Dr. Tomb (British Medical Journal, November 10th, 1923, p. 878) leads me to send the following notes of a similar case under my care.

On October 17th, 1923, I saw a Mrs. K., aged 50, who thought she had been bitten or stung by a small insect in the ear. She complained of intense pain on the right side of the face and forehead. I noticed some swelling of the external auditory meatus and surrounding tissues. The next day there was a very definite eruption of herpes involving the edges of the meatus and the concha, with complete facial paralysis of the affected side. The constitutional symptoms were severe: nausea, persistent vomiting, with severe headache and vertigo, and a temperature of 100.5° F. This went on for more than three days, and was accompanied by pain, sleeplessness, anorexia, and partial deafness (which, I venture to suggest, is due to paralysis of the stapedius muscle). No other lesion could be found to account for these symptoms.

This is clearly a case of herpes facialis with facial paralysis, and the paralysis is still total at the end of nearly four weeks. One point is, I think, of interest in view of recent controversies on the subject—namely, the incidence of some cases of varicella in the village at the same time. During the last two years I have observed four cases of herpes zoster in the same village, which were also coincident with an epidemic of varicella; one, a case of exceptional severity, actually occurred in the father of a child suffering from varicella at the time.

Montagu Lawrence,
L.M.S.S.A.Lond.
Sharnbrook, Bedfordshire.

Reports of Societies.

PULMONARY LESIONS OF INFLUENZA.

At a meeting of the Newcastle-upon-Tyne and Northern Counties Medical Society, held in the Royal Victoria Infirmary, Newcastle, on November 1st, with the President, Dr. R. Esmond Moyes, in the chair, Dr. A. F. Bernard Shaw made a communication on "The pathology of the respiratory system in influenza," illustrated by a series of lantern slides showing the histological appearances of the lesions.

Dr. Bernard Shaw first referred to certain data regarding the disease which had emerged from historical study and observations made in the last pandemic. Certain of these data bore more or less directly on the remarkable series of changes found in the respiratory tract, and could be adduced as evidence of the possibility that influenza did not fall within the category of a bacterial disease. It had been shown that epidemics and pandemics of influenza had affected man since the fifteenth century and probably earlier. It had frequently been described as a "new disease." Its manifestations were extraordinarily protean. The phenomenal rapidity of spread was unlike a bacterial disease and, in spite of the enormous amount of work done recently, there was no definite proof of its bacterial origin. No one had succeeded in inoculating healthy men with the disease. Probably no other acute disease so greatly lowered the resistance of the body to infection by bacteria as influenza. In the fulminating cases there was an intense tracheo-bronchitis with an aplastic exudate diffused throughout both lungs and necrosis of the epithelium at all levels of the bronchial tree. Later, localization of the process occurred together with a leucocytic reaction. At this stage there might occur as complications—acute bronchiectasis, abscess and gangrene of the lung. In those cases which survived a few weeks there was found extensive organization of the exudate leading to obliterative bronchiolitis, obliteration of alveoli,

C. *Disturbance in Time Relations of the Three Stages.*—Chancres and secondaries coexisted in a series of 9 to 32 cases. Sometimes the secondary stage may be delayed ten months. The interval between first and third stages may be much shortened.

D. *Alteration from a Typical Response to Infection.*—There may be suppression of all early lesions, especially when there is simultaneous impregnation and infection; or the lesions may take a milder form. Sometimes when conception occurs with infection, or during the florid stage, the disease may take a graver form; the chancre may be larger, hypertrophied, more moist, with a tendency to ulceration, and to become phagedaenic, and may last longer, up to three months. In a series of 11 cases of chancre, one lasted one month, and the average was two and three-quarter months. The secondary manifestations may come sooner, be more marked owing to the local succulence, the exanthem widespread, papules larger, pustules common, more tumefaction of glands, with more tendency to suppuration. Of these florid cases Fournier says that eroded papules are numerous on the vulva, they develop in a singular exuberance, take on quickly a granulating appearance, hypertrophy, and often constitute veritable tumours, which invade and entirely deform the entire vulva. Further, they are always more rebellious to treatment, being reabsorbed slowly and with difficulty. The ulcerating syphilides are very frequent in pregnant women, are livid, purple, and excavated, which condition is increased by the general tumidity of the parts. They persist longer and have a tendency to become phagedaenic; the anaemia is more profound, the fever more common and higher; neuralgias occurring soon after marriage may draw attention to the condition. Tertiary syphilis is less affected by the advent of pregnancy, though the latter may sometimes awake the disease which was thought to be cured. Most who get impregnated and infected at the same time are singularly free from remote grave manifestations. The resistance of the individual is considerably lessened if there is any systemic weakness, especially tuberculosis, or disease of the circulatory, kidney, and endocrine systems.

E. *Production of a Symptomatic Neuro-syphilis.*—In a large series of 5,400 syphilitics (54 per cent. men and 46 per cent. women)[8, 10] latent disease was found to be twice as frequent in the latter, and 42 per cent. of these were pregnant. Junius considers 50 per cent. of paretic women to be sterile. Contrary to that which happens in men, a mild early syphilis does not lead to a neuro-syphilis in women. Half the women showing clinical neuro-syphilis have not been pregnant since infection. Multiparae are less liable to asymptomatic neuro-syphilis than primigravidae. Pregnancy probably accounts for the freedom of women from neuro-syphilis. The cerebro-spinal fluid is abnormal twice as often in the sterile as in those with one or more pregnancies, in cases of late disease—that is, longer than one year. The following figures show the ratio:

	Men.	Women.
Cerebro-spinal syphilis	2.5	1
Tabes	6.3	1
General paralysis	4.2	1
Meningitic neuro-syphilis ...	2.2	1
Vascular neuro-syphilis	4.7	1

Sir Frederick Mott's figures[9] show a remarkable difference in the birth rate of male and female tabetics and tabo-paralytics—a series of 24 such women having had only three living children, and of 54 such men 151 living children, and both the same number of miscarriages and children born dead—namely, 51.

Effect of Syphilis on Pregnancy.

The patient herself often suffers more, the ordinary subjective discomforts of pregnancy being aggravated—as headaches, neuralgias, insomnia, all of which are improved by anti-syphilitic treatment. If a woman who has syphilis becomes pregnant the following events may happen:

1. The foetus may die, giving an early abortion. Ruge considers that of repeated abortions 83 per cent. are due to syphilis.
2. More often a late abortion, at the fifth to the seventh month, or an early premature labour, at the seventh to eighth month.
3. The foetus may die, and be expelled prematurely, with either positive or negative signs of syphilis in the foetus and placenta.
4. The child may be born at term healthy and may continue free from disease.
5. The child, born at term apparently healthy, may develop signs of disease six to eight weeks later.
6. The child at birth may show neo-natal syphilis—for example, pemphigus, mucous tubercles round the anus, etc.
7. The child born at term may show no distinctive symptoms, but soon appear haemorrhages, jaundice, extreme debility, changes in skin, intestines, and viscera.
8. The child may exhibit congenital manifestations, microcephaly and hydrocephaly, delayed development of teeth, spina bifida.
9. There is also syphilis hereditaria tarda, evidenced by interstitial keratitis, deafness, bone, skin, and visceral lesions; or the children are stunted, with Hutchinsonian teeth, saddle-shaped noses, and linear scarring round the mouth; or infantilism, or subsequently developing general paralysis, tabo-paralysis, primary optic atrophy, and epilepsy.

Effect of Syphilis on the Labour.

Many cases are normal. Others have malpresentations owing to the prematurity or to the maceration of the foetus. At times there is primary uterine inertia with weak contractions.

A "wooden" cervix may be present, which may feel as hard as a ring pessary, so that incisions may be needed to deal with the oedema and induration, as the membranes at times rupture early in such cases, for often chancres and secondary ulceration cause much induration. Instruments may be needed owing to maternal exhaustion and foetal asphyxia. There may be outlet troubles, with tertiary swellings and ulceration, being either rigid or tearing like wet blotting paper; these cases being useless to suture, but healing best by granulation, with anti-syphilitic treatment. There is often less tendency to post-partum haemorrhage, for if the foetus is dead there is generally thrombosis of the placental site. Rarer events have been recorded, such as rupture of the rectum above a stricture, rupture of the heart with a sudden rise of blood pressure, aneurysm of the uterine artery with rupture, spontaneous rupture of the uterus, and some cases of premature separation of the placenta.

Effect of Syphilis on the Puerperium.

There is no particular increase of mortality or morbidity, except with maceration of the foetus and premature rupture of the membranes. Subinvolution is much controlled by anti-syphilitic treatment. Some figures on the incidence of pyrexia may be added:

	Normal. Per cent.	Syphilitics. Per cent.
Pyrexia in labour	2.7 ...	2.2
Pyrexia in puerperium... ...	20.0 ...	19.0

EXPERIMENTAL EVIDENCE.

Brown and Pearce[11] on the relation of pregnant and lactating women to inoculation with *Treponema pallidum*, from experiments on intradermal genital inoculation of pregnant rabbits, decided that the effects when inoculation coincided with conception are very different during pregnancy and well on in lactation. Normal female rabbits react by prompt development of characteristic primary lesions and lymphadenitis, but of 8 pregnant rabbits so inoculated only 4 showed any clinical signs, 3 very slight and transient with no lymphadenitis, only one that gave rise to lesions at all comparable to the normal being inoculated at the middle of pregnancy, followed by a long latent period of fifty-four days, compared with the normal of ten.

On the pre-natal transmission of syphilis,[12] in all probability an intimate relationship exists between the involvement of the testicle and transmission of the disease to wife and progeny, for animal experiments show that the testicles of apes are found to be infective even when inoculation with spleen and bone marrow failed; that testicular inoculation in rabbits with *Treponema pallidum* produces a high percentage of positive results, whereas with intravenous inoculation into the cornea in the same animals the percentage is considerably less; that intravenous inoculation in rabbits failed often to produce lesions other than those of scrotum and testicle; and that the bone marrow and testicle have been seen to show the treponema before the chancre.

Various hypotheses have been suggested to explain the protection of pregnant women from syphilis. Generally during pregnancy women are more resistant to chronic infections; but in no other disease than syphilis does this protection extend over a number of years, so that the factor of pregnancy supplies some substance which is often able to suppress the manifestations of the disease even when inoculation occurs by the usual route. It seems that greater protection is afforded against protozoa than against bacteria, and against human cells than against protozoa, so that it is possible that chorionic particles are very active against syphilis; and in a case of conceptional syphilis the infection is milder, for the protective substances are augmented by the chorionic protein colloidal particles, which act at the site of infection.

and eventually fibrosis of the lung and bronchiectasis. As a result of this marked tendency to organization it could be said that there was no other acute pulmonary infection which led to such distortion of the lung and impairment of function as influenza. Attention was drawn to the remarkable capacity for epithelial regeneration in the bronchioles which followed influenza, and sometimes the appearances almost suggested a new growth. The only lesions comparable to influenza were those produced in the lungs of animals subjected to inhalation of certain gases.

Perinephric Abscess.

Mr. R. J. Willan read a paper on "Perinephric abscess," excluding perinephritic abscesses secondary to a tuberculous vertebra or to an acute appendicitis. He had collected 43 cases of perinephric abscess where the records were more or less complete. The anatomy of the fascia renalis was discussed, and emphasis laid on the fact that, below, the two layers of this fascia do not blend, but lose themselves in the loose areolar tissue of the iliac region. This explained a direct tract between the abdominal true pelvis and the perirenal area. Of the 43 cases, 26 occurred between the ages of 21 and 30; 28 of the series were in males and 15 in females; 24 were right-sided abscesses, the right kidney, with its surrounding perinephric fat, being lower down and therefore more liable to injury. Sometimes perinephric abscess was due to outward extension of renal cortical abscess or infarct. Nine cases out of the 43 followed urinary sepsis, 8 followed trauma, 6 as a sequel to parturition, 3 to pneumonia, 2 to recent boils, 2 to enteric fever, 1 to sacculitis of the colon, 1 probably to gonorrhoea; in 10 cases there was no stated cause. In 8 cases of the series—that is, 18.6 per cent.—there was a definite history of injury. Mr. Willan's impression was that sudden tears and ruptures of the perirenal fat occur more often than was generally believed. Albarran had shown that he could artificially produce a perirenal abscess by injecting pyogenic organisms into a rabbit's ear and then bruising the perirenal tissues. *Staphylococcus pyogenes aureus* was the commonest organism found, then streptococcus, then *Bacillus coli communis*; rarer organisms found were *B. typhosus* and pneumococcus. There were two forms of perinephric abscess—primary and secondary. The primary form might follow injury, though more frequently it developed after an acute fever, tonsillitis, boils, etc. The secondary form followed suppuration in adjacent organs, the infection travelling by direct extension or via the lymphatics. A feature of the complaint was, in some cases, the length of the incubation period. In 4 cases it was within one week, a further 5 cases within two weeks, a further 7 cases within three weeks, a further 11 cases within eight weeks—a total of 27 cases within eight weeks. In 7 further cases the duration was from two to sixteen months. An interesting group was the 7 cases in which the symptoms had persisted from periods varying from three months to sixteen months. He suggested that the chronic perinephritis was there all the time, but that some exciting cause—for example, further debilitation of health or injury—determined the onset of suppuration.

Usually the onset was insidious, and in the great majority of cases the onset symptom was a dull ache in the upper part of the ileo-costal space—that is, just beneath the last rib and lateral to the erector spinae muscle. Occasionally the onset was acute and then an onset rigor often occurred. Except in the acute variety, rigors were not common. Usually there was irregular fever, often mistaken for typhoid. Chronic ache, often described as a growing pain, which became gradually worse, and particularly at nights, was a constant feature. There was tenderness over the loin, with restricted extension, but free flexion of the thigh. The chronic pain increased on movement, respiration, coughing, and sneezing. With regard to urinary symptoms, in 12 cases there were neither urinary symptoms nor pus in the urine: in 11 there were urinary symptoms together with pus in the urine; in 6 there were urinary symptoms without pus; in one case there was pus without any urinary symptoms. Urinary frequency was the common complaint made, though 4 cases in the series had renal colic. The symptom of thigh flexion was common in this disease; it was due to the perinephritic inflammation spreading to the psoas muscle. The temperature was rarely normal. In the early stage there was tenderness at the angle formed by the last rib and the outer border of the erector spinae. There was rigidity of the flank muscles, and sometimes a mass. In 36 cases out of the 43 there was a swelling present, nearly always mentioned as large. This confirmed the statement that perinephric abscess is not usually diagnosed until a swelling appears. In only 8 cases was the diagnosis made when no swelling was palpable. In the later stages night-sweats, emaciation, and a swinging temperature were almost constant features. The abscess might rupture into the kidney, ureter, colon, and vagina; it might track to pelvis or iliac fossa, or rupture into the pleura, lung, or bronchus. With regard to treatment, Mr. Willan said that an exploratory needle should not be inserted unless preparations were complete for immediate operation. Early drainage of the abscess was essential. It was interesting to compare a primary perinephric abscess with osteomyelitis. In each case the commonest organism was the *Staphylococcus pyogenes*, and in each the patient was in debilitated health. Osteomyelitis was usually associated with a slight injury. He suggested that the same conditions obtained in both diseases—namely, debilitated health, staphylococcus in the blood stream, and an injury of minor degree.

TREATMENT OF DIABETES.

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, held on November 9th, with the President, Dr. T. G. Moorhead, in the chair, a discussion took place on the modern treatment of diabetes.

The President, in his opening remarks, gave a summary of the researches which led Banting and his co-workers to the discovery of insulin, and laid stress on the fact that the discovery was not, as many thought, a lucky fluke, but was the result of painstaking and laborious scientific investigations. He then referred to the economic aspect of insulin, with particular reference to the extra stress thrown on hospital finances, and pointed out that the community was now called upon to decide whether it was or was not willing to provide the funds necessary to maintain the life of diabetics. Even should insulin become much cheaper than it was at present, it would still remain an expensive commodity from the point of view of the hospital patient. He expressed the opinion that, assuming voluntary subscribers refused to help, the State, if it was willing to pay for the cure of venereal disease, which admittedly was for the most part acquired by non-social practices, should also help in providing the cost of the remedy, insulin, for a disease which was a misfortune and not a fault. He discussed the question as to whether it was advisable to undertake a course of insulin treatment without blood sugar estimations, and said that while such estimations were always desirable, nevertheless in some cases where special difficulty existed in carrying them out a course of insulin might be cautiously commenced without them. Regarding the giving of insulin dissolved in alcohol by the mouth, some experiments carried out on patients in his wards in hospital showed that insulin so given had no effect on blood sugar. Further experiments were, however, in progress. Dr. Moorhead referred in conclusion to the importance of combined dietetic and insulin treatment.

Dr. R. H. Micks briefly discussed laboratory technique and its clinical application. He sketched the principles to be borne in mind when interpreting the results of blood and urine analysis, and showed charts from patients with renal glycosuria and mild diabetes. His series of 230 blood sugar estimations made during the last six months illustrated some points in the insulin treatment of diabetes. The twelve patients of Dr. Moorhead who received doses of insulin controlled by blood sugar estimations were summarized. In all there was improvement, but the immediate effect the drug had on the blood sugar varied considerably. There were no alarming results of hypoglycaemia, but in two cases slight hypoglycaemic symptoms occurred. In one the symptoms persisted for several hours and did not disappear coincidently with the raising of the blood sugar above normal. He showed charts illustrating

It is along this line that Amand Routh has worked out his theory of the protective action of the chorionic ferments in pregnancy; and following Noguchi's observation on spirillolysis of the organism of syphilis, he has suggested, to explain the agent which Nature has provided for this spirillolytic action, that the chorionic ferments or syncytial toxins or their derivatives have this granulating power; and further, that they have the continued action on these granules, rendering them latent and biologically inactive, and perhaps in a few cases destroying them.

Ante-natal Management.

In regard to the types of mother attending the clinic, Sequeira mentions three classes: (1) Those with a history of one or more miscarriages and no sign of active disease; a Wassermann test should be taken. (2) Those with active syphilis. (3) Primigravidae, with no signs; should a Wassermann test be taken probably one in a hundred normal women without syphilis would give a positive result. In some ante-natal clinics a blood test is taken of all patients. A positive Wassermann in this group should be verified by a luetin or Sigma reaction. In a suspicious case the Wassermann test of the husband and of any previous children is taken, and if any of them are positive the woman should be treated.

In the investigation of patients all these groups should be carefully gone into, with a detailed past history, remembering Beck's statement[27] that only 18 per cent. helped by their own history or by a physical examination, but 60 per cent. helped by the previous history of miscarriage, stillbirth, living syphilitic infants, or a tendency to carry each successive pregnancy further. A very close record should also be kept of all miscarriages and stillbirths, and all those due to syphilis determined.

Difficulties of Diagnosis in Women.

The elusiveness of the history, and frequent modification of the course of the disease, are common difficulties. A number of cases of congenital syphilis pass, especially in women, run latent course, and are not recognized. Congenital syphilis in women and in the third generation has an especial tendency to run a mild latent course, sometimes without any clinical sign or symptom. Many women acquire syphilis without recognizing any of the earlier stages, through ignorance or because the early symptoms are slight or entirely absent. It should be remembered that mothers admitted with gonorrhoea often have syphilis as well: a Wassermann test should therefore be taken in cases of gonorrhoea. Those with a suspicious history should in some cases be given a luetin skin reaction and a provocative Wassermann test, some a test of the cerebro-spinal fluid. A Wassermann test is regarded as positive when a 2, 3, or 4 *plus* reaction with an alcoholic antigen is obtained.

Points in Connexion with Treatment.

It is never too soon or too late to give the initial injection—either before the woman becomes pregnant if possible, or within an hour of the commencement of labour. Though a few are refractory, most pregnant women are extremely amenable to treatment. Surprising results occur from apparently very inefficient treatment, and almost ideal results follow from efficient treatment. Every syphilitic woman should be treated during pregnancy with salvarsan, though she may have undergone previous systematic treatment, a negative Wassermann reaction or only very old-standing disease being no objection.

Precautions in carrying out the Treatment.

Avoid pain as much as possible, or the patients will not come back, and it is difficult enough to induce them to continue treatment as it is. Watch the urine carefully for signs of albuminuria. Continue the mercurial treatment till there are signs of increased salivation. Take great care of the teeth, attending to dental sepsis early in pregnancy. If intravenous medication shows signs of too rapid absorption, the treatment need not be discontinued, as bad symptoms do not appear again if intramuscular injections be given instead.

Routine of Treatment.

A. For those cases in which there are primary or secondary signs present. Each clinic will have its own plan of treatment of an ordinary case of syphilis, and it is always most satisfactory to give the course on the premises where the woman is going to be confined.

B. For those cases of latent disease in which no primary or secondary signs can be found. At the Leeds Maternity Hospital a routine suggested by Colonel Harrison is being used with most satisfactory results. Weekly injections of neokharsivan, starting from 0.3 gram, being given, increasing up to 0.6 gram with weekly rests at the 4th, 7th, 10th, 11th, 12th to 21st, 26th to 28th weeks; hydrarg. cum creta, grain 1, being administered thrice daily all the time; potassium iodide, grains 7 to 10, thrice daily during the 10th to 12th and the 26th to 28th weeks.

C. Post-natal treatment is most important, being combined with the breast-feeding, and the case should be followed if possible for two to three years after the Wassermann reaction becomes negative, remembering that some never become negative.

The Syphilitic Infant.

The newborn syphilitic child may be healthy, showing no signs for six weeks or more; or he may be the typical old man, small, wizened, atrophied, puny, weakly and sickly, skin flabby, wrinkled, and of a brownish colour. He may have oedematous limbs and face, and a large abdomen, with bad circulation and a bluish tinge all over, and appear as if going to die, and will certainly do so if left untreated. He usually shows signs if untreated in the first month, and 80 per cent. of syphilitic children shown signs before the end of the second month. Practically all show signs of syphilis before six months, most of the mothers being in the secondary stage of syphilis, only a tenth of them having the primary condition. The child may show no signs at all except progressive and unaccountable loss of weight, indeed losing many ounces in a day or so, and as suddenly stopping with the institution of antisyphilitic treatment.

Points in Management.

1. Every infant of suspected parents should have a Wassermann test taken at birth, and again on the tenth day, when the result is more reliable; then every four weeks up to six months, then every three months to two years.

2. The type and time of infection should be carefully considered—as, for example, there is no need to treat a child where the mother has been infected during the last two to three months of pregnancy, if the Wassermann test is satisfactory.

3. Infants with one or both parents giving a positive Wassermann reaction should, if the infantile test be negative, be carefully watched, and probably should be treated if there is any ground for suspicion at all.

4. If any clinical signs appear, even though the infant is serologically negative, treatment should be established.

5. The Wassermann test has to be very carefully and delicately done, using cholesterolized extracts for antigens.

6. Some recommend other reactions—for example, luetin for children, sometimes with a provocative Wassermann test.

7. In a series of 1,500 ante-natal patients, 13 per cent. were diagnosed as syphilis by the positive Wassermann test only, and verified by the luetin reaction in 50 cases, giving a pustular reaction in 77 per cent. of these.

8. Drugs should not be injected into the superior longitudinal sinus nor blood taken from it; intramuscular injections and Adams's bayonet needle for taking blood from the heel give very satisfactory results, and are extremely simple of management.

9. The average number of galyl injections needed to get a positive to a negative is 10.

10. In some cases salvarsan must be given within an hour of birth.

Principles of Management.—At birth blood is taken from the mother, placenta, and child for testing, though in infants a positive reaction is of little value as proving congenital syphilis.

All children with negative Wassermann reaction at birth keep so for ten to twenty months. Of positive children at birth most are negative between three weeks and twenty months later.

The Wassermann test is less reliable from the infant at birth than on the tenth day. In 1,000 unselected cases there was a positive Wassermann result in 10 per cent.[30] Salvarsan and mercurial treatment has a more certain and quicker action in producing a negative Wassermann reaction in children than in mothers.

Routine of Treatment.

Many methods of treatment have been outlined, but mention only will be made of that line of treatment along which Mr. John Adams works at the Thavies Inn Clinic with such conspicuous success.

the change in the blood sugar produced by insulin injection, emphasizing the importance of giving the dose at meal times. No evidence of permanent cure had been noted, but the response to the drug became more evident as treatment proceeded. In some cases insulin treatment had no advantage over dietetic treatment; in others it was vitally necessary. He urged that the preparation should be provided free for poor patients.

Dr. G. Bewley, referring to blood sugar estimations, said that he himself had little difficulty in accurately measuring the amount of blood required, but that as a point of technique he would like to know whether the length of time taken in bringing the solution to the boil, and the length of time of boiling, made any difference in the results. While diabetic coma was best treated by insulin, it was important to remember that some cases did very well under complete starvation. Among the various patients whose blood sugar he had estimated the most interesting was one in whom he found a blood sugar as high as 0.35 per cent. without sugar appearing in the urine. It was stated that in progressive diabetes the threshold value was often raised, but he thought the one he now reported—0.35 per cent.—was the highest yet recorded.

Dr. W. Fearon remarked that the metabolism of glucose was quantitatively the most important biochemical reaction in the animal body, since the greater part of the normal diet was composed of carbolic drates, and the carbolic drates were absorbed chiefly in the form of glucose. The glucose concentration of normal blood was regulated by the rate of its absorption from the alimentary canal, by the renal threshold mechanism, by the glycogen condensation mechanism, and, lastly, by the rate of its removal by the tissues. The characteristic effects of insulin were manifested in the last of these operations. The administration of insulin caused glucose to leave the circulating blood. It was not rapidly burnt away or condensed to glycogen, and Macleod considered its disappearance to be due to its absorption by the tissues, which developed a "glucose vacuum." Insulin appeared to have no special action on glucose in simple solutions, the presence of the tissue cells being an essential factor. If insulin were administered alone it sooner or later exhausted the glucose reserves of the organism, the blood sugar fell, with characteristic results. When the blood sugar value reached about 0.075 per cent. in the human subject the patient experienced extreme hunger, fatigue, and vasomotor discomfort. Insulin, whatever its ultimate value might be in the prolonged treatment of diabetes, was a specific for coma arising from ketosis, since by its action on glucose it supplied the missing factor necessary for the complete combustion of the fatty acids.

Dr. H. F. Moore said that it was clear that diabetes was a deficiency disease in relation to the supply of insulin from the islands of Langerhans. All treatment should be so planned that the blood sugar be kept within normal limits. The fasting blood sugar should not be greater than about 0.1 per cent., and the blood sugar during digestion should not rise to a point greater than 0.16 per cent. This meant that the diet upon which the patient lived must be rather exact, and to this dietary the dosage of insulin should be carefully correlated. It was probable that the majority of diabetics did not require insulin; with dietetic treatment alone it was possible to abolish the glycosuria and to bring the blood sugar to normal without actual starvation, by keeping the patient on a so-called "basal" diet with a low content of carbohydrate and fat. This method succeeded in accomplishing the desired result within two to six days, depending on the severity of the case. Only the unusually severe cases required fasting to get rid of hyperglycaemia, and these generally could not, without hyperglycaemia, use a diet upon which they could exist unless they got insulin. The final diet in all cases should be sufficient for the patient's requirements in calories and it should be properly balanced in its proportion of carbohydrate and fat in order to avoid acidosis. The disadvantages of insulin treatment were: (1) Subcutaneous injections for long periods of time; (2) the cost; (3) the frequency of slight local reactions, undoubtedly due to protein impurities, which should become less frequent as the methods of preparation of insulin improved; and (4) the danger of hypoglycaemic reactions. The methods of avoiding and treating the latter were discussed. Dietary regulation was even more necessary with insulin than without it. Hyperglycaemia should not be permitted and the degree of glycaemia during digestion and fasting should be kept as nearly as possible within normal limits. It could not be too strongly emphasized that patients under insulin treatment should not be allowed to have glycosuria, for this meant as a rule hyperglycaemia, and, therefore, wearing out of whatever insulin function was left in the patient's islands. Patients receiving insulin should not be fattened. It was better to keep them a few pounds under weight.

Dr. G. E. Nesbitt, referring to blood sugar estimations in connexion with the use of insulin, agreed that if blood sugar estimations were not possible any doctor who took a reasonable amount of care could use insulin successfully. It seemed fairly easy to judge the amount of insulin which should be given to a patient, if one went by the diet which the patient was able to take. The intake and output could be calculated, and if it was remembered that one unit of insulin burned two grams of sugar the calculation was easy.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

The Medico-Chirurgical Society of Edinburgh met for its first meeting of the hundred and third session on November 7th, with the President, Sir Robert Philip, in the chair. The officials for the current session were elected, the new president being Sir David Wallace, K.B.E., C.M.G., F.R.C.S.Edin.

Professor Edwin Bramwell showed a boy, aged 11, suffering from Thomsen's disease. He thought this was the first case of the kind which had been demonstrated to the Society. It was a rare condition and he had only met four cases in twenty-three years. Professor Bramwell demonstrated the striking characteristics of the disease: (1) difficulty in muscular relaxation until the movement had been frequently repeated; (2) hypertrophy of groups of muscles. The boy had a rounded face due to enlargement of the masseters and showed beautifully the difficulty in opening the eyes after closing them firmly. The calf and shoulder muscles showed definite enlargement and the relaxation spasm in the hand was well marked.

Mr. J. W. Struthers brought before the Society a case he had previously exhibited—a man with a symptomless swelling in the left frontal region. In the interval the case had been operated upon. The condition before operation appeared to be a tumour growing from the membranes and invading the frontal bone. The tumour had been removed and the man was now back at full work. Lantern slides illustrated the tumour both clinically and by x rays. The hyperostosis of the frontal bone was clearly seen. The tumour was an endothelioma.

The retiring president, Sir Robert Philip, before vacating the chair delivered his valedictory address. He sketched the work overtaken by the Society, remarking on the variety and high standard attained in the papers read. He mentioned the increased membership, and that the Society had honoured itself by admitting to its "corresponding membership" ten distinguished colleagues from Europe, America, and England. Grievous losses had been sustained by the death of many distinguished ordinary members—Sir James Affleck, Dr. Ballantyne, Professor Boyd, Professor John Chiene, Sir Halliday Croom, Dr. Harry Rainy, and others. Apart from the ordinary meetings the Society had had the privilege of welcoming and listening to addresses by Professor Calmette, Professor Bordet, and Professor Pirquet. During his occupancy of the chair Sir Robert had noticed that short crisp papers were more apt to awaken discussion than did the lengthy orations. Spontaneity of discussion should be attained, and when this was followed the members got nearer the heart of the matter which was under consideration. When he joined the Society, exactly forty years ago, Henry Duncan Littlejohn occupied the chair, the vice-presidents being Sir Thomas Fraser, Dr. David Wilson, and Sir John Batty Tuke. They, and other officials of the Society, had passed away, but it was remarkable to note that almost 45 per cent. of the officials of forty years ago remained in vital connexion with the old Society.

A. Blood is taken for the Wassermann test at birth, on the 40th, 80th, 176th days; then every two months up to two years; then less frequently up to seven years, according to the progress of the case.

B. Intramuscular galyl in glucose is given in doses of 1.25 cg. to 3.5 cg., on the 8th, 22nd, 36th, 50th, 64th, 78th, 120th, and 134th days; at the 9th and 12th months courses of three injections of 4 to 5 cg. galyl and 1/2 grain mercury should be given and hydrarg. cum creta, grain 1, daily for a month.

C. Intramuscular mercury is given on the 8th, 22nd, 36th, 50th, 64th, 78th, 120th, and 134th days; from 1/6 grain to 1/3 or 1/2 grain of hydrarg. cum creta is crushed up in the feed, at first daily then twice daily.

D. Further treatment is governed by the progress of the case; should the Wassermann test become positive at any later date intensive treatment should be begun immediately.

E. Breast-feeding should be the rule, remembering that the milk of a syphilitic mother is often deficient in quality and quantity, so that it may be necessary to supplement it; also that infection of the mother after the seventh month is a contra-indication to breast-feeding, for then it is agreed the baby will be born healthy, and as the spirochaete has been found in the milk of nursing mothers, the infection would easily be passed on to the child.

Fordyce and Rosen[24] had a series of 140 cases of children, born of mothers with + + + Wassermann; 88 had evidence of syphilis, the Wassermann was positive in all, and clinical manifestations in 20. All were treated with neo-arsphenamin and mercuric chloride, with good results.

Mr. John Adams's figures obtained at the Thavies Inn Clinic show the following extremely satisfactory results:

Years.	No. of Mothers with Syphilis.	Babies Alive.		Babies Dying.	Stillborn.
		Wassermann Reaction			
		Positive.	Negative.		
1917-18 ...	23	17	6	3	5
1918-19 ...	30	8	21	1	1
1919-20 ...	37	1	36	0	0
1920-21 ...	23	5	16	0	2
1921-22 ...	18	7	9	0	2

It is hoped that figures will soon be forthcoming of the results of the following up of such cases to puberty, so that a clear idea may be obtained of the real benefits accruing from treatment which has been efficiently carried through, in the campaign against the protean phenomena of congenital syphilis. Finally, I may urge, in the words of Dr. Sequeira, the importance of co-ordinated effort; the ante-natal clinic, the infant welfare centre, the children's clinic, and the venereal clinic must work in co-operation, and then we can hope to see the passing of congenital syphilis.

The writer is very much indebted to Mr. Adams of the Thavies Inn Clinic for his kindness and courtesy.

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ROENTGENOGRAPHIC PELVIMETRY.*

BY

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THE addition of roentgenography to our obstetrical resources enables us not only to see the size and shape of the mother's pelvis and of the foetal head, and the relations of the one to the other, but also to measure the pelvic diameters, both of the inlet and the outlet, without vaginal examination. Since the existence of contracted pelvis was first reported by Arantius various methods have been employed for diagnosing the existence and measuring the extent of the pelvic deformity.

External pelvimetry, introduced by Baudelocque, while enabling us to measure directly the external pelvic diameters, and thence to draw certain conclusions as to the degree of contraction, is insufficient for estimating the size of the pelvic cavity. This cannot be done directly in the living woman, except by a laparotomy. Every obstetrician has encountered cases which appeared on external examination to be normal, but when labour was advanced unlooked-for difficulties presented, when it was too late to do an abdominal operation. In the same way one meets cases where there is external pelvic deformity and where one anticipates a difficult confinement, but in which, on the contrary, labour is quite unobstructed and the infant is of average size.

Internal pelvimetry—a method devised by Skutsch—made it possible to estimate the size of the pelvic cavity indirectly and with fair accuracy, but the employment of his instrument necessitates an anaesthetic, if discomfort or actual pain to the patient is to be avoided.

The Roentgen rays, it was thought possible, might afford a valuable method of investigating the size and shape of the pelvis, but it was found that, while an excellent idea as to shape was obtained, that as to size was erroneous, owing to the fact that the sacrum and pubis lay at different levels from the sensitive plate, and consequently one portion of the pelvis was enlarged out of all proportion to the other. This defect made it impossible to utilize radiography for purposes of mensuration.

The employment of the following method will obviate this difficulty and make it possible not only to see the existence and extent of the pelvic contraction both of the inlet and the outlet, but also to compare the pelvis under examination with the normal pelvis, and to measure its diameters without causing any appreciable inconvenience to the patient.

Position of Pelvis.

Before discussing the technique of this method of pelvimetry a few anatomical facts on the position of the pelvis should be noted. In the erect posture the pelvis is placed obliquely with regard to the trunk of the body. The base of the promontory of the sacrum, in well formed females, is nearly four inches above the upper border of the symphysis pubis.

The plane of the pelvic inlet, or true conjugate, forms an angle of about 65 degrees with the horizontal plane. Therefore with an anterior vertical plane it will form an angle of about 25 degrees. If the plane of the inlet is bisected by a line at right angles, one extremity will pass through the middle of the coccyx and the other through the umbilicus. The axis of the pelvic inlet is therefore directed downwards and backwards.

Technique.

The patient lies flat, face downwards, on the table with her symphysis pubis touching the plate carrier. The x-ray tube is raised two feet above the plate and focused on a point four inches below the mid-point of a line joining the posterior iliac spines; this point corresponds to about the middle of the coccyx. The tube is then tilted forward through an angle of 30 degrees, towards the patient's head, and it will then lie parallel to the plane of the pelvic inlet. The rays will thus be directed upwards and forwards in the

* An article by Dr. MacKenzie on roentgenographic pelvimetry with illustrations of the types of pelvis was published in the BRITISH MEDICAL JOURNAL of June 1st, 1918, p. 612.

Sir Robert Philip reminded members that it was more than a hundred years since the Society was founded, and sufficient recognition had hardly been bestowed on the first president—Andrew Duncan—who was largely instrumental in originating the Society. He was "divinely thrilled, exultingly full, as quick well waters that come of the heart of earth." He succeeded James Gregory in the chair of the practice of medicine in the University, was twice president of the Royal College of Physicians of Edinburgh, being recalled to occupy the chair in 1824, when 80 years of age, as a tribute to his inexhaustible, untiring devotion to the interest of others. His interests were wide. He was a keen botanist, loved his garden and proposed the establishment of a public experimental garden. He was singularly responsive to the delicate vibrations of art and his story of his discovery of Henry Raeburn—afterwards Sir Henry Raeburn—and the life-long devotion to the great artist reads like a romance. Raeburn's last game of golf was played when 67 years of age—five weeks before his death—with Andrew Duncan, who was in his 80th year. In conclusion, Sir Robert said:

"At times it is good to fall back intimately on the past. It is good for us to recall the men who sat in those places before us. It is good to be reminded of what sort they were. Our Society comes of noble ancestry. Its creator and first president was a *man of fine fibre, clear brain and large heart.* He had a big conception of the possibilities of the Society. A man who lectured on the practice of medicine during fifty-three consecutive sessions and, at the same time, swept the human horizon as he did, so that his bust in the Royal Public Dispensary is justly inscribed with the words 'Benefactor of his species,' and one who played golf and climbed Arthur's Seat when well over 80, was made of the right stuff. His reading of life and of the uses of a medical society affords abundant food for reflection. . . . The baton, which two years ago was received by me at the hands of one distinguished surgeon. I now pass to another, with the certainty that he will wield it wisely and well. *Sicut patribus, sit Deus nobis!*"

A cordial vote of thanks was proposed by Sir David Wallace and seconded by Professor William Russell.

Mr. Henry Wade gave a lantern demonstration entitled "The clinical significance of the form and capacity of the renal pelvis." Certain anatomical points about the normal renal pelvis were illustrated by casts made of fusible metal. He then referred to his own *post-mortem* findings while he was an assistant pathologist at the Royal Infirmary about fifteen years ago. X-ray photos were thrown on the screen showing the capacity of the renal pelvis by means of pyelography and the technique of the procedure was discussed. Clinical examples of the following conditions of congenital abnormalities were demonstrated by x-ray photos—namely, single functioning kidney, horse-shoe kidney, congenital cystic kidney, pelvic kidney, and unilateral fused kidney. Pathological states of the kidney were also demonstrated, such as hydronephrosis, pyelitis, suppurative pyelonephritis, tuberculous disease, renal calculi, and tumours.

The demonstration was discussed by the President; Dr. Chalmers Watson, who referred to the value of such methods in medical cases showing bacteruria; Sir Harold Stiles, who hoped every facility would be given Mr. Wade for pursuing this line of study; and Dr. W. A. Alexander, who quoted his findings of congenital abnormalities in a series of 500 consecutive necropsies.

PSORIASIS.

At a meeting of the Cardiff Medical Society held on November 13th, with the President, Mr. William Martin, in the chair, Dr. J. Beatty read a paper on psoriasis.

Dr. Beatty said that as the disease was familiar he did not deal with its symptoms and course beyond emphasizing the extremely small size of the initial lesion, the fact that the spots grew at different rates, and that new spots might occur while others were fading; it occasionally occurred at the site of wounds or superposed on other skin diseases where there was a breach of surface, and it persisted indefinitely, recurrence being the rule. Psoriasis was related to ill health, for the dictum that it was a disease of the healthy applied to about one-third only of the cases; it was not contagious, though very rare cases of apparent infection had occurred. He described the microscopical anatomy as first distinguished clearly by Munro and elaborated by Haslund, showing that the primary lesion was a cell infiltration into the rete and accumulation beneath the corneous layer—a microscopic abscess; later, parakeratosis, or retention of nuclei, occurred here and there in the corneous layer with collections of shrunken leucocytes, and acanthosis, or proliferation of the rete cells, was abundant, while in the corium there was widening of the vessels and accumulation of leucocytes round them.

The pathology of psoriasis was unknown, investigators attributing it variously to a parasite, to a fault of metabolism or the nervous system, or to one of the great systemic infections, tuberculosis or syphilis. Schamberg and his collaborators attempted to find a parasite, using complement fixation methods and culture media of all varieties, with and without the patient's serum, extract of the scales, etc., but they were unable to isolate anything but the ordinary skin bacteria. Dark ground illumination showed what appeared to be a bacillus, but Ketron later brought evidence to prove that this was a fibrin form. Inoculations on animals were equally unsuccessful. They also investigated the metabolism in psoriasis, using the amounts of nitrogen ingested and excreted as an index, and were able to prove that nitrogen retention occurred, but Tidy later showed that this occurred also in exfoliative dermatitis. It was now believed that this retention was due only indirectly to the disease and depended on the desquamation. While the evidence for a parasitic origin was negative, there were no features which seemed to point to any other hypothesis which could not be equally well explained if the existence of a parasite were assumed. The microscopical anatomy and the spread of the spots by peripheral extension were strongly in favour of this, but it was necessary to predicate a predisposition—namely, a suitable soil.

Treatment had only a temporary effect. Special diets did not appear to have any value. Locally, after removal of the scales, the tars, mercurials, and the chrysarobin group (including pyrogallol and resorcin) were the applications most used. Mercurials were the least and chrysarobin the most effective. Any application should be rubbed in. Chrysarobin was not an antiseptic, tested against staphylococci, its action being that of a reducing agent, but its special value compared with other reducing agents depended on its stability, so that it was at full strength when applied, on its ready oxidation by proteins and their derivatives, and on the fact that sodium chrysophanate or other product of oxidation was quite innocuous. Sunlight, the electric arc, and x rays were all useful in special cases.

The internal treatment was marked by the variety of the drugs used and the uncertainty of their action. These fell into six groups: (1) the arsenic group (including antimony); (2) the heavy metal group—mercury and manganese; (3) the iodides and thyroid; (4) carbolic acid, tar, and the volatile oils; (5) alkalis and salicylates; (6) vaccines and auto- and hetero-serums. Arsenic was the most reliable and was usually successful in first attacks; it should be pushed to tolerance. Hypodermically or intravenously enesol seemed best, salvarsan being generally unsuccessful. Mercury and manganese were given hypodermically. The iodides were the next drugs to use if arsenic failed, thyroid being held in reserve. Salicylates had been given in large doses intravenously and salicin by the mouth. Vaccines, usually of staphylococci but often of other bacteria, might be effective.

Discussing these drugs, Dr. Beatty pointed out that no physical or chemical relation between them could be discovered, and that they had to be administered in full doses. He believed that a pharmacological relation existed, for they were all tissue poisons—even serums, since symptoms resembling anaphylactic poisoning could be produced by first treating serums with physical agents. He strongly advocated the view that the really active body was some product of protein breakdown, and believed that this was true also of the treatment of syphilis, where unrelated substances like arsenic, antimony, bismuth, mercury, and even iron might be effective. The ineffectiveness of arsenobenzol on spirochaetes *in vitro* might be explained in this way. The treatment of both psoriasis and syphilis seemed really a chronic poisoning, and the cure only indirectly due to the drugs used.

axis of the true conjugate, and an excellent image of the pelvic cavity will be obtained on the plate.

In this technique there are three constant factors:

1. The point of focus.
2. The x-ray tube at the same angle to and at the same distance from the sensitive plate.
3. The relation of the symphysis pubis to the sensitive plate.

Having these three fixed points and using the shadow of the symphysis pubis as an axis we can accurately measure any object within the "tube radius."

The possibilities or error in interpreting the size of the inlet, because of the varying degree of tilting of the different pelves, are negligible in this method of pelvimetry. In a contracted pelvis the angle which the plane of pelvic inlet makes with the horizontal is greater than the normal, and the angle to the vertical will be correspondingly reduced. In a contracted pelvis the promontory of the sacrum will be nearer the plate than the normal, and be more easily defined.

Method of Measuring.

In a normal pelvic bone, which is designated the "standard pelvis," the various diameters, both external and internal, are accurately measured. When this bone is radiographed definite points can be marked on the plate; the distance between these points will bear a definite ratio to that between the corresponding points measured on the pelvis. This radiograph is taken as the "standard plate." By radiographing the patient in the same position as the "standard pelvis," an accurate comparison of the patient's plate with the "standard plate" will be obtained, and therefore of the patient's pelvis with the "standard" or normal pelvis; from it the internal measurements can be mathematically worked out. When compared with the direct measurements they are fairly accurate. To work out mathematically, for example, the transverse diameter of the pelvic inlet the length of the transverse diameter of the pelvic radiograph of the patient is multiplied by the transverse diameter of the standard pelvis, and divided by the transverse diameter of the standard plate. In the same way the antero-posterior diameter of the inlet, or the transverse diameter of the outlet, can be worked out. I have not mentioned the oblique diameters, but if the true conjugate is diminished the oblique will also necessarily be reduced in proportion.

The Foetus.

It is possible to obtain the x-ray shadow of the foetus *in utero*, and this is a great clinical and medico-legal advantage in cases in which there is doubt as to the presence of pregnancy or the existence of an abnormality. The earliest period at which I have been able to recognize the foetus has been during the fourth month, and only that part of the foetus over the inlet is demonstrable. There are several factors which militate against the diagnosis of pregnancy in the early months—namely, the thickness of the maternal tissues, the hypercongestion of the uterine walls, the amniotic fluid, and the slight density of the foetal bones. It is necessary to take the x-ray plate in the earlier stages, if pelvic measurements are required, for in the later stages, as will be readily understood, the outlines of the pelvis may be more or less obliterated by the presenting part. An accurate comparison between the foetal skull and the pelvic inlet can be obtained if the photograph be taken when the head is about to engage in the pelvis.

While it is possible to measure the diameter of the head which lies parallel to the transverse diameter of the pelvis, it is not so with the diameter which enters the true conjugate. Therefore dependence must be placed on comparison rather than measurement.

Even on finding the relations of the foetal head to the mother's pelvis satisfactory we must take into account the inability to judge the exact amount of mobility existing between the bones of the foetal skull, which, if soft, during the efforts of labour would mould themselves to the pelvis, but if densely ossified would be incapable of reduction in size.

The overlapping of the skull bones can be easily recognized during the first stages of labour. If engagement is impossible there is also distinctly seen overlapping by the foetal skull of the pelvic inlet, especially in the region of the symphysis pubis. The recognition of this inability on the part of the foetus to navigate the passages successfully would spare, by a timely Caesarean section, many a mother a difficult labour with extensive damage, and save the life of many a child.

Effects on the Mother and Foetus.

While it is recognized that large doses of the x rays will produce an artificial menopause, the short exposure which is required for obstetrical diagnosis has no deleterious effect on the mother, and does not even produce a temporary sterility. In none of my cases when the x-ray exposure has occurred during pregnancy has intrauterine death been produced, nor has any physical or mental maldevelopment shown in the newborn child.

Conclusion.

In conclusion, I would like to emphasize the following points:

1. The necessity of a "standard" plate for pelvic measurements.
2. The patient must be radiographed in the same position as the "standard" pelvis, having the same point of focus, the x-ray tube at the same angle and the same distance from the sensitive plate.
3. The accuracy of diagnosis in showing to advantage the variety of pelvic contraction, and the ease with which the various pelvic diameters can be worked out.
4. The minimum amount of discomfort to the patient compared to other methods of pelvimetry.
5. By the collaboration of the roentgenologist and the obstetrician there exists a valuable means of conserving maternal and foetal life.

To Dr. Beath, roentgenologist to the Royal Victoria Hospital, Belfast, and his assistant, Mr. Leeman, I express my gratitude for their assistance in taking the photographs shown to the Section.

DISCUSSION.

The President said that the Section was very much indebted to Dr. MacKenzie. The photographs he had shown were very striking, and there was undoubtedly a great future for this method. What they really wanted was a method whereby they could diagnose the small degrees of pelvic contraction, not the larger ones. He was rather doubtful whether this method would reveal these minor contractions. Another objection he had to make was the great difficulty that he met with in getting such excellent pictures taken.

Dr. John Campbell (Belfast) thought that due attention had not been paid to this important aspect of obstetrics. He personally had obtained much valuable information from this method. Accurate measurement of very minor degrees of pelvic deformity could be obtained. The attention of the profession should be directed to this method, as it gave information which could not be obtained by other means.

Dr. Louisa Martindale (London) drew the attention of the meeting to some beautiful photographs of foetuses which had recently been taken in Germany.

Dr. Hendry (Glasgow) expressed his admiration for the plates. His only objection to the method was that it did not allow of manipulation of the head to see what difference flexion, etc., might make to the prospects of normal delivery. Such information could be obtained by Professor Munro Kerr's method of examination.

Mr. Lane Roberts (London) asked whether any movements of the sacro-iliac joints had been observed during the taking of these skiagrams.

Dr. MacKenzie, in his reply, said that it was entirely due to the encouragement he had received from Dr. John Campbell that he had persevered with the method up to the point of perfection they had so far obtained. The most minor degrees of contraction—to one-twelfth of an inch—could be recognized by this method. He had been able to identify a four months' foetus *in utero*, a point of valuable medico-legal significance. The great advantage offered by his method was that it would be possible at an early stage of pregnancy to discover whether the pelvis was normal or not. He had not had any experience in these photographs of movements of the sacro-iliac joints.

A. W. Sheen suggested that perhaps the ıenomena of psoriasis might be regarded as the ·station of some general disease comparable to ptions which occurred in systemic diseases like syphilis. He also drew attention to the fact is occasionally followed the distribution of a ·rve.

Y. Cook discussed the seasonal variations of d said that the disease was liable to exacerba- spring and autumn, the reason for this being r. R. Prichard thought that heredity played ›art in some cases and cited instances. He e successful treatment of a case by means of

on Greaves suggested that psoriasis might akin to conditions of anaphylaxis, such as hay fever. Dr. C. W. Shepherd, discussing the nitrogen hunger, asked whether it was due to or was a peculiarity of psoriasis. Dr. H. A. as to the value of *x*-ray treatment and inquired es had been treated by Finsen light.

Tests for Syphilis.

Parry Morgan gave a demonstration of the ı reaction and a flocculation test for syphilis. how the antigen was prepared from the heart d tubes showing flocculation with this and rum. He then showed the parts played by com- l haemolytic serum in haemolysis, and how this s used in the Wassermann reaction. Examples ·ing strong positive, weak positive, and negative ·re shown.

HYDROTHERAPY.

of the London Association of the Medical ederation was held at the Elizabeth Garrett Hospital on November 13th, with Miss M. the President, in the chair.

A Veale read a paper on spa treatment at She spoke of the stimulus given to hydro- the discovery of radium and the presence of ·y in water, and of the further impetus which come of the war. Hydrotherapy was now defi- lished as a factor to be reckoned with in prac- eutics. Dr. Veale described the special features to as a spa, its geographical position and the r of its springs. She went on to discuss the com- special value of the various springs, explaining suitable for internal and which for external and deprecated the habit of sending patients ·hout confiding them to the care of a physician ·re. Mineral waters of any potency could not ken at any time and in any quantity, and the n attempt on the part of the patient to treat ·n ended disastrously. As to diet, in English dical practitioner had not the same advantages Continent, of being able to superintend the ·et. The Harrogate Medical Society had again ıttempted to solve the problem. The difficulty much with the hotel managers or with the with the patients' friends, who refused to be h simple diet. Patients came to Harrogate m many widely different complaints, as the spa, ied with springs containing both sulphur and was equipped with facilities for all sorts of ıur, peat, needle, electric, paraffin, wax, and ıths among others, and also for special treat- as the Ems system for throat and nose affec- e Plombières treatment for colitis.

H. Morris read a paper on the waters of Bath. ıt since the previous speaker had dealt mainly inical side of spa treatment she would refer ·he physical and physiological aspect of the ıportant discoveries had been made in recent the composition of the waters of Bath by the liam Ramsay; and at the present time research ·ing carried on at the Mineral Water Hospital l result in increasing the knowledge of the physiological action of the waters. A municipal laboratory had also been established in connexion with the Royal United Hospital, where pathological specimens were examined for the medical practitioners in Bath and the surrounding districts. The Bath waters were always classified as simple thermal waters until 12 volumes of helium in 10,000 volumes of the gases escaping from the King's Well were found by Lord Rayleigh. In 1903 Ramsay, working with Soddy, found that helium was one of the products of the change of radium, and in the same year Strutt discovered radium in the Bath waters. Experimenters were unanimous in holding that the effect of radioactivity was an increased activity of all the processes of nutrition and metabolism. There was increased oxidation, as shown by a rise in the percentage of all the urinary solids other than the chlorides. Also, there was multiplication of the red blood cells, and increased activity of the digestive ferments. The growth of bacteria was found to be retarded, if not inhibited, by radium emanations. This was well shown at Bath by the marked success in the treatment of gonorrhoeal arthritis. Also it was found that radium emanations stimulated the elimination of toxins, as shown by increased toxicity of the sweat. An exacerbation of symptoms was a common incident of spa treatment, and if the reaction was not severe, it was usually welcomed as a sign of progress. Such reactions usually set in after a week or two of treatment, and were soon followed by a marked improvement. The conditions deriving most benefit from treatment at Bath were simple chronic arthritis, chronic muscular rheumatism, progressive polyarthritis, infantile arthritis, and gonorrhoeal arthritis. Dr. Morris had had many patients suffering from subinvolution of the uterus and chronic pelvic inflammatory conditions who had derived great benefit from the vaginal douches; while the Plombières irrigations of the large bowel had cured many cases and relieved others of colitis, constipation, and post-operative adhesions. Treatment at Bath was contra-indicated for patients suffering from tuberculous conditions, and also for those suffering from contracted granular kidney. The baths had been much improved in the last ten years. Various different kinds of bath had been installed, and an entirely new electro- and physio-therapeutic department had been constructed.

An interesting discussion followed the papers.

MEDICO-LEGAL PRACTICE.

A paper on pitfalls of medico-legal practice was read by Sir John Collie to the members of the Harveian Society at the Town Hall, Paddington, on November 15th. Members of the Medico-Legal Society attended and took part in the discussion which ensued.

Sir John Collie advised medical men in medico-legal cases to conduct examinations in their own consulting rooms—the effect on the examinee was enormous. A solicitor's office was the last place for such an examination. He himself had refused to examine a case at a solicitor's office, and the point was taken to the Court of Appeal, who decided in his favour. He further advised medical men never to be in a hurry in examining a medico-legal case. A thorough examination should be made, and if the examinee asked, "What do you think?" the doctor should reply, "What I think I will tell the insurance company," otherwise he might be providing a rod in pickle for himself in the witness-box. Next the speaker advised doctors to "take notes at the time and preserve them." If a doctor as much as referred to notes when giving evidence he might be asked. "Were those notes taken at the time?" If they were not he would be told to put the notes in his pocket and to give evidence to the best of his memory. Sir John Collie said he himself had been frequently challenged upon typewritten notes which he had said were typewritten immediately after an examination, and in some cases he had been allowed to refer to them. The only safe course, however, was to take notes at the time and have them in the witness-box. Again, in writing a report a doctor must not allow sympathy to have any say in the matter whatever. They were all afraid of the law of libel, but if a doctor was to do his duty in making a

SECTION OF LARYNGOLOGY AND OTOLOGY.

E. B. Waggett, D.S.O., M.B., B.Ch., President.

DEFORMITIES OF THE SYPHILITIC NOSE.

BY

H. D. GILLIES, C.B.E., F.R.C.S.

There are three classes of deformities in the syphilitic nose, according to the extent of destruction caused by the disease:

1. A small amount of cartilaginous septum with mucous membrane may be lost.
2. The common type—loss of the bony cartilaginous bridge, combined with great destruction of the mucous membrane.
3. The same type of destruction as in Class 2, but with the additional destruction of some or all of the external skin.

The repair of the deformities varies according to the amount of destruction; in other words, the diagnosis of the deformity rests on the accurate estimation of the amount and character of the tissue lost.

Class 1.

In this class (which is not common) the deformity resembles that so often seen following a septal abscess or a too vigorous submucous resection. The deformity is confined to the bridge of the nose and is due to loss of the cartilaginous support. All that is necessary in this case is to supply by implantation a piece of cartilage of the shape and support originally given to the nose by the septum. The method of operating has already been described in the *Proceedings of the Royal Society of Medicine* of this year.

Class 2.

The common or typical syphilitic nose is to be severely distinguished from the above type in that there is a large loss of mucous membrane lining the nose in addition to the osteo-cartilaginous support. Consequently, in accordance with the principles which have already been enunciated, no satisfactory result can be obtained without supplying a substitute for the mucous membrane in addition to supplying a substitute for the missing bridge of the nose.

Many surgeons have attempted to repair this class of syphilitic deformity by means of cartilage or bone implantations, or even paraffin injections, without in the first place realizing the loss of mucous membrane, or, in the second place, of attempting to supply this element; and although in some cases an improvement has occurred, there is always a peculiar look about the nose which, even to the untrained eye, is strongly reminiscent of the disease from which the patient originally suffered; whereas, if the mucous membrane be regrafted, in one operation the whole character of the nose will be changed, and the syphilitic appearance of the patient entirely removed.

As will be described presently, it is not possible to graft mucous membrane, as such; consequently, thin Thiersch-grafted skin is made to take its place; but when this part of the operation has been successfully performed the nose takes on the appearance of a simple depressed fracture, which can be readily remedied by the implantation of cartilaginous support. This provision of a mucous membrane lining in a syphilitic nose is so important that the methods of introducing the skin graft should be described.

If the photograph (Fig. 6) be examined it will be seen that there is entire destruction of the whole osteo-cartilaginous support, and, in addition, an extreme retraction of the tip and alae of the nose, without any concurrent loss of the external skin; in fact, the skin of the vestibule is intact—the destruction having stopped short at the more resistant skin element—consequently you will find this skin of the vestibule firmly adherent to the margin of the altered pyriform opening.

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Figs. 1 and 2 show the condition before operation; Fig. 3 the result of the first operation—intranasal skin graft; and Figs. 4 and 5 the appearance of the patient (full face and profile) after the second operation—cartilage graft.

In order to bring the tip of the nose and the alae down *into their respective normal positions it is necessary to divide* freely their attachments to underlying bones. If the skin be undercut in this manner it is possible to pull the nose out like a concertina, and on examining the nose in its now normal position a very large raw area, uncovered by any epithelium, will be discovered facing the nasal cavity. It is this raw area that should be skin-grafted.

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 6 shows the condition before operation; Fig. 7 the result of the intranasal skin graft; and Fig. 8 the result after the second operation—cartilage implant.

Method of Operation.

The case is first referred to a competent dental surgeon, who makes a small removable cap splint for the upper teeth. To the centre of this splint an upright semi-flexible wire, with expanded ends, is attached; it should be of such a length that it will come to lie approximately under the raw area. The splint being already on the teeth, an incision is made in the upper buccal sulcus from one canine fossa to the other. The soft tissues are separated from the bone until the nasal cavity is reached and opened.

The incision is now carried up laterally until the alae are freed from their various vicious attachments to the remains of the pyriform opening. Still further the incision is carried up over the remains of the bony bridge to the root of the nose (care being taken not to injure the outside skin) and laterally to the region of the inner canthus on each side.

report he must express himself quite frankly, fairly, and fully. Certain spoken and written words were privileged. A judge, a witness, a proof of evidence, a medical report, were privileged. It was true such a report must not be malicious, but otherwise it could be as severe as the doctor liked to make it. A doctor could say of people that they were fraudulent or were malingerers, but it would not be libellous if it were given to the right person, provided it was the doctor's honest opinion. In the witness-box a doctor must never get angry. Counsel might be very provoking, and intentionally so, but the expert witness must keep calm. If counsel were rude the witness must remain civil and polite; it went to his credit. Then, when deciding whether a medico-legal case was a neurasthenic or a malingerer, "never be in a hurry to diagnose a malingerer." Sir John Collie remembered the visitor who asked of a hospital attendant how the patients in a ward were progressing, the reply being, "Oh, very well indeed, except for the malingerer in the corner; he died last night!"

Mr. Travers Humphreys spoke of his experiences in criminal cases, and said doctors did not give evidence as partisans but as experts, and he was delighted to observe that the medical witness was the only expert who could be relied on to give trustworthy evidence. Lawyers were very grateful to those members of the medical profession who practised as expert witnesses for the assistance they gave impartially to both sides.

Sir William Willcox spoke of the remarkable facility with which he had observed members of the Bar pick up medical points, and added that he himself always welcomed thorough cross-examination when he appeared in the witness-box.

Other speakers were Sir James Dundas-Grant, and Messrs. H. Tanner, Ernest Clarke, L. Jacobs, and T. Simpson Pedler.

IMMOBILITY OF PLANTS.

At a meeting of the Royal Medico-Chirurgical Society of Glasgow held on November 2nd, with the President, Dr. A. Maitland Ramsay, in the chair, an address was delivered by Professor F. O. Bower, Sc.D., F.R.S., on the immobility of the plant body.

Professor Bower said: The fact that ordinary plants are fixed in the soil and therefore stationary is so familiar that we pay little attention to it, and often remain quite blind to the far-reaching consequences which it entails. Since Darwin's book on the movements of plants was published it has become common knowledge that plants do move, though under restrictions by their encysting walls. The protoplasts of an adult tissue can only move within their restricting prison, and the plant as a whole is immobile. The rooted position is, however, clearly effective for purposes of photosynthetic nutrition. The immobile plant can nourish itself and provide food also for the rest of the organic world; but its immobility imposes restrictions which have affected the whole course of plant evolution. So long as water is the medium in which plants live, and the gametes are motile in it, and especially if there are means of directing their movements to the right spot, fertilization is possible for algae. In land plants, however, difficulties at once arise. By peculiar specialization mosses and ferns are still able to subsist on land, using "casual water" as the necessary medium for fertilization, but are thus necessarily restricted to habitats where "casual water" is at all events sometimes available. On the other hand, the fully fledged land plant has to do without it. This is the reason for all those wonderful pollination mechanisms which have become the playground of botanical science. Mechanical ejection, air and water transit, and animal agency play their part; and pollination, the necessary step to fertilization, is thus made possible for the immobile plant. When the seed is ripened a fresh difficulty arises in the spread of the seeds so that each shall have its chance. Again ejection, wind, water, and animal agency are called in, with curiously parallel though distinct results. There is yet another disability following from the immobile habit. The plant is the passive victim of predatory animals, being unable to escape by speed or cunning. Pasture grasses and clover and any fodder plants are the natural prey of the grazing animal. Their sole resource is to restore as quickly as possible the parts that have been lost. Some plants develop poisonous or offensive juices, while others are no doubt protected from attacks by snails by the sharp crystals called raphides which are embedded in mucilage; this swells as the tissues are gnawed, the cells rupture, and the sharp needles penetrate the delicate mouth of the marauder. It has been shown by experiment that even hungry snails avoid plants so protected. It thus appears that the whole evolution of plants has been overshadowed by the early sacrifice of mobility. Truly for them "C'est le premier pas qui coûte." Encystment, while it secures protection, raises also many difficulties, and the further evolution of the plant has largely consisted in living them down. The wonder of it is that plants have succeeded as well as they have done. Necessity with them has indeed been the mother of invention.

TUMOURS IN SEA FISHES.

A pathological meeting of the Liverpool Medical Institution was held on November 8th, the President, Dr. Hill Abram, in the chair. After the exhibition and discussion of specimens, Dr. J. Johnstone, of the Fisheries Laboratory at Liverpool University, gave a description of a number of cases of tumours found in marine fishes, mainly cod, skates and rays, turbot and halibut. A few of these tumours were identified as cutaneous papillomas, cystadenoma of the ovary, angioma, and myxofibroma. Some were simple capsulated fibromas. The majority, however, were sarcomas. These were found in all regions of the body, but always in the same tissues. Dr. Johnstone said that the tumours originated in the subdermal connective tissue and spread along the fibrous septa that cross the body and give origin to the systemic muscles. They spread by very active infiltrative growth, penetrating between the muscle bundles and even between individual muscle fibres. The latter atrophy and die over large areas. The sarcomata begin as fibrous growths and rapidly become highly cellular. Many were typically melanotic. There was difficulty in accounting for the multiple growths (or metastases) observed by transport of tumour cells in the blood vessels, and it was more likely that the lymph channels were involved. The tumours led to great emaciation and finally death of the fish. There seemed to be no evidence of the origin of these growths by local irritative agencies, nor could traumatic injuries be made possible causes. No instance of an undoubted carcinomatous tumour was found, though these were recorded by Gaylord and Marsh in domesticated trout and salmon. Some interesting questions were suggested by a study of malignant tumours in truly wild fish, and there was much need for extensive collection and investigation of all such conditions. The paper was discussed by Professors Beattie and E. Glynn, and by Drs. Wadsworth and Cooper.

TABES DORSALIS.

At a meeting of the West Kent Medico-Chirurgical Society, held at the Miller General Hospital, Greenwich, on November 9th, with the President, Dr. E. G. Annis, in the chair, Dr. Hildred Carlill gave an address on tabes dorsalis. His remarks were based on the case notes of 153 personally observed patients, and were illustrated by a large number of photographs taken by him. The importance of a pupil examination of all patients was emphasized, and the conditions other than syphilis in which the Argyll Robertson pupil might occur were mentioned. Dr. Carlill gave an account of the early symptoms of which a patient might complain, and also those which he commonly would admit provided he was asked about them. After discussing the clinical and pathological examination, Dr. Carlill urged that the condition might often be diagnosed prior to abolition of tendon jerks. Whereas the tests in serum and cerebro-spinal fluid were always positive at some period of the disease, they became negative, not only in connexion with treatment in certain cases, but also in process of time. Thus it was not always possible to obtain pathological confirmation of a clinical diagnosis of tabes dorsalis, but it was always possible in general paralysis. Examples were given of the association of tabes dorsalis with other syphilitic conditions, such as basal meningitis, focal vascular lesions, or gumma, and also with non-syphilitic diseases such as hysteria, lead palsy, alcoholic insanity, and epidemic encephalitis. Drs. Arthur Davies, Quinn, Garnett, Comber, White, and others joined in the discussion.

TREATMENT OF GONOCOCCAL INFECTION BY DIATHERMY.*

BY

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THE clinical investigation of the treatment of gonococcal infection by diathermy was commenced in the electrical department of St. Bartholomew's Hospital in 1913. An indication of the value of diathermy for this purpose was furnished by the results obtained in two cases of gonococcal arthritis. These cases had resisted long courses of treatment in the wards by other methods and were then sent to the electrical department. Diathermy was applied to the joints, and the results were so good that other cases of the disease were subjected to the same treatment. Equally encouraging results were obtained. It was therefore decided to investigate the effect of diathermy on gonococcal infection of other parts. Cases of epididymitis and orchitis were treated, and, afterwards, cases of endocervicitis and urethritis in the female and prostatitis in the male. Up to the present we have treated 67 cases. The purpose of this paper is to describe the results which we have obtained and to indicate our methods of procedure. The latter have been varied from time to time, and it is likely that further improvement will be suggested with gain of experience.

The reasons for the selection of diathermy for the treatment of infection by the gonococcus are the following. The organism mentioned can be destroyed at a temperature which is not high enough to damage the living tissues. In diathermy we possess a means of raising the temperature of the tissues *en masse*, whereas other methods of applying heat raise the temperature of the superficial parts only. The clinical results and bacteriological tests have abundantly justified the use of diathermy for the purpose mentioned, and the reasons just given furnish a rational explanation of the mode of action of the new method of treatment. In almost all our cases of gonococcal arthritis we were able, within a comparatively short period of time, to abolish the pain, reduce the swelling, and increase the range of movement; crippled joints were rendered useful, and patients who had been compelled to stay in bed before the treatment were able to walk about with a considerable degree of comfort after a course of diathermy. Cases of gonococcal orchitis and epididymitis without exception quickly lost their pain and swelling after diathermy, even if the symptoms were severe.

Convincing proof of the therapeutic power of diathermy in gonococcal infection was furnished by the disappearance of pain and swelling from joints or scrotum after the application of the treatment *to the site of the original infection*. Cases of gonococcal arthritis were freed from pain after application of diathermy to the urethra and prostate, or urethra and cervix, without the inclusion of the joints in the treatment. We have also had cases in which the application of diathermy to the joints did not procure much relief until the parts originally infected were included in the treatment.

We have applied diathermy to the urethra and cervix uteri in the female in cases in which these parts alone were infected. Such applications were followed by disappearance of the gonococci and cessation or diminution of the discharge. The failure to find gonococci in a discharge does not prove that these organisms are not present in the parts from which the discharge originates. But if repeated attempts to find them are unsuccessful and a mucous discharge alone remains—not excessive in amount, and without bacteria—it may reasonably be concluded that the treatment has been effective. Further proof of the efficiency of diathermy in the treatment of infection of the cervix and urethra is afforded by the fact above mentioned—namely, the subsidence of arthritis after application of diathermy, not to the joints but to the parts originally infected.

The treatment of gonococcal infection of certain regions, whether by irrigation, external applications, or vaccines, is unsatisfactory. This is the case especially with the joints, the cervix uteri and urethra in the female and the prostate in the male. Almost all the cases which we have treated had been previously subjected to other forms of treatment, and we were able by means of diathermy to procure success where other methods had failed.

Sensitivity of the Gonococcus to Heat.

Gonococci are destroyed if the temperature of the medium on which they grow is raised a few degrees above normal. Cultures of these organisms do not survive if they are left overnight in an incubator and the temperature of the latter has risen to 102°. Some experiments were made by Santos to ascertain the temperature and the length of exposure sufficient to kill cultures of gonococci. He found that exposures to 43° C. for seventy-six minutes, to 44° C. for fifty-four minutes, and to 45° C. for thirty-seven minutes were required. Laqueur injected emulsions containing living gonococci into the joints of dogs, and found that the joints which were exposed to diathermy contained a sterile fluid while those which were not exposed contained living organisms.

Cases have been noted of the influence of pyrexia due to other causes on coexisting gonorrhoea. One case was that of a man who had suffered for a long time from gonorrhoea which had resisted treatment. When residing in West Africa he acquired blackwater fever; on his recovery from the later the gonorrhoea had disappeared and did not return.

In addition to its direct action on the gonococci diathermy produces certain effects in the tissues which are prejudicial to the existence of the organisms. The increase of the supply of blood to the heated tissues probably has some therapeutic effect. The application of diathermy to mucous membranes causes an increased exudation of lymph and secretion of mucus. The drainage of the infected parts is thereby aided and it is possible that the heated lymph and mucus exert a germicidal action.

Treatment of Gonococcal Arthritis by Diathermy.

Our earliest experience of the action of diathermy on infection by the gonococcus was obtained in cases of arthritis. We shall therefore describe our experience in the treatment of this disease first.

The space at our disposal will not allow a detailed description of our methods of applying diathermy to different joints. It is necessary that the current should be directed *transversely* through the joints rather than longitudinally. The applications should last not less than twenty minutes each, and they should be repeated not less frequently than twice weekly. Longer and more frequent applications would probably procure quicker results.

In our first seven cases diathermy was applied to the joints only and the average number of applications was nine. Relief of pain was procured, however, by a considerably smaller number than nine, and the patients usually obtained some relief after the first treatment. Some of the subsequent cases did not obtain relief until the diathermy was applied, in addition, to the original site of the infection. It is now our custom, in all cases of arthritis, to apply diathermy to the urethra and prostate or urethra and cervix uteri as well as to the joints. Quicker and better results are obtained when this is done. In two cases, however, we were able to procure complete relief of pain by applying diathermy to the parts first infected without including the joints.

Up to the present time we have completed the treatment of 25 cases of gonococcal arthritis: 13 of these were in

* This paper is an abstract of a monograph which contains details of cases and particulars of experiments and methods. The monograph will be published as soon as possible.

le patients, 9 of whom had gonorrhoea when treatment diathermy was commenced; in the remaining 4 the charge had ceased before beginning the diathermy. In of the 12 female cases there was bacteriological idence of gonococcal infection; the remaining 6 had ginal discharge; one of them had sought treatment at e special centre and in another the radiological appearce of the joints suggested gonococcal arthritis.

Of the 25 cases 19 were in out-patients who came from e special centre for the treatment of venereal diseases. e others were in in-patients at St. Bartholomew's or the est Middlesex Hospital. Three of the cases had been d-ridden before admission to hospital. The ages of the tients varied from 16 to 56. In 7 cases one joint only as affected, two joints were involved in 8 cases, three ints in 4 cases, four joints in 2 cases, while in the maining 4 cases more than four joints were affected. e knee was involved in 17 cases.

With two exceptions the cases derived the greatest benefit om diathermy; pain was abolished, swelling was reduced, nd the range of movement was increased. Patients who ad required the use of crutches or sticks were able to alk unaided and resume their work. Others who had een unable to follow their occupation owing to pain in heir upper limbs were able to resume their work, and hree bed-ridden patients were able to get up and walk bout. In the cases in which the infection had persisted r long periods and caused thickening of the synovial embrane and ligaments and capsule of the joints and estruction of the articular cartilages slight swelling of e joints remained together with some limitation of movement. These cases were, however, freed from pain and nderness and the joints could be used without discomfort, that further treatment by other physical methods proured additional usefulness of the limbs. If the dire sults which may follow long-continued gonococcal arthritis be remembered (Osler described this condition as "in ny respects one of the most damaging, disabling and serious of all the complications of gonorrhoea") it may be claimed that the results of treatment by diathermy are far superior to those obtained by other methods.

In the two cases in which the results were less satisfactory we were unable to complete the treatment. One of these was that of a girl, aged 16, an in-patient, who had severe pains in many joints. The fluid from the cervix, on cultivation, grew one colony of gonococci. The application of diathermy *to the joints* procured some relief —she no longer screamed with pain when lifted from the stretcher on to the diathermy couch and was no longer sleepless at night. Diathermy was not applied to the cervix as general anaesthesia was necessary in order to pass a speculum. In the light of our later experience we are of the opinion that this patient would have derived complete relief if diathermy could have been applied to the cervix.

The other patient had to be discharged from the ward on account of unruly behaviour. During the period in which treatment was applied he derived some relief from the pain in his joints so that he had fair nights and his general condition improved. The discharge from his urethra did not entirely disappear, but he no longer passed clots of pus with pain and strangury, as had been the case before the treatment was applied.

Treatment of Gonococcal Orchitis and Epididymitis.

To apply diathermy to the testis and epididymis we have used electrodes made of sheet lead cut in a special way so that they can make even contact with the scrotum and its contents on the affected side. The other electrode was, in our first series of cases, placed on the hypogastrium. Afterwards we applied it to the prostate or penis in order to include the original site of the infection in the treatment.

Up to the present we have treated 26 cases. In no branch of treatment have we obtained results so consistently good and rapid as those following the application of diathermy to the testis and epididymis when painful, tender, and swollen as the result of infection by the gonococcus. Pain and tenderness diminish or disappear after the first application, and after the third there are no symptoms or signs of abnormality save slight thickening of the epididymis without tenderness on pressure. We have never found it necessary to give more than four applications and in the majority of cases three were sufficient.

It is usually stated that pain and tenderness will subside from the testis and epididymis when the urethra has been successfully treated by the customary methods. We have had cases, however, in which the urethral discharge had disappeared after treatment, leaving, however, pain, tenderness, and swelling of the epididymis and testis, which would not subside until diathermy was applied. We have also had cases in which diathermy produced the results above described even though a discharge containing gonococci was still present.

In cases which respond successfully to methods of treatment other than diathermy the pain and tenderness do not subside before six weeks have elapsed. With diathermy, however, the period of treatment is a week or ten days, and the number of applications rarely exceeds three. This number would probably produce the same effect if given in less than a week, but in hospital practice we cannot as a rule treat such cases more frequently than twice weekly.

Treatment of Gonococcal Urethritis (Female) and Endocervicitis.

During our investigation of the action of diathermy on gonococcal arthritis in the female we found that some of the patients did not derive much relief until the regions first infected were subjected to the same treatment. This indicates that diathermy has some therapeutic action on the urethra and cervix when infected by the gonococcus. In order to ascertain the extent of this action we applied diathermy to cases of gonorrhoea in the female in which there was no complicating arthritis and noted the effect on the gonococci and the discharge.

For the application of diathermy to the urethra and cervix we have conducted experiments and as a result have devised methods the usefulness of which we have investigated. For reasons of limitation of space we are unable to describe these or give details of technique. We have used a bougie electrode for the urethra and have found that the patients were sufficiently sensitive to heat in this part to prevent the application of a current which would damage the mucous membrane. This is not the case with the cervix. This part can be cauterized by diathermy without paining the patient. To apply a safe degree of heat a knowledge of diathermy currents and familiarity with their clinical use is necessary, but, briefly described, our procedure is to note the strength of the current previously used for the urethra and to apply an amount to the cervix proportional to the smaller extent of surface in contact with the bougie when it is in the cervix. Probably an easier method would be to use electrodes fitted with thermometers. At present we are occupied in the construction of such electrodes.

Up to the present we have treated 16 patients who, suffering from vaginal discharge, sought treatment at the special centre. Gonococci were found in 14, either in the urethra or cervix or in both parts. These patients had been subjected to treatment at the centre by the customary methods, and as the discharge and the gonococci did not disappear it was decided to try the effect of diathermy. Both the urethra and the cervix were treated and the average number of applications was four to each part. At the end of the treatment and at later intervals each case was examined bacteriologically. With one exception, no gonococci were discovered, nor were they found at later periods. The length of time for which the patients were under observation depended on the fidelity with which they obeyed their instructions to report for examination. It varied from two months to one year.

The failure to find gonococci is insufficient evidence of freedom from infection by these organisms. Four of our cases, however, stated that they were free from discharge and no discharge was visible on examination. Two of these cases did not report for further examination. The other

Reviews.

A SYSTEM OF SURGERY.

THE appearance of the second edition of the *System of Surgery*[1] by CHOYCE and BEATTIE was postponed owing to the war, but any disappointment caused by the delay is more than compensated by the care with which the volume has been prepared. Though the text is the work of various authors a high level of uniformity has been attained. All the articles are practical and well illustrated. There are some 150 new illustrations, including 50 new plates. All the previous contributors have not only revised, but in many cases rewritten, their articles, and the aid of several new writers has been enlisted. Thus the article on orthopaedic surgery has been rewritten by Mr. W. H. Trethowan, that on fractures by Mr. Hey Groves, that on *x*-ray diagnosis by Mr. Magnus Redding, that on tetanus by Colonel West, that on the ear, nose, and throat by Mr. Norman Patterson, and that on syphilis by Colonel Harrison. The recent advances in war surgery on vascular injuries, haemorrhage, fractures, infective wounds, and gangrene are included in the text, and gunshot wounds are only noticed when they have a bearing on civil surgery.

Volume I deals with: Surgical bacteriology (Dreyer), its therapeutic application (Eyre), inflammation (Beattie and Maynard Smith), suppuration (Lenthal Cheatle), ulceration (Pannett), gangrene (Nitch), wounds (Choyce), burns and scalds (Woodward), trauma (Russell Howard), toxaemia, septicaemia, pyaemia (Martin), tumours (Raymond Johnson), blood and cerebro-spinal fluid (Beattie), *x*-ray diagnosis (Redding); anaesthesia (Bloomfield, Gwynne Williams, and McGavin); tuberculosis (Beattie); syphilis (Harrison); venereal disease other than syphilis (Leedham-Green); tropical diseases (Daniels); glanders (Rock Carling); actinomycosis (Choyce); tetanus (West); hydrophobia (Calmette); anthrax (Philip Turner); diseases caused by animal parasites (Madden).

It is difficult to particularize in a work of such all-round excellence, but the articles which attract particular attention are those on gangrene, which is well classified and the treatment up to date; on tumours, which is remarkable for its good series of illustrations; and on *x*-ray diagnosis.

Volume II deals with: The breast (Sampson Handley); the spleen (Gordon Watson); malformations of the face, lip, and palate (Nitch); the tongue (Clayton Greene); salivary glands and floor of mouth (Back); the oesophagus (Rigby); stomach and duodenum (Sherren); intestines (Miles); appendix and peritoneum (Percy Sargent); hernia (McGavin); rectum and anal canal (Clogg); liver, gall bladder, and pancreas (Grey Turner); urinary tract (Thomson-Walker); genital tract (Russell Howard).

Diseases of the breast are very thoroughly dealt with by Mr. Sampson Handley, who includes an account of the pread of carcinoma by permeation, and of Paget's disease f the nipple, and a full discussion of operative methods and of the value of *x* rays and radium. He states that local recurrence is rare and considers the means which should be used to prevent it. Mr. Clayton Greene expresses a general pessimism on the subject of cancer of the tongue. He considers the ideal is to remove the tongue and glands at the same time, but if the two-stage operation is to be performed it is better to remove the glands first. He recommends the use of diathermy and removing the tongue right down to the hyoid, and quotes Quick's work on the treatment by radium. The arguments for and against the operation of choice on cleft palate and hare-lip are clearly put forth and well balanced. Mr. Nitch's conclusion is that Lagenbeck's operation performed between the ages of 18 months and 2 years gives the best results in the majority of cases, and that coexisting hare-lip should be operated upon at the age of 3 months. Mr. Sherren's article on gastric ulcer is specially clear and concise. Small chronic ulcers are treated by gastro-enterostomy and in "free" ulcers the cautery may be used in addition, but where the u is indurated, adherent, or suspicious of carcinoma pa gastrectomy should be carried out. Mr. Clogg's article on rectum and anal canal is a valuable contribution, in wl the operative measures on carcinoma of the rectum are summarized. Mr. Grey Turner in his article on gall sto holds the balance between cholecystostomy and cholecyst tomy, and enumerates the several conditions under wh each may be employed.

Volume III deals with the following subjects: Fem genital tract (Victor Bonney); cardio-vascular system (Ro Carling); lymphatic system (Dobson); the neck (Edmunds nose and accessory sinuses (Barwell); pharynx, nas pharynx, larynx, and ear (Patterson); direct examinatio of the lower air passages (StClair Thomson); lungs an pleura (Morriston Davies); nerves (Sherren); scalp, skull brain, spine, and spinal cord (Trotter); jaw (Fitzwilliams) skin and subcutaneous tissues (Legg); muscles, fasciae, an tendons (Rock Carling); bursae (Telford); diseases of bones and joints (Choyce); fractures (Hey Groves); orthopaedic surgery (Trethowan). Mr. Trotter's articles on the brain and spinal cord are a pleasure to read, and constitute a fine translation of the physiological and anatomical principles of the central nervous system into practical treatment. Mr. Trethowan has a vigorous article on orthopaedic surgery, and though, judging from the amount of small print in the text, his space is cramped, his style is not. He ends with a note on manipulative surgery, with the motto "when in doubt move," as applied to joints. Mr. Hey Groves in his article on fractures lays special stress on the subject of treatment, and it is pleasing to see new and up-to-date illustrations of splints, and the *coup de grâce* given to those old ones which have been handed down in textbooks from time immemorial. Mr. Choyce is at his best on diseases of the bones and joints, and his clear concise rendering of this subject is a model of information to the inquiring student. The principles of plastic surgery are included in Mr. Legg's article on the skin and subcutaneous tissues.

The editors express a modest hope that this work "may be regarded as a satisfactory example of the teaching of British surgery." It is more than satisfactory, and as a standard textbook on the surgery of to-day it has few rivals and no superior.

CLINICAL ELECTRO-CARDIOGRAPHY.

THE practice of electro-cardiography is becoming sufficiently common to justify a book of the character of Dr. WILLIUS's *Clinical Electrocardiography*.[2] In any case those who are more especially interested in heart disease find it essential to be able to understand the records obtained from the string galvanometer. The author has given us a book which, whatever its defects, will prove of considerable assistance to practitioners. A short concise description of the electro-cardiograph and the method of obtaining records is preceded by a brief account of the physiological considerations. The remainder deals with the various arrhythmias, their classification and recognition, and also with the prognostic significance of certain well defined deviations from the normal.

Dr. Willius has collected a large amount of valuable material dealing with this phase of electro-cardiography. He groups the deviations into those with T wave negativity, those with spread of the Q.R.S. complex, and those with a combination of the two. His figures indicate unhesitatingly that abnormal electro-cardiographs of this grade, other things being equal, carry with them a graver prognosis than when the electro-cardiograph is normal. He refers to 155 cases of angina and gives the electro-cardiographs of 46 cases. There is no specific deviation found to be characteristic of angina, but the average prognosis is graver when the electro-cardiograph is definitely abnormal.

Here and there the illustrative records are open to criticism. In fact in a few, such as Figs. 58, 76, and others, the interpretation is faulty. In some it is open to

[1] *A System of Surgery.* In three Volumes. Edited by C. C. Choyce, C.M.G., C.B.E., B.Sc., M.D., F.R.C.S. Pathological Editor, J. Martin Beattie, M.A., M.D., C.M. Second edition. London and New York: Cassell and Co., Ltd. 1923. (Med. 8vo. Vol. I, pp. xxiii + 1013; 245 figures, 77 plates. Vol. ii, pp. xv + 1057; 336 figures, 30 plates. Vol. iii. pp. xv + 1176; 329 figures, 41 plates. £6 net the set.)

[2] *Clinical Electrocardiography.* By ... D., M.S. in Medicine. Section on Clinic ... are Clinic, Rochester, Minnesota, and The ... of Minnesota. London and Philadelph ... Company. 1922. (Med. 8vo, pp. 188; 185 figures. 25s. net.)

perfectly prepared to call together my Consultative Council. I have been in communication with them yesterday and to-day, and wrote them a very long letter in reply to one which they sent me this morning.

Lieut.-Colonel Pownall inquired whether the Minister would arrange that the Friendly Societies should be represented, and Sir Kingsley Wood wished to know whether it was open to any insured person to go before this Court of Inquiry and give evidence as to the character of the panel service, and to urge that far too much money had already been spent upon it. Sir W. Joynson-Hicks: There are something like fourteen million insured persons, and if they all claim the right to appear the inquiry would be impossible. The Ministry have arranged that the Approved Societies, who represent to a large extent the insured population, will have the fullest rights to appear before the Court of Inquiry and state their views.

Lieut.-Colonel Nall asked whether, in the final consideration of this question, the chief interest to be considered would be that of the insured persons. Sir W. Joynson-Hicks: Certainly. The object I have had in all these negotiations has been to get an adequate and proper medical service.

Mr. Davies asked when the Minister would be able to state the personnel of the Court of Inquiry. Sir W. Joynson-Hicks: I have already dictated letters to three gentlemen whom I have asked to act, and I believe that those letters will be here to be signed by me within the next few minutes.

Sir Kingsley Wood asked whether the Minister could announce the terms of the inquiry—the form of the reference which was to be put before the Court. Sir W. Joynson-Hicks: No, sir, but it will be a very simple one. I have not drafted it yet, but I may say, without binding myself to the exact terms, that it will simply be to ask the Court of Inquiry to ascertain what is the correct figure to be paid to the doctors for the medical service they render.

Sir J. Butcher: Will it be open to the representatives of the panel doctors, as well as to the representatives of the Approved Societies, to appear before the Court of Inquiry? Sir W. Joynson-Hicks: Yes, sir; both parties.

Workmen's Compensation Bill.

On the report stage of this measure, on November 13th, Mr. G. Spencer moved for the addition of a clause to apply the principal Act to miners' nystagmus or its sequelae. The Under Secretary for the Home Department (Mr. Godfrey Locker-Lampson) pointed out that the effect of the amendment would be to add the disease to the permanent schedule of the original Act, and would allow of no modification of it by order. This would be true also of the sequelae. In the recently published second report of the Nystagmus Committee it was made clear that the definition of nystagmus was too wide. The amendment was rejected by 185 to 102.

Another new clause was moved by Mr. Lowth to include in the schedule "any disease or affliction of the eye attributable to, or aggravated by, the employment." The Solicitor-General said that if a case could be made out for the inclusion of a particular disease it would be included, but the amendment was too wide. It was rejected by 187 votes to 176.

On November 14th the Solicitor-General moved to insert, in place of a subsection passed in Committee, a new one to lay down that the power of the registrar of a county court, under paragraph 15 of the first schedule of the principal Act, to refer a matter to a medical referee, might be exercised on the application of one of the parties, as well as on the application of both, subject, however, to appeal to the judge. The new subsection further laid down that where the application was made by only one of the parties, the registrar or, on appeal, the judge, if he were of opinion that, owing to the exceptional difficulty of the case or for any other sufficient reason, the matter ought to be settled by arbitration, should refuse to allow the reference. If either the employer or the workman thought the case was one that might properly be decided by a medical referee, power was given for application to the judge to order such reference, subject to the condition that if it were a case of neurasthenia or nystagmus, where there was a conflict of medical opinion, the judge might say: "I had better hear the case myself, and do the best I can." It had been suggested as an alternative that there should be reference to three medical men, but that would mean, in a case of a difference of opinion, two would be on one side and one on the other, and be no better than having the opinion of one. Moreover, such a method was more expensive. A third alternative would be to leave the decision with the medical referee, subject to an appeal to the judge; but many people would object to that.

Mr. T. Shaw, on behalf of the Labour party, said they were strongly of opinion that in highly technical cases there should be a Board of Referees with at least three medical men upon it. The Labour party thought that that would be better than having the evidence of medical men on each side, presented as far as possible to represent the view of the party for whom the particular medical men were giving evidence.

Mr. Greaves-Lord held that the best tribunal would be to have a court in which a medical assessor sat with the judge. Where the decision was against the employer—in other words, where the medical referee said that the man was still suffering from the accident—no great injury would be done, even if the decision were wrong, for the case could ultimately be reviewed. On the other hand, if the medical referee decided that the man had wholly recovered from the injury, and that decision were wrong, the county court judge would have no discretion, but must terminate the compensation. A man might thus be deprived of compensation to which he was entitled for the rest of his life. If the subsection went through in its present form there would be an argument before the registrar with solicitors or even counsel on each side, and a similar argument before the county court judge. It would be better to have the hearing before a trained lawyer, with a medical referee sitting with him. In the course of the discussion Dr. Watts, speaking from experience as surgeon to many large works, and a medical referee for many insurance companies, expressed the opinion that the proper course would be to refer these cases to the county court judge, sitting with a medical referee. He did not remember a single wrong decision where a medical referee had sat in open court with the county court judge. Medical referees appointed by the Home Secretary under the Workmen's Compensation Act were men of the highest reputation, appointed in a great measure with regard to the experience they had had in industrial diseases or in surgical work in connexion with accidents. He was inclined to think there would be a more satisfactory decision from one than from two.

On a division the proposed subsection was carried by 242 votes to 128.

Clause 13, requiring an employer to furnish to a man a copy of the medical certificate under which it was proposed to end or diminish payment, limited the period within which a disagreeing certificate from a duly qualified medical practitioner could be put in to one week. It was extended to ten days.

The bill was read the third time without division.

Pensions and Allowances.

In reply to various questions Captain Craig has given the following information:

The total number of persons in receipt of pensions from the Ministry of Pensions in September, 1923, was 2,300,000, as compared with 2,638,000 a year previously. The details were as under:

	September, 1922.	September, 1923.
Officers and nurses	31,500	28,000
Officers' widows	9,500	9,300
Officers' dependants	6,700	6,600
Children of officers' widows ...	8,700	8,500
Men	783,000	671,000
Men's widows	157,500	154,000
Men's dependants	359,000	354,000
Men's wives and children	940,000	745,000
Men's widows' children	343,000	333,000
	2,638,900	2,303,400

Excluding the cost of administration, the total expenditure of the Ministry for the year ended March 31st, 1923, was approximately seventy-six and a half million sterling, as compared with an expenditure of seventy million sterling for the present financial year, a decrease of 8½ per cent. The cost of administration (including that of medical services) would, it was expected, have fallen from £4,241,600 for the year ended March 31st, 1923, to £3,598,000, for the current year, a decrease of over £640,000, or nearly 16 per cent.

It was not the case that men admitted to be suffering from disabilities aggravated by war service had, as a class, been precluded from receiving medical treatment with allowances from the Ministry of Pensions. All that had been done by the instructions to which reference was made had been to bring the practice of the Ministry in regard to minor disabilities (of less than 20 per cent.) as far as possible into harmony with the existing practice in regard to major disabilities. No amending warrant was necessary for the purpose. If in any case a few more lessons than twenty-five were necessary in lip reading for pensioners deafened in the war, the Minister would always sympathetically consider it.

Mental Treatment Bill.—One of the misfortunes of the dissolution, involving as it has the curtailment of the autumn session, is that the Mental Treatment Bill, introduced in the House of Lords on behalf of the Ministry of Health, and passed through all its stages in that Chamber, reached only the second reading stage in the House of Commons. As bills cannot be carried over from one Parliament to another the measure is now defunct, and it remains for a new start to be made.

Doctors and Midwives' Fees.—The Minister of Health has stated in reply to a question that he understood that the fees of midwives varied from 15s. to 30s. a case in rural areas, and from one guinea to two guineas in urban areas. He had no information as to the charges made by doctors attending such cases in their private practice, but when a doctor was called in by a midwife under the Act of 1918, he received a fee of two guineas from the local supervising authority. The services rendered for this fee were specified in a circular issued by his department.

question. On the whole, however, the illustrations are a helpful and valuable adjunct to the text, and the bibliography should prove most useful.

APPARATUS FOR THE IMPOTENT.

Dr. Gabriel Bidou is a civil engineer who has devised and manufactured and patented various mechanical devices for the treatment of deformity, and others to enable the disabled to employ to the best advantage such powers as may remain to them. We have already noticed two small books by Dr. Bidou on instrumental orthopaedics (1919) and on artificial muscular action (1921). His new book[3] is more pretentious, judging from the numerous illustrations. M. Bidou's appliances are ingenious, well designed, and well made, and the descriptions of them and of the principles on which they are devised should be useful to surgeons who wish to learn something of orthopaedic mechanism. As in his previous works, Dr. Bidou places great trust in so-called artificial muscles—that is to say, in springs. It is scarcely necessary to reaffirm the objection that springs cannot take the place of muscles except in so far as they antagonize existing muscles and act when the latter relax. Besides the apparatus referred to, Dr. Bidou manufactures artificial arms and legs (patented) and machines for mechano-therapeutics and correction of deformity.

Dr. Babinski recommends this work in a short preface, and refers to the good results which have followed the application of Dr. Bidou's instruments to his patients in the Hôpital de la Pitié in Paris.

THE PHYSICAL CHEMISTRY OF THE CELL.

The fifth edition of Professor Höber's treatise on the physical chemistry of cells and tissues[4] marks the ever deeper penetration of this branch of natural science into the fundamental problems of physiology. When the book first appeared chemists and physicists were only just mobilizing to the attack on the nature of the colloidal state and its peculiar energy relationships, the theory of electrolytic dissociation had but recently come into general currency, and the whole question of the energetics of chemical reactions was only slowly taking shape under the formidable title of thermodynamics. These deep movements of physical science had barely touched the fringes of physiological thought, yet there were those—and the author must be accounted among the first—who saw that these indeed were the lines of inquiry which were to lead to the intimate investigation of the living cell. To-day we are learning to look upon the cell not as a structure having localized affinities for certain dyes, but rather as a colloido-crystalloidal complex in a continuous state of disequilibrium in which the phenomena of assimilation, growth, movement, reproduction, and irritability are but the expressions of the physico-chemical reactions of this amazing complex. An explanation of the action of minute amounts of drugs, of hormones, and of enzymes, must be sought in the same field, and already the pathologist is turning to physico-chemical methods in the study of the disordered functions of the cell.

Such is the progress that Professor Höber is privileged to record in the pages of this new edition. He brings together the familiar with much scattered and unrecognized work, collecting them into a connected argument which gains much from the considered criticism of the author. He moves shrewdly and with a confidence which inspires courage in the reader through the wealth of material he has brought together. He seems to scent out the seeds of truth in this field so full of contradictions.

In the edition now before us the sequence of the discussion has been considerably modified, and it is obvious that new material has not merely been sewn into the old argument but has contributed to the remodelling of the whole. The phenomena of osmosis and permeability and their physiological significance, whose discussion had previously been scattered through the book, have in this edition been collected and extended to comprise the whole of the second part of the volume. This chapter will be welcomed as a valuable contribution to the interpretation of the perplexing difficulties of the physical chemistry of permeability.

A second volume is promised, and while it is unfortunate that its scope is not indicated in the first half it will be awaited with interest. If there be a serious physiological library that does not already contain Professor Höber's book the omission may now very suitably be repaired.

CLINICAL PERIODONTIA (PYORRHOEA).

Clinical Periodontia,[5] by Paul R. Stillman and John Oppie McCall, instructors in periodontia in the Columbia University, New York, is "a study of the causes and pathology of periodontal disease and a consideration of its treatment." The authors' main thesis is that "traumatic occlusion" is the primary factor in periodontal disease, or, as it is generally called, "pyorrhoea." We may say at once we do not think they have established their case. They define traumatic occlusion as "an abnormal occlusal stress which is capable of producing or has produced an injury to the periodontium." So far as we can gather it is most obvious in the crowded arches of "mouth-breathers," but the authors find it in practically every mouth. Should any tooth be found by digital examination to move, even slightly, on closure of the jaws, the presence of traumatic occlusion is held to be established. The loosening is attributed to injury to pericemental membrane and alveolar crest by impact in abnormal position of cusp against cusp, and the bacterial invasion is held to be secondary to the trauma. The remedy suggested lies primarily in orthodontic treatment or in grinding the cusps to remove abnormal contact. Secondary, but by no means unimportant, treatment lies in mouth hygiene and general treatment.

As we have said, we cannot follow the authors in their opinion as to the injury done by "traumatic occlusion"; the teeth are designed to take strain and stress in a large range of positions and directions, and periodontal disease (or "pyorrhoea") is as common in people whose articulation is within the limits of normal as in those with demonstrably abnormal articulation. None the less the book is worth the attention of all thoughtful dentists. The chapter on radiographic appearances contains an excellent study of the minutiae of pathological conditions revealed by the x rays; the microphotographs of early gum affections through the periodontal sulcus are perhaps unique, and none of the clinical appearances of "pyorrhoea" from the most to the least obvious has escaped the authors, except it be the hypertrophic bone conditions. The publishers claim that this book is the first serious attempt to deal with the subject of periodontoclasia (pyorrhoea alveolaris) in a really comprehensive way, and however this may be the book is a valuable addition to the study of "pyorrhoea alveolaris," or, as the authors prefer, "periodontoclasia."

PALAEOPATHOLOGY.

The Antiquity of Disease,[6] a volume in the University of Chicago Science Series, is attractively written and well got up. It is by Dr. Roy L. Moodie, Associate Professor of Anatomy in the University of Illinois and editor of the late Sir Marc Armand Ruffer's *Studies in the Palaeopathology of Egypt*, which was reviewed in our columns at the time (British Medical Journal, 1921, ii, 991). Palaeopathology deals with the evidences of disease and injury in animals and plants before the records of medical history—namely, up to the time of Hippocrates. The small volume before us is mainly devoted to the vertebrata in this connexion. A brief sketch, starting from Esper of Erlangen in 1774, is given of the history of the

[3] *Nouvelle Méthode d'Appareillage des Impotents.* Par Dr. Gabriel Bidou, Membre de la Société des Ingénieurs civils de France. Préface de J. Babinski, Membre de l'Académie de Médecine. Paris: Les Presses Universitaires de France. 1923. (Roy. 8vo, pp. 311; 153 figures. Fr. 25.)

[4] *Physikalische Chemie der Zelle und der Gewebe.* Von Dr. med. Rudolf Höber. Fünfte Auflage. I Hälfte. Leipzig: Wilhelm Engelmann. 1922. (Roy. 8vo, pp. xv+544; 81 figures.)

[5] *A Textbook of Clinical Periodontia.* By Paul R. Stillman, D.D.S., and John Oppie McCall, A.B., D.D.S. New York: The Macmillan Company. 1922. (Demy 8vo, pp. 240; 73 figures. 15s. net.)

[6] *The Antiquity of Disease.* By Roy L. Moodie, Associate Professor of Anatomy in the University of Illinois. Chicago, Illinois: The University of Chicago Press. 1923. (Cr. 8vo, pp. xiv+143; frontispiece and 56 figures. 1.50 dols., post paid 1.60 dols.)

Venereal Diseases.—Captain A. Evans asked, on November 16th, whether Clause 16 of the Trevethin report, dealing with the expenditure of money for reducing venereal disease, had yet been considered by the Government; whether the question of Government financial assistance in the work had yet been decided; and whether in view of the fact that the Society for the Prevention of Venereal Disease and the National Council for Combating Venereal Diseases had both unconditionally accepted the Trevethin report, and had met in conference and had determined on joint action for giving effect to the recommendations, he would cause the maximum grant which was to be made by the Government to be divided in an equitable proportion between the two organizations. The Minister of Health replied that the recommendations in the report were now under the consideration of the Government. He was not yet in a position to say how any Government grant for the purpose mentioned had been allocated.

Tuberculosis Order, 1913.—The Minister of Health has received representations from local authorities urging that the tuberculosis order of 1914, which was suspended during the war, should be put into operation. The cost, however, was estimated at £80,000 from the Exchequer, and about twice that sum from local authorities. In the present financial stringency the Ministry would not feel justified in reviving the order in view of the small number of local authorities who had expressed their wish for its re-imposition.

Glycerinated Calf Lymph.—The Minister of Health stated that in view of the fact that there was no difficulty in obtaining from reputable firms supplies of glycerinated calf lymph of reliable quality, he did not think it necessary to accept the suggestion that a supply of the Government lymph should be made available to private medical practitioners. It would involve a large and costly extension of the present Government supply.

Dried Milk.—The new regulations as to dried milk make provision for a minimum fat content, and for suitable labelling, including the use of the words "Unfit for babies" in the case of skim milk. It was necessary to allow a period of several months before bringing the regulations into force, in order to enable manufacturers to comply with the requirements as to the composition of the product, to print new labels, and to put the milk into circulation in retail shops. The question of making regulations affecting other milk products was being considered by the Minister of Agriculture.

Answers in Brief.—The figures at present available show a lower expenditure on sickness and disablement benefits from the National Health Insurance Fund in the first three quarters of the present year than in the corresponding period of 1922; the total expenditure on those benefits is within the actuarial estimate.

PERSONAL RELATIONS BETWEEN MEDICINE AND LITERATURE.

LECTURE BY MR. EDMUND GOSSE BEFORE THE ROYAL COLLEGE OF PHYSICIANS.

AT the Royal College of Physicians of London on November 20th Mr. Edmund Gosse, C.B., LL.D., delivered the first David Lloyd Roberts Lecture, taking for his subject "Personal relations between medicine and literature." Sir HUMPHRY ROLLESTON presided over a distinguished gathering.

David Lloyd Roberts.

Mr. GOSSE began with an appreciation of the man under whose bequest the lecture was founded. Roberts was not personally known to him, but he had had the advantage of consulting several eminent men who knew him well, in particular Dr. W. E. Fothergill and Dr. Herbert Spencer. This old Manchester physician was born not later than 1835, so that he was at least 85 when he died in 1920. He coyly deprecated his years, and once, on complaining of his health to his lady patients and murmuring, "I shall never see eighty," one sharp spinster reproved him by saying, "You will never see eighty again." He was a self-made man, who retained a certain roughness of speech and oddity of manner which revealed an undisciplined individuality. Dr. Fothergill said that it was the sight of a lifetime to see him cauterize a carcinomatous cervix with a series of red-hot pokers. This conveyed to the lecturer's vision an image of confused violence and unbridled eccentricity, reminding him of Goethe: "Who would ever become a doctor if he could foresee the horrors which face him in that profession?" Another witness in a thumb-nail sketch pictured Roberts in his old-fashioned brougham, peering out with great vivacity on both sides of the roadway so as to miss nothing in the silversmiths' and booksellers' windows. He was a booklover, a collector in the best sense of the word, quick to perceive the value of an acquisition, eager to enrich his shelves, ready to exchange a moderately excellent specimen for one supremely good. He left his library to be divided between the John Rylands in Manchester and that College—the secular books to the one, his medical books to the other.

The Two Professions.

The lecturer was anxious to approach his theme in the spirit which Roberts would have approved. If he failed he had less excuse than most men, for his communications with doctors and surgeons had been peculiarly agreeable. With Pope he could say, "There is no end to my kind treatment from the faculty. They are the most amiable companions and best friends, as well as the most learned men I know." In his own first youth it was his ambition to be a surgeon, and in fact he proceeded some little way in an imperfect preparation for an art for which he found himself constitutionally unfitted.

That men of letters and medical men had for centuries betrayed an identity of sympathy not to be found existing between doctors and men of any other profession might be taken for granted, and he would call to remembrance some eminent and perhaps some obscure examples. Diderot said that if human nature was to reach perfection the means must be found in the practice of medicine, and from all time the aim of literature had been the same. In both professions close and accurate observation of nature had been the basis of all advance. Literature was a criticism of life, and the same was true of medical science as of no third profession or art which he could call to mind. The effort to reach perfection in writing closely resembled the same effort in medicine, where it was not a purely technical but a metaphysical ideal which was ultimately aimed at. The more such philosophical speculations were examined the more assured would appear the sympathy existing between the one mode of envisaging life and the other.

It had been usual to group together medical men who had given literary form to their professional experiences and those who had written in poetry or prose on subjects independent of their professional work. He thought it important to keep these two classes as distinct as possible. It was plain that not everything printed in Latin or Greek, any more than in the vernacular, was literature. That almost incredible work, the *English Pharmacopoeia* of 1618, was no more literature than the prattle of popular almanacs. There was seldom any solicitude for form among the compilers of such old works. But the greatest of ancient physicians were nevertheless conscious of the permanent value of literary ornament. Ambroise Paré noticed that Hippocrates wrote so that he might be understood by the women and girls who talked no language but Greek, and to achieve this end he wrote with that attention to form which was the distinguishing mark of literature. It was not easy to say when these functions were distinctly combined in a published work. No criticism was necessary to show that the author of *Religio Medici* was a man of letters, but what was the position of his illustrious contemporary Sydenham, of whom it was said that he did communicate at divers times to the world the useful observations he made in the course of his practice? On the other hand, there need be no hesitation in placing out of court the scribblings of the seventeenth century quacks with their velvets and their dried crocodiles and their stuffed owls.

The School of Salerno.

The famous school of Salerno in southern Italy was the nucleus of medical education in the early Middle Ages. In the dismal ninth century, when culture was perishing elsewhere, this little lamp shone at Salerno. The general tone of Europe was one of priest-ridden terror and abandonment to superstition and ignorance, but at Salerno they were eminently sane, preferring experience to conjecture, and centering their healthy interest in the body, not in vague researches into the nature of the soul. Sir Clifford Allbutt had noted that the professors of Salerno wrote in clear natural language, not the unfiltered jargon of the schools. The Greek spirit and something of the Greek language lingered here. There flourished in the ninth century in France a physician called Floridus, probably the earliest physician-poet, who wrote an enormous construction of

science of palaeopathology, the name introduced by the late Sir Marc Armand Ruffer.

Disease seems to have been entirely absent from the early and middle palaeozoic periods, and many groups or animals became extinct before its advent. Apart from injury the earliest form of pathological process was parasitism, preceded by mild forms of communism and commensalism; it was thus probably disease arose. The most ancient bacteria were non-pathogenic, and it appears probable that a wide distribution of bacterial disease is in geological time a comparatively recent phenomenon, going back a few million years, which in comparison with the scores, possibly hundreds, of millions of years that plants and animals are thought to have existed is a very brief time. Palaeopathology, by studying morbid processes over a great period, should help in solving present problems. The oldest known tumour of bone, a haemangioma of the vertebrae of a large dinosaur, forms the frontispiece, and there is a figure and an x-ray picture of the oldest known fracture, in a long-spined reptile of the Permian period.

In the chapter on disease and injury in fossil man the absence of any definite evidence of syphilis is pointed out, and the tuberculum of Carabelli is shown to be a dental anomaly found in fossil man and, though hereditary, quite independent of syphilis. Among the ancient Peruvians, who with the North American Indians and the ancient Egyptians are the only primitive peoples whose pathology has been much investigated, the occurrence of uta, a disease then and sometimes even now mistaken for syphilis, makes it difficult to decide as to the existence of the latter disease. In the interesting account of primitive surgery, which grew out of shamanism, or the efforts of the shaman, medicine man, or priest to let out evil spirits, an account of prehistoric trephining, common 10,000 years ago in the Neolithic period, rightly receives attention; it was frequently performed for headache and often more than once.

In conclusion, it may be said that this well written book is a useful introduction to this comparatively new and expanding subject.

ATOMIC STRUCTURE.

In *The A B C of Atoms*[7] Mr. Bertrand Russell has been as successful as is perhaps possible in presenting the new theory of the constitution of the atom and all that it implies for the comprehension of the average educated person. The book is not long; the first part goes over the general ground traversed by Sir Ernest Rutherford in his presidential address to the British Association (British Medical Journal, September 15th, p. 474). So far the matters discussed can be more or less visualized, although Mr. Russell warns his readers that

"Our imagination is so incurably concrete and pictorial that as soon as we depart from the language of mathematics we have to express scientific laws in a language which asserts much more than we mean to assert."

"We speak," he continues, "of an electron as if it were a little hard lump of matter, but no physicist really means to assert that it is. We speak of it as if it had a certain size, but that also is more than we really mean. It may be something more analogous to a noise, which is spread through a certain region, but with diminishing intensity as we travel away from the source of the noise. So it is possible that an electron is a certain kind of disturbance in the aether, most intense at one spot, and diminishing very rapidly in intensity as we move away from the spot. If a disturbance of this sort could be discovered which would move and change as the electron does, and have the same amount of energy as the electron has, and have periodic changes of the same frequency as those of the electron, physics could regard it is what an electron really is without contradicting anything that present-day physics means to assert."

The real trouble begins for Mr. Russell and his readers when he gets to the theory of quanta, and Bohr's application of it to the atom. There are some who can understand mathematics and some who cannot, just as some have fair hair, and some have not: it is as absurd for the mathematician to despise the non-mathematically minded as it would be for the dark man to contemn the fair because of the deficiency of pigment in his hair. Mr. Russell very nearly succeeds in avoiding mathematics altogether, presenting his grateful readers with the final conclusions the mathematicians have reached. He leaves aside almost completely the effect these theories are likely to have on chemistry, thinking, perhaps, it is a subject for the future; but as Sir Ernest Rutherford said, there can be little doubt that the next decade will see an intensified attack by physicists and chemists on this very important subject of molecular structure. Certain investigations already made favour the idea that shared electrons play a part in the electronic structure of two combined atoms.

[7] *The A B C of Atoms.* By Bertrand Russell, F.R.S. London: Kegan Paul, Trench, Trubner and Co., Ltd.; New York: E. P. Dutton and Co. 1923. (Cr. 8vo, pp. 175. 4s. 6d. net.)

THE WASSERMANN REACTION.

If any member of the medical profession is making a hobby of collecting the different methods, modifications, and innovations of the Wassermann reaction he must secure a copy of Dr. G. Rodillon's little book, *La Réaction de Wassermann reduc Simple et Précise.*[8] Therein he will find an account of Dr. Rodillon's method, and it may even happen that amongst the methods described he may find one or more that are new to him. Dr. Rodillon's book is of modest design; he does not commence by denouncing all his predecessors, but generously does justice to nearly twenty methods older than his own. Even for his own method his claims are modest, for he declares that if serologists do not feel inclined to discard other methods for this, he will be happy if they will experiment with it as a control to them.

The other methods described in this book require no comment, for those that have merit are already well known and are described in standard textbooks. The novelty of the author's method consists in the fact that he divides the patient's serum into two parts; one part (four-tenths of the whole) is inactivated for five minutes at 56° C. and the other part is not inactivated and provides the complement. The only ingredients required for the test are the patient's serum, diluted antigen, normal saline, and sheep's red cells. His method, therefore, belongs to that group of modifications of the Wassermann reaction which dispense with either complement or amboceptor derived from other animals and employ the notoriously variable quantities of these substances present in the patient's blood.

NOTES ON BOOKS.

The admirable little book entitled *The Health of the Runabout Child*[9] by Dr. William Palmer Lucas is aptly summarized by the author's phrase, "The journey from mother's lap to the school gate." It is an excellent book on the upbringing of the toddler. The chapters discuss in simple and very clear language the effect of heredity, the physical and mental standard which should be expected at each year's end, and what to beware of in the period from 2 to 6 years. The physical requirements and training of the child are expatiated upon, and a variety of good diet tables is added to the chapter on feeding. The author urges the necessity for community effort for health along the lines of prevention of disease, and quotes from Mr. Hoover: "Every child that is a delinquent in body, education, or character is a charge upon the community as a whole and a menace to the community itself." Emphasis is also laid on the mental training of the runabout child, whose psychology is briefly touched upon. "Play and work are simply attitudes of mind toward life." We strongly recommend this book to all intelligent parents and to others who also realize the responsibility of setting the feet of little children on the right path.

The second edition of *Abdominal Surgery for Nurses*,[10] by Mr. Harold Burrows, will continue to be of great use to nurses who are interested in accomplishing their work intelligently and helpfully. The section dealing with shock has been rewritten and the entire book brought up to date. Simple and clear instructions and explanations are given for the guidance of the nurse in the more common abdominal operations. The aim of the author is to instruct her not only to be aware of possible complications incidental to abdominal surgery, but to explain to her the line of treatment of the surgeon.

[8] *La Réaction de Wassermann reduc Simple et Précise.* Par G. Rodillon. Paris: A. Maloine et Fils. 1923. (Cr. 8vo, pp. 160. Fr. 8.80.)

[9] *The Health of the Runabout Child.* By William Palmer Lucas, A.B., M.D., LL.D. New York: The Macmillan Co. 1923. (Cr. 8vo, pp. 223; 2 illustrations. 8s. net.)

[10] *A Manual for Nurses on Abdominal Surgery.* By Harold Burrows, C.B.E., M.B., B.S.Lond., F.R.C.S. Second edition. London: The Scientific Press, Ltd. 1923. (Cr. 8vo, pp. 144; 15 figures. 4s. net.)

and conjectures of science, and this was obviously the method followed by the school of Salerno, for whose physicians and pupils the literary habit of mind was attractive. A leading Salernian recommended verse as a medium for medical and surgical statement. The lecturer could not accept the view that the metrical shape was preferred because it offered a means of committing didactic information to memory; there must have been a great deal more than that in the medical poetry of the school of Salerno. He mentioned the *Regimen Sanitatis*, by John of Milan, addressed to laymen, not to the faculty, but extensively copied, and at last published in English in 1607. It was impossible to believe that this was not a definitely literary enterprise. Evidently the influence of literature on medicine was actively exercised in the now shadowy school of Salerno.

Sir Thomas Browne and his Contemporaries.

Abruptly taking his audience to England in the seventeenth century, the lecturer remarked the complaint of a Scottish physician of the age of Shakespeare that the Latin language was not friendly to the sacred founts of the medical art. This was a great discovery in an age when it had been as indecorous to write of physic in any language but Latin as to walk in the streets without a wig. The illustrious Ambroise Paré wrote almost ostentatiously in his own French, and it was after the works of Paré had been translated into English early in the seventeenth century and had influenced our physicians to express their views in their native tongue that, whether as coincidence or result, Sir Thomas Browne began to compose his *Religio Medici*. That famous book was the earliest in which the harmony between the physician and the man of letters was complete. It was written to discover how religion bore the test of scientific training and to combat the prevalent worldly belief that the anatomist could have no piety.

In the closing year of the Commonwealth there appeared a medical poem in English, *The Plague of Athens*, not, however, written by a doctor, but by a clergyman, Thomas Sprat, afterwards Bishop of Rochester. What was really in Sprat's mind was not the record of Thucydides, but the terrible and unprecedented epidemic which had recently laid Naples waste. It was an extended poem; one of its suggestions was that the doctors themselves helped innocently to disseminate the plague. Against that should be quoted Massinger's tragedy, *The Virgin Martyr*, in which the distracted father welcomed the physicians to his son's bedside: "Turn your mysterious Aesculapian science to increase the number of this young man's days." John Locke, in his *Essay on the Human Understanding*, introduced views of health to which no philosopher would have given literary form half a century earlier. Locke's friendship with Sydenham was not to be overlooked in this connexion, nor the strong approval given by the latter to a man of letters who seemed never to have taken his medical degrees. Locke was a figure whom neither the Royal College of Physicians nor an Academy of Letters (if there were one) could officially recognize; both as writer and physician he was the amateur incarnate; nevertheless, he appeared at this critical moment to supply a valuable instance of the growing harmony between literature and medicine. When Browne with his divine ecstasy and Locke with his tolerant candour had taught the world to treat ideas as the anatomist treated the human body, the professions were brought into a union which could never be broken up again into the discord of the Middle Ages.

Sir Richard Blackmore and Sir Samuel Garth.

When the lecturer was considering this subject, the eminent Harveian Librarian of the College said jocosely, "I suppose you will resuscitate Sir Richard Blackmore." As a pupil of Sydenham he left Blackmore in their hands, but as an epic poet not even Phoebus Apollo could resus-

and the doctorate of physick at Padua. He
than 45 when he produced the epic poem *Pr*
singularly vapid and futile, but savagely a
because it was bad poetry, but because a phy
it. Two years later he published *King Arth*
pages), and stated that its couplets were con
went from door to door.

> In leisure hours in epic song he deals,
> Writes to the rumbling of his coach's w

The multifarious seventeenth century was
when the last embargo dividing literature fr
was removed. It was broken down by Sir Sa
an ardent member of the Royal College of Ph
its Harveian Orator. He practised among the
residents of St. James's, and held converse
perfect equality with the wits in the coffee ho
was not a poet among physicians or a phys
poets, but a poet among poets and a famous d
famous doctors—according to his contemporari
son of Apollo. His great mock-heroic poe
pensary, first issued in 1699, dealt with a feud
the incidents of which he brightened by his o
but the significance was that in that poem t
literature and medicine were recognized as on
of importance. Critics found little pleasure
poems, but this one continued to interest bec
bined in so curious a manner the best half-so
age with the best half-poetry. In the last
seventeenth century John Dryden died. Garth
body, brought it to the Royal College—then
Lane—had it embalmed and laid in state, and
later pronounced a Latin oration over it, an
ducted a company to Westminster Abbey, w
deposited in the Poets' Corner.

John Arbuthnot, Physician and W

The reign of Queen Anne, with all its short
far more cultivated and humane than any a
The physician was welcomed at all clubs and
where he introduced an element of humanity
rience of suffering and patience which was
his more volatile companions. Prominent
physicians was Dr. John Arbuthnot, whose
sought by the most eminent contemporary
whose name would live in a celebrated outbu
Arbuthnot sat in the circle of wits as "our
man." On both Pope and Swift, who were inva
and nervously irritable, he exercised a soothi
and his society was equally congenial to the
members of the immortal band—Gay, Steele, C
others. John Arbuthnot was an Aberdonian
in London, and owed his success and his
court physician to an accident at Epsom,
the only doctor available to attend a pri
quarter of a century he was a planet in the
of wits, to which he added a lustre of his
spoke of him as a star which looked all fire, b
all benignity, all gentle influence. He fell o
with the court, but never with his literary
whom he could still afford the poet's half-p
and a warm welcome.

Of the other poetical physicians and docto
eighteenth century it would be entertainin
Some of them had never been received within
of the College—John Armstrong, for instance
Goldsmith. But he would not expatiate on
their successors, right down to our living Po
who was a Fellow. He would like to close w
to the great and gentle John Arbuthnot, wh
the friendship between literature and medic
Lloyd Roberts had chosen to perpetuate his
relation of the two professions in sculptur
oratory, he thought that a statue of the au
History of John Bull (Arbuthnot), with bu
Steele, Swift, and Gay at the corners, wou

The Public Schools and the Great War (1914–1919),[11] by A. H. H. M., contains a list of 362 officers in the various services, excluding the navy except the Royal Naval Division and the Marines in land operations, who received the honour of knighthood or higher distinctions. Of those 362 officers, 254 were educated at public schools, and 48 were serving in medical capacities or with the Red Cross. A list of the various schools is headed by Eton with 35 knighthoods or higher distinctions, followed by Wellington with 24, Marlborough with 17, Cheltenham with 15, Harrow with 14, Winchester with 13, and Charterhouse and Clifton each with 11. Of all the officers who served in the armies of the British Isles, an average of about 13.5 per cent. lost their lives as compared with about 10 per cent. in the ranks, but among the great public schools the percentage was in almost every instance not less than 20. This inquiry was not extended to the navy in general because boys pass into that service at an age which precludes their having been at a public school, except possibly for a very short time.

The Medical Clinics of North America is a periodical published every other month. The first number of the seventh volume is an octavo of 314 pages, and contains a series of twenty-eight papers from the Mayo Clinic and the Mayo Foundation for Medical Education and Research. Among the papers are four dealing with insulin and its use in the treatment of diabetes. The periodical is published by the W. B. Saunders Company of London at the price of 55s. a volume in paper or 75s. bound.

Under the title of *Pour Passer le Temps*, by "The Bugler," Dr. ALEX. FRASER, of Burnage, Manchester, has collected a number of verses and short notes which he wrote in 1917 and 1918 to amuse his friends in the 57th General Hospital, B.E.F., at Boulogne, and later at Musso, near Marseilles. The verses illustrate the fine spirit of camaraderie that existed in the hospital, and should recall pleasant memories to readers who were upon its staff. The little volume is well produced, and is published by Messrs. Sherratt and Hughes, Manchester, at the price of 2s. 6d.

Milton Agonistes: A Metaphysical Criticism,[12] by Mr. E. H. VISIAK, is the work of a devoted student and admirer of the author of *Paradise Lost*. He seeks to show that whereas Shakespeare's individuality is in abeyance in his writings, Milton entered the dream domain of his genius as a self-conscious artist, with the result that his characters became himself, not he his characters, and his personality is plainly imprinted upon his works.

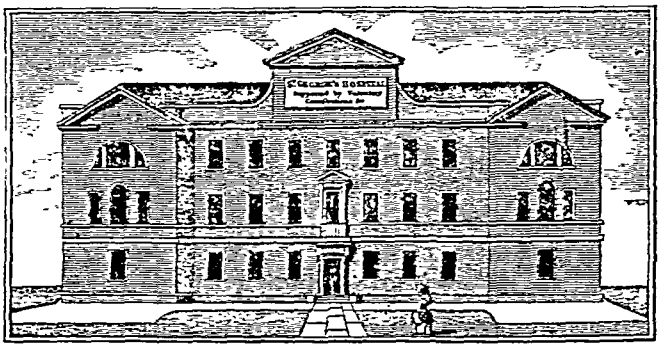
[11] *Public Schools and the Great War (1914–1919)*. By A. H. H. M. London: Edward Stanford, Ltd. 1923. (Demy 8vo, pp. 20. 1s. 6d.)

[12] *Milton Agonistes: A Metaphysical Criticism*. By E. H. Visiak. London: A. M. Philpot, Ltd. 1923. (Cr. 8vo, pp. 104. 3s. 6d. net.)

Nova et Vetera.

A CONTRIBUTION TO THE HISTORY OF ST. GEORGE'S HOSPITAL.

THE foundation of St. George's Hospital, as is well known, originated in a difference of opinion among the Governors of the Westminster Hospital in 1733. That institution had outgrown the building in York Street, occupied since 1720, and in 1733 it became necessary to find larger premises. The majority of the Governors decided to purchase a house in Thomas Street as an addition, but this was contested by a small but influential minority, which included the consulting physician, Sir Richard Mead, and the three principal surgeons, one of whom was William Cheselden, who contended that Lanesborough House, then standing near Hyde Park Corner, was "better adapted for a hospital than any other available site on account of the strength of the building and of the airiness of the situation."



Both Sir Richard Mead and Sir Hans Sloane took a personal interest in the new institution, and it was opened with 30 beds—soon increased to 60—on January 1st, 1734. An interesting document, which appears to have been hitherto unknown to the present authorities of St. George's, has recently been discovered, and is now in the Wellcome Historical Medical Museum. It consists of a folio sheet of three printed pages with a fine woodcut headpiece and initial, and throws an interesting light on the foundation of the hospital. It reads as follows:

An ACCOUNT of the Occasion and Manner of Erecting the Hospital at Lanesborough House, near Hyde-Park-Corner. Published by Order of the General Board of GOVERNOURS there, Wednesday, February the 6th, 1733.

Several well-disposed Persons having long observed that there was no Hospital within the Liberty of Westminster, for the Relief of the many poor, sick and lame Objects that offerd; and that such an Hospital was absolutely necessary in so large and populous a City; those in London being by no Means sufficient: They therefore agreed to set on Foot a Subscription for an Infirmary there, to relieve such poor, sick and lame Persons as should appear to the Subscribers to be proper Objects of Charity.

Accordingly in the Year 1719 a Subscription was opened, and a House was taken and fitted up in Petty France,* which being found to be too small, they in the Year 1724, removed to Chapel-Street, where they have ever since continued. In both these Places great Numbers have been cured, as appears from their printed Accounts, under the Care, and by the Charitable Assistance of Dr. Alexander Stuart, Physician to Her Majesty, Dr. George Lewis Teiffer, Physician to His Majesty's Houshold, and Dr. William Wafey, as Physicians; and Ambrose Dickins, and Claudius Amyand, Esqs. Serjeant Surgeons to Her Majesty, and William Cheselden, Esq; Surgeon to Her Majesty, as principal Surgeons, and Mr. James Wilkie as Surgeon in Ordinary. These Gentlemen were all subscribers to this Charity; and to their concurring Labours the Society have always hitherto most thankfully acknowledged the Preservation of the Lives of their Patients, under God, to be owing.

About two Years since the Stock of the Society encreasing beyond Expectation, and their House being still too small, as well as old and ruinous, it became necessary to remove; and therefore Advertisments were publish'd by Order of the Board for several Weeks together, enquiring after a large and substantial Building, in an airy Situation, within the City, or Liberty of Westminster.

At Length some Houses of Mr. Green's in and about Castle-Lane, in the lower Part of Westminster, and Lanesborough House, in the higher Part of it, being propos'd to the general Board, a Question arose which should be preferr'd. The Majority were for the Former; and they accordingly voted that Mr. Green's Houses were convenient for them, and that Lanesborough House was not so; and they appointed a Committee finally to agree with Mr. Green. The Minority, tho' over ruled, were not convinced.

Among the Minority were all the above-named Physicians and Surgeons, together with several who had been concerned in the Charity from its first Establishment, and some who had laid the Foundation of it several Years before, besides many others who had been very active and useful Instruments in carrying it on since. All these (whose Subscriptions at Lady-Day last, with those of their Friends, brought in by them, have been computed to amount to above the Half of the Whole) were of Opinion that there was no Place about this Town more proper for their Purpose than Lanesborough House.

An Hospital there, on Account of its Neighbourhood, could give no offence to any one; the Building was large and strong, and many of the Rooms were so contriv'd, as if they had been built for the Uses to which they were now to be apply'd; it was near enough to the Town to be supply'd with all the Necessaries that would be wanting, so near that the Governours might attend without Inconveniency, and yet far enough for the Patients to have the Benefit of a Country Air, which, in the general Opinion of the Physicians, would be more effectual than Physick in the Cure

* Now called York Street, Westminster.

E SIGNIFICANCE OF THE BRAIN-STEM IN [USCLE TONE AND SENSE OF POSITION.

ıRATIVELY little is known of the functions and the ons of the mid-brain and its nuclei to the medulla gata and the cord, in connexion with reflex actions, in particular with muscle tone. The tendency of clinicians has been to refer certain neurological :oms to specific basal ganglia on hypothetical con- ıtions rather than on actual experimental and *post-* :m findings. In the latter it has become customary to :t somewhat the brain stem and upper cord, and to oo much attention to the parts above this.

Magnus and his colleagues in Utrecht[1] have attempted ıcidate the functions of the mid-brain and its influence ıe body as a whole. The classical experiments of ·ington and Goltz showed that the spinal cord can mit to the whole of the musculature extraordinarily licated reflexes, essential to the upright position, yet, well known, if efferent impulses from the higher es in the brain are prevented from reaching the cord, section high up in the cervical region, the animal is able of standing. According to Magnus, if such a l animal is held in the air, it carries out rhythmical ments with its hind limbs entirely similar to normal ments of progression, the scratch reflex is present, on defaecation complicated movements are carried nvolving the hind limbs, tail, and other more distantly ted groups of muscles; nevertheless the animal is le to stand. This is only possible when the cord is in t connexion with certain parts of the medulla gata.

errington has shown that in mammals decerebrate ity follows transection of the brain stem at the level ıe tentorium cerebelli. Here the extensor muscles of ıeck, *the erector spinae, and its continuation in the* and the extensors of the limbs are in a condition of rtonicity, whilst the tonus of the antagonizing muscles most or entirely absent. Such an animal placed on eet remains in a position of muscular hyperextension. rebrate rigidity depends upon afferent impulses nating in the muscles and joints reaching the respec- centres in the caudal part of the medulla oblongata. condition may be produced by transection of the brain just anterior to the level of the eighth nerve, only ıpearing when section is carried out in the region of alamus scriptorius. The exact position of the centres uestion producing rigidity has not yet been ascer- d owing to the many difficulties encountered. Such ınimal, if pushed over, is incapable of getting up ı.

ıgnus has shown[1] that in decerebrate animals the ude of the body as a whole—that is, the tonus as a e—can be controlled by particular positions or atti- ı of the head, a complementary movement of the body rring on moving the head. This interesting relation- has proved on analysis to be the result of two rent continuously acting groups of reflexes, named by nus "tonic labyrinthine" and "tonic neck" reflexes, nding upon the particular position of the head in ı, more especially to the horizontal, and of the head to trunk respectively. To study the labyrinthine reflex necessary to eliminate the neck reflex by preventing ements of the head relative to the trunk, either by ying a plaster collar or by cutting the posterior nerve ı in the neck. In such an animal the extensor reflex he limbs is at a maximum with the head slightly ting upwards, gradually diminishing to a minimum as depressed through an angle of 180 degrees. This reflex es in the maculae of the utricles by stimulation by the ths, and is connected bilaterally with the trunk, but olaterally with the neck muscles. The centres for the x have been shown experimentally to lie in the medulla caudal to the eighth nerve.

order to investigate the neck reflexes the labyrinthine xes are first abolished by bilateral extirpation of the rinth. It is then found that by altering the position of the head the extremities are reciprocally innervated—for example, ventral bending of the head results in diminished tonicity of the fore limbs and increased tonicity of the hind limbs. These two groups of reflexes act together and in a complementary manner in varying proportions, and take place in an exactly similar manner in the intact animal, not only in the vast majority of lower animals but also in mammals; in the ape and man, however, some difficulty is encountered in demonstrating this, but they can be shown to exist in man under anaesthesia, or where certain diseases of the nervous system are present. This has been demonstrated quite recently by Simons in spastic diseases following injury to or diseases of the brain.

Decerebrate rigidity disappears gradually as transection is carried out more anteriorly, and in animals, called by Magnus "mid-brain" and "thalamic" animals, a more equalized distribution of tone between extensor and flexor muscles becomes evident, exactly similar to that obtaining in the normal animal. In contrast to the decerebrate preparation, however, such thalamic animals, if knocked down, at once get up on to their legs, through the action of a reflex termed the "postural" reflex. Analysis of the latter reflex has shown that it is brought about by *two separate afferent impulses, one labyrinthine, the other* cutaneous. The labyrinthine factor is demonstrated by the fact that a thalamic or mid-brain animal held in mid-air will reflexly turn its head into a normal attitude in space, whatever position the trunk is made to assume. Extirpation of the labyrinth, however, abolishes this completely, so that the head is held in the same position in space as the remainder of the body. These labyrinthine reflexes controlling posture of the head arise in the maculae of the saccules and possibly in those of the utricles. The other factor consists in afferent impulses from the tactile end-organs all over the body, and is shown by the fact that an alabyrinthine thalamic animal, with the head in line with the body, on *being placed on the table in any position*, immediately turns its head into the normal attitude; this reflex can be neutralized by exerting an equal pressure on the opposite side of the body. If the body is in such a position as to induce an attempt to bring the head reflexly into the normal, but is prevented by an abnormal position of the body, a third chain of reflexes is brought into action, so that the whole body, first the anterior part, then the posterior, is brought into line with the head. The reflex from the end-organs of the trunk, however, will also bring the trunk into a normal posture, even if the head is forcibly held in an abnormal position.

Thus there are four distinct reflexes present, so that each movement is doubly controlled. The head is brought into a normal position through the labyrinthine reflex and the postural reflex of the body on the head; the body is similarly controlled by postural reflexes arising in the body and in the neck. Asymmetrical stimulation of the cutaneous end-organs results in assumption of the normal attitude of the body and head. In some animals a fifth, the "optic," reflex is present. Thus, an alabyrinthine ape is unable to bring his head into normal position with the eyes bandaged, but can do so if sight is allowed.

As shown experimentally by Magnus, the centres for the neck reflex lie in the anterior part of the medulla near the pons, those for the labyrinthine and trunk posture in the most anterior portion of the mid-brain; he has also definitely proved that a large proportion of the afferent and efferent paths to the head lie in the brain stem, but for the body most probably run through the cerebellum. The exact localization of some of these centres has not yet been worked out in its entirety, but Magnus has definitely established that the centres for normal tonus and postural reflexes are to be found between a point at the most anterior part of the corpora quadrigemina and another immediately anterior to the exit of the oculo-motor nerve from the mid-brain, an area of 1½ mm. in length, in the region of the substantia nigra, embracing the red nucleus and a portion of the mid-brain ventral to this. Section of the (efferent) rubro-spinal tract, which crosses chiefly at Forel's decussation, shows that it is absolutely essential for the transmission of these two reflexes. Destruction of the red nucleus results in decerebrate rigidity and loss of

[1] *Deut. med. Woch.*, April 20th, 1923.

of many Distempers, especially such as mostly affect the Poor who live in close and confin'd Places within these great Cities.

For these Reasons they resolved to take Lanesborough House, and if possible to perswade the Majority to join with them. But finding at a subsequent general Board, that their Brethren were absolutely determin'd against it, and that it was in vain to hope for their Concurrence: They, the Minority, agreed that they ought not to let slip so advantageous an Opportunity of removing, and therefore they compleated their Agreement at £60 a Year, resolving to carry on the same Charity there. Thereupon the Physicians and Surgeons acquainted the Board that Lanesborough House was taken; that they were resolved to carry their Charity and Attendance thither; that they could not attend both, but they would attend in Chapel-Street 'till other Physicians and Surgeons should be provided; and if at any Time their Assistance should be wanted, they would be ready to attend when desir'd.

Thus began the Separation which has prov'd of great Service to the Charity; for now, by the Zeal and Emulation of both Societies, they will probably be able to entertain above four Times the Number of Patients they have hitherto done. Immediately after this, the Society in Chapel-Street chose other Physicians and Surgeons, and the Gentlemen at Lanesborough House set themselves vigorously to work to lay the Foundation of their new Hospital. For that Purpose they met almost every Evening, and procured not only the By-Laws of all the Hospitals about the Town, but also the By-Laws of several Hospitals in foreign Parts, out of which to collect such Rules and Orders as should best suit their Occasions; and having well weighed and consider'd the Undertaking, they form'd themselves into a regular Society on Friday the 19th of October, 1733.

Since that Time they have collected and digested a regular Body of Laws for the Government of themselves, their Servants, and their Patients, extracted for the most Part from the several By-Laws that have been laid before them. And as they had Reason to apprehend that an Inconveniency might arise by permiting small Subscribers to be Governours; no Man is qualify'd to be a Govournour there that does not contribute £5 a Year; and even then he must be proposed a Fortnight before he can be chosen, which is at last done by a Ballot. Such is their Caution in the Choice of their Governours, of whom nevertheless they have already about 150, and from whom, as well as from several Ladies of Quality and Distinction, they have received very generous and beneficient Contributions.

The Hospital is now fitted up and made much more compleat than could have been expected out of a Dwelling House: It will at present contain 60 Patients; but as the Boundaries of their Ground will admit of new Buildings for several spacious and airy Wards, large enough to lodge some Hundreds of Patients better and more commodiously than any other Hospital about this Town; they propose to erect such Buildings as soon as their Circumstances shall enable them.

They began to receive Patients on New Years Day last, and several In and Out Patients were then received, and they continue so to do every Wednesday Morning until Ten of the Clock: They will admit as many In Patients as their House will contain, and Out Patients according to their Ability.

They have in their House an Apothecary, and a compleat Shop; and all the Physicians, Surgeons, Apothecaries, Chemists and Druggists, are a Committee to buy the Drugs and other Materials, for making the Medicines there; under whose Inspection all the Medicines are made: And the following Apothecaries, viz., John Warren, and Daniel Graham, Esqs. Apothecaries to His Majesty, John Allen, Esq; Apothecary to His Majesty's Houshold, Mr. Isaac Rand, Botany Professor of Chelsea-College, Mr. John Clark, Mr. Andrew Mitchel, Mr. Thomas Graham, and Mr. James Fraser attend by Rotation as Visitors, to see them duly dispensed according to the Prescriptions of the Physicians.

Among other Regulations, the following one is proper to be here inserted, which is, That no Person belonging to this Hospital presumes, upon Pain of Expulsion, to take of any In, or Out Patient, any Fee, Reward, or Gratification whatever, directly or indirectly, for any Services received from this Hospital, either while they are under the Care of the House, or after they shall be discharged.

Dr. Stuart, Dr. Wafey, Dr. Broxholme, Dr. Burton, and Dr. Ross, who are all Governours, have consented to be the acting Physicians there, without Fee or Reward: the Patients are visited by them 3 Times a Week, they all meet there every Saturday together, and they attend by Rotation every Wednesday Morning at 9 to examine the Patients that are recommended. Mr. Serjeants Dickins and Amyand, and Mr. Cheselden, have consented to be principal Surgeons, and Mr. Wilkie and Mr. Middleton are the Surgeons in Ordinary: These Gentlemen are also Governours, and serve without Fee or Reward. Several eminent Divines have agreed to attend the Patients daily, for their Spiritual Comfort and Instruction; and two of the Governours are Weekly appointed, who attend every Day as Visitors to hear Complaints, and to see the Orders of the Board punctually obeyed.

As the Business of this Hospital hath been too much for the Governours to manage in a Body, they have appointed several Committees, who all Act with that Zeal, Integrity, and Application as become Men who have only in View the Honour and Service of Almighty God, the publick Happiness and Prosperity of their Country, and the Support and Relief of their fellow Creatures in Distress.

N.B.—The great Numbers of Objects that daily offer, are sufficient to shew the Usefulness and Necessity of Hospitals of this Kind: And tho' Guy's Hospital, a noble Endowment, hath been lately erected, yet more are still visibly wanted: And 'tis hoped the Example of these Gentlemen may be a Means to induce other well-disposed Persons to make this Kind of Charity more diffusive, and extend it to other Parts of the Kingdom.

P.S.—As the Physicians attend every Wednesday Morning punctually at Nine, the Contributors to this Charity are desired to direct the Patients to be there at that Hour, the Board having made an Order that none shall be received after Ten.

The staff of St. George's Hospital has always been peculiarly rich in the possession of men who have achieved high positions in both medicine and surgery. The names of John Hunter, Matthew Baillie, William Heberden, Thomas Young, William Cheselden, Benjamin Brodie, and Prescott Hewett are but a few of those who have added lustre to its roll.

C. J. S. Thompson, M.B.E.

THE GENERAL ELECTION.

The following is a list of medical candidates at the General Election and of the constituencies in which they are offering themselves so far as we are at present able to ascertain. An asterisk indicates that the candidate represented the constituency in the Parliament just dissolved.

At the present stage the list cannot be complete, and we shall be glad to receive additions and corrections.

Dr. H. B. Bates (U.), Newton, Lancs.
Dr. Ethel Bentham (Lab.), Islington East.
*Sir George A. Berry (U.), Scottish Universities.
*Dr. W. A. Chapple (L.), Dumfries.
Dr. R. Dunstan (Lab.), Ladywood, Birmingham.
*Dr. W. E. Elliot (U.), Lanark.
Dr. M. I. Finucane (L.), Westminster.
*Dr. F. E. Fremantle (U.) St. Albans.
Dr. O. Gleeson (Lab.), Portsmouth South.
Dr. L. Haden Guest (Lab.), Southwark North.
Mr. Somerville Hastings (Lab.), Reading.
Dr. G. B. Hillman (U.), Normanton, Yorkshire.
*Dr. L. G. S. Molloy (U.), Blackpool.
*Dr. J. E. Molson (U.), Gainsborough.
Dr. H. B. Morgan (Lab.), Camberwell North-West.
Dr. J. H. Morris-Jones (L.), Denbigh.
Dr. A. G. Newell (L.), South Tottenham.
Dr. R. L. Ridge (L.), Enfield.
*Sir Sydney Russell-Wells, M.D. (U.), University of London.
*Dr. A. Salter (Lab.), Bermondsey West.
Dr. R. W. Simpson (L.), Newcastle-upon-Tyne North.
Dr. G. E. Spero (L.), Stoke Newington.
*Dr. T. Watts (U.), Withington.
*Dr. J. H. Williams (Lab.), Llanelly.
Dr. R. M. Wilson (L.), Saffron Walden.

Sir Henry Craik, K.C.B., is standing for re-election as one of the representatives of the Scottish Universities.

The appeal for a quarter of a million pounds to defray the cost of the erection of the new science wings of the University College of South Wales and Monmouthshire at Cardiff has now brought in £156,000. Several important donations were announced on November 20th. Lord Glanely gave £10,000; several sums, to spread over seven years, were promised, including £28,000 from Sir David R. Llewellyn, £7,000 from Sir Henry Gethin Lewis, and a like amount from Mr. H. Seymour Berry.

The United States Naval Medical Corps now numbers 751 commissioned officers, and it is stated by the *Journal of the American Medical Association* that even with the reduction in strength and appropriations for the navy at present there is a shortage of forty-nine officers below the Government allowance. The United States Army Medical Corps is also stated to be at present thirty-six medical officers short of its quota.

The fourth international Congress of the History of Medicine will be held at Geneva from July 20th to 25th, 1925, under the presidency of Dr. C. G. Cumston. Further information can be obtained from the general secretary, Dr. A. de Peyer, 20, Rue du Général Dufour, Geneva.

s for the head, and probably transmits those for the ; (4) is of importance for the postural reflex. On the r hand the anterior and posterior longitudinal bundle, decussation of the superior peduncles of the cerebellum, the substantia nigra almost certainly have no influence hese functions.

cording to Winkler, the rubro-spinal tract gives off no terals in the medulla, hence it is probable that it in the various centres in the cord itself, so that hyper-city of the muscles is thereby directly controlled; in tion the pyramidal tract influences more particularly flexor muscles, as shown on cerebral stimulation.

is noteworthy that when the corpus striatum is dis-nected from the medulla by section just anterior to the nucleus, there are no contractions, rigidity, loss of ement, tremors, athetosis, or choreiform movements lly associated with extra-pyramidal affections—sym-ns which clinicians usually refer to the interference the functions of or cutting off of these from the cord.

England and Wales.

The Lancaster Medical Book Club.

club gave a dinner on November 14th in celebra- of the hundredth anniversary of its foundation on ember 11th, 1823. About ninety members and guests present. The President (Mr. A. S. Barling) was in chair, and was supported by Sir Norval Helme, Pro-or A. C. Seward, F.R.S., Mr. J. E. Singleton, K.C., ., Mr. E. W. Wingate-Saul, K.C., Canon Coates, and n Blundell. The original minute book was shown aining the resolution forming the club. It reads as ws:

"It is expedient to establish a society to be called the Lan-aster Medical Book Club to consist of the gentlemen present nd such other medical gentlemen resident in Lancaster as hall hereafter be elected by a majority of existing members."

r the loyal toasts Dr. W. H. Coupland proposed "The sts" in very graceful terms. He emphasized the ortance of the influence of mind over matter, and advo-d the collaboration of the spiritual and bodily advisers. lst paying tribute to the research workers he said that nust look to the general practitioner for warning of the iest signs of disease. Mr. Singleton and Dean Blundell ied appropriately. Professor Seward then proposed e Club." After a few local references and reminis-es he came to his main theme, the relation of pure nce to medicine, which he described as an applied nce. He said that every medical man ought to have orough grounding in science, and mentioned particu-biochemistry and biophysics. They ought to study beginnings of life in its lowest forms. The President, eply, gave a short history of the club, which, although etained its original name, had for more than half a ury, if not from the first, been a clinical and ethical ety. He then gave an epitome of medical progress its establishment, and remarked that although much been done far more remained undone, and that so long uberele and cancer were unconquered the profession little cause for self-admiration. It had every reason ear the judgement of posterity. All the wise men of world had but touched the fringe of the hem of the tle of knowledge. He urged his fellows to test every-g new, and ever have with them the deathless words t. Paul: "Prove all things; hold fast that which is l." To quote from the old minute book (1827), "The ing was spent in the greatest harmony and good order the company separated about twelve o'clock."

Leeds Health Exhibition.

e city of Leeds is now holding a health and municipal ices exhibition in the Artillery Drill Hall, Fenton et. The exhibition was opened on November 13th and remain open until December 1st. The stand devoted to Public Health Department has its exhibits arranged tuberculosis, vital statistics, housing, rat and mice de tion. In addition to these displays a series of demo tions, cinematograph films, and lectures dealing with v subjects of public health importance, is being given lecture hall, and leaflets on kindred matters are distri at the stand. Among the other municipal services sented in the exhibition are the waterworks, clea sewerage, and baths departments, and a concise ac with historical notes, of these and the other civic act is given in an attractively prepared handbook t exhibition. The Public Health Department came into after the passing of the Towns Improvement Clauses 1847, and its first medical officer of health, appointed the year 1866, was Dr. M. K. Robinson. Before that any sewerage work done in the city was carried out l police. With the passing of the Public Health Act o and the increased responsibility thereby laid upo department, the number of the staff was greatly incr and since then it has continued to expand under succ medical officers of health—Dr. George Goldie, Dr. J. S wood Cameron, Dr. William Angus, and Dr. Joh Jervis, the present head of the department.

The Central Midwives Board.

At its meeting on November 15th, when Sir F Champneys was in the chair, the Central Midwives for England and Wales had before it a letter fro British Medical Association, renewing its protest a the permission given to midwives to use opium on own initiative. The Board decided to inform the Medical Association that it saw no reason to alt decision at which it had already arrived. The resig of Dr. Eardley Holland as examiner at the London was accepted, and Dr. Aleck W. Bourne appointed place. The report of the Board for the year ending 31st was approved and transmitted to the Minis Health. A copy of the revised rules, which are to into effect on January 1st, was forwarded to the M for his approval.

Post-Graduate Course at Bath.

A second series of post-graduate demonstrations was at the Royal United Hospital, Bath, on Saturday afte from October 6th to November 10th. Lectures were on the following subjects, and when possible illus cases were shown: (1) Pneumonia; (2) common dise the rectum; (3) "rheumatic" diseases, comprising s osteo-arthritis, gout, and rheumatoid arthritis; (4) v and skin diseases; (5) acute infections of the (6) diabetes and the administration of insulin. An tion was performed at every meeting except the last there was a demonstration of museum specimens. demonstrations were given on cases of general inte the first, second, and fifth meetings. Before the last m the class, which comprised some forty practitioners, from the surrounding country towns, entertained th to lunch and presented them with a cheque for £50 museum fund.

Ireland.

Irish Medical Appointments on a Civil Servi Basis.

During a debate on the second reading of the Civil Regulations (No. 2) Bill, 1923, at a recent meeting Dail, Sir James Craig, M.D., T.D. (Dublin Unive expressed surprise and disappointment that th did not extend the principle of competitive exami much further. He strongly advocated its applicat the medical services in the State, public ho sanatoriums, etc. It would do away with the objectionable features in connexion with making ap ments by election. Sir James said that public in the Free State was in favour of making all n appointments by competitive examination; in s

British Medical Journal.

SATURDAY, NOVEMBER 24TH, 1923.

THE DECISION OF THE PANEL CONFERENCE.

LAST week we announced briefly the result of the Special Conference of Representatives of Local Medical and Panel Committees held on November 14th to consider the Minister of Health's revised offer. This week we publish in the SUPPLEMENT a full report of the discussions that led up to the unanimous decision to accept the Minister's offer, including his alternative proposal for a special Court of Inquiry. An important, though subsidiary, decision was the acceptance on behalf of rural practitioners of mileage grants for 1924 of £250,000 for England and Wales and £46,000 for Scotland. The Conference, in view of these decisions, authorized the Insurance Acts Committee to deal with the withdrawal of resignations collectively, and arrangements (of which every insurance practitioner has been, or will be, notified this week) are being made to carry out this instruction with the least possible delay. Each practitioner should already have received from the head office of the British Medical Association a form of withdrawal of resignation in respect of each panel list on which his name appears.

The decision of the Panel Conference has been accepted without reservation by the Minister of Health, and the Insurance Acts Committee will now devote its energies to the effective presentation of the case of the medical practitioner for an adequate capitation fee. The profession, by the decision of the Conference, has pledged itself to accept the finding of the Court of Inquiry, and it will become the duty of the British Medical Association to use all its influence with members of Parliament to ensure the passage of the bill in which the Court's award is to be embodied. Owing to the dissolution of Parliament and the impending general election it will not now be possible for the Minister to fulfil his promise to go to Parliament for the necessary legislative sanction before the close of this year. Sir William Joynson-Hicks has undertaken to set up the Court of Inquiry at the earliest possible moment, and it may be expected that the sittings of the Court will begin immediately after its appointment, and that as soon as it has concluded its inquiry its decision on the amount of the capitation fee will be made known. The fee awarded will have effect as from January 1st, 1924. In the unexpected circumstances which have arisen owing to the sudden dissolution of Parliament it would seem that insurance practitioners will have to begin the new year without a statutory assurance as to the amount of the capitation fee for 1924. But whatever the complexion of the new Parliament it seems unlikely that it will reject the recommendation of the Court, the appointment of which has been formally reported to the House of Commons.

Although the capitation fee for 1924 is as yet an unknown quantity, it is not too soon, we think, to express satisfaction with the course of events. The past two months have been a period of great anxiety for a large section of the medical profession, calling for self-restraint and courage on the part of the rank and file, and for wisdom and leadership in those who represent them. The terms of the Minister's final offer justified the unanimous refusal of his first offer. Although complete satisfaction has not been obtained, the solidarity of the profession and the statesmanship of its leaders secured from the Minister explicit assurances on certain matters of vital importance to the future of medical practice under the Insurance Acts; the decision of last week's Conference has done much to consolidate these gains. The Minister's new offer had to be accepted or rejected as a whole with one or other of the alternatives in regard to remuneration, and it was imperative that a decision should be reached both upon the whole offer, and as between (*a*) a guaranteed fee of 8s. 6d. for five years, or (*b*) a separate and immediate inquiry into the appropriate capitation fee for 1924. Upon the larger issue representatives of insurance practitioners had a clear lead from their executive body—a lead endorsed by their constituents; as between the two alternatives, (*a*) and (*b*), the Committee's recommendation was less positive. Having had the realities of the situation put plainly before it the Conference rose to the occasion, and its choice has, we believe, reflected the feeling of the great bulk of those on whose behalf it voted.

The insurance crisis may not be over yet, but in accomplishing so much in such difficult circumstances the medical profession has done well. Two matters seem, in particular, to call for congratulation. In choosing a Court of Inquiry the Conference took the logical course and showed confidence in the strength and justice of its case for adequate remuneration. This decision to abide by the award of an impartial arbitration, coupled with the remarkable unanimity shown by 95 per cent. of resignations from the panel, has not been without its effect upon the Ministry of Health, on public opinion, and doubtless also on the Approved Society officials. The public has understood the determination of the profession to be free to give, unhampered, the service for which it exists, and has applauded the outcome of the Conference. This is no small gain. Moreover, professional solidarity led to a new offer by the Minister, and it gave practitioners confidence in themselves and in each other; the decision to submit the money question to arbitration has done the profession good in the eyes of the public. These two advantages may fairly be claimed as due in large measure to the organization, both central and local, of the British Medical Association. The machinery has stood the test, and the united action of insurance practitioners testifies to the trust reposed in the Association by the general body of the profession. This trust must be continued, for the award of the Court of Inquiry will probably be for one year only.

BIRTH INJURIES OF THE CHILD.

EVIDENCE is accumulating that injuries to the infant during parturition are commoner than has hitherto been supposed. Dr. Ehrenfest of St. Louis has recently[1] made the categorical assertion that "in at least 40. per cent. of all autopsies, properly performed on all stillborn infants and those dying within the first few days after birth, intracranial traumatic lesions of some sort are discovered." Yet the returns of the cause of death in current statistics

[1] *Birth Injuries of the Child.* By Hugo Ehrenfest, M.D., F.A.C.S., St. Louis, Mo. Gynaecological and Obstetrical Monographs. New York and London: D. Appleton and Co. 1922.

of his statement he pointed out that the National Convention which met in 1917 to draft a constitution for the Irish nation recommended that the vacancies occurring in the public medical services should be filled by competitive examination. In the scheme of medical services formulated by the Irish Public Health Council in 1920 provision was made for filling medical vacancies on a civil service basis, and in 1910 a referendum of the Irish profession showed, almost by a unanimous vote, that it was in favour of filling all vacancies in the public medical services by competitive examination. The General Council of County Councils, as late as this year, made similar recommendations. It was understood a Public Health Bill would be introduced shortly under which medical officers of health would be appointed. Personally, he would rather see the bill torn into shreds than have it passed, if it meant putting into office men who were not efficient.

A Tuberculosis Scheme.

The Ministry of Home Affairs (Northern Ireland) held an inquiry seven months ago in connexion with the tuberculosis scheme in the County Fermanagh. The inquiry was ordered in consequence of allegations that the scheme was too costly, and that in particular the travelling expenses of the medical officer and the cost of nursing were excessive. It will be remembered that the Commissioner, prior to the inquiry, decided to limit the medical officer's travelling expenses to a sum of £120 a year, and to dispense with the services of the whole-time nurse who was to have been employed under the scheme. The medical officer, Dr. Timoney, was originally appointed at a salary of £500, which was intended to include the cost of travelling, but later he was allowed second-class train fare and ninepence a mile for motor hire, on the understanding that he would use the train whenever possible. The trouble with regard to his expenses appears to have arisen because Dr. Timoney never took the train, but used his own motor car on all occasions, charging mileage for its use, and the Commissioner and others concluded that the ratepayers were thereby put to unnecessary expense. From the figures which have been furnished, however, it does not appear that there are sufficient grounds for holding that the use of the motor car by Dr. Timoney, to the exclusion of the train, has resulted in increased cost to the ratepayers. It seems clear that Dr. Timoney's plan of using his own motor car to visit all cases is certainly not uneconomical. The sum of £120 per annum proposed by the Commissioner in the circumstances is inadequate, and the Ministry considers it fair that he should be paid his actual travelling expenses, and in order that these may be properly checked he should be supplied with forms similar to those used by travelling officers of Government Departments, in which he should furnish a weekly report, in diary form, of the work done by him and the expenses incurred. The mileage rate should also be reduced from ninepence to the rate allowed to Government officers, which is sevenpence a mile for a four-wheeled motor car with four ordinary seats and over 11 horse-power, with lower rates for smaller cars.

Nursing is a necessary part of any scheme for the treatment of tuberculosis, and if adequate facilities were provided for all parts of the county the cost of nursing would not be less, but considerably more than it is at present. At the same time the Commissioner appears to have been justified in considering that the cost of the whole-time nurse employed in Enniskillen was excessive in proportion to the work done. As regards the general cost of the scheme, the total expenditure for the half-year ended September 30th, 1922, was £1,576 11s. 2d., and for the year ended March 31st, 1922, it was £2,904 14s. 6d. The average cost for the eight years April 1st, 1914, to March 31st, 1922, was £2,119 14s. Deducting receipts, the average cost was £1,712 18s. 10d. a year, and as half is recouped by the Government the average cost to the rates was £856 9s. 5d. a year, representing a rate of less than one penny in the £ on the valuation of the county. The average number of cases under treatment in a half-year was 214. The actual number under treatment in the half-year ended September 30th, 1922, was 209; of these 176 were dispensary cases, 32 institutional cases; there was one other case. In view of these figures it seems difficult to support the contention that the scheme is an extravagant one.

In conclusion, the Ministry expresses the hope that the result of the inquiry will be to clear away many misconceptions regarding the scheme and to show that, while it is not as complete as it might be, it fulfils a useful purpose and enables much good work to be done in preventing the spread of tuberculosis.

Insulin.

The second meeting of the Ulster Medical Society was held in the Medical Institute, Belfast, on November 8th, when the President, Professor Symmers, was in the chair, and Dr. John Milroy read a paper on certain aspects of the physiology of the pancreas. He accounted for the long delay in elucidating the full function of the organ by its double action; in bony fishes there were two separate organs. He gave an account of the preparation of insulin, of its fate in animals, and of its standardization; it was found in the urine as well as blood and pancreas, but not elsewhere. It was decomposed by the proteolytic action of the gastric juice. The experiments relating to the cause of convulsions in hypoglycaemia, to the relation of fat and carbohydrate metabolism, and to many other problems, were narrated. Dr. Sinclair Miller of Harrogate read a paper on the use of insulin in diabetes mellitus. He gave a description of the clinical aspect of the use of insulin, the precautions to be observed, the necessity of full examination for the estimation of blood sugar, and for the regulation of diet according to results. The treatment of mild, of medium, of severe cases, and of cases of renal glycosuria was illustrated by numerous charts thrown on the screen. Dr. J. A. Smyth, assistant in charge of the metabolic laboratory in the Royal Victoria Hospital, related the experience of the Royal Victoria Hospital in the use of insulin. He illustrated his remarks by charts of glucose tolerance in the normal, in hyperpituitarism, pregnancy, in encephalitis lethargica, and cases of lowered sugar threshold. The treatment of the ordinary forms of diabetes and of exceptional forms and complications was commented on and illustrated by cases. Numerous patients were shown who had been admitted to hospital with very advanced symptoms, but now gave unmistakable evidence of good health and well-being. Drs. Calwell, McKisack, Morrow, and Burns briefly intimated their very high appreciation of the papers, as illustrating the application of science to practice. Dr. Burns mentioned the case of a patient who had had a course of insulin with great advantage, but after a dose given some time later to deal with a slight relapse presented phenomena of anaphylaxis.

Scotland.

New Maternity Hospital for Edinburgh.

On the invitation of the directors of the Edinburgh Royal Maternity and Simpson Memorial Hospital, a private conference of delegates appointed by the Town Council, the Board of Health, the Royal Infirmary, the University, the Royal Colleges of Physicians and Surgeons, and the medical staff of the hospital, met the Board of the hospital on November 16th, in the Council Chambers, to consider the question of providing an enlarged and up-to-date maternity hospital for Edinburgh. Dr. T. G. Nasmyth, chairman of the directors, who presided, explained the circumstances which made the provision of a new hospital necessary. After full discussion it was unanimously resolved that a new maternity hospital, with a minimum of 150 beds, is an urgent necessity if the maternity needs of the city and district and the training of students and nurses are to be adequately provided for. A committee representing the various bodies was appointed and instructed to report on the subject of a new hospital generally, with special reference to suitable sites and the future relations between the hospital and the infirmary. After the receipt of this report a public meeting will be called.

in America (as elsewhere) would lead to the conclusion that birth injury was very rare. There can be little doubt where the truth really lies. In the first place, very few yet realize the meaning of the asphyxias seen in the newborn, and even when the child recovers and grows perhaps to present the signs of Little's disease the trouble is as often as not ascribed to the asphyxia, whereas neither is primary but both secondary. It will be some time before knowledge of the very common happening of intracranial haemorrhages becomes really widely known, though such a paper as that by Dr. H. C. Cameron, published in this JOURNAL on March 3rd (p. 363), will help to draw greater attention to the subject. In the second place a man will hesitate very naturally before he ascribes the death of his patient's baby to injury. The very word has an ominous sound. A fatal injury seems to imply some fault on the part of the obstetrician. Yet practically every form and variety of birth injury has been discovered after an entirely spontaneous birth. This would appear at first sight to be an ample shield, but as a defence it is more in the nature of a smoke screen than of armour plate. For instance, there seems little doubt that injury to the child is very much commoner in an "assisted" birth than in one which is entirely spontaneous.

Dr. Ehrenfest considers that better knowledge of these injuries may in the future considerably modify obstetrical practice, and serve to curb the enthusiasm of those who practise forceps extractions, versions, and so forth with more zeal for the mother's comfort than the baby's welfare. In this respect the giving of large doses of pituitrin, causing the rapid descent of the head through a birth canal not yet sufficiently relaxed, or the giving of hyoscine, subsequently necessitating the use of forceps, may have to be reconsidered. Be that as it may, the time has come when we must realize that intracranial injury is the most important single cause of early death—either of stillbirth or of death soon after birth. We have recently in this country been made aware of this by the masterly report[2] of Dr. Eardley Holland to the Ministry of Health. He showed that more foetuses were killed by the complications of labour than died during pregnancy from maternal or placental disease. Only 16 per cent. of 300 foetuses were syphilitic, whilst of 167 fresh foetuses in no less than 48 per cent. tearing of the dural septa and cerebral haemorrhage had occurred. Dr. Ehrenfest deals at length with injuries of the head and neck, and, recognizing that no one obstetrician could possibly have a large enough experience of all varieties of birth injury to write a complete monograph upon them, he has drawn very largely on the literature.

Fractures of the cranial bones are usually produced by the promontory of the sacrum and hence affect the posterior of the two parietal bones. It is important to note that they may occur in unassisted labours, and Ehrenfest quotes a case of Hartmann's where a child was born just as the latter was about to apply forceps; it had a depressed fracture of the left frontal bone; subsequently it was ascertained that all of the mother's preceding six children had been born with cranial injuries. "One child, 6 years old, still showed a deep spoon-shaped depression over the left parietal bone." On the other hand, out of 25 cases of depression published in 1913 by Gfroerer and Hofmeier, 24 were breech extractions, mostly after versions—that is to say, were not spontaneous births. If there are no signs of an intracranial injury these cases may be left alone, but it should be understood that "no signs" means "no signs after a most exhaustive clinical examination." If there are signs of haemorrhage within the skull the elevation of the fracture alone, whether by open operation or by means of such dangerous screws as Baumm's and some others, is not sufficient. "Kuestner employed Baumm's instrument," said to be "so constructed that an injury to the dura is impossible; the child died four days later; the dura had actually been perforated by the tip of the instrument; a large haematoma, responsible for the death, was however not found at the hole through the dura, but underneath the tentorium." Elevation of the depression by squeezing of the child's head between the knees, and so forth, is even more open to objection.

Dr. Ehrenfest refers to the classical paper of Seitz (1907) on the symptomatology of brain haemorrhages in the newborn, and to the paper of Beneke (1910) on tears of the tentorium cerebelli. He describes Beneke's *post-mortem* technique, whereby it came about that he was able to detect these dural lacerations, and goes on to give Beneke's and Pott's description of the nature and causation of these injuries. It is interesting to note that they were described first by Cruveilhier, and later by Virchow in 1850, and had been neglected for sixty years. The immediate cause of these tears is mechanical. The haemorrhagic diathesis seems to have been given too much importance as an etiological factor in these cases, though there is no doubt that such an entity exists and is sometimes operative. The mechanism described by Kundrat and Seitz (overlapping of the parietal and tearing of the veins entering the superior longitudinal sinus) accounts for but few of the cases. Beneke has shown the exact mechanism of the common tentorial lacerations—how the dural septa counteract the effect of lateral compression, and how severe or sudden compression may cause a stress too great for the falx to withstand when it tears the attached tentorium. These results have been confirmed by later workers, and incidentally the mechanics of the condition have been well studied and described by Eardley Holland in the monograph already mentioned, though here we failed to find reference to previous workers in this field. Benthin and then Seitz claimed that ill advised efforts to save the perineum when the head is forcibly pressed against the pubes may produce tentorial injuries. Dr. Ehrenfest remarks that in the numerous detailed records of severer brain injuries it is common to find that pituitrin has been administered, and believes that we have here cause and effect. The symptomatology of intracranial injury presents an interesting problem, but one most difficult to interpret. As a rule, newborn infants with haemorrhage are not easy to resuscitate and often have respiratory difficulties from bulbar embarrassment, especially in infratentorial haemorrhages. The infants are restless, cry almost incessantly, and often refuse to suckle; it has, indeed, been noted that the sucking reflex is commonly absent. They are pallid, may have convulsions, and sometimes the fontanelle bulges noticeably. The differential diagnosis of supra- (hemispheral) and infra-tentorial lesions is not easy. The treatment of the condition is still *sub judice*. Lumbar puncture is probably the most useful method at once for diagnosis and treatment, unless a haemorrhage can be localized with some show of accuracy to the surface of a hemisphere. It is very doubtful whether operation can ever hold out much hope for the serious haemorrhages in the posterior fossa. Injection of whole blood is worth trying.

[2] Reports on Public Health and Medical Subjects. No. 7. 1922. H.M. Stationery Office.

the second reading of the Reorganization
Officers (Scotland) Bill, which provided for the appoint-
ent of a permanent Under Secretary for Scotland, who,
among his other duties, would be vice-president of the
oard, and would have reduced the number of members
the Board to three (save *ex-officio* members). The
ssociation of Executive Officers and other Civil Servants
as issued a circular expressing the view that the time has
rived to abolish the Board altogether, and to arrange
r the duties of the department to be discharged by a
rmanent head directly responsible to the Secretary for
otland and the Parliamentary Under Secretary.

Prevention of Diphtheria.

A public lecture was recently delivered by Dr. Robertson,
O.H. Edinburgh, under the auspices of the Leith
ademy Parents' Association, on the prevention of diph-
eria. The introduction of antitoxin had greatly reduced
e severity of diphtheria and had diminished its death
e. In 1913 Shick had introduced a method by which
was possible to discover those who were susceptible to
hthteria. He had found that among newly born infants
y 7 per cent. were susceptible, but in the first year of
the susceptibility rose to 43 per cent., while between the
s of 2 and 5 years to 63 per cent.; among adults only
per cent. were susceptible. The present scheme of inocu-
on was designed to restore to the boy or girl the power
thwart infection. The importance of this could be
hered from the facts that in the past ten years 7,823
es of diphtheria were notified in Edinburgh, and that
had died. Of the cases notified 7,542 had been treated
hospital at a cost of £90,504. Dr. Claude B. Ker,
ical superintendent of the City Hospital, who described
scheme in detail, said that he hoped attention would
be turned to protection from whooping-cough.

The International Physiological Congress.

r Edward Sharpey Schafer presided last week over the
meeting of the General Committee of the eleventh
rnational Physiological Congress, held in Edinburgh
July. The secretaries reported that 462 names were
lled from twenty nationalities—a larger number than
attended any previous congress. The treasurer's account
ed a small credit balance. Resolutions of thanks were
d to the late Lord Provost of Edinburgh, Sir Thomas
hison, Bt., and to Lady Hutchison for the part they
in rendering the congress a success; to the principal
ecretary of the University for promoting its interests;
to the University Court for granting the use of the
rsity buildings and laboratories.

Correspondence.

PUERPERAL MORBIDITY.

—In 1905 at the Annual Meeting of the Association
suggested that a standard should be fixed for puer-
morbidity. This was done by a small committee and
llowing published in the Supplement on May 19th,
. 261):

t the table of puerperal morbidity should include all fatal
nd also all cases in which the temperature reaches 100° F.
two of the bi-daily readings from the end of the first to the
he eighth day after delivery."

al hospitals, including the Rotunda, adopted this
d, and now show their morbidity results based upon
tish Medical Association standard, but there has all
een considerable variation in the interpretation. In
unda every case is classed as morbid if the tempera-
es to 100° F. on any two occasions from the second to
th day inclusive; all deaths are included in obtaining
e of morbidity. At the Jessop Hospital, Sheffield,
is obtained from all cases "in the first eight days
rise of temperature of over 100° F., occurring twice
ty-four hours and excluding the first day." The
shown with and without deaths included. At St.
exceeding 100° F. occurring twic
twenty-four hours, irrespective of pulse rate and
the first twenty-four hours after delivery." Death
included. The above three definitions are all give
reports as the British Medical Association standar

As will be seen, the Rotunda includes a temper
100° F., while the other two hospitals exclude this.
a case with a temperature of 101° on the second
days would be included in the Rotunda, but exclude
others. As an instance of the effect of the two reac
last September eight cases are classed as morbid
Rotunda, but only one would be so classed on eithe
other hospital readings of the standard.

I do not think any standard will give perfection,
standard is effective for control in the individual
tion, but the variation of readings defeats the objec
British Medical Association standard as a means
parison, or for obtaining statistics.

I would like to know the views of others on the res
readings and if opinion is in favour of a reading oth
the one I adopt, I would fall into line; perhaps some
members of the British Medical Association connect
other hospitals will give their interpretation of the
Medical Association standard.—I am, etc.,

Gibbon FitzGibbon, M.
Master, Rotunda Hospital,

November 19th.

BUTYN AS A LOCAL ANAESTHETIC IN NOSE
THROAT PRACTICE.

Sir,—Dr. Hill's article on this subject (British M
Journal, November 10th, p. 876) is a valuable co
tion to the comparative study of this new anaesth
a substitute for cocaine. Especially is it of interest
the fact that the position which butyn will tak
probably depend largely on its efficiency in nose and
operations. There are one or two questions raised b
Hill regarding difficulties in the acceptation of but
a substitute for cocaine regarding which I would li
make a few comments. Starting first with the cost,
is more expensive, it is true, but as only a small qua
is required this is of no practical importance, at lea
ophthalmic use. A 2 per cent. solution can be boug
6s. an ounce—that is, a penny will buy six drops, a qua
more than sufficient for most operations on the eye.
the nose and throat probably more would be required
even then the expense would not be prohibitive. Dr.
finds that in some of his nasal cases butyn fails to act,
he correctly adds that I made no mention of this occasi
failure of butyn to anaesthetize; he continues: "On r
ring to Bulson's report I find that others have noticed
certain individuals, not a large number probably,
failed to respond to butyn." In my paper (Br
Medical Journal, January 13th, 1923) I made no refer
to the occasional failure of butyn to act because I had n
experienced it. Dr. Bulson's statement (*Annals of Otol
Rhinology, and Laryngology*, March, 1922) regarding in
nasal operations is as follows:

"A 5 per cent. solution of butyn combined with epinephri
swabbed over the operative field and well beyond if possi
Within two or three minutes following the first application,
tened pledgets of cotton, soaked with the solution, but from w
the surplus has been squeezed out, are applied snugly over
operative field and whenever possible over the source of sens
nerve supply. These pledgets are removed at the end of five
eight minutes. Five minutes later operative procedures may
commenced with the assurance that in practically all cases
patient will suffer no pain or even discomfort. The exceptions
rare, and comparable to the exceptions under the most thoro
efforts to secure anaesthesia from cocaine, where occasion
we encounter a case of either unusual sensitiveness, or
tagonism to the anaesthetizing effect of the anaesthetic throu
psychic or other disturbances, and pain and discomfort in s
cases occurs irrespective of the agent or technique employed
attempting to anaesthetize the tissues. To offset the fear
nervousness that occasionally is present the patient is given
preliminary hypodermic of morphine and atropine, or morph
and hyoscine, but this practice is a routine procedure when coca
is used."

A more serious consideration is the question of toxicit
The manufacturers point out that they do not claim th

Injuries to the vertebral column have also to be considered; fracture of the cervical spine, usually at the level of the sixth vertebra, is the most usual spinal injury. Extension of the foetal spine is fraught with more danger than flexion, and it appears probable that the Veit-Smellie manœuvre is not without danger of vertebral injury. Facial paralysis, injuries of the face and eye, injuries of the neck and sterno-mastoid muscle, have also to be reckoned with, and Dr. Ehrenfest has dealt very ably with birth palsy—a subject which has excited the interest and controversial powers of so many orthopaedic surgeons. He separates the wheat from the chaff, and his summary of the subject is the best with which we are acquainted, though rather too much stress is laid on compression of the brachial plexus by the clavicle.

A pioneer task has been accomplished with skill, with tact, and with judgement. The subject of intranatal injury is one destined to loom very much larger than has been the case in the past, and its importance will compel acquaintance with its details. The symptomatology, the diagnosis, and the treatment of intracranial haemorrhage of the newborn is a comparatively new field, where much of great value to humanity remains to be reaped.

SANITARY MISSION TO SAMOA.

Dr. P. A. Buxton and Mr. G. W. Hopkins sailed on November 15th by the Panama route for Samoa, where they are to inaugurate preventive measures against the prevalent filarial diseases on behalf of the London School of Tropical Medicine. The expedition has been sent at the suggestion of the High Commissioner of New Zealand, and it is anticipated that the personnel of the party will be enlarged in New Zealand by the inclusion of one or more undergraduate students from the local medical schools. When the New Zealand authority took over the Samoan Islands under mandate from Germany certain appropriations were made, and out of these a small medical service was organized. The health conditions in the islands have, however, proved to be very bad, and have become a source of much anxiety to the new Government. In 1918 the influenza epidemic carried off nearly one-third of the whole population. More recently dysentery has attained epidemic proportions, and tuberculosis is reported to be spreading with alarming rapidity. Playing a more insidious part in undermining the physique and initiative of the native Polynesians are the helminthic infections, filariasis and ankylostomiasis. The present state of matters is such that the future of the native races is imperilled, so that the development of the local natural resources may necessitate the introduction of Chinese and Indian labour, thus raising a new political problem of peculiar gravity for the Government of New Zealand. Apart from the drawback of their extremely inaccessible position, the Pacific islands present certain particularly advantageous features for the study of all the factors involved in the eradication of filarial infection. The conditions of life upon the atolls are of the simplest—although scarcely as idyllic as those vividly pictured by the reader of present-day fiction. The communities are small, numbering on many of the atolls only a few hundred. On the smaller islets the dense bush surrounding the villages resists the searching trade winds, and provides still and damp refuge for mosquitos, which are of few species although legion in numbers. Statistical surveys, which present almost insuperable difficulties in most tropical communities owing to the necessity of examining the blood at night, are here rendered easy, for the filaria of the Pacific is peculiar in that it exhibits no periodicity, and is equally prevalent in the blood by day as by night. Much of the scientific data which must necessarily form the basis of the sanitary campaign about to be instituted has already been collected by an expedition from the Tropical School which visited this region in 1921-2. It was shown that of the six species of mosquitos in Samoa *Stegomyia pseudoscutellaris* was the efficient carrier, and occurred everywhere and at all seasons. Its chief-breeding places are provided by man in the heaps of coco-nut husks which accumulate from the making of copra, but the burrowings of the rhinoceros beetle and crevices left by Nature in the palms have also been implicated. According to present arrangements the mission will remain in Samoa for two years, but the chronic nature of filarial infection will necessitate the maintenance of the sanitary control in the experimental area for many more years before its influence or success is obvious. It is to be hoped that the New Zealand Government realizes the moral obligation it is assuming, and is prepared to ensure that the public-spirited initiative of the London School of Tropical Medicine in undertaking the experiment is not afterwards rendered futile. The mission is being financed from the Milner Research Fund, which is intended for the promotion of original investigations, and not to subsidize or replace local efforts in sanitation.

A MODERN MATERNITY HOME.

Queen Mary's Maternity Home, for the benefit of the wives and children of men who are, or have been, serving with His Majesty's Forces, was opened temporarily at Cedar Lawn in North End Road four years ago. In July, 1922, it was moved to permanent premises, built for the purpose and charmingly situated overlooking the Whitestone Pond at the edge of Hampstead Heath. The handsome building is surrounded by a pleasant walled garden, and the wards have been planned to secure the fullest amount of sunshine and fresh air. The home accommodates 17 patients and the necessary nursing and domestic staffs; it contains two labour rooms, a nursery and an isolation room, and a well equipped laundry. The third annual report, forwarded to us by the chairman of the Committee of Management, Lady Bertha Dawkins, summarizes the first year's work in the new quarters, and gives some account of the kind of cases received. It appears that most of the patients seek admission because their domestic circumstances make it difficult or unsuitable to arrange for a confinement at home; others apply because some abnormality is anticipated; others again because they appreciate the many advantages of a confinement conducted in accordance with the best methods of midwifery practice. Cases of minor difficulty are fairly frequent, but the home does not profess to provide for patients who are likely to need major operative measures at the time of confinement, and such women are referred to an appropriate hospital. Patients are expected to contribute towards the cost of treatment according to their means, and only those whose income falls short of a prescribed limit are eligible for admission. The home contains accommodation for a few "ex-babies" belonging to women admitted for their confinements who cannot make proper provision for their little children during their absence from home. There is also an ante-natal clinic in the grounds, apart from the main building. The medical report by Dr. E. Collingwood Andrews shows that 264 patients were admitted during the year; half the mothers were primiparae. Two maternal deaths occurred, and of the babies 13 were stillborn and 3 died shortly after birth. There were 43 abnormal labours necessitating 20 obstetrical operations, of which forceps delivery accounted for half. Induction of labour was practised in four cases—twice for contracted pelvis, once for albuminuria, and once for post-maturity.

tyn is non-toxic, and they advise that caution should be ken in increasing the administration above the recog-ed dose. Probably all anaesthetics are toxic, and aesthesia itself is a mild form of toxicity.

The published experiences of surgeons will enable a cision to be made regarding butyn's position as a bstitute for cocaine.—I am, etc.,

ath, Nov. 13th. W. M. Beaumont.

VACCINATION PROPAGANDA.

Sir,—You have been so generous in according me the spitality of your columns, both on this and previous asions, that only the great importance of the issue olved can justify my asking you to insert this further ter.

In your last editorial (November 17th, p. 939) you deavour to discount my suggestion that vaccination by very success in modifying the severity of small-pox tends make the diagnosis, and therefore the prevention, of all-pox more difficult. You suggest that my case amounts this: "Certain children are to be immolated on the altar diagnosis in order to protect other children whose parents fuse to give them the protection of vaccination." I do t think that this is quite a fair way of presenting my se. The real question at issue is this: Might we t be more successful in preventing the spread of small-x and in reducing the total number of deaths (I am speak-g of the Asiatic type of the disease) in an unvaccinated an in a partially vaccinated community?

Take the case of the serious outbreak at the Poplar orkhouse last year. The whole outbreak was clearly traced a man, H. W., vaccinated in infancy, who had such a ld and modified attack that the real nature of his illness as never suspected until, a fortnight later, a large crop secondary cases occurred scattered throughout the insti-tion and also outside. At first the situation looked tremely threatening and great alarm was felt lest an tensive epidemic should result in the East End. As owing the widespread nature of the outbreak, no less than 0 contact houses had to be kept under observation. Yet anks to the prompt and efficient measures taken by the .O.H., Dr. F. W. Alexander, and his staff—first amongst hich measures were isolation of the sick, and, secondly, ccination and surveillance of contacts—the outbreak was ickly brought under control. Nevertheless, it resulted in cases and 14 deaths, most of these being directly infected the vaccinated man, H. W.

Now, let me ask, what effect had infant vaccination upon is unfortunate and disastrous outbreak? Can anyone asonably suggest that neglect of infant vaccination was any way responsible for the outbreak? Did infant vac-nation stamp the outbreak out? As a matter of fact, the rge majority of the cases, as well as a majority of the aths, were in persons who had been vaccinated in infancy. suggest, in all seriousness, that it was infant vaccination hich, in large measure, was really responsible for the out-eak. I say deliberately that if this man, H. W., whose recognized attack of small-pox was the direct cause of e outbreak, had never been vaccinated in infancy it is in e highest degree improbable that his attack would have en unrecognized; and had it not been unrecognized the an would at once have been isolated, contacts would have en vaccinated, and there would have been no serious out-eak. It is true that H. W. might have been "pitted," or might even have died, but 42 other persons would not ve contracted the disease, East London would not have en threatened with a serious epidemic, and 14 persons uld not have lost their lives.

It is not as if the Poplar outbreak was an isolated or ceptional experience. Similar instances, though not all so riking, simply abound in the annals of small-pox epidemics. ke as samples the outbreak in Stepney last year, or the tbreak in the West End, originated by a vaccinated lady om Spain, a few months ago. As Wanklyn says in his ok *How to Diagnose Small-pox*, "Almost every outbreak London in recent years has been started, or propagated, prolonged, by unrecognized cases." And as Ricketts and yles say in their classical work, *The Diagnosis of Small-pox*, "The times have changed since the days of Jenner. Besides that we have less practice in the art, several circumstances cause the diagnosis of small-pox to present to us more diffi-culties than to our forefathers. *To Jenner we owe the chief of these difficulties.*" (Italics added.) And as Dr. P. Boobbyer, M.O.H. for Nottingham, has said: "One of the principal difficulties encountered in the preventive treat-ment of small-pox at the present time is due to the effect of vaccination, or rather insufficient vaccination." (Health Report, 1902.)

No doubt Dr. Boobbyer, like you, Sir, would prefer to have more vaccination—that is, universal revaccination; but if we cannot have more vaccination, I suggest that it is quite conceivable we should be better off, so far as small-pox prevention is concerned, with less vaccination.—I am, etc.,

Leicester, Nov. 17th. C. Killick Millard.

Sir,—I am more than surprised to find that any doctor in the present generation could, in the light of recent research, advocate non-vaccination or antivaccination as a means of reducing the death rate; surely every physician of experience knows that vaccination for any disease is only carrying out Nature's plan of curing by producing immunity. The unfortunate fatalities mentioned by Dr. Millard have without doubt no connexion whatsoever with vaccination itself, but have evidently been due to care-lessness in performing an otherwise simple operation. Per-sonally I have given thousands of vaccinations against small-pox and almost every other disease during the last thirty-six years, including vaccinating myself, and never had a single septic complication. When we consider that millions of lives have been saved by vaccination within the last ten years, no one in his senses would give up such a valuable means of deliverance from some of the most fatal diseases of mankind.—I am, etc.,

Dublin, Nov. 19th. William Verner Furlong.

OBSERVATIONS ON CANCER.

Sir,—In connexion with the discussions on cancer in general, and the investigations as to its origin in particular, perhaps I may be allowed to put forward some jottings on points suggested by a clinical study of cases in general practice spread over many years. To a great extent it is for the general practitioner to make his observations and notes, and then hand them to the consultant and the pathologist.

I should like first to put down a number of suggestions as to facts to be observed, and to suggest some general and special conclusions that may be drawn therefrom. (Such facts as here stated are put down as individual observations and, no doubt, are inaccurate in many points.) Secondly, to give some possible hints as to treatment in inoperable cases.

1. Facts to be observed:

(*a*) The comparative immunity of chronic dyspeptics from gastric cancer. I have been struck by the fact that the majority of patients I have attended with gastric cancer have had strong digestions previously.

(*b*) In cancer of the oesophagus—the very common association either with the excessive drinking of concentrated forms of alcohol or of excessively hot fluids.

(*c*) The slow growth, or in some cases retrogression, of carci-noma of the bowel after the making of an artificial anus, thus stopping the constant passing of irritating liquid intestinal con-tents over the diseased surface.

(*d*) The comparatively slow growth and mildness of symptoms where the cancer has a chance of growing freely in some direc-tion, without causing excessive tension of the structures into which it grows.

(*e*) The incidence of sarcoma in young and vigorous tissues, and of carcinoma in old and less vigorous tissues, apart from the fact that the former grows in the mesoblast, the latter in the hypoblast and epiblast, and that the former is spread by the blood current, the latter by the lymphatics

(*f*) The apparently more frequent incidence of carcinoma where a rich and very mixed diet is habitually taken.

(*g*) A suggestion for the systematic study, and tabulation of the results of such study, of the natural history of cancer in inoperable cases—the natural course or courses of the diseased process when allowed to proceed unchecked.

As the value of institutions of this kind is very widely recognized, some interest attaches to the financial position of the home. It appears from the balance sheet that the fund for the building amounts to something over £35,000. There is a general endowment fund of £28,274, and a special equipment fund of £1,019. The total amount entered under capital accounts is thus £64,814. From the income and expenditure account for the year ended March 31st, 1923, it appears that dividends on investments yielded £1,568, patients' payments £1,472, and pupils' payments, less lecture fees and fees returned, £313. The Home received a grant from the Ministry of Health of £1,000. Altogether the contributions received from various charitable persons towards the upkeep of beds seem to have amounted to £1,605, and of this £1,053 was allocated to the year's working, the balance of £552 being carried to reserve. It also received gifts in kind from Queen Mary's Needlework Guild estimated at £337. On the other side of the account the cost of maintenance was £3,927, and of administration, including rent and rates, £446, leaving a balance, being the excess of income over expenditure, of £1,384, or a little less than the amount received from patients' payments, which provided about a fourth of the total income.

INCOME TAX IN THE DOMINIONS.

A Government publication recently issued gives a digest of the income tax laws in force in the various British Dominions, Colonies, etc. This little volume[1] may be a useful book of reference for specialists in income tax work, but is hardly to be recommended for general reading. It is, however, interesting to note the manner in which certain of the Dominions have tried, and it would seem not without some success, to bring the taxation of income into closer relation with the individual's actual circumstances. This development has, in the main, proceeded along the line of giving deductions for certain expenses; for instance, in the case of the Union of South Africa the life assurance allowance was not only adopted, but extended to cover premiums paid for insurance against "sickness," while in the case of the State of Victoria allowances are made in respect of payments made to a qualified medical practitioner or any hospital, to any nurse, or to any chemist. Other deductions of general interest might be mentioned, but we have quoted the above partly because the line of recent developments in the British scheme—for example, the increased flat rate allowances for children and dependent relatives—appears to be leading to some similar forms of allowance, and partly because there is a plain and forceful argument for allowing, at any rate in the assessment of earned incomes, the deduction of medical and surgical fees and similar expenses. The argument is this: the "earner" is as much entitled to an allowance for the cost of maintaining in working order his physical or mental capacity for work as the owner of a factory is to the deduction as a working expense of the sums he spends on the repair and maintenance of his material machinery. The professional man who in the stress of work is forced to undergo medical treatment is incurring expenditure of a nature essentially similar to that incurred in taking to pieces and overhauling an overdriven motor car or lathe. We agree, of course, that the argument can easily be pushed too far; for example, we could not reasonably suggest that all expenditure incurred by a worker on rest or recreation should be allowed for in computing his income tax liability, but we consider that the argument justifies the allowance of actual medical expenditure on the Victoria model. If there were any doubt on the point a further reason could be adduced. The importance from the standpoint of the national welfare of the general health of the community is universally recognized, and it is clear that an allowance of the nature suggested would in the first place encourage those workers who do not come within the scope of the National Health Insurance to seek medical assistance promptly, and in the second place to meet the proper financial claims of the practitioner with greater alacrity and completeness, and thereby do something towards ensuring that that assistance shall be available. A somewhat curious reference to the medical profession occurs in the law in force in the Tanganyika Territory, in the form of a complete exemption from the income tax, but as that exemption is shared by all salaried and wage-earning employees and by the recipients of profits derived from farms and plantations, the favour is not one for which the medical practitioners concerned are likely to feel any special gratitude.

[1] *Income Taxes in the British Dominions.* Price 5s. net. Published by H.M. Stationery Office.

GARDEN CITY SANITATION.

Dr. M. Hindhede of Denmark is well known for his work on diet and his advocacy of a strictly vegetarian regimen. As an expert in drains and the commercial value of excreta he is a comparative novice, but there must be a beginning to everything, and his recent excursion into the domains of sanitation is interesting. At a lecture[1] given to the Danish *Hygienisk Laegeforening* he painted a vivid picture of the smallholder, allotment owner, simple-life enthusiast, the ointment of whose happiness would be perfectly pure but for one fly—the sanitary engineer. Dr. Hindhede has recently made a tour of inspection of the garden cities of England and Germany, and the garden city of Eden near Berlin is given such high praise at the cost of the garden cities of England that, if Dr. Hindhede's judgement is sound, the inhabitants of the latter must indeed be in a sad plight. His account suggests that in the English garden city large sums are spent on the house itself, a small front garden is devoted to a "pretty-pretty" effect, and the cramped back garden is an untidy wilderness, too small to make the cultivation of vegetables worth while. The value of the land having been forced up, it does not pay the tenant to rent it for the cultivation of vegetables, and for that matter it is doubtful if the English workman —as analysed by Dr. Hindhede—appreciates vegetables, what time his stomach craves bacon and eggs for breakfast. The English sanitary engineer, having to live and to justify his existence, has, according to Dr. Hindhede, hung a heavy and costly millstone of sewers round the neck of the garden citizen, with the result that houses have to be built in twos, fours, and blocks to meet the cost of sewers, the garden city becoming more and more of a city and less and less of a garden. Though he scoured the country under the auspices of the Ministry of Health, seeking colonies where sewage was used instead of being wasted, Dr. Hindhede seems to have left our shores with the sorrowful impression that we are under the heavy thumbs of our sanitarians. His impression of Eden near Berlin was very different. This community was founded more than a score of years ago, and, the land being held by the community for the good of the community, land values are not forced up, and when a settler leaves Eden his land reverts to the settlement. The infantile death rate of Eden is only 3.8 per cent., whereas, according to Dr. Hindhede, it is 5.5 per cent. in an English garden community. Though water is laid on there are no sewers in Eden, and all the excreta and waste products are returned to the soil. He estimates the annual value of a family's excreta at about £5, and agrees with the Chinese practice by which all is returned to the soil.

[1] *Ugeskrift for Laeger.* June 21st. 1922.

(*h*) The possible influence of mentality on the incidence and course of cancer, as to whether it is commoner in people of melancholic or apprehensive temperament, especially in those who cannot throw off ideas of anxiety and depression.

The inferences to be drawn must, of course, depend on prolonged study of a collated series of observations on cases.

2. Possible hints as to treatment in cases where operation is impossible or inadvisable.

Over a period of fourteen years I have tried the systematic administration in inoperable cases of cancer of an alkaline (potash) mixture of iodine (the essential ingredients being tinct. iodi, ♏j to ♏ij, and liq. potass. ♏vi to ♏x in one ounce doses of the mixture). In a large number of cases I have observed the general condition improve, the pains diminish, and the signs of growth of the cancer become less marked. On giving up the mixture, the symptoms have returned. I have found a similar mixture very effective in the treatment of (1) rheumatism and gout; (2) tuberculous glands in children; (3) pulmonary tuberculosis. The question here, I think, arises, What are the pathological processes common to these various diseases or diseased conditions? It seems to me that the most obvious pathological process common to them is small-cell growth. May it be that the iodine of this mixture (the ingredients forming, in the stomach, free iodine, potassium iodide, and potassium iodate) exerts some inhibitory action on such small-cell growth in these various diseases, probably by the formation or reconstitution of some necessary hormone or hormones? I might mention that when I have replaced the potash-iodine mixture by a potash mixture not containing iodine the good effects have either disappeared or at least greatly diminished; thus apparently showing that the iodine was the potent factor and the potash at any rate merely auxiliary.—I am, etc.,

G. D. PARKER, M.B.Lond.,
M.R.C.S., L.R.C.P.

Cookham Dean, Nov. 1st.

ATTITUDE IN CATHETERIZATION OF THE BLADDER AND BLADDER DRAINAGE.

SIR,—Dr. Bamber, in the BRITISH MEDICAL JOURNAL of November 17th (p. 947), raises an interesting question, and, I think, answers it correctly.

Owing, moreover, to the existence of a "post-prostatic pouch" in the majority of cases where there is residual urine, it is impossible to empty the bladder completely by the ordinary mode of catheterization, especially in the supine[1] position.

To meet this difficulty I have for many years used a modified *coude* rubber catheter, the beak of which dips into the pouch. If continuous drainage be required in the lying position, it is essential, of course, to connect the outer end of the catheter with a tube which discharges at a lower level than the level of the urine in the bladder. If this were seen to, and the bladder washed out twice daily, sepsis would be less marked and less common. There are many modes of rendering a rubber catheter *à coude;* I prefer the insertion of a short spiral of brass wire, bent properly, into the distal end.

A constant source of trouble is the partial escape of the catheter; this can be entirely prevented by the introduction of a small metal tube, one inch long or more, into the catheter where it is to be fixed at the meatus, thus preventing bending of the catheter. If its end be then passed through a perforated piece of gauze and the latter tied firmly round the former, and the remainder of the gauze tied behind the glans, we have the simplest and, I think, the best means of securing the catheter in position.—I am, etc.,

JAMES MACMUNN.

London, E.C., Nov. 18th.

CANNABIS INDICA IN SMOKING TOBACCO.

SIR,—In your issue of November 3rd (p. 841) Mr. E. Griffiths-Jones, M.Sc., of Cairo, seeks further information on this subject, and in particular on the method of analysis employed in the case I reported. I am not a chemist, but

sent a full account of his methods to the *Ph Journal*. Meanwhile, let me say that though of drug administered must have been small, t were unequivocal, and cannabis indica was various qualitative tests. Also, a most importa one that I was not aware of when I sent in m tion, Dr. Henstock tested several other brand with negative results in every case. As regar tative test, Dr. Henstock admits this was more and ready, being the tinctorial method, but amount rather underestimated if anything. A 0.66 per cent. *does* refer to the extract, and t of 1 drachm of the *B.P.* tincture per ounce therefore approximately correct.—I am, etc.,

R. L. E

Shrewsbury, Nov. 13th.

TWO SOLECISMS.

SIR,—On reference to an etymological dicti the word "solecism" defined as "any glaring d the established usage of a language in spea ing—any impropriety or barbarism of speech. to suggest that there are two solecisms—as de in very common use: one in speech, and writing. I refer to the common habits of (1) a envelope containing a letter to a medical r Jones" (or whatever his name may be) and (him conversationally as "doctor."

It is surely obvious that the first is wrong. him conversationally as "Dr. Jones" may correct: but to direct an envelope to him as is just as certainly "barbarous." No doubt i convenient, as perhaps one may not rememb or Christian name. But would you think address the envelope of a letter to, say, a cleric as "Mr. Smith" or "Mr. Robins method of address might be quite correct con but is certainly quite incorrect in the case of t formal method of address outside an envelo

Then with regard to (2), addressing a med versationally as "doctor." How would you or she adopted your method, and replied to lawyer," or "Yes, wine merchant," or "Yes as the case might be? The fact that these two and have long been, in common use, is no ex perpetration. There is, as we all know, a con a certain class (or in aspirants to that class) out the terminal *g*; there is also a still co (in another class) of either leaving out, o the letter *h* at the wrong time. Surely no on to defend these vulgarisms by pointing out sanctioned by wide or long usage!—I am, etc.

Su

November 10th.

The Services.

LIEUT.-COLONEL W. A. SIMMONDS, I.M.S. (ret.), ha an Indian good service pension.

DEATHS IN THE SERVICES.

Deputy Inspector-General Robert Hall More, R. at Plymouth in the beginning of November, age educated at Aberdeen, where he graduated M.D. 1862, and entered the navy in the same year. He surgeon on April 29th, 1883, and retired, with an ho rank, on January 27th, 1895. He was commended fo in an epidemic of yellow fever at Bermuda in 186 the Gilbert Blane medal in 1883.

Colonel William Edward Webb, Army Medical S at Southampton on November 11th. He was born Dorset, on December 11th, 1851, and educated at London, and at Aberdeen, where he graduated M. 1873, and M.D. in 1882; he took the L.S.A. in 1873, a in 1889. He entered the army as surgeon on Septem he attained the rank of colonel in 1902, and retire served in the Egyptian war of 1882, was present

SIR FREDERICK MOTT.

SIR FREDERICK MOTT finally retired from the post of pathologist to the London County Mental Hospitals and director of the laboratory at the Maudsley Hospital on October 31st. His connexion with the work of London mental hospitals began in 1895 and has continued ever since. On November 15th he was made the recipient of a very interesting presentation from those associated with him during this long period. It consisted of a Chippendale bookcase containing a complete set of the novels and poems of Mr. Thomas Hardy, and was accompanied by an album embodying a short address signed by ninety-six persons, including representatives of the medical staffs of the mental hospitals of the London County Council, of the clerical and engineering staffs of the hospitals, and of some members of the class of psychological medicine. The presentation was made at a meeting in the Council Hall by Mr. H. Keene, clerk of the Mental Hospitals Committee; Dr. Spark, the senior of the medical superintendents of the London mental hospitals, and Dr. Hubert Bond, commissioner of the Board of Control, also both spoke of the great services Sir Frederick Mott had rendered to mental pathology and medicine. Sir Frederick Mott, in acknowledging the presentation, said that although many honours had come to him he esteemed none so high as that done him by this presentation from colleagues, fellow workers, and friends. The album contained a short address in which the signatories expressed their appreciation of Sir Frederick Mott's brilliant research work, of his efforts in connexion with the establishment of the Maudsley Hospital, and of the great assistance he has afforded to workers in the field of psychological medicine. One of the members of the staff presented the following sonnet:

Who would seek Truth essays no light emprise.
  Not for his feet those paths which all may tread
  Of common use, not for his lips the bread
Which many break, nor for his eager eyes
Sufficeth that wan gleam from moon-lit skies
  Which most call Knowledge; not for him the dead
  Contentment of an oft-trod round, where fed
By ancient Wisdom men grow custom-wise.

He looks afar, and sees a glimmering fire
  Beckon him on, a glow of dawning light
  Upon a distant peak, and through the night
He strives, above the mist, above the mire,
Strives in the dark, though footsteps flag and tire,
  Till, at the day, Truth breaks upon his sight.

THE AMERICAN AND THE ENGLISH COLLEGES OF SURGEONS.

IN our issue of November 3rd (p. 835) we published an account of the Fellowship Address delivered by Sir William de Courcy Wheeler, P.R.C.S.I., on the occasion of the conferment of the honorary Fellowship of the American College of Surgeons upon himself and upon Mr. A. E. Webb-Johnson, C.B.E., D.S.O., surgeon to the Middlesex Hospital and dean of its medical school. Mr. Webb-Johnson took the opportunity of presenting to the College a specially bound copy of the volume published in 1900 for the centenary of the Royal College of Surgeons of England. In making the gift Mr. Webb-Johnson said that the volume contained the address delivered by the President, Sir William MacCormac, and a short biographical account of each of the sixty-one surgeons who had been Masters or Presidents of the College during the hundred years of its existence. The copy now presented was of special interest, for it contained an inscription showing that it was presented in 1901 by Sir William MacCormac to Mr. Stephen Paget, the only one of Sir James Paget's sons to follow a surgical career. Of the next generation of the Paget family Richard James Paget, one of the sons of the Bishop of Oxford, was the only one to choose medicine as his profession, and the volume was presented to him by Stephen Paget in 1907. Richard Paget did not continue his medical studies, and had given the book to Mr. Webb-Johnson in 1910. With these inscriptions recording the history of the copy the donor felt that it should find a resting place in some permanent institution rather than run the risk of being dispersed with the books of an individual owner on the breaking up of his library. He asked the American College of Surgeons to accept it as a token of the good fellowship which has always existed and will ever continue to exist between British and American surgeons.

THE AUSTRALASIAN MEDICAL CONGRESS.

THE President of the British Medical Association, Mr. C. P. Childe, sent the following cable on November 9th to Mr. G. A. Syme, President of the Australasian Medical Congress at Melbourne:

> "Hearty congratulations from parent body to First Australasian Medical Congress held under auspices of Association. Best wishes for successful meeting. Sir William Macewen will tell how proud we are of this renewed evidence of strength of Association in Australasia.
>
> "CHILDE, President."

ON the afternoon of Tuesday, November 27th, at 5.30 o'clock, a combined meeting of the Medical and Surgical Sections of the Royal Society of Medicine will be held in the Barnes Hall at 1, Wimpole Street, W.1, to discuss the surgical treatment of pulmonary tuberculosis. The discussion will be opened by Professor Bull of Christiania, who is making a special visit to this country for the purpose of this meeting. All members of the profession who are interested in this important subject, whether Fellows of the Society or not, are cordially invited to attend the meeting.

THE discussion on the comparative value of cocaine substitutes, arranged by the Sections of Surgery, Ophthalmology, Otology, Laryngology, Odontology, and Anaesthetics of the Royal Society of Medicine, will be held on Friday, December 7th. It will be opened at 8.30 p.m. by Dr. Patrick Watson-Williams of Bristol.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

PARLIAMENT was dissolved on November 16th.

The Capitation Fee: Court of Inquiry.

LIEUT.-COLONEL NALL, on November 15th, asked the Minister of Health whether he had received an answer to the final offer he made to the panel practitioners regarding their terms of service after January 1st, and if so what action he proposed to take. Sir W. Joynson-Hicks: Yes, sir, my offer was accepted by a unanimous resolution of the Conference of Panel Committees held yesterday, the alternative being chosen of a Court of Inquiry to investigate and make recommendations as to the capitation fee properly payable as from January 1st. I am taking steps to set up the Court as quickly as possible. I understand the resignations will be withdrawn.

Mr. Rhys Davies asked whether the Minister would state where he was going to find the money to pay the increase from 7s. 3d. to 8s. 6d. Would he consult the Approved Societies on this question, and at once call together his own Consultative Council to find out what they thought? Sir W. Joynson-Hicks: The question whether anything will have to be paid to the doctors above 7s. 3d. is a matter for the Court of Inquiry. There is no need for me to consider finding any money until the Court has arrived at a decision. I shall be

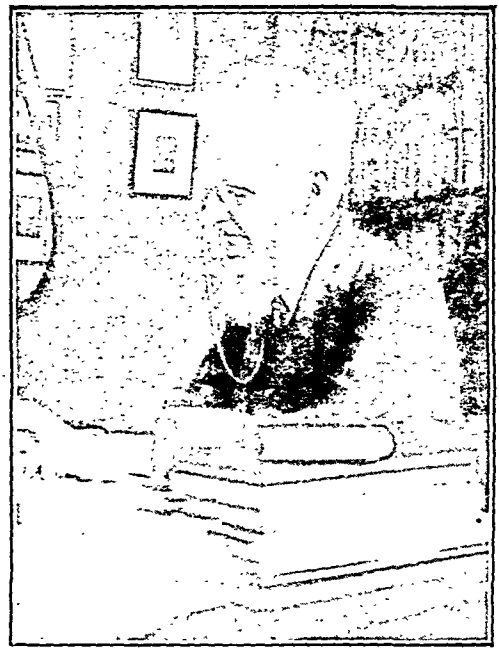
Obituary.

THE LATE MR. PRIDGIN TEALE.

A Tribute by Sir Clifford Allbutt, K.C.B., P.C.

The request for some more intimate appreciation of my late friend recalls many memories. With his eminent father I had had some earlier acquaintance, and received from him many a courtesy; but his son I had not seen before I settled in Leeds. My first memory of him is as I saw him crossing the street to call on me—a rather small, slight, brisk man dressed not in the professional garb of the consultant of the time, which he was one of the first to cast aside, but in the lounge suit and bowler hat of to-day. On that afternoon began a friendship which lasted cloudless for more than sixty years.

The subcutaneous use of certain drugs, or morphine especially, had been invented at St. George's shortly before my pupilage there was ended. Teale and I began some experiments on the method. We first discovered the remarkable tolerance of morphine by the rabbit—the only animal readily available at that time. On this by-way we were held up until, soon afterwards, the Antivivisection Acts stopped our researches altogether. But on the suggestion of another dear friend, Hughlings Jackson, I undertook a closer study of medical ophthalmoscopy, and Sir James Crichton-Browne, always in the van, encouraged me to extend my observations in the West Riding Asylum. Mr. Teale, who was a pupil of Bowman, and proficient in eye work, most kindly associated me with himself in both his public and private practice; an invaluable discipline which enabled me to write a book on the subject, which had its day.



Mr. Pridgin Teale.

Our next joint effort was the endeavour to deal with scrofula, then a far more grievous malady, and a cause of pain and deformity to many more young people than it is now. For the most part little was done beyond incision of subcutaneous abscesses, and banishment to the seaside, where the worse victims were dragged about in litters with their necks fixed in yokes. Thus the disease was left for the most part to increase, propagate, caseate, break into abscess, and damage the skin on which cure largely depended. We had at first only the worst cases to deal with; neither doctor nor parent would agree to the early surgical interference by which we desired to secure a linear scar so placed as to be drawn up invisibly under the jaw. By dealing with these severe cases, however, we learnt many of the tricks of the disease. Well I remember, in our early attempts, the case of the tall, handsome, and courageous daughter of one of our greater Yorkshire houses upon whose huge bilateral scrofula Teale had to operate, for more or less, including the excision of old puckered scars, fourteen times; and with, at last, satisfactory results. Among other devices we learnt the peril, even in early cases, of overlooking small subfascial or submuscular burrows leading to rotting glands no larger than small peas. Our operation caught on, and it will hold its way until by radium, perhaps, and still better by prevention, it become unnecessary. This was our chief work in common; but during my residence in Leeds we travelled together over many a field in mutual counsel and help.

Teale's pioneer work in sanitation and heating are too well known to need my story of it. But fertile in dodges and dexterities, his hand was to be seen in almost everything with which he was concerned. His bookcases were dust-proof, yet ventilated; the face of his clock was divided not with cumbrous figures, but with long and short dashes; even his pencils differed from other people's. We used to say that a patient who had not much the matter with him might retire from a consultation with more information about his fireplaces or his drains than about his own eyes or limbs. Enthusiasms are very infectious.

I think Mr. Teale was the first surgeon, or one of the first, to provide a nursing home for his private operations. He bought a house and thoroughly cleansed and refitted it from top to bottom, especially the latter. It was not a popular step at the time, for the family doctor lost the carrying on of the case after the operation. But Teale argued that if he was to be responsible for the issue of his operations he must have full control of the conditions, and of ready appliances for all contingencies. Such was the sincerity and generosity of his character that opposition soon died down, and other surgeons followed his example.

As a surgeon Teale was both dexterous and wise. His hands were delicate, and his touch sensitive. As he began to operate, his features, at other times so mobile, set into an expression of calm resolution; and whatsoever crosses or surprises might be in store for him, I, who was often present, never saw him perturbed; if necessary his plans would be quickly changed for the best.

Throughout all Teale's work, his social life, and his public engagements there shone the light of a nature of rare beauty and charm. He was one of those who carried into maturity and old age the blithe generous enthusiasms of youth; a childlike frankness, unselfishness and sincerity. His first wife was a great sufferer for some years before her death; long years during which his friends saw with anxiety his devotion and utter forgetfulness of self; his broken nights, at a period when his surgical work was at the flood, not only borne without a murmur but with an innocent unconsciousness of any sacrifice. Our pedantic psychologists are just now discovering the differences between the contemplative man and the practical man. Highly intelligent rather than intellectual, Teale was never happy till he could take action, till he saw his way to *do* something. He thought with his fingers. Mental suspense worries men of this kind; and in conversation it was delightful to see how with his quick and open mind Teale would brighten at the mention of some new device, his eyes would sparkle, and by lively gesture, such as the little clap of the hands that his friends knew so well, he would rejoice in the vision of an idea which he might bring to the test of practice.

Pridgin Teale was a shining example of the generous brotherhood which, from the days of the Heys and Samuel Smith to the present honorary staff, has been the inspiration of the Leeds School of Surgery.

A Note by His Doctor.

Dr. R. H. Hall writes: My relations with the late Mr. Pridgin Teale were necessarily very intimate and friendly as I have been his ordinary medical attendant for the last ten years.

two were examined at later dates and both remained free from discharge, one after ten weeks and the other after four months. Three cases in which a slight discharge persisted were afterwards treated by zinc or copper ions and the discharge disappeared. These cases were seen again after two, three, and six months respectively, and no discharge was visible. In the remaining six cases the patients said that the discharge had diminished. In these the discharge was not purulent in appearance, and in one it was clear and resembled mucus. In one of the two cases in which gonococci were not found before the diathermy the discharge disappeared after the treatment; the patient was told to report again but did not do so. The other case could not complete the treatment as she had to leave London; her doctor reported that the discharge was "much less." The patient from whom the gonococci could not be made to disappear was probably reinfected as her husband also had gonorrhoea and was under treatment at the centre.

The question whether complete cure of gonococcal cervicitis or urethritis has been obtained cannot be answered by the absence of gonococci from the discharge. Complete subsidence of discharge is in its favour. Often, however, some discharge continues, and the question will arise in such cases whether the discharge is pathological. A discharge of pure mucus is not evidence of gonococcal infection. If, however, pus is present in the discharge it must be considered as pathological. A point in the treatment will often be reached in which although the discharge is mainly mucus there are still present small numbers of leucocytes. After ionization and diathermy in which sloughing has taken place leucocytes will be present as the result of the formation of granulations. Often, on the cessation of treatment, these will disappear and the discharge will finally clear up after a short time without further treatment. It is to be remembered that these treatments to the cervix *tend to maintain* this muco-purulent discharge. It becomes therefore a matter of judgement founded on experience when the treatments should be left off in the expectation that the discharge will eventually cease.

Treatment of Gonococcal Prostatitis by Diathermy.

At present we have not obtained sufficient evidence to enable us to make a definite conclusion on the action of diathermy on gonococcal prostatitis. Our results so far seem to show that the new treatment possesses therapeutic action in this disease. We treated one of our cases of arthritis by applying diathermy *to the prostate only*, and obtained the effects already mentioned—namely, abolition of pain, reduction of swelling, and increase of movement. We also noted the disappearance of pain and tenderness from the epididymis in a case of gonococcal infection of this part after application of diathermy *to the prostate only*. The following case also is suggestive. The patient gave a history of gonorrhoea. In his perineum there was a fistula leading to his urethra immediately behind a stricture of the passage mentioned. He complained of severe pain in the right lower limb. There was tenderness on pressure over the back of the thigh and flexion of the hip caused extreme pain. It was decided to apply diathermy to the prostate only. Complete and permanent relief of pain was produced, and the only symptom which remained was some discomfort on stooping with the knees extended.

It has already been mentioned that some of the cases of arthritis did not obtain relief until the urethra and prostate were also subjected to diathermy. In all these cases, save that described above, both prostate and urethra were treated simultaneously. We are therefore unable to state the region on which the diathermy exerted its therapeutic action—whether the urethra or prostate or both. Further light on this question would be thrown by the application of diathermy to cases in which only the anterior urethra was infected and to others in which the clinical evidence pointed to subsidence of infection from the anterior urethra with persistence in the prostate. This investigation is at present occupying our attention.

DIATHERMY FOR MALIGNANT DISEASE OF THE MOUTH, PHARYNX, AND NOSE.

WITH NOTES ON SEVENTEEN SUCCESSFUL CASES.

BY

NORMAN PATTERSON, M.B., CH.B.EDIN., F.R.C.S.ENG.,

SURGEON, THROAT AND EAR DEPARTMENT, LONDON HOSPITAL.

FOR the last eight years I have been employing diathermy in the treatment of carcinoma affecting the mouth and pharynx. Unfortunately, the great majority of the patients treated were suffering from advanced disease; this was true of all the early cases, and of nearly all those treated in hospital. A very considerable number of patients were suffering from secondary deposits in the glands on one or both sides of the neck, and in some cases the glandular involvement was extensive. Cutting operations of magnitude had, therefore, frequently to be carried out in the neck; diathermy is rarely, if ever, of any use in dealing with the malignant extensions in the neck. Faulty technique and the too timid use of the diathermy electrode accounted for some of the failures in the earlier series of cases. Owing to the great size or unfavourable position of the growth, or the general cachectic condition of the patient, many of the cases dealt with would now be deemed unsuitable for any sort of treatment. Haemorrhage during the separation of the sloughs was a not infrequent occurrence. Since I have adopted ligature of the main vessel or vessels supplying the part in cases requiring extensive diathermy, or in patients with thickened arteries and high blood pressure, severe haemorrhage has not been met with.

When the growth is small, superficial, and situated some distance from important and vital structures, and when the glands are free from involvement, or only slightly invaded, there is an excellent chance of a complete and lasting cure. My experience is that, if local recurrence is going to take place, it will generally happen during the first six months. This, of course, does not apply to recurrences in the neck. When the primary growth is very extensive, deeply rooted, and situated in a locality unfavourable to its free destruction, and more especially when the secondary deposits in the neck are massive or fixed, there is little likelihood of effecting a cure, and there may be great risk in subjecting the patient to operation. However, most of the cases recorded in this article were described by others as "inoperable," and some of them were very extensive; it is difficult, therefore, to draw the line between cases which should be subjected to treatment and those which should be left alone. Much depends on the general condition of the patient and the special experience of the surgeon. Every practitioner should be alive to the grave significance of an ulcer or indurated area occurring in the tongue, mouth, or pharynx of a patient over middle age. The condition rarely proves to be simple, or due to any other cause than malignant disease. It is well, therefore, to regard every doubtful case as one of cancer until it is proved to be due to some other cause. To the practised observer the diagnosis of epithelioma is generally easy. Over and over again the author has seen patients who have been diagnosed as suffering from "septic ulcer," "cyst," "gumma," when the real trouble was epithelioma. Many cases of supposed syphilis are repeatedly injected with salvarsan or soaked with iodides. It is important to remember that a great many patients with buccal or pharyngeal cancer will give a positive Wassermann reaction.

In the majority of cases the growth is visible on ordinary inspection—it is generally best to use reflected light. If it is situated at the base of the tongue, low down in the pharynx, or in the neighbourhood of the larynx, a laryngeal mirror will be required for its inspection. In nearly all cases palpation with the finger is possible, and it should never be omitted, as the cartilaginous hardness of an epithelioma is one of its most characteristic features.

Microscopic examination of a fragment of the tumour

clinch the diagnosis. There is one objection to this hod—namely, that even such a small operation is owed by more rapid advance of the growth, and this specially the case if some of the surrounding healthy ue is removed at the same time. Before removing a tion for microscopic examination, consent should, there-e, be obtained for an early operation, should such an ration be found to be necessary.

'o far the only treatment of cancer which has stood the t of time is that which aims at the total removal or truction of the tumour and its extensions. The writer come to the conclusion, after considerable experience, it in cancerous growths situated in the pharynx and uth the ultimate results are likely to be infinitely better en the primary growth is dealt with by diathermy, her than by a cutting operation. He stated (*Lancet*, 0) his reasons for this opinion, which he has had no ise since to modify. Many brilliant successes would be tained if the disease could only be diagnosed and treated its early stage.

The glands have not been removed in every case; this is ing to the fact that consent has not always been tained. Removal of glands (and this generally means orough clearance of both anterior and posterior triangles "block" dissection) should be carried out even when enlarged glands can be discovered on palpation. In one the author's cases—not recorded in this series because he is a recurrence—a man suffering from a small epithelioma volving the uvula, and just extending on to the soft alate, was treated by diathermy. There was no enlarge-ent of the glands, but the patient was urged to have the iangles of the neck cleared out on both sides. He abso-itely refused. Four years later malignant glands have eveloped on both sides of the neck; the region of the alate has remained perfectly healthy. It is generally dvisable to destroy the growth in the first instance, and ubsequently to remove the glands. Occasionally the two perations can be carried out at the same sitting. If the urgeon is in doubt whether or not he can make a thorough learance of the neck, then the gland operation should recede that on the primary growth. If the glands cannot e dealt with it is little use applying diathermy to the rimary tumour, except as a palliative measure. It is ometimes advisable to operate on the glands in the first nstance, and to deal subsequently with the primary umour, as consent for the neck operation may be difficult o obtain after the growth itself has been destroyed. Before ommencing treatment it is well to try and obtain consent for two or three operations, and to impress on the patient the importance of the removal of glands. If the diather-mized area approaches or invades the fascial planes of the neck—and this is most likely to occur in cancer of the floor of the mouth—a clear interval of a fortnight or three weeks should be allowed between the destruction of the primary growth by diathermy and the neck operation. If this rule is not observed alarming sepsis may occur in the neck, which may lead to a fatal issue. Preliminary ligature of the external carotid should be adopted, as stated above, when secondary haemorrhage is to be feared.

The following cases have been successfully treated. In some of these it might almost be stated that a cure has been effected; in most of them it is to be hoped that the disease will not recur.

Case 1.

A man complained of sore throat, and on examination there was discovered an extensive epithelioma of the right tonsil and right side of the tongue and of the floor of the mouth. This was treated by diathermy, and the patient went on well for a time. Later, however, he returned to hospital with a carcinomatous tumour involving the right side of the tongue and the right side of the mouth, and there was a large, hard mass in the right sub-maxillary region. The tumour in the mouth was subjected to vigorous diathermy, and the mass in the neck was removed by dissection. The patient, nearly eight years later, is actively engaged as a tram conductor and at present there is no sign of growth.

Case 2.

An elderly lady was found to be suffering from endothelioma of the base of the tongue. With the aid of suspension laryngo-scopy the growth was removed by diathermy (excision method). There was no recurrence six years after operation.

Case 3.

A man, aged 52, complained of soreness of the floor of the mouth and a lump at the right side of the jaw, of two months' duration. On examination a carcinoma of the middle of the floor of the mouth was found; the tongue was freely movable, and there was an enlarged hard gland in the right submaxillary region; the glands on the left side were not enlarged. The growth was freely destroyed by diathermy, and a fortnight later the glands were removed in the usual way. There was no recur-rence more than six years after.

Case 4.

A woman, aged 58, presented a cauliflower-like growth (epithe-lioma) on the right side of the hard palate, and on transillumina-tion the right antrum was dark. The upper jaw was resected, and three weeks later the cavity was thoroughly subjected to diathermy. The patient went on well for a year and ten months, when she reappeared with a small nodule in the scar, which was destroyed by diathermy. Six months later she came to hospital with a large mass in the upper part of the neck, which was removed, together with the fascia and glands in both anterior and posterior triangles, the internal jugular vein, and the upper portion of the sterno-mastoid muscle. She is well six years and three months after the original operation.

Case 5.

A man, aged 55, complained of soreness of the throat, of seven weeks' duration; there were enlarged glands on the left side of the neck. An epithelioma of the posterior part of the tongue on the left side was found, invading the anterior pillar of the fauces and the tonsil. The growth was removed by diathermy, and subsequently the glands on the left side of the neck were removed. There was no recurrence five years and three months after operation.

Case 6.

A man, aged 57, complained of pain on swallowing for several months; he was an excessive smoker, but a total abstainer. Exam-ination showed a large epithelioma of the right tonsil and palate, which was removed by diathermy. A year later the glands on the right side of the neck were thoroughly removed. There was no recurrence four years and five months after operation.

Case 7.

A man, aged 46, had suffered from repeated sore throat during the previous three years, and six weeks before he was examined he began to have pain on swallowing; he had lost weight during the past year. On examination an extensive carcinoma of the base of the tongue, right tonsil, and soft palate was found. Diathermy was applied to the growth, and a fortnight later an extensive removal of the glands on the right side of the neck was performed, and the external jugular vein resected. A fortnight later, again, the glands were cleared on the left side of the neck, and at the same time diathermy was applied to a small area of growth which had been missed at the first operation. A month later a suspicious area was seen and diathermy was applied to it. There was no recurrence three years after the last operation.

Case 8.

A man, aged 67, had a small superficially placed epithelioma of the left tonsil and anterior pillar; there were no enlarged glands. The growth was thoroughly destroyed by diathermy. Three months later a hard gland was discovered over the bifurcation of the left carotid. The anterior triangle was dissected, and three months later, a small gland being felt in the left posterior triangle, this region was cleared. There was no recurrence over three years after the first operation.

Case 9.

A middle-aged lady had an epithelioma of the posterior pharyngeal wall, just above the arytenoids. Suspension laryngo-scopy was employed to bring the growth into view, and it was destroyed by diathermy, together with a good margin of the surrounding tissue. After three years there was no recurrence.

Case 10.

A man, aged 64, had noticed a small lump on the left side of his tongue for four months. Examination showed an epithelioma of the tongue and floor of the mouth; no glands were palpable. Diathermy was employed, and the tongue was divided down the centre and cut across well behind the growth. There was no recurrence two years and three months after operation.

Case 11.

The patient, a man, had noticed a hard lump on the right side of the tongue for two or three months. On examination an epithelioma of the tongue and floor of the mouth was found; no glands were palpable. The growth was removed by diathermy, and a fortnight later the anterior triangle of the right side was cleared. Six weeks later the glands were removed from the left side of the neck. There was no recurrence two years after diathermy.

Case 12.

A man, aged 72, had noticed "a little bladder" on the roof of the mouth for six weeks. He was a moderate smoker (wooden pipe). An epithelioma of the roof of the mouth was found on examination; there were no enlarged cervical glands. The growth and its surroundings were thoroughly destroyed by dia-thermy, and there was no recurrence one year and ten months after operation.

He was the most delightful old man I have known; and I thoroughly enjoyed my visits to him, and always learnt much from them, as his experience and knowledge were prodigious. I think, perhaps, his greatest charm was his intense and kindly interest in other people and the complete absence of the usual self-absorption of extreme age. Up to three weeks ago he still took the greatest interest in politics and the affairs of the day and the progress of medicine and science; and he would quote passages from Latin and Greek with the relish of a "true classic"—and which, I am ashamed to confess, I professed to recognize. I perceived that the ideal of his life had been a very high one and that his goal had been "discovering the truth and perfecting his work." In his frail and very slight body there was a great and courageous soul—three years ago he faced with unwavering courage and calmness a major operation, which Sir Berkeley Moynihan performed on him with the most brilliant results, that added three more happy years to his life.

The passing of his great, gentle, and courtly spirit causes me, and all who knew him, a very real sorrow, and we feel a great pang of regret at having to part with "Dear Old Teale," as we all instinctively called him.

[*A detailed account of Mr. Teale's career was published last week, page 948.*]

FRANK STANLEY TINKER, M.B., B.CH.CAMB.

THE death occurred on November 11th of Dr. Stanley Tinker, at the age of 36 years, after a long illness. He was educated at Liverpool College, at Repton, and at Pembroke College, Cambridge, where he graduated B.A. in the Natural Sciences Tripos of 1908. After obtaining the M.R.C.S. and L.R.C.P. diplomas in 1911, and holding various house appointments at Liverpool Royal Infirmary, he showed some early signs of pulmonary tubercle, on account of which he went to Arosa, Switzerland, in the spring of 1913. For two years or more he underwent sanatorium treatment, ultilizing the time to make himself familiar with both the clinical and the laboratory sides of the work. In 1914 he returned to England to take his Cambridge medical degrees, and next year became in succession school medical officer and tuberculosis officer for one of the divisions of Surrey, and medical superintendent of Crooksbury Sanatorium, Farnham. His interest in the provision of municipal workshops for tuberculous patients resulted in a scheme which he published for the post-sanatorium employment of the consumptive ex-soldier, and no doubt led to his appointment in charge of Barrowmore Hall Tuberculosis Colony, near Chester, where he proved himself to be an able administrator. Here he had a relapse which ultimately proved fatal. He had been an active member of the editorial board of *Tubercle*, and was responsible for a translation of Cornet's monograph on miliary tuberculosis. His death removes one whose combination of administrative and clinical ability was producing work of real value. Stanley Tinker was an only son; he leaves a widowed mother, a widow, and two young children.

Dr. EDWIN AUGUSTUS WADESON died after a short illness on November 13th, at South View, Sedbergh, Yorkshire, where he was a well known and respected local practitioner. From Sedbergh school he went up to St. John's, Cambridge, and afterwards became a medical student at the London Hospital. He graduated M.B., B.Ch. in 1890. He commenced practice in Sedbergh thirty-four years ago, and for eighteen years was medical officer and public vaccinator for Dent. By dint of unsparing zeal and untiring devotion to his practice, he had won such a place amongst the people of the countryside as is attained by few. A man of ability, but unassuming and plain, he had given his life entirely to the welfare of his people, and died in harness, lamented by all who knew him. To his widow and daughter the deepest sympathy will be extended.

By the death on November 11th of Dr. CHARLES RICHARDSON in his 81st year, Leeds loses one of its oldest medical practitioners. Dr. Richardson took the diploma of M.R.C.S.Eng. in 1867, and subsequently practised in Leeds up till about ten weeks ago, when he underwent a severe operation. He was an ex-president of the Leeds and West Riding Medico-Chirurgical Society, and late surgeon major 2nd West Riding Royal Engineers, having been awarded the V.D. He took a keen interest in all forms of recreation. He was a man of outstanding personality, who gained the confidence of his patients and colleagues. He is survived by a son in South Africa, who is a member of the medical profession, and three daughters.

Dr. HUBERT H. THOMAS of Brynhyfryd died on November 1st, aged 53. He was the son of the late Dr. William Thomas, for many years assistant overseer for Swansea, and received his medical education at Charing Cross Hospital. He took the diplomas of L.S.A. in 1895, and the Scottish Triple qualifications in the following year. On returning to Swansea he assisted in the practice of his uncle, the late Dr. Howel Thomas, J.P., and subsequently undertook what became later a large practice at Brynhyfryd. He was medical officer at the Cwmfelin works, where he was held in high esteem by the workpeople. He took great interest in ambulance work; he founded the Brynhyfryd division, and was subcommissioner of the priory of Wales. Dr. Thomas was a keen sportsman and at one time captain of the London Welsh Rugby team, and at the time of his death was captain of the Manselton cricket club. He was a member of the Swansea Division of the British Medical Association, and a justice of the peace. At the commencement of business at the Swansea police court on the day of his death a vote of condolence with the relatives of the deceased was passed. At the funeral on November 5th six staff officers of the Order of St. John acted as pall bearers, and the medical profession was well represented, Dr. Horatio Rawlings acting as the representative of the British Medical Association.

The death is announced of Dr. BOULLOCHE, a well known Paris pediatrist.

Dr. GENARO SISTO, professor of pediatrics in the University of Montevideo, has recently died. His essay on constant crying as a sign of congenital syphilis in infancy, sometimes known as Sisto's sign, was awarded the Peiron prize of the Paris Académie de Médecine.

Universities and Colleges.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

MEETING OF COUNCIL.

AN ordinary meeting of the Council was held on November 8th, when Sir JOHN BLAND-SUTTON, President, was in the chair.

Diplomas of membership were granted to 170 candidates. The diploma of Fellowship was granted to Sybil Grace Mocatta. Mr. C. H. Fagge was appointed to represent the College on the General Council of the Fellowship of Medicine, and Mr. Raymond Johnson was appointed to represent the College on the Managing Committee of the Schiff Home of Recovery.

It was reported that five lectures on the influence of environment on the life of bacteria would be delivered in the lecture theatre of the College by Mr. F. W. Twort, superintendent of the Brown Animal Sanatory Institution, on December 11th, 13th, 17th, 18th, and 19th, at 4 p.m.

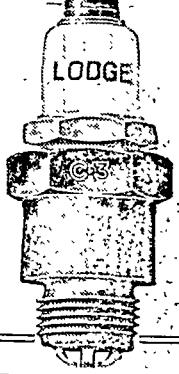
The PRESIDENT reported that the vacancy on the Court of Examiners occasioned by the expiration of Mr. Warren Low's term of office would be filled at the ordinary council meeting on December 13th. Mr. Low is eligible for re-election.

ANNUAL MEETING OF FELLOWS AND MEMBERS.

The annual meeting of Fellows and Members of the Royal College of Surgeons of England took place on November 15th, under the presidency of Sir JOHN BLAND-SUTTON.

The annual report (BRITISH MEDICAL JOURNAL, October 6th, 1923, p. 636) was presented, and questions were invited. Mr. C. E. WALLIS asked for a statement of the attendances at museum demonstrations, and Dr. F. W. COLLINGWOOD inquired how many Fellows had returned their votes in the recent election to Council. The PRESIDENT replied that a careful record was formerly kept of museum attendances, but it had been allowed to fall into abeyance; in future it would be restored. The number of Fellows voting in the election to Council was 1,052.

Dr. EDWIN T. H. NASH was in charge of a resolution affirming the desirability of admitting Members to direct



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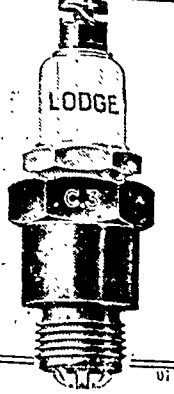

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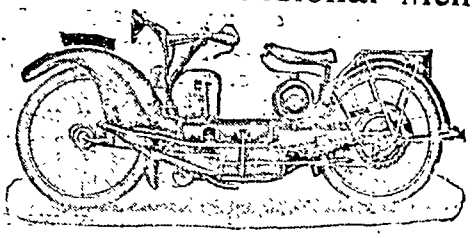

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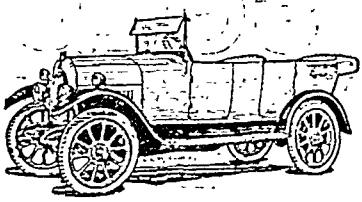

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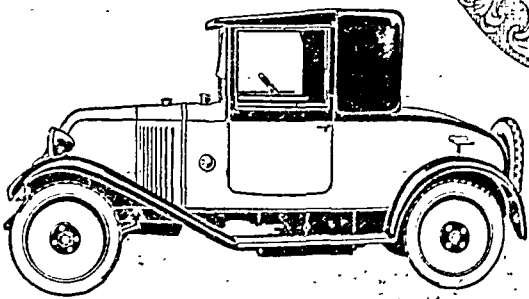

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representation on the Council of the College, and requesting the President and Council to consider some means whereby Members in general practice might be represented on the Council. After paying a tribute to the late Sir William Thorburn, Dr. Nash said that his position in moving this resolution was not provocative but pacific. At the same time he wished to reply to some of the arguments which the then President, Sir Anthony Bowlby, had advanced at the last annual meeting. Sir Anthony Bowlby had said that during the war, when he met many Members of the College on service, none of them had complained to him of disabilities. But that was not an occasion when men would be likely to discuss their civil grievances, and in any case it was only negative evidence. Again, it was stated by Sir Anthony Bowlby that there were Fellows on the Council who could be said to represent general practice; the speaker knew of no one on the Council who was acquainted in any close degree with the difficulties of the general practitioner. A further remark of Sir Anthony Bowlby was that the Society of Members did not embrace the 16,000 Members of the College. That was true, but it could claim to represent the man who had nothing but what he called his "Conjoint" when he compared himself in the open market with those who had a university degree. There was a feeling that the man who had only the "Conjoint" belonged to "the lesser breeds without the law," but a very large majority of "Conjoint" men were the victims of circumstances, their parents having either been ignorant of the medical portal or with insufficient means to afford the extra year to take either the London degree or the Fellowship. The speaker dealt with some of the difficulties of the men entering medical practice in London as compared with the provincial graduates who had, as it were, the university on their doorsteps. He was sure that those who were on the Council of the College did not appreciate the difficulties which the men who had qualified under its guidance had to suffer, and he suggested that six members of the Council should meet around a table six Members of the College who were only "Conjoint" men and talk over the position. He had enough faith in the general goodwill and common sense to promise that, if the President would agree to that suggestion, he would at once withdraw his resolution. The President giving no sign, Dr. Nash proposed the resolution as it stood.

Dr. REDMOND ROCHE seconded, and asked whether it was reasonable that there should be an electorate of 1,600 in a corporate body of 18,000. It was true that some Fellows were in general practice, but theirs was really a special type of practice, and they could not be said to represent the average general practitioner. Even so, no Fellow engaged in general practice had ever been elected to the Council of the College, nor was it likely that he would be in view of the great numbers of consulting surgeons who were Fellows. What steps had the Council taken to elicit the views of its present electorate on the admission of Members to the franchise? Sir Anthony Bowlby had said that a referendum had been taken on two previous occasions, but those two occasions were as far back as 1885 and 1897. In reviewing the past struggles it was interesting to recall the fact in this centenary year of the *Lancet* that the founder of that journal evoked the wrath of the authorities of the College by holding an unauthorized meeting, and, the police being summoned, he spent several hours, if not the whole night, in Bow Street police station! Quite recently the Society of Members had issued a questionary to all Fellows, to which a surprisingly large number had replied, and 73 per cent. of those replying had stated themselves to be in favour of the principle that Members should be granted some representation on the Council, and about half of these had testified to their willingness to assist the efforts of the society in this direction. Sir Anthony Bowlby had spoken disparagingly of the membership of the society, but of course, as in all such bodies, the society included, not all those affected, but the more energetic and zealous men. During the last year it had circularized all the Members of the College, and only one man had written to say that he felt no particular interest in the matter, while hundreds of Members and many Fellows had since joined the society.

Dr. NASH moved that the question be now put, and Mr. DENNIS VINRACE seconded, their object being to prevent any possible disturbance of the peaceful atmosphere by a prolonged discussion, but the point was not taken, and the discussion was continued by Dr. F. G. LLOYD, Dr. F. W. COLLINGWOOD, Dr. ARTHUR HAYDON, and others. The PRESIDENT then put the original resolution and declared it carried unanimously.

Dr. H. M. STRATFORD moved to request the President to make a statement to the meeting as to the difficulties, legal or otherwise, which in the opinion of the Council prevented it from assenting to some form of direct representation of Members. Dr. CHARLES HAYWARD seconded, and said that the real trouble was the charter of 1843, in which the rights of Members were "jumped." During the past year 50 new Fellows and 632 Members had come in, so that the constituency which had no vote was increasing at twelve times the rate of the constituency which had a vote. The finances of the College derived four times as much support from the Members as from the Fellows, yet it was only the Fellows who had a voice in the management.

This motion also was carried unanimously.

The PRESIDENT said that this was the first time he had had the privilege of presiding at the annual meeting, and he had paid very careful attention to the answer he should give. The previous year Sir Anthony Bowlby had made a clear statement of the views of the Council in regard to a similar resolution, and with this statement he associated himself. Under the charter of the College the Fellows were the electorate. Every Fellow was eligible to stand for the Council, and any Member could become a Fellow by passing the required examination. The Fellows of the College were engaged in all kinds of practice, special and general, and Fellows in general practice had served on the Council. Although the Members numbered 16,000 it had always been difficult to get a quorum of thirty—2 per 1,000—at the annual meeting, and this might be taken as an indication that Members as a whole had little cause for complaint so far as the management of the College was concerned. At the last election to the Council four-fifths of the electorate voted, showing that the Fellows took an interest in the affairs of the College. The College was incorporated for the promotion of the art and science of surgery. Its principal duty was to take care that those who desired to become Members should be properly educated and trained in that art and science. The College contained a library and other facilities for the use of Members and Fellows alike. The Membership of the College was in great demand, and its diploma as a standard of ability was recognized throughout the world. If Members had any considerable grievances medical men and women would not be so keen to obtain this diploma. The outstanding position of the College was in a great measure due to the constitutional provisions of the charter, and the Council regarded the changes advocated by some Members as arising from a mistaken view of the functions of the College.

We have received the following letter with reference to the President's speech:

SIR,—Will you favour me with space to reply to the remarks of the President of the College at the close of the annual meeting? The Members had not an opportunity of answering then, and Sir John Bland-Sutton did not reply to the suggestions made nor to the points then brought forward for the first time. Instead he read out a previously prepared statement. The President told us if we wanted a vote for the Council all that was necessary was to become Fellows! He lauded the status of the College, its library, and museum. The mouse in the trap is not particularly interested in being told of the excellent quality of the cheese that has attracted him. He is likely, if he can—by wireless or otherwise—to tell his own little mice and other mice outside not to follow him. The President appears to give all the credit to the Charter of 1843 for the high position of the College to-day. One seems to have heard of great surgeons of the College before that date, and surely John Hunter deserves some credit for the fame of the museum. Is there not some evidence of myopic vision in the prospect and retrospect of the Council of the College? The Member is "the foot" in the shoe, and he knows when and where it pinches. All he asks is that his "head" (the Council) should appreciate, and if possible relieve, his discomfort. That is not possible if the lines of communication—the nerves—between the "foot" and "head" are disconnected as they are at present. There is no liaison officer between the Members and the Council, no way by which the Council can now get first-hand knowledge of the Members' views. This is the essence of the Members' difficulty and claim.

From the President's speech one would infer that the College is only concerned with the production, on eugenic lines, of a perfect surgical baby. When he is born his Alma Mater leaves him on the (outer) steps of the College for any foster-mother to protect—for example, the British Medical Association. This appears to be their conception of parental responsibility. If such is the sole function of the College, as Sir John Bland-Sutton appears to claim, why does it speak in the name of its 18,000 Members, without first ascertaining their views, on matters of medical policy when consulted by the Government, etc.? The Council last year made a point that in conceding the Members' claim it would be acting at variance to the views of its electorate of 1,700 Fellows. Can it be believed that the last occasion it consulted the Fellows on this question was in January, 1897—nearly twenty-seven years ago! The Society of Members sent a questionnaire post-card to the Fellows some

Norman Kerr Memorial Lecture

ON

DRUG ADDICTION.

DELIVERED BEFORE THE SOCIETY FOR THE STUDY OF INEBRIETY, OCTOBER 9TH, 1923,

BY

SIR W. H. WILLCOX, K.C.I.E., C.B., C.M.G., M.D., F.R.C.P.,
PHYSICIAN TO ST. MARY'S HOSPITAL; MEDICAL ADVISER TO THE HOME OFFICE.

DR. NORMAN KERR, in memory of whom we are assembled here to-day, devoted his life's work to the study of inebriety, and it may be truly said of him as of other good and great men, "Their work lives after them."

This society, of which he in 1884 was the illustrious founder, has steadily and perseveringly and with increasing influence and power followed the principles for which it was founded—"To investigate the various causes of inebriety and to educate the professional and public mind." The Society for the Study of Inebriety is of itself a fitting monument to the memory of Norman Kerr. His devotion to the subject he constantly had at heart, and his persevering efforts had a great share in the passing of the Acts for the reform of inebriates from 1879 to 1888. His leisure time was spent in compiling carefully written works on the subject dear to him, and these remain with us as examples of the humanity and scientific spirit with which the study of inebriety of all kinds should be approached at the present day.

In all his writings Norman Kerr insisted on regarding inebriety as a disease rather than a wilful vice. He pointed out that alcoholism and drunkenness were only one variety of the disease "inebriety," and to avoid confusion suggested as an alternative term for inebriety "narcomania," which is literally a torpor mania (νάρκη, torpor), or in other words an overpowering impulse for narcotism by any intoxicating or anaesthetic substance. The disease of inebriety or narcomania he regarded as a true intoxication mania, the diseased inebriate often utterly abhorring the liquor (or drug) which he would barter his salvation to procure.

DRUG ADDICTION.

It is impossible to name with limitation the drugs which may give rise to an addiction habit, because any drug having an intoxicating action on the cerebrum may give rise to addiction, and new drugs of organic composition are being daily added to our pharmacological armamentarium, the effect of which as regards addiction is at present unknown. In this respect a word of caution is necessary. New organic compounds are being constantly discovered for which it is claimed that they do not cause addiction and that they are in every way capable of replacing those drugs, such as cocaine, morphine, and heroin, which are dreaded for their tendency to lead to the drug habit. The claim that a new drug is not likely to lead to "addiction habit" requires the most careful and extended trial both experimentally and therapeutically before it can be admitted.

To quote one well known example—novocain. This has been successfully used in certain operations as a substitute for cocaine, but it does not have the anaesthetic effect on mucous membranes characteristic of cocaine, and is used solely for infiltration of the subcutaneous tissues; for this purpose it is an admirable anaesthetic. Novocain is not known to give rise to "addiction," but has been almost exclusively used by surgeons. Prescriptions for it have not found their way into the hands of the public, so that there has not been the opportunity of testing the addiction properties as has been the case with cocaine. It is possible that the hypodermic administration of novocain might, if long continued, give rise to addiction. One must keep an open mind with regard to addiction properties of new drugs. I shall therefore restrict my remarks to drugs which are well known to have given rise to addiction. These are:

Opium and its alkaloids, morphine and heroin. ? Dionin not codein, cocaine.
Diethyl barbituric acid and other alkyl, aryl, or metallic derivatives of barbituric acid, such as veronal, medinal, proponal, dial, luminal, etc.
Chloral.
Cannabis indica.
Sulphonal and its homologues, trional and tetronal.
Chloroform and ether.
Paraldehyde.
Hyoscine (very sure).

The most important of the drugs of addiction are: opium, morphine, and heroin; cocaine; the veronal group; chloral; cannabis indica.

Let us consider first drug addiction in relation to those drugs included under the Dangerous Drugs Regulations—namely, opium, morphine, heroin, cocaine, and their derivatives—*since in the vast majority of cases it is these* drugs which are responsible for addiction and which are a menace to the national health and well-being.

ETIOLOGICAL FACTORS: STATISTICS.

Is drug addiction common in this country? It is impossible to answer this question with mathematical accuracy, for no statistics are available. Speaking from personal experience, and a close study of toxicological medicine extending over the last twenty years, I am of opinion that drug addiction is rare in this country amongst the working and professional classes. Persons of this class, we may call them "the citizen class," become victims of the drug habit often from taking the drug in medical prescriptions and through no fault of their own. They are honest in their intentions and in their lives, and find themselves the victims of a terrible habit—or, as we would better term it, they became afflicted with "*addiction disease.*" They conceal their plight for a time, but ultimately realize that disaster is imminent, and then they seek medical advice. They wander in their distress from one doctor to another, vainly seeking a cure, and their trouble becomes known to many. There is thus a tendency to exaggerate the number of drug victims of this type. I believe the number in this country to be very small.

There is another class of persons in whom the drug habit is very common. It includes those who devote their lives to so-called pleasure seeking and the search for new excitements and sensations. In American literature they are described as the "Underworld." They might be termed the "Vicious Group," the addiction arising either purely as a means of endeavouring to induce pleasurable sensations or as the result of evil association with addicts, leading to the corruption of good habits. Amongst the "vicious group" cocaine, morphine, and heroin are the drugs usually employed, either hypodermically or as snuff. The "vicious group" of drug addicts is to be found in London and our great cities. Fortunately it is a small group, and one whose influence is not extensive. Addiction of the "vicious" type is a canker to be stamped out, though one must admit that this form of drug addiction is not such a serious menace to the national well-being as that affecting the citizen class.

IMMEDIATE CAUSATION OF DRUG ADDICTION.

The commonest cause of drug addiction in this country, if we exclude the "vicious group," is undoubtedly the prescription of the drug for medical purposes.

The Relief of Pain.

It is common for morphine and heroin to be prescribed hypodermically for this purpose. The use of these drugs is necessary in certain cases. It may be necessary, in order to alleviate pain and promote sleep, for a hypodermic injection of morphine or heroin to be prescribed on one or two nights after an operation, particularly in abdominal cases. Too much care cannot be exercised by surgeons in this respect, and instances have occurred where harm has been done or a drug addiction developed.

Recently there has been under my care a most serious case of heroin habit in a patient who has done everything possible to overcome the addiction. This patient, seven years ago, was given

months ago. The results are still coming in from abroad, but a surprisingly large number of Fellows courteously replied, and over 73 per cent. of the replies were in favour of the Members' claim.

The Fellows were praised by the President for showing great interest in their College because less than two-thirds of them voted (by post) for the Council; while the Members were said to be apathetic because, though scattered over England and the Colonies, busy men in general practice, they did not in larger numbers attend the annual meeting to vote *in person* for their claim. Can it be wondered that they are not eager to come when the only result of their exertions is to receive from the Council a chilling *non possumus*? Is there logic or fairness or even a common denominator in this comparison? Would it not be more reasonable for the Council, if they have any real doubt as to the Members' views, to issue a questionnaire to them on the subject? If they would then meet representative Members round a table they could easily reach a solution satisfactory to all which would greatly strengthen the College and its diplomates.—I am, etc.,

REDMOND ROCHE,
President of the Society of Members of the Royal College of Surgeons of England.

November 17th.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—‡Susanna M. Bernard, ‡Joan O. Geldard, *†D. Krestin, †D. Levi, *†A. A. Moncrieff, *A. J. Morland, ‡Eileen M. Saxton, ‡E. F. Smith, *S. E. Tanner, Edith I. L. Abbott, Kathleen Ardell, J. V. [illegible] D. E. Bedford, A. Blackstock, Kathl[illegible] Bond, F. Brockington, Ellinor M. B[illegible] Coldrey, Gladys M. Cox, Helen I. Davi[illegible] Faland, H. C. Edwards, G. W. Elkington, Mary E. Fox, A. W. Gott, Dorothy E. Gray, Margaret C. N. Hadley, T. Hamel, Gladys Hill, Lydia M. Houghton, Laura M. Jacobs, A. L. P. Jeffery, L. M. Jennings, H. V. M. Jones, P. T. Jones, G. Klionsky, C. P. Ledward, Mary A. Leslie-Smith, Dorothy N. L. Leverkus, J. H. M. Lloyd, D. M. MacManus, Caroline A. Meade, Margaret S. Mills, W. E. M. Mitchell, D. C. Muir, A. B. Nutt, Judith E. M. Ormerod, Beryl Palmer-Jones, Emily C. N. Paterson, T. V. Pearce, Ruth W. Plimsoll, E. D. Pridie, Margaret A. Quine, W. M. Ramsden, Isabella McD. Robertson, M. Robinson, Olive M. Salmon, Agnes B. Smith, Edith E. Stephens, Ella M. Stratton, R. S. Swindell, Ida M. Tancock, J. Whitby, J. de S. Wijeyeratne, Caroline I. Wright, Marguerite A. M. Xavier, Mildred M. E. Yate.

The following have passed in one or other of the two groups of subjects:

Group I: Muriel E. Binns, Hilda M. Cunnington, D. J. Davies, Barbara J. Edwards, Lucy M. Elsom, W. S. Evans, J. W. Joule, D. C. McIntosh Kate Madders, Grace H. Newell, Elizabeth M. Nicholson-Smith, M. L. Sutcliffe.

Group II: Doris K. Brown, Cecily D. Crosskey, K. H. Deane, V. P. De Zoysa, G. F. Gibberd, S. J. Golden, Rachel Halperin, J. R. Hamerton, A. D. Hepburn, Gwynedd Hugh-Jones, Kathleen M. Hyslop, D. J. Jones, R. F. Lane, L. O. Lindsay, F. Louis, H. J. Malkin, Doris I. Mart, Violet E. M. Mizen, G. S. Morgan, R. M. Morris, J. P. Peel, C. S. C. Prance, Phyllis M. Rex, H. N. Rose, W. H. Royal, Marjorie Rushbrooke, A. R. Rutnam, Mary M. Sillito, Dorothy M. Stewart, Doris M. Stone, W. Thomas, Kathleen O. Vost, E. G. L. Walker, J. A. Walker, Joan F. Whitelock, E. Williams, J. G. Wilson, Esther Wingate, Edith V. Wood.

* With honours and distinction in Medicine.
† With honours and distinction in Surgery.
‡ With honours and distinction in Midwifery.

UNIVERSITY OF GLASGOW.

The Samson Gemmell Chair of Pediatrics.

THE draft ordinance instituting the Samson Gemmell chair of Pediatrics was formally approved at the last meeting of the University Court. The chair, for which the late Mr. William Gemmell, brother of Professor Samson Gemmell, bequeathed the sum of £20,000, is to be a university chair connected with the Royal Sick Children's Hospital.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

AT a quarterly meeting of the Royal College of Physicians, held on November 6th, the President, Sir Robert Philip, in the chair, John Lindsay Boyd, M.D., was elected a Fellow of the College, and William Macrae Taylor, M.B., Robert Alexander Chambers, M.B., Atholl Robertson, M.D., and Joseph Primrose Leckie, M.B., were elected members. The Hill Pattison Struthers Bursary in Clinical Medicine was awarded to Mr. E. R. C. Walker, and the Hill Pattison-Struthers Bursary in Anatomy and Physiology to Mr. T. D. Gould, and the Wood Bursary to Mr. I. A. G. L. Dick. A portrait of the late Sir Alexander Morison, and a baculum for the use of the Morison lecturer, was presented to the College by Dr. Alexander Blackhall-Morison.

THE LATE DR. A. G. SIMMINS.

LAST April an appeal was made by an influential medical committee on behalf of the children of the late Dr. Alfred George Simmins and his wife, who died within a few hours of each other from influenza. There were three children and only for the eldest, a boy aged 6, had any provision been made. The following is the third list of subscriptions:

£21.—Anon., per Professor T. B. Johnston, Guy's Hospital Medical School.
£15.—Some members of Lloyds.
£12 15s.—Members of the British Medical Association and other practitioners of Warrington, per J. B. Naden.
£10 10s.—Hildred Carlill, A. F. Hurst, North London Medico-Chirurgical Society.
[illegible] mia), Anon. (per Professor Johnston), A[illegible] (Tasmania).
[illegible] of Mothercraft, per Mrs. G. Buckley.
£5 5s.—Mary Beadon, Sir G. F. Blacker, Gilbert Chubb, Stanley Dodd, Robert Hutchison, F. Langmead, Walter Spencer, H. L. Tidy, H. C. V., R. S. Willan (an old shipmate).
£5.—Adolphe Abrahams, Captain Hamilton, R.N.
£4.—G. B. Henriques.
£3 3s.—S. E. Dore, H. Tudor Edwards, N. S. Finzi, Dr. Gilman (Singapore), E. G. Goldie, Professor T. B. Johnston, Dr. Livermore, A. J. M., G. T. Mullally, J. A. Ryle, F. D. Saner, A. W. Stott.
£3.—Charles Bolton, E. P. Poulton.
£2 2s.—Eric Bailey, C. H. Bubb and W. A. Bulleid, R. Fenn, A. Green, J. Braxton Hicks, Montagu F. Hopson, H. Pinto Leite, Dr. Logan, F. Manser, H. Oddy, F. C. Odling, T. H. Oliver, R. P. Rowlands, Dr. Ruzzak, D. H. de Souza, Theodore Thompson.
£2.—Anon. (per J. Curtis), J. C. Baker.
£1 11s. 6d.—Drs. Rogers and Bell.
£1 10s.—A. E. Druitt.
£1 1s.—Anon., T. C. Blackwell, R. L. Crabb, Hubert Daw, J. S. Dudding, D. G. Greenfield, G. B. Good, G. W. Heckels, J. G. Jones, G. M. Kendall, H. A. Kisch, Dr. Lightwood, P. E. W. MacAdam, A. D. Marston, A. T. Scott, H. Steinbach, D. Tilbury, S. W.
£1.—Francis Chown, A. B. de Freitas, Mrs. Sandiford.
Sums under £1 amount to £2.

The total amount received is £1,260; the manner in which it will be administered will shortly be announced. Meanwhile, the Committee will be glad to receive additional subscriptions, which should be sent to the Treasurer, Simmins Appeal Fund, Royal Northern Hospital, Holloway, N.7.

Medical News.

THE next session of the General Medical Council will commence on Tuesday, November 27th, when the President, Sir Donald MacAlister, K.C.B., M.D., will take the chair at 2 p.m., and give an address.

SIR ALFRED RICE-OXLEY, C.B.E., M.D., was presented on November 15th with his portrait in recognition of services rendered by him to the royal borough of Kensington during his three years' mayoralty. The presentation was made by Lord Phillimore at Kensington Town Hall, in the presence of a large company. The portrait has been painted by Mr. W. W. Russell, A.R.A. On the same occasion a diamond pendant was presented to Lady Rice-Oxley.

DR. L. G. HEILBRON of Amsterdam will read a paper on modern radiological technique at a meeting of the Röntgen Society, to be held at 8.15 p.m. on Tuesday, December 4th, at the British Institute of Radiology, 32, Welbeck Street, W.1. In order to commemorate the work of the late Professor Röntgen, the society has decided to make an annual award of £10 (or the equivalent in books or apparatus, at the option of the recipient) to the member whose contributions during the session relating to the science or practice of medical or general radiology are, in the opinion of the council, of sufficient distinction. The award will be made for papers or demonstrations read or shown for the first time and before the society relating to radiology in any of its aspects—theory, experimental work, technique, or the design of apparatus and equipment.

THE annual livery dinner of the Society of Apothecaries of London will be held in the Hall of the Society, Blackfriars, on Tuesday, December 4th, at 6.30 o'clock.

AN address on the ethics and psychology of neo-Malthusian birth control will be given by the Rev. Fr. Vincent McNabb, O.P., to a meeting of the Guild of St. Luke St. Cosmas and St. Damian, to be held at 3.30 p.m. on Sunday, November 25th, at the Hospital of St. John and St. Elizabeth, which is near Marlborough Road Station on the Metropolitan Railway.

A MEETING of the Naval, Military, and Air Force Hygiene Group of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, Russell Square, W.C.1, on Friday, November 30th, at 5 p.m., when Major-General W. W. O. Beveridge, C.B., C.B.E., D.S.O., will deliver his presidential address. Medical men who have served with His Majesty's Forces are invited to attend.

overcome the addiction habit.

Another case may be cited where, after an abdominal operation or gall stones, a patient was given on four successive nights 1/4 grain of morphine. Suppression of urine ensued, the condition not being recognized until too late. I have no doubt that in this case the toxic action of the morphine led to the paralysis of the renal function.

It is to be feared that after operations morphine and heroin are too often given hypodermically as a routine practice without sufficient regard to the dangers of toxic action of the drug, and to the equally disastrous risk of the development of addiction disease. It should be realized that, quite apart from the dangers of the development of drug addiction, morphine and heroin have a depressing and harmful effect on all the excretory and secretory organs, and so should be avoided as far as possible in all cases.

For Relief of Pain of Neuralgic Type.

The hypodermic use of morphine, heroin, or cocaine is to be avoided as far as possible. Other methods of treatment are usually available, such as local treatment by radiant heat, diathermy, or other electrical treatment, or by external anodyne applications. Many analgesic drugs, such as phenacetin, pyramidon, aspirin, are of use, and where a particular nerve trouble is involved alcohol injections are invaluable. The hypodermic injection of addiction drugs should be avoided, if this is possible, and should be a last resort. How easy it is to relieve the pain of these conditions by the injection of a small dose of heroin or morphine, and how quickly does the repetition of the dose become necessary!

The transition from pain due to organic causes to painful feelings of psychoneurotic type cannot be detected, and in cases of this type the use of addiction drugs is likely to lead to the paroxysmal recurrence of painful impressions and the demand for repeated doses. Neuritis of local origin, such as sciatica, brachial neuritis, etc., could never be treated by injections of addiction drugs, since their use retards the cure of the local condition and inevitably leads to the danger of addiction.

It must be admitted that cases do occur where morphine and heroin are necessary. For example, the involvement of nerve by malignant disease, or in that painful condition "causalgia" arising from the involvement of nerves in scar tissue. In the former case it may be necessary to continue the administration. In the latter surgical treatment is advisable to remove the cause of the nerve irritation.

The Hypnotic Habit.

In acute conditions it may be necessary to procure sleep at all costs, and for this purpose there is no surer method than the administration of morphine and heroin hypodermically. Repetition is to be avoided. Too often, however, the terrors of insomnia are impressed upon the patient. The selection of the hypnotic at night is as carefully considered as is the menu of the veriest epicure, and the patient regards the hypnotic drug as one of the essentials of life. This is a deplorable condition, and is bound to lead to the disaster of drug addiction of some kind, whether by morphine, heroin, or some one of the opional group.

The continued use of drugs for insomnia is a method of treatment which is harmful for the cure of the condition, and patients should be led to take this view. The terrors of insomnia are not to be compared with those of drug addiction, and a little sleep following natural methods of treatment is of far greater benefit than the more prolonged abnormal condition of sleep produced by narcotic drugs.

Psychological Aspects.

The psychoneurotic factor looms large in drug addiction. Given an exciting cause—for example, the repeated daily administration of a narcotic drug—the danger of addiction is very much greater in patients with a neuropathic temperament. A family history of insanity, neurosis, or

duced by irritating stimuli. Thus, as has been poin by Ernest Clarke, eye-strain may lead to a neurosis pave the way for drug addiction. Mental wor anxiety may similarly lead to a predisposing neurosis.

Often a psychological complex of a depressing present in patients of this group, and there is conscious cry for relief from mental suffering. Per this type are out of harmony with their enviro They constantly call for something to "drown the c life." This relief is temporarily obtained by the a tration of a narcotic drug, and as surely as this so inevitably does a still deeper stage of mental develop, which is only to be relieved by the further to the narcotic. "Facilis descensus Averni." A circle is established. The effects of drug addiction all the weak points in the patient's neuropathic i ance. Too much care cannot be taken in the avoid the use of narcotic drugs in patients of this ty them the knowledge that temporary relief from depression may be obtained from resort to drugs of tion is often gained by association with addicts. He importance of making access to these drugs im except by medical prescriptions. This is one of th objects of the recent Dangerous Drugs Acts.

Toxaemia from Focal Sepsis.

In many cases patients, before resorting to a drug are suffering from the toxaemia due to some latent f infection, perhaps the toxic absorption from septic or from some focus in the nasopharynx, such as tonsils or an infected antrum. The toxic abso causes a sense of intense mental depression, irrit and hypersensitiveness. In other words, a neuro condition is established which prepares the soil fo addiction. In cases of this type narcotic drugs are taken for the temporary relief of mental suffering, vicious circle is established.

The recent work in America showing the very im part played by focal sepsis in the causation of disease is an illustration of a physical toxic basis fo cases of mental disorder. Exactly the same relation in many cases of drug addiction, and the neuropath dition produced by toxic absorption is really at the of the trouble. Focal sepsis should always be ca looked for in cases of drug addiction, and one of th elements of treatment should be the removal of absorption from such causes.

In the early part of this year there was under my care of alcohol addiction of several years' duration in a busy cit This patient told me that he really took the alcohol as a st to counteract the intense depression which overtook him in h work, and not for any real liking. Investigation of the m x rays showed several apical dental septic foci. The rem the septic teeth followed by rest and change resulted in a tion to good physical health. There has been no return to a consumption of any kind, nor any desire for this form of ad and he has resumed his strenuous busy life without any r artificial stimulation.

In a case of combined morphine and alcohol addiction under my care there was an alternation of periods of addiction of the dipsomania type with periods of morphin tion. The patient was an active man of middle life and o suffering from the effects of some toxic process in addition drug and alcohol addiction. An x-ray examination of th disclosed a deep-seated infection which had obviously exi years. In this case the patient stated that he had no rea for alcohol or morphine, but took them to counteract t powering sense of depression and physical weakness which him. The alcohol and morphine were at once complete drawn and nursing home treatment adopted. The oral se removed by appropriate dental treatment, and this, coupl rest and change, resulted in a return to good physical hea cure of the morphine and alcohol addiction.

In both the above cases it was quite clear that th a primary toxic basis for the addiction habit. Oth might be quoted in illustration of the close relation the toxaemia of focal infections to drug addiction the importance in such cases of the removal of sept

LORD DAWSON will take the chair at a meeting of the Royal Society of Arts on Wednesday next, November 28th, at 8 p.m., when Sir H. J. Gauvain, M.D., will lecture on the effect of sun, sea, and open air in the treatment of disease.

A FESTIVAL dinner in aid of the London Jewish Hospital, Stepney Green, will be held on Monday, November 26th, at the Connaught Rooms, with Sir Humphry Rolleston, K.C.B., President of the Royal College of Physicians of London, in the chair.

PRINCESS LOUISE, DUCHESS OF ARGYLL, has become president of the National Health Society, in succession to the late Princess Christian.

MR. DUDLEY COX TROTT, F.R.C.S., surgeon to King Edward VII Memorial Hospital, Bermuda, has been appointed an unofficial Member of the Executive Council of the Bermudas or Somers Islands.

THE Sanitary Inspectors Examination Board have appointed Dr. A. T. Nankivell (M.O.H. Hornsey) and Dr. James Fenton (M.O.H. Kensington) to act as examiners during the year 1924.

THE annual autumn dinner of the Irish Medical Schools' and Graduates' Association will take place at Pagani's Restaurant on Tuesday, November 27th, at 7.30 p.m., Sir William Taylor, K.B.E., C.B., president, in the chair. Tickets (for ladies or gentlemen) 9s. each, from Dr. Holmes Meyrick, 48, Ennismore Gardens, S.W.7.

DR. HERBERT WILLIAM CROSSE, of the Middle Temple, was called to the Bar on November 19th.

AN intensive course will be held at the Hampstead General and North-West London Hospital, Haverstock Hill, N.W.3, from December 3rd to 15th. The course will occupy the whole of each day and will consist of clinics in the wards and out-patient department, etc., by members of the staff. Two special demonstrations will be given at the North-Western Fever Hospital (Lawn Road, Hampstead, N.W.3) on the diagnosis and treatment of infectious fevers, and during the second week four clinical demonstrations on neurological subjects at the Hospital for Epilepsy and Paralysis, Maida Vale. Tuesday, December 11th, will be devoted to clinical demonstrations in the departments of the Paddington Green Children's Hospital, W.2. The fee for the course is 4 guineas. Copies of the syllabus, with full particulars, can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE following have recently been elected Fellows of the Royal Sanitary Institute: Colonel J. Allan Anderson, R.A.M.C., M.B., professor of hygiene in the Royal Army Medical College; Dr. E. L. Collis, Talbot professor of preventive medicine in the University of Wales; and Sir Leslie Mackenzie, M.D., medical member of the Scottish Board of Health.

DR. CHARLES SINGER is giving three lectures on the history of medicine, illustrated by lantern slides, at University College, London. The first dealt with anatomy and art; the second, to be given on Wednesday, November 28th, at 5 p.m., will deal with early medical books; and the third, on December 5th, with representation of disease in art.

THE new casualty department of the Royal Northern Hospital, which is the borough of Islington war memorial, will be opened by H.R.H. the Prince of Wales (president of the hospital) on Tuesday, November 27th, at 3 p.m.

DR. JOHN GRIFFITHS of Llandrindod Wells has been nominated a sheriff for the county of Radnorshire.

THE fiftieth anniversary of the New York Laryngological Society was celebrated on November 15th at the New York Academy of Medicine. An exhibition was held representing the most important contributions made to laryngology by New York surgeons.

A MONUMENT to Pasteur has recently been inaugurated at Montevideo by the President of the Republic.

DURING the first six months of 1923 only 9 cases of small-pox were notified in Germany, as compared with 1,627 in Switzerland and 1,219 in England and Wales.

THE *Journal of the American Medical Association* states that a former medical practitioner, whose certificate of registration was revoked two and a half years ago, was recently fined 200 dollars at Boston for continuing to have his name listed in the telephone book as a physician.

MR. GEORGE BLUMENTHAL of New York has presented the University of Paris with a gift of 250,000 francs to be used in the interests of science and art.

DR. CHARLES H. MAYO was elected president of the American College of Surgeons at its recent annual meeting held in Chicago.

THE sixty-fifth Congress of the Swiss Society for Psychiatry was held at Berne on November 17th and 18th, when the subject for discussion was psycho-analysis and psychiatry, introduced by Dr. Christoffel of Basle.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

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QUERIES AND ANSWERS.

TREATMENT OF TABES.

"I." asks for advice in the treatment of a man, aged 44, who had syphilis twenty-two years ago, and had had lightning pains for eighteen years. The sphincter ani has been failing gradually for ten years, and the anus is now semi patulous. There is no other sign or symptom of tabes. The Wassermann reaction, taken three or four times during the last ten years, has been negative, and so has the cerebro spinal fluid.

INTESTINAL ANTISEPTICS.

DR. LEONARD J. KIDD (London) writes in reply to Dr. Graham Grant (November 10th, p. 966): Lumière (*Comptes Rendus de l'Académie des Sciences*, 1923, clxxvi, p. 540) has found that the argentothioglycerine-sulphonate of sodium (1 gram by mouth in pilules put inside biscuits) has the power of almost completely sterilizing the faeces of dogs after four days' treatment; benzo-naphthol failed. At the time of publication clinical experience confirmed these experiments. This silver salt is prepared by heating to a high degree; it contains 35 per cent. of metallic silver, is free from the usual bad effects of silver salts, and is only very feebly toxic by mouth. I have found iron perchloride to be excellent as a deodorizer of the faecal evacuations.

Dr. J. PIRIE (Leamington Spa) writes to suggest the use of kaolin, which, he says, acts because of its high absorbent power for alkaloidal poisons and "its high insulating capacity for inflamed cells." The preparation is made as follows: Add 3 oz. of kao in to 9 oz. of water; mix gradually, with constant stirring, until a fine cream is formed; then add 1 oz of mucilage of tragacanth, the stirring being continued. The dose is a wineglassful every four hours for three days, nujol being given during the remainder of the week; the kaolin is repeated at the beginning of the next week and followed again by nujol. The diet must be attended to at the same time.

Dr. L. WHEELER (London, W.) suggests that for the condition in question dimol should be given in sugar-coated tablets, as in obstinate cases there is often a marked deficiency in pancreatic enzymes, so that a keratin coating is not dissolved. He recommends three after each meal. Dr. Wheeler has treated many cases in the East successfully by this method, sometimes assisted by rectal lavage with silver nitrate solution (5 grains in 10 oz.), if tenesmus or blood indicated active congestion or ulceration of the terminal end of the colon. Small doses of castor oil might be a useful adjuvant. Our correspondent assumes that Dr. Graham Grant has eliminated the possibility of carcinoma.

*** The search for an efficient intestinal antiseptic has, on the whole, yielded disappointing results. A review of the older work on the subject is given by N. M. Harris (*Journ. Amer. Med. Assoc.*, 1912, 56, 1344). This article shows that most of the reputed intestinal antiseptics have little or no action. Positive results have, however, been obtained by various workers who used preparations of the heavy coal tar oils. The proprietary remedies, dimol (mentioned by Dr. Graham Grant) and kerol (which is mentioned by another correspondent) belong to this class. Sir L. Rogers (*Ind. Journ. of Med. Res.*, vol. i, No. 2, 1914) found that cyllin and izal were of some value in bacillary dysentery. The fact probably is that symptoms such as described by our original correspondent may be due to one of several conditions. The healthy intestinal canal has its own

Focal sepsis and drug addiction are closely related, and though the former may by its physical effects lead to drug addiction, yet in a similar manner the drug habit, by its lowering effect on the immunity mechanisms in the body, may predispose to the development of focal infections, especially those of dental origin.

One Drug Habit Leads to Another.

This is an axiom which may be laid down for almost all cases. The taking of a particular narcotic drug leads to an unstable condition of the nervous system which is indicated by effects on the higher mental faculties. In other words, the soil is prepared for narcotic stimulation of any kind. Thus the morphine addict frequently resorts to cocaine or alcohol as alternative measures of relief for his states of mental depression; indeed, in some cases the craving for drugs of any kind available becomes almost an obsession.

In cases of drug addiction of long standing it is frequently found that a combination of drugs is used, morphine or heroin with cocaine or alcohol being the commonest combination.

Drug Addiction of Long Duration.

There can be little doubt that when a narcotic drug has been taken for a period of years organic changes result in the nervous system, and probably other changes of a biochemical nature occur which alter the metabolic processes of the body. In such cases cure is very difficult and sometimes almost impossible. The drug has become a necessary adjunct to the working of a disorganized nervous system; in other words, it has become an abnormal food.

Every physician who has studied drug addiction is acquainted with such cases where attempts at cure have repeatedly failed and where the daily allowance of a minimum amount of the drug is a necessity. In such cases the withdrawal of the drug may lead to the complete physical and mental breakdown of the individual. He cannot, without its artificial aid, perform the duties of life, and the withdrawal may lead to uncontrollable crimes of violence. Numerous examples of this kind have occurred amongst addicts engaged in artistic or literary work often of high grade.

In Eastern countries amongst the lower castes of society the taking of opium by the mouth causes marked addiction disease. In India certain individuals become so accustomed to a daily ration of opium that they cannot carry on their daily work without it. During the war in Mesopotamia several cases of opium addiction amongst Indians of low caste attached to the Labour Corps were brought to my notice. Often a very small amount—one or two grains a day—was sufficient to maintain an equilibrium and enable them to perform their duties. In a few cases complete mental breakdown and crimes of violence of an irresponsible nature occurred when from some reason the addict was unable to obtain his daily dose of opium.

In the Fen counties of England laudanum and opium addiction used to be not uncommon; possibly the habit arose from the taking of the drug to counteract the effects of malaria which was prevalent in former days, and for which it was a common remedy. The laudanum and opium habit became firmly established, and the unfortunate individuals affected became addicts who existed on a low grade of physical and mental health, for the maintenance of which the drug was obtained at all costs. The taking of laudanum and opium by the poorer classes in this country has fortunately become very rare.

Vicious Causes.

Opium and its preparations—morphine, heroin, and cocaine—are sometimes first taken by individuals who have been told that the drugs have a stimulating effect and produce brilliance in thought. In some persons small doses of these drugs at first have the effect of cutting off inhibitory impulses, and so for a transient period of minutes self-consciousness or stage fright may be forgotten, and a false sense of well-being produced.

An analogous use of the drugs is in the doping of horses, a practice which is severely condemned and punished by the [illegible] responsible for racing in this country. A horse of uncertain temperament if given a dose of cocaine hypodermically may in a few minutes become more tractable, and perhaps run better in a race within half an hour. After this short period the animal becomes useless, and temperamentally worse than before. The repetition of doping completely ruins the animal, and rarely produces the effect desired.

The use of narcotic drugs in man for their stimulating properties is an extremely dangerous practice which frequently fails in its immediate object and inevitably leads to the terrible vice of addiction.

Association with Addicts.

This is one of the commonest causes. The addict desires nothing so much as the leading astray of those innocent of this terrible vice. The pleasures following the dope are painted in most glowing colours and the neophyte is besought to partake of them. The first few doses may actually produce transient pleasurable sensations, but each is followed by a sense of intense depression and misery, which calls loudly for removal by a further dose. In this manner drug addiction of the vicious type spreads rapidly amongst those associating with its votaries.

Morphine, heroin, and cocaine are deliberately taken by persons of vicious associations in the hope that the strings of new sensations may be played upon. In some cases, especially amongst women of the underworld; cocaine and heroin are taken commonly as snuff, with the idea that transitory mental brilliance and attractiveness are produced. Prostitution and sexual vice are closely associated with drug addiction. Thus cocaine may in the early stages of addiction have an erotic effect, and there is evidence that it is an important factor in the causation of unnatural sexual vice.

Morphine and its derivatives appear to have a sedative effect on sexual impulses and to lead to impotence and sterility. These drugs are taken often by those sexually vicious to stifle the calls of conscience. So great are the cravings of drug addiction that cases are known to me where victims of the female sex have not hesitated to sacrifice their honour in order that a supply of the drug may be obtained.

DRUG ADDICTION A DISEASE.

The taking of a narcotic drug of addiction for a few doses may be termed a vice, but if the administration is continued for a month or so a true disease condition becomes established, with a definite pathology and symptoms.

The drug addict, provided that he has a certain allowance of his drug, is an individual on a low plane of physical health. The complexion is sallow, he is emaciated, and there is evidence of a general lack of function of the secretory organs. The mental symptoms are shown by weakness of character and will, and lack of moral sense.

In some cases a drug addict may show even to an experienced observer few, if any, abnormal signs. The opium or morphine addict, if having his necessary allowance of the drug, may conduct himself normally from the moral and social point of view; and where the daily amount is small he may, for extensive periods, carry on his work in life. The cocaine addict undergoes a more rapid deterioration, both mentally and morally, and is apt to perform criminal acts.

The "withdrawal symptoms" of addiction disease are most characteristic. The sudden stoppage of the drug leads quickly to characteristic symptoms which are both physical, and subjective or mental. These have been well described by Dr. Harry Campbell in his recent able paper on morphine addiction read before this Society (April, 1923).

The objective symptoms—feebleness of the heart's action, tremors, vomiting, purging, and sometimes actual collapse—are unmistakable. In addition there are subjective symptoms, such as pains in the limbs and body of a distressing character. The mental symptoms experienced by the patient are those of restlessness and extreme mental suffering.

The withdrawal symptoms are at once relieved by a dose of the drug of addiction. The prevention of withdrawal symptoms in a confirmed morphine addict can be

natural method of limiting the intestinal flora, and not very much can be hoped from antiseptic drugs. Harris, in the article quoted, concluded: "Regulation of the diet, together with the evacuation of the bowels, is the most effectual method that we have at hand for reducing an excessively high bacterial content of the large intestine."

INCOME TAX.

A Branch.

"E. G." started a branch surgery on April 1st, 1923. How does he calculate the liability to tax?

*** A branch started (not taken over) is to be regarded as an extension of the existing practice of such a nature as to leave undisturbed the three years' average basis of liability. "E. G." is therefore liable to return for assessment as for the financial year his average profits of the three years to April 1st, 1923, which of course do not include the branch profits or losses. For 1923–24 those profits will commence to affect the three years' average, but will not do so to the full extent until 1926–27.

Book Debts.

"J. S. H." started a practice on April 1st, 1923, and the inspector of taxes claims in these circumstances to base the assessment on "bookings" but refuses to make any allowance for doubtful debts.

*** The inspector is following the usual course in basing the assessment of a new practice on bookings, but his refusal of an allowance for doubtful debts is unjustified in law and unreasonable in its results. "J. S. H." should prepare a list of his book debts as at April 1st, 1924, and put a valuation on each; the difference between the nominal total and the total of the valuations should be claimed as an allowance for bad and doubtful debts. We are of opinion that such a claim, if kept within the limit of obvious reasonableness, would be admitted on appeal by a board of commissioners.

Car Replacement.

"T. B. E." bought a motor cycle in 1920 for £68 and a motor car in 1921 for £350. He has recently sold the former for £15 and the latter for £100 and bought a second-hand car for £200.

*** The most "T. B. E." can claim is the actual out-of-pocket cost of replacing the car—that is, £200 − £100 = £100. If and when he buys another cycle (or another car for simultaneous use with the one he has) he can claim the loss on the old cycle—that is, £53 against that expense; but there is no relief for the loss on sale as such. The allowable expense is, of course, to be set against the gross profits of the year 1923, and *prima facie* would not affect the income tax assessment for that year.

LETTERS, NOTES, ETC.

CHRONIC INTESTINAL STASIS AND CANCER.

DR. LIONEL SELLS, Uganda Medical Staff, retired (Longfield), writes: With reference to Sir W. Arbuthnot Lane's remarks on cancer in native African races in your issue of October 27th (p. 745) I beg to state that I saw a case of carcinoma of the breast in an Acholi woman close to the Naquai Hills, north-west of "Lake" Kirkpatrick, in January, 1915. The district is closed to Europeans and Indians; of the only Europeans ever there long years ago one was murdered, and the other came, avenged him, and went. Duke in his report for 1921 briefly says he examined an epithelioma of the eyelid from a native, but gives no particulars of race, etc. I have travelled much in the bush and have inoculated thousands for plague and closely examined seventeen thousand of all tribes for army porters during the war, and this is the only case I ever saw.

"SENEX" writes: I am surprised that Sir Arbuthnot Lane's recent recapitulation of his well known views on the upright posture-constipation-cancer sequence, has not hitherto elicited any information from those interested in the study of comparative pathology. For I am informed that in animals cancer is quite a common disease; indeed, it is said that cancer of the breast is met with in dogs, for instance, almost as frequently as it is in human beings. It is true that my acquaintance with dogs is quite fortuitous, but as far as my observation goes—and there are a good many in this street—they are very rarely constipated; certainly those that frequent my doorstep never are. Here we have tangible evidence of a fundamental difference which would appear to be sufficiently important to engage Sir Arbuthnot's attention. Is it possible that there is a flaw in his reasoning—is it conceivable that we have all been on the wrong tack, and that, after all, it is not that constipation is the cause of cancer, but that cancer induces constipation?

MEAT AND CANCER.

MR. J. K. PEDLEY, L.D.S.R.C.S.Ed. (Tunbridge Wells), sends us a letter on the subject of the possible relation of the greater consumption of meat to the increase of cancer. If meat is given to a carnivorous animal it is (he writes) not kept in the mouth, but is immediately swallowed. In the light of comparative anatomy man was meant to be a non-flesh-eating animal. The almost entire absence of dental caries amongst the natives Sir Arbuthnot Lane writes of (in India, Africa, and South America) also has surely something to do with their freedom from this scourge. As soon, however, as the native child commences to eat meat the temporary teeth go to pieces—the fibres of the meat getting jammed between the teeth make way for the enamel-destroying carbohydrate of the white flour, which is given the child in imitation of the European. Amongst pre-war Germans, on becoming more wealthy, meat at every meal was the order of the day; as a consequence, I think statistics would show a greater prevalence of cancer in Germany than any country in Europe. In conclusion, until the legislature gets to work to make the sale of an emasculated flour a penal offence, and until the public realize that meat should not form the basis of their diet, cancer will still take its toll of human life.

THE DANGER OF AMYL NITRITE IN COLLAPSE.

DR. ETHELBERT HEARN (Sherwell, Isle of Wight) writes: I was interested in the case described by your correspondent under the above heading in the JOURNAL of November 10th (p. 906), first, because it must be a rare occurrence for a patient to pass "into a state of dangerous collapse" under nitrous oxide administered with oxygen; secondly, that amyl nitrite is the one drug above all others that will help us when such symptoms arise under the influence of nitrous oxide alone, and which, in my opinion, should be at the elbow of every anaesthetist when administering it. Many years ago, before the introduction of the nitrous-oxide-oxygen method, I administered nitrous oxide to a lad about 18 years of age for the extraction of two teeth. He suffered from congenital heart disease, and twice previously I had given him gas for single extractions with quite satisfactory results. On this occasion, however, after the teeth were removed, I was alarmed to find that he made no signs of recovery—indeed, cyanosis deepened, breathing had apparently stopped, and he appeared lifeless, but the sudden application of amyl nitrite acted like magic; he gave a deep gasp, started breathing rapidly; his colour, never very good, improved, and he soon recovered consciousness. Time being the essential factor in such cases, to examine the pulse and auscultate the chest seems to me like courting trouble; visual signs should be quite sufficient to prompt the anaesthetist to act, and that instantly.

A CLEANLY AND SILENT MILK CHURN.

IN its passage from the cow to the consumer milk has to run the gauntlet of contaminations of various kinds. Not the least in importance are those which are associated with its journey in bulk from the dairy farm to the retail distributor in the large upright cans—or, as they are styled in the trade, churns—which are familiar objects to most railway travellers. Most of these receptacles in general use are far from satisfactory—the lids are not tightly fitting and are so constructed that the upper portion of the churn collects dust and dirt over which the milk has to pass when the churn is emptied; there are also ventilating apertures through which dust or rain can gain an entrance, and too often the abstraction of milk during transit and its replacement by water is not at all a difficult matter. A further drawback to the use of the churn in common use is the noise and clatter which accompanies its removal from platform to railway van and vice versa—an intolerable nuisance to those who have to travel by night time. Mr. A. S. F. Robinson, A.M.I.C.E., of Barsham, Beccles, has endeavoured to remedy these defects by producing a sealed churn provided with a large rubber ring at its foot and neck, and covering the handles with rubber. He claims that by its use there is no wastage or contamination of milk during transit, and that it can be moved noiselessly. If his claim can be substantiated he will have done a real service to his fellowmen.

RECOVERY AFTER EXTENSIVE FRACTURE OF THE SKULL.

F. D. (Nice) writes: I noticed a reference, in a newspaper recently, to the case described in the BRITISH MEDICAL JOURNAL of October 13th (p. 647) of an Egyptian who lived and worked for eleven years with a fractured skull, and I think the following instance is interesting of a somewhat similar case of an Egyptian, which occurred some years ago, and in which I knew all the persons concerned:

An Arab was painting the iron lattice framework of the Ashrafi lighthouse in the Red Sea, at the entrance of the Gulf of Suez. He fell a distance of forty feet from the framework on to the cement caisson of the base of the lighthouse, striking a small dinghy swung out from davits from the framework, falling flat on his back—insensible, and apparently dead—with the base of the skull broken. The chief light-keeper and his two mates examined the skull and found a piece of the bone out, and brains with it, on the caisson. The chief light-keeper gathered up the brains with a spoon, put them back into the skull, and fitted the piece of bone into its place, making a sort of cement of coffee grounds. A box was made of old packing cases, into which the man was put, and a ship signalled asking for a doctor, who came, and the box with the man in it was put on board the ship and taken to Suez to the hospital. It was found he had several ribs broken, besides the injury to the skull, in spite of which, in three months' time, he was down again at the lighthouse at work.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 29, 30, 31, 34, 35, and 36 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 251.

in severe cases of cocaine addiction of long standing it is a mistake to assume that withdrawal symptoms do not occur; they may be quite marked and even serious.

Withdrawal symptoms of addiction disease are now accepted as forming a definite symptom-complex of characteristic type. They are not symptoms which are purposely assumed by the patient with the object of obtaining a further dose of the drug. The objective symptoms described are a sufficient proof of this.

The experimental production of morphine addiction disease in dogs, and the manifestation of a similar symptom-complex of withdrawal symptoms, have furnished additional evidence that drug addiction is a true diseased condition. A most interesting case or symptoms of morphine withdrawal in a newly born infant has been published by Dr. L. A. Van Kleek in America.

The mother had been a morphine addict for years, taking from to 6 grains daily during her pregnancy.
The child at birth appeared normal, but on the second day cardiac ailure, sweating, cyanosis, vomiting, and diarrhoea rapidly eveloped and the condition became alarming. The usual methods f treatment for shock were tried without success. In view of the act that the mother was a morphine addict a small dose of opium, the form of 3 minims of compound tincture of camphor, was given nd repeated every one and a half hours for three doses. The ymptoms of collapse cleared up as if by magic. On the third and urth days the same symptoms of collapse occurred, and were lieved at once by the same methods of treatment. After the urth day the mother was able to suckle the child, which then mained in good health.

In this case it was clear that the child suffered from withawal symptoms of addiction disease on the second, third, nd fourth days of life. It also appeared evident that the ddiction disease was transmitted from mother to child. fficient morphine to prevent withdrawal symptoms was esent in the milk of the mother, who continued to have r usual daily allowance of morphine. The above case is ong evidence that drug addiction is a real pathological ndition or disease.

Pathology of Drug Addiction Disease.

That the condition is caused by morphine and its allies well known, and the symptomatology is well recognized as definite symptom-complex. The explanation of why withawal symptoms occur is yet to be worked out. American ervers, foremost amongst whom is Dr. E. S. Bishop, ert that the taking of morphine leads to the formation of antidotal substance in the body, which neutralizes the ge amounts taken by the addict. It is asserted that this idotal substance is itself very toxic, and that it conues to be produced in the body if the drug is distinued. At this stage withdrawal symptoms develop and y are only relieved by a further dose of the drug, which by neutralizing the toxic antidotal substance.

his theory, fascinating as it seems in the ready explana- of the production of withdrawal symptoms, has not yet ived adequate experimental confirmation. Professor E. Dixon, in an address on the drug habit (British ical Journal, November 19th, 1921), states that neither phine nor any other drug causes antibody formation. On other hand, Valenti rendered dogs tolerant to morphine found that on suddenly stopping the drug typical withal symptoms occurred. He alleged that injection of the m from dogs showing withdrawal symptoms caused ar symptoms to develop in normal dogs.

ofessor Dixon suggests as an explanation of withdrawal ptoms that nerve cells, after prolonged narcosis, become eawakening hyperexcitable, and that a further dose of is necessary to allay this condition. The fact that asing quantities of morphine and cocaine are required ldicts can be accounted for by the increased power of oying these drugs which is developed by the tissues of ddict.

other explanation of addiction disease which, I think, d be the subject of pathological research, is the prob-

mental effects are produced. It is well known th substances, such as chloroform, affect the nerve cells, degenerative changes, demonstrable by Nissl's me staining, and it seems likely that similar changes m in drug addiction. This view of the subject o explanation of the incurable nature of drug addi patients who have taken large quantities of mo heroin, or cocaine for many years.

Scientific research is sorely needed on the patho drug addiction, and there are hopeful signs of light thrown on the subject in the near future, since investigations are already in progress.

The Ministry of Health has recently appointed mittee to inquire into the substitutes for cocaine a possibility of drug addiction arising therefrom. It is that valuable information may be forthcoming fro inquiry which will throw some light on the pathology addiction.

Treatment of Drug Addiction.

Each individual case of addiction requires carefu sideration as to the line of treatment to be adopted. not propose to discuss in detail the method of trea since these were fully dealt with by Dr. Harry Ca in his recent paper. General lines of treatment only considered. When the addiction habit is once establis is essential that treatment should be commenced w delay.

Ambulatory treatment almost always fails and shou be attempted. As Dr. Bishop has forcibly pointed out, is no panacea for the cure of drug addiction, and the vaunted "cures" and "patent medicines" are u worthless and do more harm than good. Some of advertised as cures have been found actually to co morphine.

The only treatment that gives a hopeful prospect of plete cure is one which recognizes that drug addiction disease, and as such requires the same careful attenti detail that any other disease (typhoid fever, pneumonia, would receive. Thus the general standard of health sl be raised to as high a pitch as possible, any associated or other predisposing factors should be dealt with, an withdrawal effected under the most favourable condi both physical and psychical. In this way the prospe cure is as hopeful as is the case in other diseases.

A great drawback in the treatment of drug addicti the feeling of hopelessness experienced not only by patients but often, it is to be feared, by their doctors a

Treatment in an institution or nursing home with plete supervision is essential. After the preliminary pe of investigation and removal of associated predispo factors, during which a minimal allowance of the may be necessary, withdrawal should be effected.

Sudden Withdrawal.

Where the general health of the patient is good and wl the addiction is of short duration sudden withdrawal is ad able. I think the dangers of sudden withdrawal have b somewhat exaggerated, and in many cases the hesitation cut off the drug without delay leads the patient to th that his cure is hopeless. It has been my experience t where the general condition of the patient is good and th is every facility for careful nursing, sudden or very ra withdrawal may be safely effected and is the most sat factory method.

In confirmation of this view I may quote the results of t experience of medical officers of prisons in this country wh have been kindly given me by Sir Malcolm Delevingne. is a frequent occurrence for drug addicts to be sentenced terms of imprisonment, and the invariable rule with rega to them has been sudden withdrawal of the drug. In case have any alarming symptoms occurred and in only very few isolated patients has any narcotic drug been giv at all. In these cases on one or two occasions a very sma dose of liquor morphinae has been given by the mouth, b never has any narcotic drug been given hypodermically.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

360. Experience with Insulin in Fifty Cases of Diabetes.

IN this article C. v. NOORDEN and S. ISAAC (*Klinische Wochenschrift*, October 22nd, 1923, p. 1963) record their experience of insulin in fifty cases of diabetes. Many of these had long been under observation, and hence the authors were able to compare the results of insulin treatment with the results of other treatment in the same patients. Of the superiority of insulin treatment over all previous methods they admit there can be no doubt. Good results were obtained even in cases in which previously there had been the greatest difficulty in diminishing the sugar and acetone excretion to a tolerable amount. A preliminary dietetic treatment is necessary to enable us to judge of the metabolism and to bring the glycosuria to the minimum. Smaller doses of insulin are then required to check the glycosuria. As the action of insulin continues only for three or four hours it should be given three times a day before meals. As regards the diminution of the blood sugar by insulin the authors point out that in the intervals between the separate injections, and especially in the night, the blood sugar rises again, and that the estimation of the blood sugar during fasting gives no clear indication of the action of the insulin on the hyperglycaemia. Rapid diminution of the blood sugar curve should be avoided, otherwise cerebral symptoms and loss of consciousness may occur. The influence of insulin in diminishing the acetone bodies is astonishing, and the greatest triumph of the treatment is its surprising effects on diabetic coma. The authors have been able to check some cases of commencing diabetic coma by insulin. Improved tolerance is obtained after insulin treatment, but the extent thereof has yet to be decided. Banting's discovery is an epoch-making event, and an invaluable gain in the treatment of diabetes. The authors consider that insulin acts on the liver and renders glycogen formation again possible, and ensures a fixation of the glycogen formed. In many respects insulin is an antagonist of adrenaline.

361. The Parathyroids and Paralysis Agitans.

E. BERGMAN (*Upsala Läkareförenings Förhandlingar*, September 7th, 1923, p. 405) has treated two cases of typical paralysis agitans and four cases of Parkinsonism following epidemic encephalitis with parathyroid grafts. The glands were taken from calves two to four hours after death and grafted into the subcutaneous tissues of the abdominal wall after a microscopic examination had shown that the excised glands were really parathyroids. Only in one case did definite improvement follow. The patient was a lad, aged 13, suffering from Parkinsonism, and as the improvement did not occur till two months after the grafting this could hardly be given the credit. The author also gave parathyroid substance daily by the mouth to four of his patients, and in two cases of Parkinsonism he gave parathyroid extract by parenteral injection. No great improvement followed, and the author admits that his investigations failed to support the teaching that paralysis agitans is a disease of the parathyroids.

362. The Danger of Indiscriminate Iodine Medication in Goitre.

O. ROTH (*Schweiz. med. Woch.*, September 13th, 1923, p. 865) deplores the present tendency of pharmacists, school teachers, and other persons in Switzerland to advise their friends to dose themselves with iodine. This tendency is the outcome of the official propaganda in favour of preventing goitres in the public schools of Switzerland by means of the occasional swallowing of some iodine tablets. It is most unwise to describe as harmless any dose of iodine, however small it may seem, and the author refers to thirty cases, observed by himself, in which iodine had been taken by patients without medical advice. In most of these cases only slight iodine poisoning was observed, but it was troublesome enough. There were, however, cases in which severe and permanent injury was inflicted, and some of these cases showed that a dose of iodine which may be well tolerated by a school child, provokes severe iodine poisoning in a susceptible adult. The susceptibility of a person to iodine seems to vary from time to time, and the author records the case of a domestic servant aged 25, who took eight iodine tablets (Jodostarin) within four weeks with impunity. A year and a half later she again took eight tablets within four weeks, and she soon afterwards developed signs of severe Graves's disease. The lesson of this and other cases recorded by the author is that there is no minimum dose of iodine which can be prescribed in every case with impunity. This being so, the prophylactic treatment of goitre must be kept strictly in the hands of the medical profession. One of the worst cases recorded by the author was that of a woman, aged 35, who suffered from goitre, and who was induced by the recent iodine propaganda to take forty-two chocolate-coated iodine pastilles in the course of fifty weeks. Although signs of iodine poisoning appeared after about four months, she continued to take iodine, and she developed all the characteristic signs of iodine poisoning, as well as severe dilatation of the heart and arrhythmia perpetua which proved refractory to quinidine.

363. Auto-pyo-therapy.

E. MAKAI (*Deut. med. Woch.*, August 31st, 1923, p. 1147) has treated more than a hundred cases of localized suppuration by aspirating the pus and reinjecting 1 c.cm. of it under the patient's skin. The injections are repeated every fifth day as often as necessary. In the case of cold tuberculous abscesses, from 1 to 10 c.cm. of the pus are reinjected. The therapeutic effect would seem to depend on the patient being given his own pus; the injection of cold pus from another patient into a person also suffering from a tuberculous abscess is not beneficial, at any rate to the same extent. Most of the author's cases represented acute localized infections with streptococci, staphylococci, and various other pathogenic germs. In no case did this treatment give rise to a progressive infection with phlegmon and dissemination of the disease, and in about 30 per cent. there was not even a local reaction. In another 30 per cent. there was a slightly painful infiltration, which disappeared spontaneously in eight to ten days. There were, however, some cases in which a strictly limited abscess formed at the site of injection, disappearing after aspiration or spontaneously. As a rule, there was no febrile reaction, and the temperature never rose more than 1° C. Indeed, in several cases the temperature fell directly after an injection, coming down step by step after each injection. In half an hour to an hour an injection would be followed by a leucocytosis, the total number of leucocytes being often doubled in ten to twelve hours. The cases treated included suppuration of lymphatic glands, empyema, mastitis, periostitis, mastoiditis, osteomyelitic abscess, and (one case) gangrene of the lung. In this last case there was a cavity in the lower lobe of a child's lung, exploratory puncture of which yielded stinking pus, containing a mixed bacterial flora. Rapid improvement followed the injections, five of which were given at five-day intervals.

364. Lichen Planus of the Glans Penis.

D. W. MONTGOMERY and G. D. CULVER (*Amer. Journ. Derm. and Syph.*, July, 1923, p. 73) state that lichen planus in many of its features is so like an infectious disease, and especially so like syphilis, that there is a great danger of mistaking it for that disease, particularly if the lesion is on the genitals. Of 114 cases of lichen planus in males under their observation 21, or 18 per cent., showed the eruption on the glans penis. In some instances lichen planus may be limited to the genitals, and in such cases both the physician and patient may believe the disease to be venereal, the more so when small papules on the glans are associated with hypertrophic papules on the scrotum resembling condylomata. In some instances lichen planus of the glans may be indistinguishable from an ordinary balanitis, but in two cases of the kind seen by the authors the diagnosis of lichen was established by characteristic lesions elsewhere. In other cases the condition may resemble leucoplakia, owing to the thickened white appearance of the epithelium and the absence of papules, and a diagnosis can only be made by the coexistence of undoubted lichen in other situations and the disappearance of the penile lesions under treatment at the same time as the lesions in other situations. Lastly, lichen planus of the glans may resemble the scar left by a chancre, as in the case of a physician who had a quadrilateral lesion on the lower lip with a characteristic lacework surface and other unmistakable lichen lesions on the buccal mucosa. The number of papules on the glans varies in different cases. Sometimes, as in two of the authors' cases, there may be only one lesion, or they may be innumerable, or the papules may be arranged in one or two groups, an annular arrangement being characteristic. Another frequent manifestation of lichen is the formation of pigmentation,

Gradual Withdrawal.

In cases of addiction of long duration, especially if the general physical condition is of low standard, gradual reduction is advisable. In cases of this type hyoscine has been advocated, a mild hyoscine delirium being produced for thirty-six to forty-eight hours by repeated small doses given hypodermically. At the end of this no morphine is given. The advantage of the hyoscine treatment is that in a long-standing case sudden withdrawal is effected. The disadvantage is that there is apt to be a more pronounced development of symptoms during the period of after-treatment. It is doubtful whether any ultimate advantage is gained from hyoscine treatment.

After-treatment.

After withdrawal has been effected the after-treatment is very important, and in this stage, in addition to general hygienic and medicinal methods, psychotherapeutic treatment is most valuable. The cultivation of the will power and of a feeling of hopefulness and certainty of recovery are most important factors for success in this phase of the treatment.

Cases of Long Standing.

In cases of drug addiction where large doses have been taken for many years, and where the nervous and physical condition of the patient is of a low standard, the prospect of cure is poor, and in some cases practically hopeless. The minimal daily allowance of the drug spaced at as long intervals as possible should be accurately determined, and adequate steps taken that the allowance is not exceeded. In this type of case it is probable that permanent organic changes of a degenerative nature have occurred in the nervous system. During the treatment of drug addiction it is important that alcohol should be avoided, as otherwise alcoholism is likely to follow on the cure. Similarly smoking is best cut off, or reduced to the smallest allowance.

MEDICO-LEGAL ASPECTS OF DRUG ADDICTION.

The world-wide appreciation of the dangers and evils of drug addiction was exemplified by the International Opium Convention which met at the Hague in December, 1911, and January, 1912. A general course of action was agreed upon to which the twelve countries co-operating gave sanction, but it was not to become effective until the other countries not participating had agreed. The final attainment of a satisfactory result was delayed by the outbreak of the European war.

The Peace Treaty of Versailles contained amongst its clauses some tending to the ratification of the Opium Convention. Under the terms of the Opium Convention the consenting nations agreed to frame Acts dealing with the dangerous drugs opium, morphine, and heroin.

In this country the Dangerous Drugs Act was passed in 1920, and under Section 7 of this Act power was given to make regulations for controlling the manufacture, sale, possession, and distribution of the drugs in question. In May, 1921, regulations were issued dealing with the carrying out of the provisions of the Dangerous Drugs Acts, and in 1922 and 1923 certain amendments were made to these regulations.

During the war and down to the passing of the Dangerous Drugs Regulations, control of the sale of narcotic drugs was obtained by the Army Council Order under the Defence of the Realm Act in May, 1916. Orders were made dealing with cocaine and opium which were similar in character to those of the Dangerous Drugs Regulations of 1921. The Defence of the Realm Act Order of May, 1916, dealt with the sale of narcotic drugs to any member of H.M. Forces, and permitted the sale of opium, morphine, cocaine, and heroin only on the prescription of a registered medical practitioner, dentist, or veterinary surgeon. The prescription had to be written out in accordance with the prescribed details, and was to be retained by the pharmacist or dispenser.

The scope of this order was wider than that of the Dangerous Drugs Regulations of 1921, for it included in addition barbitone, chloral hydrate, codeine and heroin, Indian hemp, and sulphonal and its homologues. The restriction of the sale of these drugs to prescription by authorized persons is one which might be followed, with advantage to the public, in future amendments of the Dangerous Drugs Act.

The Dangerous Drug Regulations of May, 1921, and the subsequent amendments were very carefully considered by the Home Office authorities, and the representations of the professions of medicine, dentistry, veterinary surgery, and pharmacy were given the fullest consideration.

The Home Office authorities, amongst whom Sir Malcolm Delevingne, K.C.B., should be specially mentioned for his devoted attention to this difficult subject, did their utmost to meet the wishes of those concerned, consistent with the effective drawing up of the regulations required by the terms of the Convention. It cannot be claimed that these Regulations are at present perfect, but they have been drawn up in a spirit of justice and fairness to all concerned. As regards avoidance of harshness of operation on the professions mentioned, and what is of equal importance, on the addicts affected, the Regulations are a model to other countries.

I know also that moderation and restraint have been shown, as far as possible, by the Home Office authorities and the Ministry of Health in the carrying into effect of the principles of the Regulations. In the difficult position created by the Dangerous Drug Regulations it must be borne in mind that the object for which they were framed can only be satisfactorily attained by the loyal co-operation of the professions concerned with the State authorities.

It has been said that a coach and four can be driven through an Act of Parliament, and it would not be difficult for the letter of the law regarding dangerous drugs to be followed and its spirit evaded. For instance, dilution of dangerous drugs beyond the limits laid down in the Regulations would not prevent their possible use for addiction purposes.

Loyal co-operation will be best engendered by moderation and restraint by the authorities, when technical breaches of the Regulations occur, in which there is evidence that reasonable and proper care has been taken to avoid them. For example, a difficulty arises in the case of cleverly forged prescriptions; the onus of the discovery of these appears to rest with the pharmacist, and, in some cases, even with every reasonable precaution the discovery of such forgery would not be practically possible.

One very difficult question is the continued prescription by medical practitioners of drugs for addicts. I have mentioned instances of incurable addiction where such prescription in amounts as small as can be tolerated is imperative for the preservation of a certain degree of health. On the other hand, the treatment of curable cases by ambulatory methods is to be condemned.

There is no legal power of compulsion for institutional treatment in cases of addiction, except in the very rare cases where the drug is taken as drink, and then possibly the provisions of the Inebriates Act of 1898 might be called into action. For practical purposes this Act is quite powerless in dealing with drug addiction.

From the purely medical asepct it would, in my opinion, be desirable that legal powers should be given whereby drug addiction can be treated by compulsory institutional treatment. At a recent discussion at the Medico-Legal Society (March, 1923) on this subject the legal opinion was emphatic against the advisability, at present, of institutional treatment being made compulsory in cases of drug addiction. Moreover, the special institutions and staffs that would be required for the treatment of large numbers of cases of drug addiction do not, at present, exist in this country, and provision for them would be necessary before any legal enforcement for compulsory treatment were enacted.

Dr. H. A. Burridge gave the Medico-Legal Society last March a very carefully thought out paper on "State effort to rescue victims of drug addiction." In this paper the hardships caused to drug addicts and to the medical profession in the United States by the harshness of the existing laws and regulations were forcibly dealt with.

which may persist long after the disappearance of the papules. It was a remarkable fact that pruritus, which is a frequent and often distressingly severe symptom of lichen, did not affect the glans in any of the authors' cases.

365. Non-organic Heart Murmurs in Early Infancy.

CAPITE (*La Pediatria*, October 1st, 1923, p. 1060), in a synthetic review of the above question, uses Vaquez's classification of murmurs—organic, functional or intracardial, and non-organic or extracardial. Potain taught that non-organic murmurs were due to the distension of a prolongation of the lung during cardiac systole, and hence they are usually systolic in time, but diastolic extracardial murmurs have been described, and they are not confined to the apex. Variability is a frequent sign in non-organic murmurs, especially in children—softness in character and absence of propagation are other signs. Pericardial friction is rougher and is not propagated, and has no relation to the cardiac cycle. Besides these cardio-pulmonary murmurs there are the group due to cardiac dilatation from emotion and in the course of acute illness—for example, typhoid fever. In anaemia functional murmurs may be due to diminished viscosity of the blood. Some authors deny the existence of functional murmurs in very young children, and it is difficult to say whether a murmur is functional or organic. The *x*-ray diagnosis is not very trustworthy, and practically one has to wait and see whether the murmur disappears in time or remains persistent before a certain opinion can be given.

Surgery.

366. Retropharyngeal Abscess.

D. E. S. WISHART (*Canadian Med. Assoc. Journ.*, September, 1923, p. 635), in reporting a fatal case of retropharyngeal abscess with erosion of the internal carotid artery, discusses the pathology and treatment of this condition. In his opinion the cause of practically 100 per cent. of the cases of retropharyngeal abscess is suppurative lymphadenitis. During the past eight years forty-one cases of retropharyngeal abscess were seen by him in the Hospital for Sick Children, Toronto; in twenty-four of the cases the onset was not attributed to any definite cause, but in seventeen, or 40 per cent., there was an accompanying infectious disease in the nose or ears. The condition is essentially one of infancy and reliance for the history has to be placed upon parents, who are very often poor observers; the most frequent causes of parental anxiety were (1) that the child was breathing or swallowing with difficulty, and (2) the appearance of swelling on one side of the neck. Retropharyngeal abscess must always be considered an emergency calling for immediate evacuation of the abscess; the operation is safe if it is properly performed. No anaesthetic is necessary; the child is swathed, placed on its back on a table, and a mouth gag inserted. Under inspection by reflected light the tongue is depressed by a tongue depressor held by the surgeon in his left hand. He then takes in his right hand a pair of special pointed tonsil scissors, which are plunged through the apex of the pharyngeal swelling and opened wide so as to make a vertical slit. All this is the work of a few seconds, but the important part of the operation follows. It consists in the attendant at once rolling the child on its side, while the surgeon with the tongue depressor holds the tongue down and the mouth open so that the pus, unable to find its way into the trachea and larynx, flows freely out of the mouth. No local after-treatment is necessary. Of the forty-one cases seen in the hospital during eight years and diagnosed as retropharyngeal abscess, not one was fatal. One case, however—that reported in this article—was not diagnosed; the patient died, and was found to have been suffering from retropharyngeal abscess. A bibliography is given.

367. Treatment of Gastric Ulcer.

N. HORTOLOMEI (*Lyon Chirurgical*, September-October, 1923, p. 562), in discussing the surgical treatment of ulcers of the lesser curvature of the stomach, points out that surgeons are not in general agreement as to the best method to employ in such cases. Gastro-enterostomy, which is the easiest and simplest form of treatment, is not always found to be satisfactory. Resection of the ulcer is probably preferable and is practised by a number of surgeons at the present time. Resection necessarily entails the shortening of the lesser curvature and leaves the stomach as a deep sac lying low down, so that its emptying is accomplished both slowly and with difficulty. Gastro-pylorectomy, used for ulcers at the pyloric end of the stomach, has also been employed for ulcers at the lesser curvature, but it has the disadvantage of being both a long and difficult operation. In annular gastrectomy the longitudinal muscular coat is divided, and this operation impairs the progress of the peristaltic waves at the site of the scar. To overcome these disadvantages Ostermeyer has carried out with success a form of longitudinal resection and plastic operation on the stomach combined with pyloroplasty. In this operation not only the ulcer but also a part of the anterior and posterior walls of the stomach are resected. The pyloric antrum is left as a canal a little wider than the duodenum. After the opening has been closed the lesser curvature is actually lengthened. The operation is easily performed after the separation of the lesser omentum and of the mesocolon if the posterior wall be involved. Curved clamps are applied along the lesser curvature and the ulcer excised. The opening is closed in the usual way by two layers of sutures. The author considers that this is the simplest operation for ulcers of the lesser curvature, and the stomach is found to empty itself rapidly afterwards. The re-forming of the lesser curvature by this method is an important feature which merits further consideration.

368. Resection of the Bowel.

H. DOERFLER (*Zentralbl. f. Chir.*, October 6th, 1923, p. 1502) records two cases in which he resected unusually large portions of the bowel in 1917. The first was a man, aged 58, of good musculature, who developed a volvulus during strenuous physical exercise. The author operated thirty hours later, found the mesentery twisted through 180 degrees, and the small bowel extensively gangrenous. He removed practically the whole of the small bowel, leaving only 12 cm. of the jejunum and 20 cm. of the ileum, which were united by side-to-side anastomosis. The patient suffered severely at first from flatulence, required to be fed every two hours, and had an evacuation of the bowels every four hours. His condition gradually improved, and he now, six years after the operation, has the normal number of meals a day and only two evacuations of his bowels. It is stated that he leads an active life, his only complaint being that he tires a little more readily than he used to do. The second case is that of a woman who had a hugely dilated colon; the author resected the ascending and transverse colon, a length of 1 m. 22 cm. There was left of the large bowel 35 cm. only—the descending colon; the ileum was united to the descending colon by end-to-end anastomosis, both portions of the gut showing some dilatation. The patient made an uneventful recovery, and it is reported that she is to-day in good health with no intestinal symptoms.

369. Teratoma of the Lacrymal Gland.

LLOYD B. WHITHAM (*Amer. Journ. Ophthalm.*, September, 1923, p. 757) describes a case of teratoma of the lacrymal gland. Tumours of this gland are rare, particularly teratoma. There are three general divisions of lacrymal gland tumours; first, solid tumours or neoplasms; secondly, cysts or dacryops, and last, symmetrical tumour-like enlargements due to Mikulicz's disease or lymphomata. In the present case the patient, a male 21 years of age, had noticed since the age of 5 years a large hair protruding from beneath the upper lid near the outer canthus of the left eye. This hair was cut off with scissors from time to time when it became troublesome. About a year ago he noticed a tumour lying in the left superior conjunctival fornix. Latterly this had been growing in size and had a reddish coloration. It had caused no symptoms. The tumour was large, pedunculated, multilobular, and of firm consistency, and latterly appeared to interfere with supraduction and abduction of the left eye. The tumour was removed easily by dissection. Subsequently the tumour was split with the scalpel and what appeared to be a small well formed tooth was exposed to view. The tumour was not cystic, but there was a fibrous lining inside of which there was a mass of spongy tissue suggesting a glandular structure. The tooth was embedded in this latter tissue.

370. Treatment of Hydatid Cysts of the Lung.

B. PERITCHITCH (*Paris Méd.*, September 15th, 1923, p. 214) records eighteen cases of hydatid cysts of the lung observed in patients aged from 12 to 51 at the hospitals of Sibenik, Zaza, and Split in Dalmatia from 1890 to 1923. In most cases he considers it best to refrain from operation. If the hydatid cyst is still closed and is very near the lateral surface of the lung, thoracotomy should be performed. But if the cyst is situated centrally or if the patient has just coughed up a cyst there is no need for interference. In the first case expectant treatment is indicated, and in the second case expectoration should be encouraged by the ordinary remedies for bronchitis, the patient being kept under observation so that an operation may be performed later if necessary, which is rarely the case.

ate means any supply of drug to tide him over a ceding the commencement of a course of treat- h the result that the illegitimate traffic of nar- s has become most extensive.

sions as to Morphine, Heroin, and Cocaine.

up the present position with regard to morphine, d cocaine addiction in this country—

her research is needed on the pathology, sym- gy, and treatment of drug addiction.

regulations in force are necessary for the control which is a menace to the public health and well- the State, and which, if uncontrolled, would eriously increase.

regulations in force are at present adequate as e legal restrictions imposed, and it is advisable hould be interpreted with moderation and breadth regards the difficult and imperfectly understood drug addiction.

pulsory restraint for treatment of drug addicts is on purely medical grounds, but could not be nforced at present, owing to the lack of adequate ision.

most effective method of carrying out the spirit ulations of the Dangerous Drugs Act is by the eration of the professions concerned with the orities.

Other Drugs of Addiction.

onal Group.—Barbitone or veronal, medinal, pro- and luminal, are all dangerous from the liability n. Their continued use leads to the development e symptom-complex, such as an abnormal mental in which delusions and visual hallucinations may e speech may become thick and indistinct and urbances may occur. The gait often becomes e veronal habit leads to a disorganization of the e. Veronal and its allies are all toxic and not danger where idiosyncrasy is present. There is ger of the development of addiction. A common eronal addiction is suicide, and I have seen a such cases. Usually a large dose is taken with on of suicide. In one case a young woman, who tim of the veronal habit, drank a large quantity h fatal result. None of the drugs in this group obtainable except on medical prescription. At y are included in Part I of the Poisons Schedule obtained by the public on signing the Poisons I regard all the members of this group as most hypnotics and strongly advise their avoidance.

Indica (Indian hemp) is in common use in Eastern countries as a drug of addiction. Bhang is the name given to the preparation, consisting es, small stalks, and fruits. "Charrish" is the ed to the preparation of the plant prepared for The drug produces pleasurable sensations and is poison. A case of its sale in this country as opium" has recently occurred. Owing to its d addiction effects it would be desirable for the added to those included in the Dangerous Drugs

l and its homologues, trional and tetronal, are pnotics. They may give rise to addiction, and e is not unlikely. It would be desirable that only be obtainable on medical prescription.

yde may give rise to addiction. The symptoms dition are similar to those of alcohol and the the same.

ay give rise to addiction, but is rarely met with ect at the present day.

also may give rise to addiction, but its use for se is much rarer than formerly.

hepatitis and jaundice which ultimately proved fatal.

Dionin has only feeble powers in the causation of addiction, though a few isolated cases are recorded. It has been used in the treatment of morphine addiction, and is of some value in warding off withdrawal symptoms. It is not included amongst the dangerous drugs.

Codeine is not really dangerous as an addiction drug, and has been wisely excluded from those in the Dangerous Drugs Act.

Conclusion.

With regard to legislation relating to drug addiction, let us have confidence in those experienced administrators who have charge of this aspect of the question. Let us be temperate in our desires for new legislation, remembering that too hasty legislation may do more harm than good. It is only by the steady method of advance, each step having been carefully thought out and considered in all its aspects, that true progress will be made.

COCAINE AND ITS SUBSTITUTES.

BY

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Purely as a local anaesthetic, cocaine is probably unsurpassed. Disadvantages are, however, associated with its use, especially its toxicity, the varying susceptibility of individuals to its toxic action, and its instability.

An endeavour has therefore been made to examine the evidence available from the clinical side on these points; and further, by experiment, to compare cocaine and some of its substitutes, particularly two recent introductions—butyn and atoxodyne.

The toxicity of cocaine appears to be less than is frequently asserted. The evidence as to "idiosyncrasy" is scanty; and, especially in the most interesting cases of reported death from small doses, the accounts are so meagre as to preclude any chance of criticism.

Evidence of Reported Cases.

The evidence of published cases was examined to discover if possible how far the alleged variable toxicity of cocaine is due to "idiosyncrasy" of the patients, and how far to varying methods of administration. Fifty fatal and very many more non-fatal accidents were investigated. The total available references in the medical libraries of Bristol University and the Royal Society of Medicine extend over a period of about forty years. In a number of cases it was found that reports have been copied from one journal to another several times, often with loss of accuracy.

Deaths Wrongly Ascribed to Cocaine.

Examination of the reports showed that of the fatal cases four seem to have been wrongly ascribed to cocaine poisoning.[1 2] For example: (*a*) Dental injection, dose unknown; the patient became ill on the eighth day and died on the eleventh. Autopsy=septicaemia; coroner's verdict, "blood poisoning." No mention or evidence of poisoning by cocaine. (*b*) Abadie's patient, aged 71, received two-thirds of a grain subcutaneously. She was considered at the time to have died of apoplexy (second attack). Neither time nor mode of onset of symptoms, nor appearance after death, correspond with cocaine poisoning.

Dose of Cocaine Used in Fatal Cases.

The remaining cases include all those in which, though details are lacking, death was ascribed to cocaine poisoning. It is to be remembered that cocaine in the last century was used with a freedom and in a dose now uncommon. For example, one surgeon reports 1,600 operations in which injections up to 4 grains were given as a routine, with no serious accidents[3]; another frequently injected over 1 grain in children, but not under 3 years old[4]; a third had alarming accidents among infants between 3 and 6 *months* old, from spraying or swabbing the fauces with 4 per cent. solution[5]; a fourth

371. Prophylactic Vaccination against Pulmonary Infections before Surgical Operations on the Stomach.

C. GERNEZ (*C. R. Soc. de Biologie*, August–September, 1923, p. 660) records some interesting observations made at Professor Lambret's clinic in Lille, which, if subsequently confirmed, should be of considerable practical value. Numerous bacteriological examinations showed that most pulmonary complications following gastric operations were due either to the *B. pylori*—one of the *proteus* group—or to the enterococcus. Vaccines were made of each of these organisms, titrated to contain 500 million per cubic centimetre, and intradermal tests were made on the patient before operation. If there was a positive reaction it was concluded that the patient was susceptible to the organism concerned, and he was therefore actively immunized against it. After two or three injections a second intradermal test was made; if this was now negative, it was held to indicate that an immunity to it had been established. If it still remained positive a further series of injections was undertaken. By examining the antibody content of those patients who gave a positive reaction, it was found that there was an absence of antibodies to the organism in question, whereas in the case of those patients who gave a negative reaction, whether before or after vaccination, antibodies were present in the serum. Cases are cited in which the administration of vaccine sufficed to render a previously positive intradermal test negative, a change which was accompanied by the appearance of antibodies in the serum, where none had been present before.

Laryngology and Otology.

372. Streptococcal Osteomyelitis of the Temporal Bone.

THE clinical picture of a disease of the temporal bone which may be recognized as a clinical entity is given by H. BOYD-SNEE (*Journ. Amer. Med. Assoc.*, September 8th, 1923, p. 803). Of 285 cases the disease was found on both sides in 35. The findings in the pre-operative, operative, and *post-mortem* examinations made have been consistently characteristic in every case, and on the pathological and the bacteriological findings the specific diagnosis of acute streptococcic osteomyelitis rests. In 186 instances accurate pre-operative bacteriological findings were established culturally from the exudate recovered from the tympanic cavity. In every case but one attention was first attracted to the region by the development of an acute otitis media or an acute exacerbation of a chronic otitis media. In every instance the streptococcus was recovered from the tympanic exudate before the operation, and the same organism was again recovered, either in pure culture or in culture mixed with other pyogenic organisms, from the infected cancellous bone through the operation wound. The causal agents were found to be the streptococcus in mixed strains, or the streptococcus mixed with other pyogenic cocci (staphylococci and pneumococci) or bacilli (*B. influenzae*, *B. pyocyaneus*, and diphtheroid bacilli). The clinical picture of acute, uncomplicated, streptococcic osteomyelitis of the temporal bone is that of acute suppurative otitis media. The termination was fatal in 31 cases, making the mortality 11 per cent. The connexion between the primary osteomyelitis and terminal complication was definitely established by *post-mortem* findings in 24 cases. Two patients died of pneumonia which had no demonstrable connexion with the primary osteomyelitis. The streptococcus organism has been identified as a Gram-positive diplococcus, recovered from cultures from which the pneumococcus has been excluded by test, and was typed variously as *Streptococcus mucosus capsulatus*, *S. viridans*, *S. pyogenes*, *S. haemolyticus*, and *S. non-haemolyticus*.

373. Epistaxis from an Unusual Site.

BOENNINGHAUS (*Deut. med. Woch.*, August 17th, 1923, p. 1088) notes that while the lower anterior part of the septum of the nose—Kiesselbach's area—is the most common site of recurrent haemorrhages from the noses of young delicate persons, there is a vein in another part of the interior of the nose to which haemorrhages may be traced in a few cases. The author gives the name of "vena liminis nasi" to this vein, which runs outwards from the septum of the nose to the alae nasi on, or just in front of, the low smooth ridge which marks the junction of the skin of the vestibule of the nose with its mucous lining. This vein is comparatively rare and when present is often overlooked because on rhinoscopy the nasal speculum pulls on it in its longitudinal axis, compressing it out of all recognition. This vein is sometimes visible only near the septum, but it may be as thick as a knitting-needle. The author calculates that he sees a case of epistaxis from this source about once a year or every other year. In the position of this vein there is sometimes a fissure which has been started by scratching with a finger, and in the depths of this fissure the vena liminis may be oozing blood. Cauterization of a bleeding vena liminis is a more difficult undertaking than cauterization of a bleeding point in the septum of the nose which can easily be anaesthetized by the application of cocaine. In the former position cauterization is apt to be painful because the skin of the vestibule of the nose is comparatively refractory to the application of cocaine, and the operator must be careful to push the nasal speculum as close to the vein as possible so that the speculum intervenes between the thermo-cautery and the skin. It may even be advisable to anaesthetize the vestibule of the nose by an injection of novocain. The cause of epistaxis from this site is the same as that of epistaxis from the nasal septum—scratching with a finger.

374. Gradenigo's Syndrome.

LAPOUGE (*Rev. de Laryng., Otol. et Rhinol.*, September 30th, 1923, p. 763) describes a case which showed this syndrome—acute otitis media, fronto-parietal headache, and paralysis of the sixth cranial nerve. A woman, aged 50, suffered from acute suppurative otitis media for which the membrane was incised. Frontal headache followed and persisted. A carious molar with an apical abscess was extracted and a maxillary sinusitis cleared up by lavage. The pain and the otorrhoea persisted and the headache grew worse. Five weeks from the beginning of the condition a cortical mastoid operation was done and a small subdural abscess over the tegmen antri was drained. The headache continued, and the wound after almost drying recommenced to discharge freely. About the sixtieth day of the disease a paralysis of the external rectus muscle of the same side was noticed. Diagnosis of simple petrous cellulitis was made and a radical mastoid operation performed. The condition improved for a time but became worse, and the wound, after almost drying, began to discharge again. Pain increased, the pulse and general condition rapidly deteriorated, and pus was seen to come from a fistula in the attic region. Further operation revealed an extradural abscess reaching to the Gasserian ganglion and from the petrous bone behind to the frontal lobe in front. The meninges were already infected, and after some aphasic symptoms the patient died of meningitis. Gradenigo's syndrome of symptoms usually indicates a simple cellulitis of the petrous bone and an oedema of the meninges which affects the sixth cranial nerve. This condition usually clears up after a cortical or radical mastoid operation. If, however, these symptoms persist or increase after such treatment much worse mischief is present, and a searching exploration must be made for petrous osteitis and subdural abscess, as these are the conditions almost certainly present.

Obstetrics and Gynaecology.

375. The Prognosis of Heart Lesions during Pregnancy.

FROM the study of a number of cases of heart lesions in pregnant women, W. FREY (*Zentralbl. f. Gyn.*, October 6th, 1923, p. 1553) concludes that the prognosis is not nearly so bad as is generally supposed, as only 2 per cent. of his cases died. This is probably due to the mortality given by other writers being only for bad cases and not for all classes of cases. He contradicts current opinion by stating that mitral stenosis gives a worse prognosis than aortic lesions due to sclerosis of the pulmonary arteries, whereby a greater tax is put upon the conducting power of the right ventricle; but even with mitral stenosis the prognosis is not bad, and the duration of life would appear to be longer than it is in cases of mitral insufficiency. The most dangerous time would seem to be the hours and days following delivery, owing to the blood collecting to a large extent in the pelvic vessels, with the result that the heart is incompletely filled, and thus its contractile energy is relaxed. The prognosis depends not so much on the nature of the cardiac lesion, however, but on the condition and conducting power of the cardiac muscle, complications of pregnancy also affecting the prognosis greatly. Pregnancy is always liable to give rise to a recurrence of an old endocarditis due entirely to mechanical conditions and not to septic complications. As regards treatment, cases of acute endocarditis should have pregnancy terminated at once, both in primiparae and multiparae, as pregnancy causes speedy development with severe damage to the myocardium. The diagnosis, which is of the greatest importance, is difficult, and the condition is often not diagnosed, but a rise of temperature, onset of anaemia, and, above all, tachycardia, should put one on the *qui vive*. Cases which show failure of compensation but no inflammatory changes should be treated conservatively by physical and

administered 5 grains daily for months in one case[6]; 8 grains and even 15 grains were advised for hydrocele operation, where of course part was recovered[7]; a textbook advises 2 drachms of 5 per cent. solution (5½ grains) for urethral injection.[8] Fatal and even serious accidents from clinical use seem, however, from the available published reports to have been rare.

Oral Ingestion.

In 13 cases death was due to taking a large dose by the mouth.[2 9 10 11 12] The dose was known in 8, average 22 mg. per kilo.* The smallest fatal doses were: (*a*) about 10 grains in 2 drachms, taken by a woman—it might have been more[10]; (*b*) 12 grains in 10 per cent. solution taken by a girl.[11] A man survived 9 grains solid[12]; and others 10 grains, 22 grains, and it is said 46 grains, diluted.[14] One patient took at least 60 grains daily for months, but died when she took 30 grains in one dose.[12]

Subcutaneous Injection.

Six cases died after subcutaneous injection. In 5 a definite overdose was given—namely, 20, 19, 17, 12, and 8 grains respectively.[2] Injection of 4 grains into the breast caused death.[15] Doses of 18, 15, and 14 grains (in 35 per cent. solution) were survived.[17]

Submucous Injection.

Twelve cases of death are reported following injections in adults for tonsil operations.[22] In 4, owing to carelessness, strong solutions were injected instead of weak—for example, 20 per cent. instead of 0.2 per cent.; the victims received, therefore, one hundred times the intended dose. In 4 more the dose was not known. In the remaining cases the doses were (*a*) 3 drops of ½ per cent. solution (=1/50 grain); (*b*) ¼ grain; (*c*) 20 minims of 1 per cent. solution in adrenaline 1 in 1,000 (= 1/5 grain of cocaine); (*d*) 2 drachms of 0.2 per cent. solution in adrenaline 1 in 1,000 (=¼ grain of cocaine). It seems hardly credible that the injected cocaine alone caused death in (*a*). In (*c*) and (*d*) the dose of adrenaline injected was too high for safety. In none of these cases is mention made of painting the fauces before injection; if this were done the cocaine absorbed may have largely exceeded the doses given; details of all are scanty. In each case death occurred almost at once, showing that the drugs reached the general circulation very rapidly. (It is noteworthy that injections for tonsil operations account for a number of fatal accidents with several anaesthetics, even dilute novocain; the painting before injection has perhaps received too little attention in some cases.) One death followed injection of 10 per cent. solution of cocaine into the nasal septum in mistake for 1 per cent.[22]

Dental injections were twice fatal; dose unknown.[1 19] Two grains and even less gave rise to trouble in a number of dental cases. Very many accidents occurred when dealing with acute inflammatory conditions: the vascularity present, and possibly injection under pressure, appear to have been factors. In one series all the serious accidents occurred with 10 per cent. or stronger solutions.[23]

In one case 1½ grains injected for rectal fistula operation caused death in four minutes.[16] Injections for haemorrhoids caused convulsions with 5 grains and 3 grains, and less serious trouble with several doses of this order.[18]

Injection into Cavities.[24]

Death followed injection of 6 grains in 5 per cent. solution into a recent hydrocele. It was considered that "this relatively feeble dose," safe in chronic hydrocele, was in this case rapidly absorbed by the unthickened tunica vaginalis.

Injection into the recently wounded urethra was responsible for three deaths—doses, 3 grains,[22] 2½ grains, and 1 grain.[16] Death in each case occurred in a few minutes. Absorption, however, from the intact urethra is rapid[20 26]—7 grains caused convulsions.[23]

A dose of 22 grains injected into the rectum caused death in a few minutes.[24] (The surgeon committed suicide.)

Surface Absorption.

Application of 4 per cent. solution to abraded skin caused death in a few minutes; dose unknown.[16] Four fatal accidents followed application to the fauces; doses unknown.[2 22] In another case death followed the application of 20 per cent. solution to the larynx.[23]

Numerous accidents, mainly not very serious, are reported in nose and throat work, especially with 10 per cent. or stronger solutions (without adrenaline). Fullerton in 1891 pointed out that absorption from the nasal mucosa was particularly rapid.[25] In this connexion it is worth remembering that the addict of one type, who spares neither pains nor ingenuity, has discovered that application of solid cocaine to the nasal mucosa is the most rapid, efficient, and economical method of introducing a toxic dose into his cerebral circulation.

* 1 mg. per kilo = 1 grain for the average adult man.

SUMMARY.

Summarizing the above brief survey of 50 reported fatal cases of cocaine poisoning:

Death was not due to cocaine in	4
Death followed oral ingestion in	13
Death followed overdose in	12
Dose was unknown in	12
Death followed employment of a dose stated to be under 5 grains in	9
	50

In the last class, in one case 4 grains was injected into the breast. In the remaining 8 death occurred in a few minutes—clear evidence that the drug had very rapidly entered the general circulation. This appears to be the essential factor in all these cases.[34 35] The circumstances of each case so far as they are known have been briefly considered.

CLINICAL DOSES.

Judging from the published reports we may infer:

A. Fatal poisoning from clinical doses of cocaine is rare. "Idiosyncrasy" to cocaine in this sense is not established.

B. The lethal dose of cocaine for man by subcutaneous injection or by the mouth appears to lie between 12 mg. and 25 mg. per kilo, depending on the concentration.[27]

C. The same dose of cocaine in strong solution is much more dangerous than in weak.

D. For ordinary subcutaneous injections in dilute solution (1/4 per cent.), especially with adrenaline, the old "maximum dose" of 3 grains should be safe.

E. In vascular, including acutely inflamed, tissues, and other situations where the drug may rapidly enter the circulation, very great caution is necessary. This may apply particularly to injections for tonsil operations. (The *intravenous* lethal dose of cocaine for man has been estimated at about 1.5 mg. per kilo.[26] Cocaine has, however, been used intravenously.)

Other points which appear especially from the study of non-fatal cases (to which it has not been practicable to advert in this paper) are:

F. Absorption from mucous surfaces is often rapid.

G. Accidents have become much less common since adrenaline has been in use. (Injection, however, of strong adrenaline into vascular tissue is itself a source of danger. Recent authorities advise 1 in 100,000 solution for injection, 1 in 10,000 solution for mucous surfaces.[27])

DEATHS FROM COCAINE SUBSTITUTES.

It must be remembered that occasional severe and even fatal accidents have occurred with all the cocaine substitutes that have been extensively used.[26] The preliminary report of the American Committee on Toxicity of Local Anaesthetics contains a table of recent fatal cases[23]:

	Deaths.
Stovaine	1
Alypin	1
Novocain	3
Novocain and cocaine	10 (*a*)
Apothesin	4
Butyn	4 (*d*)
Butyn and cocaine	1 (*b*) (*d*)
Cocaine	18 (*c*)
	42 deaths

(*a*) Presumably injection of novocain after painting with cocaine.
(*b*) Injection of butyn after painting with cocaine.
(*c*) Fifteen of these included and analysed above.
(*d*) See below, "Butyn."

This table possibly bears some relation to the frequency of use of the different drugs.

STABILITY OF COCAINE.

Cocaine base in solution is said to be very unstable. The hydrochloride in moderately strong solution is stable, unless it becomes alkaline. A specimen, containing 1/2 per cent. salicylic acid, was found, after two years in a stock bottle, to be of the same anaesthetic power and toxicity as a fresh specimen. This same solution, although doses had been frequently taken from the bottle without precautions, was sterile.[24] Cocaine hydrochloride can be sterilized by boiling;

psychical rest, diet, and digitalis, strophanthin intravenously being of use in cases of threatening insufficiency, in addition to the digitalis given orally, and squill is probably better for long-drawn-out cases, as it is not so cumulative. If improvement does not occur termination of pregnancy is advised. In fully compensated cases with no inflammation termination of pregnancy is not required. General sterilization of patients for whom pregnancy has been terminated artificially is not advised, for in the majority of cases healing occurs and the power of conduction is restored. All cases of mitral stenosis should be carefully watched, especially those which are rapidly advancing, as they are the most dangerous.

376. Treatment of Retained Placenta.

T. R. GOETHALS (*Amer. Journ. of Obstet. and Gynecol.*, September, 1923, p. 322) quotes Polak and also Bumm as reporting a mortality of 10 per cent. after manual detachment of the placenta. In 170 cases in which this procedure was carried out at the Boston Lying-in Home the mortality was 8.2 per cent., but after deducting cases in which death might be attributed to other morbid conditions of labour the rate was 1.8 per cent. One case in four of hospital patients in whom the placenta was delivered manually and two in five of out-patient deliveries showed post-partum uterine infection, which, however, was as a rule of a mild type. In cases of placental retention without haemorrhage the Gabastou-Mojon method of injection of warm saline solution into the placenta through the umbilical vein has, in the experience of many writers, proved successful in averting manual removal with its high mortality and morbidity. Definite indications for removal by hand are found (1) in profuse haemorrhage, (2) when one or more cotyledons are missing from the placenta after its expulsion, (3) when a retained placenta is inexpressible even under an anaesthetic, after a certain period of waiting which is given at from two to twelve hours in the practice of various clinics. An important danger attending manual extraction is that "placenta accreta" may be encountered, and it is impossible to foresee the existence of this condition, in which there is a lack of the normal spongy layer of the decidua, and infiltration of the degenerated uterine muscle with chorionic villi; consequently the placenta is so blended with the uterine wall that no line of cleavage is discernible. Practically all recorded cases of "placenta accreta" have proved fatal from haemorrhage and shock, the majority with some portion of the placenta still retained. In cases in which manual extraction is impossible or so difficult as to lead to diagnosis of "placenta accreta" Goethals recommends an intrauterine pack as an emergency measure, followed by abdominal hysterectomy.

Pathology.

377. Physiology of the Pineal Body.

THAT the chief function of the pineal body is to prevent premature development of the male and female sexual organs is the conclusion arrived at by Y. IZAWA in the course of experimental work (*Amer. Journ. Med. Sci.*, August, 1923, p. 185). This observer performed the operation of pinealectomy on a series of 36 young fowls, at the same time using 11 others as observation controls. Only 4 birds survived the operation for any length of time (3 male and 1 female), and these were fed under similar conditions to the control animals. All were killed 130 days after operation. At first the pinealectomized group appeared to be retarded in growth, but about a month after operation began to develop more rapidly than the controls. The cocks commenced to crow prematurely and showed an early development of comb compared with the animals not submitted to the operation. On autopsy the testes were abnormally large, and microscopically the seminiferous tubules were much dilated, containing several layers of epithelial cells presenting all degrees of spermatogenesis, whilst those of the controls were small and almost filled with a few layers of undifferentiated epithelium. In the case of the single pinealectomized female that survived till it was killed, the ampullary portion of the Fallopian tube was greatly developed; section of the ovary showed well developed follicles about three times the size of those in the control females. Other endocrine organs presented slight or no difference in the pinealectomized and control specimens. The author notes that, in the main, his findings correspond to those of other observers quoted, and reference is also made to two published cases occurring in man, where in the one instance overdevelopment, and in the other incomplete development, of the pineal body produced, respectively, retarded and increased activity and growth of the organs of sex.

378. The Complement Fixation Reaction in the Diagnosis of Bovine Tuberculosis.

BROCQ-ROUSSEU, A. URBAIN, and CAUCHEMEZ (*Ann. de l'Inst. Pasteur*, September, 1923, p. 872) have conducted a research on the value of the complement fixation reaction in the diagnosis of tuberculosis in cattle. The blood was collected from the heart of the animal after it had been slaughtered; the serum thus obtained was used for the reaction, which was conducted according to Calmette's and Massol's technique using Besredka's antigen. Altogether the serums of 203 cattle, proved at autopsy to be suffering from tuberculosis, were examined; the serums of 74 animals shown macroscopically at autopsy to be free from tuberculosis were included as controls. Of the former group no fewer than 94.09 per cent. gave a positive fixation reaction; of the latter only 1.36 per cent. were positive. In order to investigate the reason why 12 of the animals shown to be tuberculous gave a negative reaction, cultures on Petroff's medium and injections into guinea-pigs were made of the lesions of 6 of these. It was found that in 3 of these cases the lesions were sterile. In other words, the disease was no longer active. As a point of interest it was noticed that animals suffering from tuberculosis which had received an injection of tuberculin showed a higher quantity of antibodies in their serums than those animals which had not been tested with tuberculin. From this research the authors conclude that, setting apart hypertrophic enteritis, the complement fixation reaction in cattle is specific and can be applied to the diagnosis of bovine tuberculosis.

379. The Destruction of Foreign Blood Cells in Rabbits.

IT has been stated that certain iron-containing endothelial cells of the spleen in rabbits are responsible for the destruction of foreign red blood cells. To ascertain if this were so F. L. PICKOF (*Journ. Infect. Dis.*, September, 1923, p. 230) injected 5 c.cm. of a 50 per cent. saline suspension of washed chicken corpuscles intravenously into eight rabbits. Blood films made at successive intervals showed that the foreign cells disappeared from the circulation in forty to sixty minutes without, however, any appreciable haemolysis being noticeable. In another series the rabbits were killed at varying intervals of fifteen minutes to four hours after the injection, and histological preparations were made of the various organs. Examination of these demonstrated an accumulation of the chicken cells in the capillaries of the liver, spleen, and marrow, where they were destroyed within three to four hours after injection. This destruction was definitely extracellular, only a small number of nuclei and no whole cells being found in the Kupffer cells of the liver. Since the weight of the liver in the rabbit is about seventy times that of the spleen, and as in the microscopical preparations about an equal number of foreign cells were found per field in each of these organs, it may be concluded that the liver is of much greater importance in the destruction of those cells than the spleen. Moreover, it was found that in rabbits on which splenectomy had been performed the disappearance of the injected chicken cells from the circulation and their destruction in the organs pursued a normal course. What the actual mechanism of the destruction is must be left open to conjecture.

380. The Brain in Dementia Praecox.

S. KURE and M. SHIMODA (*Journ. of Nerv. and Mental Dis.*, October, 1923, p. 338) report on the macroscopical anatomy of the brain in 106 cases of dementia praecox among the Japanese—the first item in a detailed study of the serology, pathology, experimental treatment, and clinical observation of the disease. Kraepelin's new classification of dementia praecox has been adopted, but excluding paraphrenia. The weight of the brain in this series is compared with that of normal and diseased Japanese brains. The average brain weight of the male dementia praecox is 1,322 grams, the normal 1,378 grams, the general paralytic 1,293 grams, and the idiot 1,294 grams. In the female the dementia praecox brain averaged 1,170 grams, the normal 1,239 grams, the general paralytic 1,184 grams, and the idiot 1,133 grams. The degeneration is confined to the cerebral hemispheres, which decrease in weight as the dementia advances, while the weight of the rhombencephalon is unaffected. In rather more than half the cases the cerebral hemispheres were equal in weight. Gyrus atrophy is noted in 88.6 per cent. of the cases, the frontal lobe being involved in 7 .5 per cent., the parietal in 65.9 per cent., and the temporal in 31.8 per cent. Clinical features of interest in the series are: (1) the average age—40.7 years; (2) the average duration of the disease—12.5 years; (3) the age group of greatest mortality—third and fourth decades; and (4) the causes of death—pulmonary and intestinal tuberculosis accounting for about 45 per cent. of the cases, beri-beri and nephritis coming next with a mortality of 11.5 per cent. and 8.5 per cent. respectively.

...ing unaltered, by alkalinization. This does not apply to injected cocaine. The solution must be prepared at the time of use.

EXPERIMENTAL COMPARISON OF LOCAL ANAESTHETICS.

Experiments are being made in the Pathological Laboratory of Bristol University* on rabbits, guinea-pigs, and mice, with cocaine, novocain, stovaine, alypin, butyn, and atoxodyne.

The particular questions, among others, to which an answer is sought, are:

A. To what extent does the safety of these anaesthetics vary with (1) concentration of drug; (2) manner of administration; (3) presence of adrenaline?

B. Why do experimental and clinical estimates of comparative toxicity of various local anaesthetics differ?

C. Has the answer to B a bearing on the application of experimental results to clinical work?

D. What is the experimental toxicity of butyn and of atoxodyne?

These notes indicate briefly the results so far obtained; experimental investigation is proceeding.

Comparative Toxicity.

Comparative toxicity was estimated by a determination of the lethal dose by subcutaneous injection. As an example, the following abridged protocol is given:

No. 50.—Rabbit, 1.95 kilos; injection of 0.95 c.cm. of 20 per cent. solution of alypin = 190 mg. = 98 mg. per kilo.

Time (minutes).		
5	.....	Weakness of limbs, coarse twitching.
9	.....	Urgent dyspnoea, pupils dilate.
11	.....	Lying on side, weak convulsion.
44	.....	Flaccid paralysis.
72	.....	Apparently moribund.
98	.....	Condition improving.

Later the animal was quite normal.
Result: Severe toxicity; recovery.

Minimal Lethal Dose.

From a series of such results the minimal lethal dose for the drug by subcutaneous injection at a given concentration, for each species, was determined. Thus, for example, the toxicity of cocaine in guinea-pig (subcutaneous 5 per cent. solution) was as follows:

No.	Dose in mg. per kilo.	Result.
59	30	Severe toxicity; recovery.
60	35	Severe toxicity; recovery.
64	40	Very severe toxicity; recovery.
65	45	Death in ten minutes.
58	50	Death in eight minutes.

Therefore the M.L.D. = 45 mg. per kilo.

Having thus determined the M.L.D. for each animal, with each drug, using the same concentration of each drug with any given species, a comparison of their experimental toxicities can be made and expressed as a fraction of the toxicity of one, say cocaine, taken as the standard. Of course, the higher the M.L.D. the lower must be the toxicity.

Comparative Experimental Subcutaneous Toxicities.[42]

	Mouse.	Rabbit.	Guinea-pig.
Cocaine	1 [M.L.D. = 80	1 100	1 45]
Novocain	1/8	1/8	1/11
Stovaine	1/9	1/5	1/3 —
Alypin	3/4	1— 1½	2/3
Butyn	2		3/4
Atoxodyne	1/10		1/12

Concentration.

The effect of concentration was investigated—for example, cocaine given subcutaneously to rabbits.

20 per cent. solution ... M.L.D. = 100 mg. per kilo.
4 per cent. solution ... M.L.D. = 110 mg. per kilo.

A further variation when these limits are exceeded, and similar result with novocain and alypin, is indicated by experiments not yet complete. Butyn does not appear so much influenced in its effects by concentration of the injected solution.

* For this my thanks are due to Professor I. Walker Hall.

...drugs an allowance must be m...

Influence of Adrenaline.

The influence of adrenaline was investig... a hyper-minimal lethal dose of anaesthetic; ... time adrenaline of a strength of 1 in 5,0... (*b*) in separate sites. For example:

No. 75.—Rabbit, 2.54 kilos. Injection of 7 c.c... solution of cocaine hydrochloride containing 1... Dose of cocaine = 110 mg. per kilo. Result: ... recovery.

No. 79.—Rabbit, 1.95 kilos. Injection in two s... of 1 in 5,000 adrenaline and 5.40 c.cm. of 4 per ... cocaine hydrochloride. Dose of cocaine = 110 mg. ... Death in nine minutes.

From these experiments one may deduce th... of 1 in 5,000 adrenaline lowers the toxicity o... cocaine. With strong solutions of anaesthet... not well shown. Other anaesthetics are bein...

Toxicity by Surface Absorption (Nasal ...

The effect of applying these anaesthetics ... mucous membrane was examined by gently s... lethal doses on the nasal passages of rabbits. ... that some of the solution was swallowed. On ... could be used, or the drug got blown out ... investigated was closed with a finger. The re... experiments can be tabulated thus:

Drug.	Dose given by Nostril (mg. per kilo).	M.L.D. subcutaneous (mg. per kilo).	R...
Cocaine	90	100	Death in thre...
Cocaine and adrenaline	90	100	Death in four...
Alypin...	60	110	Death in six m...
Butyn	70	60	Severe toxicity...

In these experiments strong solutions were used ... probable that the factor of relative solubility h... place in the results. At least, however, with co... alypin strong solutions applied to the nasal ... rabbits appear not less toxic than subcutaneous in...

Clinical Toxicity.

The clinician estimates toxicity by the dose tha... his patient to risks of serious central nervous distu... for example, syncope, dyspnoea, etc. Such a do... than the lethal dose, but with each species, each an... possibly each variation in concentration, this dose, ... may call the "maximum clinical dose," may be a ... *fraction* of the M.L.D. Let us call this fraction th... ratio. Dixon[11] investigated the toxicities of co... animals, using convulsions as his standard: he ... series of values quite unlike those from M.L.D ... although in man syncope, etc., is produced by a ... dose than are convulsions, we may use the latter phe... as an indication in animals of the effects produced b... lethal doses. Working on these lines we find th... "danger ratio" with different anaesthetics is:

Cocaine	Small.
Novocain	Moderat...
Alypin	Moderat...
Butyn	Large.

That is to say, *a small fraction of the lethal dose* of c... may produce syncope, while *a larger fraction of the ... dose* of butyn is required.

Idiosyncrasy.

The "maximum clinical dose" of cocaine appears ... about 1/8 M.L.D.—that is, about 3 grains for an av... adult man.* It is perhaps because of this low value ... danger ratio (1/8) that cocaine has been attacked o... ground of idiosyncrasy. Many clinicians, habitual use... cocaine, have worked with injections of about this ... Possibly for the same reason reported cases of fatal po... ing from the clinical use of cocaine are rare.

* By Injection.

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Application of Experimental Results.

If the thesis as to danger ratio is established, when we wish to apply our animal experiments in the clinic it seems clear that we must know approximately what is the ratio for a given drug with the higher mammals. Further, an anaesthetic with a low danger ratio is much safer for trial than one with a high, the risk of incautiously approaching the lethal dose being less.

Butyn.[38]

Experimentally butyn appears, in the hands of four independent workers, to be of toxicity equal to cocaine or rather more toxic. Many of the experiments were done with strong solutions, and there seems some evidence that with weak solutions the toxicity of butyn is less reduced than that of cocaine—that is, its relative toxicity is greater. It is said to have special advantages in eye work.[39] In the nose it seems an effective anaesthetic, but more irritant than cocaine.[40] By courtesy of the proprietors I have received notes of five deaths following its clinical applications: two for septal resection—5 per cent. solution on tampon; two for tonsil operation*—1/4 per cent. solution injected—no evidence of overdose; one case of definite overdose. Obviously considerable caution is required in using it.

Note on Atoxodyne.

The claim of this anaesthetic to be without toxicity was found to have no foundation: the toxicity is low. It appears useless on mucous surfaces.

Summary.

1. The toxicity of various local anaesthetics was compared experimentally by determining the minimal lethal doses.
2. The effect of dilution was found to be a lowering of toxicity.
3. Addition of adrenaline definitely lowered toxicity.
4. It appears that the dose of anaesthetic which will produce alarming symptoms is with different drugs a different fraction of the M.L.D., cocaine having a small fraction, for example, butyn a larger.
5. Caution is required in using butyn.

REFERENCES.

[Few references to the non-fatal cases have been included. It has not been practicable to verify the references marked *.]

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* Cocaine was painted on fauces in one case.

A British Medical Association Lecture

ON

THE PATHOLOGY OF GASTRIC ULCER.

DELIVERED TO THE DERBY DIVISION, MAY 18TH, 1923,

BY

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(Continued from page 957.)

PART II.—PATHOLOGICAL OBSERVATIONS ON GASTRIC AND DUODENAL ULCER.

THE statistical data utilized in this section were obtained from two sources: (*a*) a consecutive series of 6,800 autopsies at the Leeds General Infirmary, of which a special group of 1,500 were intensively studied from the point of view of gastro-duodenal pathology, and (*b*) a series of 120 stomach specimens removed at operation and submitted to microscopic examination.

A. INCIDENCE OF PEPTIC ULCER.

In the intensively studied series of 1,500 autopsies there were 130 cases of gastro-duodenal ulceration (that is, 8.7 per cent.) equally distributed between the two organs (4.5 per cent. in each). In 28 cases (1.9 per cent.) chronic gastric ulcers were present, and in 58 (3.9 per cent.) chronic duodenal. In the full series of 6,800 autopsies there were 150 cases with chronic gastric ulcer (2.2 per cent.) and 200 with chronic duodenal ulcer (2.9 per cent.). The relative frequency here shown (3:4) differs considerably from that revealed by clinical statistics. Sir Berkeley Moynihan's (1923)[23] latest review of 718 cases coming to operation shows duodenal ulcer to be three times more frequent than gastric, while in the Mayo Clinic figures (C. H. Mayo, 1920)[22] for 5,723 cases the ratio is practically 4:1. This discrepancy between autopsy and clinical statistics may be due to the surgeon *seeing* a relatively larger proportion of duodenal ulcer cases, which would suggest that, symptomatically, this is the more severe disease, or it may be due to the fact that gastric ulcer is the more difficult to diagnose, with the result that fewer cases come to operation. On the other hand, the partiality may lie with the autopsy figures. Gastric ulcer is the more serious and more fatal disease, with a much heavier operation mortality; a larger proportion of the duodenal cases, therefore, will recover.

The scars of healed ulcers are met with fairly frequently. In the series of 1,500 autopsies, 42 cases (2.8 per cent.) showed gastric scars, and 36 cases (2.4 per cent.) duodenal. Coincident *chronic* lesions (ulcers or scars) of the stomach and duodenum were met with in 7 cases, or 0.45 per cent. of the whole, but in only a single instance did an open chronic ulcer coexist in the two organs.

B. AGE AND SEX INCIDENCE.

Acute ulcer of the stomach and duodenum occurs with a fairly uniform frequency throughout the decades, except that it is rather less common under 20. Chronic ulcer is rare under 20, only 1.5 per cent. of all cases coming to autopsy in the first two decades. In the present series 90 per cent. of cases of chronic gastric ulcer came to autopsy between the ages of 30 and 69, while the corresponding figures for chronic duodenal ulcer and cancer of the stomach were 84 per cent. and 96 per cent. respectively

The older statistical tables (Bolton, 1913[1]) show for the most part the heaviest incidence of gastric ulcer (acute and chronic) between the ages of 20 and 40. In this series the highest figures are found between the ages of 40 and 60—namely, 42 per cent. of all acute ulcers and 56 per cent. of chronic.

Chronic gastric ulcer shows a slight difference in the age incidence in the two sexes, being met with rather later in life in males. This is well shown by the fact that whereas in females only 7.5 per cent. of ulcers occur at age 60 or over, in males the proportion in these later decades is 23.5 per cent. In both sexes the heaviest incidence is in the fifth and sixth decades—52 per cent. in males, 62 per cent. in females.

two were examined at later dates and both remained free from discharge, one after ten weeks and the other after four months. Three cases in which a slight discharge persisted were afterwards treated by zinc or copper ions and the discharge disappeared. These cases were seen again after two, three, and six months respectively, and no discharge was visible. In the remaining six cases the patients said that the discharge had diminished. In these the discharge was not purulent in appearance, and in one it was clear and resembled mucus. In one of the two cases in which gonococci were not found before the diathermy the discharge disappeared after the treatment; the patient was told to report again but did not do so. The other case could not complete the treatment as she had to leave London; her doctor reported that the discharge was "much less." The patient from whom the gonococci could not be made to disappear was probably reinfected as her husband also had gonorrhoea and was under treatment at the centre.

The question whether complete cure of gonococcal cervicitis or urethritis has been obtained cannot be answered by the absence of gonococci from the discharge. Complete subsidence of discharge is in its favour. Often, however, some discharge continues, and the question will arise in such cases whether the discharge is pathological. A discharge of pure mucus is not evidence of gonococcal infection. If, however, pus is present in the discharge it must be considered as pathological. A point in the treatment will often be reached in which although the discharge is mainly mucus there are still present small numbers of leucocytes. After ionization and diathermy in which sloughing has taken place leucocytes will be present as the result of the formation of granulations. Often, on the cessation of treatment, these will disappear and the discharge will finally clear up after a short time without further treatment. It is to be remembered that these treatments to the cervix *tend to maintain* this muco-purulent discharge. It becomes therefore a matter of judgement founded on experience when the treatments should be left off in the expectation that the discharge will eventually cease.

Treatment of Gonococcal Prostatitis by Diathermy.

At present we have not obtained sufficient evidence to enable us to make a definite conclusion on the action of diathermy on gonococcal prostatitis. Our results so far seem to show that the new treatment possesses therapeutic action in this disease. We treated one of our cases of arthritis by applying diathermy *to the prostate only*, and obtained the effects already mentioned—namely, abolition of pain, reduction of swelling, and increase of movement. We also noted the disappearance of pain and tenderness from the epididymis in a case of gonococcal infection of this part after application of diathermy *to the prostate only*. The following case also is suggestive. The patient gave a history of gonorrhoea. In his perineum there was a fistula leading to his urethra immediately behind a stricture of the passage mentioned. He complained of severe pain in the right lower limb. There was tenderness on pressure over the back of the thigh and flexion of the hip caused extreme pain. It was decided to apply diathermy to the prostate only. Complete and permanent relief of pain was produced, and the only symptom which remained was some discomfort on stooping with the knees extended.

It has already been mentioned that some of the cases of arthritis did not obtain relief until the urethra and prostate were also subjected to diathermy. In all these cases, save that described above, both prostate and urethra were treated simultaneously. We are therefore unable to state the region on which the diathermy exerted its therapeutic action—whether the urethra or prostate or both. Further light on this question would be thrown by the application of diathermy to cases in which only the anterior urethra was infected and to others in which the clinical evidence pointed to subsidence of infection from the anterior urethra with persistence in the prostate. This investigation is at present occupying our attention.

DIATHERMY FOR MALIGNANT DISEASE OF THE MOUTH, PHARYNX, AND NOSE.

WITH NOTES ON SEVENTEEN SUCCESSFUL CASES.

BY

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FOR the last eight years I have been employing diathermy in the treatment of carcinoma affecting the mouth and pharynx. Unfortunately, the great majority of the patients treated were suffering from advanced disease; this was true of all the early cases, and of nearly all those treated in hospital. A very considerable number of patients were suffering from secondary deposits in the glands on one or both sides of the neck, and in some cases the glandular involvement was extensive. Cutting operations of magnitude had, therefore, frequently to be carried out in the neck; diathermy is rarely, if ever, of any use in dealing with the malignant extensions in the neck. Faulty technique and the too timid use of the diathermy electrode accounted for some of the failures in the earlier series of cases. Owing to the great size or unfavourable position of the growth, or the general cachectic condition of the patient, many of the cases dealt with would now be deemed unsuitable for any sort of treatment. Haemorrhage during the separation of the sloughs was a not infrequent occurrence. Since I have adopted ligature of the main vessel or vessels supplying the part in cases requiring extensive diathermy, or in patients with thickened arteries and high blood pressure, severe haemorrhage has not been met with.

When the growth is small, superficial, and situated some distance from important and vital structures, and when the glands are free from involvement, or only slightly invaded, there is an excellent chance of a complete and lasting cure. My experience is that, if local recurrence is going to take place, it will generally happen during the first six months. This, of course, does not apply to recurrences in the neck. When the primary growth is very extensive, deeply rooted, and situated in a locality unfavourable to its free destruction, and more especially when the secondary deposits in the neck are massive or fixed, there is little likelihood of effecting a cure, and there may be great risk in subjecting the patient to operation. However, most of the cases recorded in this article were described by others as "inoperable," and some of them were very extensive; it is difficult, therefore, to draw the line between cases which should be subjected to treatment and those which should be left alone. Much depends on the general condition of the patient and the special experience of the surgeon. Every practitioner should be alive to the grave significance of an ulcer or indurated area occurring in the tongue, mouth, or pharynx of a patient over middle age. The condition rarely proves to be simple, or due to any other cause than malignant disease. It is well, therefore, to regard every doubtful case as one of cancer until it is proved to be due to some other cause. To the practised observer the diagnosis of epithelioma is generally easy. Over and over again the author has seen patients who have been diagnosed as suffering from "septic ulcer," "cyst," "gumma," when the real trouble was epithelioma. Many cases of supposed syphilis are repeatedly injected with salvarsan or soaked with iodides. It is important to remember that a great many patients with buccal or pharyngeal cancer will give a positive Wassermann reaction.

In the majority of cases the growth is visible on ordinary inspection—it is generally best to use reflected light. If it is situated at the base of the tongue, low down in the pharynx, or in the neighbourhood of the larynx, a laryngeal mirror will be required for its inspection. In nearly all cases palpation with the finger is possible, and it should never be omitted, as the cartilaginous hardness of an epithelioma is one of its most characteristic features.

Microscopic examination of a fragment of the tumour

will clinch the diagnosis. There is one *objection to this* method—namely, that even such a small operation is followed by more rapid advance of the growth, and this is especially the case if some of the surrounding healthy tissue is removed at the same time. Before removing a portion for microscopic examination, consent should, therefore, be obtained for an early operation, should such an operation be found to be necessary.

So far the only treatment of cancer which has stood the test of time is that which aims at the total removal or destruction of the tumour and its extensions. The writer has come to the conclusion, after considerable experience, that in cancerous growths situated in the pharynx and mouth the ultimate results are likely to be infinitely better when the primary growth is dealt with by diathermy, rather than by a cutting operation. He stated (*Lancet*, 1920) his reasons for this opinion, which he has had no cause since to modify. Many brilliant successes would be obtained if the disease could only be diagnosed and treated in its early stage.

The glands have not been removed in every case; this is owing to the fact that consent has not always been obtained. Removal of glands (and this generally means thorough clearance of both anterior and posterior triangles by "block" dissection) should be carried out even when no enlarged glands can be discovered on palpation. In one of the author's cases—not recorded in this series because he has a recurrence—a man suffering from a small epithelioma involving the uvula, and just extending on to the soft palate, was treated by diathermy. There was no enlargement of the glands, but the patient was urged to have the triangles of the neck cleared out on both sides. He absolutely refused. Four years later malignant glands have developed on both sides of the neck; the region of the palate has remained perfectly healthy. It is generally advisable to destroy the growth in the first instance, and subsequently to remove the glands. Occasionally the two operations can be carried out at the same sitting. If the surgeon is in doubt whether or not he can make a thorough clearance of the neck, then the gland operation should precede that on the primary growth. If the glands cannot be dealt with it is little use applying diathermy to the primary tumour, except as a palliative measure. It is sometimes advisable to operate on the glands in the first instance, and to deal subsequently with the primary tumour, as consent for the neck operation may be difficult to obtain after the growth itself has been destroyed. Before *commencing treatment it is well to try and obtain consent* for two or three operations, and to impress on the patient the importance of the removal of glands. If the diathermized area approaches or invades the fascial planes of the neck—and this is most likely to occur in cancer of the floor of the mouth—a clear interval of a fortnight or three weeks should be allowed between the destruction of the primary growth by diathermy and the neck operation. If this rule is not observed *alarming sepsis may occur in the neck*, which may lead to a fatal issue. Preliminary ligature of the external carotid should be adopted, as stated above, when secondary haemorrhage is to be feared.

The following cases have been successfully treated. In some of these it might almost be stated that a cure has been effected; in most of them it is to be hoped that the disease will not recur.

Case 1.

A man complained of sore throat, and on examination there was discovered an extensive epithelioma of the right tonsil and right side of the tongue and of the floor of the mouth. This was treated by diathermy, and the patient went on well for a time. Later, however, he returned to hospital with a carcinomatous tumour involving the right side of the tongue and the right side of the mouth, and there was a large, hard mass in the right submaxillary region. The tumour in the mouth was subjected to vigorous diathermy, and the mass in the neck was removed by dissection. The patient, nearly eight years later, is actively engaged as a tram conductor and at present there is no sign of growth.

Case 2.

An elderly lady was found to be suffering from endothelioma of the base of the tongue. With the aid of suspension laryngoscopy the growth was removed by diathermy (excision method). There was no recurrence six years after operation.

Case 3.

A man, aged 52, complained of soreness of the floor of the mouth and a lump at the right side of the jaw, of two months' duration. On examination a carcinoma of the middle of the floor of the mouth was found; the tongue was freely movable, and there was an enlarged hard gland in the right submaxillary region; the glands on the left side were not enlarged. The growth was freely destroyed by diathermy, and a fortnight later the glands were removed in the usual way. There was no recurrence more than six years after.

Case 4.

A woman, aged 53, presented a cauliflower-like growth (epithelioma) on the right side of the hard palate, and on transillumination the right antrum was dark. The upper jaw was resected, and three weeks later the cavity was thoroughly subjected to diathermy. The patient went on well for a year and ten months, when she reappeared with a small nodule in the scar, which was destroyed by diathermy. Six months later she came to hospital with a large mass in the upper part of the neck, which was removed, together with the fascia and glands in both anterior and posterior triangles, the internal jugular vein, and the upper portion of the sterno-mastoid muscle. She is well six years and three months after the original operation.

Case 5.

A man, aged 55, complained of soreness of the throat, of seven weeks' duration; there were enlarged glands on the left side of the neck. An epithelioma of the posterior part of the tongue on the left side was found, invading the anterior pillar of the fauces and the tonsil. The growth was removed by diathermy, and subsequently the glands on the left side of the neck were removed. There was no recurrence five years and three months after operation.

Case 6.

A man, aged 57, complained of pain on swallowing for several months; he was an excessive smoker, but a total abstainer. Examination showed a large epithelioma of the right tonsil and palate, which was removed by diathermy. A year later the glands on the right side of the neck were thoroughly removed. There was no *recurrence four years and five months after operation.*

Case 7.

A man, aged 46, had suffered from repeated sore throat during the previous three years, and six weeks before he was examined he began to have pain on swallowing; he had lost weight during the past year. On examination an extensive carcinoma of the base of the tongue, right tonsil, and soft palate was found. Diathermy was applied to the growth, and a fortnight later an extensive removal of the glands on the right side of the neck was performed, and the external jugular vein resected. A fortnight later, again, the glands were cleared on the left side of the neck, and at the same time diathermy was applied to a small area of growth which had been missed at the first operation. A month later a suspicious area was seen and diathermy was applied to it. There was no recurrence three years after the last operation.

Case 8.

A man, aged 67, had a small superficially placed epithelioma of the left tonsil and anterior pillar; there were no enlarged glands. The growth was thoroughly destroyed by diathermy. Three months later a hard gland was discovered over the bifurcation of the left carotid. The anterior triangle was dissected, and three months later, a small gland being felt in the left posterior triangle, this region was cleared. There was no recurrence over three years after the first operation.

Case 9.

A middle-aged lady had an epithelioma of the posterior pharyngeal wall, just above the arytenoids. Suspension laryngoscopy was employed to bring the growth into view, and it was destroyed by diathermy, together with a good margin of the surrounding tissue. After three years there was no recurrence.

Case 10.

A man, aged 64, had noticed a small lump on the left side of his tongue for four months. Examination showed an epithelioma of the tongue and floor of the mouth; no glands were palpable. Diathermy was employed, and the tongue was divided down the centre and cut across well behind the growth. There was no *recurrence* two years and three months after operation.

Case 11.

The patient, a man, had noticed a hard lump on the right side of the tongue for two or three months. On examination an epithelioma of the tongue and floor of the mouth was found; no glands were palpable. The growth was removed by diathermy, and a fortnight later the anterior triangle of the right side was cleared. Six weeks later the glands were removed from the left side of the neck. There was no recurrence two years after diathermy.

Case 12.

A man, aged 72, had noticed "a little bladder" on the roof of the mouth for six weeks. He was a moderate smoker (wooden pipe). An epithelioma of the roof of the mouth was found on examination; there were no enlarged cervical glands. The growth and its surroundings were thoroughly destroyed by diathermy, and there was no recurrence one year and ten months after operation.

In so far as chronic ulcer is concerned these figures are of only very limited value. The important point is to know the age at which gastric ulcer commences, and that, obviously, is a thing very difficult to determine. Most of the chronic ulcers in this series gave a history going back several years, many of them fifteen or twenty years. Perhaps if all the figures for chronic ulcer were moved back a decade, the result would not be far from the truth.

With regard to sex, my own figures show that chronic gastric ulcer occurs with slightly greater frequency and chronic duodenal ulcer six times more frequently in men than in women. Sir Berkeley Moynihan's (1923)[23] clinical statistics show that chronic gastric ulcer occurs with equal frequency in the two sexes, and chronic duodenal ulcer four times more frequently in men than in women.

C. MORBID ANATOMY AND HISTOLOGY.

[The lecture was illustrated with photographs of gross specimens, and with a series of histological sections mounted on lantern slides.]

On morbid anatomical grounds, both naked-eye and microscopic, it is possible to subdivide the ulcers of the stomach, and to a less extent those of the duodenum, into acute, subacute, and chronic varieties. The chief grounds of histological differentiation are the presence or absence of fibrosis, whether in the floor or in the margins of the ulcer, and, if present, its amount and characters. In the separation of non-inflamed acute ulcers and callous non-reacting chronic ulcers this may be almost the only distinguishing feature, but in active ulcers there are other histological criteria. An active acute ulcer in all but the earliest stages shows a zone of neutrophil polymorphic infiltration in its floor, sometimes extending a considerable way downwards from the necrotic surface. This is often accompanied by a certain amount of oedema, especially of the submucosa. It must be remembered, of course, that chronic ulcers are liable to acute exacerbations, which usually take the form of localized activity at a certain point or points of the margin or floor. Such foci will show neutrophil polymorphic reaction, but it will be superimposed on an obviously chronic lesion, and will not be so uniformly distributed as in acute ulcer.

In addition to fibrosis, chronic ulcers nearly always show foci of lymphocytic infiltration, usually in relation to small blood vessels. A certain number of plasma cells may be mixed with the lymphocytes, but these cells are not usually abundant except sometimes in the mucosa and submucosa at the margin. Infiltration of the floor of subacute and chronic ulcers by eosinophil leucocytes is common, and in a few cases reaches a high grade of intensity. Even in acute ulcers a few eosinophils may be present, but they are seldom conspicuous.

The state of the vessels in the floor of an ulcer, and beyond it, may be of help in differentiating acute and chronic. In acute ulcers the small vessels implicated in the disintegrative process are often seen to be filled with thrombi or fibrinous plugs, and even vessels of larger size may be so affected, especially if they have been ulcerated into. This is often found—for example, in cases where there is a history of haemorrhage a few days before death. In the floor of a chronic ulcer similar changes may be found, but in addition there is often well marked endarteritic and endophlebitic thickening, due to intimal proliferation. Sometimes this is associated with thrombotic obliteration of the remainder of the lumen, and sometimes with complete organization and canalization of the thrombus. Similar vascular changes are often seen on the peritoneal aspect of gastric scars.

1. *Acute Ulcers.*

These are usually multiple, especially in the stomach. In a series of 46 cases of acute gastric ulcer, 6 only were single. Both in stomach and duodenum they tend to be widely and irregularly distributed, with the exception that in the stomach they are usually most abundant in the pyloric half. They vary in size from tiny superficial erosions of the mucosa to large and deep ulcers measuring an inch or more in diameter. The great majority, however, are under half an inch in diameter, and most are under a quarter of an inch. In general it may be said that the more numerous the ulcers the smaller their size. I am convinced that there is no dividing line between what have been called multiple haemorrhagic erosions and acute ulcers of larger size.

Acute ulcers are usually described as presenting a punched-out appearance, and this is equally true of both large and small varieties. As regards depth, most acute ulcers, and practically all multiple small ones, are quite shallow, confined to the mucosa, or at most the mucosa and submucosa. In the earliest stages, as seen in the *post-mortem* room, there may be almost no excavation, a quite superficial necrotic lesion with slightly reddened margins being situated on a very slightly raised and thickened patch of mucosa. Later, as the ulcer deepens, tiny vessels are exposed in the floor, which then very frequently becomes covered by a thin black layer of altered blood, or of slough infiltrated with blood. Later still, preparatory to healing, the black slough separates, leaving a clean smooth floor, in which all haemorrhage has ceased, as a result of thrombotic obliteration of the little exposed vessels. In the duodenum the slough in the floor of acute ulcers may be black and haemorrhagic, as in the stomach, but if not it tends to be bile stained. Here also there is often slight oedematous thickening around and beneath the ulcer.

Acute ulcers of larger size which are tending to penetrate the stomach wall present the well known "terraced" appearance, due to the fact that the muscular coat is penetrated over a smaller area than that occupied by the original mucosal ulcer. If the peritoneal coat should perforate, this again usually takes place over a still smaller area, and a third step is added to the terrace. The perforations in the various coats may be concentric or excentric. In my experience acute perforating ulcer of the stomach is rare. In 6,800 autopsies there were but 8 examples, of which 6 proved directly fatal—3 by perforation, 2 by haemorrhage, and 1 by mesogastric cellulitis.

Acute ulcers tend to heal readily, and if they involve only the mucosa and submucosa may do so without leaving a permanent scar. If the muscular coat is involved a certain amount of fibrosis will take place therein and a permanent scar result. In acute penetrating ulcers which heal—probably a very rare event—the permanent scar in the muscular coat will be visible from the peritoneal as well as the mucosal aspect. In a certain proportion of cases one ulcer, rarely more, fails to heal with the rest, persists, enlarges, and becomes first subacute then chronic.

2. *Chronic Ulcers.*

In the stomach chronic ulcers are almost invariably single. In a series of 150 cases coming to autopsy there were only 3 in which two independent chronic ulcers coexisted. It is not uncommon, on the other hand, for a chronic ulcer to be accompanied by one or more acute ulcers, a fact which is of importance in relation to the well known recurrent character of the symptoms in these cases. In the duodenum double chronic ulcer, anterior and posterior, is fairly common. In a series of 200 cases coming to autopsy there were 32 with double ulcers. Here also acute and chronic ulcers may coexist.

The position of chronic gastric ulcer is well recognized. The great majority occur along the lesser curvature or in close proximity to it, and especially in the pyloric three-fifths. On the other hand chronic ulcer is rarely seen exactly on the pylorus, and it is by no means common within an inch of it. I have analysed a series of 125 cases coming to autopsy in which the exact position of the ulcer was noted, and find that no less than 90 per cent. occur along the course of the original gastric canal.

In considering the duodenum it has been thought advisable to take both ulcers and scars into account. In 1,500 autopsies there were 74 cases with chronic duodenal lesions, all within the first part of the viscus—namely, 23 with anterior wall ulcers or scars, 18 with posterior ulcers or scars, and 33 with double lesions. In practice it was found that invariably the ulcer or scar was wholly or mainly on the anterior or posterior wall, although large posterior wall ulcers were not infrequently found to have extended on to the superior or inferior wall or both. It is in these circumstances that perforation of a posterior wall ulcer is most likely to occur.

case is not seen till later, I do not remove the necrosed phalanx at once as so often it recovers with the loss of a superficial sequestrum only. In cases of streptococcal lymphangitis, of which I have twice had personal experience, I agree that no incision should be made at first. Here the application of moist heat relieves pain and aids the defence of the body. Hot continuous baths are of great value, and in cases where the whole arm is swollen I can from personal experience recommend the old-fashioned linseed poultice applied from the shoulder to the wrist. A linseed poultice keeps hot for two hours and is most comforting. On the actual lesion on the finger or hand a boric fomentation may be applied.

I agree with Mr. Max Page in recommending the flexed position of the hand in affections of the palmar surface, but where the dorsal tendons are involved, as they sometimes are, the extended position is best. In infections of the tendon sheaths I wish to protest against the long median incision which leads to prolapse of the tendon and a stiff finger. Lateral incisions not passing over the joints give adequate drainage, and are less often followed by permanent stiffness. Early attention to movements and the restoration of function in the hand is essential. I notice that the title of the paper refers to complications. Consideration of these would lead us on to the whole of the surgery of sepsis. I have recently had cases of septic arthritis of the hip-joint, of multiple arthritis, and of empyema, all following neglected septic fingers. I saw also a case, a couple of years ago, of sarcoma in the unhealed wound of a septic thumb.

DISCUSSION.

Sir Henry M. W. Gray (Aberdeen) recalled the success which they had during the war with the treatment of septic joints in accordance with suggestions made by Willems, where early movement was a feature. In his experience of infections of the hand under discussion the presence of pus in quantity was rather a good thing than otherwise. The principles of the treatment were free incisions with free exit of pus and encouragement of early movement.

Mr. Harold Burrows (Portsmouth) remarked on the grave sequelae after the infections of the hand set up by septic phlebitis. After the period of fomentation dressings was over he recommended the use of liquid paraffin and flavine.

Mr. Mamourian (Ashton-under-Lyne) said that the work of Bier, Kanavel, and others had made them all familiar with the pathological aspects of the infections of the hand. Excepting minor individual divergencies, they were all agreed on the broad lines of treatment which Mr. Wilkie had so lucidly explained. Little allusion had been made to the steps necessary to secure functional restoration of the hand and in certain cases to preserve the beauty of the hand. Mr. Max Page had rightly stressed the importance of the semiflexed position of the fingers during treatment, and Mr. Roberts did well to draw attention to the danger of long mesial incisions on the fingers. The incisions should be small and lateral so as to avoid prolapse and sloughing of the tendons. In cases of suppuration of the bed of the nail, mention should be made of the advantage of making two incisions in line with the edges of the nail—the lunule could then be turned up as a flap. The new nail grew without any unsightly ridges or grooves. In cases of neurosis of the terminal phalanx the base, with the insertion of the long flexor, generally escaped. After the removal of the small sequestrum the tissues collapsed and a bullet-headed finger resulted. The insertion of an ivory peg supporting the soft structures by through-and-through sutures and left *in situ* until it got ensheathed by a small steel pin through the finger tip would be fo give excellent anchorage for weight or spring exte In some cases of necrosis of both phalanges of the he had used a lining bone graft by way of internal ing and had secured good functional results.

Mr. Firmin Cuthbert (Gloucester) pointed ou danger of introducing sepsis from superficial wounds deeper parts of the hand, and urged that incisions be made with the greatest possible care. Every s should exercise precautions in regard to his own f It was so easy to adopt prophylactic measures, and n should be neglected to prevent the possibility of sepsi

Mr. R. Campbell Begg (New Zealand) said t had had experience in a group of Transvaal mines 6,000 boys were employed, and he found that 20,00 work a year was lost through septic infection of This was practically eliminated by a pot of iodine paint brush at the shaft head. The boys had paint abrasion with iodine. Most useful treatment was s ized in gas and oxygen anaesthesia, tourniquet an incisions and, in bad cases, Carrel-Dakin treatment

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DIVISION OF THE VAS DEFERENS IN PROSTATECTOMY.

BY

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A study of the anatomy of the prostate gland and structures adjacent to it will convince the surgeon th removal of this organ by operation must always res laceration of the ejaculatory ducts and sometimes d to the vesiculae seminales. After prostatectomy t surface between the base of the bladder and the tria ligament becomes gradually covered with mucous men which, in about a fortnight, has grown downwar forwards in such a manner that the new internal is situated at the vesical end of the membranous u so that the seminal vesicles are completely sealed o the urethra and bladder. Therefore, should bacill cystitis be present at the time of operation infecti spread to these accessory organs of generation, and shut off from the bladder cavity. Once bacteria h vaded the seminal vesicles their destruction is s account of inaccessibility to antiseptics and othe treatment.

It is an unfortunate fact that a very common co tion of this operation is vesiculitis. The sig symptoms are quite definite:

(*a*) First, during the first ten days following rem the gland the temperature oscillates between 100° a and when micturition recommences there is a sli crease of the fever, erroneously ascribed to a reacti to the return of the normal function of evacuation o Rather is the rise of temperature owing to the m contraction required to expel the urine from the into the urethra, which increases the inflammation seminal vesicles, and sets free in the blood stream dose of toxin.

(*b*) Secondly, irrigation of the urethra by Janet's instead of being a painless process, is attended by c able discomfort.

(*c*) Thirdly, at the commencement of the act of tion and throughout the passage of urine along the the patient complains of pain (usually not severe) to the neck of the bladder.

(*d*) Lastly, rectal examination reveals tender pressure in the region of the base of the bladder.

As it is the exception rather than the rule for the to make a rectal examination before the patient pa

Chronic ulcers, especially of the stomach, are usually a good deal larger than the acute variety. In a series of 40 chronic gastric ulcers 17 were under 1 inch and 8 over 3 inches in diameter. In a corresponding series of duodenal ulcers 29 were under 1 inch and 11 from 1 to 2 inches in diameter.

The naked-eyed characters of a chronic ulcer vary very much according to the state it happens to be in at the time of examination—that is, according to whether it is active, callous, or healing. As compared with acute, chronic ulcers have thickened, rounded, and overhanging margins in the active state. In callous ulcers the margins are flatter, though still often undercut, while the healing ulcer has flattened margins, with the epithelium in most cases obviously growing inwards over the floor. In the active ulcer a narrow zone of sloughing with inflammatory exudation is almost invariably present in the floor, sometimes in patches, sometimes all over. It shows up as a narrow yellow or reddish-yellow line when the fresh ulcer is cut across, and in histological preparations it stains deeply. Microscopically it consists of an intensely eosinophilic structureless groundwork, with a zone of darkly staining nuclei, or nuclear débris, in its more superficial part. In places these are obviously the nuclei of polymorph leucocytes; elsewhere they are apparently pyknotic tissue-cell nuclei. In chronic ulcers which are the seat of an acute exacerbation this necrotic or necrosing layer is very broad and irregular, and beneath it the tissues of the ulcer floor are often much infiltrated by neutrophil polymorphs. The separation of the slough is a necessary preliminary to the healing of the ulcer, as Bolton has pointed out, its presence being an effective barrier to epithelialization. Ulcers in which ingrowing of marginal epithelium can be observed have always a clean smooth floor, at least in relation to the healing part. Callous ulcers resemble healing ulcers in this respect. Either the floor is clean and fibrous, or there is a very narrow zone of necrosis without much cellular reaction.

One of the most constant features of a chronic ulcer, whether of the stomach or duodenum, is penetration of the muscular coat. I have never seen a chronic ulcer in which the muscularis was not completely transgressed, although occasionally one of subacute type may only partially involve it. Perforation is prevented mainly by the great fibrous and granulation tissue barrier formed in the floor, less often by adhesions between the stomach and some adjacent viscus—pancreas and liver especially. Pads of fat, more or less fibrosed, are commonly found in the floor of gastric and duodenal ulcers. In the stomach this is seen chiefly in lesser curvature ulcers, where the fat is merely the adipose tissue of the gastro-hepatic omentum. In the duodenum, ulcers involving the posterior wall or encroaching on the upper or lower walls show it, not anterior wall ulcers as a rule. In other cases the pad of fat may be due to adherent omentum or to retroperitoneal tissue in the lesser sac to which the ulcer has become adherent. On the other hand, it is not uncommon to find both chronic ulcers and scars totally devoid of any such fatty mass on the peritoneal aspect.

Large ulcers of great chronicity may be associated with so much inflammatory thickening in and around them that a palpable tumour may be present in the epigastrium leading to an erroneous diagnosis of cancer. Even at operation it may be difficult, sometimes impossible, to distinguish. As a rule, however, the peritoneal aspect of a simple chronic ulcer is fairly characteristic. There is thickening and opacity of the serosa as a result of fibrosis and oedema, together with vascular congestion, often intense, and not infrequently areas of haemorrhage in cases where the ulcer is active. White radiating lines of fibrosis run out from the margins of the ulcer, and there is often a vascularized fibrous band of adhesion to some adjacent structure. The floor may show fine reddish stippling owing to the presence of numerous small, thin-walled vessels in the new-formed fibrous tissue, an appearance which may be brought out at operation by gently stroking the part with gauze (Scudder). In old, completely scarred ulcers the stippling, congestion, and haemorrhage disappear and the floor of the scar becomes white and sclerotic, and may show puckering. The shape of the ulcer crater also varies. In the stomach, in active ulcers of medium and moderately large size, it is usually deep and globular, or deep with a flat floor. Smaller ones are often similar, or may be slit-like, the mucosal margins almost meeting across the lesion. Very large ulcers, and especially callous ulcers, tend to be flat, with low, often undermined edges, and a smooth floor. Such ulcers are very frequently of the "saddle" variety, lying across, and at right angles to, the lesser curvature of the stomach. In these, as in very large posterior wall ulcers, whether gastric or duodenal, a part of the floor is usually formed by the pancreas. Healing ulcers, whether large or small, also tend to flatten out as marginal epithelialization progresses.

D. Healing of Gastric and Duodenal Ulcer and its Results.

The process of healing (Stewart, 1922[21]) is similar in acute and chronic ulcers. Following the cleaning up of the floor of the ulcer—that is, the separation of sloughs or purulent material, and the disappearance of bacteria—the epithelium at the margin starts to grow inwards, while at the same time, especially in chronic ulcers, the contraction of the fibroblasts in the floor causes the ulcer to become reduced in size. Acute ulcers heal rapidly, chronic ulcers much more slowly, not only because of their larger size, but also because of the large amount of dense fibrous tissue in their floor. At the same time there can be no doubt that even very large and very chronic ulcers may heal completely, while chronic ulcers of smaller size heal with very considerable frequency. The results of healing depend on several factors, especially the size of the ulcer, its chronicity and its situation. Ulcers related to the pylorus, whether primarily gastric or duodenal, need not be of large size to produce cicatricial stenosis. In the body of the stomach ulcers of small and medium size usually heal satisfactorily; it is only large ulcers which produce serious mechanical defects (hour-glass stomach). In the duodenum, ulcers within half an inch of the pylorus frequently implicate it, and those situated lower down lead to duodenal stenosis in a small proportion of cases. In a recent series of 29 cases with completely healed scars of chronic gastric ulcers—that is, scars involving the whole thickness of the muscular wall—21, or 72 per cent., had healed satisfactorily without resulting stenosis. The figures for duodenal ulceration and scarring are similar. Even if a chronic ulcer heals completely, there is always the possibility of a new chronic ulcer making its appearance in another part of the stomach. My own statistics show that this will occur in about 9 per cent. of cases.

There are two other ways in which the recurrent character of chronic peptic ulcer may be explained. It may be due to breaking down of the old scar, a process of which it is very difficult to adduce proof, or it may be due to chronic ulcer becoming callous and quiescent, with subsequent recrudescence of ulcerative activity. Of this, both surgeons and pathologists can bring forward convincing proof.

E. Complications of Peptic Ulcer.

The more important complications of chronic gastric and duodenal ulcer are indicated in the accompanying analysis of 350 fatal cases (p. 1024).

1. *Perforation.*

Perforation is the most serious and one of the most common complications of both gastric and duodenal ulcer. On the other hand, the figures given in the table are obviously no index of its frequency in all cases, since the great majority of perforated ulcers are admitted because of this accident. This swells unduly the proportion of perforated cases in these statistics.

Perforation takes place rapidly in the great majority of cases by the sudden sloughing of a part or of the whole of the peritoneal floor of the ulcer, this in turn resulting from a slow, progressive devascularization. The aperture, therefore, is usually of considerable size, from one-eighth to a quarter of an inch in diameter, and it is easily seen at operation, if in an accessible position, unless concealed by

of his care, cases of post-prostatectomy vesiculitis are frequently overlooked. Once this condition is established it is but a matter of time before the inflammation spreads to the testicle.

This further complication usually occurs within a few weeks of the onset of vesiculitis, but as long an interval as three months may elapse. It is a common experience that the patient will return with an attack of orchitis although his immediate convalescence appeared to be satisfactory. Local treatment of the testicle, such as fomentations, mercurial inunction, and diathermy, will cause the attack to subside, but no guarantee against a further recrudescence of the inflammation can be given so long as a nidus of infection persists in the seminal vesicle.

In a recent article in the *Lancet* Winsbury White has drawn attention to the frequency of epididymitis as a complication of prostatectomy. Studying 50 cases from the records of St. Peter's Hospital he found that 82 per cent. gave evidence of inflammation of the testicle, and tabulated the degrees as follows:

1. Thickening of the epididymis.
2. This change is more marked. The epididymis becomes adherent to the testis and its coils adherent to one another.
3. The epididymis becomes large, hard, and firmly fixed to the testis. The change as a rule is more marked in the globus minor. There may be some tenderness.
4. The tunica vaginalis is distended with fluid. The epididymis is large, fixed, and tender; pain is marked, tenderness is acute, the scrotum becomes red and sometimes oedematous.
5. The previous condition goes on to pus formation in the epididymis. It involves the testis, which sloughs.

These observations make it clear that the patient's general state of health can remain seriously impaired, although he has submitted himself to prostatectomy.

Since Freyer popularized the operation of suprapubic prostatectomy it has been the aim of surgeons to improve upon the original technique in order to minimize the risk of complications, but only slight success has rewarded their efforts. The explanation lies in a recognition of the difficulty of preventing the kidneys, damaged by back pressure, from excreting a urine loaded with colon bacilli. Since prevention is better than cure, we can endeavour to avoid vesiculitis and orchitis by urging our patients to submit themselves to prostatectomy before bacilluria has occurred. But should bacilluria be present the attempt must be made by the methods outlined by me in a recent article in the *Journal of Clinical Research* to cleanse the urinary conduit before the operation of removal of the gland is undertaken. However, this is not always possible, and so the surgeon must introduce some technique at the time of operation to limit the spread of infection from the bladder to the seminal vesicles, and thence to the testicles.

It has been suggested that following the enucleation of the gland, the vesiculae seminales might be removed by dissection, but personally I am of opinion that such further prolongation of the operation as this would entail (and also taking into consideration the poor state of health and possibly advanced age of the patient), would cause the mortality rate of suprapubic prostatectomy to rise immediately.

The infection of the seminal vesicles can be prevented by ligation of the ejaculatory ducts, and in certain selected cases I have adopted this procedure; but the difficulty of ligating these small ducts, when the tissues around the base of the bladder are constantly bathed in blood, will produce the same result as may be expected from removal of the seminal vesicles by dissection.

As the isolation of the seminal vesicles from infection is so problematical we must consider what steps can be taken to prevent it spreading to the testicles. I have found that by dividing the vas deferens below the external abdominal ring I can guarantee to my patients that whatever other complications they may get they will never suffer from epididymo-orchitis.

The technique is simple, and in less than five minutes both vasa can be isolated and divided. After having removed the prostate and closed the wound of the anterior abdominal wall I feel for the vas among the other constituents of the spermatic cord through the skin of the upper part of the scrotum. I then hold it firmly between my finger and thumb immediately beneath the skin. Having next made a small incision a quarter of an inch long, the vas deferens can be picked up with a pair of toothed forceps and pulled out of the wound. The loop of duct thus exposed is freed from the loose cellular tissue which surrounds it and divided between two catgut ligatures. It is not necessary to remove a piece of the vas deferens, interference with its continuity being sufficient for the purpose. The two ligated ends are pushed back into the wound, which is closed by a single suture of catgut. To save time, while I am dividing the vas on one side my assistant is doing the same on the other.

Not so long ago it was taught that when the vas deferens is cut atrophy of the testicle will follow. This is an entirely erroneous observation. I have carried out the technique just described on every case of prostatectomy, both in hospital and private practice, for the past two years, and not in a single case has the testicle wasted. Moreover, there is no loss of sexual appetite and no inhibition of the act. Nor have I experienced any failure to prevent orchitis. The result of this small operation proves that infection from the region of the prostate spreads to the testicle along the vas, and not by way of the blood stream. It also demonstrates that the lymphatics concerned as carriers of infection must be in the wall of the duct, since in a few cases I have had to open an abscess under local anaesthesia at the point where I had divided the vas, the infection having spread along the duct, where its further progress was blocked by the dissolution of continuity at the external abdominal ring.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

HUGH MACLEAN, M.D., D.Sc., M.R.C.P., President.

DISCUSSION ON THE VALUE OF SEROLOGICAL TESTS IN DIAGNOSIS.

OPENING PAPER

BY

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THE serum reactions—by which we understand, as I think, the reactions which take place *in vitro* between antigen and antibody and which are used for diagnostic purposes—are in a sense by-products. They owe their origin in the first place to the work of men whose primary object was the study of the means by which bacterial disease may be prevented or cured. It was in the endeavour to explain the mechanism by which resistance to bacterial disease can be developed by inoculation that the phenomena were observed which led the bacteriologists of the world to explore the possibilities, unsuspected at first, of serum diagnosis. The agglutination reaction was discovered in 1896, precipitation two years later, and in 1902 Bordet and Gengou published the results of experiments on the action of complement, which were destined to be used after a lapse of years and by others for purposes of diagnosis. The early and the all-important discoveries in this field were made by men who were interested in the broad and general principles of immunity, and the valuable practical methods which were the outcome were not the primary objects of their discoverers.

On the other hand, during the last fifteen years the usefulness of serum reactions as practical aids to diagnosis has received full recognition. The discovery of new methods of diagnosis and the application of already known methods to other forms of infective disease has become with steadily increasing frequency the primary object and the ultimate goal of research. Investigations in the field of serum diagnosis have multiplied and the literature of the subject has become voluminous. Interest in the by-product has increased and efforts to solve the fundamental problems of immunity have been of recent years relatively infrequent. On the action of toxin, on the nature of the union between toxin and antitoxin, on the great problem of specificity, on the bactericidal action of antiserums we have little informa-

Analysis of the Causes of Death in 150 Cases of Chronic Gastric Ulcer and in 200 Cases of Chronic Duodenal Ulcer.

	Gastric.		Duodenal.	
	Total Cases.	Per cent.	Total Cases.	Per cent.
A. Causes directly attributable to the ulcer	83	55.0	145	72.5
Acute perforation	55	36.5	118	59.0
Subacute perforation	3	2.0	4	2.0
Haemorrhage	12	8.0	19	9 5
Carcinomatous change	6*	4.0	0	0.0
Effects of long-standing obstruction	4	2.5	0	0.0
Miscellaneous and doubtful ...	3	2.0	4	2.0
B. Post-operative death	39	25.5	20	10.0
Peritonitis	10	6.5	1	0.5
Haemorrhage	2†	1.5	1‡	0.5
Bronchopneumonia	10	6.5	11	5.5
Other pulmonary complications	6	4.0	2	1.0
Shock	3	2.0	0	0.0
Dilatation of stomach	2	1.5	0	0.0
Jejunal ulcer	0	0 0	2¶	1.0
Miscellaneous and doubtful ...	6	4.0	3	1.5
C. Cause of death not related to ulcer	23	19.5	35	17.5

* Seven other ulcers showed carcinomatous change.
† Intragastric haemorrhage after partial gastrectomy.
‡ Haemorrhage from gastro-enterostomy operation wound.
¶ One died from haemorrhage from the ulcer and one from leakage and peritonitis.

plastic exudate or adhesions. In the stomach the perforation is usually on the anterior wall and close up to the lesser curvature. In the present series of 150 cases 58 were perforated. In 81 per cent. of these the perforation was on the anterior wall, in 15.5 per cent. on the posterior, and in 3.5 per cent. on both. In the duodenum perforation is even more common. It was present in 122 cases out of 200 which came to autopsy, and in the great majority of these it was an anterior wall ulcer which had perforated. Of the anterior wall ulcers 80 per cent. had perforated, and of the posterior only 9 per cent.

The results of perforation vary with the size of the aperture and its position, and according to whether or not the stomach is empty at the time of the catastrophe. The rapid extravasation of a large quantity of stomach contents through an anterior wall perforation will result in a rapidly fatal peritonitis. The slow oozing of infected material allows time for a certain amount of limiting plastic peritonitis to occur, and the peritoneal abscesses so formed may track in various directions, up under the liver or diaphragm, including abscesses due to perforation into the lesser sac, or down into the lower abdomen or pelvis. Such localized abscesses may rupture into the general peritoneum at any stage, or, rarely, they may perforate into pleura or pericardium, through the anterior abdominal wall, or into an adjacent hollow viscus.

2. *Haemorrhage.*

Though much less frequent than perforation as a cause of death, this remains, in its severe form, one of the most serious complications of gastric and duodenal ulcer. In fatal cases the bleeding is generally found to originate in a chronic ulcer, and very often the open end of an artery may be seen in the floor. In the present series of 6,800 autopsies 33 deaths from ulcer were due to haemorrhage. In 13 of these the ulcer was gastric (12 chronic, 1 acute); in 20 duodenal (19 chronic, 1 acute). In the stomach it is usually a branch of the coronary artery, or the splenic or gastro-epiploic artery, which is the source of the haemorrhage, in the duodenum the pancreatico-duodenal. In a few cases the haemorrhage comes from some adjacent viscus, liver and spleen especially, which has been penetrated by the ulcer. In the duodenum profuse haemorrhage is almost invariably due to ulcer of the posterior wall; in the stomach to ulcer of the posterior wall or lesser curvature. When bleeding is profuse there is usually haematemesis, irrespective of whether the blood is of gastric or duodenal origin, and melaena makes its appearance very soon after. If the bleeding is slight, melaena without haematemesis will result.

3. *The Development of Malignant Disease.*

The relation of gastric ulcer to carcinoma is one of the problems on which there is greatest diversity of opinion. Most pathologists consider that cancerous transformation of a simple chronic gastric ulcer is comparatively infrequent (Ewing, 1918,[32] suggests 5 per cent. as a maximum figure), most British and American surgeons that it is a very common event (54 to 71 per cent. according to the Mayo Clinic—Mayo, 1908,[33] Wilson and McCarty, 1909[34]). No doubt on this point *post-mortem* observations are apt to be fallacious, for the reason that the destructive effects of cancer of the stomach by the time the patient has come to autopsy may be such that the original simple ulcer has become completely destroyed. My own conclusions therefore are drawn from operation specimens only, and of these I have microscopically examined 120. The histological criterion on which ulcer-cancer cases was decided was the association in the same ulcer of an undoubted area of carcinoma with a portion which was definitely simple, and whose densely fibrous floor, devoid of cancer cells, replaced the muscularis. Suffice it to say that 10 per cent. of the cases of simple chronic ulcer coming to operation had developed cancer in the ulcer, and that in one-half of these the malignancy was unsuspected at the time of operation. Most cancerous ulcers of the stomach are, in my experience, primary cancers which have undergone central ulceration, and not simple ulcers which have become malignant.

The extraordinary rarity of duodenal carcinoma in contrast to the high ulcer incidence has long been the subject of comment, and it is often quoted as evidence against the view that chronic ulcer bears an important etiological relationship to carcinoma of the stomach. In the present series of 6,800 autopsies there were 150 cases of cancer of the stomach and only one case of primary carcinoma of the duodenum.

4. *Jejunal Ulcer.*

This serious and important complication of the operation of gastro-enterostomy has been of comparatively infrequent occurrence hitherto. A recent estimate by Sir Berkeley Moynihan (1923)[35] is that the incidence does not exceed 2 per cent., but it seems likely that further experience may show a higher figure. In the present series of 6,800 autopsies there were 16 cases in which gastro-enterostomy had been performed at periods varying from nine months to twelve years before, and in 3 of these jejunal ulceration was present. In 18 cases where an interval of from ten days to two months had elapsed since the operation, there was one case of jejunal ulceration. In each of these 4 cases the original operation had been for duodenal ulcer, and this is in keeping with clinical experience. The fact is no doubt related to the much greater degree of hyperchlorhydria present in this disease. In two of the cases death was directly attributable to the jejunal ulcer.

Jejunal ulcers may be acute or chronic, single or multiple, and they are similar in their naked-eye and microscopic characters to peptic ulcers of the stomach and duodenum. They are most common on the convexity of the jejunal loop—that is, at a point directly opposite the gastric stoma—or in the first inch or so of the efferent channel. They also occur not infrequently on the gastro-jejunal suture line—gastro-jejunal ulcer. They may cause death by perforation or haemorrhage, and apart from a fatal issue may be responsible for a return of gastric symptoms, often in an

tion, and of recent years little has been added to our knowledge.

Nor does it appear that the intensive study of practical methods of diagnosis which has prevailed during the last fifteen years has yielded results of very vast importance. Progress there has been: improvements of method and improvements in details have led to greater accuracy and to some extension of previously known methods to diseases for the diagnosis of which serum methods had hitherto not been employed. The old methods still stand out—the agglutination or Widal reaction for the recognition of infections produced by the typhoid bacillus and its near relatives, and the complement fixation reaction for the diagnosis of syphilis. These two reactions, the Widal and the Wassermann reactions, stand out in a position of regrettable isolation, for, in spite of much work, efforts to extend the agglutination and complement fixation reactions to the diagnosis of other important infective diseases do not appear to have been crowned with success commensurate with the amount of work which has been done.

The Significance of Specificity in the Serum Reactions.

The remarkable specificity which obtains in the reactions which take place between antigen and antibody was observed during the progress of the earliest work on the serum reactions. Almost every year has added something to our knowledge of the exquisite differentiation between closely related substances which these reactions can enable us to effect. The specific affinity of antigen for antibody and the nature of the specific, and, I suppose, chemical, reaction which underlies and is the cause of the demonstrable phenomena which we call serum reactions, remains to-day as great a mystery as ever. To review the problems arising from this specificity of antibodies is to review the whole subject of immunity, and I must select one particular aspect of specificity for consideration to-day. What does the specificity of the serum reactions signify? What is the meaning of a difference demonstrable by a serum reaction between two cultures of bacteria which when compared by any other method appear to be both morphologically and culturally identical? Does a serological difference between two cultures, unsupported by any difference demonstrable by any other means, justify us in the conclusion that we have to do with two separate species? Or are we to consider an unsupported serological difference as evidence of variation or mutation within one species? Are serological differences of more significance than morphological differences or such physiological or cultural difference as can be elicited by the examination of the capacity of a particular micro-organism to ferment a series of test sugars?

Our study of this aspect of specificity may well begin with the publication of Nuttall's classical work in 1904. Nuttall showed that the blood serum of nearly allied species of animals can be differentiated by the precipitation reaction. He was able also to demonstrate by serological methods the degree of relationship which obtained between various species of nearly allied animals. The usual methods of classification used by zoologists were confirmed and amplified by his results. A similar sharp differentiation of species as well as a general group relationship was worked out for the typhoid-paratyphoid group of bacteria chiefly by the agglutination method. This group of bacteria, the members of which show to one another a great variety of degrees of intimacy of relationship and at the same time possess a happy capacity for producing high titre serum in inoculated animals, has provided the serologist with a peculiarly happy playground and opportunity to exercise all the manipulative finesse which increased technical skill has rendered possible. Agglutination, after preliminary absorption, or complement fixation shows differences between *B. paratyphosus* B and *B. aertrycke*, two nearly allied members of this group whose morphological and cultural characteristics are identical. The value of this delicate differentiation is in this case proved by the great differences between the types of illness produced by these two varieties of bacillus. The separation of pneumococci and meningococci into groups has opened up a new chapter of serum therapeutics and the serum differentiation has been confirmed by observed differences in cultural characteristics and in virulence.

A new light on the specificity of the serum reactions has been cast by the work recently published by Andrewes. It is well known that if a rabbit is immunized by injections of a culture of some member of the Salmonella group, *B. aertrycke*, for example, the resulting serum may agglutinate not only the homologous bacillus but also its near relatives. Such a serum is said to contain a mixture of specific and group agglutinins. Andrewes took a pure culture of *B. paratyphosus* C and plated it out. Subcultures were made in broth from ten separate colonies. These ten subcultures were tested with a specific paratyphoid C serum (a serum from which group agglutinins had been removed) and against a serum rich in group agglutinins (which had been prepared by injecting an animal with a culture of a nearly allied member of the Salmonella group). Five of the subcultures were agglutinated practically to full titre by the specific paratyphoid serum and failed to agglutinate with the group serum. The other five cultures were slightly affected by the pure serum but agglutinated by the alien group serum to about one-third of the full titre for the homologous strain. That is to say, the colonies on the plate were of two different kinds and apparently of two different kinds only. As each must be considered as the product of a single bacillus it follows that a pure culture of a micro-organism contains individuals of different kinds, and these differences can be demonstrated by a serum reaction. Andrewes attempted to cultivate the two types as separate entities. At times he succeeded in obtaining two successive broth cultures in which the character was maintained pure, but far more commonly even the second broth culture showed a mixture of types.

It is evident, therefore, that serum reactions can be made to demonstrate variations occurring in the individuals comprising the population of a pure culture. It is evident that the differentiation which can be effected by a serum reaction goes a great deal further than the differentiation of one species from another. It is, of course, very difficult to define what we mean when we use the word species in relation to the bacteria. There are many named and described varieties within the Salmonella group. These can be differentiated with varying degrees of difficulty by their behaviour on sugar media and by the type of disease which they produce as well as by their serum reactions. It seems difficult to say what degree of difference or what combination of differences would justify us in speaking of a distinct species. On the other hand, bacteria apparently so distinct from one another as the meningococcus and the gonococcus appear to have a great similarity in antigenic structure. Indeed, experienced workers have expressed their inability to distinguish by serological methods the gonococcus from the meningococcus. If micro-organisms which we should all regard as belonging to different species may contain antigens which have so much in common with one another and if the individual bacilli in pure culture of a strain of *B. aertrycke* are liable to such profound spontaneous variation in their antigenic structure, it seems obvious that we yet have much to learn as to the significance of the sharp differentiation which we are able to effect by means of serological methods.

Another example of the ultra-specific analysis, which serological methods allow us to carry out, is provided by the iso-agglutinins for blood corpuscles, by the help of which we may divide mankind up into four groups. Here, again, is matter of great biological interest. By serological methods we are able to distinguish very subtle differences between individuals. Moreover, it seems that the transmission of these characteristics from parent to offspring can be shown to follow the accepted principles of heredity.

An extreme example of specificity was brought to my notice during the later years of the war when the majority of wounded men received four and often more prophylactic doses of tetanus antitoxin, and it was to be expected that in a few cases symptoms of anaphylaxis might occur. Cases in which serious symptoms occurred were very few, but it sometimes happened that in one hospital and during one week several mild cases were reported. Thinking that such cases might be due to some peculiarity of the particular brand of antiserum, R. S. Adamson and I obtained specimens of serum from these patients. We used the patient's serum as an antihorse serum and used as antigens various

aggravated form. Rarely they perforate into the transverse colon with resulting gastro-colic fistula.

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British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF SURGERY.

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DISCUSSION ON THE TREATMENT OF ACUTE PRIMARY INFECTIONS OF THE HAND.

INTRODUCTORY PAPERS.

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THE importance of this subject, whether viewed from a medical or from an economic standpoint, can hardly be exaggerated, and I can imagine no better subject for discussion at a meeting such as this. Here we deal with the wide problems of infection, resistance, and immunity; we endeavour to crystallize our views on the principles governing our treatment of infection in both its general and local aspects, and withal, we deal with a subject of everyday importance to the practitioner of medicine. In hospital practice there is often an unfortunate tendency to regard infections of the hand as belonging to the realm of minor surgery, to be dealt with by the less experienced members of the staff; yet no cases present more difficult problems for decision, and not infrequently the life of the patient may depend on the line of treatment which is adopted. The majority of such infections are met with in the robust, wage-earning class of the community, and the difference between the rapid restoration of a hand to early and full function and the prolonged, tedious, and crippling course of the neglected or maltreated case is one of far-reaching economic import.

In the first place we must look at certain fundamental pathological considerations. The introduction of pathogenic micro-organisms into the tissues is followed by certain reactive changes, both general and local. The response by fever with its heightened metabolism, the increase in the circulating phagocytes in the blood stream, and the production of antibodies we recognize as part of Nature's effort at protection. At the seat of infection we find a reactive hyperaemia, an outpouring of lymph, and an aggregation of phagocytic cells—a local endeavour to destroy or wall off the invading germs and prevent their entrance into the blood stream. We now regard these changes as essentially protective, and we endeavour to aid and to reinforce them by such means as we possess. We know, however, that in the hand in particular the outpouring of lymph and the death of many of the phagocytes is apt to lead to an accumulation which, in certain areas, is limited as to available space, so that dangerous tension may ensue and the vascular supply and the vitality of the part may be threatened. Further, the concentrated toxins of the infecting bacteria, together with the proteolytic ferment liberated from the dead and dying phagocytes, tend to the death and liquefaction of the surrounding tissue cells. From such an area there will be absorption of the bacterial toxins and proteoses which will have a profound and deleterious influence on the bodily economy.

The sphere of active surgical interference is the provision of drainage of such areas of suppuration and tension, and that before irreparable damage has occurred. It is essential, therefore, that we have clear ideas as to the types of infection met with, and, in the case of the suppurative variety, the sites at which pus is liable to accumulate and the routes by which it may spread.

Following on extensive inflammation, and especially on that associated with suppuration, is the inevitable fibrosis, fixing tendons, binding muscles, stiffening joints, compressing nerves and vessels, so that a limb may be helplessly crippled in every constituent part of its functional apparatus. It is essential that we bear this in mind when we are in doubt as to the necessity for what seem to be ruthless incisions. The disability following an unnecessarily extensive incision is as nothing compared to that following a burrowing, liquefying, and prolonged suppuration. Moreover, in our after-treatment it is of paramount importance to anticipate and to prevent the fixation of mobile parts by unyielding fibrous tissue, and to remember that the preservation of tissue without function is a mere waste of time and energy.

ANATOMICAL CONSIDERATIONS.

Certain points in the anatomy of the hand and digits have an important bearing on the course and spread of infection. First, the lymphatic network in the hand is very full and free, particularly on its palmar aspect, whence lymphatic trunks come to the forearm, mainly by way of the dorsum.

Secondly, the cellular tissue is divided into spaces by septa which serve to localize or guide the spread of infection. In the pulp of the digits—that is, the soft part on the palmar aspect of the terminal phalanges—dense, fibrous septa, extending down to the periosteum of the phalanx, enclose the fatty tissue, and infection of this tissue leads to great tension with necrosis, which is very apt to involve the bone. In the palm of the hand we have the deep cellular spaces so clearly demonstrated by Kanavel, of which the two most important are the middle palmar and the thenar spaces. Situated deep to the dense palmar fascia and the long tendons, and just in front of the interossei muscles, a collection of pus in the former space will point along the lumbrical muscles of the third, fourth, and fifth digits; in the thenar space it will tend to point to the radial side of the index finger. A knowledge of the existence and the boundaries of these spaces will enable us to recognize and drain a collection of pus in either or both of them before irretrievable damage has been done to the hand.

Thirdly, the tendon sheaths have an anatomical arrangement which, although not constant, is sufficiently regular and well known to require no elaboration here. An accumulation under tension in a tendon sheath will, besides endangering the vitality of the enclosed tendons, tend to rupture either into one of the palmar spaces or, in the case of the little finger and thumb—the ulnar and radial carpal bursae—into the deep cellular planes of the forearm underneath the flexor communis digitorum. In the fingers these tendon sheaths have such intimate relationship to the first interphalangeal joints, that infection of these joints is a common sequel to an infective teno-synovitis.

samples of antitoxin and specimens of normal horse serum obtained from the slaughterhouse. From one patient who had shown marked signs of shock we obtained a serum which reacted with dilutions of the antitoxin which had been used to inoculate him and formed with this antitoxin a well marked precipitate. The same patient's serum when mixed with similar dilutions of a normal horse serum produced only a faint trace of precipitate. We then performed the converse experiment and tested an antihorse serum which we had obtained from a rabbit after injections of horse serum, against dilutions of normal horse and against dilutions of antitoxin. In this case marked precipitates were found in the tubes containing the normal horse serum and only traces in the tubes containing antitoxin.

Subsequently we immunized a series of rabbits with different specimens of horse serum obtained from individual horses and also with specimens of antitoxin obtained from various firms and laboratories. The antitoxic serums were, of course, usually mixtures derived from several horses. By complement fixation methods it was possible to show well marked differences between individual horses and between various brands of antitoxin. Our material was, of course, insufficient for any attempt at grouping the various serums according to their antigenic value. It seems possible that by a sufficiently extended series of experiments a definite grouping of horses might be effected. Members of each group might be utilized for antitoxin production and by the use of a series of antitoxic serums derived from horses whose serum showed well marked serological differences, the dangers attendant on repeated inoculations of antitoxin might be reduced.

Another example of extreme specificity is provided by the antibody formation which follows the injection of extracts or emulsions of particular organs. There is some evidence that a specific antibody can be produced by the injection of the proteins or antigens of the lens of the eye. It is evident that here we have to deal with the differentiation of single organs within one individual.

Dale's experiments on anaphylaxis afford another example of extreme specificity. By the use of the guinea-pig uterus method Dale has shown antigenic differences between the protein fractions of one and the same sample of serum. If, as some maintain, the differences between the various fractions into which serum proteins may be separated depend largely on physical differences, differences in the state of molecular aggregation, rather than on differences of chemical composition, it is evident that the interpretation of the significance of the specificity of the serum reactions may lead us in new and unexpected directions.

The Significance of a Positive Reaction.

It seems to me that it is worth while to pause and consider what a positive serum reaction means. In typhoid and allied infections the significance of a positive reaction is purely diagnostic. It tells us that the patient has typhoid or that he has had typhoid fever or that he has had an inoculation of typhoid vaccine. In the case of the Wassermann reaction, if you will admit that a positive Wassermann reaction depends on the presence of an antibody, there is, in addition to the diagnostic, a therapeutic and prognostic interest. In a case of declared syphilis we are pleased if by treatment we can convert a positive into a negative reaction. If, later on, the positive reaction returns we may predict a return of symptoms of active disease. On the other hand, there are many cases of syphilis in which the disease has been latent for twenty years, in which a strongly positive reaction may be present in the serum of a man who appears to be in perfect health. It is related that women who have borne syphilitic children may never show any sign of active disease and yet when examined years after the presumed date of infection may be found to have a strongly positive Wassermann reaction.

The complement fixation reaction in cases of gonorrhoea, the reliability of which as a practical test has in my opinion still to be established, has been put to a significant use. In long-standing cases of this disease, it is notoriously difficult to determine the period during which the patient must be regarded as infective. It has been suggested that a patient should be considered infective as long as the reaction remains positive. The serum diagnosis of tuberculosis presents peculiar difficulties. On the one hand it is generally believed that a large proportion of human beings incur at one time or another a tuberculous infection, on the other hand there are reasons for thinking that antibodies are not always or very readily formed as a sequel to infection by the tubercle bacillus. At any rate, it has been held that tuberculosis may be diagnosed by the recognition of antibody deficiency in the blood of the patient. A low opsonic index was very generally considered, at one time at any rate, of great importance in the diagnosis of tuberculous disease. The opsonic index method is peculiar among serum reactions in that it readily allows the expression of the antibody content in below normal or negative values. The direct consequence of these observations, which showed that the blood of a tuberculous patient might show a low opsonic index, was an increased interest in the therapeutic use of tuberculin with the object of increasing the antibody content of the patient's blood. The possibilities of the complement fixation reaction for the diagnosis of tuberculosis have been in the minds of almost all serum workers since the time when Neisser and Sachs first turned this reaction to diagnostic use. In the early days of serum work the importance which would attach to such a test was clearly recognized, and subsequently, when the practical value of the Wassermann reaction had become established, a considerable stimulus was given to the efforts of those who aimed at a complement fixation reaction for tuberculosis.

The outcome of much work, of much more work than has come to publication, has been disappointing. It has been very generally assumed that one of the main difficulties lay in the preparation of a suitable suspension or extract of bacillary substances. But this technical difficulty of the bacillary extract may not be the only or even the chief difficulty. In the palmy days of the opsonic index it was claimed, and I presume the claim was well grounded, that many, perhaps a majority of, tuberculous patients could be shown by the opsonic index method to be deficient in antibodies. The serum of such patients had, in fact, less opsonin than the serum of a healthy man. At the present time the complement fixation reaction is more popular, or at any rate is regarded as affording better prospects of success. But it would be surprising, I am disposed to think, if it was found that patients who could be diagnosed as tuberculous because their opsonic index was low could also be diagnosed as tuberculous because their serum gave a positive complement fixation reaction. In this connexion and at this moment I am not inviting you to believe, as I do believe, that both phagocytosis and complement fixation are controlled by a reaction taking place between antigen and one and the same kind of antibody. Even if you are convinced that specific opsonin is quite a different kind of antibody from the complement fixing antibody, it must still seem remarkable that tuberculosis can be recognized by deficiency of the one and by superabundance of the other. Judged by the one reaction tuberculosis is to be suspected if the antibody content of the serum is below normal, judged by the other if the antibody content is above normal.

From the above it would appear that our interpretation of the significance of a positive reaction is somewhat empirical and founded largely on the practical experience of different workers, using different reactions for the diagnosis of different diseases. The value of all this practical experience I do not for one moment question, but I think that we might have a better understanding of these varied phenomena if we had more information as to the relation between the production of antibody and the persistence in the body of the alien protein or antigen. It seems to me that the facts within our knowledge can be covered by an hypothesis which I venture to put forward for your consideration. The formation of specific antibody is induced by the introduction of the antigen into the animal body, is continued as long as the antigen persists in the tissues, and comes to an end when all traces of the antigen are destroyed. According to this hypothesis the presence of antibody in a patient's serum, a positive serum reaction,

TYPES OF INFECTION.

Two main types are met with—the one the lymphatic, the other the suppurative infection. The latter may be subdivided into that involving the cellular tissues of fingers and hand, and that involving mainly the tendon sheaths. Infection of bones or joints is almost always secondary and will be considered as a complication.

Lymphatic Infection.

This is given first place because it is the type of infection in which the life of the patient is seriously threatened. The infection, usually gaining entrance by a prick or scratch, leads within a few hours to a local congestion, associated with red lines up the arm, some swelling of the axillary lymph glands, and definite constitutional symptoms characterized by a rigor, rise of temperature, and malaise. The infecting organism is almost invariably the streptococcus, and the danger of septicaemia is a very real one. There should be little difficulty in distinguishing this type from the other infections of the hand. It is vital that a correct diagnosis should be made, as the treatment of such infection is altogether different from that of suppurating whitlow.

Suppurative Cellulitis.

This may occur in any part of the hand, but there are two situations where it is specially liable to arise and where its early recognition is particularly desirable. One is in the tip of the finger, where the dense, unyielding fibrous septa may confine pus under tension and lead to extensive necrosis of soft parts and bone. The other is deep in the palm of the hand, where, encased by the dense palmar fascia in front and by the bones and interossei muscles behind, the pus may accumulate under tension until, forcing its way along the lumbrical canals, it appears at the roots of the fingers. While such cellular tissue infection may extend to and involve the tendon sheaths, it may, and frequently does, occur independently—hence the importance of recognizing it and draining it along anatomical lines.

In passing one must refer to the infection so commonly met with in the nail-fold. Commencing as a cellulitis round the roof of the nail and discharging between the fold and the nail, this infection may spread under the nail and require its total or partial removal, but more frequently it is troublesome in that it leads to a chronic discharging sore under the fold, if not treated on rational lines.

Tendon Sheath Infection.

This may begin as a primary infection of the sheath from a direct wound; more often, however, it is a complication of a lymphatic infection of a finger. In the early stages of infection the sheath fills with a turbid, glairy fluid which rapidly tends to assume the character of pus. Owing to the limited capacity for expansion the exudate rapidly accumulates under tension, which compromises the vitality of the serous lining and of the tendons enclosed within. An early rupture of the sheath might possibly save the tendons; more often, however, the latter necrose unless the infection be very mild or early surgical relief be given. In any case the injury of the serous lining is apt to be followed by fibrous adhesions, contracting the sheath and fixing it to the tendons within. The essential features of tendon sheath infection are the early development of tension and the precarious nutrition of the structures within the sheath.

Bone and Joint Infection.

Seldom primary, infection may, and often does, involve the phalanges and interphalangeal joints. The most frequent examples are the necrosis of the distal phalanx in finger pulp infection and the involvement of the first interphalangeal joint in cellulitis or tendon-sheath infection of a digit. The rapid destruction of the articular cartilage and the softening of the lateral ligaments determines a loss of function in the joint even should the infection subside.

DIAGNOSIS.

In no surgical condition is accurate diagnosis so essential for rational and successful treatment as it is in hand infections. For accuracy in diagnosis an intelligent knowledge of the pathology of such infections is indispensable.

In the first place we must decide which type of infection is present. Is it an acute lymph infection, not walled off but spreading by lymphatic paths and threatening dangerous septicaemia? The marked constitutional disturbance, the slight local swelling, the red lines up the arm, will seldom leave us in doubt. Is the infection a suppurative one involving cellular spaces but sparing the tendon sheaths? If localized to the tip of the finger with tense and tender pulp we immediately suspect suppuration, enclosed in the dense tissue in front of the distal phalanx. If there is marked swelling of a finger and of the hand we must decide whether or no a tendon sheath is involved or whether the suppuration is limited to cellular planes. A slight prominence of the palm with marked oedema of the dorsum of the hand makes us immediately suspect suppuration in the middle palmar space, the more so if a swelling is appearing in the cleft between the fingers. The uniform swelling of the finger, the flexed position, the pain on passive extension, and the exquisite tenderness when pressure is made over the proximal part of the palmar aspect of the finger, will leave little doubt that the tendon sheath is involved. It may be that the latter picture is combined with that of palmar space infection, and we recognize that an infected tendon sheath has ruptured into the palm. The swelling on the dorsum of the hand is seldom more than oedema, and will always make us search for evidence of pus in front. In the case of the thumb and little finger we may find the swelling extending to the wrist and forearm and we examine for evidence of suppuration in the radial or ulnar bursae, and possible extension to the deep cellular planes of the forearm into which the pus may have broken through. Finally, we determine whether there be signs of bone or joint involvement.

TREATMENT.

The worst infections of the hand usually start from small and trifling lesions, hence the importance of prophylaxis in the shape of prompt antiseptic dressing of all wounds in factories, workshops, and other centres of organized industry. For infections already established certain principles apply to infections of the hand:

1. Nature's effort to localize and restrict the spread of the infection must be aided and not combated.
2. Where the products of bacterial activity and tissue-cell death accumulate under tension, relief must be given by incision at the earliest possible moment.
3. Where spreading suppuration is present large incisions allowing of free drainage will cause less disability than smaller incisions with more protracted suppuration.
4. Rest to an inflamed part is an important factor in aiding speedy localization and resolution.
5. In a member such as the hand function means mobility, which, in its turn, depends on the smooth working of joints and gliding of tendons within their sheaths. While the first principle in treatment will therefore be the rapid arrest and localization of infection, this must be effected with the minimum of interference with the subsequent mobility and functional usefulness of the hand.

Treatment of Acute Lymphatic Infection.

No incision must ever be made at the point of infection in such a case during the early stages. Premature incision will increase the risk of septicaemia tenfold by opening up pathways which Nature is endeavouring to shut off by a leucocytic barrier. The principles of treatment must be to diminish absorption, to aid local resistance, to combat toxaemia, and, if possible, to give passive immunity. We encourage, therefore, hyperaemia locally by moist, hot applications, produce passive hyperaemia and delay absorption by applying Bier's elastic bandage to the upper arm, give fluid in large quantities by the mouth or rectum, and inject a large dose (50 c.cm.) of polyvalent antistreptococcic serum subcutaneously.

Considerable difference of opinion exists as to the value of Bier's congestion in hand infections. There can be no question, however, about its value in the acute lymphatic type of infection. I should put it first among therapeutic measures. Similarly, in regard to antistreptococcic serum, many are sceptical as to its value. My own experience has been that in many of these cases it gives great help, and

it is not inconsistent with the established facts of the serum reactions, and, moreover, it is possible to put forward some small amount of evidence in support. If we wish to study the relations between the persistence of antigens and the production of antibodies we shall do well to avoid the use, as antigens, of living bacteria which may multiply in the body subsequent to injection. For our purposes an alien serum or a suspension of dead bacteria, of which the size of dose may be estimated, is more suitable. If horse serum is injected into the ear vein of a rabbit, the gradual disappearance of such an antigen may be observed by taking daily samples of the rabbit's blood, which are tested for horse serum by the precipitation or more conveniently by the complement fixation reaction. If the daily sample is tested for the presence of both antigen and antibody we can obtain daily records of the presence of both in the blood of the animal. Experiments of this type have been carried out by Uhlenhuth and others. In the course of such an experiment antibody may be first demonstrable on about the fifth day after the injection. Subsequently, and for as long a period as the presence of the antigen can be demonstrated, it is found that antigen and antibody coexist in the blood. Uhlenhuth was able to demonstrate the persistence of free antigen for fifteen days after its injection. During the war I had the opportunity of carrying out similar tests on soldiers to whom I had given large intravenous doses of tetanus antitoxin. In severe cases of tetanus I have often injected as much as 120 c.cm. of serum into a vein. From some of these cases I collected weekly samples of blood and tested the resulting serum for free horse serum. In one case horse serum was still present on the forty-fourth day after the injection and in several other cases it had not disappeared after three or four weeks.

The persistence of free antigen for these long periods seems to me a matter of some importance, and it seems reasonable to suppose that traces of antigen may persist for much longer periods than it is possible to prove by the methods at our disposal. The coexistence of antigen and antibody in the same specimen of blood is, of course, well known and can be readily demonstrated. Moreover, if daily samples be taken from a rabbit after an injection of horse serum it will be observed not infrequently that on or about the eighth day the serum, which may be quite clear when first separated from the clot, throws down on standing a spontaneous precipitate produced by the interaction of the free antigen and antibody which it contains. The formation of this spontaneous precipitate may be hastened by diluting the serum with saline solution. The effect of dilution and the fact that in the undiluted serum the precipitate forms but slowly suggest that under the conditions which prevail in the circulating blood the interaction of antigen and antibody within the blood vessels is usually in some fashion prevented. In a fatal case of anaphylactic shock following a fourth prophylactic injection of tetanus antitoxin, which I investigated some years ago, the specimen of serum obtained from the heart blood did show a spontaneous precipitate on standing. This precipitate formed in the separated serum and it formed some twenty-four hours after the patient's death. Death was not due to the formation of a precipitate during life in the patient's blood, but it is of interest to note that he died of anaphylactic shock at the time when antigen and antibody were present in his blood in such relative proportions that a precipitate formed in the separated serum.

It seems quite possible that the rash and other symptoms of serum sickness, which may follow the use of antitoxin, may occur at the moment when the relative proportions of antigen and antibody are so adjusted that a reaction between them is possible. Within the blood vessels of the living body this reaction between the optimal proportions of antigen and antibody does not in all probability proceed to the formation of a precipitate, but a much less pronounced aggregation of the molecules of the blood proteins might be enough to produce very definite symptoms. In several of the cases which

and after the attack of serum sickness. In one or tw
it seemed as if the attack of serum sickness was
by a sharp fall in the amount of free antigen in the p
blood. At any rate free antigen could be demonstr
weeks after the attack of serum sickness and pre
continued to act within the patient's body as a s
to the further production of antibodies.

If we admit that antigen may persist for a very lo
after it has been injected the experiment of Wass
and Citroën assumes a very considerable importance.
workers injected typhoid bacilli beneath the ski
rabbit's ear and endeavoured to prevent the trans
the bacilli to other parts of the body by putting a l
which was not removed for several hours, around t
of the ear. Nine days later the serum was titra
antibodies and the ear was amputated. The
tion was immediately followed by a sharp drop
antibody content of the rabbit's serum. This exp
seems to show that if the antigen can be rem
destroyed, the productions of antibodies will
Evidence of a more indirect kind is afforded
following observations.

After the first year of the war the prophylacti
tetanus antitoxin was so successfully enforced tha
all wounded men received at least one and often
four prophylactic injections of serum. Nevertheles
of late tetanus did occur and occasionally were of
able severity. In these severe cases I was in the
injecting a large dose of serum into a vein. In
majority of cases no signs of anaphylaxis made their
ance, but in some patients the intravenous inject
followed within a few minutes by the appearan
generalized urticaria. In other cases there was n
spread rash, but one or more isolated wheals appe
a few seconds on the chest or arms, corresponding in
to and, I believe, occurring at the actual situat
the subcutaneous prophylactic injections. These
localized reactions occurring at the site of the prop
injections can be explained by the existence at the
of a surviving and limited focus of antibody formati
I am inclined to suppose that such small focus of
formation was situated at the spot where a trac
originally injected antigen still persisted and still
a sufficient stimulus for the production of a small
of antibody.

Conclusion.

In the way of general conclusions I have not muc
but it appears to me that in these serum reactions
to do with phenomena as interesting as any to be
the whole field of biological science, and that in t
of these phenomena we are confronted with pro
fundamental importance not only to pathology and
medicine, but to every branch of biology. The
phenomena of these serum reactions have been wel
to us for twenty years, and during these last twen
there has been very little progress and very litt
towards the solution of the problems which under
reactions. Progress in technique there has been a
ingenuity has been directed towards the improve
existing methods and the application of methods fo
ful in cases of one sort of disease to the diagnosis
other sort of disease. A great deal of good an
progress has been made, and very valuable, as
diagnosis, the serum reactions have proved them
be. But the great practical value of these reac
diagnosis and the natural desire to invent a serum
some disease, not as yet provided with one, has
diverted our attention and our efforts from the big
which lie in front of us. Some of these proble
difficulties I have mentioned to-day and I have
pick out from the great mass of experimental da
observations which seem to me to have a bearing
of those larger and more general problems which

I consider that the treatment of an acute lymphangitis is not complete without it. In most instances no incision is ever required, but in an infection starting as the lymphatic type we may have secondary involvement with suppuration of the cellular spaces and tendon sheaths of the hand, when active surgical interference will be called for.

Treatment of Suppurative Cellulitis.

Early incision with free drainage is always indicated. In the finger pulp two lateral incisions will completely relieve tension, and, if made in time, will save the phalanx from necrosis. For deep suppuration in the palm an incision is made in a cleft between two fingers and a sinus forceps thrust in along a lumbrical canal. If this gives inadequate drainage the web of the finger may be split up into the palm. For suppuration in the thenar space through-and-through drainage of the first interosseous space is essential. Incisions on the dorsum of the hand are very seldom required, for the swelling of the dorsum rapidly subsides when the palmar collection is drained.

Treatment of Nail-fold Infection.

In the severe cases it may be necessary to throw up the nail-fold by a lateral incision at either side and remove part of the nail. As a rule, however, the pus will already have made its way out under the fold. The essential for rapid healing in such cases is to pack in strands of gauze between the nail and the fold by means of the blunt end of a straight sewing needle. This method, which I learned from Mr. J. W. Dowden, is one of the most useful and successful devices of minor surgery.

Treatment of Infective Teno-synovitis.

Free incision with adequate drainage is necessary at the earliest moment possible. For this, as for the operative treatment of all extensive hand infections, a general anaesthetic should be administered; otherwise inadequate drainage is all too likely. A tourniquet in the form of an Esmarch's bandage to the upper arm is advisable, for not only does the surgeon obtain a clear view of the infected region and its extent with a minimum of haemorrhage, but by leaving on a few turns of the bandage at the conclusion of the operation a suitable degree of passive congestion may be maintained and dangerous toxic absorption diminished.

The opening of infected tendon sheaths should err on the side of completeness, and no thought of subsequent scars should hamper one in providing the freest drainage. If necessary the anterior carpal ligament may be split in order to ensure no retention above it owing to adhesions. If the suppuration has extended into the forearm a lateral incision is made on either side, just in front of the bones, and a forceps thrust through, giving free exit to pus burrowing upwards under the anterior group of forearm muscles. It is a good rule to make all incisions sufficiently free to render the use of drainage tubes unnecessary. The less in the shape of foreign bodies introduced into the wounds the less will be the subsequent fibrosis.

AFTER-TREATMENT.

Moist dressings and hot saline baths for the first few days should be the rule; they should be stopped, however, as soon as the acute inflammation has subsided, otherwise the tissues become soft and sodden, and resolution is delayed. In the case of cellulitis, rest should be instituted until the infection shows patent signs of becoming localized. Thereafter the sooner movement is encouraged and persevered in the better. In tendon-sheath infections the earlier the movement the fuller will be the ultimate function. With free incisions, passive and active movements facilitate drainage, increase the blood supply, and minimize adhesions. As the inflammation subsides systematic exercises should be carried out every day, and the patient encouraged to strive after a daily advance in the range of movement. To leave restoration of function until the wounds have practically healed is to delay and to compromise the ultimate utility of the land.

COMPLICATIONS.

When sloughing of the tendons in one finger has occurred the treatment to be adopted will depend on whether the patient is a manual labourer or no. If the former, then amputation of the finger should be resorted to. To save the finger is only to lose time, as a stiff finger is always in the way. There is, however, a time to amputate and a time to wait. An amputation during the stage of acute reactive cellulitis may lead to a flare-up with lymphangitis or spreading infection in the hand. It is always wise to wait until the acute inflammation is obviously on the wane before having recourse to amputation. In the case of patients who do not labour with their hands the finger should be preserved. The thumb is an exception to this rule and should always be preserved. The same rules should hold good when a joint is disorganized.

SUMMARY.

Early accurate diagnosis is the crux of the management of hand infections.

For lymph infection without suppuration the treatment should be on essentially conservative lines.

For suppurative infection in tissue spaces or tendon sheaths prompt and free drainage with early systematic functional exercises should be the guiding principles.

II.—O. MAX PAGE, D.S.O., M.S., F.R.C.S.,

Surgeon to Out-Patients, St. Thomas's Hospital.

I THINK the opener has given a very clear exposition of the principles which should govern the treatment of these cases. I am glad he has emphasized their economic importance. A septic hand in a working man may easily lead to grave industrial disability, and I think all the more severe types ought to be treated as hospital in-patients during the acute period; it is the only way in which the all-important supervision can be obtained at this stage.

In regard to the opener's classification of types, I agree as to the clear distinction between what he calls lymphatic and cellular infections; but I think the term "lymphatic" so applied is misleading. There it is a common type of infection of the subcuticular layers of the skin which is frequently followed by mild lymphangitis and lymphadenitis. Such cases require careful local treatment by the complete removal of all undermined cuticle. Suppuration about the lymphatics or in the glands may occur later, but the constitutional disturbance is essentially mild. The severe cases are due to the inoculation of an unusually virulent strain of the streptococcus, and might be classified as fulminating streptococcal infections. In these cases little or nothing surgical can be usefully done in the first few days; the issue depends upon the patient's natural resistance to the bacterial invasion. This may be reinforced with antistreptococcal serum, but I think it is difficult to obtain crucial evidence of its value.

In the matter of the surgical treatment of cellulitis and suppurative teno-synovitis, the opener has given a clear outline of the anatomical points which should govern the position and extent of the incision. I think it important that the incision should be sufficiently free to allow it to gape. I do not think the tearing open of spaces with forceps is a sound practice in the presence of an acute infection. The surgeon's duty is to relieve tension and to inflict as little damage on the tissues as possible. I agree that the use of drainage tube or other foreign material is undesirable in theory, but in practice I pack the incisions for the first twenty-four hours with paraffin gauze in order to prevent the accumulation of blood clot and premature falling in of the margins of the wound.

The use of the tourniquet during operation on cases of this character has great conveniences, but it is not without its dangers. The experience of the war showed that the application of a tourniquet to a limb for an hour or two greatly prejudiced the course of an infected wound in the area which had been thus temporarily deprived of blood.

The dressing of wounds after incision for other conditions merits some consideration. Hot fomentations

DISCUSSION.

Dr. C. E. DUKES (London) pointed out that there were pparent exceptions to the specificity of antibody response. ertain strains of the atypical paratyphoid group were ound by him to be agglutinated to a much higher titre by ntiserum prepared against kindred strains than by homo-ogous antiserums. A non-fermentative type might be gglutinated by a serum prepared against a fermentative ype, and vice versa, showing apparent lack of specificity.

Dr. J. F. MACKEDDIE (Melbourne) said that Professor Dean touched on the question of the persistent positive Wasserman reaction, and one had often been in difficulties bout that matter. There was no question that one had n some cases to ignore this persistent positive Wasser-mann, and by various ways relieve the patient of any nxiety, which was not an easy matter. It was very psetting to one brought up in the opsonin faith to hear hat the complement fixation test in tuberculosis depended n an excess of antibody that would actually constitute a egative opsonin.

Dr. BEGG remarked that the subcutaneous injection of uberculin was a very accurate method of diagnosing tuber-ulosis and had seldom failed in his experience. In his ractice he had often watched patients with positive Wassermann reactions who showed no symptoms of syphilis hough carefully observed for thirty or forty years. He sked Professor Dean for an explanation of the reason why treated patient, found to be negative on two or three ccasions, subsequently yielded a positive reaction.

Professor HASWELL WILSON (Birmingham) pointed out hat if a quantitative relationship existed between the toxin nd antitoxin production, it was difficult to understand why n immunized horse should continue to produce antitoxin, s demonstrated by successive bleedings, even after all njections of antigen had been discontinued.

Dr. DA FANO (London) asked if Professor Dean could hrow any light on the essential nature of the antibodies hich were examined by serological tests.

Professor DEAN, in reply, declared that we were still gnorant of the essential nature of antibodies. Ehrlich's ypothesis, although it appeared to fit the facts, did not eally explain them. Phenomena which were observed in est tubes appeared to obey certain laws, but as yet there was no satisfactory explanation of the machinery which set he reactions going. Many of the other questions asked were incapable of a definite answer at the present time. He had put forward in a tentative fashion the hypothesis that positive serological reaction signified the continued presence of antigen and welcomed the discussion stimulated by his remarks.

MEDICAL MYCOLOGY.

BY

ALDO CASTELLANI, C.M.G., M.D., F.R.C.P.,

Lecturer on Mycology, London School of Tropical Medicine.

AT the present time very little importance is given to the higher fungi, attention being paid almost entirely to the lower fungi or bacteria. In fact the great rôle played by the higher fungi in human pathology is doubted by many authorities. It is interesting to note, however, that medical mycology came into existence long before bacteriology. It may be said to have begun in 1839 when Langenbeck discovered the fungus which is the cause of thrush; he found it at the autopsy of a case of typhus, and he believed that the fungus was the cause, not only of the white patches, but of the disease itself, typhus. The fungus was more thoroughly investigated later by Charles Robin, who called it *Oidium albicans*. For many years, however, medical men did not believe in the fungus being the real cause of the condition, and as late as the seventies one could find in a well known medical book published at the time the following statement: "Thrush is due to the pathological secretion of the oral mucosa, but there have been mycologists who have put forward the very peculiar hypothesis that the disease is caused by a fungus."

In the same year that the fungus of thrush was discovered by Langenbeck another very important fungus was found—the fungus of favus, by Schönlein. In 1844 the fungus of ringworm was found by Gruby and Malassez. Mycology continued to attract attention until the eighties of last century, when the great discoveries by Pasteur and Koch in the field of bacteria brought bacteriology to the forefront and mycology was placed in the background, and it has unfortunately remained there until the present date. I have no doubt, however, that in future years the great importance of mycology will be recognized. Let us remember, for instance, that, at least as regards tropical medicine, the part played by fungi is an extremely important one; it suffices to mention that more than 20 per cent. of tropical diseases *sensu stricto* are caused by fungi higher than bacteria.

GENERAL REMARKS AND CLASSIFICATION.

As is well known, the vegetable kingdom is usually divided into four large groups or *phyla*: the Thallophyta, the Briophyta, the Pteridophyta, and the Phanerogamae.

The *Thallophyta* may be defined as being vegetal organisms with a cellular structure which is usually little differentiated, and reproducing, either asexually by division and spore formation, or sexually after conjugation, by oöspores.

Fungi (Fungaceae) form a class of the Thallophyta (the other class being the Algae) and are characterized by the absence of the green colouring matter known as chlorophyll. They may be defined as filamentous vegetal organisms not possessing chlorophyll, and reproducing, either asexually by division and by spore formation, or sexually after conjugation, by oöspores.

They may be divided into two large groups:

1. Of minute dimensions, reproducing generally by division: lower fungi or bacteria (Schizomycetaceae).
2. Of larger dimensions, reproduction by asexual or sexual spores—fungi *sensu stricto*—higher fungi (Mycetes).

At the present time the term "mycology" is limited to the study of the higher fungi, while "bacteriology" deals with lower fungi.

Fungi, not possessing chlorophyll, are unable to build up their food from the carbon dioxide of the air, and must obtain it from larger vegetal organisms, from animals, or from decaying matter. Fungi may be *parasitic* or *saprophytic*: parasitic fungi grow and obtain their food from living animals or living plants; saprophytic fungi grow and feed on dead plants or decaying matter in general. In practice the term "saprophytic" is used to denote a fungus which is not pathogenic, although deriving its food from the host.

Some fungi are always saprophytic, others always parasitic; but there are also fungi which are *facultative parasites*—that is, they are saprophytic, but under certain conditions they become parasitic. The animal or plant on which the fungus grows is said to be the "host."

As in the case with the flowering plants, a fungus consists of: (1) a vegetative part (thallus, mycelium) devoted to the acquisition of food; (2) a reproductive part. The vegetative part consists of very fine filaments or threads called "hyphae"; a collection of hyphae is known as mycelium (vegetative part of the fungus). A hypha is a hollow cylindrical tube containing protoplasm and divided at intervals by partitions called "septa." It may be of different shapes—straight, curved, banana-like. Hyphae have peculiar morphological characteristics of great importance for classification—for instance, the peculiar swellings on the hyphae of the Borellineae fungi and the clamp connexions of the Basidiomycetae.

Reproduction.—Fungi reproduce by spores, which may be said to represent the seeds of the flowering plants. A fungus spore is merely a spheric, oval, or elongated cell, with a thin wall, and containing protoplasm. If a spore meets with favourable conditions it germinates by growing out a hypha which develops into a mycelium.

Fungi are classified principally according to the manner in which the spores are produced and their shape and colour. There are several kinds of spores, some sexual, some asexual.

(1) *Gonidia* (endospores *sensu stricto*, ascospores *pro parte*). These are spores which are not born free; they are formed or born in a case or receptacle which is often terminal. When the spores

are comforting to the patient, and may be allowed during the stage when great congestion is present. Their continued use brings the surrounding skin into an unhealthy sodden state, and predisposes to secondary infection of the wound. I think a dry sterile dressing, not too frequently changed, gives the best results in the resolving period. There is no doubt that the natural exudate is the medium in which defence and repair mechanisms work at their best. We have learnt this in regard to the peritoneum and the knee-joint, and may well apply the knowledge to the handling of acute infection in other parts of the body.

In regard to the restoration of function, I would draw attention to the importance from a prophylactic point of view of keeping the fingers partly flexed during the treatment of any palmar infection. This position will make it possible to break down or stretch adhesions which may form as healing proceeds. If the fingers are fixed in a fully extended position, no subsequent passive movements have any power to mobilize adhesions which will inevitably form.

When healing is complete movements under an anaesthetic may be carried out with care. In some cases a brisk reaction is provoked, which defeats the aim of the procedure. I think the use of graduated splintage to restore the movements of the fingers in both directions is a better and safer method, though requiring more time and patience. I have seen considerable general improvement in the mobility of the hand result from the use of hot paraffin baths.

I agree with the opener that when the flexor tendons of a finger have sloughed out, or when an interphalangeal joint has been infected, amputation is usually justified. In a few cases in which the scarring is not very extensive tendon plastic work may be worth while. In my experience attempts at arthroplasty on the interphalangeal joints are disappointing in their results.

III.—F. D. SANER, M.B., B.CH.CANTAB., F.R.C.S.,
Surgeon to Out-Patients, Royal Northern Hospital.

THE ideal treatment of these conditions, as elsewhere in the body, is prophylactic. In the majority of cases the serious septic conditions of the finger and hand arise from minute wounds or punctures, which are, perhaps, naturally neglected until inflammation becomes manifest. It is, no doubt, asking too much that every individual who pricks his finger should at once seek medical advice; though the public are more fully aware now of the possibilities of such a prick, and there exists a more or less deep rooted faith in the application of iodine or some antiseptic. If no organisms of virulence have been introduced, this application will have given a certain confidence and moral support, and no ill effect will accrue; but should virulent organisms have gained an entry, severe results will follow. I would urge every surgeon or pathologist, who when operating on a septic case, or carrying out a necropsy, pricks his finger sufficient to draw blood, to have the minute wound excised (not incised) at once, and the arm immobilized on the largest splint possible, until everything is seen to be quiet. If the excision be done at once, the wound may be closed; there is no advantage in leaving it open.

Such treatment may appear excessive; I do not believe it to be so, since if sepsis does perchance gain a hold, at the least it will entail some weeks of "off duty," while it may result in the complete removal of an active worker from his duties for good.

If infection has already gained a foothold it may be spreading along the lymphatics, cellulo-cutaneous tissues, in the blood stream, or in all three without pus formation, or it may become localized and be accompanied by pus formation.

The first group of cases present much the more serious and difficult problem, and by whatever channel the inflammation spreads, it passes far beyond the fingers or hand from which it originated. While all cases in this group are serious, roughly they fall into two types—the first, in which, though there is evidence of a spreading inflammation, the constitutional disturbance is not excessive, and a second type in which the patient is ill out of all proportion to the local manifestations. In the first type, the value of immobilization of the whole affected limb cannot be overestimated; the splint used should be sufficient to ensure that this is complete. With the limb immobilized, and the patient at rest in bed, the natural defences are given their chance to localize the infection, and pus is liberated as it is formed. In the early stage, too, my faith has never wavered from the hot boracic fomentation, provided they are large enough and hot enough and aseptically applied, both as a means of producing hyperaemia and a comfort to the patient.

In the second type of case, when there are grave constitutional effects, when at the end of twenty-four to thirty-six hours from the first signs of infection the patient is seriously ill, it is probable we are dealing with organisms of extreme virulence or a patient with little or no resistance. In such cases not a minute is to be lost before relieving the areas of greatest tension by suitable incisions. Such incisions should not be indiscriminately placed, and should not open up the infected tissues which may be endeavouring to localize the spread.

Along the hand and arm the areas of greatest tension can as a rule be recognized and relieved by an incision which should penetrate the deep fascia. Such incisions, afterwards, can well be treated by Carrel's method of intermittent irrigation. The axilla presents a difficult problem. In these cases pain and throbbing is complained of in the axilla, and the glands are nearly always somewhat enlarged and acutely tender. These glands though under great tension, at the same time are an important line of defence. From the point of view of tension, as a source for further spread one may advocate that they should be excised, and that as a defence, though it is obviously an inadequate one, they should be left.

My own inclination is to leave the axilla untouched, chiefly because any excision would probably be incomplete, and it is impossible at the time to differentiate the useful from the harmful glands. Whatever operative procedure is carried out, afterwards, the whole limb must be completely immobilized. There is no doubt that in many instances serum is of the greatest benefit to these cases of generalized infection, but in my opinion it should not be relied on to replace the operative and splinting methods of treatment.

Fortunately, in civil practice it is rare to encounter a case of acute spreading gangrene; occasionally such cases occur, perhaps from injury to the hand, as a rule a severe one, and necessitate an immediate and high amputation of the limb as the only chance of saving life.

In the second group of cases, when the infection has become localized it will as a general rule be accompanied by the formation of pus. I should like to emphasize that the formation of pus is a kindly act and to be noted with relief; not that it means all danger is passed, but it does show that natural defences have been called into play and are offering some degree of resistance: pus is in itself harmless, except under tension. If pus has formed, it should be liberated by an incision to relieve the tension in that area. Such an incision should open up the extent of the abscess cavity, for which two or more incisions may be necessary, but it should not extend beyond the cavity, otherwise not only are the natural defences interfered with, but two new tissue planes are exposed to infection. Although relief of tension can be accomplished at the time, it is difficult to maintain. I am extremely doubtful of the value of so-called drainage tubes and gauze packing; on the whole, in my opinion they do more to defeat than attain the desired object. My impression is that so far the best method of maintaining relief of tension is the removal of areas of skin, subcutaneous tissue and fascia, or tendon-sheath if necessary—in order to produce a definite gap and not a cleft, the surfaces of which must needs be kept apart.

In inflammation or suppuration at the base of the nail, whether superficial or deep to the nail itself, the whole nail should be removed. Much time is often lost and suppuration prolonged by endeavouring to deal with these cases by incisions only or partial removal of the nail.

rosporcs. These are spores formed simply by a process ntation and *disarticulation* of a mycelial hypha. The spore is merely an arthrospore of large dimensions g encystment.

nspores. The terminal portion of a hypha becomes *ted, forming* an ampulliform structure called proto- which later divides into several segments or deutero- hich are the true reproductive spores.

osporcs. These spores result from a conjugation of two ametes) which are *morphologically identical in shape and* now any sexual differentiation. The two gametes come *ict and unite, forming* a large, very resistant cell called re."

pores. These result from the conjugation of two sexually ated elements—the male element, *antheridium*, and the ement, *oösporangium* or *oögonium*. The oösporangium is a thick capsule with pores, and it contains several protoplasmic masses—female gametes, macrogametes,

onjugation takes place as follows: the male element nto contact with the oösporangium and sends a smic process through it. In certain cases the *lium divides into several motile bodies—spermato-* atherozoids—which fertilize the female gametes.

Classification of Fungi.

may be separated into two large divisions:

Vegetative body under form of a multinucleate, naked nodium—Mycomycetes.
Vegetative body usually filamentous—Eumycetes.

parasitic of man belong to the Eumycetes, which subdivided as follows:

I. Reproduction by free-born spores (conidia) which are ntained in a case or receptacle; septate mycelium—*Fungi ti* or *Hyphomycetes.*
II. Reproduction by ascospores; mycelium septate when *-Ascomycetes.*
III. Mycelium non-septate in vegetative stage; repre- ften by zygospores—*Phycomycetes.*
IV. Reproduction by basidia; septate mycelium—*Basidio-*

ungi imperfecti, the most important group from the point of view, may be divided as follows:

1. Mycelial hyphae bacilliform. *Microsiphonales* Vuille- 0.
2. Reproduction by thallospores. *Thallosporales* Vuille- 0.
3. Reproduction by hemispores. *Hemisporales* Vuille- 0.
4. Reproduction by conidia, *sensu stricto. Conidiosporales* n, 1910.

Biological and Biochemical Characteristics.

nt investigations have shown numerous analogies he lower fungi (bacteria) as regards production ins and antibodies. Auchair and Verleac have d, for instance, a toxin soluble in ether from *ia bovis* which they call "actinomycetine." injection of a saccharomyces culture into a rabbit *luce production of a large amount of agglutinin for* articular fungus; unfortunately in many cases a mount of non-specific agglutinins for other species is esent. Vaccines have been prepared using cultures ardias and Monilias.

The Higher Fungi as Cause of Disease.

higher fungi may attack any organ and system of man body, the integumentary system being the most ntly affected and the nervous system the most rarely. *ld take too long to discuss seriatim the numerous* ns of mycotic origin, and I will limit myself to only ng on thrush, bronchomycoses, tonsillomycoses, and external mycoses.

Thrush.

ll textbooks it will be found stated that thrush is the fungus *Oidium albicans* Robin. Since 1906, in a of researches carried out in tropical countries and temperate zone, I have endeavoured to demonstrate he etiology of thrush is far from being so simple, and he condition is not caused by one fungus only, but

Class, Fungi Imperfecti; Subclass, Hyphales.—Genus *Monilia* Persoon (several species). Genus *Oidium* Link (three species). Order Thallosporales—family *Oosporaceae* Saccardo. Order Hemisporales—genus *Hemispora* Vuillemin (one species).

Class, Ascomycetes; Subclass, Protoascomycetes; Order Saccharomycetales.—Family *Endomycetaceae* Rees—genus *Endomyces* Rees (one species); genus *Saccharomyces* Meyen (one species). Family *Saccharomycetaceae* Rees—genus *Willia* Hansen (one species).

Fungi of Genus Monilia Persoon.

These are the fungi most commonly found in thrush. The botanical description of these fungi has been given in my previous papers as well as in the *Manual of Tropical Medicine* by Chalmers and myself. It suffices to say, from a practical point of view, that the fungi of the genus Monilia in the meaning of Pinoy and other mycologists, are characterized principally by the following features. In the lesions the vegetal body (*thallus*) is *composed* of mycelial threads of rather large size, often showing arthrospores, and numerous free oval or roundish budding yeast-like forms—in cultures, especially on solid media, mostly roundish or oval budding elements are seen, while mycelial *filaments are very scarce or absent.* These fungi, as a rule, ferment with production of gas, glucose, and often other sugars. The only Monilias I know of which do not attack any sugar or other carbohydrates are *Monilia zeylanica* Castellani and *M. zelanoides* Castellani.

There is little doubt that the original fungus *Oidium albicans* C. Robin 1853 belongs in reality to this genus, and its correct name is therefore *Monilia albicans* (C. Robin 1853). The term *Oidium* or *Monilia albicans* has been used in the past to cover a number of different fungi, as proved by the widely different descriptions of it given by different authors. For instance, some observers state that the organism liquefies gelatin, others deny that it possesses such action. Certain authorities describe it as coagulating milk, others as not having any action on this medium, etc.

The more important Monilia fungi I have found in thrush may be separated into ten groups or types. The various types can be easily differentiated by their action on the following carbohydrates: glucose, levulose, maltose, galactose, lactose, saccharose, inulin, and dextrin.

Fungi of the first group (*M. balcanica* type) produce gas in glucose only.
Fungi of the second group (*M. krusei* type) produce gas in glucose and levulose only.
Fungi of the third group (*M. pinoyi* type) produce gas in glucose, levulose, and maltose.
Fungi of the fourth group (*M. metalondinensis* and *albicans, sensu stricto*) produce gas in glucose, levulose, maltose, and galactose.
Fungi of the fifth group (*M. tropicalis*) produce gas in glucose, levulose, maltose, galactose, and saccharose.
Fungi of the sixth group (*M. guillermondi*) produce gas in glucose, levulose, galactose, and inulin.
Fungi of the seventh group (*M. guillermondi*) produce gas in glucose, levulose, galactose, and inulin.
Fungi of the eighth group (*M. pseudo-tropicalis*) produce gas in lactose in addition to other carbohydrates.
Fungi of the ninth group (*M. pseudo-tropicalis*) produce gas in dextrin in addition to other sugars.
Fungi of the tenth group (*M. zeylanica* type) do not produce gas in any carbohydrates.

Further details on the classification of the various species of the genus Monilia may be found in the *Manual of Tropical Medicine* (Castellani and Chalmers, third edition, pp. 1070-1092). It must be remembered that a certain number of fungi of the genus Monilia have not permanent sugar reactions, and therefore for purposes of classification and comparison such fungi should be investigated, using only recently isolated strains.

Fungi of genus Oidium Link, *emendavit* Pinoy.—This genus is morphologically closely allied to Monilia, but mycelial threads are very abundant both in lesions and in cultures, and budding, yeast-like cells are rare. Fungi of this genus may occasionally induce an acid fermentation but do not produce gas in any carbohydrate. I have found fungi of this genus in certain cases of thrush in the tropic

If there is infection of the terminal phalanx of a finger, an incision removing an area of skin should be made along the lateral aspect of the finger, extending over the tip of the finger to the top of the nail bed; the phalanx itself may be removed wholly or in part, but personally I am not in favour of this as a primary measure, since if the relief of tension can be maintained, it is possible that only a partial necrosis may result. If the whole finger is involved with sloughing of the tendons and general destruction, I think immediate amputation of the finger is indicated, since there is no object in maintaining an area of septic absorption which eventually is going to be a stiff and useless object.

Suppuration may spread from a finger or fingers into the palm of the hand. In the early stages this may be arrested by incisions on the palm between the bases of the fingers. When there is pus in the palm of the hand, however deeply placed, an incision or incisions must be made to open up the whole area of suppuration. This may necessitate division and ligation of the arterial arches, and opening of the carpal bursae, and if so, it must be opened to its full extent by dividing the anterior annular ligament of the wrist.

After any operative procedure for the evacuation of pus, the whole limb is again immobilized on a splint.

In the after-treatment I do not think it is advisable to resort to too frequent dressings; immersion twice a day in a bath of hydrogen peroxide or eusol will assist in the removal of débris and sloughs which may block the exit, but, provided there is sufficient opening, such débris will gradually be cast out.

Splints should not be discarded until all active spread, as indicated by the local condition, pulse and temperature chart, has been arrested, and it is only then that movements of the fingers are to be encouraged. During immobilization the wrist should be kept slightly extended, and the fingers in their natural position of rest—namely, in slight flexion.

Once a tendon or a bone has become infected, no treatment will prevent destruction of a part of such tissue; nevertheless such destruction can be limited by the prevention of further spread. Ultimate movement of the fingers will depend entirely on the degree of destruction of their component parts, and complete recovery is impossible if destruction has occurred. Limitation by soft adhesions only, whether in the joints or tendon sheaths, may eventually be overcome.

Such, very briefly, I believe to be the main principles of the treatment of septic infections of the hand. The slightest indication of inflammation is to be treated seriously, while treatment itself consists mainly in the wise use of a splint and a scalpel.

IV.—G. T. MULLALLY, *M.C.*, M.S., F.R.C.S.,

Assistant Surgeon, Westminster Hospital.

I PROPOSE to confine my remarks almost entirely to the immediate treatment of acute infections of the hand and more particularly to acute infections of the fingers. The less precedes the greater. Efficient early treatment of whitlow will almost completely abolish those terrible spreading infections of the palm which are so tragic in their results.

My purpose is to offer you, very briefly, a definite scheme of treatment in place of the very vague and unsatisfactory teaching which most of us have received. As a student and a house-surgeon I was told that the correct treatment for a whitlow was to open it. As to when to open it or on what principle to decide how big an incision was to be made I was left to find out for myself. I am sure that my experience is that of most of you. Whitlow, which in its economic results is one of the most important of the surgical infections, has been passed over by our teachers in favour of other conditions more interesting and dramatic.

I think it is possible to lay down a rational basis of treatment which can be applied with suitable modification to almost all acute infections of the fingers and hand.

It is necessary, when considering the treatment of a condition which is liable to cause so much suffering and to leave so much disability in its wake, to have clearly in mind the essential features of the disease and a rational explanation of these features. With these as a basis, definite principles of treatment can be formulated.

The most striking feature of the disease is the frequency with which an infection beginning, apparently, in or immediately under the skin spreads to and involves bones, tendons, and tendon sheaths. This spread is a common complication of the cutaneous and subcutaneous infections of the hand—a very rare one in other parts of the body. To me this appears to be the essence of the problem.

What is the explanation? It is to be found, I think, in the anatomy of the hand and fingers.

The hand and fingers are made up of (1) a large bony skeleton, (2) a relatively large amount of almost avascular tendon, (3) skin which is closely applied to the bones, is thick and inelastic over much of its area, and is subdivided into small segments by numerous creases, (4) a very small amount of "soft parts" containing an unduly large share of dense fibrous tissue, the whole being richly supplied with arteries, veins, and lymphatics. These are the essential features of the hand when considered from the point of view of inflammation.

What happens when a finger becomes septic? The starting point is, let us say, a needle prick or a scratch on the terminal segment. This usually involves only the skin—sometimes it extends through the thick skin to the fat underneath—only very exceptionally is the bone or periosteum injured.

The usual phenomena of inflammation appear, pain being especially marked. Whilst the heat and swelling remain limited to the last segment the condition does not differ appreciably from any other superficial inflammation. In twenty-four or forty-eight hours, however, the inflammation spreads above the last crease and the second segment becomes involved in the swelling. The distal half of the finger is now swollen and distended to its full capacity and the tip of the finger is now no longer pink but cyanosed. This stage marks the complication of the inflammatory process by a new factor—that of strangulation. The blood flow through the end of the finger is being obstructed by the greatly increased pressure in the proximal portion of the finger. If this is allowed to persist thrombosis of the veins and lymphatics will follow and bring in its train death *en masse* of the more delicate constituents of the finger—that is to say, the bone and tendon.

The pressure to which inflammatory swelling subjects the vessels of the finger between the rigid bone and the tense hard skin is accentuated by another important point in the anatomy of the finger.

It is noteworthy that on opening a whitlow it is almost invariably found that the pus is limited in its upward spread at one or other of the phalangeal creases. It is unusual to find its proximal limit in the middle of a segment. This is because at these creases the skin is definitely attached by fibrous bands to the bone and consequently can stretch even less than elsewhere. As a result the creases have in the swollen finger the effect of constricting bands and are comparable in their action to the constriction at the neck of a strangulated hernia.

It is, of course, obvious that the process of strangulation we are considering is progressive. Inflammation of the terminal segment begets obstruction to the blood supply and consequently a weakening of the antiseptic processes and a proportionately increased virulence in the infection. Spread to the second segment follows—the same vicious circle is set up and the first segment in natural sequence becomes involved.

Spread from the finger to the hand may and does occur through the action of the same factors. Fortunately, however, the space in the hand between the skin and the bones is large enough to allow of considerable swelling before any injurious pressure is exerted, so that it is only in the worst cases that direct spread takes place.

Infection of the hand from the fingers is more commonly due to spread along the tendon sheaths. These sheaths are in the fingers exposed to all the effects of the strangulation process and indeed help to increase it since they early become distended with fluid. As soon as organisms gain access to this fluid, whether by gangrene of the wall of the

and in the Balkans, but, so far, not in England. I have isolated three species: *Oidium matalense* Cast., *O. asteroides* Cast., and *O. rotundatum* Cast. It is interesting to note that I have found the same species in cases of mycotic tonsillitis, and in the expectoration of certain cases of bronchitis, while I have observed *O. rotundatum* and *O. asteroides* also in the stools of certain cases of enteritis. The description of these fungi may be found in previous papers by me, as well as in Castellani and Chalmers's *Manual*, third edition (pp. 1093-1096).

Fungi of genus Hemispora Vuillemin.—These fungi are characterized by the presence of abundant mycelial hyphae, some of which are conidiophores. Each conidiophore terminates into an ampulliform or sausage-like structure, which is called deuteroconidium. So far only one species of this genus has been found in cases of thrush: *Hemispora rugosa* Cast. This fungus was first isolated by me from a case of mycotic tonsillitis in 1910, and observed in a case of thrush by Pijper in 1915. Two varieties can be distinguished: one liquefying gelatin, the other having no such action on the medium. Botanical details of this fungus have been given in various papers by me and by Pijper, and may be found also in Castellani and Chalmers's *Manual* (pp. 1108 and 1743).

Fungi of the genus Willia Hansen.—These fungi are characterized by the peculiar bowler-hat shape of their ascospores. I isolated a fungus belonging to this genus in Macedonia from a case of thrush in a gipsy. In sugar broths it formed a thick pellicle containing air bubbles. It produced gas in glucose and levulose only. Old cultures on solid media contained asci with two to four spores of the peculiar hat-like appearance. The fungus seemed to be somewhat similar to *Willia anomala* Hansen, but the investigation of it is not yet complete.

Fungi of genus Endomyces Link.—These fungi are on superficial examination extremely similar to those of the genus Monilia, budding elements and mycelial threads being found in the lesions, and mostly budding elements in cultures. There is, however, a very important character which differentiates these fungi: in old cultures of endomyces asci are present. Only once have I come across a case of thrush due to a true endomyces, in Macedonia in 1917. I considered it to be *E. vuillemini* Landrieu.

Fungi of genus Saccharomyces Meyen.—In the Balkans I found a case of thrush due to a typical saccharomyces, which I have only recently studied. Fungi of this genus are characterized by the vegetative body consisting only of budding elements, and by the presence of asci in cultures. The saccharomyces isolated by me ferments with production of gas, glucose, levulose, galactose, maltose, and saccharose. It does not clot milk, which, however, may occasionally become acid. Gelatin and serum are liquefied.

Clinical Varieties of Thrush caused by above Fungi.

I have always endeavoured to study the cases of thrush I have observed both mycologically and clinically, to see whether different groups of fungi are causing different types of thrush. In my experience two principal varieties of thrush may be distinguished: (1) The white, or white-greyish type. By far the most common; characterized by the cream-white colour of the patches, and practically the only type of thrush found in temperate zones. (2) The yellow, or yellow-brownish type; characterized by the yellowish, occasionally brownish, colour of the patches. The first type may be caused by any type of the genus *Monilia* (except *M. zeylanica* Cast. and *M. zeylanoides* Cast.), by *Oidium matalense* Cast., by *Endomyces vuillemini* Landrieu, and by fungi of the genera *Saccharomyces* Meyen and *Willia* Hansen. The second type is caused by *M. zeylanica* Cast., *M. zeylanoides* Cast., *Oidium rotundatum* Cast., and *Hemispore rugosa* Cast.

Conclusion.—Thrush is not caused by one species of fungus only, the so-called thrush fungus or *Odium albicans* Robin, as generally stated. It is caused by a number of different fungi, some of which are botanically very far apart from each other, and belong to separate species, genera, and families. The term "thrush" covers in reality a group of clinically similar conditions, rather than one only; two principal types may be clinically distinguished, the white or grey-white type, extremely common, and the yellow or yellow-brownish type, of rare occurrence.

BRONCHOMYCOSES.

In the tropics bronchial affections due to the higher fungi are quite common, but in my experience they are also met with in temperate zones.

I may perhaps be allowed to say a few more words about the following varieties: (1) Broncho-moniliasis, (2) broncho-mucormycosis, (3) broncho-aspergillosis, (4) broncho-penicilliosis.

Broncho-moniliasis.

This variety of bronchomycosis was described by me in 1905 in Ceylon. The condition has recently been found in many tropical and subtropical countries, and even in the temperate zone. Pijper has described cases in South Africa, and Chalmers and MacDonald and Fahra had a number of cases in the Sudan and Egypt, while Iacono has found several cases in the south of Italy, and several cases have recently been observed in this country. The condition appears to be caused by several different species of the genus Monilia, which I have described on other occasions (see also Castellani and Chalmers's *Manual of Tropical Medicine*, p. 1886).

Clinically a mild type and a severe type of the malady may be distinguished, with, of course, a number of intermediate cases. In the mild type the general condition of the patient is good, there is no fever, and he simply complains of cough. The expectoration is muco-purulent, often scanty, and does not contain blood. The physical examination of the chest is negative or reveals only a few râles. The condition may last for several weeks or months, and may get cured spontaneously, or, continuing, may turn into the severe type.

The severe type closely resembles phthisis. The patient becomes emaciated, there is hectic fever, and the expectoration is often bloody. The physical examination of the chest may show patches of dullness, fine crepitations, and pleural rubbing. This type may be fatal.

The treatment consists in giving potassium iodide, with which glycerophosphates and balsamics may be associated. It is interesting to note, however, that in certain cases potassium iodide has practically no beneficial action whatever.

It is essential to differentiate primary broncho-moniliasis from secondary broncho-moniliasis, which is often found, for instance, in tuberculous cases. It is also necessary to differentiate pathogenic monilias from saprophytic monilias with identical biochemical characteristics. A pathogenic monilia isolated from a true case of bronchomycosis when injected into the lung of a rabbit will produce a most characteristic nodular condition of the lungs, while a saprophytic monilia will not cause any lesion.

Broncho-mucormycosis.

While I was in Macedonia a Serbian was sent to me with the diagnosis of tuberculosis. The patient was very anaemic, very weak, and was losing flesh rapidly; there was slight fever at night; the sputum was mucopurulent. Examination of the chest revealed nothing except a few coarse râles. Examination of the sputum for tubercle bacilli was constantly negative; instead, a few mycelial segments were noticed on several occasions. Glucose agar tubes and other media were inoculated and a fungus was isolated which at first showed cultural characters somewhat monilia-like; in subcultures, however, the characters of a mucor appeared—a yellowish ovoid-shaped "columella," sporangium globular, about 50 microns in diameter, of yellowish colour; spores elliptical and smooth. How did this patient get infected? It is interesting to note that he was in charge of horses and often had to remove horse-dung. As is well known, *Mucor mucedo*, L., is extremely common in horse-dung.

Broncho-aspergillosis.

I have seen several cases of this condition in the tropics, a case in an island in the Adriatic, another in Macedonia. These two cases had been diagnosed as tuberculosis; from one *Aspergillus fumigatus*, Fresenius, was grown; from the Macedonian case a fungus very similar or identical with *Sterigmatacystis nigra*, Cramer, was isolated. In France, as is well known, a peculiar bronchial aspergillosis is common among pigeon breeders (*gaveurs de pigeon*), who

sheath or by direct spread through the wall, they have a direct path leading them into the palm.

Infection in the palm of the hand gives rise to precisely the same phenomena as in the case of the fingers, but on a larger scale. The area available for the inflammatory swelling is bounded by the metacarpals behind and the skin and palmar fascia in front, with the anterior annular ligament and the creases on the anterior aspect of the wrist as a double constriction ring above.

In sum, then, the peculiarities of inflammation in the fingers and hand are due to their special anatomical features which give rise in the presence of inflammation to a process of strangulation.

The principles by which treatment should be guided in accordance with the pathology which I have very briefly indicated are clear and simple: restore the circulation by relieving the constriction and drain the abscess.

I propose to confine my remarks on technical details of treatment almost entirely to infections of the fingers. They are far the most common variety of hand infections, they are the almost invariable precursors of the more serious infections, and their efficient treatment will largely prevent the spread of infection to the palm.

It is a truism that any septic infection of the palmar surface of a finger constitutes a grave disease either actually or potentially. Unfortunately the public and many of ourselves have not yet realized this fact. A patient in the acute and early stages of a whitlow should be as automatically confined to bed as is the man whose hernia has just become irreducible. The affected hand should be put to rest on a splint and should be slightly elevated to assist by gravity the return of fluid from the swollen part. It ill be objected that this is a counsel of perfection and t patients will not submit to so much fuss over a simple oisoned finger." The criticism is probably just in many ses, but the same objection with as good grounds has een raised in the past over the treatment of many other diseases and has only gradually lost weight as we have persisted in our views and educated our patients.

Unfortunately it is only exceptionally that we are consulted at a very early stage of the disease. In most cases pus has already formed before we see them, and in the minority its presence, if not certain, is at least very probable. Where pus is present operation is, of course, imperative—where the presence of pus is doubtful we should be guided by the amount and position of the swelling. If a whole segment or more of the finger is swollen and hard operation is definitely indicated whether pus be present or absent—the chief aim of the incision being to relieve the tension and prevent or relieve strangulation. If the segment is not completely involved in the swelling it is permissible to wait, but if pain and swelling persist in spite of complete rest of the hand then operation should be undertaken.

The preparation for and details of the operation are, I think, of the utmost importance. In practically every case a general anaesthetic should be administered. Only a minority of doctors and patients have the resolution to perform and sustain an adequate incision through the acutely tender tissues of an inflamed finger. Freezing with ethyl chloride is in most cases no anaesthetic at all; infiltration with novocain is almost always unsuccessful in inflamed tissues and has the additional disadvantage of increasing the tension in the tissues and so adding to the danger of the strangulation.

A bloodless field is an enormous advantage in saving time and mess and in enabling the operator to see exactly what are the conditions present. It is readily and safely obtained by the use of a tourniquet above the elbow. With a tourniquet the operation field is changed from a welter of blood in which by continual sponging one gets an occasional glimpse of the tissues to one of comfort and precision. The full advantages are not obtained, however, unless the wound is firmly bandaged before the tourniquet is released. If this is done it is unnecessary to spend time picking up and ligaturing vessels.

The incision should be along the middle of the palmar surface. Its length will be determined by the conditions present. If the terminal segment alone is involved in the swelling it should extend into the next segment so as to divide the palmar crease completely. If two segments are involved the incision should extend into the third, and if the whole finger is swollen the knife should be carried into the palm. If the palm is also tight and hard it should also be split to above the distal crease of the wrist. The object in every case is to divide whatever may be acting as a band of constriction.

There is no need to be frightened of long incisions either in the fingers or the hand; provided the underlying tissues have not sloughed the skin will eventually heal with an almost linear non-disabling scar. It is only by free incision that it is possible to relieve the tension and so arrest the spread of the infection.

In the finger the incision should be carried down to but not into the tendon sheath or periosteum unless they are already involved. In the palm the incision should divide the deep fascia.

When the tendon sheath is found to be infected it should be at once laid open—in the case of the middle three fingers to its termination in the palm; in the case of a little finger the sheath should be opened as far as the common sheath in every case. If there is not pus at the junction no more should be done for the moment—if pus is present in the common sheath it should be laid open as far as the anterior annular ligament. If the pus extends under this, the ligament should be divided and the sheath opened right up into the forearm. Where the incision crosses a nerve this should be identified—usually a simple matter when a tourniquet is used—and preserved as a bridge across the incision.

As soon as the exact condition of affairs has been determined the wound should be washed with saline and packed with dry gauze and firmly bandaged and immobilized on a splint. The tourniquet may then be released and the patient put back to bed with the hand elevated. Morphine should be freely given to relieve pain during the next twenty-four hours.

As regards after-treatment the tight bandage put on to prevent bleeding should be cut through within twenty-four hours, as otherwise it may exert undue pressure, and may give rise to much pain. The dressing itself should not be disturbed for forty-eight hours, and then only the outer gauze. The packing is best left undisturbed for seventy-two hours, when saline or eusol or peroxide baths may be instituted.

To recapitulate:

1. Infections of the hand are remarkable for the serious results which so often follow superficial and trivial injuries.
2. These complications are the result of a process of strangulation arising from the peculiar anatomical features of the hand and fingers.
3. Treatment should be primarily directed to relief of strangulation.
4. It is best carried out by free incision in a bloodless operation field.

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I PROPOSE this morning to confine myself entirely to the infection of various fascial spaces in the hand, which occur as complications in the course of infections of the fingers. I would first like to congratulate this Section on having chosen a subject—so often relegated to the realms of minor surgery—which has such a wide appeal to every class of medical practitioner, owing to the supreme importance of the hand in the wage-earning capacity of our people, and because, on the whole, the disasters which follow whitlows are more appalling than almost any major surgical procedure. Secondly, it is my great pleasure to express the indebtedness which surgeons the world over owe to Professor Allan B. Kanavel for his masterly exposition of the pathology, symptomatology, and treatment of the infections of the hand.

The spaces I would bring to your notice are (*a*) the middle palmar space, (*b*) the thenar space, and (*c*) the distal forearm space, if time permits; and perhaps I may be allowed

ing the war a Serbian soldier was sent to me with the osis of tuberculosis. He was wasting and had serotino The expectoration was muco-purulent, and occasion- bloody. Examination for tubercle bacilli was con- y negative. A few mycelial threads were present. A s was grown with the characters of *Penicillium crus-*, L. Potassium iodide acted satisfactorily.

Tonsillomycoses.

otic affections of the tonsils are far from being rare, ally in tropical countries. The more chronic con- s, especially of the crypts, associated with nocardia- nd leptothrix-like fungi, have been known for many but there are certain acute mycological affections I have described during the last fifteen years, and not rarely have been mistaken for diphtheria— y, tonsillar moniliasis, tonsillar oidiomycosis, and ar hemisporosis.

Dermatomycoses.

rôle played by fungi in diseases of the skin is of ne importance; it suffices to bear in mind the various phytoses, the blastomycoses, the sporotrichoses, the omas. It is interesting to note, however, that h, of course, during recent years the all-important layed by the higher fungi in dermatology has been recognized, not many decades ago most authorities l them any importance, some considering such isms to be merely saprophytes, and others going so far state that the so-called fungi found in the epidermis ne hairs did not exist, these structures merely repre- g a granular degeneration of the epidermal cells. affections may be separated to a certain extent into roups: (1) The trichomycoses. (2) The dermatomycoses *stricto*.

all limit myself to saying a few words on five little- conditions I have investigated: aspergillomycosis beard, cryptococcosis epidermica, accladiosis, furun- cryptococcica, and pruritus ani of mycotic origin.

Aspergillomycosis of the Beard.

ergillomycosis of the beard and moustache appears the form of minute dark-greyish nodules, one or l on each individual hair. The first case I saw in rial Africa in 1902 in an Indian merchant; later ers and myself observed several such cases in Ceylon, ecently I have observed a case in an Italian residing country. The fungi found are generally of the asper- type, but occasionally organisms of the genus Penicil- nay be seen. The simplest treatment consists, of , in shaving, but if the patient does not wish to turpentine will be found useful.

Cryptococcosis Epidermica.

o years ago I noticed on the skin of one of my bunga- ervants in Ceylon several brownish dirty-looking s, which looked very much like dirt. He told me, er, that they did not disappear on using soap. I made ping and saw that these patches consisted of a large r of budding cells which I believed to be saccharo- I found the same patches, not only in other natives, o in Europeans, especially on the chest and arms, and the condition "saccharomycosis epidermica," which l changed later into the more correct designation tococcosis epidermica." I did not succeed in growing ngus. Chalmers and others have confirmed my find- n the Sudan and North Africa, but the organism t yet been cultivated. As to treatment, ordinary vill not remove the patches; sand soap occasionally In obstinate cases the patches may be touched with pholic solution of salicylic acid and then a salicylic- r ointment may be applied. Cases of the same con- I have in recent years observed in the South of

Pinoy, of the Paris Pasteur Institute, who kindly described it botanically, and honoured me by calling it after my name. I quote his description:

"The growth on artificial media (such as carrot, potato, glucose-agar) consists of many small roundish masses, which later on may coalesce, and are covered by spiculated formations, giving them a prickly appearance, and consisting of erect, straight filaments, parallel to each other, or at times interlacing. These filaments are approximately 2 microns in diameter, and carry laterally pseudoconidia of variable shape, cylindriform, pyriform, or spherical, attenuated in size at their points of insertion. Most of these pseudoconidia are 4 microns in length, and have a breadth of 3 microns. This type of fructification recalls the type Accladium described by *Bodin* in certain species of the genus Trichophyton (Malmsten, 1848). These pseudoconidia become detached and then develop by sprouting, and mycelial filaments are formed. Certain filaments produce spherical chlamydospores arranged in small strings, as found in certain fungi of the genus Fusarium. These small chains of chlamydospores are very frequently terminal, the dimensions being variable—8 to 10 microns."

The affection is observed in Ceylon and the Federated Malay States, and during the war I found a case in Macedonia. Clinically this dermatosis is very characteristic; in a well marked case ulcerative lesions are present all over the body; the ulcers are roundish or oval, sharply defined, and with a red granulating fungus. There is often a fairly abundant purulent secretion, which dries up in thick bright yellow crusts covering the ulcers. Occasionally gummatous nodules and furuncle-like lesions are seen. The course of the disease is very long, and generally there is very little or no tendency to spontaneous cure. Potassium iodide when given in full doses is generally successful.

Furunculosis Cryptococcica (Folliculitis decalvans Cryptococcica).

During the last two years I have come across three cases of a peculiar pyosis, which is in all probability of mycotic origin. I will give elsewhere a complete description of the affection; I will limit myself here to only mentioning a few points in connexion with it. All the three cases had been considered to be ordinary cases of chronic furunculosis, and were treated with staphylococcus vaccine for many months without any definite improvement. The lesions in two of them were localized to the scalp, forehead, and neck, in one case scattered all over the body in addition to the scalp. In a well marked case one observes on the scalp some follicular pustules which may be flattened or conical, each pierced by a hair; in addition, fairly large baggy swellings may be present which later open by one or several openings. The hair falls off and patches of baldness are left, and are permanent. Lesions practically undistinguishable from boils may be present on the face and body. The bacteriological examination gives the following result: A staphylococcus is easily grown from all the lesions, but in addition using mycological methods, I have grown a higher fungus—a cryptococcus. I believe the cryptococcus and not the staphylococcus to be the real cause of the condition, for the following reasons: (1) Staphylococcus vaccines do not induce any improvement of the lesions. (2) Potassium iodide in large doses is most beneficial and may cure the condition. It is well known that potassium iodide has no action on staphylococcal infections, in fact it renders them worse; but it has a specific action on many mycoses.

Pruritus Ani of Mycotic Origin.

The enormous number of different drugs, ointments, and lotions recommended in the treatment of pruritus ani clearly shows that the condition must be of very different etiological origin. This, as a matter of fact, has been recognized for many years, and several types of pruritus ani have been differentiated, including a *bacterial* type, certain authorities believing the condition to be of streptococcal origin. I should like to call attention to a variety of pruritus ani which in all probability is of *mycotic* origin. During the last eleven years I have had the opportunity of examining and investigating 49 cases of so-called pruritus ani, and in 8 cases (15 per cent.) I have grown

quite rapidly to define for you the limits of these fascial spaces, because they are not adequately dealt with in text-books of surgery and anatomy.

The Middle Palmar Space.

This, the most important space in the palm, has the following boundaries: Posteriorly, the fibrous sheet overlying the interosseous muscles. Anteriorly, a fibrous sheet which separates it from the tendons of the ring and little fingers and their accompanying lumbricals and the extension of the ulnar bursa. Radially, a fibrous sheet separating it from the thenar space, being attached to the palmar fascia in front, and the fascia over the adductor transversus behind. On the ulnar side, it extends as far as the radial index of the fifth metacarpal; distally, it reaches the level of the inward flexion crease of the palm; proximally, it sends a small isthmus up beyond the wrist-joint into the forearm. In addition, distally, it has three diverticula corresponding to the three lumbrical canals.

The Thenar Space.

This has the following boundaries: Posteriorly, fascia covering the adductor transversus. Anteriorly, palmar fascia and the thenar muscles and the tendons of index finger and of the flexor longus pollicis. Radially, reaching nearly to thumb metacarpal. Ulnar side, a fibrous septum separating it from the middle palmar space. Distally, as far as the radial end of middle flexor crease. Proximally, as far as the carpo-metacarpal articulation of index.

Relations of Spaces to Tendons and Each Other.

It will be seen that the tendon of the little and ring fingers and their lumbrical muscles are in close contact with the middle palmar space; and those of the index finger and thumb similarly with the thenar space. The tendons of the middle finger occupy an intermediate position, but tend to have a more intimate relation with the middle palmar space than with the thenar. It will be noticed also that the two spaces are separated by a fascial sheet which is very dense in its whole length, except at the proximal part, where it is so thin that pus in one space can easily invade the other.

Methods of the Infection of the Spaces.

Middle Palmar Space.	*Thenar Space.*
1. From little finger tendon sheath (if not in continuity with ulnar bursa)	Index tendon sheath
2. From ring finger tendon sheath ...	From longus pollicis sheath
3. From middle finger tendon sheath	Middle tendon sheath
4. From lumbrical canals of little ring and middle fingers	Index lumbrical canal
5. Rupture of ulnar bursa	Rupture of radial bursa
6. Direct puncture wounds	Direct puncture wounds
7. Lymphatic spread	Lymphatic spread
8. From thenar space	From middle palmar space

A realization of these avenues of infection gives great assistance in the difficult task of diagnosis.

Diagnosis.

The diagnosis is obviously of very great importance, for if left untreated the infection will spread in almost every direction, except to the surface, with the most disastrous results to the eventual function of the hand. General symptoms are those common to all severe infections—fever up to 104°, restlessness, hectic flush of the cheeks, and in short a typical picture of toxic absorption. Next the source of the infection must be considered, and, as I have already shown, the site of the primary focus points to very definite probabilities in the infection of the spaces.

Locally we have the following symptoms and signs:

1. Pain limited to the area of the space involved. This is not so accurately limited as in acute teno-synovitis and in a day or two is apt to become less marked, owing to pressure of oedema on nerves.

2. Marked tenderness over area concerned.

3. Swelling (its location and degree) is the most helpful sign we have. In the thenar area, where there is no dense fascia the thenar eminence becomes ballooned in no mistakable fashion. In the middle palmar space the dense fascia prevents anything like the same aspect of distension, but it is enough to obliterate the normal concavity of the palm and, even more, to cause a slight convexity.

Swelling on the dorsum of the hand I wish to lay particular stress upon. Every infection in the palm causes swelling on the dorsum. The inflammatory process early reaches the webs of the fingers by way of the lumbrical canals, and thence spreads rapidly through the loose areolar tissues of the dorsum. Except in direct infections of the back of the hand, primary dorsal abscesses are extremely rare. This point needs special emphasis, because in many hands the dorsal swelling to the untrained eye appears to be the most prominent feature of the case. This is promptly incised, not once but several times, without the least improvement in the hand, and the real abscess remains undrained. In 99 per cent. of cases no incision should be made on the dorsum at all, unless it be to open the thenar space.

4. Position and movement of the fingers do not help much, save that the fingers tend to be semiflexed. They can, however, be moved without much pain and this serves to remove any suspicion there may be of acute teno-synovitis.

Treatment.

The spaces must be opened and drained. The middle palmar space is drained by an incision along one of the three lumbrical canals leading into the space—namely, those of the little, ring, and middle fingers. Usually one will choose that canal which is most obviously infected, either because it was the route by which the space became affected, or shows signs of having become the worst affected. If none of the three call for attack, the best approach is through the little finger lumbrical canal. The incision is shown on the slides; that on the ulnar side opens the space only, the other the space and lumbrical canal. The dotted lines show how these incisions may be combined with those opening the ulnar bursa and those opening the tendon sheaths of the fingers. The incision should not extend higher than the middle flexion crease. The tendons are exposed and under them, following the lumbrical muscle, is thrust a pair of artery forceps. The space thus being opened, a rubber tissue drain is inserted and general treatment instituted.

The Thenar Space.—An incision is made on the dorsum on the radial side of the index metacarpal, corresponding in length to the shaft of that bone. The lower margin of the adductor transversus pollicis is identified, and around this a pair of artery forceps is directed on to the palmar aspect of the muscle. They must not be pushed in beyond the middle metacarpal bone for fear of infecting the middle palmar space. The thenar space is then opened and is drained in the usual way.

VI.—J. E. H. ROBERTS, O.B.E., F.R.C.S.,

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THE subject is so large that I shall confine my remarks to some points in sepsis of the fingers. First with regard to infection in the pulp of the finger. Charles Dorrance of Philadelphia has shown in an admirable paper that there is a closed fibrous tissue space in front of the terminal phalanx and that the arteries to the phalanx, with the exception of branches to its base, run through this space. Sebaceous and sweat glands run down into this space, and it is by the ducts of these glands that infection may gain entrance. In my experience direct infection by pricks, etc., does not occur in a considerable proportion of cases. The usual history is that at first a pricking feeling is noticed, and when the finger is examined the pulp looks a little more prominent, and feels hot; later it begins to throb. At this stage the veins are compressed within this fibrous sac but the arteries are still patent. At the end of twenty-four to forty-eight hours all throbbing ceases because the tension is now high enough to close the arteries, necrosis of the phalanx is now certain though the base of the phalanx escapes because its blood supply comes from outside the sac.

All cases should have general anaesthesia—gas is sufficient—and a tourniquet. An incision passing close to the end of the nail and continued down the sides of the fingers to within a short distance of the lower end of the phalanx provides perfect drainage by raising an anterior flap and avoids damage to the nerve plexus in the pulp of the

from scrapings of the anal-perianal region, using mycological methods of cultivation, fungi of the genera Epidermophyton and Trichophyton—namely, *Epidermophyton cruris* Castellani 1905 (= *E. inguinalis* Sabouraud 1907) in 5 cases; *E. rubrum* Castellani 1909 in 2 cases; a Trichophyton not yet classified in one case. The condition may be compared to the well known pruritus interdigitalis pedum, which is due to the localization in the skin of the toes of fungi of the genera Epidermophyton and Trichophyton. These fungi remain in a dormant condition for years, and apart from the pruritus they give rise to scarcely any other clinical symptom; as a rule there is no sign pointing to a ringworm condition, but a slight desquamation may be present and occasionally fissures. A somewhat similar process takes place apparently in the anal-perianal region. Fungi of the genera Epidermophyton and Trichophyton are capable of localizing themselves there, giving rise to practically no objective symptoms, although on close examination not rarely small red infiltrated patches may be seen, and occasionally an eczematous dermatitis due to scratching may develop. None of my 8 cases presented acute symptoms of dhobie itch (tinea cruris, tinea inguinalis) of the inguinal region, but 6 gave a history of having suffered from it years previously. Two of the positive cases were suffering also from pruritus interdigitalis pedum; and in both cases *Epidermophyton cruris* was isolated from the scrapings of the skin of the toes.

In my experience pruritus ani of mycotic origin has no tendency to spontaneous cure. The fungus remains in the perianal region indefinitely, practically dormant, but giving rise to severe pruritus which may stop completely for certain periods of time.

Treatment.—I have found that silver nitrate is often very efficacious (arg. nitr. gr. xv to spir. aether. nitr. ʒj), but it should be used with great care. An ointment containing one or two grains of chrysarobin to the ounce is sometimes very effective. This, too, should be used with great care. Tincture of iodine may also be used. I have found a potassium permanganate lotion (gr. xxx to the ounce) useful, and also an ointment containing salicylic acid and sulphur (gr. x of each to 1 oz. of vaseline). When an eczematous dermatitis due to scratching is present, it is better first to use a soothing lotion such as lead lotion, and then when the acute symptoms of dermatitis have disappeared the antimycotic treatment should be started.

DISCUSSION.

Dr. CAWADIAS (Athens) said that he thought that not only in the tropics but in Europe also many more cases of fungus diseases could be found if they were looked for. Diagnosis was made principally by means of culture; it was not possible to find fungi in routine examination. Most cases were mistaken for tuberculosis or syphilis; an illustration of this was the finding of many cases of sporotrichosis and other mycoses in Paris during systematic research following the work of De Beurmann and Jougerot. An interesting point was the rôle of fungi in some cases of chronic ulcerative colitis met with in Greece. In one case monilia was the causative agent.

Dr. HASWELL WILSON pointed out that streptothrices and fungi were a much commoner cause of suppuration than had been generally recognized. He asked Dr. Castellani for information regarding the nature of the lesions of fungal infection in the kidney in rabbits, and the effects of vaccine therapy in human cases of infection due to fungi.

Dr. DUKES asked Dr. Castellani if he regarded the biological method he had described for the identification of sugars as an accurate one. He pointed out that profound changes took place when sugars were heated in the presence of peptone, leading often to the production of fermentable substances from which the organism could produce gas, though without action on the original carbohydrate. He suggested that the method had serious limitations since it was generally recognized that gas production was the most variable of an organism's attributes. In his opinion the method might have merit in determining the purity of a sugar provided careful precautions were taken against the changes incident on sterilization.

Dr. MACKEDDIE (Melbourne) sought information on the apparently successful treatment of fungoid conditions of the skin by vaccines. The lung nodules in rabbit's lung after intravenous injection of the fungus was stated by Dr. Castellani to be almost identical with tuberculous nodes, giant cells, etc.—it must be a very disconcerting result. He stated that fungoid pathological conditions must be much more common than they had any idea of—colonic, pulmonic, and skin.

Dr. MACKENZIE WALLIS (London) referred to the three points raised by Dr. Castellani, and which he advocated as a means of differentiation as to whether the fungus was parasitic or saprophytic. He cited examples where these points applied. In his opinion the study of fungi in disease should receive more general recognition, especially as diseases due to this cause appeared to be much commoner than was supposed.

Dr. Castellani's Reply.

In his reply Dr. CASTELLANI stated that though fungal diseases were commoner in the tropics they were not rare in this country, being found frequently in patients who had never been abroad. With regard to colitis, the present tendency was to regard such a disease as sprue to be caused by a dietary deficiency, but the frothy character of the stools was caused by a monilia which might or might not be the cause of the disease. To Professor Wilson he replied that not much structural change was found in the infected kidneys of rabbits, the lesions being caused by a blockage of the glomeruli and tubules by the fungus. In a general way the results of vaccine therapy were disappointing, but in cases of infection with nocardia, actinomycosis, and streptothrix the results were often satisfactory. To Dr. Dukes he replied that the sugar and peptone must certainly not be autoclaved together, and recommended filtration of the sugar solution to ensure sterility. He was of the opinion that the method might be of value clinically in the identification of excreted carbohydrate. To Dr. Mackenzie Wallis he replied that though vaccine treatment was often disappointing, good results could be obtained by large doses of potassium iodide: 30 grains of potassium iodide should be mixed with 30 grains of sodium bicarbonate, and glycerin or syrup added to prevent the formation of a precipitate. Such treatment gave remarkably consistent results.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HAEMORRHAGIC PANCREATITIS IN A BOY.

A YOUTH aged 17 was sent in to the King Edward VII Hospital, Windsor, by Dr. Hornibrook of Gerrard's Cross, on account of a sudden attack of acute abdominal pain, which had come on four hours previously. His history gave little information, being only an account of vague epigastric discomfort for a few days.

Incision showed great oedema of the peritoneum of the lesser sac, but no fat necrosis. The pancreas was large, swollen, and infiltrated with blood clot. An incision was made into it and a swab taken for bacteriological examination. The gall bladder was dilated, and on being opened was found to contain thin faecal-smelling pus. The bladder was drained, but the boy died two days after operation. The culture from the pancreas and from the gall bladder yielded *B. coli*.

Pathological Notes by Dr. Elgood.

There was some loose blood and serum in the abdominal cavity but no visceral inflammation and no peritonitis. The pancreas was greatly swollen and softer in consistence than normal; it was dark purple in colour, with thin strands of lighter colour. Section shows that this condition is not uniform, for while at the tail the consistence is softer than normal, but not greatly so, there is obviously a good deal of blood in its interstices, and as the

Case 13.

A man, aged 69, had noticed dryness of the throat for four months; the teeth were very foul and he smoked about 3½ ounces of tobacco a week. An epithelioma was found involving the left tonsil and extending to the anterior pillar and soft palate; the tongue showed leucoplakia. The growth was diathermized, an enlarged gland in the neck was removed for examination, and the external carotid was tied; the gland was found to be inflammatory. There was no recurrence one year and eight months after operation.

Case 14.

A very old gentleman, aged 75, was found to have a large epithelioma of the right tonsil, extending on to the mucous membrane covering the lower jaw. The patient refused to have the glands removed, but he consented to preliminary ligature of the external carotid, which was carried out, together with a thorough diathermy of the primary growth. The patient made a speedy recovery, and there was no recurrence one year and seven months after operation.

Case 15.

A woman, aged 71, had an epithelioma of the right side of the tongue and adjoining portion of the floor of the mouth, adherent to the lower jaw. There were enlarged glands in the neck. The growth was thoroughly removed by diathermy, and subsequently the glands were removed from both anterior triangles. There was no recurrence one year and four months after the operation. It will be noted that this was a case of carcinoma of the tongue occurring in a woman.

Case 16.

A man, aged 38, was found to have a carcinoma occupying the whole of the right antrum. The bone was so extensively involved that it was found impossible to remove the tumour completely, and the growth was therefore scraped away with a sharp spoon, and the whole of the cavity subjected to diathermy. A fistula subsequently resulted, and it is hoped at a later date to close the fistula by a plastic operation. There was no recurrence over two years after diathermy.

Case 17.

A man, aged 64, complained of difficulty in swallowing for a month, and of pain in the region of the back of the tongue. He smoked 1½ ounces of tobacco a week, was a heavy drinker at one time, but had been temperate for the last ten years; he was in the habit of drinking very hot tea; his teeth were very septic. A carcinoma of the uvula and soft palate was found, involving the upper extremity of the anterior faucial pillars on both sides. The growth was freely destroyed by diathermy, and although no enlarged glands were felt, the anterior and posterior triangles on both sides were cleared out by "block" dissection. There was no recurrence two years after operation.

REPORT ON A CASE OF DIABETES TREATED WITH INSULIN.

BY

E. I. SPRIGGS, M.D., F.R.C.P., D. V. PICKERING, M.B.,

AND

A. J. LEIGH, B.Sc., A.I.C.

(From the Duff House Laboratories, Ruthin Castle, North Wales.)

THE following observations were made in co-ordination with the scheme of work arranged by the Medical Research Council at various hospital centres.

A man aged 47 was selected as a moderately severe case of diabetes mellitus, who had been observed with some detail over a period of eight years. He was an officer in a Highland regiment and noticed thirst and polyuria a month after the outbreak of war; but he could, at that time, march twenty-five miles. Four months later (January, 1915) he went to Belgium, was speedily exhausted, sent home in February, and came to Duff House, Banff, in March. Since then he has been readmitted five times. He is accurate and conscientious, and has, in the intervals, followed the régime prescribed by his medical advisers here and at home.

In the eight years this patient has been observed under each of the three methods of treatment which have been in vogue in the present generation—namely, (1) restriction of carbohydrate, without restriction of other foodstuffs; (2) the fasting treatment, with subsequent restriction of all foods; and (3) insulin.

Table I gives the weight, state of the urine, the blood sugar, and the calories and carbohydrates in the food at the beginning and the end of each of his former visits to Duff House.

The ascertained maximum tolerance, without glycosuria, for calories and carbohydrate at each visit is shown in Table II.

TABLE II.—*Showing the Maximum Tolerance for Carbohydrate and Calories on the same Five Occasions.*

Year.	1915.	1918.	1919.	1921.	1922.
Calories ...	3,190	3,176	2,334	2,304	935
Carbohydrate	56	61	166	127	25
Glycosuria ...	0	0	0	0	0

The table shows that the complaint was at first of a mild type and responded well to treatment; but the deterioration of tolerance is clearly seen. In the last two years especially the patient has found increasing difficulty in keeping anything like sugar-free. His present occupation is not exacting, entailing mainly the duties which fall to the lot of a country gentleman of moderate means and quiet tastes who looks after his garden and animals. But he had been less able to do work and had become progressively more miserable and depressed of late.

The insulin used at first for this patient was prepared here by one of us (A. J. Leigh), who had the advantage of seeing the method carried through at the National Medical Research Council laboratories at Hampstead, and would like to acknowledge his indebtedness to Drs. Dale and Dudley. The mode of preparation was that of Collip, modified by Dale and Dudley. In one point we varied the procedure; this was that we got the use of a small building at the slaughterhouse and minced the fresh pancreas directly it was taken out of the animal, adding the alcohol on the spot and transferring the mixture to the laboratory afterwards. On May 9th and

TABLE I.—*Showing the Condition on Admission and on Leaving on Five Previous Occasions.*

Date.	Weight in Kilos.	Glycosuria. Grams in 24 hours.	Ketonuria as Acetone). Grams in 24 hours.	Blood Sugar Percentage.	Diet. Calories in 24 hours.	Diet. Carbohyd. Grams in 24 hours.	Treatment.	Remarks.
1915. March 24 ...	72½	15	Trace	0.17	2,800	25	Strict diet till glycosuria remained steady; then carbohydrate tests	
May 19 ...	74	4	Small amount	0.16 (May 17th)	3,000	80		
1918. March 16 ...	67	0	0	0.15	3,000	25	Returned for a week for observation	With steady restriction of carbohydrate urine had become sugar-free.
March 21 ..	67	0	0	0.12 (Mar. 12nd)	3,064	41		
1919. July 4 ...	74½	Trace	0	0.12 (July 6th)	2,904	73	Returned for further tests. Carbohydrate gradually increased	Tolerance had improved still further.
August 19 ..	70½	0	0	0.17	2,197	138		
1921. May 2 ..	62½	12	Trace	0.13	1,535	27	Fasting and limitation of total food	In interval fasting treatment had been started owing to much glycosuria and feeling out of sorts. Tolerance reduced, but good.
June 23 ...	62½	0	0	0.16 (June 24th)	2,393	105		
1922. March 21 ...	63	74	Trace	0.14	1,917	11	Limitation of diet (less drastic towards end)	More ground had been lost. Patient insisted on increase of diet beyond his tolerance, contrary to advice.
April 14 ...	63	86	0	0.26	2,556	63		

10th the insulin used was that supplied from the British Drug Houses. We tested this material on rabbits for comparison with our own insulin.

The details of the experimental period of administration of insulin are shown in the accompanying charts.

Experimental Period.

The patient had been upon a fairly constant diet. A similar diet was continued for these observations, and for the first eleven days (April 19th to 29th) it was fixed both in quantity and quality, except that carbohydrate was added experimentally on two days. The diet contained carbohydrate 17, protein 133, fat 98; calories 1,430. The carbohydrate addition consisted of 60 grams of white bread on the 20th and 23rd. The blood sugar was estimated hourly from 8 a.m. to 9 p.m. for the first five days—that is, fourteen times a day. Later it was taken three times a day—at 8, 12 and 6.30.

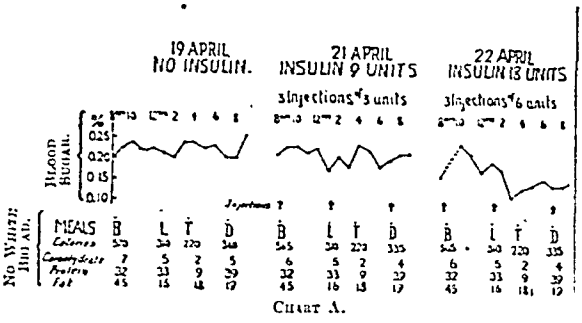

CHART A.

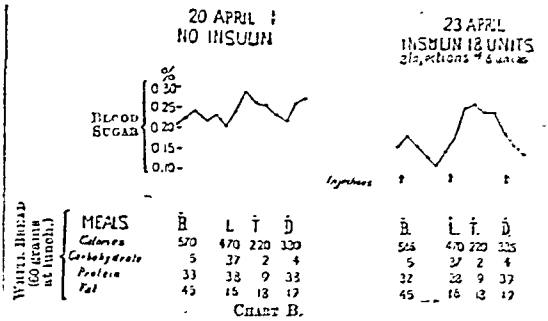

CHART B.

In the records of the case the following points are to be noted.

1. A reduction of the general level of the sugar in the blood after insulin was given, noticeable with 9 units (3 rabbit doses) in three hypodermic doses a day (see Chart A), considerable with 18 units in three doses, and later with 12 units in two doses a day. The effect was greatest four hours after a dose. With repeated meals the sugar was rising high again eight hours after a dose, though not so high as it had been on the same diet without insulin. The effect of the insulin was also definite the following morning, as the blood sugar, on a constant diet, was not so high when insulin had been given the day before. (Chart C; compare 8 a.m. blood sugar on 28th and 29th with that on the 19th, 20th, and 27th.)

2. On the addition of 30 grams of carbohydrate (60 grams bread) to the mid-day meal (April 23rd) immediately after the mid-day dose of 6 units of insulin (Chart B) the percentage of blood sugar rose sharply and remained high for three hours. The rise was of the same character as that obtained by giving the same dose of carbohydrate on a non-insulin day; it was, indeed, though not absolutely so high, relatively more pronounced on the insulin day, but allowance must be made for the fact that the general level of the blood sugar was lower. Such a flooding of the blood with sugar immediately after carbohydrate food is a normal phenomenon which is exaggerated in diabetes. It is hardly to be expected that insulin, at all events in a small dose, would affect it. There was, of course, also a rise of blood sugar after meals of protein and fat, but it was less high and much slower. In view of these facts it appeared wise to make additions to the diet in the form of protein and fat and not of carbohydrate.

3. The sugar in the urine (Chart C) fell from round about 50 grams a day to zero, reappearing when insulin was discontinued and falling again when it was resumed.

4. The acid bodies, expressed as acetone (estimated by van Slyke's method), totalled about 4 grams a day. With 12 units of insulin daily this was reduced to less than 1 gram. The curve of acid bodies shows a reduction, to be expected, apart from insulin, on the two days on which extra carbohydrate was given. The reduction of acidosis is shown also by the figures for the ammonia in the urine. The percentage of the total nitrogen in the urine which was in the form of ammonia fell from 7.4 per cent. to below 5 per cent.—a *normal level*—as soon as insulin was given, and has remained about that figure since.

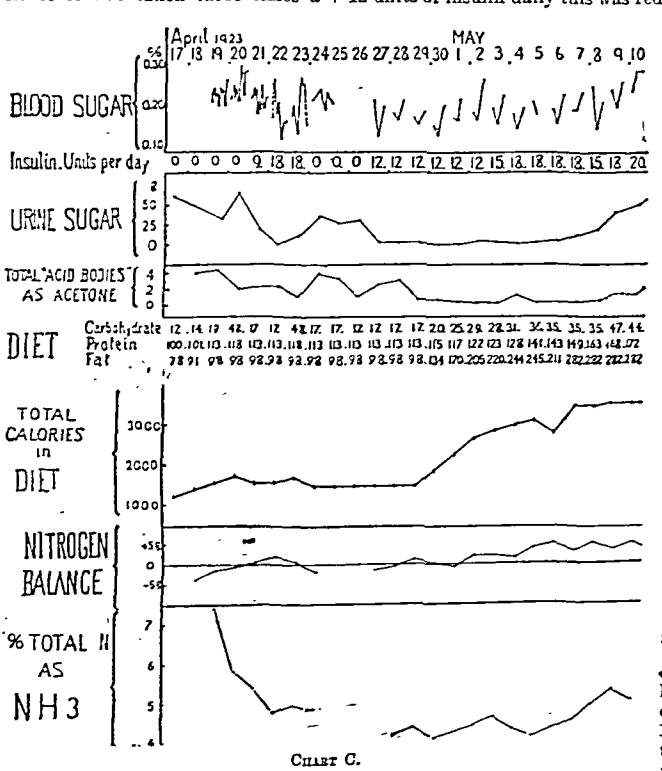

CHART C.

5. For over a year it had *not been possible* for this patient to take food of the value of more than about 1,000 calories a day without sugar appearing in the urine in varying quantity. With 12 units of insulin a day in two doses he took 2,500 calories with no sugar in the urine, or traces only. With 18 units he took over 3,000 calories with less than 10 grams of sugar in the urine. Insulin enabled him, therefore, to reach a new and much higher level of tolerance.

6. When insulin was given the nitrogen balance became positive. When insulin was omitted it became negative again.

7. With experimental increase of food, chiefly protein and fat, up to 3,500 calories—that is, above the new level of tolerance with 18 units of insulin—there was a rise of

head is approached the redness and softness increase, till the tissue is almost diffluent in places. The cystic duct was dissected down, and at the commencement of the common duct a probe was passed down to the duodenum. Though this traversed the duodenum, it apparently did so by accident, for closer examination suggested that the duct itself was blocked actually when in the walls of the duodenum, the block being caused by a chain of small gall stones (the largest the size of a pea) which were readily apparent under the mucous membrane. The pancreatic duct was observed close up to the obstruction, but the entrance of the main duct into the duodenum could not be satisfactorily made out.

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Windsor.

HEAT-STROKE: HYPERPYREXIA: RECOVERY.

THE following report of a case of heat-stroke which occurred in my practice in the country, with no cottage hospital or motor ambulance in the district, is of interest, and may be of assistance to any practitioner similarly placed who has not seen such a case.

On July 12th, about 1 p.m., whilst on my rounds, I was called urgently to see a farm labourer, aged 67, who had collapsed on his way home from his work in the fields about a quarter of an hour earlier, and had been carried to his cottage in an unconscious and what appeared a dying condition.

I found him lying on a couch absolutely unconscious, with a grey, ashen face; the breathing was shallow and irregular; the pupils were pin-point and fixed, and conjunctival reflex was lost. His body skin was dead white and mottled. The mouth and tongue were dry and hard. The temperature in the rectum was 109° F. His pulse was rapid, irregular, and bounding. He looked as if he would die at any moment.

I had him stripped and placed on an improvised bed. I sent his employer, the farmer, in his motor car to the nearest town, six miles away, for ice. Meanwhile, I had him sponged and douched with cold water and gave him a high enema of a quart of cold water. This was partly returned, but after ten minutes his bowel commenced to act, and with the assistance of massage along the colon a large quantity of faecal matter was evacuated. On arrival of the ice, some half-hour or so later, I had him rubbed down with blocks of ice, a block of ice placed behind the neck, and an ice-bag, improvised out of a sheep's stomach, placed on his head. An interesting detail was that we had to wait for a sheep to be killed to get this improvisation; but this was available by 2 p.m. from the local slaughter-house, where they were on the point of killing at the time.

The village nurse then gave him a high enema of ice water, and this was continued (washing out the rectum with three or four quarts of ice water) for over half an hour. By this time the rectal temperature had dropped to 100° F., and the patient showed signs of improvement, though he was still unconscious; the conjunctival reflex had returned and his breathing had become loud and stertorous. A quarter of an hour later the temperature was 97° F. and the patient showed signs of collapsing; his muscles were twitching and his pulse had become very feeble.

I then gave him a hypodermic injection of strychnine sulphate gr. 1/60, digitalin gr. 1/100, and had him transferred back to the couch and wrapped in blankets, with hot-water bottles placed to his feet and legs. The shivering rapidly ceased and he lay quiet but unconscious; his pulse steadily improved. The mottling of the skin, too, soon disappeared, and the temperature rose to 99° F. By this time it was 3.45 p.m. I left him with instructions to sponge with ice again if the temperature in the rectum rose above 103° F.

I saw him again at 7.15 p.m. and found him still unconscious, breathing quietly but irregularly, with a fast, weak pulse. I again gave him a hypodermic as before, and his pulse gradually improved. The temperature had risen to 101° F., but was not increasing. At 9 p.m. I had him carried from the cottage to a shelter near by that had been used by a tuberculous patient in the adjoining cottage.

At 9.15 p.m. he was given a few drops of brandy between his lips, and this, with the cool night air, seemed to revive him, and he suddenly regained partial consciousness and was able to swallow a little iced water. He tried to speak but could only stammer, and then was violently sick, vomiting up dark, bile-stained fluid. After this he seemed better, and was able to understand signs. No further treatment was considered necessary then and the village nurse sat up with him during the night. When I saw him at 11 a.m. the following day he seemed to have almost completely recovered and had slept well. His face, which even late the night before had been grey and cyanotic, was then flushed red and he was able to talk easily and had no pain. The temperature was normal. During July 13th he was able to take some barley water and weak tea, and was given a diaphoretic mixture. He vomited several times during this day; the conjunctivae were slightly yellow.

On July 14th he complained of severe headache; the temperature was normal, pulse 74 and good, but the vomiting had continued. I then gave him castor oil ʒ ss. in brandy, which had a very good result. On July 15th, except for some giddiness, he was quite normal.

The treatment, which I had applied many times in India, seems to have had markedly good results despite the age of the patient and the improvised appliances. I think that had we attempted to remove him to hospital he would have died on the way. It is of supreme importance not to sponge with ice after the temperature drops below 100° F. in the rectum, and when this occurs to prepare against collapse by supporting the heart with digitalis and strychnine and hot-water bottles, and then to watch that the temperature does not again rise above 102° F.

Had the temperature not responded to the ice treatment I should have had recourse to bleeding, and if this failed, as so often it does owing to the viscosity of the blood, I should have given him an intravenous saline if possible. The recorded air temperature on July 12th was 92° F. in the shade, and this with a high reading of the wet bulb thermometer always spells danger from heat-stroke, as the main channel of heat reduction through evaporation of the perspiration is so greatly lessened. I should think, too, that the loaded state of the bowel helped to produce the catastrophe.

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Arlesey, Beds. Major, R.A.M.C. Reserve of Officers.

Reports of Societies.

PROBLEMS OF OBSTETRICS AND GYNAECOLOGY.

THE Edinburgh Obstetrical Society held the first meeting of its eighty-fourth session on November 14th, with the President, Dr. LAMOND LACKIE, in the chair. The officials for the current session were appointed, Professor B. P. WATSON being elected president. The retiring president, before vacating the chair, delivered his valedictory address.

Dr. LACKIE thanked the society for the honour done him in electing him to the presidentship two years previously, and acknowledged the support given him by the different officials. He referred to the losses sustained by the society in the death of various members, in particular Sir James Affleck, Sir J. Halliday Croom, Dr. John Craig, and Dr. J. W. Ballantyne. He then proceeded to review the progress made in certain branches of obstetrics and gynaecology during the past twenty-five years.

In spite of the great amount of work done the problem of eclampsia still seemed as far as ever from solution; while this was so the recognition of the value of conservative treatment with a minimum of obstetric interference had led to a diminished mortality. The conclusions to which the discussion on this subject at the congress in Liverpool in 1923 had led were briefly considered. The speaker still regarded veratrone as one of the most valuable therapeutic agents at their disposal.

Going on to speak of Caesarean section, Dr. Lackie said that within recent years the operation had become so safe that there was a risk of its indications becoming too numerous, and he was convinced that it was occasionally undertaken without sufficient justification. Certain indications for Caesarean section were shortly reviewed, special mention being made of its employment in placenta praevia, concealed accidental haemorrhage, and in heart disease. Recent improvements in technique were briefly discussed.

There had been no change of note in the actual mechanical operation of induction of premature labour, but the induction of labour at full time was a commoner operation than formerly. Every case going beyond the expected date of parturition demanded careful investigation; for the induction of labour in such cases pituitrin was of great value and was more often successful than when used at an earlier stage in pregnancy. The danger of indiscriminate use of the drug during labour was pointed out.

Reference was then made to the induction of pneumoperitoneum and the use of x rays, which in America was regarded by some as a valuable aid in the diagnosis of pregnancy. On similar lines radiography had recently been employed in the diagnosis of tubal patency, and had been carried out by Rubin's method of gaseous insufflation of the uterus and tubes. Kennedy had also located the site of occlusion by radiographic examination after filling the

Nova et Vetera.

THE FATE OF LAVOISIER.

ARE all the famous sayings to be discredited?

We are told that the French Guards at Fontenoy did not request the English to fire first, that Wellington did not cry "Up, Guards, and at 'em!" nor Cambronne "The Guard dies but does not surrender," at Waterloo. Recently several attempts have been made to prove that the famous saying to the effect that the French Republic had no need of savants was apocryphal.

A note published on October 20th (p. 727), in which we quoted from the author of the paper under notice a list of martyrs to science containing the name of Lavoisier, has brought us the following letter from Dr. Arthur Lynch:

"When an error either in history or in science is repeated often enough it obtains a sort of official consecration, but that is not quite the same thing as the truth. This is apropos of your notice of Mr. Harry Cooper's article, in which Lavoisier is included among the martyrs to science. That was not the case. The great chemist was executed as a 'profiteer.' He had married the daughter of a banker to whom public taxation had been farmed. The Revolutionists were very bitter against this class, and it was in spite of, and not because of, Lavoisier's achievements in science, that he was guillotined. What then becomes of the famous saying 'The Republic has no need of savants'? Nothing becomes of it, for it was never uttered. It was invented in a style the secret of which is still not lost by the Royalists, and used for propaganda."

We are disposed to agree that Lavoisier was executed along with the other farmers-general because he was a farmer-general. But we are not on that account compelled to accept Dr. Lynch's sweeping denial of the story that the infamous Coffinhal, vice-president of the Revolutionary Tribunal, dismissed the illustrious chemist's plea for a fortnight's respite with the words "The Republic has no need of savants or of chemists." There is very respectable and almost contemporary authority for it and indeed every probability that the reply was actually uttered.

The Farmers of the Revenue, of whom Lavoisier was one, were ordered by the Convention to produce their accounts. To do so fully was difficult or impossible because a great many of the necessary documents had been destroyed in the disturbances of the earlier days of the Revolution. In 1794 they were arrested but allowed access to their papers; they offered to pay 22 million livres, but in vain. Thirty-five of them were brought before the Tribunal and condemned to death. The only charge that was at all seriously examined was that of having watered the tobacco, of which they had the monopoly, and thereby—it is to be supposed—having aided the enemies of France. They had done nothing worthy of death, but they were "aristocrats" and rich and their estates were to be confiscated.

In Volume XIV of the *Procès fameux jugés avant et depuis la Révolution*, par le citoyen Desessarts, published in 1797 (only three years after Lavoisier's death), we have an almost contemporary account of the circumstances.

Vice-president Coffinhal, who was the judge, was one of Robespierre's adherents up to the very last, and of Robespierre we are told that it was notorious that he hated men of talent and still more men of genius, and that it was to this passion that Lavoisier owed his death. Marat also had a fierce grudge against Lavoisier as a man of science, as Michelet distinctly states.

"This great revolutionist," (in science) "Lavoisier, would not have been able to make his revolution, had he not been rich. It was for this purpose that he had desired to be a farmer of the public revenue. Far from assuming in this capacity a fiscal spirit, he advised the lowering of several imposts, maintaining that the revenue, far from diminishing, would increase. When appointed by Turgot director of the powder-magazines, he abolished the vexatory custom of searching the cellars in quest of saltpetre. Lavoisier, far more known than the other farmers of the revenue, had to undergo alone the whole of the too natural animosity of the people against that body, so fatal to the state. He had taken the principal part in a measure necessary for the salubrity of Paris, which then occupied the minds and excited the imaginations of men, the removal by night of the bodies that had been heaped together for so many ages in the cemetery of the Innocents. They also attributed to him, without any proof, the plan of the new wall with which the *Ferme-Générale* surrounded Paris. Marat reproaches him with having wanted with that wall, 'to deprive the city of air' and stifle it. . . . His (Marat's) persevering accusations, reiterated in several ways, prepare the scaffold for Lavoisier. The latter, who plainly perceives that having done so much, and so much to do, his life is of inestimable value to the world, never thinks of flying. He could never guess the fatal stupidity that could deprive science and mankind of so precious a life. And yet hatred, fomented by Marat, increases. He had been unable to annihilate Newton; so, to console himself, he is determined to destroy the Newton of chemistry."

According to Michelet, Marat held a theory of light which was to overthrow Newton's, but the French men of science easily disproved it. As Lavoisier was the most distinguished man of science in France, Marat had a spite against him. Michelet, of course, was an apologist for the revolution and anything but a Royalist. He does not refer to the saying, "The Republic has no need of savants!" But he is clearly of the opinion that Lavoisier was guillotined because Marat hated him *as a man of science*.[1] It may be objected that Marat was murdered ten months before the death of Lavoisier; but his influence survived him.

As soon as Lavoisier was ordered to be sent before the Revolutionary Tribunal, he foresaw the fate which awaited him and asked for a fortnight's respite. "I need this time," said he, "to complete some necessary experiments in some important work in which I have been engaged for several years. I do not cling to life, I will sacrifice it to my country." The brutal Coffinhal, says Desessarts, "this tiger of human aspect, made this barbarous answer to Lavoisier: 'La République n'a pas besoin de savans ni de chymistes: le cours de la justice ne peut être suspendu.' Thus was Lavoisier included in the batch of (28) farmers-general and condemned to death with them for having mixed water and harmful ingredients in the tobacco which the farmers sold." The same writer says that Lavoisier had rendered valuable service to the State in matters financial. He was called upon in 1791 to help in the reorganization of the national Treasury, in which he established such a system of accounts that it was possible every night to tell the exact position of the public balances. A financier, hated by Robespierre and by Marat, who had denounced him in his Journal, Lavoisier knew well that to be accused was to be guillotined. Marat, as Michelet says, aspired to scientific distinction, of which the French Academy considered him unworthy. In this there was cause enough for his prejudice against the great discoverer of oxygen. Marat was unfortunately a member of our profession, and there seems no doubt that he received the degree of M.D. from the University of St. Andrews.[2] Marat did not pass an examination for the degree, which was granted on the recommendation of two doctors of medicine resident in Edinburgh, and probably did not even go to St. Andrews to receive it. Coffinhal had been a medical student, but he seems to have had no liking for the work, and for him we need not blush. He is described as being particularly repulsive in appearance and as being in the habit of bullying prisoners and making brutal jests. When any of the accused attempted to defend himself Coffinhal would shout, "Tais-toi, tu n'as pas la parole!" (Hold your tongue, it is not your turn to speak.) On one occasion he condemned a fencing-master to death, and looking hard at him he said, "Well, old cock, parry that thrust if you can."

He seems to have been a burly and passionate ruffian, for when Hanriot, who commanded the soldiers of Robespierre's party, came to report his ill success, Coffinhal in rage and disappointment threw him out of the window—a way of marking disapproval which was surely excessive and certainly unnecessary. He escaped arrest for a time but was not long afterwards betrayed and executed. It poured with rain on his last morning, and many of the crowd used their umbrellas to thrust him violently in the chest, crying, "Ha! Coffinhal, parry that thrust if you can!" While others shouted, "Coffinhal, Coffinhal, tu n'as pas la parole!"

Our sense of justice may be gratified by reading of his fate, but the blood of all the ninety-six, including Robespierre, who perished in the affair of Thermidor, could not make up for the loss of the great chemist at the age of 50. The small gang of homicidal fanatics and ruffians who had usurped control of the Republic during the Terror had no right to speak in her name. Before and after this time the French Republic thoroughly appreciated the importance of science to the State.

[1] See Michelet's *History of the French Revolution*. Translated by G. Cocks. (London: Bohn. 1848.) Vol. II, pp. 546-7.

[2] *Two Medical Tracts by Jean Paul Marat, M.D.* Edited, with an Introduction, by J. B. Bailey. (London, 1931.)

organs with a 20 per cent. solution of sodium bromide under pressure.

Several recent advances in gynaecology were then considered. The treatment of dysmenorrhoea was still a vexed question. At the British Obstetrical and Gynaecological Congress which met in Edinburgh in April last very diverse opinions had been offered by those who took part in the discussion. Professor Blair Bell had made a plea for a more accurate study of the pathology of the condition and a clearer definition of the various causes of pain, and had shown that with some fault in endocrine balance underdevelopment of the uterus was often an important factor and might manifest itself in different directions. Blair Bell had urged that in such cases effort should be directed towards stimulating the ovaries and uterus to fuller development, and with this in view advocated the use of thyroid and ovarian extract. For one form of underdeveloped uterus—the cochleate uterus—vaginal hysterotomy had been recommended.

A method of treating gynaecological disease which had within the last fifteen years come rapidly to the front was that of radiotherapy, with regard to the employment of which much difference of opinion had been expressed. As regards carcinoma, Dr. Lackie said that radiotherapy should be regarded not as an opponent of operation, but as an adjunct, or as an alternative where operation was contraindicated. The indications for radiotherapy in uterine fibroids, in chronic metritis, and in the uncontrollable haemorrhage of young women were shortly considered and certain contraindications and disadvantages discussed.

No branch of medicine had in recent years attracted so much attention as endocrinilogy. It had become recognized that many morbid gynaecological conditions had as their basis some aberration in endocrine function; as instances of such might be mentioned precocious or delayed puberty, certain of the menorrhagias of puberty and the menopause, and possibly certain cases of dysmenorrhoea and sterility. Our knowledge of the physiology of the ductless glands was as yet so incomplete that organotherapy was largely empirical and often disappointing. Undoubted benefit, however, followed the use of whole ovary extract in the artificial menopause, and that of *corpus luteum* in the nausea of pregnancy. The employment of pluriglandular therapy seemed more hopeful than the use of single gland extracts.

In conclusion Dr. Lackie said that with a fuller understanding of the physiology of the pelvic organs had come a more determined attempt to practise conservative gynaecological surgery, and he called attention to Giles's recent paper in this connexion. The importance of conserving ovarian tissue whenever possible was now recognized, and salpingostomy, the drainage of pus tubes, the opening up of occluded uterine ostia, and myomectomy were different operations the value of which had recently become appreciated.

A vote of thanks to the retiring President was proposed by Dr. HAIG FERGUSON and seconded by Dr. FORDYCE.

VARIATIONS FROM THE NORMAL TYPES OF HUMAN METABOLISM.

A JOINT meeting of the Manchester Medical Society and the Liverpool Medical Institution was held on November 7th at Manchester, with Dr. E. M. BROCKBANK in the chair.

Dr. C. J. MACALISTER said that medical men were constantly being brought face to face with conditions dependent upon imperfections of metabolism which were probably developmental or reversionary in origin. In the process of evolution man had attained to what might be regarded as an average physiological perfection, but variants from such a standard were frequently met with. Man's habits as to food must have undergone extraordinary alterations and his capacity for metabolizing almost any types of foods, whether animal or vegetable, had surely resulted from developmental changes in the modern as compared with the primitive types. The lower animals had fewer of these complexities; they were in the main carnivorous or vegetarian as the case might be. Man's ancestry included both of these classes, and a falling back to prototype might accord to him a lessened capacity for mixed metabolism. Dr. Macalister suggested that dietetic variations of metabolism resulted from reversions sometimes towards a carnivorous, sometimes towards a vegetarian type of ancestry. Coming from a common stock the carnivora would have a latent or undeveloped vegetarian metabolism; the vegetarian primate type on the other hand would have a latent carnivorous one. That hypothesis would explain the possibility of there being an adaptability to new dietetic conditions on the part of the primitive man as he emerged from the vegetarian or primate stage of his evolution. The latent carnivorous metabolism would become more and more highly developed and by degrees the organs and secretions for a mixed feeder would become evolved. Attention was directed to an association in individuals presenting polymastia with the presence of a long spiral appendix, sometimes presenting a funicular opening and thus resembling what was normal in the anthropoid apes. Although they were generally mixed feeders, presenting in most cases full powers of digesting and utilizing vegetable foods, these people were truly reversionary so far as their protein metabolism was concerned, and their flesh-containing meals required to be taken at much longer intervals than was the case in the average normal persons. Examples of this condition were given, but it was emphasized that the dyspepsias resulting from living on conventional lines were not uncommon, apart altogether from any visible evidence of arrested development such as the polymastia referred to. These dyspepsias depended on deficiencies of metabolism and elimination which brought them into the broad categories of gout, or, in other words, they resulted from idiosyncrasies or imperfections of metabolism, which were probably reversionary and had to do with the absence of normal metabolic rest periods.

Perhaps the most puzzling of all metabolic problems were those dependent upon sexual aberrations, cases in which males presented some degrees of femininity or where females had or came to possess certain male characteristics. These cases were not uncommon and they developed at varying periods of life, but in the human being they never attained to the extreme degrees met with among poultry or among insects.

Although determination of sex took place at the time of fertilization this did not imply that there might not be subsequent intersexuality due to the inheritance possessed by every individual, whether male or female, of hormones belonging to both sexes. There were dominant hormones belonging to and ruling the sex of the individual, and subdominant or latent ones of the opposite sex. This had been proved by operations involving removal of the essential internal secretions which directly influenced those organs or parts which developed or were capable of developing after the operation; that was to say, that males who were castrated approached the female type, whereas the females after the removal of the ovaries approached the male type. Apart from the results of operation there was plenty of clinical evidence of the same kind indicating that there was intersexuality in both sexes.

Many years of clinical observation had suggested that not a few of the disorders with which they as physicians had to deal depended upon inco-ordinations of functions brought about by mixed or approximating sexual metabolism. These were evidently cases which might be regarded as neutral or in which the sex dominant was delayed at all events until a later period of life. An example of this was found in the very interesting variety of dwarfism designated ateleiosis by Dr. Hastings Gilford. Examples of this were shown and particular attention was directed to the case of a man, aged 40, who after growing normally until 7 years of age, thereafter grew in height very slowly until he was about 30 years old, and he retained the characteristics of childhood up to a few years ago when the dominant male secondary characteristics became developed. Other cases were referred to where intersexualities became manifested at a later period of life associated with what were regarded as hysterical manifestations. Certain epileptics probably came into that class, also cases presenting psychoses and neuroses of

British Medical Journal.

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THE TRAFFIC IN DANGEROUS DRUGS.

EVIDENCE continues to pour in from various sources and from many lands of the widespread abuse of cocaine, morphine, heroin, and other drugs of addiction, as well as of the subtle ramifications of the nefarious and highly profitable trade in these perilous commodities.

In the Norman Kerr Memorial Lecture published this week (p. 1013) Sir William Willcox retold to the Society for the Study of Inebriety the familiar story of how the prescription of drugs for beneficent medical purposes has led to habituation and abuse. He endorsed the principles and administration of the Dangerous Drugs Act, which has been in operation in Great Britain since 1920, and added that other drugs than those scheduled in that Act, such as veronal, Indian hemp, sulphonal, and even paraldehyde and chloroform, were liable to similar abuse and might lead to various degrees of mental and physical degeneration. A Home Office Committee is investigating the relative toxicity and liability to abuse of cocaine and the substitutes which have been suggested to take its place, and we publish this week a preliminary note by Mr. E. Watson-Williams on some experiments he has been conducting in the pathological laboratory of the University of Bristol with cocaine, novocain, stovaine, alypin, butyn, and atoxodyne; they have led him to conclude that the dose that causes serious symptoms bears a different ratio to the minimum lethal dose in the case of different drugs of this class. Thus in the case of cocaine it would appear that a small fraction only of the lethal dose may occasion syncope and alarming symptoms. He states that the proprietors have supplied him with notes of five deaths from the clinical use of butyn, and he urges caution in its application.

Dr. Courtois-Suffit of Paris, who has done so much to call attention to the dangers of cocaine, has recently published[1] a paper, written in conjunction with Dr. Giroux, on the spread of the cocaine traffic and cocainomania, dealing especially with the social danger thereby created. The authors relate the story of the discovery of coca, and describe its physiological action and the physical, mental, and moral results of its abuse by the cocaine addict. The euphoric effects of cocaine are said to differ from those of morphine. While the latter confers a passive and voluptuous blissfulness, the former vouchsafes a sense of volition-exaltation, of expansive energy, and of triumphant personality. The mental alienation and moral perversion of the cocaine maniac are dramatically described; the tricks of the traders in the drug are disclosed, and their huge profits indicated. Suggestions are made for increasing the penalties that may be inflicted on those engaging in the illicit traffic, for the better control of international commerce in cocaine, for an informed propaganda among medical men and teachers regarding its perils, and for the prolonged detention and treatment of its victims.

Meanwhile, from the international point of view, we have to record that at the fourth assembly of the League of Nations, which met at Geneva from September 3rd to 29th, forty-nine States were represented, and delegates from the United States attended for the first time. Certain resolutions were passed dealing with the opium question and the Hague Convention; further pressure is to be put upon Switzerland, Persia, Albania, and some of the smaller American republics to ratify the Convention. Regret was recorded that a number of the countries which are parties to the Convention have as yet failed to make effective the control of the importation and exportation of dangerous drugs. A new conference was suggested to consider how to give effect to Part II of the Convention, which aimed at the suppression of "prepared" (that is, smoking) opium, and at the reduction of the amount of raw opium destined for its production. Yet another conference was also foreshadowed to consider again the restriction of morphine, heroin, and cocaine to medicinal and scientific purposes, and the limitation of the production of raw opium and the coca leaf to the amounts required for such purposes. As the date proposed for the first of these conferences is mid-July, 1924, and the second is to follow the first, it is evident that the object aimed at by the International Opium Convention of 1912—namely, the suppression of the abuse of opium, morphine, and cocaine—is not yet within sight.

It has been officially claimed that India has carried out the terms of the Opium Convention in spirit and in the letter. It is difficult to appreciate the justice of that claim. The Convention provided that the export of "prepared" (smoking) opium should be prohibited, either "immediately" or "as soon as possible"; nevertheless India continues to export some 10,000 chests of opium annually, the bulk of which is used for smoking, a practice denounced by the Indian Government as "essentially a social vice."

Bishop Brent, the eloquent and able chairman of the first Opium Conference, addressing the Advisory Committee at Geneva on May 25th last, quoted "the sinister principle laid down by Warren Hastings in 1735," when he said, "Opium is not a necessary of life, but a pernicious luxury which ought not to be permitted except for purposes of foreign commerce only, and which the wisdom of the Government should carefully restrain from internal consumption." Modern official apologists, however, appear to endorse that principle, with the reservation that they regard it as a necessary of life for the Indian natives. Bishop Brent challenged contradiction of his assertion that it was "indisputable that in the history of human affairs there has never been any trade more lucrative or more indifferent to human welfare than that in opium and its derivatives. Governments and individuals alike have made the fruit of the poppy a source of revenue by the degradation of their customers."

Abyssinia has been admitted to the League of Nations, but Afghanistan remains outside, and from figures with which we have recently been supplied it appears that in Russian and Chinese Turkestan and in Afghanistan much opium is raised, and a flourishing and highly profitable trade is carried on unchecked and unsupervised. The appalling excess of production of the poppy and the coca shrub over any conceivable legitimate use of the products of either, and the consequent diversion of the surplus to vile and vicious purposes, calls aloud for speeding up the machinery devised nearly twelve years ago for the suppression of this evil.

[1] *Revue de Médecine*. August, 1923.

various types; Dr. Macalister regarded it as possible that gastric ulcer might have a similar origin, this impression being gained by the similarity which existed between the prodromal symptoms of that disease and those which frequently characterized the female climacteric of puberty.

Lacrymal Obstruction.

Mr. EDGAR STEVENSON read a short paper on lacrymal obstruction, and showed a number of lantern slides illustrating the anatomical relations of the naso-lacrymal duct, some features of the course of the disease, and the anatomy of West's operation. The main object of the paper was to point out that when naso-lacrymal obstruction had been definitely established the treatment by probes, styles, etc., was useless, and only converted obstruction into definite stricture, choice of treatment finally lying between excision of the diseased sac, or an endonasal operation, such as West's. He referred to some successful cases of the latter operation shown recently by Mr. Bride and Mr. Diggle, and suggested that the time had arrived when the ophthalmic surgeon must make himself acquainted with endonasal surgery.

Surgery of the Small Intestine.

Mr. FRANK JEANS read a paper on the surgery of the small intestine. He discussed the diagnosis of obstruction and the technique after excision of gangrenous bowel. He favoured a rapid anastomosis, as the cases with an enterostomy (whole calibre) starved quickly and often did not get well enough for the completion of the operation. He described a compromise between anastomosis on the one hand and, on the other, the Paul's tube method, to be used in the worst cases. Where there was much effusion of blood-stained fluid in the peritoneum he drained for twenty-four hours. He reviewed the factors contributing to post-operative paresis of gut, and attributed a large share of the blame to the pre-operative dose of castor oil, which he hoped would soon be obsolete.

CYANIDE FUMIGATION.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine held on November 23rd, the President, Dr. R. J. REECE, in the chair, Dr. P. G. STOCK read a paper entitled, "Some considerations on the use of hydrogen cyanide and allied substances, with special reference to international preventive medicine."

The author, having given a précis of the history of the subject, pointed out that the quarantine regulations adopted by the United States in 1920 imposed a definite requirement that all vessels engaged in trade with foreign ports should be fumigated not less than once every six months for the purpose of destroying rats. The regulations also stipulated that vessels should be fumigated *simultaneously* in all parts, and laid down the gaseous agents which were authorized. The regulations recognized that the oxides of carbon are efficient for the destruction of rats, but as they do not kill fleas or other insects these gases are practically excluded, and reliance is placed on sulphur dioxide or hydrogen cyanide—more popularly spoken of as hydrocyanic acid gas. An amendment published last January adds cyanogen chloride gas mixture to the list of authorized agents.

Dr. Stock then described the various methods in use for carrying out fumigation with hydrogen cyanide or allied substances, illustrating his account with a series of photographs and diagrams. He emphasized the magnitude of the task of efficiently treating a large vessel and called attention to the revision of the United States quarantine regulations which allowed an extension of the period of six months for the compulsory fumigation of vessels in the case of ships complying with the following conditions: (1) Vessels constructed so as not to favour or encourage the harbourage of rats. (2) Vessels plying regularly between ports not infected with plague. (3) Vessels regularly carrying no cargo, or cargo of such a nature or so packed or stowed as not to serve as rat food or rat refuge. (4) Vessels which have been regularly certified as loaded in stream from rat-free lighters or as complying with the regulations relative to fending off from docks, proper use of guards on lines and hawsers, raising or guarding of gangways and ladders, and docking at rat-free docks or wharves.

In the ensuing discussion, which was opened by Dr. A. K. CHALMERS and continued by Sir GEORGE BUCHANAN and Drs. WILLOUGHBY, WHITE, CHAPLIN, and KING (U.S.A. Public Health Service), there was some difference of opinion as to the relative merits of the sulphur dioxide and hydrogen cyanide methods. Dr. King pointed out that in the application of quarantine regulations a wide discretion was properly entrusted to experienced officers, that what was aimed at was the attainment of a practical result. There was no intention to force the cyanide process upon anyone. The sulphur method had certain disadvantages; its destructive action on property was largely dependent upon the amount of moisture present. The relative merits of the two methods had not yet been fully worked out, but it was of great importance that a trained personnel should be employed.

In his reply, Dr. STOCK observed that the danger of the cyanide process, so far as could be judged from past experience, had been a consequence either of gross carelessness or inexplicable neglect of simple precautions. Owing to the rapid diffusibility of the gas, the liberation of large volumes into the atmosphere at the conclusion of fumigation probably did not constitute an appreciable danger.

PYORRHOEA: ITS PREVENTION AND TREATMENT.

AT the meeting of the Odontological Section of the Royal Society of Medicine on November 26th, Mr. DOUGLAS GABELL presiding, a discussion took place on pyorrhoea and its prevention and treatment.

Mr. J. G. TURNER said that he regarded pyorrhoea as the result of an attack of various germs, chiefly of low virulence, on the alveolar and dental tissues. The germs harboured on the necks of the teeth and in the periodontal sulcus. Pyorrhoea was a dirt disease, the dirt being germs and sticky food débris; in the absence of dirt, no general disease could produce pyorrhoea. The first element in prevention was a healthy body, with the intestinal tract in good working order. The second was the use of a food which was not sticky. In view of the common use of fine ground sticky flour, the best thing he could suggest was that bread should be eaten stale, three or four days old. The dental arches must be as large and regular as possible, so that all forms of dental overcrowding were avoided. The teeth should be so arranged in these large arches that the neck of each tooth was cleansible in its whole circumference. The best way to obtain the necessary spacing was to extract the first permanent molars at the age of from 14 to 16, or earlier in the case of a quickly developing child. Malocclusion and traumatic occlusion did not frighten him in the least; the inevitable sepsis of the normal arch in the presence of our sticky food was a far more fearsome thing. For a cure he was sure that general treatment would not suffice, though in some cases it would ameliorate the condition. In local treatment, which was by far the more important factor, his objective was to clean, to render cleansible, and to teach the patient to clean. Properly to do the original cleaning, all tartar must be removed, and all rough fillings and overlapping edges smoothed away. The next step was to decide whether any teeth were to be extracted. Some teeth stood condemned by their looseness, some by the extent and inaccessibility of their pockets, and some by the extent of caries; extraction might also be necessary for drainage—that is, to ensure cleansibility. Alternate extraction was sometimes a useful method. If teeth eight, six, four, and two were extracted, and the remaining teeth rendered as nearly aseptic as possible, pockets could be dealt with by the excision of gum flaps, and a healthy mouth obtained; but even then, unless the patient was taught to clean every exposed tooth surface the recurrence of pyorrhoea was only a matter of time. In cleaning the teeth the

[illegible], but that it is free from dilution by the addition of water. The latter practice may yield large illicit profit and is not easy of detection. The householder may complain on occasion that on a particular day the milk supplied to him was "poor," but the vendor is always ready with some plausible excuse, and if a sample taken by an inspector and submitted to analysis is found to be so poor as to justify police court proceedings the vendor cheerfully pays the fine inflicted out of the hundred per cent. profit he has made by selling water by the pint at the price of milk. Or he may raise a defence by what is known as an appeal to the cow—that is to say, by pleading that the milk was sold as it came from the cow and was poor at the source. For many years the test of added water has been the percentage of milk fat in the milk examined. The Sale of Milk Regulations, 1901, made by the Board of Agriculture, laid down that "Where a sample of milk contains less than 3 per cent. of milk fat, it shall be presumed, for the purposes of the Sale of Food and Drugs Acts, 1875-1899, until the contrary is proved, that the milk is not genuine, by reason of the abstraction therefrom of milk fat, or the addition thereto of water." This standard has always been considered a low one, and in those few instances where a sample of milk drawn direct from the cow has been shown to be under the standard the explanation has been usually accepted that the animal had been poorly fed or that the inferior quality of the milk was due in some measure to the default of the dairy farmer, who might so arrange the diet of the cow as to increase the quantity of milk given while reducing its quality. It was, however, long the opinion of prominent agriculturists that diet does not perceptibly affect the quality of milk.

The difficulties in securing the conviction of a vendor who has sold milk containing less than 3 per cent. of butter fat have been increased since, in the case of Hunt *v.* Richardson, a Divisional Court of five judges by a majority of one quashed a conviction of justices sitting in petty sessions who had held that in the case before them the deficiency in milk fat was due to the manner in which the farmer had fed the cows with the object of obtaining a large supply of milk without regard to the quality, and that therefore the milk was not of the nature, substance, and quality demanded by the purchaser. The time was ripe, therefore, for settling the question in dispute by precise, scientific, and authoritative investigation. Such an investigation has been carried out at his farm near Basingstoke by Mr. Wilfred Buckley, C.B.E., who for many years past has concerned himself with improving the milk supply of the country and with educating the public in the importance of securing such improvement. The result of this investigation is embodied in a pamphlet recently issued by Mr. Buckley.[1] The milk of each of 65 shorthorn cows was analysed each morning and evening during a period of thirty-nine days by Mr. Slim on behalf of Dr. R. A. Lyster, medical officer of health for Hampshire. The milk of each cow was weighed and the necessary calculations made in order to determine the percentages of butter fat and of solids not fat in the morning's milk and in the evening's milk from the entire herd for each day, and for the entire period as well as for the

[1] *Some Observations on the Butter Fat in Milk.*

[illegible] the percentage of butter fat i[illegible] milk of a herd of shorthorn cows "may l[illegible] 3 per cent. in the morning but in all pro[illegible] less than 3 per cent. in the evening," [illegible] "will exceed 3 per cent. over a period of [illegible] hours." With regard to the milk of indiv[illegible] he considers that the percentage of butte[illegible] considerably from day to day while the m[illegible] duced under apparently similar conditio[illegible] increases during the period of lactation [illegible] interval since the last milking is dimini[illegible] it is affected only slightly when the food [illegible] is changed from winter rations to grass; t[illegible] often be less than 3 per cent., especia[illegible] morning; and that it should never be cal[illegible] recording purposes on the basis of the anal[illegible] milk made during a period so short as t[illegible] hours. He is also of opinion that it is n[illegible] to classify milk on the basis of butter fat c[illegible] is now required by the Scottish Board of [illegible] regard to certified milk, unless there be fa[illegible] mixing the milk of the entire herd, analysi[illegible] adding butter fat on occasions when the p[illegible] of fat is less than the prescribed amount, a p[illegible] which he believes to be impracticable. The [illegible] of the discussion on pasteurization at the [illegible] Milk Conference reported elsewhere in t[illegible] (p. 1062) with regard to fat is that the process [illegible] cause any diminution, although the amount [illegible] that rises may be smaller when ordinary met[illegible] used. The effect of pasteurization on the cor[illegible] of milk seems to be chiefly to coagulate t[illegible] albumin and to render the calcium and p[illegible] contents more or less insoluble.

The results of Mr. Buckley's investigations [illegible] quieting to those who are engaged in administe[illegible] law with respect to milk supplies, coming as [illegible] from so authoritative a source. He expresses t[illegible] that they will not have the effect of prote[illegible] single individual who is so dishonest as to ad[illegible] milk that is offered for sale, but, as he right[illegible] progress cannot be made on any basis that is [illegible] to facts.

CRIME AND INSANITY.

The Committee on Crime and Insanity appointed [illegible] 1922, has made its report, and we publish elsew[illegible] analysis of its argument and the full text of the [illegible] mendations at which it has arrived. The Commit[illegible] not consider that any drastic change in the law sh[illegible] made; it advises that the famous rules made by the [illegible] in M'Naghten's case should be maintained, subject [illegible] qualifications. The first is that a person charged cri[illegible] with an offence is to be held irresponsible for his ac[illegible] the act is committed under an impulse which the [illegible] was by mental disease in substance deprived of any [illegible] to resist. The phrase "in substance" will undo[illegible] lead, and has, indeed, already led in the daily news[illegible] to some criticism, since different interpretations [illegible] given to it by different judges. The other pr[illegible] modification in the law is with regard to the [illegible] which should be returned when a person is found [illegible] irresponsible on the ground of insanity. The Com[illegible] recommends that the verdict should be that "the a[illegible] did the act (or made the omission) charged, but [illegible] guilty on the ground that he was insane so as not [illegible] responsible, according to law, at the time." At [illegible]

important thing was to get at the necks, therefore the brush covered only a small part of the ground. Waxed silk might be used, but this could only be drawn in the vertical direction; if used horizontally it cut into the gum. The best method was the use of worsted thread. Three-ply worsted was soft enough not to cut into the soft tissues, and thin enough to pass between the spaces of the teeth. After using the worsted he painted a weak tincture of iodine on the necks of all the teeth, but usually, as patients did not like iodine in the mouth, he followed this practice only every third day.

Mr. E. STURRIDGE said that he was astounded to hear Mr. Turner advocate the extraction of six-year-old molars. There was nothing more difficult to treat than a case of pyorrhoea with malocclusion caused by such extractions. The extraction brought about a change in the articulation which threw stress on the teeth, and the resulting condition could not be overcome by any local treatment whatever. If proper occlusion could not be secured there would always be pyorrhoea. He disapproved also of alternate extraction except where the alternate teeth were so diseased that there were no means of getting them healthy. In the treatment of periodontal tissue something more radical was needed than surface application of an antiseptic, and he claimed that only by means of ionic medication could the antiseptic be got into the tissues.

Mr. E. B. DOWSETT agreed with Mr. Turner that pyorrhoea was a dirt disease. The teeth which should be extracted were teeth which were hopelessly loose or in which the pockets could not be obliterated or the pus removed. The first determining consideration in cure was the state of the patient's health; if this was bad, it was generally an indication for more radical rather than more conservative treatment of the pyorrhoea. He thought it a good sign if the bone was dense, with the skiagrams showing sclerosis around the margins, and with hard bosses to be felt in the teeth; such cases stood a better chance than others in which there was no bone reaction. The efficiency of mastication was another important point. If the occlusion was bad, mastication must be bad also, and therefore the best cleanser of the mouth was not functioning. Local treatment was all summed up in the term "efficient hygienic drainage." Every particle of calculus, especially subgingival calculus, should be removed by means of the best scaler obtainable, and the gums then freely excised. He judged the depth of the pocket and excised down to its base. In the subsequent cleansing any antiseptic or astringent would serve. He used various kinds, first one and then another, and if one of them appeared to lose its effect it was a good plan to prescribe another. It was very important also to teach the patient how to rinse the mouth. To cut spaces between the teeth in order to facilitate cleaning was, he considered, dangerous practice. The smallest space, if there was an interlocking cusp, would admit the fibres of meat and other food, which might set up severe trouble. Spacing, if practised at all, should be limited to those teeth on which there was no bite.

Sir H. BALDWIN did not quite agree with Mr. Turner's remarks on the inception of pyorrhoea. In his opinion the first thing to become inflamed was the immediate free edge of the gum; this became infected by the ordinary micro-organisms of the mouth when it was low in tone through the absence of friction. Friction of the gum, best done with the tooth brush, would prevent pyorrhoea. The friction acted chiefly by vitalizing the tissue. It was an essential part of prevention, and an integral part of treatment. He would never think of extracting the six-year molars to prevent pyorrhoea, and if Mr. Turner really intended young practitioners to follow him in this respect he thought his teaching dangerous. Ionization was a valuable method; if a little cocaine were employed with the solution the pockets were soon rendered quite insensitive, and advantage could be taken of their distension after withdrawing the cotton-wool to remove much unsuspected tartar. He did not think tartar was the cause of pyorrhoea; he had seen many cases in which there was no tartar. As an antiseptic he recommended nothing more than saline water.

Mr. COLIN KEAY did not agree as to malocclusion or traumatic occlusion being a contributory cause; in his view it was one of the principal causes, and bacterial invasion was secondary. He always corrected malocclusion before scaling. Mr. F. W. BRODERICK believed the common factor in pyorrhoea to be a change in the equilibrium of the blood, a tendency to an excessive formation of alkali. Speaking with regard to disappointments experienced in vaccine treatment, he mentioned that Besredka, of the Pasteur Institute, had found that for cutaneous diseases—and pyorrhoea would come into this category—by painting a specially prepared vaccine on the skin much greater immunity was conferred than by injection into the blood stream. He had tried the method, and although he could not report the final results he found that the suppuration ceased almost at once, the inflammation of the gum subsided, and pain and discomfort were relieved. Mr. A. LIVINGSTON made the suggestion that whether worsted or any other thread was used, by tying a figure-of-eight knot it could be got into the little holes and made to scoop out anything that was there.

Mr. A. T. PITTS dissented from the view that traumatic occlusion was a factor in pyorrhoea and must be removed in order to treat the disease, although a very gross degree of malocclusion might play a part. If by the removal of the first permanent molars proper spacing could be ensured the practice might be justified, but very often it did not have this result, or what it yielded was the very slight spacing which was pernicious. He regarded it as a dangerous thing to advocate, and he also thought it dangerous to cut away spaces between the teeth.

Mr. F. N. DOUBLEDAY said that pyorrhoea could not be understood until it was known what were the different types of bacteriological infection which occurred in these pockets. Pyorrhoea was not a single condition.

Mr. FREDERICK HOBDAY spoke of the effect of friction of the teeth and gums from the veterinary point of view. Pyorrhoea, which was frequently met with in canine practice, was very rare among sporting dogs such as retrievers, which were accustomed to gnaw large numbers of bones, but it was common among dogs fed on soft food. He considered it a disease due to want of work for the teeth. It was also a disease of domesticity, rarely met with in creatures in the wild state. Dr. F. W. COLLINGWOOD believed that the disappearance of protective substances from the blood, and thereby the advent of pyorrhoea, was due to the want of balanced natural diet.

As many other members desired to take part in the discussion, it was decided that it should be resumed at the next meeting of the Section.

NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY.

Encephalitis Lethargica and Pregnancy.

A MEETING of the North of England Obstetrical and Gynaecological Society was held in Sheffield on November 16th, with Professor M. H. PHILLIPS in the chair, when Dr. HEND (Liverpool) described two cases of encephalitis lethargica associated with pregnancy.

The first case was a primipara, aged 24, who had no history of previous illness. The pregnancy was normal up to the thirty-sixth week. The patient then had headaches, albuminuria, and slight oedema of the ankles. She had treatment and showed signs of temporary improvement. A week later she had severe headaches, and a fit. When she was admitted to hospital her blood pressure equalled 150 mm. Hg, and she had albuminuria—9 grams of albumin per litre. There were no uterine contractions. The patient had six fits in six hours following admission—apparently typical eclamptic fits. Next day a living child was delivered. Later in the day rhythmic clonic contractions of the jaw muscles began. The temperature was slightly raised. The patient was restless and confused, and at the end of five days, as she was becoming worse, she was transferred to another hospital, where she died on the twentieth day after delivery. She had nystagmus, ptosis of the upper eyelid, and weakness of the facial muscles. On *post-mortem* examination the diagnosis of encephalitis lethargica was corroborated, and no evidence of toxaemia was found.

The second case was a primipara aged 23, who had been healthy up to the thirty-fifth week of pregnancy. On admission to hospital she was restless and excited; she had inco-ordinated clonic movements of the head and limbs present during sleep. Her reflexes were normal. Albuminuria amounted to 2 grams per litre. Chorea gravidarum was diagnosed and she was treated with parathyroid extract, calcium lactate, and sedatives. On the fourth day after

the verdict in such a case would be guilty but insane. The Committee had before it reports of the British Medical Association and of the Medico-Psychological Association; it does not accept the recommendations of the Medico-Psychological Association, but concurs in substance with the report of the British Medical Association. The Committee proposes that the powers of the Home Secretary should be retained and even slightly extended. It considers that the present system, both of law and practice, has been proved to work satisfactorily, vindicating the law with firmness and humanity. The report of the Committee, over which Lord Justice Atkin presided, will require very careful consideration, and will, we have no doubt, receive it both from the British Medical Association and the Medico-Psychological Association. If it is to be of any effect fresh legislation will be required, and both associations, working, as we hope, together, will have to use their influence to persuade Parliament to give attention to the matter. It is in the highest degree desirable to avoid in future the sort of public agitation that arose in connexion with the case which led to the appointment of the Committee. The public has a right to approve principles, but their application to any particular case should be a matter for judicial decision and administrative action after all the facts have been ascertained according to a method of procedure previously agreed.

TUBERCULOSIS IN FRANCE.

AT a meeting of the Tuberculosis Society in London on November 16th, Dr. Evrot, speaking in French, gave an interesting account of the antituberculosis work that is being done in France. He said that in 1900 Calmette at Lille launched a scheme for dispensary treatment, and in 1902 Grancher had put into operation his measures for the boarding out of children of tuberculous families. In 1912 in France, with its population of 40 million, the deaths from pulmonary tuberculosis numbered close upon 70,000. At the present time it had 600,000 tuberculous subjects, including 112,000 ex-service men. The war stimulated antituberculosis measures, and two Acts were passed, one in 1916 and the other in 1919, which constituted the French antituberculosis charter. The first provided for the establishment and subsidy of dispensaries, the second linked sanatoriums with the dispensaries, and contained compulsory clauses novel to French legislation, whereby each department had to provide certain sanatoriums within a period of ten years. The amount voted in the State budget for 1923 for antituberculosis measures was 14,000,000 francs, while the various municipal and departmental budgets for 1922 contained 48,000,000 francs for the same purpose. For the dispensaries alone the State credits rose from 3,000,000 francs in 1920 to 7,000,000 in 1923. In July, 1917, the Rockefeller Foundation set up in France an effective organization against tuberculosis which for five years had assisted the French authorities with money and services, and this had made it possible to start dispensaries in many departments and to undertake educative propaganda. At the beginning of 1923 the American mission ended, and its functions devolved upon a national committee whose work was limited at first to the care of tuberculous ex-soldiers, but had now been extended to embrace the whole population and to supervise every side of the antituberculosis campaign. It co-operated with the Ministry of Hygiene in controlling the dispensaries and other organizations, it had a school for re-education, where ex-patients were taught agriculture, and it organized congresses. The geographical situation of France made it possible to create a number of marine sanatoriums under varying climatic conditions. Altogether there were 53 sanatoriums, with 11,000 beds, for children suffering from surgical tuberculosis, in addition to institutions for heliotherapy in the mountains. The sanatoriums for pulmonary tuberculosis had 6,500 beds in all. The most popular establishments from the economic and social points of view were hospital sanatoriums, but, unfortunately, the State did not contribute to the expense of setting them up. They were managed as hospitals, and received contagious and bedridden patients. In the sanatoriums proper the cases were rigidly selected. The main preventive establishments were the dispensaries, which now numbered 450, and their outfit was being made more complete year by year. In large numbers of them there were x-ray installations, and in 1922 more than 40,000 screen examinations were made. The medical staff was recruited from doctors specializing in the study of tuberculosis. France had not nearly as many tuberculosis officers as England, but the number was increasing. Five hundred certificated health visitors were attached to the dispensaries (150 of them in Paris), and the number would be 600 by the end of the present year. There were nine schools for the instruction of these health visitors, and, to make the posts attractive, a pension scheme had been started. Examinations at the dispensaries were very systematic; repeated examinations of the sputum were made—50,000 in 1922—and contacts were also examined. The dispensaries were consultative, and no treatment was given except to necessitous persons. Monthly reports were made, and the graphic records and classifications were the same as in this country. It was not easy to estimate the effect of all this work upon the incidence of tuberculosis in France because the official collection of statistics ceased in 1918; but after five years' experience of the dispensaries some facts could be given. The mortality rate from tuberculosis at Lyons for the five years 1901-5, before dispensaries were in being, averaged 3.54 per 1,000 of population, but during the five years 1918-22, after the setting up of six dispensaries, it fell to 2.45. Even these figures did not reveal the full significance, for if the crowded working-class area of the town were taken, where also the dispensaries were concentrated, the mortality for the first period was found to be 3.84 and for the second 2.15. Dr. Evrot added that the feeling of general practitioners towards the dispensaries is sympathetic, though occasionally they view with a little disfavour the activities of the health visitor. But the whole-time tuberculosis officer in a section of the department of the Oise had had in twenty-two months 1,502 consultations on new cases at the dispensaries, and 431 of these were sent to him by local practitioners. The problem of arranging for rural dispensary services was not simple. In some districts travelling dispensaries have been organized. The Grancher system of boarding out had been widely adopted, and in twelve years 2,500 Paris children had been boarded out. The system, however, dealt only with children between the ages of 3 and 13; an effort is now being made to save children of an earlier age in affected homes, and despite the difficulty of the problem some headway is being made, thanks to the co-operation of the maternity services. Medical inspection in schools has been organized in most of the larger towns, and open-air schools have been started.

A MISSOURI DIPLOMA MILL.

THE *Journal of the American Medical Association* published the following note in its issue of October 27th: "During the past week the St. Louis *Star* has published a series of sensational articles exposing a traffic in fraudulent medical diplomas and high school certificates. A member of the staff of the paper is said to have purchased within the past ninety days a fraudulent high school certificate alleged to have been signed by W. P. Sachs and dated

admission the patient was delivered of a stillborn child. The temperature rose to between 100° and 102° F. Diplopia was noticed on the following day. She had delusions, restlessness, and as she became worse she was transferred to another hospital. A diagnosis of myoclonic lethargica encephalitis was made. The patient was slowly recovering—four months later—but complete recovery was not expected.

Dr. J. CHISHOLM (Sheffield) recalled a case in a 2-para, with marked clonic movements of the abdominal walls and symptoms of internal obstruction. Caesarean section was performed; no obstruction was found and the movements continued afterwards. The patient was dull and apathetic. She recovered, but the child also had lethargic encephalitis. Dr. Chisholm mentioned another case with five and a half months pregnancy diagnosed at first as pernicious vomiting. Though labour was induced, the patient died. She had nystagmus in addition to the other symptoms.

Supravaginal Hysterectomy and Panhysterectomy.

Dr. FLETCHER SHAW (Manchester) read a paper on the advantages and disadvantages of supravaginal hysterectomy and panhysterectomy. He said that some gynaecologists believed that panhysterectomy should be done whenever the uterus had to be removed, while others believed that supravaginal hysterectomy was the better operation for many cases, though they would probably always do panhysterectomy if the cervix was badly lacerated. In a period of eighteen months he had had three patients in whom carcinoma of the cervix occurred after supravaginal hysterectomy, and his object in bringing the subject before the society was to see if other gynaecologists had had any similar cases. Although those three cases were seen in a period of eighteen months, they were the only ones he had ever had, and, so far as he knew, none of his colleagues at St. Mary's Hospital had had a single case; the occurrence after supravaginal hysterectomy was therefore very rare and it was probably merely a coincidence that he should get these three in so short a period. If that proved to be the case he still thought that there was a distinct use for supravaginal hysterectomy, as it was a much quicker operation and caused less shock to the patient and, moreover, did not entail opening the vagina, which, no matter how carefully cleaned, was potentially a septic passage. In a consecutive series of cases of supravaginal hysterectomy and panhysterectomy he found the mortality higher after panhysterectomy, and in the investigation of the convalescence of a consecutive series of both types the patients after supravaginal hysterectomy had, on the whole, a smoother time than those in whom the complete operation had been done. He still thought supravaginal hysterectomy was useful in nulliparous women, but panhysterectomy should always be done where the cervix was badly lacerated or in any way diseased.

The PRESIDENT said that he did not remember seeing carcinoma of the cervix after subtotal hysterectomy, but he had removed cervices for discharge. He believed that panhysterectomy was the better operation in all cases.

Cases and Specimens.

Dr. W. W. KING (Sheffield) showed a specimen of carcinoma of the cervix which he had removed. The patient had had subtotal hysterectomy in 1919 for fibroids. In 1923 she had bleeding for three months, and the cervix was found to be carcinomatous. He recalled another case in a nullipara who in 1911 had gonorrhoea. In 1918 the patient had a pelvic abscess drained; in 1920 she had subtotal hysterectomy for bleeding, and six to eight months later she had ineradicable carcinoma of the cervix. He believed in total hysterectomy in multiparae, and subtotal in nulliparae.

Dr. BRIDE said that in a case of a nullipara he had done a panhysterectomy and found an early carcinoma of the cervix. Dr. CHISHOLM mentioned a patient who had had a subtotal hysterectomy twenty-five years ago and who had bleeding for two months and was found to have ineradicable carcinoma. She had had one child and one miscarriage. Dr. CLIFFORD said that he did not remember a case of carcinoma of the cervix occurring in his practice after subtotal hysterectomy. He said that it was so rare that it hardly affected the difference in the mortality rate between the operations of subtotal hysterectomy and panhysterectomy.

Dr. J. BRIDE showed a tumour simulating complete ulcerated prolapsus uteri. He removed it from a 2-para who was pregnant four months. It was situated in the interval between the right labium majus and minus, and resembled an ulcerated complete prolapse. It had been noticed for twelve months and was steadily getting bigger. It was removed without affecting the pregnancy. Microscopically it was a fibroma.

Professor M. H. PHILLIPS showed (1) an adenomyoma of a rudimentary uterine cornu, and (2) salpingo-caecal fistula.

(1) The specimen was removed from a 7-para aged 44, who had had menstrual pain for the last seven years and recently pain not associated with menstruation. A swelling the size of a golf ball was attached to the left side of the supravaginal cervix and was diagnosed as adenomyoma of Gaertner's duct. At operation the swelling was found to be a rudimentary left cornu of the uterus attached to the supravaginal cervix, and also to the pelvic wall. On section of the cornu it was found to contain spaces filled with dark blood, lined by columnar or cubical epithelium, embedded in a cytogenous mantle similar to uterine endometrium.

(2) The specimen was removed from a 3-para, aged 32 years. Last child was born three years ago, and this was followed by severe abdominal pain for two weeks. She was admitted into hospital in November, 1922, suffering from a subacute attack of bilateral salpingo-oöphoritis. Five weeks later she was seen again, when she had a fixed tender swelling to the right of the uterus which was thought to contain pus. Four weeks afterwards the swelling had disappeared and the patient felt much better. She was admitted in August, 1923, for dysmenorrhoea and backache. On examination a retroverted adherent uterus and slight enlargement of the appendages were found. The right tube was firmly fixed to the caecum, and the thickened area of the caecum was removed with the tube. The end of the tube was found prolapsed into the cavity of the caecum, the ostium being patent and well away from the opening of the vermiform appendix. The condition was thought to be the result of rupture of the peritubal pyocele into the caecum.

Dr. BRIDE recalled a similar case in which an ectopic pregnancy had ruptured into the caecum. Professor M. H. PHILLIPS said that originally this case had been diagnosed as an ectopic pregnancy by the house-surgeon, but it had not occurred to him.

Dr. J. BRIDE gave the history of two consecutive pregnancies with central placenta praevia and Caesarean section.

A 2-para aged 34 was seen on November 20th, 1922, when she was found to be three months pregnant; she had a history of Caesarean section by Dr. Fothergill, whom he had assisted. A living child was delivered, who was still alive and healthy. On April 21st, 1923, the patient was admitted into hospital eight and a half months pregnant, with severe bleeding with central placenta praevia. Dr. Bride decided to perform Caesarean section; a living child was delivered, and at the same time the woman was sterilized by removing portions of both Fallopian tubes. The child died of convulsions on the eleventh day. Nothing was found to account for the placenta praevia habit.

Dr. STACEY said that it was very rare to have recurring central placenta praevia. Dr. W. W. KING asked to what extent the cervix was dilated; he criticized the second Caesarean section, and also the sterilization of the patient. Dr. FLETCHER SHAW said that one did not expect a Caesarean scar to stand difficult deliveries in future pregnancies. Dr. BRIDE said that the cervix was only slightly dilated; he did not consider possible rupture of the old scar. At operation the old scar could hardly be seen.

Dr. CLIFFORD (Manchester) related a case of full-time ectopic gestation.

A married woman was admitted to hospital on November 30th, 1922; she had had amenorrhoea since February, 1922. Foetal movement had shown that the child was active until two days before admission. She appeared to be at full term, the foetal limbs were rather prominent, the head high up and in the R.O.P. position. No foetal heart sounds were heard, nor any movement felt. The cervix was protruding from the vagina; the presenting part could not be definitely felt. A radiogram gave no assistance; the temperature was slightly raised; the cervix was cleansed and replaced and supported by a ring pessary. Labour did not come on and the patient was discharged at her own request on January 5th, 1923. She was readmitted on January 26th when the foetus was in the same position, and the temperature was slightly higher. Bougies were inserted into the cervix, but could only be pushed for 3½ inches. This was done twice. Her temperature was 102° F. and pulse rate 120. On January 29th and February 4th the patient had 4 minim doses of Dr. Jenkins's stock

of existence in 1918), dated 1916. The reporter also obtained a certificate of licence to practise medicine in the State of Tennessee, the name of the person to whom the licence was originally issued having been erased and the newspaper man's name filled in in its place. The newspaper presented its evidence to State and federal prosecuting authorities and reports that, as a result, Drs. Ralph A. Voigt and D. R. Alexander, both of Kansas City, Dr. Robert Adcox of St. Louis and Professor W. P. Sachs, also of St. Louis, have been arrested." In its next issue our contemporary published a more detailed account of what the *Star* had published, and illustrated it by facsimiles of the diplomas purporting to be granted by the Department of Medicine of the National University of Arts and Sciences, St. Louis, Missouri, and the Progressive College of Chiropractic, Chicago, Illinois. From an article in the issue of the *Journal* for November 10th we gather that the States of Kansas and Connecticut are among the few States where the regulations for admission to the profession of medicine are still very lax. The position in Connecticut with regard to what our contemporary calls the Missouri diploma-mill seems to have been first considered by the Commissioner of Health for the State, and then by the States Attorney. A special grand jury is investigating the matter in the State of Connecticut and it is clear that the results so far obtained are attracting much public attention. According to a message from the *Times* correspondent, it appears that the action in Connecticut has induced the authorities of the State of New York to move; the correspondent states that according to the New York Board of Health there are between 1,500 and 2,000 impostors practising medicine in New York City, and that many of them are so-called graduates of the St. Louis College of Physicians and Surgeons of Missouri. The New York Board, it is further stated, has revoked the licences of all doctors claiming to be graduates of this school. This is as far as we can carry the matter at present. The *Journal of the American Medical Association* has long carried on a very spirited fight against the degradation of the profession of medicine by quackery, licensed and unlicensed. In one respect reformers in the United States are worse off than we are, because the licensing of practitioners of medicine is not a national matter but one reserved to each State of the Union. The *Journal*, however, has pegged away, and one legislature after another has been convinced until now the backward States can be counted on the fingers of one hand.

ALASTRIM AND MILD SMALL-POX.

THE question of the separate existence of alastrim or its identity with small-pox, about which there has been some controversy, has recently been raised in a discussion at the Académie de Médecine of Paris, when Professor Léon Bernard read a communication[1] based on the examination of four cases in negroes he had lately seen at Havre, and on information obtained from the medical officer of the boat which brought the patients from the Antilles. Professor Bernard proposed to apply the term "alastrim" to these cases, and appears to be a supporter of the doctrine that alastrim and small-pox are two distinct diseases. He has been brought to this opinion by several considerations, such as the absence of constitutional disturbance and a prodromal rash in alastrim, but he is also impressed by the fact that in the cases he saw the eruption had only a vesiculo-pustular stage with hardly any suppuration and a slow stage of retrogression, contrasting with the eruption of small-pox, which he thinks always passes through several

[1] *Bulletin de l'Académie de Médecine*, October 2nd, 1923, p. 128.

in black races. Professor Bernard, however, h
other objections, which he classed as biological
identity of alastrim and small-pox. He asserte
large proportion of alastrim patients had previo
vaccinated, while some persons who had been rev
with or without success had nevertheless c
alastrim. In the discussion which followed the r
Professor Bernard's paper Dr. Lucien Camus, a w
nized authority on small-pox and vaccination, m
that the symptoms mentioned by Professor Bern
not invariably absent, as Moody[2] had described th
rence in a paper based on a study of nearly 3,0
of which 30 were fatal. Moreover, Leake's[3] ex
on the monkey and rabbit supported the view that
was small-pox. The monkey might contract alast
then become insusceptible to vaccinia. The rabbi
show any eruption after inoculation with alast
more than it did after attempts to inoculate it wi
pox, but after inoculation with alastrim it prove
tory to vaccinia just as it did after inoculation wi
pox. As a general rule vaccination was a p
against alastrim, and successful vaccination in t
had had alastrim was analogous to the occur
successful vaccination in those who had had small-p
opinion that the two diseases are identical is s
a large number of other observers at home and al
finds support in the extraordinary variations in the
of small-pox in different epidemics and, indeed,
epidemic. Within the past few years, and espe
1922-23, various competent observers have had oppo
of studying mild small-pox in England. Similar o
ties have occurred in the United States, Canada, A
and South Africa. We are not aware, however, t
one has worked through such an epidemic in m
one of these countries, so as to have material
parison. If there be any such, and especially if
is in a position from personal observation to repor
characters of the mild disease seen in other count
to contrast it with cases that have occurred in this
statement on the subject would be useful.

OPHTHALMOLOGY IN EGYPT.

THE Ophthalmological Society of Egypt has is
bulletin for the year 1923.[4] It is edited by Dr
MacCallan, who with Rasheed Bey contributes a
ductory paper on membranous conjunctivitis, a seve
tion which occurs in Egypt but is fortunately ra
authors state that no reliance can be placed upo
preparation diagnosis; only complete laboratory
tion by cultures and if necessary by inoculation wil
In one of their twenty-two cases the fauces were i
in all varieties there was enlargement of the pre
and angular glands; in most cases there was no
of contact with other cases of conjunctival or
diphtheria. The disease was never followed by par
accommodation, one of the most frequent sequelae o
diphtheria; in 54.5 per cent. of the cases corneal
tion was present on admission, but 63 per cent.
this lesion before the disease subsided, and 50 p
lost one or both eyes. Other cases of membran
junctivitis not due to the diphtheritic bacillus
countered, and in them a variety of organisms were
the rate of loss of the eye was lower—40 per cent.
or both eyes lost. The most common cause of i
they believe to be either direct contact from one

[2] *Ann. Trop. Med. and Parasit.*, March 31st, 1922, p. 21.
[3] Public Health Reports, June 24th, 1921, p. 1437.
[4] Ophthalmological Society of Egypt, *Bulletin for 1923*. Ca
Pp. 170.

residual vaccine. On February 14th Dr. Clifford opened the abdomen and found a full-term macerated foetus lying in a sac with the placenta almost entirely attached to the outer abdominal wall. This was stripped off without bleeding; the membranes were not removed, and the cavity was drained and irrigated by the Carrel-Dakin method for three weeks.

The cavity rapidly became smaller, and six weeks after operation there was a sinus 1½ inches long. Inquiries afterwards revealed the fact that in March, 1922, the patient had severe abdominal pain with vomiting, followed a little later by haemorrhage lasting five days. Afterwards she suffered considerable abdominal pain, and in May consulted a surgeon, who thought she had had appendicitis. Dr. Clifford considered that the condition was very difficult to diagnose.

LIVERPOOL MEDICAL INSTITUTION.

A MEETING of the Liverpool Medical Institution was held on November 15th, with the President, Dr. J. HILL ABRAM, in the chair, when Dr. HENRY COHEN read a paper on the value of hypertonic and hypotonic saline solutions in cerebral conditions.

After a brief summary of the experimental evidence on which this therapeutic method was based, Dr. Cohen recorded ten cases, six of cerebral tumour and four of post-operative cerebral hernia, in which marked alleviation of symptoms followed intravenous injection of 20 c.cm. of 30 per cent. sodium chloride solution. He commented on the oral administration of salt in these conditions, and on the use of hypertonic salines in the meningismus of acute infections, prior to cerebral operations, in the diagnosis of extracranial from intracranial causes of headache, and in the prevention of foraminal crowding following lumbar puncture in cases of cerebral tumour. The value of hypotonic salines in post-puncture headache was also recorded. A discussion followed, and in replying to it Dr. Cohen pointed out that a considerable amount of experimental work had yet to be done, and suggested that ophthalmic surgeons should try these hypertonic salines in cases of increasing intraocular tension.

Renal Sarcoma.

Mr. W. A. THOMPSON read a note on sarcoma of the kidney in an infant.

The patient was a female child, 15 months old, who was anaemic, emaciated, and had a large semi-solid swelling in the left lower abdomen. This swelling had been noticed for six months. It was moderately smooth in outline, there was no notch, there was dullness and bulging in the loin with colon resonance in front. The urine was normal and had apparently always been so. A renal sarcoma was diagnosed and operation advised. The operation was carried out through an incision to the outer side of the left rectus. The peritoneum on the outer side of the descending colon was incised and its edges brought up to the skin incision, and the operation was completed retroperitoneally. The child left hospital ten days later in excellent health.

Renal sarcoma appeared mainly during the first seven years of life; both sexes were affected with equal frequency, and the right side as often as the left. Occasionally it was bilateral. The clinical features in all cases were few and uniform—namely, a progressive, painless swelling in the lower abdomen, soon associated with increasing constipation and ultimately accompanied by emaciation. The sarcoma was thought to arise from the intrarenal adenomatous tissue which should have formed the convoluted tubules, but which, because of a poor blood supply, failed to develop normally and have taken on a tubulo-acinar formation. This became sarcomatous, and the growth, obliterating the calyces and renal pelvis, prevented secretion from the affected organ and thus explained the absence of haematuria, which was a common feature in these cases. The operative mortality was high, and of the late cases the majority of those who survived operation rarely lived twelve months. This patient made excellent progress for almost four months, when she contracted measles and died.

Idiopathic Hypertrophy of the Bladder.

Dr. A. DINGWALL FORDYCE and Dr. NORMAN CAPON read a paper on idiopathic hypertrophy of the bladder. Two cases of this condition were described, and lantern slides of the pathological condition exhibited. The analogy with other apparently idiopathic neuro-muscular conditions was dwelt upon, and reference was made to the literature of the subject. At *post-mortem* examination of the condition the only pathological findings were hypertrophy and dilatation of the bladder, dilatation of the ureters and of the pelves of the kidneys, and cystic-like degeneration of the kidneys. There was no detectable cause producing the obstruction. The inference, corroborated by analogy, was that vesical spasm produced the local sequelae, and that it in turn was secondary sometimes to obvious nervous lesions, and sometimes to nervous abnormalities, which were not detected.

Mr. R. E. KELLY pointed out that the *post-mortem* picture of dilated bladder, dilated ureters, and dilated renal pelves showed a remarkable similarity to the condition found in adults with an enlarged prostate or a urethral stricture. The disease was limited to the male sex, and, therefore, the explanation that it was due to some neuropathic cause was a difficult explanation to accept. In his opinion there was obstruction. This obstruction was due to the constant and repeated blockings of the urethra by plugs of mucus. One had only to witness the pain, tenesmus, and straining in the living subject, followed not by a complete emptying of the bladder, but the passage of a small plug of mucus, to appreciate the enormous strain on the bladder. The increased tension inside the bladder produced the disease. It was a further example of the value of living pathology over observations made in the *post-mortem* room. In one case he had to withdraw a catheter two or three times and remove a plug of mucus from the eye of the catheter before he was able to empty the bladder completely. For this reason it was found impossible to wash out the bladder per urethram, for even after repeated washings under an anaesthetic mucus could still be detected by the cystoscope. In his opinion suprapubic cystotomy was the best treatment.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

A MEETING of the Section of Pathology of the Royal Academy of Medicine in Ireland was held on November 2nd, with the President, Dr. JOSEPH T. WIGHAM, in the chair, when Dr. A. R. PARSONS described a case of early Hanot's disease in a woman aged 31; *post-mortem* examination showed great enlargement of the spleen and thymus, congestion of the pancreas, and cirrhosis of the liver. Dr. GEOFFREY HARVEY described a case of splenic atrophy with thrombosis of the splenic artery in a woman aged 51; a large pleural effusion on the left side gave rise to the surmise that it was a case of early cancer of the lung or pleura, but no thoracic tumour was found at necropsy. Dr. H. C. C. DEANE described a case of tubal pregnancy; on *post-mortem* examination of the specimen the tube wall, in some of the sections, was seen to be infiltrated by the foetal cells, and small syncytial masses were found lying between the muscle fibres of the wall; it was uncertain whether to regard the condition as a simple tubal pregnancy or one tending to become a chorion-epithelioma. Dr. T. O. GRAHAM described an extensive case of intrathoracic sarcoma; at necropsy the growth was found to extend to the glands of the right side of the neck and to part of the pericardium, while the glands behind the stomach and pancreas were also affected. Dr. W. D. O'KELLY demonstrated a new method of making museum jars from celluloid.

AT a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland, held on November 16th, the President, Sir WILLIAM DE COURCY WHEELER, drew attention to the frequent coincidence of several cases illustrating rare conditions of the same organs being admitted to hospital about the same time. For example, within two years he operated upon three cases of abdominal aneurysm, but had never done so before or since. Four cases of fractured femur, with unusual complications leading to amputation, were recently seen. In September he had performed Leriche's operation of sympathectomy three times; and three cases of rare varieties of malignant tumour of the kidney had been seen during the past year. Mr. C. J. MACAULEY read a paper on traumatic rupture of the liver and of the spleen, describing an interesting case of each; in the second case the spleen was completely torn off and temporary clotting of the blood vessels had saved the patient's life.

membranous conjunctivitis to another, or transmission of the infection by flies; the next most common source is a diphtheria carrier with faucial, pharyngeal, and nasal lodgement. There was some evidence that the waiting room of the out-patient department had added to the number of cases. The authors remark on the rapid disappearance of the membrane after the use of antitoxin when the cause was a genuine diphtherial organism, in contrast to the lack of effect when other organisms were the cause. A considerable amount of albuminuria made prognosis bad. An outbreak of diphtheritic conjunctivitis which occurred in Assiout in September, 1922, and produced thirty-five cases, is described by Dr. A. M. Girgis. The local treatment employed was constant washing with eusol; quinine was tried but discarded as useless. Antidiphtherial serum was dropped into the conjunctival sac every two hours; silver nitrate was used as a paint once daily. The general treatment included tonics and serum injections (40,000 to 80,000 units). Of the patients attacked more than half (55 per cent.) were blinded; death occurred in 20 per cent. from heart failure. Dr. Meyerhoff records some observations on tuberculous eye diseases, which are rare in Egypt. "In general," he writes, "every case of very chronic iritis, with vitreous opacities and without pain, which does not react to aspirin and antisyphilitic treatment is suspect of being of tubercular nature. Unfortunately the tuberculin test . . . does not give a clear result. I know, through great experience gained in the war in Germany and Poland, where tubercular diseases have enormously increased, that the oculist may sometimes obtain general tuberculin reaction in rheumatic iritis, and on the other hand I have seen in some patients the iris of both eyes full of tubercular nodules without obtaining any general or local tuberculin reaction." The cases seen in Egypt were for the most part mild, and reacted well to tuberculin injections. There are many other papers of interest in the bulletin. Some are in Arabic; it might be of service if a brief summary of such papers were given in English or French.

DIMINISHED INCIDENCE OF TYPHOID FEVER.

A YEAR ago the Office International d'Hygiène issued a series of questions to the health authorities of the countries sending delegates to it. Information was asked as to the diminution of typhoid fever during the last thirty years, for opinions as to the causes of this diminution, and the practice as to antityphoid vaccination, and for a statement as to the need for antityphoid vaccination and its value. Replies were received by the Ministry of Health in this country from France, Holland, Switzerland, Denmark, Monaco, Sweden, and Spain. These replies have been analysed in a preliminary report[1] by Dr. Ricardo Jorge, the director of public health in Portugal and the delegate of that country to the Office. The detailed replies are given in an appendix. Professor Jorge points out that in those countries in which compulsory notification is in force data have now accumulated showing that there has been a marked fall not only in the mortality but also in the incidence of the disease. He gives the rates per 100,000 inhabitants. In Great Britain the incidence of typhoid fever has fallen from 38 in 1911 to 6 in 1922, and in Holland from 48.2 in 1892 to 16 in 1922. In Denmark the incidence was 150 in 1891 and 10 in 1921. In Switzerland it was 27.8 in 1901 and 8.6 in 1920, though there was a rise in 1904 to 37.9. In France the total number of cases, which was 31,206 for the two years 1912-13, fell to 15,815 for 1920-21. The number of deaths per 100,000 inhabitants has fallen in Great Britain from 17.3 for 1891-94 to 2.28 for 1916-20, in Holland from 12.5 to 5, and in Switzerland from 11 to 2.12 during the same periods. In France the total number of deaths, which in 1906 was almost 5,000, was less than 3,000 in 1916, or approximately a mortality of 7 per 100,000 inhabitants. In Spain the mortality has fallen from 44.1 for the quinquennium 1901-5 to 29 for 1916-20. The factors in the general decline in typhoid fever are purification of the water supply, removal of excrementitious matter by sewerage, notification of cases, supervision of foodstuffs capable of conveying infection, precision in diagnosis by serum tests, and progress in the hygienic education of the public. In countries where a fall in the disease has taken place as a result of these factors there is no necessity to employ, much less to enforce, prophylactic inoculation, except in the rare case of a circumscribed outbreak. On the other hand, in countries where typhoid fever is still very prevalent, inoculation is of the greatest value, and should be undertaken as far as possible by the public health authorities.

[1] *Bull. de l'Office International d'Hygiène Publique*, September, 1923, p. 1145.

RESEARCH IN TROPICAL MEDICINE.

THE annual dinner of the London School of Tropical Medicine was held on November 21st under the presidency of Sir Ion Hamilton Benn, deputy chairman of the Seamen's Hospital Society. In giving the toast of "The School" he said that it had been fortunate in having for its founders two such great men as Mr. Joseph Chamberlain and Sir Patrick Manson. From its inception twenty-four years ago the number of students had steadily increased. It was not content to teach the elements of tropical medicine to men who were going to tropical countries, but had encouraged research in its own laboratories and sent out expeditions to investigate diseases on the spot. Twenty such expeditions had been organized; Dr. Newham, director of the department of tropical pathology in the school, had only recently returned from British Honduras, and Dr. Thompson, director of the department of protozoology, from his second expedition to Rhodesia to investigate blackwater fever. The chairman then referred to the expedition to Samoa, of which we gave some account last week (p. 995). In concluding his speech he made reference to the approaching transfer of the Tropical School to the School of Hygiene. Though the Tropical School might lose some of its autonomy it would retain its identity within the new school, and would benefit by close association with workers in other branches of preventive medicine. The toast of "The Guests," given by Sir Arthur Clarke, chairman of the Seamen's Hospital Society, was acknowledged by Sir James Allen, High Commissioner for New Zealand, who said that his Government rejoiced to have the assistance of the school in the discharge of its duties in the Pacific.

ROCKEFELLER INTERNATIONAL HEALTH BOARD.

THE organization founded in 1909 by the initiative of Mr. J. D. Rockefeller under the name of the International Health Commission changed its name in 1916 to the International Health Board, and was first concerned with ankylostomiasis, or, as it is usually called in America, hookworm disease; during the first five years of the Commission's life more than a million persons in the United States of America were examined microscopically, and of these 441,408 were treated; in 1913 the work of eradicating the disease was extended to other countries. The ninth annual report,[1] for 1922, of the International Health Board contains a brief summary of its origin, and shows that, in addition to having measurably diminished hookworm infection all over the world, progress has been made towards reducing the ravages of malaria, and that

[1] International Health Board: The Rockefeller Foundation. Ninth Annual Report, for 1922. 61, Broadway, New York. 1923. (Pp. xix + 163; 70 figures.)

Reviews.

PSYCHOTHERAPY.

IN *A Manual of Psychotherapy*[1] Dr. HENRY YELLOWLEES sets forth first the principles upon which modern psychotherapy is founded, then its methods and their application, and finally the field in which these methods may be used. In the main the author follows the teaching of Freud, and he expresses the view that there is really no broad and comprehensive theory of the neuroses, and certainly no intelligible pathology of the neuroses, save on the foundations which psycho-analysis has laid. While he feels, however, that intelligent psychotherapy is wellnigh impossible without a knowledge of the postulates and principles of psycho-analysis, he is by no means of the opinion that exploration of the unconscious mind by the Freudian method is the only psychotherapeutic remedy of curative value.

Throughout his book Dr. Yellowlees shows that the general practitioner has a wide field of usefulness in dealing with his nervous cases by means of persuasion, suggestion, re-education, and simple analysis, and in his last chapter, where he gives some illustrations of the application of psychotherapeutic methods to actual cases, he maintains that the majority of these could and should have been treated by the general practitioner. The point is an important one, because there would seem to be little purpose in insisting upon the student receiving special training in the treatment of the psychoneuroses if such cases could only be beneficially treated by specialists and by complex procedures involving treatment for one or more years. Naturally many nervous cases require prolonged and expert treatment, but, as the author shows, many conditions arising in an average practice respond to measures of a relatively simple kind.

We can recommend this book as a useful introduction to psychotherapy. It is clear and readable and the author maintains throughout a commendable breadth of view.

OPHTHALMOLOGY.

IT is said by the more indolent kind of reviewer that it is sometimes possible to review a book from the preface, but certainly this would not be possible in the case of the encyclopaedic *Traité d'ophtalmologie*,[2] by Professor POULARD of Paris, for the preface consists of only ten lines. The author states that his book is largely the result of his own personal observations—it is not a reproduction of the works of others; flagrant errors have been rejected, matters of historical interest have been intentionally omitted, fantastic theories have been accorded their proper place, and hypotheses have not been presented as facts. The hope is expressed that the perusal of this book will stimulate the younger ophthalmologists to think for themselves and teach them not to be ashamed of holding their own opinions; in fact the preface suggests a more tolerant attitude towards the free opinions of the younger men than is sometimes to be met with among their more senior colleagues.

In its general arrangement the book conforms to the usual type. The first volume contains chapters on surgical technique, ophthalmoscopic examination, diseases of the conjunctiva, the cornea, the sclerotic, the iris and ciliary body, wounds of the globe and orbital trauma, the artificial eye, the eyebrow, the lids, the lacrymal apparatus, and diseases of the orbit. The second volume deals with refraction, affections of the lens, vitreous, choroid, retina, the optic nerve, the ocular muscles, and ophthalmological neurology. The index occupies fifteen pages and seems hardly commensurate with the size of the book. The work is essentially clinical in type, little space being devoted to anatomy and physiology, and not very much to pathology, more particularly the histological portions of that part of the subject, but the large number of illustrations and diagrams to a certain extent minimizes any drawback arising from insufficiency of printed description on these points.

The three coloured plates deal with the plastic repair of the lids by turning in flaps of skin from the neighbourhood; there are no coloured plates of the fundus oculi. Figure 69 is labelled follicular conjunctivitis, but it looks much more like spring catarrh.

Conjunctivitis is conveniently classified as follows: contagious with secretion, superficial; contagious without secretion, interstitial; eruptive, non-contagious, and conjunctivitis following customary types—this chapter is particularly good; noteworthy also is the large amount of space devoted to syphilis of the membrane, a subject that is often treated rather superficially in the textbooks.

In the section on glaucoma the numerous newer operations for its relief are described and two excellent pictures of Herbert's small flap sclerotomy are given; in dealing with the trephine operation of Colonel Elliot the pictures are hardly so good—the conjunctival flap is drawn much too triangularly, and the trephine appears to have been placed purely on the sclerotic; it is only fair to state that in the description of the operation the necessity of dissecting a little way into the cornea after the conjunctival flap has been dissected down to the limbus is duly insisted on; the instrument illustrated seems to be the one devised by Stephenson, and not that of Elliot.

We have said enough to show that the book is a very good one; it is well printed and has an extraordinary wealth of illustrations. We have no hesitation in saying that we expect it to take its place as one of the standard textbooks on ophthalmology in the French tongue.

The appearance of the third edition of Meller's *Ophthalmic Surgery*,[3] edited by Dr. WILLIAM SWEET, is very welcome. This, the abbreviated title, is a little misleading, for the book does not make any pretence to go over the whole ground of ophthalmic surgery, but, as the title-page explains, is a description of operative measures recommended and performed in the great eye clinic of Vienna. Those who have ever taken out a post-graduate course in this world-famous clinic will be glad to have the methods which they learnt there kept fresh in their memory, and those who have not enjoyed the same advantages will be glad to read the descriptions of the operation which are usually performed at this clinic. We may say at once that the measures described in this book are all of them sound in theory; the degree of success attained depends upon the individual surgeon, and the results very often on the docility and behaviour of the patient. It is interesting to see how large a place local anaesthesia takes in ophthalmic surgery in Vienna; there seems to be little that cannot be done under a local anaesthetic, even Krönlein's operation. Meller rightly insists on a thorough knowledge of general surgical principles in anyone who contemplates taking up the study of ophthalmic surgery, and observes that attendance at operations as assistant helps the beginner materially. The instruction given comprises the correct demonstration of the proper method, and the analysis of accidents and mistakes. We are glad to see that throughout the book due recognition is given to this last matter.

The rest of the work is thoroughly sound, though some of the descriptions will hardly commend themselves to surgeons in this country; such, for instance, as the use of the keratome for making the section in iridectomy for glaucoma, and the advice given on page 205 that when the knife has been introduced for the section in cataract cases with the cutting edge downwards, if recognized immediately after the point of the knife enters the anterior chamber, the counterpuncture should be completed and the blade of the knife rotated as quickly as possible 180 degrees in its long axis, so that its edge becomes directed upwards. Meller states that the quick rotation prevents the escape of the aqueous, and that turning the knife in the wound is without disturbing consequences; we confess that we have never tried this manœuvre and we should be sorry to have to undertake it.

The book is well printed and the illustrations are very

[1] *A Manual of Psychotherapy for Practitioners and Students.* By Henry Yellowlees, O.B.E., M.D., F.R.F.P.S.G., M.R.C.P.Edin., D.P.M.Lond. London: A. and C. Black, Ltd. 1923. (Cr. 8vo, pp. xv+247. 10s. 6d. net.)

[2] *Traité d'ophtalmologie.* Par A. Poulard. Tome I et Tome II. Paris: Masson et Cie. 1923. (Roy. 8vo; Tome I, pp. 753, 402 figures, 3 plates; Tome II, pp. 699, 303 figures. Fr. 120 the two volumes.)

[3] *Ophthalmic Surgery.* A Handbook of the Surgical Operations on the Eyeball and its Appendages as practised at the I. Eye Clinic, University of Vienna. By Dr. Josef Meller; edited by Dr. William Sweet. Third edition, translated from the second edition, "Augenärztliche Eingriffe." London: William Heinemann. 1923. (Med. 8vo, pp. xv + 365; 225 figures. 25s. net.)

ıngá, Colombia. Since September, 1917, the Board has ırked with the French Government and other existing ;encies in a comprehensive campaign against tuberculosis, ıd in response to an invitation from the Spanish Government it is investigating the conditions of health in a untry where the typhoid death rate is 33.6, as against 5 per 100,000 in the State of New York. The report *ntains some remarkably good illustrations* which show, nong other things, the methods of treatment and instruc- ɔn of the patients. The appendix contains much inter- ting information of a more technical character, such as e details of treatment and a critical summary of methods estimating the severity of hookworm infection by the ıemoglobin index, worm counts, and ova counts. In ıother section of the *appendix the methods of malaria* ıntrol are summarized, including a description of Dr. . A. Barber's method of killing the larvae of the ıopheles mosquito by Paris green, which is especially ɜeful in the case of waters so choked with vegetation that ɜh cannot reach the larvae. In a short section on "Man- ade malaria or man-made breeding places for anopheles" ıe causes, such as railways, agricultural irrigation, and ɔld dredging, responsible for 60 per cent. and in some aces 75 per cent. of the cases of malaria, are detailed.

MALARIA IN MALAYA.

ıe report on the Medical Department of the Federated alay States for 1922 states that the estimated popula- on *in that year was 1,360,876, including about 6,000* uropeans. The birth rate for the year was 25.65, and e death rate 25.74, per 1,000. The death rate was the west recorded for twelve years. The infantile mortality te was 170.83, compared with 183 per 1,000 in 1921. The ·incipal diseases from which death resulted were malaria 1.44 per 1,000), dysentery and diarrhoea (1.78), pul- onary tuberculosis (1.76), and beri-beri (0.33). Malaria as thus, as always, the most prevalent disease. There were),072 cases treated in hospitals, with 1,403 deaths and a ɜath rate of 5.38 per cent., against 37,049 cases, with 1,943 ɜaths and a death rate of 5.24 per cent., in 1921. Free ıinine *is always available, and is distributed* throughout ıe country through the medium of subordinate native ficials, police stations, and schools. On the advice of the ıalaria Advisory Board each patient who has suffered from alaria in hospital is given a certain number of quinine .blets to take away on discharge. Cinchona *febrifuge* is ·ing used in some hospitals and shows good results—in ɔme cases better results than quinine. The following gures relate to field and laboratory work in connexion ith anopheline mosquitos carried out by the Malaria ureau during the year under review: Breeding places ·scribed 941, larvae identified microscopically 71,421, adults ·ed out and identified 23,621, *adults caught in houses*),327, adults tested for egg-laying capacity 1,257. Obser- ıtions were continued throughout the year to determine hether the various species of anopheline mosquito have definite breeding season or whether they are capable of ·eeding all the year round. In connexion with these ɔservations the malaria research officer, Dr. H. P. 'acker, draws the following conclusions: "At the present age it is impossible to base definite conclusions on the ork in hand, but certain temporary deductions can be ıade. In last year's report it was stated that 'no definite ɔrrelation between species and the rainfall could be ıtablished,' and the main reason for this statement was suggested above. These reasons will form the hypothes be tested by the results to be obtained during 1923, they will be confirmed if the results are similar to obtained during the two previous years, which are first two years of the present research."

WALLER MEMORIAL.

As was announced last June, the friends, fellow wor and pupils of the late Professor Augustus D. W F.R.S., *and Mrs. Waller*, have resolved to establi memorial in recognition of their lifelong devotio physiological investigation. The memorial is to take form of a fund, to be used for the encouragemen scientific research. The fund will be administered b Council of the London School of Medicine for Wo where Professor Waller was a lecturer in physio where Mrs. Waller was first a student, *then demonstr* and later a member of the council until her death, where their daughter is lecturer in physics. Dr. W was lecturer in physiology at St. Mary's Hospital Me School for nineteen years, and it has now been sugg that an additional memorial should be established i form of a research room to be called the Waller Rese Laboratory in connexion with the physiological departr A committee has been formed, of which Prof Winifred C. Cullis, of the London School of Medicin Women, and Dr. J. S. Macdonald, Holt professo physiology in the University of Liverpool, are hon *secretaries*. Professor J. Mellanby, of St. Tho Hospital Medical School, London, S.E.1, is actin honorary treasurer, and to him subscriptions shoul sent. A subscriber who desires that his gift shoul allocated to the St. Mary's memorial is asked to state when sending his cheque. It is hoped that a sum of £ may be raised; towards this £1,300 has already subscribed.

The committee of the Christie Hospital, Manch *offers a prize of £300 for cancer research*; the prize w awarded in two instalments. Its object is to su research already in progress, and it is hoped in this to stimulate isolated work apart from the systematic done by the cancer research institutions. The asse will take into consideration promising work which fail for want of financial help. Candidates must be fied in medicine or in a science cognate to medicine, must submit evidence of original research work bearir cancer, done and projected. This competition is op workers of any nationality, but all documents mu submitted in the English language. Applications shou sent to the Chairman of the Medical Board, Ch Hospital, Manchester, on or before December 31st, 19

On Wednesday, *December 5th, a party of foreign m* statisticians, including delegates from Brazil, Bulg Hungary, Czecho-Slovakia, and Russia, will be receiv Sir Walter Fletcher at the National Institute for M Research at Hampstead. Dr. Brownlee and Dr. M Greenwood have arranged for their *benefit short disco* and demonstrations on statistical subjects.

The collection of drawings of war injuries of the f oculi presented to the Army Medical War Museum b W. Wallace, late temporary captain R.A.M.C., is n the museum of the Royal College of Surgeons of En and available for study.

good; the translator might have taken more pains to make his English easy reading; without being over-fastidious about split infinitives, a protest against the large number in this volume may be permitted.

One of the most useful of the smaller monographs on his subject to the ophthalmic surgeon is the handbook on *Perimetry* by Dr. LUTHER C. PETER, and we welcome the appearance of the second edition.[4] The text has been recast to a certain extent; for instance, the section on the anatomy and physiology of the visual pathway has been transposed from Section III to the opening chapter; this is an improvement, for it is essential for the student to get a good grip of the anatomy and physiology of the subject before he enters on the study of the diseases. The new edition contains about fifty more pages and roughly forty more illustrations than its predecessor. For those who do not already know the book we may say that it is arranged under the following sections: anatomy and physiology; physiological principles and normal fields; methods, instruments, charts, and technique of field taking; general pathology of the visual field; special pathology of fields; fields in functional nervous diseases; and an appendix. The contents are thoroughly up to date, and it is pleasing to find proper recognition is accorded to the work of Gordon Holmes, Sir William Lister, Traquair, and Sinclair, in advancing knowledge of the cortical representation of the macula and in quantitative perimetry. An extensive bibliography completes a book which is singularly well produced; the paper and print are very good; there is a wealth of illustrations. It should find a place in the library of every ophthalmic surgeon.

WOMANHOOD AND HEALTH.

DR. CHRISTINE MURRELL has compressed into her little book, *Womanhood and Health*,[5] an enormous amount of information. The five chapters deal with reproduction from the biological standpoint, the organs of reproduction and their functions, menstruation, the laws of health specially applying to women, and suggestions to parents and teachers as to the methods of instruction for the young. The book is based on lectures given to many audiences during the last twenty years; and this no doubt accounts for the sense of compression induced in the reader. Dr. Murrell's aim is to give women sufficient information with which to test for themselves the various forms of advice they will inevitably be given, and to separate the wheat from the chaff. She is concerned also to show that the average woman is a normal, healthy individual, and that the mid-Victorian idea of semi-invalidism as the usual lot of women should be discarded. This thesis is developed chiefly in the chapter on menstruation, in which the investigations of several women doctors are quoted to show that the human organism works in a cycle of three to four weeks, and that the cycle is common to both sexes and bears no necessary relation to the menstrual period. Rather is it suggested that the change in emotional tone is due to alteration in blood pressure and not to the onset of menstruation. Some authorities, however, appear to admit that "owing to the probable emotional instability there is a natural tendency to 'feel sorry for oneself'" at the menstrual period, "and that this should be combated." The conclusion is drawn that menstruation should be regarded in the same light as the other recurring functions of the body, such as sleep, the taking of food, or the daily action of the bowels, all of which are not considered to imply any indisposition or departure from normal health. "It is of the first importance that women should recognize that they, no less than men, are normal healthy individuals," and "that the emotional cycle is a joint inheritance which they share with men, and is no true gauge of mental efficiency." The recognition of the truth of these propositions is regarded as important because in these days so many women have to compete for work in the open market, and menstrual disability would prove an insuperable obstacle to their success. Dr. Florence Meredith of New York is quoted as reporting that dysmenorrhoea has decreased enormously in recent years, and the decrease is attributed to (1) improved attitude of mind, (2) increased general activity with no remission during the period. How small the effect of menstruation need be on the general activities is shown by the fact that the majority of women find that they can continue to take baths during the period without any ill effect and with much additional comfort.

Notwithstanding these views Dr. Murrell seems at times to be stricken with the thought that things are not quite so simple with women as with men, as when she states that the gradual cessation of the powerful ovarian hormone at the climacteric "tends to produce a temporary emotional instability of depresssion. This depression is much diminished if its cause is understood, and at its worst it need only be regarded as a dark tunnel through which the woman must pass in order to emerge into the calm daylight of peaceful later years."

Dr. Murrell gives much sound advice on the laws of health applying to women, though the modern scientific prohibitionist may object to her statement that "alcohol is a stimulant, and should only be taken as such." In the chapter on instruction for the young a difficult subject is tactfully dealt with.

COLITIS.

Les Colites[6] contains the collected instruction given in a course of lectures at the Beaujon Hospital, Paris, under the direction of Professor PAUL CARNOT, who has written an interesting introduction and himself describes amoebic and other parasitic forms of colitis. He argues that, contrary to some suggestions, the colon has distinct uses, the right or proximal segment being responsible for absorption and the left or distal portion for the accumulation of faeces, and that from a pathological point of view there may be right-sided or left-sided diarrhoea or constipation; in stasis of the contents in the left colon (Hurst's dyschesia) there is a remarkable freedom from symptoms, in contrast to the definite manifestations associated with right-sided stasis. In describing Bauhin's valve at the junction of the small and large intestines, Professor Carnot refers to the muscular sphincter, described in 1902 by an anatomist of the name of Elliot Keith, thus recalling two distinguished members of the British school.

The specific infective and toxic forms of colitis, including typhoid, paratyphoid, bacillary dysentery, uraemic and mercurial colitis, are summarized by Dr. P. HARVIER, who remarks that, whereas an anti-Shiga serum is effective, no benefit can be expected from an anti-Flexner serum. In this writer's account of the various forms grouped together as cryptogenic, the condition commonly though inaccurately known as mucous colitis is described under the cumbrous if more correct name of muco-membranous colopathy, and among the numerous causes mentioned importance is attached to lesions of the female sexual organs. The treatment is discussed under the three heads of the syndrome, the etiological factors, and the painful crisis; for the constipation, which with the mucous casts and the pain constitutes the three cardinal manifestations, irritating purgatives and laxatives are held to be contraindicated and the use of enemas rarely desirable, though the Plombières treatment is approved. Recto-sigmoiditis is considered by Dr. FRIEDEL, and the surgical complications of colitis, which as compared with appendicitis rarely attract attention, are detailed by Dr. G. LARDENNOIS; they include—first, acute lesions, such as severe haemorrhage which may be successfully treated by timely caecostomy, and suppurative perisigmoiditis; and secondly, chronic conditions such as constipation (in connexion with which Sir Arbuthnot Lane's total colectomy is critically considered), pericolitis, and megacolon.

This concise handbook may be recommended as a clear and useful guide on this subject.

[4] *The Principles and Practice of Perimetry.* By Luther C. Peter, A.M., M.D., F.A.C.S. Second edition, thoroughly revised. Philadelphia and New York: Lea and Febiger. 1923. (Med. 8vo, pp. xii + 231; 150 figures, 5 plates. 4 dollars.)

[5] *Womanhood and Health.* By Christine M. Murrell, M.D., B.S.Lond. London: Mills and Boon, Ltd. 1923. (Cr. 8vo, pp. 154; 15 diagrams; 4 charts. 5s. net.)

[6] *Les Colites.* Par P. Carnot, P. Harvier, R. Friedel et G. Lardennois. Paris: J. B. Baillière et Fils. 1923. (Demy 8vo, pp. 224; 34 figures. Fr. 12.)

FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

CONGRESS AT SINGAPORE.

THE fifth Congress of the Far Eastern Association of Tropical Medicine was opened at Singapore on September 5th by Sir Laurence Guillemard, Governor of the Straits Settlements. The attendance numbered over 300, and included Government delegates from the Straits Settlements, the Malay States, Australia, British India, British North Borneo, Burma, China, Formosa, Hong-Kong, Indo-China, Japan, Macao, the Netherlands Indies, the Philippine Islands, Sarawak, Siam, and the United States, as well as representatives of numerous universities, institutes of medical research, and officers of civil medical services.

The Association was founded at Manila in 1908, and its objects, as stated in its articles of constitution, include the union of the medical profession of the Far East into one compact organization, the promotion of friendly intercourse between scientific men, and the enlightenment of public opinion in regard to the prevention of disease.

The fifth congress, under the presidency of the Hon. Dr. A. L. Hoops, Principal Civil Medical Officer of the Straits Settlements, was of exceptional interest and value, and owed its success in no small measure to the active co-operation of the Malaya Branch of the British Medical Association and its indefatigable honorary secretary, Dr. J. W. Scharff, who acted as secretary and treasurer of the congress. Nearly sixty papers were submitted, most of them dealing with tropical diseases but many also of more general interest. It is intended to publish the full transactions in two volumes before the middle of next year. In the meantime a report of the congress has been published giving a summary of the business transacted.

The Opium Evil.

Members of congress laid stress on the necessity of employing national and international organization, as contrasted with merely local effort, for the control of many tropical diseases. An illustration was given by Dr. Galloway in connexion with the opium habit. At present opium smokers among the Straits-born Chinese are few, and will probably be extinct in the next generation. The difficulty lies in the immigrant Chinaman, who naturally brings his habits with him and dominates the position. The local Government endeavoured to reduce the use of opium by raising the price of "chandu," with the result that smoking was stopped to a great extent and chandu or dross swallowed instead. Thus the measure reacted in an injurious manner on the public health, especially that of the Chinese immigrant, by forcing him to adopt methods in comparison with which opium smoking was comparatively harmless. The obvious way, according to Dr. Galloway, and that offering the greatest promise of success, would be to effect an intimate *rapprochement* with China and to support her in an agreed programme for the suppression of opium.

Ankylostomiasis.

Dr. Sawyer, of the Commonwealth Department of Health, who contributed a paper on nation-wide and international organization, referred to the advantages that were derived from the expansion of the merely local efforts to control ankylostomiasis in Northern Siam into a nation-wide campaign under the Siamese Red Cross. In further illustration he gave an account of the Australian hookworm campaign. Various local efforts had been made without any tangible results, one of which, in Northern Queensland, revealed an amount of disease sufficient to cause concern as to the future progress of the region. As a result of these revelations the Commonwealth Government, the International Health Board, and the State of Queensland started, in 1919, the hookworm campaign. One by one all the Australian States came into the arrangement, together with the three large territories New Guinea, Papua, and Northern Territory. Early in 1923 the hookworm survey of the whole of Australia had been completed, and the campaign had developed from local operations into a nation-wide project. Dr. Sawyer enumerated many advantages accruing from these combined efforts. For instance, in a country such as Australia, with an area of nearly three million square miles, observations could be made under most varied conditions and compared. Thus the area investigated included tropical areas, some with an average annual rainfall of over 150 inches, others with less than 10 inches; and the rainfall was found to be the dominant factor in determining the amount and distribution of infection in the tropics and subtropics. Under the conditions found in Queensland, hookworm infection in people of European derivation was usually high if there were more than 50 inches of rain in the year, and, as a rule, almost absent with less than 40 inches. Among the aborigines, many of whom went barefoot, the infection rates were much higher than among Europeans. In the vast low-rainfall areas of the interior there was no hookworm infection in any race. With regard to treatment and prophylaxis, the important observation was made that better results were obtained when less effort was devoted to securing complete cures of all infected persons, and more emphasis placed on visiting the communities often, under a systematic scheme of permanent hookworm control, which would bring every community under some degree of treatment every year. The scheme has been in operation only a short time, but from the figures derived from the last survey, which practically included the whole population, a great reduction in the percentage of cases has been effected.

Beri-beri: Malaria.

An important matter discussed had reference to the control of beri-beri. At the meeting held in Batavia in 1921 it was recommended to the Governments concerned to take action in this matter, and the question was thoroughly debated at the present meeting on the proposals submitted by the Philippine delegates—namely, that rice should be graded according to its P_2O_5 content (that containing 0.5 per cent. to be called "standard rice," that containing less "supermilled rice"); that the consumption of supermilled rice should be discouraged by placing a tax upon it; and that the significance of the difference between the two grades should be impressed on the population by means of an educational campaign. These proposals received practically no support. It was objected that the P_2O_5 content afforded no test of the degree of milling; that rice may have a P_2O_5 content below the standard and yet be undermilled and contain a sufficiency of vitamins. It was further pointed out that serious inconvenience would arise from the fact that undermilled rice cannot be kept in stock for any length of time, and that the objections arising from overmilling could be overcome by improved methods of cooking and by combining other foods with rice. In some countries, Siam for instance, a large proportion of white rice is exported, and the adoption of the proposals would seriously interfere with trade. The proposed measures would, moreover, probably have the effect of raising the cost of living of the poorer classes and cause widespread discontent. Mr. W. G. Maxwell, Chief Secretary to the Government of the Federated Malay States, briefly defined the position thus: "We pay a small and gradually diminishing price in the form of beri-beri, for the widespread advantages of a cheap and abundant food supply for the people."

The President delivered an address on the prevention of diseases in the tropics, and a considerable proportion of the available time of the congress was devoted to the question of malaria. It might be said that the real work of eradication was only just beginning in spite of the fact that 100,000 lives had been saved in Malaya during the last twenty-five years; since the start of definite anti-malarial work in 1912, 30,000 had been saved in Singapore alone by the health officers and engineers. A great advance had taken place in the knowledge of the natural history of the various species of mosquito concerned in infections in different districts; this had led to the realization of the need for preventive treatment being directed in accordance with the habits of the species concerned; previously treatment had been rather haphazard, but different places often required different methods. Better directed drainage methods and oil treatment had resulted in very considerable financial economies, and in some places the increase in

ON SUICIDE.

IN his pamphlet on suicide,[7] which forms one of the supplements issued from time to time by the *Monatsschrift für Psychiatrie und Neurologie*, Dr. R. WEICHBRODT, who is attached to the Frankfort University Clinic for Psychiatry and Nervous Diseases, has collected statistics showing that there has apparently been a great increase in the number of suicides since statistical inquiries on this subject were first instituted nearly a hundred years ago. During the period 1870-1900 the number of suicides in Austria rose from 1,560 to 4,215, in Italy from 836 to 2,040, in France from 4,490 to 8,926, in England from 1,495 to 2,896, in Switzerland from 321 to 746, in Belgium from 367 to 786, in Denmark from 505 to 550, and in Spain from 112 to 118. Norway was the only country which showed a slight decrease—namely, from 128 to 117. The difference in the tendency to suicide of the various races is shown by calculating the relation of the number of suicides to the population. Thus to every million inhabitants in Denmark there were 224 suicides, in Switzerland 225, in France 222, in Germany 207, in Russia 31, and in Spain only 21. The author believes that economical causes are chiefly responsible for the apparent increased frequency of suicide. Formerly suicides were much more frequent among men than among women, the proportion of male to female in the nineteenth century being four to one. In the last thirteen years before the war, while the number of suicides among men increased by only 20 per cent., the increase among women was 70 per cent., corresponding, as he asserts, to the increase in the number of women who had taken up some profession or trade. During the war decrease in the number of suicides among men was accompanied by a steady increase among women, so that by 1918 there were 63.4 suicides among women to every 100 suicides among men.

As regards the influence of climate on the frequency of suicide, Montesquieu's statement that more persons kill themselves in the winter than in the summer is held to be disproved by statistics, which show that the number of suicides increases in the spring, reaches its acme in May and June, and sinks to its lowest level in December and January.

In discussing the relation of suicide to insanity, Dr. Weichbrodt remarks that though a certain number of suicides are of unsound mind, a study of the literature and his own observations have convinced him that the estimate of one-third is much too high, as in a large number of suicides it has not been possible to find any psychical abnormalities. In conclusion, he maintains that the best prophylaxis of suicide consists in a sound ethical education at home and at school, and that the frequency of suicide among the mentally unstable can be reduced by early psychiatric treatment.

BACTERIOLOGY.

A Manual of Determinative Bacteriology[8] has been edited by a Committee of American Bacteriologists under the chairmanship of Dr. DAVID BERGEY of Pennsylvania. Its object is to provide a key to the classification of organisms belonging to the schizomycetes. Though it is based principally on the work of the Society of American Bacteriologists published in 1917 and 1920, there are a considerable number of modifications of the scheme proposed by them, as well as the introduction of many new genera, which are put forward—we hope, at least—more in a tentative manner than with any purpose of finality. Thus, for instance, the tribe Bacteriae, comprising the coli-typhoid organisms, is subdivided into six genera—the Escherichia, Aerobacter, Proteus, Salmonella, Eberthella, and Alcaligenes. The familiar *B. coli* is now termed *Escherichia coli*, and *B. typhosus Eberthella typhi*. These subdivisions have much to recommend them, but we doubt whether all of them have been sufficiently carefully thought out; whether, for example, it is wise to place lactose-fermenting, indol-producing organisms in the same genus as that to which the *B. typhosus* belongs. Further evidence of this confusion is seen in assigning *B. murisepticus*—the causative organism of swine erysipelas—to the genus Pasteurella, from which it is clearly separated by morphological, cultural, fermentative, serological, and pathogenic characteristics. In spite of its numerous shortcomings, however, which are inevitable in such a subject as this, the book has much to recommend it, and any criticisms we have put forward are intended more in a constructive than in a destructive sense. There is no doubt that such a work is badly needed—not so much by those engaged in clinical bacteriology as by those who are commencing to study bacteriology as a pure and not as an applied science. Just as in botany one can with the aid of Hooker determine by examination of a flower the genus to which it belongs, so now is it possible with this book to assign an unknown bacterium to its proper genus. We congratulate the authors on their attempts to solve an extremely difficult problem; their work will go far to lift bacteriological classification from the chaos in which it is at present and to place it on a sound footing.

The book *Bacteriology*,[9] "a study of micro-organisms and their relation to human welfare," appears to have had its origin from a conversation held early in 1916 between the two Drs. CONN, which led them to conclude that a work dealing with general bacteriology and its applications to all branches of science was wanted. The requirements of the medical student have been well attended to by medical bacteriologists, as is witnessed by the booksellers' lists, for there are big books and little books in great number. The small group of micro-organisms capable of causing human disease are undoubtedly of great importance, but they are, after all, a very small part of that vast number of microscopic creatures without whose assistance animal life on this planet would be impossible. Human welfare depends on the benefit we derive from this larger group just as truly as human disease on the menace of the smaller pathogenic group. The book has not been written specially for medical students, but it contains several chapters on pathogenic organisms; a detailed description of individual bacteria is not given, and the subject is dealt with in an elementary and general fashion. A much larger part of the book is devoted to such subjects as micro-organisms in relation to the fertility of the soil, the part played by bacteria in the dairy industry, bacteria in relation to plant diseases, and the functions of micro-organisms in the manufacture of alcoholic beverages, bread-making, the manufacture of vinegar, and the treatment of fodder. Thus a very wide field is covered. The descriptions are clear and concise and eminently readable. When the authors descend from the general to the particular their detail is not always accurate, as for instance, the remark on page 134, "There is considerable evidence that long-chain-forming streptococci in milk are pathogenic forms." The majority of the illustrations of [illegible] have little value and many will be apt to give an erroneous impression to readers who have never looked down a microscope. It is a pity also that the authors cannot make up their minds whether to employ the Fahrenheit or centigrade temperature scale; in some places they use one, elsewhere the other. These, however, are criticisms of detail, and one need not be too punctilious about detail in a book the main object of which is to present a broad and general survey of the activities of bacteria in nature and industry.

PLANT BIOLOGY.

MR. TANSLEY tells us in the preface to his book *Elements of Plant Biology*[10] that it is primarily intended for students, medical and other, who must obtain some knowledge of plants in relation to general biology and who have little or no groundwork upon which to build. It may be said

[7] *Der Selbstmord.* By Privatdozent Dr. med. R. Weichbrodt. Berlin: S. Karger. 1923. (Roy. 8vo, pp. 44.)

[8] *Bergey's Manual of Determinative Bacteriology.* Baltimore: Williams and Wilkins Co. 1923. (Med. 8vo, pp. xii + 442. 5.75 dols.)

[9] *Bacteriology: A Study of Micro-organisms and their Relation to Human Welfare.* By H. W. Conn, Ph.D., and H. J. Conn, Ph.D. Baltimore: Williams and Wilkins Co. 1923. (Med. 8vo, pp. 411; figures. 4 dols. in U.S., Canada, Mexico, and Cuba; 4.50 dols. other countries.)

[10] *Elements of Plant Biology.* By A. J. Tansley, M.A., F.R.S., University Lecturer in Botany and Examiner in Elementary Biology to the University of Cambridge. London: George Allen and Unwin, Ltd. 1923. (Cr. 8vo, pp. 410. 10s. 6d. net.)

land values, consequent on drainage, had more than covered the total expenditure, including that of subsequent development for cultivation or building purposes.

Singapore gave the members of the congress a hospitable welcome, and many excursions were made into the surrounding districts for the inspection of works of sanitary interest. The visit of the congress was also made the occasion for laying the foundation stone of the new King Edward College of Medicine, the ceremony being performed by Lady Guillemard. The college, which was founded in 1905 and is therefore the youngest medical school of the empire, was originally intended to be a training centre for subordinate local practitioners, but in 1916 a complete medical course was planned and the diploma was recognized by the General Medical Council as a registrable qualification. Dr. G. H. Macalister, the Principal, referred to the fact that some one hundred and sixty licentiates of the college were in practice in Malaya and expressed the hope that, with ample accommodation, the usefulness of the college would expand in further directions. There will be ample facilities for post-graduate study and research.

The next congress will probably be held in Japan in October, 1925, under the presidency of Professor S. Kitasato.

CRIMINAL RESPONSIBILITY.

REPORT BY LORD JUSTICE ATKIN'S COMMITTEE.

THE Committee on Insanity and Crime appointed by the Lord Chancellor in July, 1922, has now issued its report.[1] The Committee was a purely legal and administrative body. It consisted of Lord Justice Atkin (Chairman); Sir Ernest Pollock, K.C., late Attorney-General and now Master of the Rolls; Sir Leslie Scott, K.C., late Solicitor-General, and, in succession to him, Sir Thomas Inskip, K.C.; Sir Herbert Stephen, Bt., Clerk of Assize for the Northern Circuit; Sir Richard Muir, Senior Treasury Counsel at the Central Criminal Court; Sir Archibald Bodkin, Director of Public Prosecutions; Sir Edward Troup, late Permanent Under Secretary of State, Home Office; Sir Ernley Blackwell, Assistant (Legal) Under Secretary of State, Home Office; and Sir Edward Marshall-Hall, K.C. The terms of reference were:

"To consider and report upon what changes, if any, are desirable in the existing law, practice, and procedure relating to criminal trials in which the plea of insanity as a defence is raised, and whether any, and if so what, changes should be made in the existing law and practice in respect of cases falling within the provision of Section 2, Subsection 4, of the Criminal Lunatics Act, 1884."

By subsequent correspondence it was made clear that the then Lord Chancellor (Lord Birkenhead) intended the inquiry to have a wide scope and to include consideration of the rules in M'Naghten's case, which since 1843 have formulated the English law as to the criminal responsibility of persons alleged to be of unsound mind.

Two medical documents for submission to Lord Justice Atkin's Committee were issued in March last, and reproduced in these columns.[2] The one was a memorandum of evidence on legal responsibility for crime prepared under the authority of the Council of the British Medical Association; the other was a report drawn up by the Medico-Psychological Association of Great Britain and Ireland.

The subject had engaged the attention of the British Medical Association for some years past, and in 1913 a special subcommittee of the Medico-Political Committee was appointed to consider the present state of the law in its regard to legal responsibility for crime. In due course it presented a report, which was approved by the Annual Representative Meeting in 1915, and the memorandum submitted to Lord Justice Atkin's Committee was based on that report. The Medico-Psychological Association's report was prepared for it by a special committee including medical superintendents of asylums, several persons now or formerly commissioners in England and Scotland, or Lord Chancellor's visitors, several persons concerned with the feeble-minded and with prison administration, and two barristers.

Both reports were supported by the evidence of specially appointed witnesses; they are printed as appendices to the report now issued. In regard to them the Committee says:

"We have thus had unequalled opportunities of becoming acquainted with the considered opinions of the most eminent representatives of the medical profession on this much debated subject. We desire to express our sense of deep obligation to the Associations generally and to their individual members for their valuable assistance in this respect. Unfortunately for us the difficulties presented by criticism of the existing law from the medical side were not removed; for, as will be seen, the two reports are, on the main question, in direct opposition to one another. The British Medical Association would retain the existing law with a modification as to lack of control: the Medico-Psychological Association would sweep away the present rules and substitute other questions for the jury, which they formulate. After careful consideration we come to the conclusion that we cannot accept the recommendation of the Medico-Psychological Association. In substance we concur with the report of the British Medical Association. It seems right, however, that we should not pass away from a report presented to us with such great professional authority without stating some of the reasons for our conclusions."

One of the difficulties encountered by the Committee in the Medico-Psychological Association's report was that that association gave "no clue to what they regard as the test of criminal responsibility," or, again, "what it was that ought to make a person of unsound mind immune from punishment for any act he might commit in violation of the criminal law." In this connexion the Committee discusses the far-reaching effect of granting immunity to everyone who can be said to be of unsound mind when the medical conception of unsoundness of mind is considered. Of this medical conception it says:

"It is accepted by the witnesses for the British Medical Association, and, of course, by us. 'Unsoundness of mind is no longer regarded as in essence a disorder of the intellectual or cognitive faculties. The modern view is that it is something much more profoundly related to the whole organism—a morbid change in the emotional and instinctive activities, with or without intellectual derangement. Long before a patient manifests delusions or other signs of obvious insanity he may suffer from purely subjective symptoms which are now recognized to be no less valid and of no less importance in the clinical picture of what constitutes unsoundness of mind than the more palpable and manifest signs of the fully developed disorder which may take the form of delusions, mania, melancholia, or dementia.'"

In certain cases, such as that described to the Committee by Dr. Carswell, the difficulty of diagnosing the accused person's state of mind, and, when some unsoundness of mind is indicated, of establishing the non-relation of the act to the unsound state of mind, would, in the Committee's view, introduce so much uncertainty into the administration of the criminal law as to create a public danger.

The Committee next addresses itself to showing that much of the medical criticism directed at the M'Naghten rules is based upon a misapprehension:

"When once it is appreciated that the question is a legal question, and that the present law is that a person of unsound mind may be criminally responsible, the criticism based upon a supposed clash between legal and medical conceptions of insanity disappears. It is not that the law has ignorantly invaded the realm of medicine; but that medicine, with perfectly correct motives, enters the realm of law."

The Committee can find no good reason why a medical expert in giving evidence at a criminal trial should not fully develop his reasons for holding the prisoner to be of unsound mind. But having given evidence of such unsoundness of mind, he should then be directed to the question of fact which determines the legal issue—namely, the question formulated at present by the M'Naghten rules. A wise discretion would allow all necessary expert evidence as to the general mental condition, as a preliminary to evidence directly bearing on the ultimate legal issue raised by the plea.

Thus the Committee holds that the existing rule of law is sound: that a person may be of unsound mind and yet be criminally responsible. If a person intends to do a criminal act, has the capacity to know what the act is, and

[1] Cmd. 2305. To be purchased through any bookseller or directly from H.M. Stationery Office. Price 6d. net.

[2] BRITISH MEDICAL JOURNAL, March 24th, 1923, p. 518 and p. 520.

once that the book admirably fulfils its purpose, and that it may be read by others with both interest and profit. The author's style is so clear and easy that even the beginner can easily understand the many technical words so terrifying to the uninitiated, the derivations of the scientific terms being given as footnotes. At the end of each chapter instructions for practical work are set forth, making the book useful to teacher and student alike.

Written from the physiological standpoint, only such anatomical details are given as are necessary to understand the functions concerned. This is as it should be. The student is but too often overloaded with a mass of purely anatomical detail, resulting first in boredom and ending ultimately in aversion, because the bearing of such details upon their ultimate studies is not only difficult to comprehend, but also very frequently as difficult to justify.

More and more are biological processes finding their applications in clinical medicine. A book such as Mr. Tansley's, by stimulating general interest, makes such applications easier to imagine. The earlier chapters give a lucid account of the elementary facts of biochemistry. In other parts the curtain is lifted sufficiently to give to the intelligent beginner a glimpse of the philosophical problems with which the science of biology teems. For example, the origin and evolution of the soma and of sex are described in a series of organisms commencing with *Chlamydomonas* and terminating with *Volvox*. This is followed by an account of the nature and significance of the differentiation of the male and female gametes.

Sufficient has been written to indicate the general scope of the book. It is obviously the work of an author having the somewhat rare ability of combining scientific knowledge with simplicity of exposition, and of looking at his subject from the points of view of both teacher and student.

NOTES ON BOOKS.

Life Movements in Plants, by Sir J. C. BOSE, has been issued in three parts, and we are here concerned with the third and fourth.[11] The movements of plant organs under the changing forces of the environment are mostly the effects of variation of temperature, of the stimuli of contact, of gravity, and of light. The reactions are identical, whatever the nature of the stimulus, but vary with its intensity, and with the physiological condition of the tissue. In the normal state the response is by contraction, in the flaccid or subtonic condition by expansion or turgescence—a species of erection leading to reversal of the direction of movement. With a feeble stimulus an expansive reaction is induced, in contrast with the contractile effect of a moderate stimulus. In addition to actual movements, response to stimulation is evidenced, it is said, by change in the rate of growth and by electrical variation. Under a subminimal stimulus the response is electrically positive and the rate of growth is accelerated; a stimulus of moderate intensity induces, on the other hand, a negative electric variation and retardation of the rate of growth. It is stated that when a plant organ is subjected to a strong stimulus it exhibits a series of multiple responses. In the leaflets of Biophytum there is a long refractory period and the response is on the "all or none" principle. A single moderate stimulus gives rise to a single response, and a strong stimulus causes a series of responses. The book contains descriptions of numerous experiments; in one the leaf stalk of the nasturtium was seen when placed horizontally to begin to bend upwards in the course of a few minutes; the problem was to identify the particular group of cells whose activity induces this change, and the nature of the stimulus. Using an extremely fine pointed electrode, insulated except at the extreme tip, the author sought to ascertain the electrical condition of the leaf stalk at varying distances from its surface. With the stalk in a vertical position the galvanometer showed no reaction at whatever depth the electrode was inserted, but in the horizontal position a marked galvanometric response occurred in the layer of cells characterized by the presence of starch granules. The author correlates the development of the electro-negative condition with the displacement of the starch granules, as the vertical position was gradually changed to the horizontal. Other problems investigated were the existence of tissue-tracts analogous to nerves, the possibility of the transmission of excitations to a distance, and the effects of poisons and anaesthetics.

[11] *Life Movements in Plants.* By Sir Jagadis Chunder Bosé, Kt., M.A., D.Sc., LL.D., F.R.S., C.S.I., C.I.E. Transactions Bose Institute: Vols. III and IV. 1920, 1921. London and Bombay: Longmans, Green and Co. 1923. (Demy 8vo, pp. xx + 802; 327 figures. 25s. net.)

Applied Psychology for Nurses,[12] by Dr. DONALD A. LAIRD, Assistant Professor of Psychology in the University of Wyoming, as an introduction to applied psychology is the best book which has come under our notice, and if each nurse were advised to read it before completing her training many nurses and patients would be the happier. The book is a successful attempt to select from the vast literature of psychology such facts as will be of most immediate aid to nurses in understanding their patients and themselves as organisms that act, think, and feel. It is divided into four parts and has an index. The first part is introductory; the second deals with the biological foundations of behaviour; the third considers the practical applications of the results of biological adaptations; and the fourth gives a brief account of mental hygiene especially with reference to the nation. All the parts are well written and clearly presented, with an occasional lightness that will refresh the reader. At the end of each chapter is a list of topics for discussion in the form of questions which test the reader's memory and mental agility.

Dr. LEONARD WILLIAMS has revised the text of his well known *Minor Maladies and their Treatment* for the fifth edition,[13] issued this autumn. The chapter on minor glandular insufficiencies has been practically rewritten, as was necessary owing to the great progress in endocrinology which has taken place in the last four or five years. The author insists on the necessity of bearing in mind the important fact of the interdependence of the glands which constitute the system. We have no doubt that the book in this new edition will continue to command the approval of the profession.

[12] *Applied Psychology for Nurses.* By Donald A. Laird. Philadelphia and London: J. B. Lippincott Company. 1923. (Demy 8vo, pp. ix + 235; 43 illustrations. 10s. 6d. net.)

[13] *Minor Maladies and their Treatment.* By Leonard Williams, M.D. Fifth edition. 1923. London: Baillière, Tindall, and Cox. (Crown 8vo, pp. xiii + 414. 7s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

A Gas-Fire Accessory.

MANY users of gas fires place a pan of water in front of the stove in the belief that the dryness of the air which results from the burning of gas and which may cause parching of the throat and irritation of the eyes is thereby diminished. The probability is, however, that any vapour which arises from the water so placed is sucked into the fire, and does not get into the atmosphere of the room at all. A patent automatic device called the "Oxynydor" has been placed upon the market by the Yorkshire Steel Company, Limited (30, Holborn, London, E.C.), wherein the open pan of water is replaced by a more scientific but not much more elaborate contrivance. It consists of a small glass cistern placed on a saucer at the side of the fire. Projecting from the saucer is a long bar of asbestos running horizontally in front of the fire. The cistern is filled with water, and within a few minutes of the lighting of the fire a small stream of vapour issues from a diffuser at the top of a vapour column parallel with the cistern. This vapour goes out into the room and moistens the air. The room can be perfumed in this way if desired, or a deodorizer can be used. We have seen the arrangement demonstrated, and it appears to do what is claimed for it. It is applicable to electric fires, and it may find a use in sick-rooms and even in hospitals as a means of doing away with almost the only disadvantage of gas or electric heating as compared with the open coal fire.

St. Dunstan's Clinical Thermometer.

The purchaser of a St. Dunstan's clinical thermometer will provide himself with two sources of satisfaction. In the first place he will contribute to the support of an admirable institution. One-half of the profits from the sale of the thermometer goes to the funds of St. Dunstan's. Secondly, he will possess an extremely ingenious instrument. This method for keeping a thermometer constantly in a sterilizing solution is the invention of Dr. A. McDonnell. The case consists of a double tube, the inner tube being made of glass and the outer of metal. The lower end of the glass tube is rendered watertight by means of an indiarubber plunger which is twisted and compressed by a screw. The upper end of the tube is closed by an enlargement of the upper end of the thermometer fitted with an indiarubber band. The glass tube is disconnected for filling, and inserted up to its middle in the disinfectant solution the possessor may prefer. A finger is placed over the exposed end, and the tube withdrawn half-filled with disinfectant. A small piece of rubber tube inside the glass case receives the bulb of the thermometer and prevents contact with the case. A small nut fixes the glass case to the metal tube. It is stated that the markings on the thermometer are permanent and will not be washed off by the disinfectant, whether carbolic acid 1 in 20 or mercury perchloride 1 in 1,000. The thermometer case is no thicker, and very little longer, than an ordinary case, and is supplied with a pocket clip. Messrs. J. J. Hicks are the makers of the instrument. The price is 6s. 6d.

to know the act is one he ought not to do, he commits a crime. Whether he should be punished for it is not necessarily the same question, and the Committee prefers not to discuss penological theories. Accordingly it considers that the present rules of law for determining criminal responsibility as formulated in the rules in M'Naghten's case are in substance sound. Upon this it adds:

"The rules as to criminal responsibility apply not only to cases of murder but to the vastly greater number of less serious offences. In these cases mental conditions can be, and are in practice, daily taken into account in awarding punishment or in deciding whether any punishment should be awarded. In the case of murder the judge is not given a discretion as to punishment; but the executive is vested with large powers of mitigating the legal sentence. These powers, as will appear later, we think it is essential to retain. But we should view with alarm any such extensive alteration in the legal principles of criminal responsibility as is suggested by the Medico-Psychological Association. The importance of the effect upon the trial of minor offences cannot be overstated. Insanity is admittedly incapable of definition; its diagnosis difficult; its effect upon conduct obscure. The proposed rules throw upon the prosecution the onus of establishing that the insanity said to exist was not calculated to influence the act complained of, and, in default of discharge of such onus, would compel the court to order the accused to be detained during His Majesty's pleasure. The effect must be to transfer many inmates of prisons to criminal lunatic asylums and to bring within the portals of the latter many persons who are now, without any public disadvantage, placed in the care of their relatives."

A matter not covered expressly by the M'Naghten rules is the difficult question of loss of control caused by unsoundness of mind. The memorandum of the British Medical Association recommended that a person should be held to be irresponsible if prevented by mental disease from controlling his own conduct, unless the absence of control is the direct and immediate consequence of his own default. It was established to the Committee's satisfaction that there are cases of mental disorder where the impulse to do a criminal act recurs with increasing force until it is, in fact, uncontrollable. In practice, in such cases, the accused is found to be guilty but insane. In fact, the accused knows the nature of the act and that it is wrong; and the M'Naghten formula is not logically sufficient. The Committee thinks that it would be right that such cases should be brought expressly within the law by decision or statute; that it should be made clear that the law does recognize irresponsibility on the ground of insanity where the act is committed under an impulse which the prisoner is, by mental disease, in substance deprived of any power to resist. It has no doubt that if this matter were settled most of the criticisms from the medical point of view would disappear.

The Committee discusses briefly the existing practice and procedure in criminal trials where the defence of insanity is raised. These observations are grouped under the headings "Unfitness to Plead," "Evidence," "Verdict," and "Appeal." The general effect of the views therein expressed will be found briefly stated in the summary of recommendations printed below. It will be noted, in particular, that the Committee is in favour of abolishing the present verdict of "Guilty but insane" and reverting to the more logical and more satisfactory verdict "Not guilty on the ground of insanity," this phrase being extended so as to make clear that it is not insanity that is at issue, but that degree of insanity to which the law attaches irresponsibility.

The Committee next considers the second part of its reference—namely, whether any, and if so, what changes, should be made in the existing law and practice in respect of criminal lunatics. The subsection of the Act in question deals only with the procedure for inquiring into the sanity of persons under sentence of death. Powers are conferred upon the Home Secretary by other subsections in the same Act. In discussing the existing procedure reference is made to the history and development of the various statutory powers consolidated and amended by the Act of 1884. Since the Insane Prisoners Act of 1840 no prisoner under sentence of death has ever been executed as to whom a certificate of insanity has been given under the statute for the time being in force, and the Committee has no doubt at all that the Home Secretary should have power to remit to asylums prisoners reasonably certified to be insane, whether under sentence of death or of imprisonment.

"The question for the Home Secretary is not simply the legal question, 'Was the prisoner responsible for his act?' though it may be his duty to review that finding; under the statute the question is a medical question, 'What is the prisoner's present state of mind?' In investigating that question the medical man must necessarily consider the circumstances of the crime for which the prisoner has been convicted."

"It seems to us that the power in question is a necessary completion to the legal principle of responsibility; and that while the latter should be strictly maintained the executive should have the reasonable means afforded by the statute of alleviating any hardship that may be caused by the single punishment for murder. Both Medical Associations approve of the continuance of the powers under the subsection."

The Committee thinks it right, however, that the power of acting upon the certificate of insanity conferred on the Secretary of State should be in terms discretionary. Facts may become known which entitle the Home Secretary to allow the law to take its course notwithstanding the certificate. But if no such circumstances exist, the present practice of exercising the discretion in only one way—remitting the prisoner to an asylum—should be continued. On this matter alone Sir Herbert Stephen disagrees with his colleagues; he thinks that the certificate of insanity should not necessarily determine the exercise of the discretion, but that the Home Secretary might properly in some cases leave for execution a prisoner rightly certified to be insane.

The Committee concludes with a testimony to the scrupulous care and devotion with which the duties of the Home Office are performed, both in regard to the maintenance of the law and the legitimate protection of the prisoner. In its opinion "to the insane person justice is done."

SUMMARY OF RECOMMENDATIONS.

The Committee summarizes its recommendations as follows:

"1. It should be recognized that a person charged criminally with an offence is irresponsible for his act when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist. It may require legislation to bring this rule into effect.

"2. Save as above, the rules in M'Naghten's case should be maintained.

"3. Where a person is found to be irresponsible on the ground of insanity, the verdict should be that 'the accused did the act (or made the omission) charged, but is not guilty on the ground that he was insane so as not to be responsible, according to law, at the time.' The existing statutory provision in this respect should be amended.

"4. Until such amendment the verdict should always be taken and entered as guilty of the act charged, but insane so as not to be responsible, according to law, for his actions at the time.

"5. Accused persons should not be found on arraignment unfit to plead except on the evidence of at least two doctors, save in very clear cases.

"6. The present law as to appeal should not be altered, *i.e.*, there should be no appeal on the finding of insanity either on arraignment or after trial and, in the latter case, either as to the act or omission charged, or as to insanity.

"7. Provision should be made, under departmental regulations, for examination of an accused person by an expert medical adviser at the request of the prosecution, the defence, or the committing magistrate.

"8. Provision for a panel or panels of mental experts is unnecessary.

"As to the Criminal Lunatics Act, 1884.

"9. It is essential that the statutory power under Section 2 (4) should be maintained.

"10. The procedure under the subsection is satisfactory and does not require amendment.

"11. The discretion of the Secretary of State should be exercised as at present."

blood sugar and of sugar in the urine to about the same level as had been reached without insulin on a diet of 1,400 calories. There was also an increase, though a smaller one, in the total acid bodies. The nitrogen balance continued positive up to as much as +5 grams a day. After the above-mentioned excess of food was given, in a further fortnight of observation, not shown on the chart, the insulin was increased and the total food was reduced to about 2,500 calories.

8. The patient's weight increased steadily; 8 lb. were put on in six weeks of treatment.

9. The blood sugar was never brought below 0.11 per cent., and no symptoms of hypoglycaemia were observed.

10. The respiratory quotient was determined several times, but in this case similar figures were obtained with and without insulin. The reflection occurs that the case might not be severe enough or the dosage of insulin large enough to produce considerable changes in the quotient; especially as no attempt was made to enable the patient to assimilate much exogenous carbohydrate.

11. The investigation showed that a suitable régime for this patient is a diet of about 2,500 calories with low carbohydrate, and 30 units of insulin daily.

12. The change in appearance and attitude to life after insulin was given was unmistakable, and was remarked by the members of the staff, who, of course, know the patient well. He grumbled sometimes, as anyone might, at having to have injections and still having to look after his diet, but was interested in his various pursuits and had a look of health and keenness.

It was advised that 20 units of insulin be given just before breakfast and 10 before the evening meal, the smaller dose being given in the evening to avoid reducing the blood sugar too much in the night. This patient when at home sometimes prefers to omit lunch and make two main meals a day, with a little tea in the afternoon. In that case it was advised that the insulin should be given in two equal doses just before the two meals.

The fasting days formerly practised were omitted, but he was advised as a safeguard to take half quantities of food on one day a week. Progress will be watched, and an occasional fast day prescribed if needed.

The following is an example of a day's diet of about 2,500 calories as taken by this patient.

Diet taken on May 26th, 1923.

	Grams.					Cal.	Grams.		
	B.	L.	T.	D.	Total.		Carb.	Prot.	Fat.
*Duff House casein bread	30	15	30	15	90	193		47	
Milk	105		105		210	156	11	7	9
Butter	20	10	20	10	60	476		1	51
Cheese		30		30	60	270		17	22
Eggs	2	1		2	5	400		34	29
Fish—lemon sole ...				120	120	107		25	1
Bacon	60				60	320		10	30
Meat — lean beef — stewed		90			150	293		36	16
Filleted steak				60					
Vegetables—									
Cabbage	280				280	58	8	5	1
Tomato (raw) ...	150				450	101	16	5	2
Lettuce (raw) ...			300						
Kale		400			400	76	4	14	
Asparagus				400	400	92	10	12	
Keiller's sugarless marmalade or jam	30		30		60	9	2	1	
Tea	340		340						
Clear meat soup ...				200					
						2,554	51	214	161

* *Lancet*, 1921, ii, 950; BRITISH MEDICAL JOURNAL, 1921, ii, 707; also *Duff House Papers*, vol. i, Oxford Medical Press, 1923.

It will be noticed that in most cases the weights are given in multiples of 30 grams or cubic centimetres, so that the corresponding number of ounces can be approximately calculated by dividing by 30.

Summary.

In a detailed study of a moderately severe case of diabetes in which tolerance had been diminishing for the last three years, it was found that with the help of two daily hypodermic injections of insulin, on a measured diet, the excess of sugar in the blood, the sugar in the urine, and the acidosis could be controlled; also that the patient could take more than double the amount of food he had previously been able to take without the appearance of sugar in the urine. Regulation of diet is still needed, for if an excess of food was taken above the new and higher level of tolerance, the hyperglycaemia, glycosuria, and acidosis reappeared.

The treatment led to improvement in the nutrition, physical capacity, mental outlook, and appearance of the patient.

THE BEHAVIOUR OF THE BLOOD SUGAR UNDER THE ACTION OF INSULIN AND OTHER AGENTS.

BY

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IN view of the failure to demonstrate any action of insulin on the oxidation of glucose *in vitro* either in presence of defibrinated blood, muscle juice, a combination of these, or pus,[1] it seems likely that its action is indirect. Winter and Smith[2] have recently published some experiments which led them to the conclusion that there is present in normal blood a kind of sugar differing from an equilibrated mixture of the α, β varieties in having a lower specific rotation. They fail to find any evidence of this in the blood of diabetic patients, and consider that the diminished carbohydrate metabolism of the diabetic is due to the lack of this more reactive form. It became of interest, therefore, to see if their results could be repeated and to study the effects of epinephrine and insulin. The following is a preliminary account of some of these experiments. No interpretation will be attempted.

Method.

Both dogs and rabbits were used. The rabbits were killed by knocking on the head and bled from the carotid artery; two were used in each experiment. In the case of dogs, blood was removed, either from the heart or femoral artery. The blood so obtained (usually 100 c.cm.) was treated as described by Winter and Smith—namely, diluted with seven volumes of water and precipitated with one volume each of 10 per cent. sodium tungstate and 2/3 N. sulphuric acid. It was filtered first through coarse filter paper, then through a Whatman No. 40 or 42. It was then evaporated to dryness under reduced pressure (water pump), using a capillary to prevent bumping, the temperature of the water-bath surrounding the boiling fluid being kept between 30° and 40° C.; 100 c.cm. of 85 per cent. alcohol was then added (proportionately less when less blood was taken) and the mixture let stand for twenty minutes. It was then filtered into a smaller distillation flask, and the extraction repeated with half the volume of alcohol. This was filtered in the same way, and both filtrates were united and evaporated to dryness as before. The residue was then taken up in distilled water, filtered through a No. 50 Whatman paper, and placed in a polarimeter tube. Readings were made on successive days.

The polarimeter used was a half-shade instrument made by Schmidt and Haensch. Successive readings did not vary more than 0.04°. The average of ten readings was taken. Sodium light was used. The tubes were 1.894, 2, and 2.2 cm. in length.

The copper-reducing value was obtained by the method of Shaffer and Hartmann, using the fluid in the polarimeter tube after the completion of the experiment. Blood sugar estimations were made by the same method. The epinephrine and insulin were administered subcutaneously.

Results.

A general table of the results is given. No experiments are omitted except those in which the polarimeter reading was impossible on account of the opacity of the solution.

(*a*) *Normal.*—With the rabbit three experiments were done. In one of these the rotation gradually rose to a value corresponding to the reducing power. In the others there was little or no change, but the rotation found was markedly lower than that calculated from the reduction. With the

No.	Animal.	Remarks.	Blood Sugar, mg. per 100 c.cm. which sample taken.	Readings on successive days Degrees.	Reaction calculated for reduction. Degrees	$[\alpha]_D$ of lowest reading. Degrees.	Volume of Blood taken.	Time required by process.
							c.cm	hrs.
1	Rabbit	Normal	—	0 07, 0.07, 0.17, 0 17	0.17	21	100	6
2	"	"	—	0 03, 0.10, 0.07, 0.10	0 17	25	85	6½
3	"	"	—	0 03, 0.10, 0.10	0.20	27	100	7½
4	Dog	"	—	? 0.07, 0.13, 0 20, 0.18	0.21	13	100	9
5	"	"	—	0 07, 0.15, 0.20	0 21	18	100	9
6	"	"	—	0.23, 0.25, 0.30, 0.31, 0.31	0.30	39	85	—
7	Rabbit	Epinephrine	300 & 400	0.58, 0.55, 0 53, 0 53	0 50	56	75	6½
8	Dog	Struggling	222	0.23, 0.23, 0.23	0.34	43	100	7½
9	"	Epinephrine	147	0.20, 0 20, 0.20	0 21	47	100	10½
10	"	"	250	0 65, 0 61, 0.70, 0.70, 0 63	0.70	48	100	—
11	"	Epinephrine + insulin	300	0.03, 0.15, 0.23, 0.31, 0.23	0.20	22	100	10½
12	"	"	240	0.33, 0.50, 0.47	0.50	39	100	—
13	"	"	145	0.17, 0.25, 0.25, 0.23	0.13	66	100	5½
14	"	"	175	0.22, 0.16, 0.18, 0.16, 0.16	0.20	42	100	6½

For the calculation of rotating power from reducing, $[\alpha]_D = 52.5$ was used.

dog also three experiments were done. In each of these there was a gradual rise in the rotating power until it coincided with that calculated from the reducing power.

(*b*) *In Hyperglycaemia.*—One experiment was done on a rabbit. Here there was a fall in the rotating power until it reached a value equal (within the limits of error) to that calculated from the reduction. In the three experiments on dogs two showed no change in rotation, although one of them was a little below the value calculated from reduction. In the third there was a slight rise to this value.

(*c*) *Following Insulin and Epinephrine.*—In these experiments 5 c.cm. of 1 in 1,000 adrenaline was given in diluted divided doses, followed by insulin, the blood being taken about half an hour later. In all but one of these there was a rise in the rotating power, which in two cases was considerably greater than the rotation calculated from reduction. The specific rotations for the lower readings recorded have been calculated. For normal blood they are very low (with one exception) and do not approach that of α, β glucose. For blood with epinephrine hyperglycaemia they are in the neighbourhood of that for an equilibrated mixture of α, β glucose, but show a tendency to be low. After epinephrine and insulin, in spite of the hyperglycaemia two of them are about the same as for normal blood.

Experiments were made to see if alcohol in acid solution had any effect on pure glucose. These were uniformly negative, although the acid alcohol was warmed with glucose in the presence and absence of phosphate for periods of the same length and much longer than those in the experiments with blood filtrates.

My thanks are due to Professor A. Hunter and Professor J. J. R. Macleod, under whose direction the experiments were done.

[It would be rash at the present juncture to conclude that the highly reactive forms of glucose, called gamma glucose, are necessarily responsible for these results. The long and complicated chemical procedure used to prepare the solutions for the polariscope may be responsible for the production of substances with a lower rotating power. The slowness of the change in rotating power (intervals of days), also, does not suggest the presence of a highly reactive substance. Further investigation will therefore be necessary before the important hypothesis suggested by Winter and Smith can be considered as established.—J. J. R. M.]

REFERENCES.

[1] Eadie, Macleod, and Noble: *Amer. Journ. Physiol.* (in press).
[2] Winter and Smith: *Journ. Physiol.*, 1923, lvii, 100; BRITISH MEDICAL JOURNAL, January 6th, 1923; Ibid., April 28th, 1923; Ibid., May 26th, 1923.

A CASE OF ACTINOMYCOSIS WITH RECOVERY.

BY

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THE following case is worthy of record on account of certain interesting clinical features which it presented, but especially for the extraordinary recovery which occurred.

A man, aged 22, was admitted to the David Lewis Northern Hospital, Liverpool, on October 8th, 1922, with a history of lobar pneumonia on board ship while crossing from Canada to England; crisis was said to have taken place. The temperature chart which accompanied the patient showed that the maximum temperature had been 103.8°, and that on the fourth day it had fallen to 100°, rising to 101° on the sixth day, and falling to normal on the seventh day (the day before his admission to hospital).

On admission the temperature was 100°, the pulse was 120, and respirations 56. He was cyanosed, exhausted, and had marked dyspnoea. Signs of fluid were detected in the right pleural cavity, and percussion over the right lung caused pain, a common sign of empyema. Exploration of the right chest yielded fluid, and an hour later a rib was resected and the pleura drained. The fluid withdrawn was serous with a flaky deposit, but was not definitely purulent. Pathological examination of the fluid revealed nothing.

The patient's general condition did not improve, though the wound drained freely and only fluid of a serous nature exuded. The pulse rate varied from 100 to 120, the temperature was normal, but the dyspnoea became more and more urgent. The pleural cavity was probed with the hope of finding a loculation of fluid, but without result. The respirations reached 60, and death appeared imminent. With great difficulty Dr. Oram made an *x*-ray examination, and reported: "The whole of the lower part of the chest on the left side is opaque, the upper border of the opacity following the line of the sixth rib. I fear that it is not possible to say whether this is fluid in the pleura, heart shadow, or pericardium."

On October 14th the patient still appeared to be on the point of death, and it became increasingly evident that the dyspnoea was due to mechanical obstruction and not to a general toxaemia. The cardiac dullness was greatly increased, but breath sounds could be heard clearly all over the dull area, while the heart sounds too were distinctly audible in the region of the nipple. No pericardial friction sound could be heard. Dr. John Owen of the Royal Infirmary saw the patient in consultation, and it was decided that there must be some mediastinal swelling, possibly a pericardial effusion covered by a thin shell of lung. Such a diagnosis was the only possible explanation of the anomalous physical signs, and yet there was the fear that the dullness might be due to a dilated and displaced heart. Exploring needles were inserted, but with such caution that nothing was found.

During the evening, on hearing that the patient was, if possible, worse and unlikely to live till the morning, the pericardium was explored under local anaesthesia, and about 25 ounces of sero-purulent fluid were allowed to escape. Through the incision in the pericardium a typical "bread-and-butter" appearance of the heart could be seen. The fluid was examined bacteriologically, but all cultures were sterile. The patient was very collapsed, but next day his condition improved, though he was still very dyspnoeic.

On October 19th, signs of a pleural effusion on the left side having developed, the cavity was tapped, and 21 ounces of clear fluid were withdrawn; the pathological report on this fluid was: "No tubercle bacilli or other micro-organisms found. Numbers of lymphocytes and lymphoid cells present." Abdominal distension now occurred, but yielded to eserine and pituitrin.

About October 18th it was noticed that the character of the discharge coming from the right pleura and the pericardium had changed, and that it was now thick and yellow. The discharge was examined by Professor Glynn at Liverpool University, and in the material from the right pleural cavity numerous actinomycosis organisms were found. Attempts were made by Professor Glynn to cultivate the organism anaerobically in order to determine its type, but unfortunately the streptothrix would not grow. The sputum was repeatedly examined for the ray fungus, but always with negative results. The pericardial fluid yielded a pure culture of *Staphylococcus aureus*.

NATIONAL MILK CONFERENCE.

DISCUSSION ON PASTEURIZATION.

A NATIONAL Milk Conference, called together by the National Clean Milk Society, and supported by about thirty organizations, including the British Medical Association, was held at the London Guildhall on November 21st. Representatives were present from seventy-five local authorities and from forty-five bodies interested in public health or in dairy farming. The Conference was devoted to the single subject of pasteurization. In the morning Mr. WILFRED BUCKLEY presided (in the absence of Viscount Astor), and in the afternoon LORD DAWSON OF PENN.

Mr. RICHARD SELIGMAN opened the Conference with an exhaustive description of the methods and processes of pasteurization. He said that although great progress had been made in the details of procedure it was not possible to point to any advance in the principles of milk preservation since the days of Louis Pasteur himself. He believed that the electrical treatment of milk held promise for the future, but it needed further development before it became a commercial process. Mr. A. T. MATTICK dealt with the effects of pasteurization on the cream line. His opinion was that a smaller volume of cream might be expected to appear on milk after pasteurization by ordinary methods, though if the temperature did not exceed 145° F., and the time of exposure was not more than 30 minutes, there should be an increase rather than a diminution of the cream layer. Flash pasteurization at high temperatures would diminish the cream. A third communication was by Professor S. B. SCHRYNER, who dealt with the chemical changes produced in milk by pasteurization. He thought it improbable that either the fats or carbohydrates underwent any change during the process; the proteins, on the other hand, might be definitely altered. The lactalbumin could readily undergo coagulation and be converted into an insoluble product. The calcium and phosphate contents of milk were in the process of heating rendered more or less insoluble, and in this condition were likely to be lost.

The Bacteriological Aspect.

Professor J. M. BEATTIE dealt with the subject on its bacteriological side. He gave an account of eight experiments, all of which led him to the conclusion that the pasteurization of milk as practised commercially in this country was not likely to destroy the common disease-producing bacteria, and in the case of bacteria more resistant to heat the process must be even more ineffective. He attached far greater importance to the destruction of the tubercle bacillus than to that of organisms of the colon type, and it was generally agreed that it was more difficult to destroy *B. tuberculosis* in milk than to destroy *B. coli*. He believed, however, that pasteurization carried out at a standard temperature somewhat higher than at present in use,* say about 70° C. (158° F.), would bring about destruction, not only of the tubercle bacillus, but of all other important disease-producing organisms. Such a plant must be under skilled supervision, any variation of temperature must be instantly observed, and no portion of the milk must be allowed to escape exposure to the required temperature for at least 30 minutes. The present methods fell far short of establishing these conditions, with the result that pasteurized milk as commercially produced in this country was, so far as his studies went, an infective milk. An electrical method of sterilization developed in Liverpool gave constant and effective results; 99 per cent. of the total bacteria were destroyed, including all the *B. coli*, and, in every one of the experiments which he and Dr. Lewis had carried out, the *B. tuberculosis* as well.

Effect of Pasteurization on Vitamins.

Professor F. G. HOPKINS spoke on biochemical changes. The milk constituents which at present could not be isolated by ordinary chemical means were the ferments or enzymes, certain factors concerned in immunity, and the vitamins. The enzymes of milk were either present in amounts too small to be significant, or possessed such properties as suggested that they had no physiological function in the food, and the fact that they were destroyed in pasteurization was therefore without importance. The presence or absence of immunity factors was a matter scarcely germane to the present discussion. Vitamins called for more attention. Milk contained all the three (or four) known vitamins. In the case of two of them at least—Vitamin A and Vitamin C—the supply was minimal. When a food contained a minimum of these factors special importance must be attached to the balance which existed among them. He believed that in milk yielded by well fed cows the balance was somewhat nicely adjusted. A treatment of milk which tended to diminish the amount of any one of them was therefore, *ipso facto*, undesirable, but except in the case of one vitamin—namely, the antiscorbutic factor or Vitamin C—the assumption that pasteurization must inevitably destroy the vitamin was by no means justified. Pasteurization affected Vitamin B but little; Vitamin A, if protected from air, was also resistant to heat. A careful method of pasteurization, therefore, could be carried out without any appreciable destruction of either of these two. It was otherwise in the case of Vitamin C, but even in this case recently ascertained facts showed that there was greater stability than had been thought. If the public could be educated to understand that when an infant was fed on pasteurized milk it must be protected by the systematic administration of small quantities of fresh fruit juice or its equivalent there was, at any rate from this standpoint, no danger to be feared. He himself had never found any evidence of deterioration in general nutritive value (apart from this antiscorbutic factor) when milk was pasteurized or boiled, and Park and Holt in New York had found among infants fed on pasteurized milk, not only greater freedom from summer diarrhœa, but also a larger gain in weight, than among infants receiving raw milk.

The financial and commercial aspects of the question were treated by Mr. J. H. MAGGS (chairman of United Dairies, Limited), who said that if the public would realize that properly pasteurized milk when put into sterile bottles would easily remain sweet, if kept in the bottle in a cool place, for twenty-four hours after delivery, it would be possible to make one delivery a day the general practice, thereby reducing the necessarily greater expense (borne by the consumer) attached to pasteurization and bottle distribution.

General Discussion.

LORD DAWSON OF PENN, who presided over the latter part of the Conference, said that it was a matter for regret that the consumption of milk per head of population in this country was so small. It worked out at only one quarter of a pint a day, whereas in the United States the average individual consumption was at least three times as large. If the smallness of milk consumption was due to a want of appreciation on the part of the people as to the value of milk, this could be cured by education, but the problem of producing milk of proper standard quality at such a price as would be profitable to the producer and not too expensive to the consumer was more difficult. Just how far a compromise could be effected was a matter for the authorities, guided by scientific opinion.

In the course of some general discussion, Dr. ERIC PRITCHARD said that the breakdown of the "cream line" did not seem to him an argument against pasteurization. After all, the agitation to which milk was subjected on pasteurization was as nothing to the agitation it underwent once it entered the stomach. The same consideration applied to the breaking down of the chemical affinities of milk. He believed that heating did not induce changes in milk of any material importance from the point of view of the consumer. Captain S. R. DOUGLAS shared Professor Beattie's view that the ordinary degree of heating in the process of pasteurization was not enough to effect the object of rendering the milk perfectly safe. Dr. W. G. SAVAGE (M.O.H. Somerset) considered pasteurization to be in itself a confession of failure; it meant that the ordinary milk supply must be regarded as necessarily dirty. He favoured a stricter control in dairying. Some procedures which were perfect on

* The range of temperature commonly employed in pasteurization is between 140° and 150° F.

A DISCUSSION on the introduction of breeding heifers from Canada if certified free from tuberculosis will take place at a conference of veterinary officials to be held at the Royal Sanitary Institute (90, Buckingham Palace Road, S.W.) at 3 p.m. on Friday, December 14th. It will be opened by Alderman W. Phene Neal, late chairman of the Cattle Markets Committee for the City of London.

AN institute for the study and treatment of cancer has been founded in Madrid by the Spanish Committee for the Study of Cancer under the direction of Dr. Goyanés.

PROFESSOR RECASENS, dean of the Madrid Faculty of Medicine, has been created a Commander of the Legion of Honour.

DR. JULIUS HIRSCHBERG, the well known ophthalmologist and editor of the *Zeitschrift für praktische Augenheilkunde*, celebrated his 80th birthday on September 18th.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

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1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

PHYSIOLOGICAL ALBUMINURIA.

"R. B." asks where a good account of so-called physiological albuminuria can be found.

*** Hilton Fagge (*Principles and Practice of Medicine*, edited by Pye-Smith, 1886, vol. ii, pp. 436-438) gives the history of the recognition of physiological albuminuria from 1878. Pavy (*Lancet*, 1886, i, 437, March 6th) described cyclical albuminuria; hence it has been called Pavy's "disease." Dr. W. Collier (BRITISH MEDICAL JOURNAL, 1907, i, January 5th) gave an interesting account of "Functional albuminuria in athletes," based on much experience among rowing men at Oxford. Dr. Parkes Weber (BRITISH MEDICAL JOURNAL, 1921, i, 79, January 15th) has recently given an instructive account of orthostatic and postural albuminuria. Samuel West, in the course of his Lettsomian lectures at the Medical Society of London, 1899, devoted much attention to albuminuria in apparently healthy persons (*Trans. Medical Society of London*, 1899, xxii, pp. 136-152) with much statistical matter. These lectures were also published in book form, *On Granular Kidney and Physiological Albuminuria* (1900. London: Henry J. Glaister).

PREMATURE BALDNESS.

"M." asks for information as to the modern treatment of alopecia simplex (premature baldness) with special reference to electric or light treatment. Is pilocarpine (he asks) any good, and in what doses?

*** It is not easy to answer this question since the subject is large and has many aspects. Briefly, however, avoiding the larger issues, the present position may be summed up in the following way. The term "premature baldness"—which has not precisely the same meaning as alopecia simplex—includes three states: seborrhoeic, pityriasic, and true premature baldness. In the first two a definite abnormal condition of the scalp can be observed apart from the fall of hair—either an inflammatory seborrhoea, or the condition named pityriasis or dandruff. Where these conditions are found hope may be tendency is often familial, and where this hereditary disposition to loss of hair exists apart from local disease of the scalp the prognosis is very bad. There is a progressive fall of hair usually resulting in the characteristic baldness over the vertex and forehead. Even in this condition it is worth while attempting to retard the loss of hair by treatment. The methods employed have as a common basis the production of an increased vascularity to the scalp, such as by stimulating applications (ammonia, cantharides, and the like), by high frequency, or by direct massage. These remedies, especially cantharides, are not without harmful effects if used incautiously, and cantharides has even been accused of causing nephritis. Pilocarpine is of dubious value. It is not perhaps outside the scope of the present inquiry to include within the group the forms of alopecia following general diseases such as acute infections, syphilis, and cancer, leukaemia, tuberculosis, etc. Their treatment resolves itself into treatment of the causal disorder, but even in such circumstances local applications are not without benefit in accelerating the regrowth of hair.

SPIRIT IN HAIR WASHES.

"I. B. M.," noting that prescriptions for hair washes given in books on dermatology contain a large proportion of rectified spirit, asks whether there is any suitable cheaper substitute, and whether methylated spirit would be safe. He also asks whether the purplish tint now given to methylated spirit would stain the scalp or affect the colour of the hair.

*** The Board of Customs and Excise does not permit the use of methylated spirit in the preparation of prescriptions. The point as to staining, therefore, does not arise. The position is explained in Martindale's *Extra Pharmacopoeia*, seventeenth edition, vol. ii (p. 121). A possible substitute for rectified spirit is propyl alcohol; its bactericidal action is about equal to that of ethyl alcohol, but normal propyl alcohol is considerably more toxic and is unsuitable for the preparation of tinctures and the like. There is a note upon the subject in the *Pharmaceutical Journal* of February 3rd, 1923 (p. 87). There are two isomeric propyl alcohols: normal propyl alcohol is one of the constituents of fusel oil, from which it is prepared by fractional distillation; isopropyl alcohol, or dimethylcarbinol, differs slightly in physical characters. As imported from America, where it is a by-product in the petroleum and natural gas industry, it contains 91 to 92 per cent. alcohol, and is a colourless liquid. Its odour differs from that of rectified spirit, but is not unpleasant, as is that of normal propyl alcohol. Isopropyl alcohol may be used externally for hand disinfection, either alone or containing green soap in solution. A lotion containing 30 to 50 per cent. in water has been used for the treatment of acne or seborrhoea.

LETTERS, NOTES, ETC.

THE TREATMENT OF HAEMORRHOIDS BY INTERSTITIAL INJECTIONS.

DR. T. M. KENDALL (Newport, Isle of Wight) writes: I have been interested in the communications of Dr. Dunbar (November 3rd, p. 808) and Mr. Morley (November 10th, p. 901), as I have used the same treatment as Dr. Dunbar with great success for some years. I, however, employ a stronger solution (15 per cent. carbolic acid in liquor hamamelidis); I have also used glycerine along with carbolic acid and witch-hazel, but I much prefer to leave it out. Recently I have been using high frequency currents with success and great freedom from pain. I still use the injection in most cases and have never had a failure. I agree with Mr. Morley that it is not through causing thrombosis we have success.

HISTORY OF ST. GEORGE'S HOSPITAL.

MR. J. M. CHURCHFIELD, Secretary-Superintendent of St. George's Hospital, writes: With reference to the article on the history of this hospital, printed in the BRITISH MEDICAL JOURNAL of November 24th (p. 991), the remark is made that the document referred to appears to have been hitherto unknown to the present authorities of St. George's. I am desired to inform you, however, that a copy of this document will be found in the *History of St. George's Hospital*, Part I, written and published in 1910 by Dr. G. C. Peachey.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 36, 37, 40, 41, and 42 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 38 and 39.

A short summary of vacant posts notified in advertisement columns appears in the *Supplement* at page [illegible]

paper proved in practice to be quite the reverse. Dr. STENHOUSE WILLIAMS, of the National Institute for Research in Dairying, urged the need for care in the training of employees, and pointed out that such need would still exist even if pasteurization were generally adopted, and might even become greater. Dr. HARRIETTE CHICK urged the necessity for seeing that milk received only a single pasteurization. Professor H. R. KENWOOD said that the voluminous literature dealing with this subject on the experimental side was most conflicting. The word "pasteurization" was used in different senses by different individuals, and therefore the facts published were not comparable and led to divergent conclusions. No doubt there were also enormous differences in the methods of pasteurization employed, and in the past there had been a good deal of inefficient pasteurization. But he was convinced that the milk supply in this country was getting cleaner every year, and he did not agree that pasteurization would prejudice its continuing improvement. Dr. S. G. MOORE (M.O.H. Huddersfield) felt that the objections to pasteurization were of little weight as compared with the pronouncements of great authorities in its favour. Pasteurization was not a confession of failure, but the recognition of inexorable facts.

The constitution of the Conference did not admit of any resolutions being usefully submitted, but the general impression of those who summed up the day's discussions was that more knowledge is needed as to what actually does take place during the process of pasteurization.

THE GENERAL ELECTION.

THE following is a list of medical candidates at the General Election and of the constituencies in which they are offering themselves so far as we have been able to ascertain. An asterisk indicates that the candidate represented the constituency in the Parliament just dissolved.

Dr. H. B. Bates (U.), Newton, Lancs.
Dr. Ethel Bentham (Lab.), Islington East.
*Sir George A. Berry (U.), Scottish Universities (returned unopposed).
*Dr. W. A. Chapple (L.), Dumfries.
Dr. R. Dunstan (Lab.), Ladywood, Birmingham.
*Dr. W. E. Elliot (U.), Lanark.
*Dr. F. E. Fremantle (U.) St. Albans.
Dr. O. Gleeson (Lab.), Portsmouth North.
Dr. L. Haden Guest (Lab.), Southwark North.
Mr. Somerville Hastings (Lab.), Reading.
Dr. G. B. Hillman (U.), Normanton, Yorkshire.
*Dr. J. E. Molson (U.), Gainsborough.
Dr. H. B. Morgan (Lab.), Camberwell North-West.
Dr. A. G. Newell (L.), South Tottenham.
Lieut.-Colonel A. C. Osburn, D.S.O. (Lab.), Walsall.
Dr. R. L. Ridge (L.), Enfield.
*Sir Sydney Russell-Wells, M.D. (U.), University of London.
*Dr. A. Salter (Lab.), Bermondsey West.
Dr. R. W. Simpson (L.), Newcastle-upon-Tyne North.
Professor Thomas Sinclair, M.D., R.U.I., F.R.C.S. (U.), Queen's University, Belfast (returned unopposed).
Dr. G. E. Spero (L.), Stoke Newington.
*Dr. T. Watts (U.), Withington.
*Dr. J. H. Williams (Lab.), Llanelly.
Lieut.-Colonel T. S. Beauchamp Williams (Lab.), Lambeth, Kennington.
Dr. R. M. Wilson (L.), Saffron Walden.

Sir Henry Craik, K.C.B., has been re-elected unopposed as one of the representatives of the Scottish Universities. A further note on the medical candidates appears in this week's SUPPLEMENT.

THE Great Western Railway has printed a small handbook on spas and inland resorts on its system. Particulars are given of Bath, Cheltenham, Church Stretton, Droitwich, Leamington, and Malvern; Torquay also is described and Weymouth, where the Nottington spa waters have again been made available. The spas of Central Wales from Builth to Llanwrtyd are mentioned, and there are many illustrations.

England and Wales.

OPENING OF NEWCASTLE MATERNITY HOSPITAL.

THE official opening by H.R.H. Princess Mary, Viscountess Lascelles, of the Newcastle-on-Tyne Maternity Hospital, took place on Saturday afternoon, November 24th. Her Royal Highness was received at the hospital gate by Lord and Lady Armstrong and the matron, and after hearing an address by the Duke of Northumberland declared the hospital open for the reception of patients. Dr. R. P. Ranken Lyle (honorary consulting obstetrician) then asked Lord Armstrong, as president of the institution, to accept a portrait of Sir James Y. Simpson, which was unveiled by Princess Mary, and Sir Thomas Oliver (honorary consulting physician) proposed a vote of thanks to the Duke of Northumberland for presiding. The various wards and other departments of the hospital were inspected and afterwards a nurses' carnival was held. The souvenir programme gives a concise account of the history of the institution and of the new building, from the pen of Dr. Ranken Lyle. The maternity hospital was founded by Act of Parliament on October 1st, 1760, in Rosemary Lane, where it was carried on for sixty-five years as an in-patient hospital, admitting on an average fifty patients a year. In 1819 a donation by Dr. Thomas Elliot formed the nucleus of a fund which enabled the governors to erect the building in New Bridge Street opened in 1826. An existing charity for attending patients in their own homes was amalgamated some years later with the maternity hospital and the name of the institution was altered to "The Lying-in Hospital and Out-Door Charity for Poor Married Women." Last year the number of indoor patients was 1,196, and 1,170 patients were attended at their own homes; the nursing staff numbered 36. By that time the accommodation had become quite inadequate for the number of patients seeking treatment, and the committee of management approached the Newcastle Corporation, which purchased the industrial schools site in City Road, and gave a portion of this land for a period of thirty years to the trustees. Reconstruction of portions of these buildings began last March and the institution was transferred from New Bridge Street to Jubilee Road in September. The present hospital consists of buildings surrounding three sides of a large quadrangle, with land available for future extensions. The site is centrally placed among the homes of the patients, and when the reconstruction work is finished the present buildings will provide a maternity hospital containing 90 beds for patients, 40 bedrooms for nurses, and ample accommodation for the domestic staff. There are separate quarters for the resident medical officers and students, and a large lecture hall. When finished the institution will be the largest maternity hospital in Great Britain. It consists of a series of units, compactly arranged. The maternity portion and the out-patient and pre-maternity departments are placed on the ground floor.

SMALL-POX PREVALENCE.

The Registrar-General's Return of Births and Deaths in England and Wales for the third quarter of the year has recently been issued. It shows for boroughs, urban and rural districts with populations over 10,000, and port sanitary districts, the number of cases of small-pox notified in the thirteen weeks ended September 29th. The total was 662. In the first half of the year the total was 1,225, so that instead of diminution there has been a tendency towards increase. In the whole of 1922 the cases were 973, so that with three months still to go, that figure has already been nearly doubled. And 1922 itself had a much greater number of cases than the immediately preceding five years. In 1917 there were only 7 notifications; in 1918, 63; in 1919, 311; in 1920, 280; and in 1921, 336. Reverting to the cases in the third quarter of the present year, the London administrative area had 11 cases; Derby 45; Durham 4; Gloucester county borough 355, the rest of Gloucestershire 43; Middlesex 5; Nottingham 121, of which 56 were in Kirkby-in-Ashfield Urban District, and 37 in Warsop Urban District; the North Riding of Yorkshire 11, all in Middlesbrough; the

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

381. The Diagnosis and Prognosis of Cholelithiasis.

L. URRUTIA (*Arch. de med., cir. y esp.*, September 29th, 1923, p. 577) states that gall-stone colic may be mistaken for various painful affections, such as renal colic, plumbism, intestinal colic, tabetic crises, acute and chronic pancreatitis, Dietl's crises in floating kidney, angina pectoris, appendicitis, sudden passive congestion of the liver, some forms of hydatid cyst and syphilis of the liver, and especially gastric or duodenal perforation. Atypical colic is almost always called "cramp of the stomach" or "nervous gastralgia," but the latter only occurs in girls, especially those suffering from chlorosis; in adult women, especially those who have borne children, as well as in the aged, most cases diagnosed as gastralgia are really examples of cholelithiasis. Attacks of pain in the gall bladder due to ptosis or adhesions are almost always impossible to distinguish from gall-stone colic. In the retrospective diagnosis of gall-stone colic great importance should be attached to the fact that injection of morphine had been required, as this hardly ever occurs in painful attacks of gastric origin. Another sign in favour of the symptoms being due to calculi in doubtful cases is their production by physical or mental shock and their frequent coexistence with menstruation (Binet). Differential diagnosis from gastric ulcer may be sometimes very difficult. The presence of occult haemorrhage was formerly regarded as characteristic of ulcer, but it is not always so, as occult haemorrhage sometimes occurs in cholelithiasis. Deaver has noted the possibility of profuse haemorrhage in infection of the biliary tract. In one of his cases of streptococcal cholecystitis the blood passed through the common bile duct into the duodenum, whence it was regurgitated into the stomach. Occasionally the diagnosis can be established by the therapeutic or dietetic test, as Chauffard recommends. The patient is put on milk diet, kept in bed, and given bismuth morning and evening in 5 g. doses. If there be an ulcer present, the pain is rapidly relieved, but little or no effect occurs in cholelithiasis. According to Roger Glénard diathermy is almost always ineffective in gastric ulcer, whereas it relieves the pain due to gall stones. The Carlsbad physicians regard the prognosis of cholelithiasis as very favourable. Ritter has not seen a death among 4,000 cases and has had operations performed on only 3. On the other hand, Binder states that the mortality in private practice is 11 per cent. and in hospital 15 per cent.; Hirschberg estimates the mortality at 6.93 per cent. and Kluge at 3.16 per cent.

382. Mediastinal Pleurisy.

J. B. POLAK (*Nederl. Tijdschr. v. Geneesk.*, August 25th, 1923, p. 789), who records an illustrative case in a woman aged 58, states that comparatively little has been written on mediastinal pleurisy, as he could find only 26 papers dealing with the subject, 19 of which were French, 4 German, and 3 American. The diagnosis is usually made by *x*-ray examination, which shows a more or less round or bean-shaped shadow close to the heart at the level of the hilus of the lung. Usually this pleurisy rapidly develops into an interlobar one, but sometimes it becomes an empyema which bursts into the oesophagus and the pus is vomited up. It may also rupture into the trachea or a main bronchus and the pus is coughed up. Posterior mediastinal pleurisy, of which Polak's patient was an example, is the rarest form of mediastinal pleurisy. It may give rise to the following symptoms by pressure on various organs in the posterior mediastinum—namely, difficulty in swallowing, hoarseness, venous obstruction by pressure on the large veins, and a paroxysmal cough through pressure on the vagus. An area of impaired resonance close to the vertebral column has been described by Dieulafoy and was present in Polak's case in the form of a right-angled triangle.

383. Sydenham's Chorea and Lethargic Encephalitis.

L. BABONNEIX (*Paris méd.*, October 6th, 1923, p. 255) discusses the question as to whether Sydenham's chorea is an independent disease or only a manifestation of lethargic encephalitis. There are, undoubtedly, close resemblances between the two conditions, alike from the clinical, anatomical, biological, and nosological standpoints. Babonneix, however, is of opinion that certain forms of acute chorea in childhood are absolutely independent of lethargic encephalitis, their characteristic features being as follows: They appear only in a sporadic form, are preceded by articular symptoms, are accompanied or followed by pericarditis, are not complicated by oculo-motor palsies or rhythmical movements, and never end in the Parkinsonian syndrome. Within six weeks the involuntary movements disappear, and the disease may be regarded as cured but for the fact that a mitral lesion or pericardial symphysis often persists. This form is what was called rheumatic chorea by the earlier writers. On the other hand, the chorea which is connected with lethargic encephalitis is not complicated by joint affections or cardiac diseases and appears often, if not always, in epidemic form. Two types of this variety may be described—namely, one which does not immediately endanger life, but of which the encephalitic origin is indicated by certain symptoms, such as rhythmical movements, the Parkinsonian syndrome, and mental disorders; while the other is a severe form characterized by violent, incessant, and generalized movements and constant delirium, and is often fatal whatever treatment is employed. Most of the cases of the chorea of pregnancy belong to this type.

384. Tuberculosis of the Mesenteric Glands.

F. LOTSCH (*Klinische Wochenschrift*, October 8th, 1923, p. 1832) describes the enormous increase of tuberculosis in Germany since the beginning of the war. In childhood 20 to 25 per cent. of the tuberculosis arises from the intestinal tract (the infection being from both human and bovine types of the tubercle bacillus). According to Payr's estimates 4 million children in Germany suffer from tuberculosis; of these 1 million suffer from alimentary tuberculous affections, including 400,000 from bovine tuberculous infection. Since the war bovine tuberculosis has increased enormously. The infection of children is caused by bad milk and butter, insufficient sterilization of milk, greater consumption of unboiled milk, less careful inspection of meat, and diminished resistance of the body through deficient food. Isolated tuberculosis of the cervical and of the bronchial lymphatic glands is well known. Isolated tuberculosis of the intestinal and mesenteric glands also occurs. Complications are rupture of a softened gland and peritonitis, calcification of the glands, bands of adhesions and ileus, defective fat absorption, and wasting (hence the name "tabes mesenterica"). Isolated tuberculosis of the mesenteric glands usually ends in recovery, and the frequency of calcification of these glands is proof thereof; but death may occur from the complications produced. The disease occurs chiefly in children between the ages of 6 and 10. The course is chronic, but acute complications may arise. The chief symptoms are abdominal pain and tenderness at the umbilicus or to the right thereof (but on the median side of McBurney's point), wasting and subfebrile temperature; sometimes enlarged glands are felt in the right lower abdominal quadrant. Calcareous glands may be recognized by the *x* rays. When the disease is suspected the milk and butter should be examined for bovine tubercle bacilli. Unboiled milk should be forbidden. The risks from open tuberculosis in another member of the family should not be forgotten. Open-air treatment, sunshine, and good food are of the greatest value. Sodium iodide is much recommended. Surgical treatment may be required for complications. The removal of the enlarged glands may be considered if other treatment fails.

385. Intraperitoneal Injection of Antitoxin in Diphtheria.

E. S. PLATON (*Arch. of Ped.*, September, 1923, p. 576) states that a method not previously employed for the administration of antitoxin in diphtheria, but commonly used in the giving of fluids, and more recently still of whole blood, to infants is the intraperitoneal route. The absorptive power of the peritoneum, previously shown by many observers, suggested this area as a possible route for antitoxin. The needle is introduced through the linea alba just below the umbilicus, the skin is prepared with iodine and alcohol, and the area may be rendered anaesthetic by ethyl chloride. The antitoxin is introduced by gravity from an infusion bottle in doses of 10,000 to 14,000 units with 8 to 10 c.cm. of saline. The skin and subcutaneous tissues are picked up by the thumb and index finger, and the needle is inserted obliquely, pointing upwards. Platon has used the intraperitoneal method in 12 cases in patients aged from 5 months to 14 years; 10 recovered without complications, and 2, who were almost moribund on admission, died, death being due in one to laryngeal diphtheria and extensive broncho-pneumonia, and in the other to septic diphtheria and haemorrhagic myocarditis. In both cases the peritoneum

West Riding 53, of which 28 were in Doncaster Rural District, and 17 in Bentley with Arksey; Monmouth 5; Surrey 2, and Wilts 2. The following areas had one case each: Buckingham, Lancaster, Oxford, Somerset, and Warwick.

TREATMENT OF LONDON SCHOOL CHILDREN.

The London County Council is making provision for the treatment at elementary schools and among certain pupils at the secondary schools during the year 1924-25 of 34,440 eye cases, 13,250 ear, nose, and throat cases, 2,210 cases of ringworm, 63,580 minor ailment cases, and 117,810 dental cases. The only considerable increase is in the provision for minor ailment and dental cases. The cost is estimated at £86,740, an increase of about £900 on the expenditure for the current year. It is proposed that the present fees of the medical and dental staffs shall be retained. "The character of the work done," the report of the Education Committee states, "requires that practitioners with specialist qualifications should be appointed to the clinical posts at the treatment centres, and it is now made a condition that all officers appointed should have had such experience. If the rates of payment were reduced we feel it would be impossible to obtain the services of such persons. At present the standard of treatment is a high one, and we are of opinion that it should be fully maintained." For doctors the remuneration is at the rate of £80 a year for service at one session of two and a half hours' duration a week, for anaesthetists £75, and for dentists £60. In certain departments the session is of two hours' duration only, and here the remuneration paid to the doctors is at the rate of £66 a year.

ROYAL DENTAL HOSPITAL, LONDON.

The annual dinner of the staff and past and present students of the Royal Dental Hospital of London was held on November 24th, when Mr. G. Northcroft, O.B.E., presided over a company of two hundred. Among the guests were Sir Humphry Rolleston, Sir William Willcox, Miss Aldrich-Blake, and the deans of several of the London hospital medical schools. After the toast of "Our Most Illustrious Doctor, His Majesty the King"—the form in which the loyal toast is now ordained to be given in the schools of the London University—the chairman proposed the health of the past and present students. At the same time he demurred to the title "past students," because the best members of the dental profession as of the medical remained present students all their lives. He mentioned several recent developments at the hospital and school, including the provision of a research department, certain new scholarships, and increased facilities for post-graduate study. He also announced, evidently to the great satisfaction of the present students, that playing fields had just been acquired at Golders Green. Mr. G. G. Campion, President of the British Dental Association, in responding to the toast, said that he looked forward to the better and more systematic provision of post-graduate teaching in London. He thought that a "constellation of associations" could be formed from the present dental schools together with practitioners who had distinguished themselves in the various branches of the profession so as to permit of the organization at certain hospitals in rotation of courses of post-graduate teaching, each course to extend over one or two months. One of the students, Mr. F. G. Alford, the winner of the Saunders scholarship, also responded to the toast in a happy speech, in which he took occasion to deal faithfully with the examiners and the teaching staff. The dean of the school (Mr. H. Stobie) reported a very satisfactory state of affairs, with 353 students on the books (of whom 49 were women), 68 new entrants during the year, and 85 successful students out of 111 in the final examination for the L.D.S. A lectureship in radiology had been instituted, and many post-graduate lectures had been given, with an average attendance at each lecture of 150. He reported the resignations of Sir Frank Colyer and Mr. W. H. Dolamore, the former after thirty-three years on the staff (forty-six altogether in connexion with the hospital), and the latter after thirty-one. Both had done a great work for the school; Sir Frank Colyer was one of the finest teachers it ever had, while Mr. Dolamore was responsible to a great extent for the inclusion of the school in the University of London. Mr. B. Grellier, M.C., proposed the health of the visitors, a toast which was responded to by Professor W. Wright, dean of the London Hospital medical school, who appeared as spokesman for a "friendly tribe," and a successful evening came to an end with compliments to the chairman.

Scotland.

RESEARCH ON ANIMAL BREEDING.

THE third annual report of the Edinburgh University and the East of Scotland College of Agriculture Joint Committee on Research in Animal Breeding contains interesting results of the past year's research. The joint committee, under the chairmanship of Professor Sir Edward Sharpey Schafer, consists of representatives of the University of Edinburgh, the Royal (Dick) Veterinary College, and the agricultural interest. The director of the Animal Breeding Research Department, which was set up by the committee in February, 1921, at High School Yards, Edinburgh, is F. A. E. Crew, M.D., D.Sc., Ph.D. It is hoped that the agricultural community will recognize that the future of this institution lies largely with it. Reprints of published papers will be sent on request to persons interested, and working accommodation will be provided for anyone who wishes to undertake a piece of approved research. It is intended to build up a "clearing-house" of experience in which animal breeding records will be filed so that full information may be available in response to relevant inquiries. At a later stage it is hoped to obtain an institutional farm, where more special investigations can be conducted. In addition to research work and lecturing in the University, workers have read papers before various societies interested in biological and agricultural subjects in different parts of Scotland and England. An investigation into the pathology of the "bulldog-calf" of the Dexter breed of cattle has been completed. After two years' work the condition is found to be closely allied to achondroplasia in human beings. There is a condition of abnormal endochondral ossification, the adrenal and thyroid glands are defective, and the course of events is such as would follow removal of the anterior lobe of the pituitary. Suggestions are made to breeders for avoiding the occurrence of this monstrous calf. Several pieces of research on the problem of intersexuality in domesticated mammals and in fowls have been carried out. A large number of old hens showed gradual assumption of the male secondary sexual characters. One bird having functioned for three years as a female ultimately assumed male plumage and became the father of chickens. A very extensive experiment on the subject of inheritance of characteristics which distinguish the various breeds of domestic fowl is being carried out on several hundred fowls of different breeds. Other lines of research which are being pushed forward include experiments as to the part played by the ductless glands in regulating growth and sexual maturity; studies on the histology of the sexual glands of fowls, especially with regard to the question of sex reversal; and studies on the factors involved in incubation, in connexion with which the curious point has been noted that the temperature of the naturally incubating egg is considerably higher than that of the surrounding air. An attempt is being made by microscopical study of fleeces to translate the various grades of "kempiness" in the adult fleece into definite figures which will prove a basis for further genetical work.

SOCIAL SERVICE WORK AT THE ROYAL INFIRMARY, EDINBURGH.

The Edinburgh University Settlement (School of Social Study) has for over seven months carried on a scheme of social service work in connexion with the out-patient department of the Royal Infirmary. It has been recognized by the managers. A report covering this period of organization has just been issued. Over 300 cases have been investigated; the work has consisted in following up needy cases in their own homes, providing the necessary means, if such are not forthcoming, for the treatment prescribed, whether it be medicine, nourishment, convalescent homes, or the readjustment of home conditions from a health point of view. The

peak of absorption found for the intraperitoneal method was about thirty-six hours, whereas for the intramuscular method it was somewhere between forty-eight and seventy-two hours. The method is particularly applicable in advanced cases where suitable veins are lacking for intravenous injection, and in moderately advanced cases in which intravenous injection is not considered necessary or advisable, but where more rapid absorption is desired than can be obtained by the intramuscular method.

386. The Benign Acute Meningitis of Childhood.

A. WALLGREN (*Upsala Läkareförenings Förhandlingar*, September 7th, 1923, p. 341) remarks that since the appearance of epidemic encephalitis in Europe it has become more difficult than ever to be sure of the diagnosis of tuberculous meningitis. He records several cases in which tuberculous meningitis was at first suspected or actually diagnosed, but in which subsequent events led to the diagnosis of epidemic encephalitis, cerebro-spinal meningitis, or acute anterior poliomyelitis. The mistakes to which he confesses were made in spite of lumbar puncture and Pirquet tests. As for lumbar puncture, the findings may be of little help in distinguishing between tuberculous meningitis and epidemic encephalitis. In a case in which the latter diagnosis was finally made, the cerebro-spinal fluid contained 750 cells per cubic millimetre and nearly all these cells were mononuclear leucocytes. In another case, that of a boy aged 16, epidemic cerebro-spinal meningitis was at first diagnosed. He suffered from lassitude, headache, vomiting, cervical rigidity, and a temperature of 102.2° F. The cerebro-spinal fluid was cloudy and was packed with leucocytes. There were no paralyses at first. The case seemed perfectly straightforward till, on the day after admission to hospital, he showed a flaccid paresis of the right leg. Next day the left leg showed the same condition. He was eventually discharged cured. The lesson drawn from this and the other cases recorded by the author is that the diagnosis of the various kinds of meningitis is often difficult, and the physician who hastily jumps to the conclusion that his patient is suffering from tuberculous meningitis is apt to find his pessimistic prognosis stultified by subsequent events.

Surgery.

387. Radical Operation for Malignant Disease of the Testicle.

ACCORDING to F. HINMAN, T. E. GIBSON, and A. A. KUTZMANN (*Surg., Gynecol., and Obstet.*, October, 1923, p. 429), it is advisable, in cases in which there is reasonable suspicion that a testicular tumour may be malignant, to expose it by operation, followed by simple castration and immediate microscopical examination; if indicated by the histological findings, radical operation with excision of the primary lymph glands of the testis, lying retroperitoneally along the aorta and vena cava in the loin, should then be done. Haematocele and massive testicular tuberculosis, the authors remark, require surgical treatment, and the only testicular tumour which is likely to be curable without operation is a gumma; it is better to operate unnecessarily in an occasional case of gumma than to lose the chance of operating radically on a malignant tumour at an early stage. From an analysis of 79 cases of radical operation, of which 10 are personal, they demonstrate that simple castration will cure fewer than 20 per cent. of cases of malignant disease of the testis. The presence of palpable lumbar metastases contraindicates radical operation (which in 9 such cases of the series had a mortality of 100 per cent.) and points rather to radium and x-ray therapy, which have occasionally had brilliant successes. Thirteen cases were found at operation to have inoperable metastases, not previously to be detected clinically. In 25 cases treated radically no metastases were found by microscopical examination of the lumbar glands removed; nevertheless in 8 of them death ensued later from generalized metastases. Of 26 cases in which the lumbar glands removed contained microscopically demonstrable metastases, 17 are living (4 for four years), and of the 25 in which the glands did not appear to contain metastases 12 are living (2 for over four years). The conclusion is drawn that radical operation improves the prognosis by at least 100 per cent. Clinically, the authors remark, there is no sign or symptom that is pathognomonic of malignant disease of the testis; a smooth regular surface is the rule, the tumour appears in most cases to be of uniform hardness; the spermatic cord may be

Treatment of Cancer of the Jaw with the Actual Cautery.

A. J. OCHSNER (*Journ. Amer. Med. Assoc.*, November 3rd, 1923, p. 1487) endorses the use of the actual cautery in the treatment of cancer of the upper jaw. He burns away tissue until he is certain that he has destroyed all the diseased portion, and then he burns away as much more as he feels would have to be destroyed after the first recurrence, without regard to the deformity or to the plan that has to be employed later on in reconstruction, or to the trouble dentists will have in providing a proper artificial substitute for what has been destroyed. The instrument used for carrying out this operation is a small copper soldering iron about 1 cm. square and 2 cm. long, heated to red heat in a gas flame such as tinsmiths employ. The heat carried by this metal when red hot is enormous, and reaches some distance beyond the tissue actually destroyed. It seems wise to hold the iron in one place for a minute or longer in order to cook thoroughly the tissues rather than simply to pass it over the surface to and fro, because although the latter procedure will destroy the cancer tissue on the surface quite as perfectly the heat cannot penetrate to the same depth. Consequently if the cautery be not held in one place long enough to cook the tissues thoroughly there may be small projections of cancer tissue which escape destruction and serve as a focus from which recurrence may have its beginning. In order to prevent the setting free of cancer infection Ochsner avoids the use of the knife or chisel, even when the growth is extensive or when it invades the bones to a considerable extent. In these cases he first burns the tissues, including the bone, and then cuts away the tissue that has thus been rendered harmless.

389. Appendicitis Statistics.

F. HEINLEIN (*Deut. Zeit. f. Chir.*, September, 1923, p. 48) states that from 1919 to 1922 inclusive 209 cases of appendicitis were treated in the municipal hospital at Welden. All but 7, in whom the symptoms were very mild, underwent operation. A classification of the remaining 202 cases, according to the date of operation, gave the following results: 36 were operated on in the first twenty-four hours with no deaths, and 31 in the second twenty-four hours with two deaths, or a total mortality of 1.5 per cent. for operations within the first two days of the disease. The two deaths, however, were not due to appendicitis or the operation, but to pre-existing disease—namely, cerebral influenza in one case and pneumonia in the other. Fifty-eight were operated on between the third and fifth days, with 7 deaths, or a mortality of 12 per cent.; and 42 cases later, with 7 deaths, or a mortality of 16.6 per cent. The total mortality, therefore, was 7.8 per cent. The causes of death were as follows: peritonitis, 9 cases; cardiac failure, 3 cases; pulmonary embolism, pneumonia, encephalitis, erosion of the iliac artery, and abscess in Douglas's pouch with secondary intestinal obstruction, 1 case each. Peritonitis occurred in 15 cases, with 9 deaths, or a mortality of 60 per cent. Appendicular abscesses were present in 43 cases, with 3 deaths, or a mortality of 7 per cent. Of the 209 patients, 110 were males and 99 females. The majority were aged from 10 to 30. The operative method chosen was the oblique pararectal incision 7 to 8 cm. long. Healing took place by first intention without any hernia formation. The complications noted were as follows: pyosalpinx, 2 cases; erysipelas, 2 cases; prostatitis, abortion, icterus, abscess in Douglas's pouch, cellulitis of abdominal wall, pleurisy, pneumonia, encephalitis, erosion of iliac artery, and pulmonary tuberculosis, 1 case each.

390. Mobilization of Ankylosed Joints.

W. R. MACAUSLAND (*Surg., Gynecol., and Obstet.*, September, 1923, p. 255) contrasts an excision of a joint with a formal arthroplasty, and points out that joints which are simply excised are always "flail" to some extent. Excision has no place in the surgery of joints through which weight-bearing is to take place, save as a means of producing ankylosis. He further urges the necessity for highly developed technical skill on the part of the surgeon undertaking the operation of arthroplasty, and points out the difficulty in the selection of suitable cases. The cause of the ankylosis must be determined. Acute or chronic infections are not a contraindication provided that the process has not been tuberculous and is not active. The indications for arthroplasty are stated to be, first, in the major joints, bilateral ankylosis of hips, elbows, or knees. In any of these events arthroplasty of one, or possibly of both, joints should be carried out. The minor joints in which arthroplasty is frequently of great benefit

funds of the University Settlement are used as far as they will go, but reliance is chiefly placed on help obtained from existing charities and other agencies; their resources are co-ordinated and cases requiring assistance are brought to their notice by the social workers. Among these agencies, the report mentions seven convalescent homes, six church organizations, three army associations, and eleven other charities of various kinds. In addition to these the social workers have obtained the co-operation of open-air schools, special schools, boy scouts, girl guides, clergymen, landlords, and employers. A special denture fund has been started to which people may contribute by weekly instalments, the Dental Hospital has arranged to give to patients utilizing this scheme the privilege of obtaining dentures 25 per cent. below the usual cost. Careful card records of cases are kept and if the cases are admitted to hospital the cards are passed on to the Samaritan Society, which does similar social work for in-patients.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

At the recent examination of the Central Midwives Board for Scotland, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, 134 candidates appeared. Of this number, 124 were successful. Of the successful candidates 29 were trained at the Royal Maternity Hospital, Edinburgh, 47 at the Royal Maternity Hospital, Glasgow, 6 at the Maternity Hospital, Aberdeen, 10 at the Maternity Hospital, Dundee, 8 at the Queen Victoria Jubilee Institute, Edinburgh, 6 at the Cottage Nurses' Training Home, Govan, Glasgow, and the remainder at various recognized institutions.

At a special meeting of the Board held for the hearing of penal cases, Dr. James Haig Ferguson in the chair, a certified midwife was cited to appear for having been in attendance upon a patient suffering from puerperal fever and failing to notify the Local Supervising Authority thereof, and to take and record the pulse and temperature of the patient, and for other breaches of the rules. The Assistant Medical Officer to the district was present in support of the charges. The Board found the charges proved and instructed the secretary to remove her name from the roll and to cancel her certificate, and, further, to prohibit her from attending women in childbirth in any other capacity. At the same meeting a number of other cases of minor breaches of the rules by midwifery nurses were under consideration and it was resolved to issue warning notices in the circumstances.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

The annual business meeting of the Aberdeen Medico-Chirurgical Society was held on November 22nd, when the following office-bearers were appointed for the ensuing session: *President*, Dr. George M. Duncan; *Vice-President*, Dr. Peter Howie; *Secretary*, Dr. H. Edgar Smith; *Recording Secretary*, Dr. H. Ross Souper; *Assistant Secretary*, Dr. Robert Richards; *Treasurer*, Dr. George Rose; *Librarian*, Dr. W. Clark Souter; *Editor of Transactions*, Mr. G. H. Colt; *Members of Council*, Dr. Alexander Ogston, Dr. James Crombie, Dr. W. Clark Souter, Dr. William Brown.

Ireland.

REPRESENTATION OF QUEEN'S UNIVERSITY, BELFAST, IN THE IMPERIAL PARLIAMENT.

SIR WILLIAM WHITLA, M.D., intimated lately that he would not seek re-election as representative of the Queen's University, Belfast, in the Imperial Parliament. At a meeting of the Unionist Association of the graduates held in Belfast on November 22nd, when Professor Lindsay, M.D., was in the chair, a resolution was passed by acclamation, conveying to Sir William Whitla the warmest thanks of the Association for the admirable way in which he had discharged his duties as their parliamentary representative. It was then unanimously decided on the motion of Dr. Leslie, seconded by Dr. R. Henry, to accept the recommendation of the Central Committee that Professor Thomas Sinclair, C.B., F.R.C.S., Colonel A.M.S., should be selected as candidate. Mr. Sinclair, in expressing his acknowledgements, said that as a professor in the College for thirty-seven years and as deputy vice-chancellor of the University he had acquired a sound knowledge of what the University wanted in all the faculties. It would be his earnest endeavour to investigate all educational proposals which might be made in the Imperial Parliament and support those which seemed to be good. Mr. Sinclair has been elected unopposed. Professor Sinclair, who graduated at the Royal University of Ireland in 1881, became F.R.C.S.Eng. in 1886. He is surgeon to the Royal Victoria Hospital, and professor of surgery in the University. He represents the Queen's University on the General Medical Council. During the war he served with distinction as consulting surgeon with the British Forces in France, and received the honour of C.B.

STILLBIRTH AND NEO-NATAL DEATH.

At the third meeting of the Ulster Medical Society held in Belfast on November 15th, Dr. F. J. Browne, of Edinburgh, read a paper on stillbirth and neo-natal death. The deaths might be classified as ante-natal, intra-natal, and neo-natal. Asphyxia neonatorum was present in 50 per cent. of the intra-natal deaths. The causes were breech presentations, disproportion between head and passage, and occipito-posterior positions. He advocated conversion to normal of breech and occipito-posterior positions. He said that cerebral haemorrhage was found in 20 per cent. of all cases of stillbirth; he showed the relations of this accident to the age of the child and to tears up the tentorium cerebelli, and discussed the possible effect of these tears in producing maldevelopment of the brain, and to crime. A breech presentation was eighteen times more likely to cause a tear in the tentorium cerebelli and ten times more likely to be attended by haemorrhage; the doctor who did not convert a breech presentation might be guilty of increasing the criminal population. In discussing the influence of syphilis he referred to the curious phenomena of Colles's law, to the great rarity of a typical history of syphilis, to the great frequency with which the Wassermann reaction was negative in the mother of undoubtedly syphilitic children, and to "the lucid intervals" when a perfectly healthy child was preceded and followed by an undoubtedly syphilitic child. Passing to the observations he had made at the *post-mortem* examination of syphilitic infants, he said that spirochaetes might be found, sometimes in enormous numbers; the lungs, the thymus, the pancreas, and the uterus might all show signs. Each successive pregnancy should be treated up to the end. Mercury and arsenic should not be given to the pregnant woman together, as the kidneys were not able to stand the combination. Pneumonia was found to be the commonest cause of death of infants in the first fortnight; it was generally of the catarrhal type. Many cases of supposed overlying were really due to pneumonia; the only absolute evidence was microscopic. The necessity of ante-natal care and of regular clinics for this purpose was insisted on.

In the course of the discussion which followed, Professor Lowry expressed the hope that Dr. Browne's work would act as a stimulus to all members of the profession and would help to induce the public to establish ante-natal clinics and so bring Belfast up to the level required by modern science.

Professor Wilson advocated the establishment of a large and well equipped maternity hospital in Belfast. Dr. Thomas Houston pointed out the value of the Dreyer method of estimating a Wassermann reaction, and said it would be of great interest if cases of mothers with a negative result by Harrison's or Fleming's method could also be tested by Dreyer's method.

Dr. John Campbell, M.P., who proposed a vote of thanks to Dr. Browne for his address, said he had often wondered whether deformities might not have a syphilitic origin. Mr. R. J. Johnstone, M.P., seconded, and the vote was carried by acclamation.

are finger and lower jaw articulations. In every case the final decision must depend on the patient's condition from every point of view. Each case must be studied separately and taken on its own merits. A very full history of the many and varied methods which have been adopted before and since the introduction of the formal arthroplasty is given, and the author describes his own method of mobilizing the elbow-joint, giving photographs and radiograms to illustrate the technique and end-results. In considering the knee-joint the author emphasizes the point, with which most surgeons will agree—namely, that a stiff knee in good position and with firm ankylosis is a very useful member, and that, after arthroplasty, lateral stability must be almost absolute if the joint is to be really useful. The hip, shoulder, wrist, and finger joints are considered in some detail, and the author gives a record of much careful and painstaking work. Undoubtedly the operation of arthroplasty will be more widely performed, but the surgeon who undertakes it must be a master of technique and must be prepared to supervise a long after-treatment with just as much care as he gave to the operative procedures. The author has provided an excellent bibliography of the subject.

391. Acute Intussusception.

R. W. BOLLING (*Annals of Surgery*, September, 1923, p. 349) relates his experiences in the treatment of fifty cases of acute intussusception in infants under 12 months of age. Emphasis is laid upon the importance of an early diagnosis. The present high mortality is not the mortality of the operating surgeon, but rather of the medical community he serves. In most cases an abdominal tumour can be felt, but this is not essential to the diagnosis. Sometimes an intussusception occurs during an attack of ileo-colitis and the diagnosis may be exceedingly difficult; in this class of case the tumour is a most valuable sign and may be the only one. In ulcerative colitis the stools usually contain faecal matter, whereas in intussusception they are usually composed of blood and mucus. Henoch's purpura rarely occurs in young children, but when in doubt a laparotomy is indicated. The average duration of symptoms was twenty-eight hours in the cases that lived; no patient with symptoms for under twenty-four hours died. The stomach may be washed out before operation, and ether is the anaesthetic preferred. Reduction is accomplished by the usual method and resection avoided wherever possible; badly damaged gut frequently recovers. Recurrence after reduction does occur rarely, and a routine appendectomy does not appear to prevent this. The closure of the wound is carried out in layers and drainage is not desirable. Fifteen deaths occurred in the series, five following resections. Two cases have died since among the surviving cases, from ileo-colitis and scarlet fever. Two children showed a ventral hernia following the operation; all the others developed normally.

392. Alcohol Sterilization.

R. N. NYE and T. B. MALLORY (*Boston Med. and Surg. Journ.*, October 18th, 1923, p. 561) point out the fallacy of using alcohol for the sterilization of instruments, having proved experimentally that immersion in 70 per cent. alcohol for an hour fails to sterilize instruments infected with bacilli of the *B. aerogenes capsulatus* group. Two post-operative deaths from gas bacillus infection led to a bacteriological examination of the scalpels, etc., used after they had been subjected to the routine washing and sterilizing in 70 per cent. alcohol, and also to experimental control tests with an anaerobic bouillon culture obtained from the knife blades, all of which showed abundant growth and gas after twenty-four hours' incubation at 37.5° C. Since the routine practice has been adopted of sterilizing all scalpels, scissors, and Bard-Parker knife blades with the other instruments in boiling water for twenty minutes no further cases of wound infection due to imperfect sterilization have occurred.

393. Loose Bodies in Joints and Bursae.

M. S. HENDERSON and H. T. JONES (*Journ. of Bone and Joint Surgery*, July, 1923, p. 400), of the orthopaedic department of the Mayo Clinic, have investigated the cases of loose bodies due to osteo-chondromatosis reported in the literature, and have added twelve seen in the Mayo Clinic since 1918. They classify loose bodies in joints into two groups—the first being those composed of unorganized tissue, and the second those composed of cartilage, fibro-cartilage, or bone. The chief interest is in the etiology of the condition. The authors do not consider that there is any real relation between osteo-arthritis and osteo-chondromatosis. One case which they record, where a chondroma was invading the lower end of the femur and there were also multiple osteo-chondromatous bodies in the knee-joint, is very suggestive, but the conclusion that the authors have arrived at is that the condition is a benign neoplasm and that removal of all the loose bodies relieves the patient in the majority of cases. They have not found amputation or resection necessary in any of their cases.

Obstetrics and Gynaecology.

394. The Cause of Uterine Pains.

H. STRUBE (*Arch. de med., cir. y esp.*, October 6th, 1923, p. 5) discusses the various theories proposed to explain the occurrence of uterine pains at the end of normal pregnancy, and comes to the following conclusions: (1) During intrauterine life the mother's liver is able to take charge of the foetal metabolism, but at the time of birth it develops a state of insufficiency. (2) The foetal blood contains an excess of red corpuscles which at the time of birth are destroyed in large quantities. (3) Owing to the insufficiency of the maternal liver the liver of the foetus has extra work to perform, as it has to receive an excessive quantity of bilirubin and readily undergoes a functional change. (4) There is no organ in the foetus which receives pure arterial blood, but the venous composition of the blood serves to stimulate the haemopoietic organs. (5) In consequence of the relative insufficiency of Kupfer's stellate cells in the walls of the blood capillaries in the liver part of the bilirubin passes through the liver and reaches the general circulation. (6) The abundant destruction of the red corpuscles gives rise to the secretion of pleiochromic bile, which moves with difficulty and is readily absorbed. (7) The meconium of the foetus contains a large quantity of this pleiochromic bile. The so-called plug of meconium obstructs the common bile duct and large bile ducts, so that the bile passes into the blood. (8) The placenta allows the dissolved elements in the bile to pass into the maternal blood. (9) It has been demonstrated clinically and experimentally that the foetal bile contains cholalic acid, which gives rise to the production of uterine contractions. The cholalic acid circulates in large quantities through the maternal organism and reaches the centre for producing uterine contractions without the maternal liver being able to elaborate or store it up owing to the hepatic insufficiency caused by pregnancy.

395. The Causes and Treatment of Sterility.

R. ZIMMERMANN (*Deut. med. Woch.*, September 21st, 1923, p. 1206) has investigated the problems of sterility, his material consisting of 4,164 women admitted between 1919 and 1922 to the University Maternity Hospital in Vienna. Among these women there were 112 who had never conceived, and 88 who had been sterile after having undergone one or two pregnancies. It was a sign of the times that only 17 of the sterile women came to hospital on account of their sterility, wanting it rectified; in the remaining cases some other gynaecological disorder had brought the patients to hospital. The average age of the 200 women was 32 years, and that of the women suffering from primary sterility 30 years. The average age of the women who wished their sterility to be rectified was 27 years. In 97 cases operative treatment, and in 103 cases conservative treatment, was adopted. The morbid conditions most frequently associated with the sterility, whether it were primary or secondary, were displacements of the uterus and diseases of its appendages. Developmental abnormalities proved to be of secondary importance, but in a considerable number of cases no organic changes could be found to account for the sterility, and in these cases general diseases, disordered hormone action, and the woman's inability to generate mature ova may have been responsible. The author is sceptical as to stenosis of the cervix being of any great importance in this matter. With regard to the results of treatment, it may be claimed that sterility gives place to pregnancy in about 12 per cent. Of the 17 women who were admitted to hospital on account of their sterility 10 were operated on, and of them 3 were not subsequently traced. In 2 other cases the uterine appendages had to be removed. Five of the remaining 12 subsequently became pregnant. The author estimates that approximately 10 per cent. of all marriages remain sterile.

396. Diagnosis between Pregnancy and Myoma.

REEB (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, 1923, p. 437) remarks that in the absence of radiological evidence of the presence of foetal bones—which is not to be counted on before the end of the fifth month of pregnancy—differential diagnosis between a soft or cystic myoma uteri and pregnancy may present almost insuperable difficulties. Even after laparotomy the three signs of pregnancy which have been described are fallacious: a regular uterine tumour resembling in outline the pregnant uterus and accompanied by dilatation of the veins in the broad ligament is shown by certain myomata; contractility of the tumour, especially after hot applications, is not uncommon in cystic or submucous myomata; and de Rouville's sign (the presence of a corpus luteum of pregnancy in the incised ovary) is significant during the first three months only. Diagnosis of pregnancy in a myomatous

India.

RANGOON MEDICAL SCHOOL.

THE annual report for 1922-23 of the Government Medical School, Rangoon, shows that there has been a steady increase in the number of medical students. During the year fifty new students were admitted, making a total of 223, and of these thirty-one qualified and seventeen gave up their studies for various reasons, leaving 175 students on the roll at the end of the year. At the primary and intermediate examinations 75 per cent. of the candidates proved successful at the first attempt. At the final examination twenty-three out of thirty-one candidates passed at the first attempt in April, 1922, and eight were referred for six months; in the examination in October, eight of the ten who appeared were successful.

MEDICAL INSPECTION OF STUDENTS.

The report on the medical inspection of the students of the Lucknow University in 1922-23, by Dr. Banarsi Das, medical officer, Lucknow University, states that of the 333 students who appeared for medical inspection, 252 were Hindus; 66 per cent. of them were married. Of 75 Mohammedans, 36 per cent. were married; all of the other six students were unmarried. Of the whole number 40 per cent. had defective vision, which in many instances could be corrected by glasses; four cases of trachoma were noted. Decayed teeth were observed in 47 cases; there were 9 cases of definite pyorrhoea, and 34 of spongy gums. Half of the students habitually chewed *pan*, and this was considered to aggravate unhealthy conditions of the mouth. Apart from those who smoked occasionally, 22 per cent. smoked habitually. Almost 50 per cent. of the students were strict vegetarians and the others lived on mixed diet; only two took alcohol, and one used *bhang* on rare occasions. Practically every student had had malaria, but not one case of enlarged spleen was detected. There were about a dozen cases of ringworm, and *T. versicolor* was also observed. The average height of the students (males), who were between 19 and 25 years of age, was 5 ft. 2 in., and the weight 8 st.; it is stated for comparison that in European countries between the same ages the average height is 5 ft. 7½ in. and the weight 10 st. 6 lb.

VACCINATION.

Some idea of the kind of organization that exists for vaccination in India may be gathered from the report for 1922-23 of Lieut.-Colonel W. M. Anderson, C.I.E., I.M.S., on the work in the North-West Frontier Province for that year. He states that the total number of vaccinations performed was 144,155, being a most satisfactory increase over the 100,219 of the preceding year. All the districts and agencies but one shared in the increase, and the average for each vaccinator was 3,837 operations, the highest figure being over 5,000. Of 108,460 successful primary vaccinations nearly two-thirds were in infants under 1 year, and the rest in children between 1 and 6 years. The rate was 40.3 per 1,000 of population against a five years' average of just under 37. The revaccinations numbered 30,188, compared with a five years' average of 17,980. Superintendents inspected a total of 100,846 cases and recorded a percentage success of 96.81 in primary vaccination and 87.56 in secondary operations. The only unsatisfactory feature appears to be, as pointed out in the report, the small number of vaccinations inspected by the civil surgeons themselves—namely, 3.67 per cent. of the total performed. In these cases the primary successes were 93.87 per cent., and in revaccinations 66.72, but Lieut.-Colonel Stiles Webb, I.M.S., who inspected 1,106 cases, reported a success ratio of 94.4, including both primary and revaccinations, so that the results tallied on the whole. The Vaccination Act is in force in only nine towns in the Province, and in Peshawar city it is still voluntary, so that a number of children remain unprotected, whilst the municipality has reduced its vaccinators from five to two. On the other hand, vaccination is gradually becoming more popular in the rural population, and resistance to primary vaccination is not offered. The result of the year's work is regarded by Lieut.-Colonel Anderson as being on the whole very satisfactory, though two superintendents had to be relieved of their duties owing to inefficiency and slackness, and vaccinators need the stimulus of constant supervision. In the past five years the small-pox mortality was 0.37 per 1,000 of the population, and during the year under report 0.05 per 1,000. Lieut.-Colonel Anderson is to be congratulated on a very interesting report and on the good work he is doing.

PASTEUR INSTITUTE, KASAULI.

The report for 1922 of Major Stevenson, director of the Pasteur Institute, Kasauli, presented to the annual meeting at Simla on September 6th, showed that 6,673 persons had received the full course of vaccine treatment for rabies, 559 being Europeans and 6,114 Indians. The decrease of 331 patients as compared with the previous year was due mainly to a decrease in the number from the Indian Army. The number of patients from the Punjab, United Provinces, Central Provinces, and Central India had increased, but a decrease was noted in Bengal, Bihar and Orissa, Rajputana, and Baluchistan. In the case of 402 persons treatment was not necessary or was discontinued on information being received that the biting animal was not in an infective stage of rabies. Of those who received treatment 67, including one European, contracted the disease and died. The financial statement showed a credit balance of 9,324 rupees.

NURSING IN INDIA.

Lady Reading has issued an appeal on behalf of the Lady Minto Nursing Association, of which she is president. The object of the Association is to enable Europeans to obtain skilled nursing at moderate charges by nurses selected in Great Britain; a sliding scale of fees is arranged, determined by the income of the patient. During 1922 the expenditure of the Central Committee of the Association amounted to nearly two lakhs of rupees, of which more than two-thirds was covered by receipts from nursing fees. A grant from the Government and interest on investments amounted to half a lakh, but the total subscriptions only amounted to 1,500 rupees.

To deal with the problem of nursing the native population in India Lady Reading has founded the Nursing Association which bears her name; it will seek to induce educated Indian women to enter the ranks of the nursing profession. Up to the present nursing in India has been monopolized almost entirely by English and Anglo-Indian nurses. In the last few years, as the *Pioneer* comments, circumstances have tended to reduce the factors which have deterred Indian women from seeking economic independence in a professional career, and Lady Reading's call is well timed. On the basis of English conditions, a minimum of 3,000 Indian nurses is required. From the report of the European Mental Hospital at Ranchi it appears that not only is there a total absence of nurses with any recognized qualification for nursing mental cases, but, according to the *Pioneer*, there seems hardly any incentive to obtain such nurses. Major Berkeley Hill, in the report, expresses the opinion that an attempt should be made to develop a body of trained nurses for mental hospital work.

Correspondence.

PIGMENT AND CANCER.

SIR,—I have read with much interest in your issue of November 17th the Bradshaw Lecture on melanosis by W. G. Spencer, and I regard it as an important and valuable contribution to the etiology of new growths. I feel, however, that the value of the paper will be to some extent counteracted if we accept the view put forward in your leader of November 17th, where you say that "the function of pigment in the biological world appears to be similar to its function in the industrial world: it is either decorative or protective." This restricts the use of pigment, but I consider that its field of work is of much wider extent. We are justified from facts already known in taking a much wider view of pigment as an active agent in the human economy. That it holds this position is clear from the admitted connexion between the chlorophyll of plants and the haemoglobin of the blood. The pigments of animals owe their origin in all probability to three func-

uterus may be impossible until an advanced state of pregnancy, for objective signs are of late appearance: the cervix may remain hard, foetal heart sounds may be inaudible, and foetal parts may be inaccessible to palpation. Progressive enlargement of the tumour is by no means a certain sign of pregnancy. But a sign which has enabled Reeb to decide that the uterus is gravid is a change of position of the myomatous masses, with relation to the rest of the uterus, which the second examination shows also to have become enlarged. Two illustrative cases are given, and a third is recorded in which a myomatous uterus removed by abdominal operation was found to contain a three months' foetus; the patient, a 7-para aged 46, had noticed enlargement of an abdominal tumour during three months, during which there had been pain and metrorrhagia. Malignant degeneration of a myoma was suspected. At operation there were found a large myoma to the left, a softer uterine enlargement on the right, and a venous engorgement in the right broad ligament. The ovaries were not incised, but the right one was subsequently found to contain a corpus luteum of pregnancy.

397. Treatment of Eclampsia.

ACCORDING to R. MCPHERSON (*Boston Med. and Surg. Journ.*, August 16th, 1923, p. 219), death from eclampsia is practically always due to rupture of cerebral blood vessels, the chief cause being the higher blood pressure which obtains during the convulsions. It follows that the main principles of treatment should consist (1) during pre-eclamptic states, in preventing the onset of eclamptic fits, and (2) after the supervention of a definite condition of eclampsia, in preventing recurrence of the convulsions. The most constant and significant warning of an impending toxic state in a pregnant woman is a sudden and lasting rise of blood pressure; next in importance among the pre-eclamptic signs are, first, the presence of albumin or casts in the urine, and secondly, progressive morbid lesions in the fundus oculi. Accordingly, every pregnant subject should, as a routine, receive frequently repeated examinations of the blood pressure, urine, and ophthalmoscopic findings. In the majority of pre-eclamptic cases toxaemia can be averted by increasing the amount of fluid ingested and decreasing the meat and eggs of the diet; by securing adequate elimination by the bowels, kidneys, and skin; and by securing proper exercise and an adequate amount of sleep. In the rare instances in which these measures do not produce an amelioration in the patient's condition, termination of the pregnancy should be considered before eclamptic seizures take place, and should be done by one of the gentler measures, the use of chloroform being avoided. For the treatment of frankly eclamptic cases McPherson has found a modification of the Rotunda method to be followed by a considerably lower mortality, both foetal and maternal, than that of rapid termination of pregnancy by vaginal or abdominal hysterotomy, or by forced dilatation of the cervix and podalic version. On admission to hospital the patient, after measurement of the blood pressure and removal of a catheter specimen of the urine, is placed in a darkened and quiet room, and given subcutaneously morphine sulphate gr. 1/2; the stomach is washed out, two ounces of castor oil being next poured down the tube; and the colon is irrigated with 5 gallons of 5 per cent. glucose solution. If the systolic blood pressure is greater than 175 mm. venesection is done, so as to reduce the pressure to 150 mm. Subsequently morphine sulphate gr. 1/4 is given every hour until the respirations drop to 8 a minute; by this time the convulsions have usually ceased and the patient has fallen into labour, which, as a rule, is terminated in a short time, normally or by a low application of forceps. It is not wise to bleed a patient whose blood pressure is not greater than 175 mm. of mercury, for if during or after delivery a considerable amount of blood be lost it is possible that the blood pressure will be so greatly reduced that the patient will die of shock.

Pathology.

398. Experiments in Immunity to Tuberculosis.

P. UHLENHUTH (*Deut. med. Woch.*, September 21st, 1923, p. 1197) reviews his experiences since 1920 with vaccines made from defatted tubercle bacilli and with devitalized cultures of tubercle bacilli injected into experimental animals. In attempting to remove the fatty and waxy capsule of the tubercle bacillus he has used ether, chloroform, alcohol, benzol, lactic acid, carbon tetrachloride, saponin, urea, and other substances, either singly or in various combinations, and he has found that only chemically pure trichlorethylene is capable of defatting the tubercle bacillus. His experiments have, however, convinced him that immunity to tuberculosis cannot be achieved at the [illegible] time by the injection of products of the tubercle bacillus, whatever the treatment these products have been submitted to. Somewhat more encouraging results were obtained by the prophylactic treatment of cattle with injections of large and increasing doses of attenuated strains of the tubercle bacillus, and the author intends to carry out therapeutic tests with the serums of cattle thus treated. He refers to the remarkably good clinical results already obtained with such serums by Professor Czerny, who has given them to children suffering from severe pulmonary tuberculosis.

399. Reinfection of Rabbits with the Same Strain of Spirochaete.

IT has been assumed by certain authors that a rabbit cured of infection with a particular strain of spirochaete is thenceforth insusceptible to reinfection with the same strain. A. KLARENBEEK (*Ann. de l'Inst. Pasteur*, October, 1923, p. 886) brings forward evidence to show that this is not always the case. Using the *Spirochaeta cuniculi*, he inoculated a rabbit by scarification in the left fold of the perineal region. Seven weeks later spirochaetes were detected in this region. Spontaneous cure occurred, and three months after this the animal was reinfected with the same strain as before, on the right side of the vulva. Seven weeks later a typical lesion was present at the site of inoculation containing spirochaetes. Two other similar experiments are quoted, in one of which, however, cure of the first infection was brought about by intramuscular injection of trépol. In another instance successful reinfection of the same rabbit was produced on two occasions; and in a further two animals, both of them born of infected parents and both spontaneously infected, it was found possible to reinfect them with the same strain, after they had been cured of their primary disease. These results are of considerable importance, as attempts have been made to differentiate between distinct varieties of spirochaetes on the basis of cross-immunity reactions, it being assumed that reinfection with the same strain was impossible.

400. Effect of Vaccination against Diphtheria.

A. BACHMANN and J.-M. DE LA BARRERA (*C. R. Soc. de Biologie*, October 13th, 1923, p. 741) have made some successful attempts to immunize human beings against diphtheria. The vaccine they employed was a toxin-antitoxin mixture, which was not completely neutralized. The injection of 0.1 c.cm., for example, into a guinea-pig produced nothing more than a local necrosis. In practice the vaccine was diluted just prior to its use, being put up in dilutions of 1 in 40, 1 in 16, and 1 in 5; 0.1 c.cm. of the highest dilution was injected intradermally. If after forty-eight hours there was no reaction at the point of inoculation the same dose of the 1 in 16 dilution was given, and so on till there was a definite reaction. Once this had been obtained—whether with one of the dilutions or with the pure mixture—the patient was given ten days' rest, after which 0.1 c.cm. of the same dilution as that which caused the reaction was injected. Altogether 16 subjects were studied carefully, the antitoxin titre of their serums being estimated at the commencement of immunization, and again after three to five weeks. The results show that in 5 of these patients the antitoxin titre attained a height of ten times its initial value, in 5 others a height of twenty times, and in the remaining 4 a height of fifty times its initial value. No information is afforded as to how long the antitoxin remained in the blood.

401. The Phenolsulphonephthalein Test in Prostatectomy.

NEGRO and COLOMBET (*Journ. d'Urologie*, July, 1923, p. 12) discuss the phenolsulphonephthalein test as a means of establishing the safety or otherwise of prostatectomy. They state that this test, adopted for the last ten years in Civiale's clinic, has given such good results that at the present time they never perform prostatectomy unless the percentage of phthalein elimination reaches a figure which their experience has shown to be necessary for them to predict an immunity from those post-operative complications that result from renal insufficiency. In 58 cases of enlarged prostate, 48 of which were submitted to prostatectom[illegible] compared the findings obtained by [illegible] phthalein test with those given by the estimation of blood urea, and the determination of Ambard's constant in each case. From the figures thus obtained the greater reliability of the first named test, as shown by the results of operation, is clearly brought out. They emphasize the fact that the phenolsulphonephthalein test is easier to carry out, and that the end-reaction is easy to recognize. The intravenous method of injection is advocated, and if an elimination of at least 45 per cent. of phenolsulphonephthalein within sixty minutes of injection is found they consider that the operation is not contraindicated so far as the efficiency of the kidney is concerned.

tions—respiration, excretion, and nutrition, and though I mention nutrition last in the category it is probably first and foremost as a factor. The old process of what has been termed "skin nutrition by pigment" has no doubt, as regards the human body, passed away, and has been replaced by an internal nutritional digestive system. Nevertheless, the evidence of the old process still lingers with us. I admit that pigment is an intricate and tangled problem, but it is an agent in bodily metabolism which may be baffling but is none the less present. In an article that I published last year in the *Lancet* (vol. ii, 1922) I have put forward the view that cancer has possibly a pigmentary origin, and I think there is much to be said in favour of a thorough investigation of this hypothesis, for, as you say in your article, "the insidious change whereby a congenital melanoma assumes the character of a melanotic cancer remains a mystery, but research has shown that migration of branched pigmented cells may precede any sign of cancer." It is because I think that your leader limits too much the function of pigment in the biological world that I consider it may rather discourage a line of inquiry which, in my opinion, needs following up.—I am, etc.,

Glasgow, Nov. 26th. GEORGE THOS. BEATSON.

ANTLERS IN DEER.

SIR,—In Sir William Macewen's address to the International Society of Surgery on "Antlers in relation to the growth of bone" (BRITISH MEDICAL JOURNAL, July 21st 1923), and in Dr. T. Johnstone's letter (BRITISH MEDICAL JOURNAL, August 6th) the growth of antlers has been discussed by two members of the medical profession, using that term to include surgeons. I have given a good deal of attention to this matter as a zoologist, and perhaps you will allow me to offer some comments.

Sir William Macewen has a much greater experience in observations on the growth of bone than I can claim, but on the other hand I think he is not very thoroughly acquainted with the zoological literature concerning antlers, which he would have found discussed and summarized in two books of mine—namely, *Sexual Dimorphism* (A. and C. Black, 1900) and *Hormones and Heredity* (Constable and Co., 1921).

It is usual to describe the antlers as Sir W. Macewen does, as branched outgrowths of the frontal bones of the skull, but strictly speaking this is not quite correct. The bone forming the antler is developed rather as an addition to the outside of the frontal bone than as a growth from that bone. The frontal bone is a dermal bone, and is actually formed in development in the fibrous tissue of the derma, at least the fibrous connective tissue within which it is formed is to be regarded as merely a deeper layer of the derma. The antler is formed in exactly the same way, within the fibrous derma, but it grows acropetally, first at one point, and then at other points at the end of the branches, as well as in thickness, the skin and epidermis of course growing *pari passu*, and forming the so-called "velvet." Sir W. Macewen insists that the cutis (or derma) of the velvet grows directly on the bone of the antler without any intervening periosteum. I fail to see the distinction. In all ossification the osteoblasts are derived from a layer of fibrous connective tissue, in endochondral ossification from the dense layer which surrounds the cartilage, and afterwards becomes the periosteum, in the case of dermal or membrane bones from the fibrous connective tissue of the skin. When the dermal bone is developed the fibrous connective tissue surrounding its surface is the periosteum. In the case of the antler the derma and periosteum are continuous, as a necessary consequence of the mode of ossification. Therefore I do not see the significance of the statement that the cutis of the velvet grows directly on the bone of the antler without any intervening periosteum. The innermost layer of the cutis is the periosteum. Sir W. Macewen states that very little inosculation occurs between the vessels of the velvet and those of the bone in the antler. Caton, who devoted much attention to the study of the antler (*Antelope and Deer of America*, 1881), states that arteries pass in from the periosteum to the antler transversely as in long bones, but as the antler becomes mature the superficial layer of the antler becomes solidified and the apertures which admitted the arteries become closed. Sir W. Macewen writes of two forms of ossification in the antler proceeding through the same base, which is cartilaginous. I cannot understand this statement, as I feel quite sure that there is no true cartilage at any stage in the development of the antler, or of the frontal bone with which it is connected.

I think there is no basis for the idea that the velvet exerts an inhibitive influence on the activity of the testis. Dr. Johnstone objects that if the testes are the *fons et origo* of the antlers why should their growth coincide with the quiescent state of the testes? The answer is that it has been shown that the hormone which stimulates the development of the antler is derived from the interstitial cells of the testis, not from the spermatic tubules. Moreover, when the testes are removed the normal development and shedding of the antler no longer take place. After castration of the adult the antlers are shed, and in the following spring they develop again, but the new antlers are not normal, they retain their velvet permanently and are never shed. The development of the antler, therefore, is not entirely dependent on the hormone from the testes, but the shedding of the velvet and the shedding of the antler are so dependent.

There can be no doubt that the shedding of the antler is due to the fact that its bone is dead. The pedicle is alive and covered with living skin, and phagocytes from the blood and lymph here attack the dead bone at the base, dissolve and absorb it so that the antler falls off. The next question is, What causes the death of the bone? The interior of the antler is spongy, but the base of it at the burr becomes consolidated and cuts off the blood supply, and so the bone dies. It would seem that the shedding of the velvet, which is rubbed off by the stag against trees while still vascular, is somehow connected with the death of the bone, for after castration the velvet remains and the antler is not shed, and the bony core of cattle which is covered with skin and horn corresponding to the velvet is never shed.

It would take too much space to discuss further the heredity and evolution of the antler. I will only remark in conclusion that it does not seem safe for a surgeon or physiologist to draw conclusions concerning ossification in general from observations on the antler, until he has thoroughly considered the physiology of the antler in relation to hormones and sex, and the question of its evolution.—I am, etc.,

J. T. CUNNINGHAM.

East London College, Mile End, E., Nov. 1st.

DIFFICULT MIDWIFERY IN GENERAL PRACTICE.

SIR,—Unfortunately at present the teaching of the various schools of midwifery is by no means uniform; there is no doubt that a general acceptance of whatever methods of treatment that give the best result would be followed by much benefit to the general public and advancement of the obstetric art.

With this object in view, I urge that some attempt to standardize treatment should be made. In the first instance we are faced with the difficulty of deciding which of the methods at our disposal will give the best result in a given type of case.

In order to facilitate comparison, I would advocate the publication, in one booklet, of the annual report of (say) six of the teaching hospitals in different parts of the country. The report of the maternity hospital with which I am most familiar usually consists of an introduction and statistics. In the former anything of note which occurred during the year is mentioned, and any departure from former treatment described, and the reasons for its adoption given. These six reports would afford a ready means of comparing results, and ultimately lead to a general adoption of the best methods of treatment. I am a believer in the value of internal pelvimetry, when indicated by the external measurements, or non-fixation of the foetal head at a time when it should be fixed. From the measurements thus obtained the pelvis is classed in that degree of contraction to which it belongs, and the appropriate treatment carried out. This method has considerable advantage over any other of which I am aware, in that it is as scientific, and exact, as is compatible with

A British Medical Association Lecture

ON

MINOR ENDOCRINE DISTURBANCES

AND THEIR METABOLIC AND PSYCHICAL EFFECTS.*

BY

W. LANGDON BROWN, M.A., M.D.CANTAB., F.R.C.P.,

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THE last decade of the nineteenth century added greatly to our knowledge of the physiology of the ductless glands, while in 1902 Bayliss and Starling's discovery of secretin opened out the vista of a chemical control of the body, in which the nervous system merely acted as a trigger, firing off a series of reactions. This conception was elaborated until it bade fair to dethrone the nervous system from its supreme position, although Langley had already provided the antidote by his generalization that the action of adrenaline on any part was the same as that obtained by stimulating the sympathetic. But the far-reaching significance of that generalization was not yet appreciated. "The key to evolution lies in the continuous development of the nervous system," said Gaskell. Or, as Elliot Smith put it: "Man has developed and become the greatest of the primates because of his faithful dependence upon the development of the brain." Considering the struggle the central nervous system has had to obtain control, it is not likely that it would abdicate its suzerainty in favour of the more ancient dynasty of chemotropism.

We ordinarily think of the evolution of the nervous system as peacefully accomplished. A struggle for supremacy between two animals or between two species we recognize. But it would appear that a similar struggle accompanies the integration of the multicellular individual. Many apparently peaceful events in nature prove on closer analysis to involve a concealed struggle. Man is a gregarious animal, but he has not found it an easy task to adjust the desires of the individual to the needs of the community. Philosophers may lament this, theologians may attribute it to original sin, but it should lead the biologist to inquire whether the cells of which he is composed have always found it easy to sink their individuality in that of the organism. The thesis of a hostile symbiosis between the tissues of the body has been skilfully upheld by Morley Roberts. A strong central government is needed to keep order, and no high degree of differentiation is possible in the animal body without the control of a centralized nervous system, which has gradually acquired an increasing predominance. It is not too much to say that this control, though for the benefit of the body as a whole, may be resented by the individual tissues. Wilfred Trotter developed the argument of a hostility between nervous and somatic tissues, which is expressed in the way the former insulates itself.

Without defensive mechanisms no animal can survive in the struggle for existence, and no method of defence remains impenetrable, for, if it were, the species possessing it would multiply to the exclusion of others. As evolution proceeds the apparatus for defence comes under the control of a central nervous system. Some defensive mechanisms, such as nettle cells, never become so controlled, but are replaced by other methods as the nervous system evolves. Certain primitive motor apparatus, such as cilia, also never come under such control, though they persist even in the highest animals. In general terms, a central nervous system enables very rapid reactions to occur, and the need for such rapidity of response will first be experienced in the struggle for existence, when its advantage is at once manifest. G. H. Parker, in his book on *The Elementary Nervous System*, has brought new observations into relationship with previously known facts, and has impressed upon us afresh that a nervous system starts as a series of independent receptors and effectors in the deeper layers of the skin, the cells of which sink in deeper and deeper, until they become concentrated into a central nervous system. Between the receptor and effector an adjustor mechanism develops, which is the germ of the whole associative apparatus. In the vertebrates these internuncial adjustor neurons compose the chief mass of the central organs. It is not too fanciful to compare the origin of the nervous system to a group of settlers on the coast, who gradually invade the interior, first singly and then in an organized army, as in the nervous system of vertebrates which arises as a tubular invagination from the surface. Once established the invader assumes control over the indigenous inhabitants, fortifying itself as it goes and maintaining its protectorate by a system of rapid communication throughout the invaded areas. The biological and sociological parallel is remarkably complete.

A wise military occupation utilizes existing institutions, and the lowest level of the nervous system—that is, the autonomic or vegetative portion—enters into a close association with the older chemical methods of control. In my former lectures[1 2] I have emphasized the fact that the endocrines which represent the specialization of these older chemical methods reveal their antiquity in the way they cling to vestigial structures. Indeed, with the exception of the pineal, these structures would appear to be homologous, and can all be traced to modified nephridia.[3] In the course of evolution structural alterations have made them useless for their primitive excretory function and they have taken on a new function of internal secretion. Circumstances alter function. Thus we have hand in hand (1) an increasing concentration of the government in the hands of the central nervous system; (2) an increasing concentration of endocrine functions in glands which can no longer discharge their primitive functions.

I have also recalled the fact that the autonomic, vegetative, or visceral nervous system consists of two great divisions—the sympathetic and the parasympathetic or extended vagus. The former is katabolic, converting potential energy into kinetic and facilitating outward manifestations of that energy, while the latter is anabolic, directing energy inwards, where it is stored up. When these two are distributed to the same structure their action is always antagonistic, and when one is stimulated the other is inhibited. Each of these great divisions co-operates with a group of endocrine glands—the sympathetic with the adrenals, thyroid, and pituitary; the parasympathetic with the glands of the digestive organs and annexes. This is explicable since the former group are largely defensive, while the latter are concerned with obtaining energy from the food. The sympathetic is defensive not only against the external foe, but also against internal invasion by bacteria. Fever is a defensive mechanism largely controlled by the sympathetic through the ductless glands associated with it. This explains why (1) patients with endocrine defects stand infections badly; (2) infections may lead to endocrine exhaustion.

The endocrines are important regulators of metabolism. If metabolism is quickened up, hyperglycaemia usually results. This excess of sugar in the blood is normally used either to supply energy to the muscles or as a source of heat for the febrile reaction. Glycosuria does not necessarily result, for there are two factors concerned in this—the amount of sugar in the blood and the threshold of the kidney. In fever this threshold is raised, so that the sugar poured into the blood by the thyroid, pituitary, and adrenals is prevented from escaping before it can be utilized. This is not only the case in fever, but whenever activity of the endocrine glands associated with the sympathetic is exaggerated. Thus in hyperthyroidism I have always found a higher percentage of sugar in the blood even if there is no glycosuria, and it is well known that the basal metabolism—that is, the metabolism per unit surface of the resting, fasting body—is increased.

OBESITY.

If metabolism is slowed down fat and mucinoid material is deposited. Obesity is due to alteration in the balance between anabolism and katabolism. The commonest cause is taking more food or less exercise than the body requires,

*A British Medical Association Lecture (with revisions) delivered before the South Essex Division of the Association at Southend-on-Sea on Friday, November 10th, 1922.

a subject of this kind, and is quite sufficiently so for all practical purposes. Further, the obstetrician has the advantage of knowing (as far as possible) where he is, and what he is up against.

As another writer has mentioned, women frequently carry their children over time—especially is this the case in the minor degrees of contracted pelvis; hence it is of considerable advantage if labour can be safely induced by such means as the castor oil, quinine, and pituitrin method (Tweedy); or, as described in your columns. Should labour fail to ensue, there is no necessity to repeat the drugs for at least a week, and there is little likelihood of the patient falling spontaneously into labour for at least four days. In a breech presentation in a primipara, the first question should be, Is this presentation an accident, or is it due to a definite abnormality? If it is an accident, it is probably advisable to change it, whereas, if due to a minor degree of contraction, it were perhaps better left as a breech. The method of slow manual dilatation of the perineum to facilitate delivery, and avoid deep lacerations, might be worth a trial when much difficulty is expected.

The weak spot in the treatment of accidental haemorrhage by rupturing the membranes is that it may be a few hours before labour sets in, and the patient may bleed to death in the meantime. The great advantage of treating this condition by the vaginal plug is that, if properly applied, the bleeding will stop; but it has the drawback that it causes some degree of shock.

In transverse presentation, when called upon to decide between internal version and a destructive operation on the foetus, the condition of the child will form a useful guide. If the foetal heart is normal, or nearly so, version should be quite possible, but if the heart cannot be heard the child is probably dead, and there is no object in adding to the maternal risk out of consideration for it. When the condition of the mother and child are obviously bad the obstetrician will have to be guided by his experience and the circumstances of the case.

I do not know what success has generally attended the efforts to reduce occipito-posterior positions by means of abdominal pads, but it seems a method worth trying.

Even in the most outlying parts of the country the number of cases where it is necessary to perforate a living child must be very small. I do not think that occipito-posterior with a normal pelvis should be one of them. —I am, etc.,

R. E. TOTTENHAM, M.D., F.R.C.P.I.,
Dublin, Nov. 19th. Gynaecologist to Dr. Steevens's Hospital.

SIR,—The very interesting paper by Dr. S. Gordon Luker (November 17th, p. 913) is particularly welcome because it deals with the difficulties of midwifery practice encountered by the practitioners who, during the very time of a difficult case, may have many another urgent call upon them. Like Dr. Luker, I, too, would pay a tribute to their ingenuity and resource.

The importance of ante-natal care needs no insistence, but it is perhaps not so often put to practical use in cases of slight pelvic contraction as it might be. After so much untutored and prejudiced criticism of omnopon-scopolamine it is pleasing to find what an ideal combination this is in such cases, allowing moulding of the head without the patient paying so heavy a price in fatigue—and certainly, therefore, actually helping to minimize the risks of post-partum haemorrhage. Experience has taught me many other such advantages following its use in conditions which used to be considered certain contra-indications to its exhibition.

Another direct outcome of ante-natal supervision is noted under "large size of the foetal head." For many years it has been my custom to attempt some estimation of the relative sizes of pelvis and foetal head at not later than the thirty-sixth week. The results have justified the extra trouble—many patients who had had two (and in one three) stillbirths have had the third (and fourth) child living by a simple induction without the attendant possible risks of Caesarean section. These cases certainly do not call for a major abdominal operation. With these cases must be classed those of prolonged pregnancy: with the knowledge to-day at our command it is wrong to allow any pregnancy to go beyond the calculated date for labour, especially as we can be quite reasonably sure of this date from abdominal examination.

Many readers will remember a writer recently advocating version in all cases which were not already breech presentations. Remembering the definite risks (which are real, if small) in any breech presentation as compared with vertex, and remembering, too, the rarer but serious risks such as extended arms with a breech, the exact converse, mentioned by Dr. Luker—that of converting a breech into a vertex—is much more reasonable. I can amply confirm Dr. Luker's opinion here, and the operation by external version is usually quite simple. As he says, "It is important to prevent breech labour in primigravidae."

Under the heading of ante-partum haemorrhage Dr. Luker says, "the patient is put to bed . . . and a hypodermic of morphine is given." But why not omnopon-scopolamine? It is better than morphine alone in every way. And, again, when speaking of post-partum haemorrhage he rightly draws attention to the importance of avoiding "a fair quantity of chloroform for a prolonged period." This administration, added to the "uterine exhaustion," due in many cases to difficult prolonged labour, is a strong factor in the production of post-partum haemorrhage. By administering omnopon-scopolamine throughout we have a certain means of reducing the necessity for much chloroform, and it also helps to prevent the uterine exhaustion, achieving the very objects we seek.—I am, etc.,

W. OSBORNE GREENWOOD, M.D., B.S.,
Harrogate, Nov. 22nd. F.R.S.Edin.

SIR,—In a paper read before the Dover and Folkestone Division of the British Medical Association and printed in the JOURNAL of November 17th, 1923 (p. 913), Dr. S. Gordon Luker of the London Hospital makes certain statements when discussing "Difficult midwifery in general practice." It appears to be quite a pastime these days with certain of our teachers to convince us (general practitioners) of how very little we have absorbed of all the teaching in midwifery which these same teachers have flung at our heads during our student days. We stood humbly in the corner and accepted the many indictments showered on us at Portsmouth during the Annual Meeting, and now comes Dr. Luker to throw a few more stones; but, Sir, this time may I raise my voice in humble protest?

To quote Dr. Luker's own words, the students of less than twenty years ago acquired only a "sketchy knowledge of essential principles," so that no matter how skilful an accoucheur he may subsequently have developed into he is, in Dr. Luker's opinion, unfit, by his training, to tackle difficult midwifery! Dr. Luker, however, later on, reassures us with regards to the "student of the present day," who goes through a far more efficient and intensive training when he should be putting his super-knowledge into practice. Dr. Luker solemnly expresses the opinion that the "real remedy lies in providing sufficient maternity beds in hospitals in all towns"—rather a nasty jar for our supertrained modern accoucheur: it appears that even he is suspect!

Further on, Dr. Luker says, "What the newly qualified doctor of the present day finds difficult, is how to apply his hospital methods to general practice." Exactly so, and who is to blame for this but his teachers? It is their duty, and privilege, to teach him that science and art of midwifery that will enable him the best to deal with difficult midwifery whenever and wherever called upon. And it certainly does not help to reassure him or increase his confidence in himself to be continually told what a hopeless sort of idiot he is when dealing with difficult labour. In my humble opinion, the time has certainly arrived when practical midwifery should be taught by a general practitioner, and not by a "specialist." Speaking for myself, I learnt more midwifery of the useful practical sort from general practitioners than ever I learnt from my specialist teachers, and Dr. Luker's own words appear to bear out the general truth of my statement.

Finally, when discussing the treatment of unreduced occipito-posterior positions, Dr. Luker says: "due-

metabolism means an increase of weight even though the intake of food is by no means excessive. It was clear during the food rationing of the war that a certain number of stout people did not lose weight as others did.

In *thyroid obesity* the increase in weight is not all due to fat. The heavy folds running from the nose to the cheeks, the bags under the eyes, and the supraclavicular pads are all very characteristic. The condition is really a minor degree of myxoedema, and presents a similar harsh dry skin with a malar flush. The mental lethargy is as marked as the physical.

In *pituitary obesity* the whole face is rounded, with a smooth, soft skin, while the colour is usually fresh or unduly high. I called it the "Dutch doll" type, and then found Fearnside had previously referred to it as the "pudding face." The amount of hair on the face and body is much reduced. Fat is specially deposited on the shoulders, breasts, hips, and thighs, giving the latter a "plus fours" appearance. The skin over the posterior borders of the upper arms and on the legs below the knees is a mottled red. The way this mottling stops abruptly just above the olecranon is very characteristic. These people bruise very easily and there is some polycythaemia. In women there is often amenorrhoea; but that is not the cause of the polycythaemia, as I found it in a typical case in a boy of 16. The mental outlook is often bright, active, and cheerful.

In *Dercum's disease* there are localized deposits of fat which are painful—they are particularly likely to occur on the posterior borders of the arms and the flexor aspects of the thighs. Here the mental condition is usually one of great depression, which is not merely due to the pain of the lumps, although this may be considerable.

In some cases of *pituitary tumour* there is both an insatiable appetite and great sleepiness; the patient awakes to eat, and having eaten falls asleep again. It is not easy to be sure what determines the bright alertness of one group of fat hypopituitarism and the profound somnolence of the other, but I suspect it depends on whether there is increased intracranial pressure or not. The fat boy in *Pickwick*—"Drat that boy, he's asleep again!"—is usually quoted as a classical example. A few years ago a very fat Jew, weighing 20 st., turned up at St. Bartholomew's Hospital at 11 p.m. complaining that he felt very sleepy. Fortunately he had a doctor's card with him, otherwise I cannot help thinking that a fat Jew complaining of sleepiness at 11 o'clock at night might have received more advice than treatment. It was a good thing he was admitted, for he had a syncopal attack soon afterwards. X-ray examination showed enlargement of his pituitary fossa. Under injections of 1/2 c.cm. of pituitrin three times a day he lost 2 st. in ten days and his general condition improved remarkably. Quite recently I advised two daily doses of 1/2 c.cm. in a similar case, with the result that 17½ lb. were lost in twelve days.

Thymic Obesity.—The thymus is an infantile organ; if it persists after it should have vanished we find it is antagonistic to the development of the gonads, and hence indirectly leads to the deposit of fat. The thymic type tends to have rather a long face, with clear skin and good features, marred by the precocious development of a double chin. It constitutes the lymphatic type of the older physicians, or status lymphaticus as we prefer to call it to-day. Such patients are liable to paroxysmal dyspnoea, the so-called thymic asthma, and they respond to infections badly.

Gonadal Obesity.—Recently I saw a girl of 22 who was very stout, and who presented some features of the pituitary and thymic type, and even some signs of thyroid deficiency. I noted that her upper lateral incisors were very small. She was surprised when I guessed that her periods began late. The guess was correct, for they did not start until she was 16½. One or both undeveloped upper lateral incisors are often associated with gonadal deficiency, and, her obesity showing signs of several endocrine glands

probable starting point of the obesity was gonada
ficiency. Indeed, I think that pathological obesity in
life, showing mixed endocrine symptoms, is very ofte
to delay in gonadal development. It may subside
rapidly when adolescence is complete. To hark bac
a moment to the undeveloped lateral incisors. If yo
a girl with more than the usual enlargement of the th
at puberty together with this condition of the teeth
are, in my opinion, justified in regarding the enlarg
as probably compensatory and not of evil import.
periods may establish themselves with difficulty, bu
enlargement of the thyroid is likely to subside wher
has been done. The process may be hastened by small
of thyroid extract. Curiously enough, this associatio
tween the teeth and gonads appears to be a crossed
Thus with an undescended right testis it will be th
lateral incisor which is small, twisted, or displaced.

The Adrenals.

Having considered some of the effects of the endo
glands on general metabolism, I will turn to some
results of minor disturbances of these glands, with
reference to the psychical aspects.

It is clearly recognized that the medulla of the adr
really represents the post-ganglionic element of the sy
thetic nervous system, which explains Langley's gener
tion, to which I have already referred. The chrom
cell and the sympathetic cell migrated out of the ce
nervous system together, and the chromaffin elements
originally much more widely distributed. The cortex
the other hand, represents a group of nephridia, and
arises from the Wolffian body. It is very significant th
has the same origin as the interstitial cells of the go
To this we may trace the extraordinary effect that co
tumours or overgrowth have in producing premature se
development. In whichever sex they occur they ten
virilism. We shall see that each of the different endoc
has its own tendency to tip the balance towards vir
or feminism. What the advantage may be of this
association of two structures of such widely different o
we cannot say, but the persistence of the associatio
all animals above the level of fishes suggests that it
great importance. Apparently, if this association fai
occur in foetal life the brain remains at the fish stage
neopallium does not develop, and an anencephalic mo
results.

Since adrenaline can raise blood pressure and e
glycosuria, it is tempting to assume that these com
symptoms occurring in later life are due to overactio
the adrenal medulla, produced by nervous strain o
emotional sort. But proof of this is lacking. The clas
picture of underaction of the adrenal medulla is see
Addison's disease, and it is possible that adrenal exhau
may play a part in war neuroses and other functional s
characterized by myasthenia, vasomotor instability, an
blood pressure.

I should like to say a few words on the psychical a
of adrenal disturbances. Fear is really a perversion
defensive mechanism. It is the intensification of the ins
tive process called into activity by danger. But just a
cannot conceive that all the primitive sensations of a l
animal have the affective intensity of pain as we experi
it, so we must not regard the emotional response o
animal to danger as having the affect of what we r
by fear. To do so would be to fall into the common e
as Parker says, of interpreting the activities of the sin
animals as though they were miniature human beings.
much scantier associative mechanisms in the nervous sy
of lower animals precludes such an idea. An imagin
writer, A. C. Benson, says:

"It is strange to note the perpetual instinctive conscio
of danger which besets birds in the open; they must live
tension of nervous watchfulness which would depress a h

tion cannot be performed" (by manual rotation of the head) "tentative and judicious trial of axis-traction forceps may be made. If the head does not descend *with gentle traction* (the italics are mine) perforation of the head should be performed." In fact, we are asked to kill a living child, for in nine cases out of ten it is living, as I have time and again proved by extracting with forceps after a very severe pull. Not only has the infant been alive and undamaged, but has lived to develop into a strong and active child. Moreover, the mother has not shown those dreadful injuries which our specialist teachers say are bound to occur. I can assure Dr. Luker that after an experience of midwifery ranging over twelve years, and including many unreduced occipito-posterior positions, I have never yet failed to deliver an undamaged and living infant, and very often it has only been after a prolonged and severe pull with the forceps.—I am, etc.,

Bradford, Nov. 24th. VINCENT NORMAN, F.R.C.S.Ed.

ANTE-PARTUM HAEMORRHAGE AND ECLAMPSIA.

SIR,—In reply to Professor James Young (November 17th, p. 945) I beg to deal with two points: the first concerns the relationship of concealed accidental haemorrhage with eclampsia; the second, the statement "that the acute and often extreme distensions of general medical and surgical practice are never associated with eclampsia." Professor Young quotes my view as to the first—"that the distension of the womb by the accumulating blood causes toxaemia by pressing on the kidneys and other abdominal organs." He states, "this view is disproved by the fact that there may be intense toxaemia where the concealed clot is no bigger than an apple"; and by the occurrence of abdominal distension in practice without eclampsia.

Of course, if eclampsia only occurred in cases of ante-partum haemorrhage, there would be *force in Professor* Young's criticism; but eclampsia may arise in the absence of ante-partum haemorrhage of any kind whatever. Professor Young states: "If anything is clear it is that in the eclampsia both of accidental haemorrhage and of placenta *praevia there must be some common factor.*" The point is that there must be some factor common (yet peculiar) to *all* cases of eclampsia. Professor Young does not recognize this; he limits his inquiry to cases of concealed or unconcealed accidental haemorrhage. The occurrence of eclampsia in other types of case—namely, in primigravidae, in strong muscular and (otherwise) healthy pregnant women, in unmarried pregnant women, in cases of twin pregnancy, in hydramnios, and in certain cases of hydatidiform mole—without any abnormal position of the placenta (indeed without a placenta) and without any intrauterine haemorrhage at all, negatives his view. These cases put his conception, already discredited by other considerations, completely out of court—they show that placental separation, wherever the placenta, is not a cause of eclampsia.

As regards the second point, I may say that the error of expecting eclampsia or "uraemia" with the distension of intestinal obstruction is referred to in a small forthcoming volume; and the criticism dwindles down to the occurrence of abdominal distension with ovarian cysts and fibroids without eclampsia. It was Matthews Duncan—he who believed in the retentive power of the abdomen, and attributed to the suction of the thorax the elevation of the uterus in pregnancy, and the retraction of the partially born child's head between the pains—who first advanced this objection. In a footnote in his translation of Braun's book on *The Uraemic Convulsions of Pregnancy, Parturition and Childbed* (1857), Duncan stated that "the influence of simple pressure by the pregnant uterus seems to be much exaggerated"; and that "in ovarian dropsy, fibroid tumours, and a variety of other affections, no such result is observed from a pressure exactly like that of the gravid uterus, and often more severe and longer continued." Professor Young (like so many other obstetricians) accepts and repeats this criticism. He thinks it demolishes the mechanistic conception of eclampsia; he believes (presumably) that the pressure resulting from the growth of the pregnant uterus is "exactly like" that due to the growth of an ovarian cyst or fibroid tumour. But he is in error; he has at least omitted one consideration—the difference in effect on the abdominal wall with these two different kinds of growth. In the one (pregnancy), the recti become separated, as a rule by a considerable interval; in the other, separation either does not occur or is inconspicuous. I showed in my paper of 1913 that the separation of the recti in pregnancy could only be attributed to a greater contraction than normal of the transversales abdominis; and that this change postulates the conception of a raised pressure in pregnancy. Similarly, the absence of this separation with ovarian cysts and large fibroids shows the absence of such rise of this pressure. If the pregnant uterus with its increase in volume does not cause an increase of pressure in pregnancy, how explain the separation of the recti? If the separation in pregnancy is due to a mere yielding, a mere weakening, how explain the non-separation with fibroid tumour and ovarian cyst? A week ago I removed a fibroid tumour of the uterus weighing 32 lb.; the girth of the abdomen was 50 inches; there was no separation of the recti, or it was negligible. Yet am I to believe that the pressure within the abdomen—produced at the wash-tub and by carrying in the breakfast things—was as great as that produced with a smaller distension in pregnancy, *with the muscles spastic*, during similar movements?

Professor Young's argument is incomplete in his survey of the incidence of eclampsia; and as far as the mechanistic conception of eclampsia is concerned, does not touch fundamentals. It is plain he has not considered at all the abdominal wall in pregnancy; nor the pressure conditions which reign within the abdomen during this state.—I am, etc.,

London, W., Nov. 17th. R. H. PARAMORE, F.R.C.S.Eng.

VACCINATION PROPAGANDA.

SIR,—Dr. Killick Millard still stands on his head on the vaccination question; what a pity that such a respected medical officer should have side-slipped on this question. Everyone else is wrong and Dr. Millard is right. Assuredly there were 42 cases in the Poplar outburst, but instead of deducing that infantile vaccination should be given up, Dr. Millard should fight for revaccination at the age of 18 to 20, or thereabouts.

Dr. Millard honestly believes that the first cases of smallpox in a totally unvaccinated (never been vaccinated) community would be diagnosed at once and so everybody in the infected zone would be saved by swift vaccination. I deny his contention absolutely and wholly. It is playing with fire to imagine that the first case would be certain to take to bed at once. There is every likelihood that such a patient would move about for some hours, at any rate, and make Poplar's 42 cases insignificant in comparison with the number which would accrue. A man is a gambler who says that only one or two first cases would suffer and that every contact would be rounded up rapidly by the modern practitioner and the modern medical officer of health.

Will Dr. Millard please answer this: Suppose that I advise all parents in Deptford to give up vaccinating their babies and suppose the people were foolish enough to follow this advice. An outbreak takes place and two lads of 10 years are the victims. They become so ill that nobody could miss the diagnosis, and they die, not having been vaccinated. What am I to say to the father when he comes to the Town Hall and asks me whether it is true that vaccination prevented the contacts from contracting the disease, and if so, why was the same theory of prevention not applied to his dead children when in their infancy? Am I to say that I am an apostle of Dr. Millard and that we believe that a few deaths must be expected and accepted so long as the rest are saved? Will that satisfy the parents?

I claim that these two or three deaths are unnecessary, as unnecessary as the deaths or injuries inflicted by one or two doctors who are not so clean in their vaccinal methods as they should be. Can it be possible that Dr. Millard has unearthed his theory to placate the antivaccination stalwarts in Leicester? Let us hope at any rate that no others will fall from grace and plunge into this mirage of vague indefiniteness.—I am, etc.,

CHARLES S. THOMSON,
Medical Officer of Health.

Deptford, Nov. 3rd.

being into melancholia. . . . Do we realize what it must be to live, as even sheltered birds do, in a quiet garden, with the fear of attack and death hanging over them from morning to night?"

The best answer to this anthropomorphic view is that the behaviour of birds gives no suggestion of their being depressed into melancholia. Doubtless when the appropriate motor response is prevented the lower animal can feel both pain and fear; but that all its sensations and emotions are thus coloured is most improbable when we consider the much simpler structure of its nervous system. It might be argued, on the other hand, that as sensations of fear at once arise when the inhibiting mechanism is in abeyance—as in night terrors, in the induction of anaesthesia, or in exhaustion states—fear must be a primitive emotion of great strength and universally present in lower forms of life. But I would urge that it is only in the stage when the associative mechanisms have been evolved, and before these have been controlled by the higher levels, that this is the case; or as Carpenter puts it, "Fear only became a mental stimulus at the time of, or after the evolution of, self-consciousness." The behaviour of savages supports this view. Fear—whether of evil spirits, of magic, of the dark—panic fear dominated primitive man, and whenever our resistance is lowered by disease, by shock, or by psychic conflict, we betray our ancestry. That strange primitive being which lurks in the unconscious mind of us all peeps out. Elaboration of ceremonial and ritual is the first step taken by primitive man to counteract this; all religions pass through the "God-fearing" stage. Then with the higher development of the mind, and the recognition of the reality principle, comes release from such obsessions of fear. In the disintegrative process of disease this higher control fails and phobias develop which cannot be effectually exorcised by the ritual of a compulsion neurosis.

The adrenal medulla from its activating effect on the sympathetic is a fighting gland. And as the adrenal cortex tends to virilism, the owner of a well developed pair of adrenals is pugnacious and masculine in type, with plenty of drive, not to say aggression. If the adrenals are in defect we see a weakening of all these characteristics, with a tendency for the vagus to get the upper hand, which may precipitate such things as asthma. If the adrenals are in excess we find a liability to anxiety neurosis, and to phobias of all kinds. In such an individual the dominant emotion is fear.

THE PITUITARY.

That overaction of the anterior lobe produces acromegaly in adults is well known. It is also generally recognized that some lesion of this lobe plays a large part in the osteitis deformans of later life. Overaction of this lobe in early life when general growth is still possible produces gigantism. Minor degrees of increased action of the anterior lobe results in a tall hairy man, long in tooth and big in jaw, with large broad hands. He often has a good intellect, with an imaginative force which can be controlled and brought to the service of his active brain; he is often musical—in short, a practical visionary. Unfortunately the effect of an overactive anterior lobe is not always so balanced as to produce such a happy result. Thus in the following case the amount of pituitary disturbance was not great, though the effect on character was disastrous.

A young man of 23 was brought to see me who had been very late in learning to walk and talk. He showed me two photographs of himself taken at the age of 4 or 5; one of these looked like a normal child, while the other looked degenerate. By the age of 6½ he had developed the habit of lying. He grew rapidly to the height of 6 ft. 5 in. His palatal arch was very high, and his knuckles were very large. He was a confirmed liar and thief, and was suspected of deliberate and wilful arson.

Gigantism due to overaction of the anterior lobe before the epiphyses are united may be followed by degeneration of the gland. The fossa becoming too small for the gland the patient is apt to develop moral and intellectual inferiority, to suffer from compulsions and obsessions, and to lack inhibitions. As Berman puts it, such individuals are "pathological liars with little or no initiative or conscience. . . . As children they lie and steal, have enuresis, have poor control over themselves and a low learning capacity." This patient showed all these points. But it is a little difficult to explain why even while the pituitary was actively stimulating growth there was a failure of the moral sense and intellect to develop. In the present state of our knowledge we can only say that there may have been a diversion of the pituitary action in one direction at the expense of others. Dr. Crichton Miller has suggested to me that it is rather due to failure on the part of other endocrine glands. In connexion with Berman's view that the posterior lobe is concerned with the affections, it is interesting to note that this youth had never shown the slightest affection for anyone. It had been suggested that he should be certified as of unsound mind. On that I wrote to his doctor as follows—and it happened to be just a fortnight before Ronald True's case:

"We are up against the difficulty which always arises between the medical and legal view of responsibility. I think that in spite of his plausible manner with strangers he has a criminal type of countenance; and I should never be surprised at his doing something to justify that harsh saying. But the law which gives the dog one free bite would certainly not allow him to be deprived of his liberty."

The sufferer from pituitary disturbances seems to compensate for his feeling of inferiority by craving for the limelight. The craving of the "fat boy in *Pickwick*" was to make people's "flesh creep."

The pars intermedia of the pituitary, which is developmentally part of the anterior lobe, is concerned with carbohydrate metabolism. If it overacts there is excess of sugar in the blood and sometimes frank glycosuria; if it underacts the blood sugar is low and carbohydrate tolerance is high—no doubt this plays a part in the obesity of hypopituitarism.

When the anterior lobe with the pars intermedia is in defect we have Fröhlich's syndrome—an abnormally fat patient, with little hair, smooth skin, and undeveloped sexually; in fact, an extreme degree of the type of pituitary obesity I have already described.

It has been said that the anterior lobe tends to produce virile characters, and the posterior lobe feminine characters. The flat-chested, long-toothed, large-jawed, clumsy-handed woman, fondly believed by the French caricaturists to be typically English, is certainly suggestive of an exaggerated anterior pituitary, and she is not remarkable for feminine characteristics. A little side issue of some interest occurs to me here: you are all familiar with the inseparable couple of women friends; one of the two usually adopts a somewhat masculine rôle, and I have been struck on several occasions to note the number of signs she presents of overactive anterior pituitary. Be that as it may, I am sure the pituitary plays some part in differentiating the secondary sexual characters.

We are on safer ground in asserting that the secretion of the posterior lobe stimulates plain muscle and is often found to be an excellent stimulant in a certain type of atonic constipation. I am convinced, too, that diabetes insipidus is generally due to defective action of the posterior lobe. Clinical and pathological evidence strongly supports this view, and injections of pituitrin will control polyuria. Apparently this is due to direct action on the kidney; but I must not stop to discuss this point.

Several recent observations have thrown considerable light on the influence of the pituitary on carbohydrate metabolism. Thus, Mackenzie Wallis[4] has found the blood sugar curve to be the same in pituitary glycosuria and the glycosuria of pregnancy; Dixon has shown that ovarian extract increases the secretion of pituitrin into the cerebrospinal fluid[5]; while J. H. Burn has found that pituitary extract will inhibit the action of insulin in reducing the blood sugar. Therefore, in the glycosuria of pregnancy the gonads apparently stimulate the pituitary, which in turn inhibits the pancreas.

THE THYROID.

The thyroid is essentially a feminine gland, and it is developed from the uterus of the paleostracan ancestor. Its enlargement at puberty, marriage, and pregnancy, and its tendency to involution at the menopause, all point that way. It has been called the gland of creation. Some time ago Crichton Miller asked if anyone had ever heard of a

GARDEN CITY SANITATION.

SIR,—Dr. Hindhede's contention in the lecture an account of which was published last week (p. 996) is to the effect that the sanitary engineer keeps us in bondage and will not allow us to dispose of sewage in a remunerative way. This is interesting, and I hope you will allow me to reply. In theory Dr. Hindhede may be right, but in practice his plan is difficult to carry out. Dr. Hindhede does not seem to understand that there is only one "Garden City" at present in existence (by name Letchworth), though another (Welwyn) is just starting. Letchworth is an industrial town which has a population of 13,000 people. The people have nearly all come from other towns, been used to town life and amenities, and their object in living in Letchworth is to carry on industry under tolerable conditions for health and enjoyment. The houses all have gardens in the town, and these gardens are mostly cultivated and produce large quantities of vegetables and fruit. During the war the potatoes produced in Letchworth were a real addition to the food of the town. We have found that too large a garden is not a blessing to industrial workers. It would soon be an offence to public health to have a town like this without a proper sewage system. In the early days one or two people in the "town" area tried a "Poore" system of disposal, but they soon had to give it up. On the "agricultural" belt surrounding the town it is possible to do without sewage, but even then we find that smallholders wish to avail themselves of the town system if they can get on to it. My experience is that even in country villages the people dislike cesspools, and though the dry earth closet system is the ideal it needs constant supervision. If, on the other hand, town dwellers are to live in the country—and the crying need of to-day is for the people to get out of the big cities into the country—the services of the sanitary engineer will be necessary.

The Garden City is not a cranky idea, as Dr. Hindhede might lead one to suppose, but is a very sound practical solution for much of our social trouble of to-day.—I am, etc.,

NORMAN MACFADYEN.

Letchworth, Hertfordshire, Nov. 21st.

Obituary.

ARCHIBALD SLOAN, M.B., F.R.F.P.S.G., Glasgow.

THE late Dr. Archibald Sloan began his career as a teacher, but after a few years turned to the study of medicine. He graduated at Glasgow University, and some years later was elected a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow. He was a member for many years of the British Medical Association. My own acquaintance with him began when I was a medical student, and in the intervening years I saw very much of him and his work. He always endeavoured to look at questions from the viewpoint of "the other man." He was generous to a fault, sparing neither time nor money nor strength in his efforts to benefit others, or to assist those who were in pecuniary need. He had a remarkably fine intuition of clinical facts, and his resourcefulness at the bedside was singularly conspicuous. He was always interested in youth. He rejoiced in demonstrating "a case" to his young medical friends. He began practice in a crowded industrial locality, and though he was far from robust the amount of work he accomplished was extraordinary. He was exceedingly well known in that neighbourhood, and his professional brethren frequently sought his advice. For a few years he was casualty surgeon to the police. Later he became outdoor physician, and latterly assistant physician, to the Glasgow Maternity Hospital. He was also for several years dispensary physician to Anderson College Dispensary, later known as the Central Dispensary.

As his professional status became confirmed, Dr. Sloan retired from these posts, and began once more to interest himself in educational matters. He became a member of the Glasgow School Board, and devoted much time to the subject of physical training. Later on he was appointed medical officer to the students under the Glasgow Provincial Committee. In this position his ripe clinical experience was of great value, not only to the students, but also to "The Department."

In every position he occupied he endeavoured to benefit the moral as well as the physical welfare of those who came under his professional care. In some few cases, when disagreeable things were said to him (as they are to all of us), he would assume an expression of such complete stolidity and impenetrability that his detractors were baffled. At other times he would speak and act in such a way that it seemed to his friends as if he deliberately wished to be misunderstood. For the clerical profession he had much sympathy, and his professional services were freely and generously bestowed on many, not only in his own well loved denomination, but in all. It was characteristic of him that in his last illness, when nearly too ill to speak, he inquired anxiously for the welfare of a patient whom he had visited four days or so earlier. To a most unusual degree he retained the affection and confidence of his patients, and some of those whom he had visited in the early days of his practice remained on his "list" to the very end. In the closing months of his life it became more abundantly evident that his guiding principles were deep-seated and far-reaching. He was indeed a man who lived and died in the exercise of humble Christian faith.

My own debt of gratitude to him is very great, so great that I cannot attempt to describe it. Professionally he taught me much, and in very many other ways I owe him more than I can express.

JOHN RITCHIE, M.B.

Universities and Colleges.

UNIVERSITY OF LONDON.

AT a meeting of the Senate held on November 21st, Mr. W. E. Le Gros Clark, F.R.C.S., was appointed as from January 1st, 1924, to the newly instituted Readership in Anatomy at St. Bartholomew's Hospital Medical College. Mr. Le Gros Clark, who was a student at St. Thomas's Hospital, served with the R.A.M.C. during 1918-19, and during 1919-20 he was demonstrator in anatomy at St. Thomas's Hospital. Since 1920 he has been Principal Medical Officer at Sarawak, Borneo. He has published papers on ancient Eskimo skulls and on the Pacchionian bodies.

The D.Sc. degree in embryology was conferred on Miss Margaret Tribe, of University and King's Colleges, for a thesis entitled "The Development of the Hepatic Venous System and the Postcaval Vein in the Marsupialia."

It was resolved that the Physiological Laboratory Library should be kept together as part of the University Library and be developed in connexion therewith as a memorial to the late Professor A. D. Waller.

The following candidates have been approved at the examination for the Diploma in Psychological Medicine, with special knowledge of Psychiatry:

B. W. Brown, H. E. Brown, Isabel F. King, T. Lindsay, J. Wall.

NATIONAL UNIVERSITY OF IRELAND.

THE following candidates have been approved at the examination indicated:

M.B., B.CH., B.A.O.—*J. J. O'Reilly, †G. F. Duggan, †T. Prendergast, †P. J. Kerley, †J. Faul, Annie G. Brereton, J. Callaghan, M. J. Canty, D. M. Clune, E. J. Collins, Jessie N. Cooke, W. J. Coyne, H. J. Croghan, P. G. Dooley, Honoria J. Doyle, A. R. J. Dunnigan, M. Farrell, E. S. Foley, Elizabeth M. Foley, B. Gallagher, T. Glynn, C. Godfrey, G. J. Hanly, J. F. Harrington, P. J. J. Hughes, G. J. Joyce, J. S. J. Joyce, P. E. Keogh, W. J. Kerrigan, T. J. Lynch, Kathleen G. McColgan, Mary J. McEvoy, Sarah A. McGee, F. McKernan, E. McManus, J. M. McNamara, T. W. Moran, Mary M. O'Hannigan, Cecilia Phillips, L. D'A. Quigley, Mary B. Quinn, Mary Ryan, Teresa M. Scott, T. Stokes, Anne Sullivan.

Exempt from further Examination in Part I (Medicine and Pathology).—Catherine M. Barry, W. Belton, J. G. Cooney, A. E. B. Kirby, Winifred M. O'Hanlon.

Exempt from further Examination in Part II (Surgery, Ophthalmology, Midwifery).

Bergin, C. V. Connolly, T. J.
Cusack, M. F. Dodd, Mary K.
J. B. Hurley, Anne C. Kehoe, J.
Anne M. O'Dowd, Pauline K. O'Flanagan, P. J. O'Grady, T. E. Pierse, E. L. Sharpe, J. Travers, Nora Wallis.

D.P.H.—Mary J. Farrell, M. A. McInerney.

* First-class honours. † Second-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Annual Meeting of Fellows and Members.

WE have received the following further letter (see page 1009):

SIR,—As mover of the second resolution at the annual meeting of the Royal College of Surgeons of England on November 15th, I should like to be allowed to make a few remarks in connexion with the question of admitting Members to

woman may have children after she has had thyroid treatment. Crichton Miller further maintains that child-bearing and artistic creation are mutually exclusive, the storehouse of creative energy being unable to cope with both kinds of creation; and I think that though we can find apparent exceptions to this rule, it is very rare for both kinds of creation to be possible simultaneously. I went so fully into the question of the factors in hyperthyroidism in a previous lecture that I need only recall them briefly now. Various toxic influences may excite a reaction in the thyroid gland; of these, tonsillar and intestinal sepsis seem to be the most important, though others may play a part. Thus in a recent case the hyperthyroidism was much ameliorated by removal of septic teeth, but septic tonsils were apparently responsible for an intermittent auricular fibrillation which came on soon after this, and which could not be controlled by quinidine. But more and more I am impressed with the influence of emotion in causing Graves's disease, which is readily comprehensible in view of the sympathetic innervation of the gland. This is particularly likely to happen if the distressing emotion has a matrimonial origin, while it naturally adds considerably to the difficulty in detecting the cause, as this is not usually a matter of advertisement. I had the opportunity of watching the case of an unmarried lady who was entrusted with the care of her niece between the ages of 4 and 17. The girl's parents were Anglo-Indians, and when she grew up they sent for her to go back to India. The aunt was greatly distressed; her whole emotional life appeared to centre round the girl, and within six weeks of her departure the aunt, who had reached an age which precluded her from having children of her own, developed marked Graves's disease. Fear is another emotion which has a marked influence in exciting hyperthyroidism, as was well shown during the air raids on London. The air raids were almost an "acid test" of race. An uncontrollable impulse to flight from London or into the tubes was almost diagnostic of Semitic origin. More self-controlled people, who nevertheless suffered acutely, repressed their impulses from the motor to the vegetative level, and received their reward in hyperthyroidism, amounting in some cases to Graves's disease. That stimulation of the thyroid should normally be followed by vigorous action is shown by the way it produces excess of sugar in the blood, even though there may be no glycosuria.

I have nothing fresh to say about minor degrees of hypothyroidism, but I should like to reiterate my belief in the importance of the disappearance of the outer half of the eyebrows as an indication of this condition and of the frequency with which "rheumatic" pains are experienced by sufferers from it. Once the suspicion of hypothyroidism is aroused its detection and treatment are not difficult. The following case presents points of more interest:

A boy, the only child of a widow, had an attack of subacute rheumatism. Following this he grew very fat and completely paraplegic. He had been in this state for a year when I saw him. His appearance suggested hypopituitarism, but though not quite 14 signs of puberty were well developed. A skiagram showed a normal pituitary fossa. There were no signs of organic nervous disease. I came to the conclusion that the rheumatic poison had damaged his thyroid gland, and that while pain had for a time made movement difficult, the existing paraplegia was functional. Separation from his mother, administration of thyroid, massage, and re-education exercises led to a complete cure with loss of his obesity.

The psychic effect of hypothyroidism is interesting because it is by no means uniform. The commonest result is a state which has been called "resigned melancholy," but sometimes the mental attitude is one of suspicion, which may result in delusions, and occasionally leads to acute mania. This is surprising in a disease usually characterized by lethargy. My experience is that mania in myxoedema should not deter us from giving thyroid extract.

calcium content of the blood. The first effect has bee recently used by Vines to estimate the activity of pre parations claimed to contain parathyroid secretion, and th second has been proved by the same observer by direc estimation of the calcium in the blood. Applying thes facts to clinical observation Grove and Vines[6] found i the case of lesions which could be watched, such as varicose ulcer on the leg, that calcium was an importar factor in their healing, that parathyroid extract wa capable of influencing calcium metabolism, raising a def ciency in it to normal, and that with a normal calciu content healing speedily occurred. They then applied th method to internal lesions such as gastric or duoden ulcer, with similar results. They believe that calciu deficiency is an index of the absorption of a toxin, and th in all the various diseases improved by parathyroid therap the common factor is sepsis. It is suggested that th benefit is derived from a stimulation of the leucocyte since the polymorph count rises, probably from an indire effect of calcium on the blood plasma.

The Thymus.

As already stated, the activity of this gland is normall limited to the infantile period. It appears to act as brake on the development of sexual maturity, presumabl in the interests of somatic development. Since no interna secretion has been obtained from the thymus it is not eas to see at present how it antagonizes the gonads. Possibl this is achieved through its influence on the structure o the blood, for the appearance of the adult blood pictur and the disappearance of the thymus are usually simu taneous. While the thymus exists the characteristic bloo reaction is lymphocytosis, and it is only during this perio that we meet with the condition known as pseudo leukaemia, or "splenic anaemia of children," whic is probably merely the reaction of infantile bloo to various severe toxaemias. In status lymphaticu the enlargement of the thymus is simply a par of a general adenoid enlargement. It may be tha this is a sign of an abnormal sensitivity to foreig proteins, which is a characteristic of those whose vagu response is exaggerated. This would account for th liability to dyspnoea, syncope, and anaphylactic shoc associated with status lymphaticus. When the adult bloo picture is reached this lymphocytic reaction is replaced b a leucopenia in anaphylactic shock.

The Pancreas.

Both the external and internal secretions of this glan are anabolic in their effect. The external one prepares a the foodstuffs for absorption; the internal one is no proved to lead to the utilization of sugar by the tissue It is the special merit of Banting's work that he has bee able to isolate the active principle of this long-suspecte and long-sought-for internal secretion. It would appear t act by changing glucose into another form, γ glucose, i which it can be used. When it is absent or diminishe more or less of the sugar in the blood remains in a no assimilable form and is bound sooner or later to be excrete into the urine. How soon it appears will depend on th response of the kidney, which tends to raise its threshol when there is excess of sugar in the blood, thus allowin a longer time for the diminished pancreatic internal secre tion to act. This internal secretion, insulin, is not con fined to the pancreas. It is probably widely spread, an certainly appears to be present in yeast at a particula phase of its life cycle (Winter and Smith). This is no the place to discuss the therapeutic use of insulin, but i is already clear that it lowers blood sugar, diminishe ketosis, and raises the respiratory quotient. All these ar different aspects of the same action. By convertin glucose into a form in which it can be used it naturall prevents its accumulation in the blood. It is of grea

seat on the Council. If the Council can be convinced that it is in the interests of the promotion of the art and science of surgery that Members be represented on the Council, the argument would be a very strong one; the legal aspects of the matter or the democratic point of view does not interest them.

When it is remembered that a certain number of Members in the bigger centres do their own surgery, and that practically all the provincial hospitals, except in university towns, are staffed by general practitioners, it will be realized that their interest in the advancement of surgery is probably equal to that of the Council, added to whom we have the Members scattered all over the Empire, who mostly do their own surgical work. All these men have to do their work under more arduous and trying conditions than those on the staff of teaching hospitals, and they know the special difficulties that confront them as general practitioners.

The aim of the College is not only to turn out Fellows, but also to make capable general practitioners—by far the larger number, and equally important from a public point of view—and surely suggestions and recommendations from these men in general practice would be of help to the Council. The Council teach in the medical schools and finally examine the students, but they do not know the end-results of their work, and that can be remedied by giving Members some representation.—I am, etc.,

HOWARD M. STRATFORD,
F.R.C.S.Edin., M.R.C.S.Eng.

London, W., Nov. 24th.

SIR,—In the account of the annual meeting of Fellows and Members of the Royal College of Surgeons in last week's issue, the President is reported as "saying" that "he had paid very careful attention to the answer he would give," whereas, what actually happened was that he merely read a previously prepared statement which had no reference whatever to what had transpired at the meeting itself. The President's reply was merely a repetition of the contentions put forward at last year's meeting by the then president, and made no reply to the complete refutations made both by Dr. Nash and Dr. Roche. Your readers should also know that the President's reply was received with chilling silence!

It is truly amazing that the Council of the Royal College of Surgeons cannot even now see that a co-operation of Members and Fellows in the government of the College would be to the benefit of all concerned.—I am, etc.,

C. E. WALLIS.

London, W., Nov. 27th.

The Services.

ROYAL ARMY MEDICAL CORPS.

Examination for Commissions.

AN examination for not fewer than forty commissions in the Royal Army Medical Corps will be held on January 30th next. Applications should be made to the Secretary of the War Office not later than January 20th, and the presence of candidates will be required in London from January 28th. Meanwhile those intending to compete can obtain a full statement of the duties and emoluments of the service on making written application to the Secretary, War Office, Whitehall, London, S.W.1.

Medical News.

A BRONZE tablet in memory of the late Mr. Charles Wray has been erected at the Croydon General Hospital. The tablet, with medallion portrait, is the work of Mr. H. J. Youngman, and bears the following inscription: "To honour the memory of Charles Wray, F.R.C.S.Eng., who for thirty-five years was ophthalmic surgeon to this Hospital. This monument is set up by his patients as a token of love and gratitude."

THE French Minister of Public Instruction has introduced a bill for the purpose of awarding to Madame Curie a pension of Fr. 40,000 per annum, in recognition of her scientific work. It is proposed that the pension shall be conferred on December 28th—the twenty-fifth anniversary of the announcement of the discovery of radium by Madame Curie and her late husband.

A COURSE of five lectures on "The influence of environment on the life of bacteria" will be given by Mr. F. W. Twort, M.R.C.S., L.R.C.P. (Superintendent of the Brown Institution), in the theatre of the Royal College of Surgeons of England, W.C., on December 11th, 13th, 17th, 18th, and 19th, at 4 p.m. Admission is free without ticket.

DR. R. C. FIELD of Roos, near Hull, has been presented by his friends and patients with a mahogany grandfather clock, an album containing the names of the subscribers, and a cheque for the balance of money collected, as a mark of their regard on the occasion of his retirement from practice in Roos and district.

A MEETING of the Metropolitan and Home Counties Maternity and Child Welfare Sub-Group of the Society of Medical Officers of Health will be held at 1, Upper Montague Street, Russell Square, W.C.1, on Friday, December 7th, at 5.30 p.m., when Dr. J. W. Carr will read a paper on signs and symptoms of tuberculosis of the respiratory system in children under five. The meeting is open to all members of the medical profession.

THE Harben Lectures at the Royal Institute of Public Health will be given on December 11th, 12th, and 13th by Professor D. Levaditi, M.D., of the Institut Pasteur, Paris. The first lecture will deal with neurotropic virus (encephalitis herpes), the second with neuro-vaccine, and the third with new discoveries in the treatment and prophylaxis of syphilis. All interested are invited to attend these lectures, which will be given at 37, Russell Square, London, W.C.1, at 5 p.m. each day.

A FESTIVAL dinner in aid of the Royal Northern Group of Hospitals was held at the Mansion House, London, on November 21st, under the chairmanship of Admiral of the Fleet Earl Beatty. In proposing the toast of "Success to the Hospital" Lord Beatty mentioned the progress made since its humble origin sixty-seven years ago. The group of hospitals into which it had grown—the Royal Northern Hospital in Holloway, the Royal Chest Hospital in City Road, the Hospital of Recovery at Southgate, and the Reckitt Convalescent Home at Clacton-on-Sea—served a population of more than a million in an area of seventy square miles. Of the 375 beds possessed by the group, 70 had had to be closed owing to a debt of £50,000. The chairman's appeal for generous support for the associated institutions was supported in an eloquent speech by Miss L. M. Faithfull, late Principal of Cheltenham Ladies' College. The Marquess of Northampton (chairman of the hospital), in responding to the toast, expressed thanks to the Lord Mayor for granting the use of the Mansion House, and referred to the forthcoming opening of the new casualty department by the Prince of Wales, president of the group. The health of the Lord Mayor and Corporation was proposed by Sir Philip Sassoon, seconded by the Rev. Basil Bourchier, and acknowledged by the Lord Mayor. The Secretary, Mr. Gilbert G. Panter, then announced that the donations in response to the present appeal amounted to £11,643. A successful evening closed with the health of the Chairman, proposed by Lord Riddell and supported by Mr. G. B. Mower White, emeritus surgeon to the Royal Northern Hospital.

A FESTIVAL dinner in aid of the appeal for funds by the London Jewish Hospital, Stepney, was held at the Connaught Rooms on November 26th under the chairmanship of Sir Humphry Rolleston, K.C.B., President of the Royal College of Physicians of London. About seven hundred were present. After the Royal toasts had been duly honoured and letters of regret read from those who had been prevented from attending, the chairman proposed the toast of the "London Jewish Hospital." He said that the old familiar saying that it was more blessed to give than to receive was very appropriate on the present occasion, for in the past the Jewish Hospital, like any other hospital in London, had given far more medical help and surgical skill than it had received financial consideration. The institution was founded in 1907, and though still in its teens was full of promise and was doing good work. The crowded East End of London was poor in hospital beds; the number of patients seeking admission to the 50 beds was at the rate of 880 per annum, which indicated that the number of beds ought at least to be doubled. A proof that the hospital was unsectarian was afforded by the fact that of the 52,000 out-patient attendances in 1922 no less than 40 per cent. were other than those of the Jewish faith. There were Italian, French, and German hospitals in London, and he saw no reason why there should not be a Jewish hospital. Sir Humphry Rolleston added that he could most emphatically bear testimony to the excellence of the medical, surgical, and nursing staffs, and he hoped that the appeal for funds would meet with generous support. The Very Rev. Dr. M. Gaster, in responding to the toast, said that the doors of the hospital were always open to the sick and suffering without any questions being asked as to their creed. Mr. I. Berliner, who also responded, gave statistics showing the growth of attendances of patients since the opening. The toast of "The Guests" was proposed by the Chief Rabbi, the Very Rev. Dr. J. H. Hertz, and that of the "Medical Profession" by Mr. H. H. Haldin, K.C., the latter being acknowledged by Sir John Bland-Sutton, President of the Royal College of Surgeons of England, and Dr. J. Burnford, senior physician to the hospital. It was announced that the donations received and promised had reached the sum of £3,000.

DR. G. B. GRIFFITHS, Medical Inspector of H.M. Prisons, has been appointed one of the Commissioners under the Prison Act, 1877.

interest to observe that the avidity of the tissues for this form of glucose is so pronounced that an overdose of insulin leaves insufficient sugar in the blood for immediate needs. Too little blood sugar is more disastrous than too much; the former immediately produces acute symptoms; the latter is compatible with fair health for years. The effect of insulin on ketosis is very marked, for even on a rigid protein and fat diet the diabetic may show no reaction for diacetic acid in the urine—another evidence of the oxidizing power of γ glucose. The rise in the respiratory quotient inevitably follows the more complete utilization of carbohydrate.

I may remark that while the discovery of insulin completely proves that the cell-islets of the pancreas form an internal secretion which promotes the assimilation of sugar, it does not prove that all diabetes is due to a pancreatic lesion. The fact that pituitary extract can antagonize insulin provides new support for the view that diabetes may be due to a more profound and subtle disturbance of metabolism than a lesion of one gland.

Swale Vincent has reminded us that organotherapy is often employed without any rational sanction. As he says, it would be difficult to mention a drug which is clearly and beyond doubt of value in the treatment of disease and yet which possesses no known pharmaco-dynamical effects. Yet many of the extracts in common use have not been shown to have any such action. Even some of those which do, cannot be satisfactorily used in substitution therapy. The early triumphs of thyroid medication tended to blind us to the difficulties surrounding the use of other glandular extracts in therapeutics. Yet the thyroid is exceptional in containing a definite reservoir of secretion and, by virtue of its duct originally opening into the alimentary canal, retaining the power of having its secretion absorbed by that route. It is perhaps fortunate that many of the preparations in use are inert, for otherwise damage might be done. Thus the injection of secretin by liberating an active pancreatic secretion may produce digestion of the intestine. It is just as well, therefore, that organotherapy lags behind endocrinology. But I feel sure that Swale Vincent, while rightly demanding more exact experimental methods in organotherapy, reaches too agnostic a position with regard to endocrinology. Here the careful study and comparison of abnormal types by clinical methods may be of considerable help. To that study I hope some of the foregoing observations may contribute.

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[1] Langdon Brown: BRITISH MEDICAL JOURNAL, 1920, ii, p. 687. [2] Idem., ibid., 1922, i, p. 85. [3] Idem., *New York Med. Journ.*, April 5th, 1922. [4] Mackenzie Wallis: *Journ. Obstet. and Gyn. of the British Empire*, Spring, 1921. [5] Dixon: *Proc. Roy. Soc. Med.*, Therapeutic Section, vol. xvi, No. 7, p. 23. [6] Grove and Vires: Ibid., p. 18.

SOME HINTS FROM THE OLD PHYSICIANS.

AN ADDRESS DELIVERED BEFORE THE BRADFORD MEDICO-CHIRURGICAL SOCIETY, OCTOBER 17TH, 1923,

BY

JAMES ALEXANDER LINDSAY, M.A., M.D., F.R.C.P.,

EMERITUS PROFESSOR OF MEDICINE IN THE QUEEN'S UNIVERSITY OF BELFAST.

HISTORY rightly occupies an important place in general education. It is not only a subject of great intrinsic interest but it is full of instruction for us. We cannot understand the present without some knowledge of the past out of which it has been evolved. History fosters judgement, chastens opinion, gives warnings, encourages research. This is true of history in general, and for us the history of medicine has special claims. We owe it to our profession to know something of the long and toilsome path which medical science has travelled before attaining its present position of influence and authority. We ought to know something of its pioneers, its seers, its heroes, and its martyrs. We can derive encouragement from their labours, sacrifices, and successes, warning from their mistakes and failures. We shall read with chastened feelings of false theories and imaginary cures which long held the field, and we shall learn to be more careful in appraising every new medical doctrine and every new method of treatment which to-day makes its appeal to us. The past has much to teach us, positively and negatively. We shall learn that time is the great test and experience the only safe guide. The history of medicine is to-day coming into its own. There is now an International Society for the Study of the History of Medicine, which has already held three successful congresses. Chairs and lectureships in the history of medicine have been provided in various universities. The FitzPatrick Lectures at the Royal College of Physicians have produced many valuable monographs, and the time is near when some knowledge of the history of medicine will become a necessary portion of the medical curriculum.

Scientific medicine begins with the Greeks. They were the first to study medicine as a lay subject, to free it from superstition and priestly authority, to practise bedside observation on scientific lines, and to develop a sound therapeutic. Whether they owed much or little to Egypt, Babylonia, or Crete, we have no certain information. When the darkness which enshrouds early Greek history lifts, we find a cult of the God of Healing—Asclepios—and a society of physicians—the Asclepiadae. The chief centres of this cult were at Trikka in Thessaly, in the island of Cos, at Pergamos in Ionia, and at Epidauros in the Peloponnese. The temples of Asclepios were practically hospitals and sanatoriums. They were usually placed in localities favoured with climatic and hygienic advantages, and often in the neighbourhood of mineral springs. The chief means of cure were physical exercises, baths, inunctions, purgatives, emetics, dietetic regulations, rest, and various modes of suggestion. It is instructive to note that in the very earliest times the Greek physicians understood and stressed suggestion. They knew well the great influence of mind upon body. In the temples of Asclepios one of the favourite methods of treatment was the temple sleep. In the silence of the night hours the physician, personating the God of Healing, visited his patients, soothed their fears, encouraged the hope of recovery, and no doubt favourably influenced the course of disease. Whether he taught them to say "I am feeling better and better every day" I am unable to affirm; history is silent on the subject, but if the formula was different, the method and design were the same. M. Coué would have felt quite at home in a temple of Asclepios, and I am not sure that Freud, Jung, Adler, and their numerous followers might not have found some of their views and methods anticipated by the disciples of Asclepios. The wheel has come full circle, and modern psychotherapy is reverting to the practice of Cos and Epidauros.

Hippocrates is the first great figure in the history of medicine. He belonged to the great age of Greece, the age which saw such astonishing achievements in literature and in art. Born in the island of Cos in the year 460 B.C. of a family of Asclepiads, he travelled widely, acquired all the medical knowledge of his time, practised in various cities of Greece, and achieved great renown in his own time, and even greater fame in succeeding ages. Galen called him "the divine," and he is justly regarded as the Father of Medicine. His works cover the whole field of medicine, surgery, and obstetrics, and are an encyclopaedia of the best knowledge of his day. His *Aphorisms* is probably the only book of ancient medicine which is still frequently read. Much of it is obsolete, but there is hardly a page which does not contain evidence of shrewd observation and sound wisdom.

Hippocrates was the first great clinical physician and the founder of the bedside method. His anatomy was weak, his physiology weaker, and his pathology weakest, but he was an observer of the first order, and he had a sane and profound intellect. He studied disease objectively, without theory, and recorded his successes and his failures with equal impartiality. He relied upon experience. Hippocrates achieved three great objects: he freed medicine from superstition; he systematized and expanded the best medical knowledge of his day; and he gave physicians the highest ethical inspiration which medicine can possess. The famous Hippocratic oath is an ideal of medical practice which can never become obsolete. Hippocrates left descriptions of the epidemic fevers of Greece, phthisis, epilepsy, puerperal

The patient still remained in an extremely critical condition; the temperature was intermittent, the pulse rate remained high, and the respiration rate averaged about 50. It was decided that the only hope of saving the patient's life lay in giving iodine as intensively as possible. Accordingly the following treatment was instituted: (1) The right pleural cavity and the pericardium were irrigated twice daily with a solution containing collosol iodine (Crookes). (2) Potassium iodide was given by mouth (25 grains three times daily), but later this was changed to iodopin 1 dr. thrice a day. (3) Collosol iodine was given intravenously. The doses were as follows: 10 c.cm. on the first day; 20 c.cm. on the third day; 30 c.cm. on the fifth day; 50 c.cm. on the seventh day; and 80 c.cm. on the ninth day. This maximum dose was repeated at two-day intervals so long as any non-thrombosed veins could be discovered. It is interesting to note that no symptoms of iodism appeared during the course of the treatment. During all this time the patient was very ill and his dyspnoea and intermittent fever continued.

On November 2nd *x*-ray examination showed that the chest was much clearer; on November 14th the temperature showed signs of settling down, and a few days later became normal. The discharge from the drainage tubes became less and less, and the ray fungus more and more difficult to find. Early in December it was decided to give the patient an autogenous vaccine of *Staphylococcus aureus* derived from the pericardial discharge; injections of this vaccine caused a great reaction, and the empyema wound began to give trouble again. A probe discovered loculated pus, and its removal gave great relief. Again abdominal distension occurred, and albuminuria, which had been present before, became more marked. About December 12th it was obvious that the patient had developed acute nephritis. The urine diminished to 16 ounces in twenty-four hours, and general anasarca with ascites appeared. The urine was examined by Dr. H. S. Pemberton, who reported: "Protein in very large quantities (vast preponderance of serum albumin over serum globulin). All kinds of casts—epithelial mainly—leucocytes and red blood corpuscles present." Paracentesis abdominis was performed on three successive occasions, and 31, 32, and 28 ounces respectively were withdrawn. The fluid was yellow, contained no organisms, and coagulated on standing. Shortly after this the urine cleared up, the anasarca disappeared, and the patient became comfortable again, although the respiratory rate still varied between 36 and 44.

From this time onwards the patient never looked back. Between December 24th, 1922, and February 6th, 1923, he gained 30 lb. in weight. Repeated radiograms were taken, and all showed a great and increasing improvement in the chest condition, though the right diaphragm remained raised.

The serum Wassermann reaction was completely negative, and blood urea estimation showed 15 mg. per 100 c.cm. of whole blood.

On his discharge from hospital on February 13th, 1923, the condition was as follows: General condition very good, no fever, urine contains a slight trace of albumin. The drainage wounds are all healed except for a very small sinus in the pericardial incision. The heart appears normal except that the apex beat is about half an inch outside the nipple line in the fifth space.

As regards the further progress of the case extracts from the patient's letters are interesting. On March 6th, 1923, he wrote to say that he was as well as he had ever been before his illness, but that the sinus was still discharging a bead of pus. This was dressed and potassium iodide was taken regularly.

On May 16th he reported that the sinus was healed, and that he was so well that he intended to resume his work in Canada.

Remarks.

How and where the actinomycosis infection was contracted is a complete mystery. The man was employed in a cardboard box manufactory in Canada, and previous to that had been in the army and had seen active service on many fronts. While on military service he had looked after horses, and it is possible that the infection was contracted at that time and that it had remained dormant until his attack of pneumonia. It is certain that the infection was quite recent so far as its clinical manifestations are concerned, for the man was in apparently normal health on sailing from Canada. Whether the original focus was in the liver with extension to the lung through the diaphragm, or whether it was primarily pulmonary, it is impossible to say.

The patient's recovery was little short of miraculous, as on many occasions his life was despaired of. Despite recent criticisms upon the potency of collosol iodine, it would appear that in this case the drug was of great value and played an important part in the recovery. It is, of course, impossible to draw conclusions from one case, but we feel that by publishing this note other workers will be encouraged to persevere in more intensive iodine treatment in the fight against this almost mortal infection.

There can be no doubt that the very recent infection in this case, together with the patient's extraordinary pluck and vitality, were most important factors in his recovery.

In conclusion our thanks are due to Mr. Rawlinson for his surgical procedures and to the numerous colleagues who aided and encouraged us in what appeared to be a hopeless battle.

SUCTION IN THE TREATMENT OF SEPTIC EARS.

BY

W. STUART-LOW, F.R.C.S.,

CONSULTING SURGEON, CENTRAL LONDON THROAT AND EAR HOSPITAL.

It is essential that the practitioner, who in almost all cases has the patient suffering from a discharging ear under his treatment for some time, it may be for months, should realize the disadvantage, not to say danger, of aural syringing. He sees the patient in the earliest stages, and has a much better opportunity than the specialist, who commonly only comes on the scene after the trouble has been long established or complications have arisen.

The intricate anatomical arrangement of the middle ear and its accessory recesses is favourable to bacterial activity. The best known methods of combating bacillary ravages in this region, other than a surgical operation, consist of forcibly syringing out accumulated discharges, and the instillation of antiseptic drops. But the risks involved in syringing out the middle ear in the presence of a chronic discharge are very great. This is aptly illustrated in the case of cholesteatoma. Even the advocates of forcible syringing invariably add a word of caution when dealing with this. Usually, in cholesteatoma, especially if it has arisen, as is almost invariably the case, after prolonged sepsis, there is found an enlargement of the normal aural cavities and mastoid cells, and any watery lotion, if powerfully injected, can easily be driven far afield into the recesses. The effect of syringing is to cause swelling of the semi-desiccated accretions and accumulations, and pressure on the surrounding brain and labyrinth. All watery fluids encourage septic change and bacterial growth.

I have seen many cases in young children, in whom the syringing of running ears has been ordered, where the immediate result of a more than usually forcible injection by the child's mother has been acute mastoiditis and abscess. Indeed, but few cases of acute mastoiditis in children have come under my notice where syringing has not been the customary treatment, with the result that an immediate cortical mastoid operation which might otherwise have been unnecessary was rendered imperative. I cannot, therefore, condemn syringing too emphatically. I wholly disapprove of syringing the ear in the presence of a discharge. I order my patients boracic wool, with directions to twist it up and to wipe out the ear as often as necessary. Syringing may have the effect of driving the sepsis further afield, and on into the most dangerous positions, such as the attic, aditus, antrum, and mastoid cells, becoming in this manner a cause of abscess over the mastoid region. Owing to my dissatisfaction with all forms of ablution and irrigation, and with much of the instillation of ear drops that is still so popular, I have for some years been employing suction to get rid of discharge from the ear and its annexes. This suction method of thoroughly clearing the septic ear of discharge is so successful, that I am anxious to bring it prominently to the practitioner's notice, who, as he sees these patients in the earliest stages of the trouble, can adopt it with more telling effect. The suction method is so easily applied and is so safe and effective that it is eminently adapted to the use of the busy and overworked medical man; and, if adopted by him, would serve to prevent so many septic ears drifting into a serious condition and the patient having to be sent

suddenly to hospital for operation. It is where such emergency operations have to be performed, always in a dirty pus-saturated field, that fatal complications such as septic meningitis are likely to arise.

The simplest method of applying suction to the aural cavity is to attach to the nozzle of a medium-sized glass syringe or a larger metal syringe a short length of rubber tubing which must be inserted into the ear, the piston being drawn out to allow all purulent material to be sucked away. The action is the reverse of syringing, and the addition of the rubber tubing precautionary. Until the ear is dry this method must be repeated with the aid of a good reflected light, which is always desirable. The use of a motor suction pump, with special fine pointed glass tubes bent in several directions, under a good light is a more elaborate and effective method. These tubes may be inserted, under a good light, into the many recesses of the tympanic cavity, up into the attic, down into the depressed floor of the tympanic recess, and back into the aditus.*

For acute otitis media following paracentesis tympani, all the pus from the middle ear may be sucked out by inserting a finely pointed tube into the incision of the membrana tympani. This treatment, added to the application of bell-shaped dry cups over the mastoid, I continue at intervals for forty-eight hours, a mastoid operation being thereby avoided, provided the treatment is used without delay during the inflammatory and congestive stages.

For chronic aural suppuration suction is employed in the ear, over the mastoid, and over the site of the exit of the mastoid vein passing out directly from the lateral sinus; it should be repeated once or twice or even thrice a day for at least one month. This method, when carefully carried out, has, with very few exceptions, the effect of avoiding operative treatment. The system of suction is the means of clearing the ear of discharge so effectively, that it prepares and secures a clear field for operation, should this be necessary, and prevents the most dangerous complication—septic meningitis.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF BLASTOMYCOSIS.

THE following case, which was reported to the Norwich Medico-Chirurgical Society, seems of sufficient interest to warrant publication.

Mr. R. first consulted me on May 12th last with regard to an eruption on his face. A casual glance gave the impression that he was suffering from impetigo contagiosa, but on closer inspection and after listening to the history I was forced to alter my opinion. He was in Germany for a considerable period and returned home at the end of November last. Shortly afterwards he had what he described as a boil on the left-hand corner of his mouth; the boil never came to a head, nor was there a slough. As far as I could gather, the usual methods of impetigo treatment had been tried, and failed. Being suspicious that this might be a case of fungus infection, before attempting any treatment I sent him to the County Pathological Laboratory for a report, which was negative in so far as the fungus was concerned. Starch poultices were applied, and after the hard scabs had been removed the resemblance of the condition to the illustration facing page 294 in the latest edition of Norman Walker's *Dermatology* became so strikingly obvious that, being convinced that this was a case of blastomycosis, I again sent him to the laboratory for a report. The second report, together with Norman Walker's description of the condition, I think, clinches the diagnosis.

Dr. W. B. Christopherson's report is as follows: Examinations have been made by the caustic potash method, Gram, and other stains. The films were complicated by the presence of starch granules, but structures strongly resembling blastomyces are present. By the caustic potash method a few double-contoured bodies are seen (apparently not starch granules), as found in Wernicke's cases. These he named *Oidium coccidioides*. There appears to be strong evidence either of blastomycosis or of a closely allied granulomatous condition.

Norman Walker points out that in his first edition he referred to this condition as a rare form of tuberculosis, of which he had seen two or three cases.

During the last few years several cases have been observed, particularly in America, and pathological examination has led to the discovery of a yeast fungus in considerably over half the cases. The affected part was covered with a number of contiguous papillomatous elevations, which were more prominent at the margins and from between which pus exuded. The change from the diseased to the normal skin was very abrupt, the condition having a well defined margin.

I did not notice, probably for want of careful observation, the presence of the halo mentioned by Walker, nor was I quite satisfied that the margin had a bluish-red sloping border. I may mention that Mr. R. is a lover of horses, and I think it probable that this is how the infection arose.

I prescribed fairly large doses of potassium iodide internally. Leaving the small patch on the forehead as a control, I applied local treatment to the corner of the mouth, the left nostril, and to the patch at the junction of the cheek and left wing of the nose. The local treatment consisted of starch poultices to remove the scabs, followed by a thorough swabbing with "Fecto," a concentrated form of Dakin's solution made by Parke, Davis. It was found that although the scabs in the centre of the lesion could be removed by this method, those on the margin were more tenacious and had to be scraped off with a sharp spoon.

To date the scabs have ceased to re-form, the purulent discharge has come to an end, and the centre of each patch is beginning to assume the appearance of healthy skin, whereas the small patch on the forehead has not been modified.

In conclusion I would point out that the prognosis is not good. In some instances death has occurred. No actual case of cure is reported, and so far modification of the condition has been the only result of treatment, according to Norman Walker.

Coltishall, Norfolk. F. SUGDEN, M.B., Ch.B.

INFLUENZA COMPLICATED WITH ACIDOSIS AND RASH IN A CHILD.

I WAS asked to see a girl, aged 6, who complained of headache. She had always been healthy, except for a definite history of acidosis with coma and vomiting three years previously.

The temperature was 103° F., the pulse 130, and the respirations 20. The conjunctivae were injected, the tongue of strawberry type, the throat somewhat sore, and the cervical glands of both sides enlarged but not tender. The heart was normal. The breath sounds were bronchial and a few scattered râles were present. The reflexes were normal, but the patient was listless and irritable. There was no vomiting or diarrhoea. The urine was intensely acid but free from albumin.

The clinical features of the case were those of uncomplicated influenza.

The treatment was on simple lines. Solid food was withheld, and water was freely given, together with a mixture containing potassium citrate and ipecacuanha wine. Ten grains of aspirin were given over a period of two days.

On the third day a rash appeared. Bright red papules and macules encircled the neck, extended behind the ears, and covered the flexor surfaces of the arms, the inside of the thighs, and the buttocks. The rash presented some of the characteristics of the rash of measles and of scarlet fever, but was not typical of either. It was very irritable, and in places became raw and painful. The temperature and pulse rate remained high, but the general condition was good.

In view of the history the question arose whether the case was one of acidosis or an aberrant type of scarlet fever or measles. Dr. Foord Caiger, of the London South-Western Fever Hospital, kindly saw the patient with me five days after the onset of illness. He was of opinion that the rash was not that of any of the exanthemata, but was due to acidosis. Cold sponging, large quantities of water, and full doses of sodium bicarbonate (15 grains every four hours) were ordered, and in forty-eight hours the pulse and temperature were normal, and the rash had faded.

There seems no doubt that the patient had really suffered from influenza. Her young brother had simultaneously a

* Messrs. Allen and Hanburys of Wigmore Street have made these special suction tubes in assorted sizes for me.

septicaemia, epidemic parotitis, and many other diseases—descriptions to which modern medicine has little to add. His account of wounds, fractures, and dislocations is wonderfully accurate. He was the first to compile regular clinical records. His examination of the patient included the facial expression, the pulse, the temperature (estimated by laying on of hands), the respiration, the sputum, the urine, localized pains, the movements of the body. He emphasized the importance of inspection. He noted the ominous significance of picking at the bedclothes. He described that grave aspect of disease which we still call the "facies Hippocratica," and that important sign which we know as Hippocratic succussion. He also described a sound in the chest which he compared to "a creak like that of leather"—probably pleural or pericardial friction. He recognized healing by first intention. He attached great weight to prognosis and wrote a special work on the subject.

In his therapeutic Hippocrates relied much upon the *vis medicatrix naturae*. He used few drugs and those sparingly. His favourite methods were fresh air, rest, careful diet, baths, purgation, soothing draughts, massage. Is it too much to say that to-day we are witnessing a turn of the tide towards the simple and gentle Hippocratic therapy, as contrasted with the violent practice of the Middle Ages and later? Hippocrates did not try to expel disease by force—rather to assist Nature in her efforts after elimination. "Natural powers are the healers of disease" is one of his maxims. He advised that wounds should be irrigated with water of the greatest purity, or with boiled water—a foreshadowing of the aseptic practice of to-day. He insisted that the hands and the nails of the operator should be carefully cleansed. His successors too often forgot or ignored these wise directions.

Hippocrates had sound views on public health. He wrote a book upon "airs, waters, and places," which is the first book, so far as we know, on the subject of medical geography, climatology, and anthropology—subjects to which he attached the greatest importance. One of the "aphorisms" affirms that "the body can only be understood as a whole"—a hint against the possible dangers of excessive specialism.

Hippocrates has left a message to all of us to-day—the importance of careful bedside observation; the need to study medicine in the light of experience and not to be hidebound by theory; the wisdom of helping rather than coercing the healing powers of Nature; the necessity for a high ethical ideal for the healing art.

Plato was much interested in medicine, but he was not a practising physician, and he had more regard to the soul than to the body. Perhaps the chief lesson which we can derive from his works is the influence of mind upon body—a doctrine much inculcated upon us to-day. He puts this doctrine in a somewhat extreme form in the following passage in the *Charmides:*

> "I dare say you have heard eminent physicians say to a patient who comes to them with bad eyes that they cannot cure the eyes by themselves, but if his eyes are to be cured, the head must be treated, and then again they say that to think of curing the head alone, and not the rest of the body is the height of folly . . . and, therefore, if the head and the body are to be well, you must begin by curing the soul."

I should like to submit this passage to a jury composed of equal numbers of ophthalmic surgeons and psycho-analysts.

Aristotle was the son of an eminent physician and was much interested in medicine. His work on the subject has unfortunately been lost, but he gave medicine the foundations of zoology, comparative anatomy, and embryology. He was the first great biologist. His *Historia Animalium* is a marvellous collection of facts relating to the structure, functions, and life-history of nearly all the animals of his country and time. Recent work has shown how accurate was his observation.

Alexandrian medicine, in which the two leading names are those of Herophilus and Erasistratus, made some advances in medicine, especially in anatomy. Herophilus was on the track of the correct view of the circulation of blood, but failed to solve a problem which had to wait many centuries for Harvey. The school of Alexandria developed a tendency to polypharmacy; many remedies imported from the East came into use and stimulated a method of practice which had baneful results in the Middle Ages. Toxicology occupied a prominent place in this school and probably owed its inspiration to the East. It had a somewhat sinister aspect. Mithridates, the famous King of Pontus, who probably derived his information from Alexandria, is said to have immunized himself against poisoning by means of the blood of ducks fed on poisonous materials, a curious anticipation of some modern doctrines.

Celsus, a Roman gentleman in the reign of Tiberius Caesar, left an elaborate work, *De Medicinâ*, which had considerable influence upon medical thought and practice. Of his aphorisms the following may be quoted:

> It is not to be thought that he should know the remedies of disease who does not know their original causes.
>
> We ought not to be ignorant that the same remedies are not good for all.
>
> Laziness slackens and dulls the body, but labour strengthens and makes it firm. The former hastens old age; the latter prolongs youth.
>
> Idleness and luxury first corrupted men's bodies in Greece, and afterwards afflicted them in Rome.

Galen is the greatest name in ancient medicine after Hippocrates. A Greek and a native of Pergamos in Asia Minor, he practised at Rome in the second century of our era. A man of boundless energy and industry, of eagerness and curiosity in the pursuit of knowledge, a keen observer, he made large advances in osteology, myology, and the anatomy of the nervous system. His physiology was vitiated by the doctrine of vital spirits, and his pathology by the doctrine of the four humours. His therapeutic was largely governed by the theory that disease is something which must be expelled from the body—a *materia peccans* which must be got rid of. Hence his emphasis upon methods of elimination. Another of his theories was that disease must be combated by remedies exercising counteracting influences—for example, cold by warmth, plethora by deprivation—the doctrine of *contraria contrariis*. He attached much weight to housing, the influence of air and light, gymnastics, dietetics, cold and warmth, massage, baths. He advocated change of climate in certain cases. As forms of exercise he mentions rowing, digging, mowing, throwing the javelin, running, jumping, hunting, splitting wood, carrying burdens. He advised exercises for the cure of adiposity. He advised baths in fevers. He had sound views upon diet. He employed venesection, leeches, laxatives, emetics, diuretics, and diaphoretics.

Galen's influence on medicine was almost omnipotent for a thousand years. His views on anatomy and physiology paralysed research until overthrown by Vesalius. His doctrine that disease is something to be expelled from the body by blood-letting, purgation, diaphoresis, and other eliminative measures had a long career and still has weight in medical practice. It lies behind many familiar therapeutic methods. It is the foundation for some modern medical theories. "Toxaemia" is almost as blessed a word in medicine as was "Mesopotamia" in the story of the old lady who found comfort and satisfaction in that geographical expression. It is worthy of reflection how far this Galenic doctrine is, or is not, too preponderant with us. Is it really true that the colon is a human sewer which Nature has unhappily preserved as part of our anatomy? Is it the *fons et origo* of a large proportion of our woes? Should we get on more comfortably without it? I need hardly remind you that bacteriology has given this doctrine a new orientation. We have now the problem set to us: Are we likely to be more successful in our struggle with disease by attempting to destroy and evacuate our invisible foes, or by aiming at fortifying the patient's natural powers of resistance? Our therapeutic methods will be much affected by the answer which we give to this question. Galen stands for coercing Nature. Hippocrates stands for supporting Nature. A wise therapeutic will strive to find the *via media* between these two complementary conceptions.

In the early Middle Ages medicine was largely in the hands of the Arabian physicians. In the West the healing art had been overtaken by a long night. While the Arabian physicians spoke Arabic and practised the Moslem faith, many of them were Syrians, Persians, or Jews by race. Their medical lore was Greek in origin, but had travelled by devious routes to Baghdad, Jundi Shapur, Bokhara, Egypt, Cordova, and Toledo. Amongst the most

ure in seven cases. Over one-quarter of the affected with "symptomatic paralysis hich the attitude of flexion, lack of facial l rigidity were more common than tremor. progressive and was very frequently asso- hthalmoplegia. This serious disability com- appear several weeks or months after the he acute phase of the illness. In contrast in which involuntary movements, especially rm variety, were prominent. These move- developed early and showed a tendency to improvement. Sensory loss was rare, being case only, but pains in the trunk and limbs

e saw of this dreadful disease the more did e necessity of giving a guarded prognosis ntly mild cases of it. Apart from the mor- about 20 per cent. during the initial acute bility to permanent and even progressive considerable and relapses might occur. The rtunately was still symptomatic.

INDS HOWELL (London) based his remarks on 34 patients who were observed during the encephalitis lethargica, and of 19 other cases under observation on account of residual ting from their illness. The cases were mostly al patients who were either under his own re of his colleagues whom he had to thank ies of seeing and following up the after- r patients. Of the 34 acute cases 6 died, mortality of 17.6 per cent. Of the remaining a unable to trace 8 patients, one of whom made a complete recovery at the time of hospital. He did not include this case who made a complete recovery—as, of course, e that he might have developed residual . Eleven cases made a complete recovery, ly 33 per cent. Nine cases had residual would be considered together with the 19 o had come under observation since their egard to the 11 acute cases which recovered al symptoms, 3 of these were examples of an type, one of them an extreme example of ient was a girl of 17 who was under the at the National Hospital. Almost completely oling from the mouth, her speech was unin- had very marked ptosis, but ocular movements restricted. In this case Dr. Hinds Howell favourable prognosis which happily and very roved completely wrong. Three patients had ors; 7 had ocular palsies of well defined one case the incidence of the disease was ar.

to complete recovery, or indeed as to re- n any particular case, was impossible. He ances of complete recovery were best in the the incidence of the disease was not mainly It was always very doubtful in cases which marked Parkinsonian symptoms combined ocular palsies.

fly referred to the group of 28 cases in which oms remained. He did not think that these ted any very unusual symptoms, but it might to note the most conspicuous features in them. In one case only, a patient who had peared to be a complete recovery in hospital elapsed; but unfortunately he could not give od that elapsed before the patient developed an symptoms that he now presented. Two them of the Parkinsonian type, dating from the mental disturbance varied very much. At one end of the scale one found merely a slight loss of emotional control or emotional response, whilst at the other one found a mental state bordering on dementia. None of the cases, however, had had to be placed in asylums. Loss of emotional response was common. "I have forgotten how to laugh" was a common complaint; unfortunately for them fewer had forgotten how to cry! Slowness of the mental processes, corresponding so often with slowness of physical reaction, was also common enough. Impulsive thoughts and actions had been noticeably present in 2 cases, both of them of the Parkinsonian type; one was a child who performed unexpected actions, the result of impulse, explained them by saying that she was behaving as she did in order to get well; the second was a woman, aged 23, who had on more than one occasion narrowly escaped suicide. Express trains and bridges under which water was rushing excited an extraordinary influence over her. She told him: "I don't want to die, but when I see a train rush past I feel I simply must throw myself in front of it. I don't know why I should." It seemed as though, exasperated by her physical limitations, she found an almost irresistible attraction in the rush of water or an express train. One other case exhibited loss of power of concentration and memory to an amazing extent. She could repeat the substance of a sentence two minutes after reading it, but not later.

In Dr. Hinds Howell's experience patients who had suffered a mental change did not tend to improve. The clever child who had become stupid and the "easy" child who had become "difficult," he was afraid, remained more or less *in statu quo*. Parkinsonian symptoms formed the next largest group. They were present in 15 cases of the 28, and naturally varied a good deal in extent. One might find a limited type of this condition, the face only affected, or face and arms, with legs practically normal. In a few cases the rigidity was so extensive and severe as to make any voluntary movement impossible. Disorders of gait in the more severe cases were of course common, festination, propulsion, and retropulsion occurring characteristically. Tremor had not been observed so frequently as rigidity, and when present was not usually of the paralysis agitans type. Often intermittent, it was brought out by emotional excitement and was as a rule of a coarse type involving the whole limb. Not infrequently it was unilateral. Ocular defects came next, having been met with in 11 cases of the series. The commonest disability was lack of convergence with paralysis of accommodation, but persistent squint, usually an external strabismus, lack of upward movement of the eyes, and nystagmoid movements had occurred fairly frequently. Disorders of sleep did not form a very prominent group in this series. Drowsiness during the day occurred in 3 cases—insomnia in 1, but in addition to these there were 3 cases which exhibited a reversal of normal sleep tendencies, diurnal somnolence to a very marked degree being followed by nocturnal excitement. All three cases were children and in each these symptoms were present during the acute stage of their illness and had persisted. The children went to sleep only in the early hours of the morning and then passed into what amounted to a state of coma, from which they were aroused with very great difficulty. Peculiarities of respiration had been noted in 3 cases. In one, that of a girl aged 20, about three months after the acute illness there developed an attack of dyspnoea which lasted for about three weeks; she improved for a few weeks and then remained much as before; her respirations were 36 per minute, the pulse rate 80; these respiratory troubles had now ceased and the girl was in active employment, quite recovered. A second case exhibited a type of respiration which, although not of the true Cheyne-Stokes type, at times seemed to approximate

famous names are those of Rabban, Rhazes, Ali Abbas, Avicenna, Rashid, Avenzoar, Averroes, and Maimonides. Many of these physicians were prolific authors, and the *Continens* of Rhazes, the *Liber Regius* of Ali Abbas, and the *Canon* of Avicenna long enjoyed a great popularity. The last of these works is still an authority in some parts of the East. The Arabian physicians were inspired by Hippocrates and Galen. From the latter they derived most of their ideas regarding anatomy, physiology, and pathology, while in therapeutics they were guided largely by the Hippocratic tradition with its emphasis upon hygiene. They attached much weight to diet, baths, rest, climate, cleanliness, etc. They were fully alive to the influence of suggestion. Two stories have been handed down to us which illustrate this last point. Rhazes had at one time under his care the Amir Mansur, who was suffering from some obscure malady which had resisted the ordinary methods of treatment. Rhazes determined to try a little psychotherapy. He appeared suddenly in the Amir's tent with a sword in his hands, and threatened to kill him. The Amir was naturally incensed beyond measure by this extraordinary proceeding on the part of his physician, and endeavoured to seize Rhazes, who escaped with difficulty. The story goes that the Amir was cured of his malady. Avicenna once had a patient who suffered from the delusion that he was a cow and ought to be slaughtered for food. Avicenna told him that he was much too thin for the butcher, and that he must be fattened before slaughter. The patient was directed to consume large quantities of milk; he recovered his physical health and lost his delusion. Rashid, who practised at Tabriz, excelled in materia medica, a department to which the Arabian physicians made some contributions of value. He dealt largely in aromatic oils—violet, jessamine, narcissus, rose, myrtle, orange, mastic, clove, cardamoms, cassia, fumitory, betel.

The lore of the Arabian physicians reached Western Europe mainly through Spain, and there is reason to believe that the rise of the medical school of Montpellier was due in large measure to Arabian influence. The Moslem seats of learning made progress in chemistry, and this progress probably reacted upon medicine. Averroes and Maimonides represent the more philosophical side of medicine. Both were eminent philosophers as well as famous physicians.

One of the most interesting chapters in the history of medicine relates to the rise and fame of the medical school of Salerno, near Naples. Its origin is obscure, but there is reason to believe that it owed something to the traditions of Greek medicine which had lingered in Southern Italy and Sicily, something to the Arabian physicians, and something to the Jews. Its origin may be traced to the ninth or tenth century, and it became the most famous medical school in Europe during the early Middle Ages. The spirit of the school was Hippocratic. It prized clinical observation, relied upon experience, and practised a simple therapy based upon that of the Father of Medicine. The emphasis was upon diet, hygiene, baths, ventilation, and such like measures. Patients flocked from all parts to this medical shrine, which was a bright spot in a dark age, and many cures were effected. Salerno was famous for its traditions and aphorisms. Of the latter I may quote one—

> Si tibi deficiant medici, medici tibi fiant
> Haec tria: mens hilaris, requies, moderata diaeta—

an admirable piece of advice. It reminds us of Burton's recommendation of Doctor Rest, Doctor Quiet, and Doctor Diet.

Medicine entered upon a new era with the publication in the year 1543 of the great work of Vesalius, *De Humani Corporis Fabricâ*, in which he overthrew the authority of Galen and placed human anatomy upon its modern footing. His work had an immediate influence upon surgery, and was the guide of Ambroise Paré, the greatest surgeon of the Middle Ages. Paré was distinguished for his practical sagacity and robust common sense. He was influenced by the Hippocratic tradition and believed in the *vis medicatrix naturae*. He practised amputation on scientific lines and reintroduced the ligature of arteries which had fallen into disuse in the Middle Ages. Harvey's discovery of the circulation of the blood is the greatest landmark in the history of medicine. His *Exercitatio Anatomica de Motu Cordis et Sanguinis* was published in the year 1628. It met with early recognition in many countries, but its influence upon the practice of medicine was only gradual. Harvey himself is said not to have excelled as a practitioner, but the facts that he was physician to Charles I, and that he was chosen as Lumleian Lecturer at the Royal College of Physicians, show that he was held in high esteem. One of his aphorisms may be quoted: "I am of opinion that our first duty is to enquire whether a thing be or be not, before asking wherefore it is." If this maxim were always faithfully observed a great many controversies would be stillborn.

The seventeenth century, prior to the advent of Sydenham, was an unhappy period in the history of medicine. A vivid light is thrown upon it in the comedies of Molière. It was an age of dogmatism, of slavish adherence to rules, of neglect of clinical observation, and of drastic therapeutics, based mainly on methods of elimination. Pedantry, routine, blind subservience to authority, reigned supreme. Blood-letting was practised to a frightful extent. Purgation, scarification, clysters, and other severe methods were in vogue. There was a rage for antimony, especially in France, where the drug was held to have cured the young King Louis XIV of a fever. Medical conversation was larded with tags of Latin. The following specimen is given of the medical learning of the day. Why does opium produce sleep?

> Quia est in eo
> Virtus dormitiva
> Cujus est natura
> Sensus assoupire.

Medicine needed a reformer, and it found one in Thomas Sydenham, who earned the title of the British Hippocrates. Few men in any age have been more fully imbued with the Hippocratic temper. In his insight and sagacity, in his reliance upon clinical observation and practical experience, in his freedom from prejudice and erroneous theories, in the simplicity and thoroughness of his methods of treatment, he was a true follower of the great Greek. He achieved great fame both in his own country and abroad. Boerhaave, the famous physician of Leyden, never mentioned him without lifting his hat, and saluted him as "Anglae lumen, artis Phoebum, veram Hippocratici viri speciem." Sydenham wrote on many subjects—fevers, gout, chorea, phthisis, hysteria, pneumonia, dysentery, malaria. His account of chorea was so perfect that we still speak of Sydenham's chorea. He was the first to distinguish measles and scarlatina. His account of hysteria was long held as a classic. It is interesting to recall that he thought hysteria the commonest of all diseases, and held that few women are wholly free from it. He suffered much from gout, of which he has left an excellent description. He believed that it was the only disease which included in its victims more wise men than fools. In his famous work *Methodus Curandi Febres* he says: "Fever is nature's engine which she brings into the field to remove her enemy; or her handmaid either for evacuating the impurities of the blood, or for reducing it to a new state." Are we quite sure even yet how far pyrexia is an irritative reaction or part of Nature's defensive mechanisms? We know it can run to perilous excess, but routine antipyresis may run the risk of defeating Nature's efforts at elimination and control. The subject is one to reflect over. Sydenham was a stout upholder of the doctrine of the *vis medicatrix naturae*. He writes:

> "As far as I am capable of a judgment, the dictates of reason are as follows, namely, that a disease, however much its cause may be adverse to the human body, is nothing more than an effort of nature, who strives with might and main to restore the health of the patient by the elimination of the morbific matter."

He held that some diseases "are engendered through occult and inexplicable changes in the atmosphere." We are familiar with waves of both ill health and good health spreading over large areas without assignable cause. Perhaps Sydenham's notion is worthy of reconsideration. Perhaps to-day we attach too little importance to cosmic and telluric conditions. Sydenham held that impurities

to it, while the third had developed a most peculiar respiratory tic, in which the mouth was opened widely and usually towards one side and the platysma on that side thrown into contraction. There was no gasping inspiration accompanying this movement, but the patient said he did it in order to get his breath. He had no dyspnoea and his respiratory rate was normal. A peculiar sequel which Dr. Hinds Howell had noted in a number of the cases was marked seborrhoea, of the face and scalp more particularly. He had notes of it in 6 cases, but he thought its incidence would have been noted more frequently if his powers of observation had been more acute. An abnormal appetite had been noted in three of the cases, choreiform movements in one, and a definite hemiplegia—moderate in degree—in one.

He did not think that a recapitulation of symptoms occurring as sequels to encephalitis lethargica was of much interest unless they led to some advance in our knowledge of the functions of the brain. He did not doubt that the disease, the sequels of which they were considering at that meeting, had given a stimulus to the study of paralysis agitans, and had thrown a good deal of side-light on the pathology of that disease. It was to be hoped that from this they might obtain more accurate information than they possessed at present with regard to the physiology, and indeed the exact anatomical constituents, of the extra-pyramidal motor system.

Dr. ANTHONY FEILING (London) said that the subject for discussion, the sequelae of epidemic encephalitis, offered so wide a variety that choice of any particular branch of it became a matter of difficulty. Hence, in the short time at his disposal he confined himself to two aspects only of the very important sequelae of this disease. First, in regard to ocular palsies. Ocular palsies of some kind, both of the intrinsic and extrinsic muscles of the eyes, were well recognized as one of the more common and indeed diagnostic events in the acute disease. Netter, for example, placed them amongst the typical triad of symptoms, the others being fever and somnolence. But while so important in the acute phase, they were less common as a final sequela. Not that they did not often persist for a considerable time, several weeks or even months indeed, nor that they might not occasionally remain long enough to deserve the title of sequela. Dr. Feiling had observed many cases in which ocular palsies had occurred; in the majority they persisted for some time, varying from a week or several weeks to six months, but eventually the greater number recovered. A small residuum, however, had remained and it was to these particularly that he would direct attention, for they might offer considerable diagnostic pitfalls if the true origin of the condition were overlooked. Changes in the pupils and in the pupil reactions were well accepted as not uncommon sequelae. Inequality in size was frequent; a diminution in or a loss of the power of accommodation was still more common. Loss of the reaction to light in the pupils less often occurred. On the whole it might be said that the changes in the pupils were sufficiently common to constitute on occasion a suspicion of other diseases, and notably tabes or general paralysis of the insane. If for this reason only, they should be noted. Paralysis of the extrinsic muscles of the eye formed a not uncommon residuum. Any muscle might be affected. Thus, unilateral or bilateral ptosis, usually incomplete, or a paralysis of one or other external rectus, was perhaps the most common. Defective upward or downward movement of the eyes might also be encountered. Cases presenting these symptoms, especially when the power in the muscles varied somewhat from day to day, might easily be mistaken for myasthenia gravis. Indeed, their aspect was often curiously suggestive of that disease. One case of his own was so striking an example of this resemblance and showed such remarkable variations in the ocular palsies that a short account of it might be interesting.

A woman, aged 29, had an attack of encephalitis in September, 1920, with an abrupt onset of headache, vomiting, and diplopia. In October, 1920, she showed a divergent squint in both eyes with paresis of both internal recti. In November, 1920, right ptosis was present, as well as the paresis of the internal recti; in December this ptosis was still more marked. At the end of December, 1920, the ptosis of the right eye had gone, but the downward movements of the right eye were very defective. In January, 1921, ptosis of the left eye appeared, with defect in the upward and downward movements of the left eye; the two internal recti were still paresed. In March, 1921, no ptosis was present in either eye; there was weakness of the left internal rectus only. In May, 1921, there was right ptosis again; in June, 1921, the right ptosis had gone and there was slight left ptosis. In July, 1921, there was marked left ptosis and weakness again of both internal recti. In September, 1921, the only defect was a failure of the two eyes to converge. The same state was found in January, 1922. In November, 1922, the right ptosis had returned and was especially marked when the patient was tired; at this time, twenty-six months after the original attack, the pupils were equal and reacted well to light, but failed to converge or to accommodate.

So remarkable a persistence and variability of the ocular palsies was an observation of importance. Had it not been for the very definite history of the original attack a diagnosis of myasthenia gravis would almost certainly have been made. The occurrence of the Parkinsonian syndrome or the so-called symptomatic paralysis agitans was now familiar to all neurologists, but even yet its frequency and the gravity of its prognosis were, perhaps, hardly realized by the profession at large. The characteristic symptoms might appear during the acute phase of the disease, so that no definite latent period could be said to exist. On the other hand, a number of cases, and these of many different types, appeared to recover from their first symptoms, and later at a very variable period, from a few weeks up to two or even three years, or perhaps longer, slowly developed the typical picture. It was, of course, a matter of the greatest difficulty, if not of impossibility, to fix the exact time of onset of symptoms in the slowly progressive cases. Usually a slowness of movements was the first abnormality to attract attention. Since that particular syndrome was now so well known, he would not waste time by dwelling in detail on its various components. In his own experience the following were the chief points of differentiation between it and the ordinary or senile form of paralysis agitans: (1) The age of the patient. Many cases of the post-encephalitic form occurred in quite young persons, even in children, while the ordinary disease was very rare under 40. (2) The incidence of the symptoms was usually somewhat different. Thus, the characteristic tremor was often lacking in the post-encephalitic form, at least for a considerable time. On the other hand, the rigidity of the limbs and trunk, in fact the general immobility or "woodenness" of the patient, was often an earlier and a more troublesome feature. (3) Slight or what have been called "fragmentary" conditions of rigidity were more common in the post-encephalitic cases. Thus the rigidity might be practically confined to the face or neck or to one or other of the limbs for a longer time than was usual in the ordinary senile form. (4) Sialorrhoea, or excessive salivation, was sometimes a very characteristic symptom in the post-encephalitic cases. A point which he wished to emphasize was the difficulty in prognosis in these cases. In the first place—and apart from those cases where the characteristic picture of paralysis agitans appeared during the acute phase of the disease—they were confronted with the problem of deciding what cases were likely to develop the syndrome. For it had been shown to follow almost every variety of the acute illness. Indeed, unless complete recovery seemed to take place, and that fairly quickly, it would appear that they were not justified in excluding the possible development of Parkinsonism under a period of three years. And in the second place the prognosis of the developed state of Parkinsonism was equally difficult. Some cases seemed to reach a maximum and to remain there for some long time, with subsequent slight improvement. Others seemed to remain stationary. But many unfortunately ran a steadily progressive downhill course, terminating in early death. Criteria on which an accurate forecast might be based were at present lacking. Personally, he had been impressed by the bad results in those cases, especially in young people, where the symptoms had appeared slowly and insidiously, and where there seemed to have been a long period between the acute attack and the manifestation of the typical picture of paralysis agitans. The reason for that serious outlook seemed to be the persistence of the virus in the brain on the one hand, and on the other the advanced degenerative changes which had been found to occur in the blood vessels.

in the air were one of the main causes of phthisis—an anticipation of modern thought. He laid much stress upon diet in the treatment of disease, made a large use of diluents, recommended plenty of fluid in fevers, popularized the use of Peruvian bark in ague and iron in chlorosis, advised plenty of fresh air in sick-rooms, and thought horseback exercise valuable both in nervous affections and in phthisis. Like the Greek physicians, he urged the importance of studying the patient's constitution and avoiding routine treatment.

Sydenham's writings are full of pithy axioms and aphorisms—for example: "Experientia magistra doctorum"; "Qui mundificat bene, bene sanat"; "Lachrymae—certissima signa morbillorum." "Nevertheless, I have always thought it a greater happiness to discover a certain remedy for even the slightest disease than to accumulate the largest fortune, and whoever compasses the former I esteem not only happier but wiser and better too." Sydenham believed much in common sense. His favourite authors were Hippocrates, Cicero, Bacon, and Cervantes. Sir Richard Blackhouse, who had commenced the study of medicine, once asked Sydenham what book he would recommend. His reply was, "Read *Don Quixote*. It is a very good book. I read it still."

With Sydenham I may fairly conclude these burrowings in the medical lore of past ages. We began with Hippocrates; we conclude with his English successor. Between Hippocrates and Sydenham what a vast vista of human history—a period of just over two thousand years! During that long period the healing art has seen many vicissitudes—now advancing, conquering, again coming to a standstill, or undergoing grievous relapse. But it is significant for us that the English Hippocrates found it to his advantage to have at his elbow the works of his great forerunner. We might with profit follow his example. The past is not dead—it lives in us, in our lives, and in our work. We do not forget that in the three hundred years which separate us from the birth of Sydenham medicine has made a greater advance than in all the previous ages. But, as Rudyard Kipling says, "that is another story."

THE DIAGNOSIS OF SMALL-POX AND CHICKEN-POX: A CONTRAST.

BY

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LATE ACTING M.O.H. GLOUCESTER CITY.

(*With Special Plate.*)

THE photographs reproduced on the special plate by which this paper is illustrated exemplify the fallacy of placing much reliance upon the severity of the rash in making a differential diagnosis between chicken-pox and small-pox. Figs. 1, 2, 3, and 4 are from a case of chicken-pox; Figs. 5 and 6 from a case of mild discrete small-pox. The ratio of severity so far as the rash is concerned is the opposite to what is taught to students of medicine and is still assumed by many members of our profession—namely, that small-pox is characterized by a profuse rash, and that chicken-pox is perhaps the mildest and most negligible of all the exanthemata. Figs. 1, 2, 3, and 4 show the rash twenty-four hours old in girl aged 11; she had no prodromal symptoms; the type of rash was very superficial and the fluid in the vesicles was quite clear (glass-pox). The crenated edge of some of the vesicles can be seen in the back view. The distribution is centripetal. Figs. 3 and 4 (from the same case) show vesicles on the palms and soles, but still of the superficial type; such a condition is common in chicken-pox. Figs. 5 and 6 are of an unvaccinated boy aged 6, suffering from a mild form of discrete small-pox. The prodromal symptoms were headache, slight sickness, and pains in the limbs; the rash appeared on the fifth day. The rash, it will be noted, is centrifugal and deeper than in chicken-pox, and the pocks are circular with a central depression.

It should not be difficult to understand that doubt may exist in the mind of a medical officer when called on to make a diagnosis of small-pox in such a case as this, perhaps the first to occur in his experience, or even, with previous experience, the first case in a community hitherto free from this disease, and to report his finding to the health authority.

A correct diagnosis can and should be made, and in typical cases, even when very mild, it is simple enough. The sheet anchors of differential diagnosis are:

1. The distribution of the rash.
2. The prodromal history.
3. The characteristics of the rash.

I would like, however, to stress the possibility that these points are not always obvious and clear-cut.

Distribution.

Border-line cases occur sometimes, but fortunately rarely, and in these a count of lesions leads to no conclusion as to whether the rash is centrifugal or centripetal, and every mathematical maxim fails.

Prodromal Symptoms.

No one symptom is so consistently obvious as to constitute *per se* a specific point of diagnosis. The length of the prodromal period—that is, three to four days' illness in small-pox before the appearance of the rash—is of great importance, but very careful inquiry is often necessary, both as regards the prodromal beginnings and the first appearance of the rash, to elicit information substantiating this length of period.

The symptoms of themselves may vary in severity between one extreme and another in small-pox, and the eruption which follows does not appear to have any definite relation to the degree of their severity. Headache, a most constant feature in mild small-pox, may be described in every degree from "very severe" with delirium to a feeling of "giddiness" only. Pains in the back and limbs may vary from the excruciating type to a "feeling of tiredness" or "heaviness in the legs," enough to make the patient prefer to "lie up" rather than to "keep about." Vomiting may vary between persistent retching and "just wanting to be sick." The temperature may be high or normal. Prostration may be severe or absent.

Just before the appearance of the rash the prodromal symptoms of small-pox lessen to a very marked extent and the temperature when high may fall, so that the patient "feels better," and may return to work, or to school, as the case may be.

Chicken-pox sometimes, especially in older people, may be preceded by fairly severe symptoms of headache, etc., lasting for a few days. In chicken-pox, however, this prodromal stage is usually of shorter duration and the symptoms run on and overlap the eruption; the temperature is often highest on the second or third day of the rash.

Character of the Rash.

A typical chicken-pox rash and a typical small-pox rash are easily distinguished, but a chicken-pox rash may be severe and very pustular, and small-pox lesions may be of an abortive type; even when not abortive they may be more superficial and less markedly round than usual and may have the appearance of successive crops on successive days. The rash in chicken-pox is, however, more cuticular (glass-pox), matures more rapidly, has a more oval shape with a more crenated edge and with deeper areolae tending to run in the creases of the skin and producing an exaggeration of the ovoid appearance or giving a markedly stellate shape. On the other hand, small-pox lesions are deeper, less rapidly maturing, round, with a narrow round areola, and later on a circular central umbilication.

Confusion is sometimes caused by a resemblance of small-pox lesions to the polymorphism seen in chicken-pox, due to deeper lesions or those under denser tissue taking longer to mature, and to the fact that some small-pox lesions abort in an early stage. Then again, in chicken-pox spurious umbilication may occur, but the vesicle is more convincingly monolocular, small-pox vesicles being usually multilocular. Again, two or more small-pox lesions may run together and produce a crenated edge and an oval appearance. To complicate things a little more, post-vaccinal rashes occur more commonly than is supposed. Prodromal rashes, secondary rises of temperature, particular smells, predilection to come out more profusely at places of friction, are among other points to be considered but are inconstant.

Dr. Douglas McAlpine (London) discussed some points in the pathology of late encephalitis lethargica. In reviewing the literature he had found mention of only fourteen autopsies on cases of the Parkinsonian syndrome following encephalitis lethargica. The most striking fact in the various findings, and one which was common to all the cases, was a destruction varying in amount of the cell of the substantia nigra in the mid-brain. Inflammatory changes were also found in other parts, such as basal ganglia, but in nine out of the fourteen cases it was definitely stated that the changes in the substantia nigra were the most prominent feature. He had had the opportunity of examining the brains of two cases.

Case I.

The first case was that of a man, aged 41, who had one definite attack of encephalitis lethargica in May, 1921, followed by paralysis agitans. When seen in September, 1922, he showed a very advanced degree of this condition. After being two weeks in hospital he suddenly became acutely ill with progessive pyrexia and polypnoea; no physical signs in the chest were found to account for this marked increase in the respiratory rate. He died within forty-eight hours. As a control for the histological findings a brain from a man of the same age who died as a result of an accident was used and was treated in precisely the same manner. The findings were briefly as follows: The cerebral cortex was normal except for general capillary dilatation. There were no changes of note in the putamen of the lenticular nucleus, nor in the caudate nucleus except occasional perivascular infiltration with round cells. The large motor cells of the globus pallidus for the most part were normal except that they stained poorly and showed an absence of the usual chromophyllic staining. A similar appearance of the cells was present, however, in sections from the normal control and probably depended upon faulty fixation. The cells in ten connective fields were counted, and this was also done in sections from the corresponding blocks of the normal control. Two different levels were taken; one from the middle of the globus pallidus and the other towards its lower end. In each case the cell count from the case of encephalitis lethargica exceeded that from the normal control. A few of the vessels in the globus pallidus showed well marked perivascular infiltration; those situated in the anterior half of the globus pallidus showed calcification; further reference would be made to that later. The only changes of note in the thalamus were quite recent perivascular haemorrhages in the neighbourhood of the third ventricle; these were also found in the neutral portion of the mid-brain. Sections stained by Weigert-Pal showed no degeneration of fibres connecting the basal ganglia and subthalamic region. The mid-brain was cut in serial section, and sections showed that the main incidence of the disease had fallen on this region and particularly on the pigmented cells of the substantia nigra on either side. These were reduced to a very small fraction of the normal number; the few cells which remained showed depigmentation, eccentricity of nucleus, ballooning, and other degenerative changes. The area normally occupied by the substantia nigra was filled with scattered masses of pigment. In contrast to this picture it might be added that the pigmented cells of the local ceruleus, situated also in the mid-brain, were quite normal. The vessels of the mid-brain were more affected than elsewhere, showing perivascular haemorrhages and infiltration with round cells. Macro- and microphages of glial origin were plentiful and many contained pigment; these could be traced to perivascular spaces of capillaries. The pons, medulla, and spinal cord showed no changes of note. Weigert-Pal section of the pons, medulla, and cord showed no tract degeneration.

Case II.

The second case was that of a woman, aged 68, who was well until an attack of influenza in January, 1920, characterized by general pains, marked insomnia, and paresis of accommodation. Some months later symptoms of paralysis agitans appeared, affecting the limbs on the left side. In January, 1921, and again in February, 1922, she had what her friends described as a "stroke," in which she lost the use of her legs, but she recovered fairly well after each attack. When seen in January, 1923, she presented a picture of advanced paralysis agitans without tremor. There was also evidence of pyramidal involvement on left side. A point in favour of a previous attack of encephalitis lethargica was the absence of the reaction of the pupils on accommodation, while the reaction to light was only slightly impaired. Wassermann reaction was negative. After a short time in hospital the patient became acutely ill; temperature and respiration rate progressively rose and she died seventy-two hours later. No adequate explanation could be found for the marked increase in the respiratory rate. The main points in the histological findings were as follows: (1) marked general arterio-sclerosis; (2) haemorrhages in basal ganglia on the right side, neither of them recent. One was situated anteriorly at the junction of the putamen and globus pallidus, the other in the thalamus encroaching on the right internal capsule; (3) round-cell infiltration in some of the vessels in the basal ganglia and subthalamic region with calcification of several arteries and arterioles in the anterior half of the globus pallidus; (4) recent perivascular haemorrhages, similar in all respects to those found in the first case, in those parts of the thalamic and subthalamic region which adjoin the third ventricle; (5) a normal substantia nigra on either side; (6) Weigert-Pal sections showed a slight but definite double pyramidal tract degeneration.

Dr. McAlpine did not wish to stress this case as one of post-encephalitic paralysis agitans with a normal substantia nigra, because the two large haemorrhages in the basal ganglia were evidently due to arterial disease and were plainly not due to encephalitis. The mode of death in these two cases was strikingly similar—namely, progressive pyrexia and polypnoea. Madame C. Levy, in her recent book on the sequelae of encephalitis lethargica, mentioned this mode of death in four cases of advanced post-encephalitic paralysis agitans. The symptoms suggested an involvement of the respiratory centres, but in neither of his two cases were any changes found in the medulla sufficient to account for the symptoms; it seemed more probable that the recent haemorrhages into the perivascular spaces, present in both cases and similar to those found in acute stages of the disease, indicated an acute flaring up of the disease. Another point to which he wished to draw attention was the persistence of subacute inflammatory changes, such as round-celled infiltration around the vessels in cases dying eighteen months or more after the acute stage. Judging from the findings in those cases of encephalitis lethargica paralysis agitans reported in the literature and from the changes found in the first of the cases which he had described it seemed justifiable to assume that the symptoms were probably due to destruction of the cells of the substantia nigra in a large proportion of cases.

He wished finally to mention a few observations that he had made on the occurrence of calcification in the brains of those dying from encephalitis lethargica. Buzzard and Greenfield in 1918 first described in the case of a young woman, aged 25, who died six months after the original attack, deposits of calcium salts in certain vessels of the cortex and basal ganglia. Durch in 1921, in 12 out of 15 fatal cases of encephalitis lethargica, the ages ranging between 20 and 60 years, found calcification not only in the vessels' walls but also in globules lying free in the supporting tissue and even invading the nerve cells. These changes were much more pronounced in, though not confined to, the globus pallidus. In the first of the two cases Dr. McAlpine had described he found well marked calcification in certain vessels in the globus pallidus. Subsequent examination of the two other late cases and two who died in the acute stages showed that the calcification was limited to the anterior half of the globus pallidus, an area which was supplied by internal striate branches from the middle cerebral artery. No similar involvement of any vessel outside this area was found in any of the five cases. From a study of the various sections from the different cases, it had been possible to show that the earliest alteration in the vessel wall might be either a deposition of fat globules in the adventitial sheath, or a hyaline degeneration mainly affecting the media. Calcium salts were then deposited either between the adventitia and the media or in the media itself; the calcium first appeared as fine granules which coalesced to form comparatively large plaques. Arteries and capillaries of all sizes might be affected; the veins were usually spared.

In this limited area of the globus pallidus were found in all cases globules lying free in the supporting tissue, which showed varying degrees of calcification. The earliest stages of these seen in sections stained with Scharlach R consisted in the formation of droplets of fat, lying free in the supporting tissue and also aggregated around the small vessels and capillaries; a few of these might show a darkly staining centre or nucleus due to commencing calcification. The second stage seen in sections stained with haematoxylin and Van Giesen consists of brownish staining bodies, occurring singly or in fused irregular masses, 4 to 6 μ in diameter. Finally, these globules might become completely calcified and were seen as blue-black granules or globules in size varying from 1 μ upwards, lying scattered about or invading the vessel walls. No calcification of nerve cells was observed. This process of calcification showed itself at all stages of the disease. In a young man, aged 20, who died on the fourth day of the disease, in addition to the characteristic acute histological changes, definite calcification was found in the vessels of the anterior half of the globus pallidus, and in a second case similar changes, though more advanced, were found. As controls he had examined this region of the

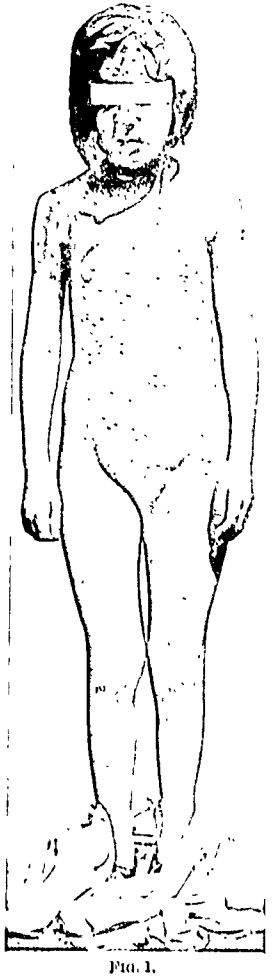

Fig. 1.

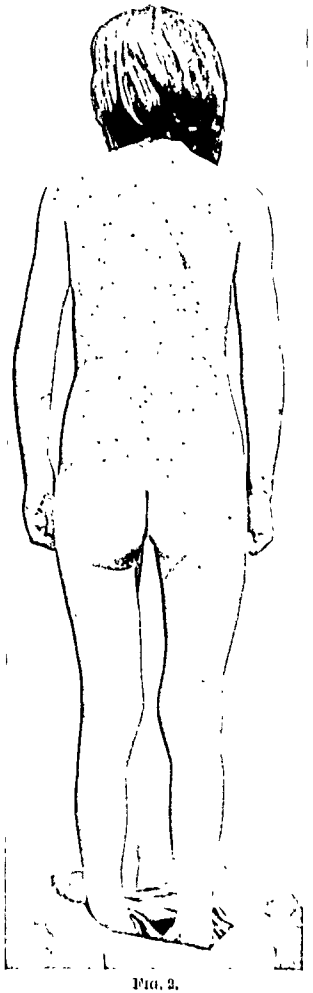

Fig. 2.

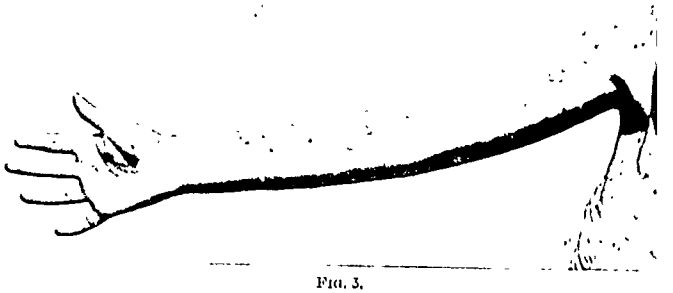

Fig. 3.

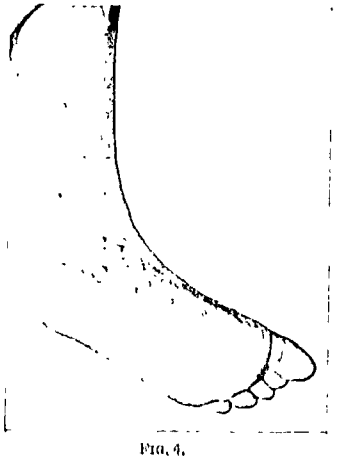

Fig. 4.

Figs. 1 to 4.—A case of chicken-pox. The superficiality of the lesions is well shown on the palm of the hand and sole of foot.

brain in three cases dying from other causes, and could find no calcification, but in the only two cases of idiopathic paralysis agitans that he had examined well marked calcification was present in this area. In the latest monograph by the Vogts, who illustrated a different number of clinical and pathological conditions due to disease in the basal ganglia, mention was made of only one case showing calcification of vessels and globules such as Dr. McAlpine had described. This was a case of Westphal's, a woman who died in 1919 after a seven weeks' illness, characterized by athetotic movements and later rigidity, dysphagia, dysarthria, retropulsion, etc. The history and microphotographs strongly suggested an attack of encephalitis lethargica, although no mention was made of this in the text.

It seemed difficult to understand how calcification could occur so rapidly as in the two cases he had mentioned. Emrys-Roberts and Haig in a recent paper described a somewhat analogous process in fatal cases of fulminating diphtheria and septicaemia. They mentioned the occurrence of fatty or lipoid globules in the heart muscle of such cases, which became deeply pigmented; they attributed this change to the substitution of the fat by an altered lipochrome. It was reasonable to suppose that in encephalitis lethargica the circulating toxin produced degenerative changes in the vessel walls and that calcium salts were attracted to these parts. He had no explanation to offer for the selective action of this process on the anterior half of the globus pallidus. These changes, though of a considerable interest from a histological point of view, could, he thought, be held responsible for the production of symptoms. The lumen of the affected vessels seemed to be little interfered with, nor was the presence of the globules accompanied by any degeneration in the large motor cells of the globus pallidus. In conclusion, he wished to mention the help and kindness afforded to him by Dr. J. G. Greenfield, who placed certain of the material at his disposal.

Dr. C. P. SYMONDS (London) said that, as Dr. Buzzard had remarked, there was in this disease no constant relation between the severity of the sequelae and that of the original illness. This accounted for the fact that many patients came to them for the after-effects of the illness in which the true nature of the original attack had not been recognized. In these cases, therefore, it became necessary to make the diagnosis in retrospect. As an example he quoted the case of a young married woman whom he was asked to see as a probable case of dementia praecox.

For the past few months she had been growing more and more apathetic, would sit still all day apparently staring in front of her, and had ceased to take any interest in her children or her home. On examination the patient presented the characteristic facies and posture of paralysis agitans. In her mental condition was found a state which Dr. Symonds believed was characteristic of these cases—profound apathy and loss of emotion, together with preservation of the intellectual processes. She showed no spontaneous interest in her surroundings, nor would she speak unless directly questioned; her responses were rational; she was correctly oriented, and perfectly cognizant of what was going on about her. The history in this case revealed no sudden febrile illness. Nine months previously she had complained of headache and general malaise, and had felt herself becoming increasingly drowsy, so that she would actually fall asleep over her housework and had sometimes to be awakened for meals. In spite of this she had not gone to bed, nor had she sought medical advice. The period of drowsiness and malaise lasted in all for about six weeks, and was succeeded by distressing insomnia. She had never felt completely herself since the beginning of the illness, but had only noticed the commencement of stiffness and slowness of movements about three months after the onset. Since then it had been progressing.

Dr. Symonds had seen many such cases of what might be called the ambulatory type, in addition to those in which the original attack had been put down to influenza or in children sometimes had been provisionally diagnosed as chorea or meningitis. In cases that presented such gross sequelae as the Parkinsonian syndrome, a retrospective diagnosis was not, as a rule, difficult when the full history was elicited. In others whose symptoms were less clear-cut the diagnosis might be extremely difficult.

In March, 1921, he saw a blacksmith, aged 45, who complained simply of general lassitude and increased fatiguability. On examination he found that his pupils were unequal, and one of them failed to react either to light or in accommodation. He had nystagmoid jerkings of the eyeballs and his tongue was protruded to one side. He denied venereal disease, and the Wassermann reaction was negative in blood and spinal fluid. Inquiry elicited that at Christmastime, 1920, he had been away from work for a week with complaint of headache and malaise. During that time he felt shivery and would sit by the fire, but he had not gone to bed or thought it worth while consulting a doctor. For one day he had had occasional double vision. This history appeared to warrant the diagnosis of encephalitis lethargica, and Dr. Symonds's experience of the disease led him to the opinion that it was unsafe to give a good prognosis until the end of six months from the date of the original illness. In June, 1921, the patient began to complain of gnawing pains in the left arm and leg, and these were shortly followed by involuntary movements of a coarse irregular type, chiefly involving the muscles of the left shoulder girdle. This patient had since this time been continually under observation. The involuntary movements at first progressed and were at their worst in January, 1922. Hyoscine taken regularly by the mouth, together with bromide, appeared to have a definite effect in controlling them to some extent. During the last two years there had been slow but steady improvement, and he was now practically well. Throughout his illness he had been able to continue at his work, albeit with some difficulty.

His experience had been that, as in this case, involuntary movements as a whole tended to disappear after a lapse of months or years. He would, however, except tremor of the Parkinsonian type, which appeared to persist indefinitely. With regard to the prognosis, it was important to discover if possible what was the limit of the latent interval which might elapse between the original illness and sequelae. He had seen one case in which the Parkinsonian syndrome developed after a lapse of two and a half years. During this period, however, the patient could never be said to have made a complete recovery. In the original illness lethargy was the main symptom. Later insomnia and nocturnal restlessness (the patient was a boy of 15) became exceedingly troublesome. The boy's character also showed signs of deterioration. His own impression was that if the patient in the original illness recovered his physical and mental health and maintained that recovery for a period of six months, he might be regarded as safe from further trouble. Finally, in discussing the symptomatology of this disease, he thought perhaps that they paid more than a fair share of attention to the involuntary movements. He called attention to the great variety of sensory disturbances of which these patients complained. The somatic pains had already been referred to by other speakers. Dr. Hinds Howell had mentioned that in one of his cases there occurred gasping movements over which the patient had voluntary control. Dr. Symonds had met with cases in which the patient had made movements of a similar nature, and had explained them as being due to a sensation of impeded respiration and suffocation of which he had tried to rid himself by energetic deep breathing. Other instances of that type had been a man who had a perpetual sensation of nasal obstruction which impelled him to be constantly blowing and sniffing, and a woman who, even in the early stages of her illness, complained chiefly of a sensation of fullness and tenesmus in the rectum, for which she was constantly demanding the bed-pan, although her bowels were emptying normally and physical examination revealed no local cause. Symptoms of that nature were of particular interest in relation to similar complaints made by patients of the so-called neurotic type. They had to ask themselves whether there might not be a physical basis for such symptoms in minute lesions of the viscero-sensory nervous centres.

Dr. H. J. MACBRIDE (London) said that a short clinical contribution to the discussion was difficult because of the wealth of clinical material offered by this disease. The discussion was on the sequelae of encephalitis lethargica, but how far were they justified in placing many of these cases under the heading of sequelae? Were they not, in many cases, dealing with a still active infection rather than with a merely consequent condition? Several of the cases he had seen recently had been much more drowsy many months after the onset of the disease than during the early days of their illness. And again in some cases the symptoms had markedly altered during the so-called post-encephalitic stage. This was well shown in one of the cases which he described later. Economo found *post mortem*, in a chronic case, quite recent patches of inflammation. So that both the clinical and pathological conditions went to show that the active process might continue for years. Further, they knew that a definite recrudescence or relapse had occurred in some patients. At

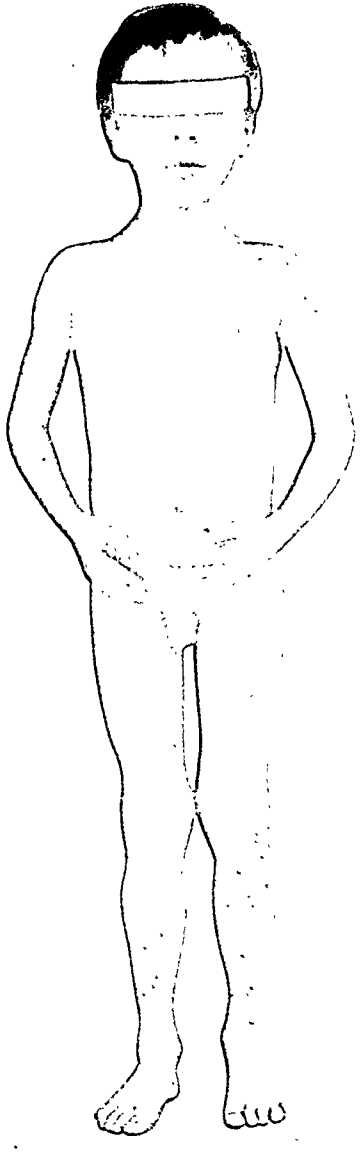

FIG. 5.

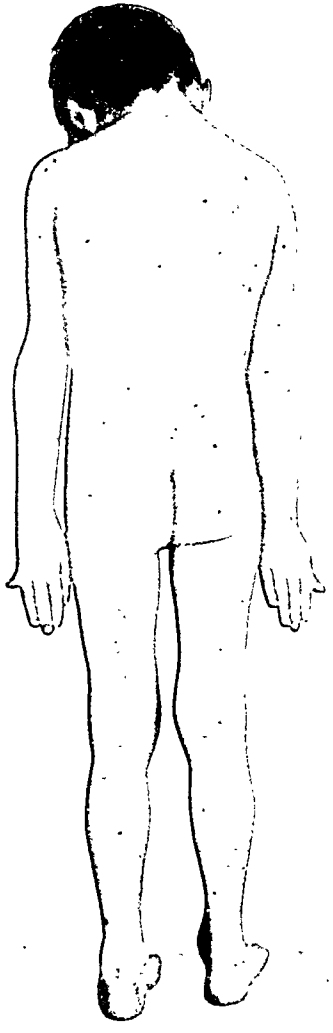

FIG. 6.

FIGS. 5 AND 6.—A mild case (boy, aged 6) of small-pox with very slight rash.

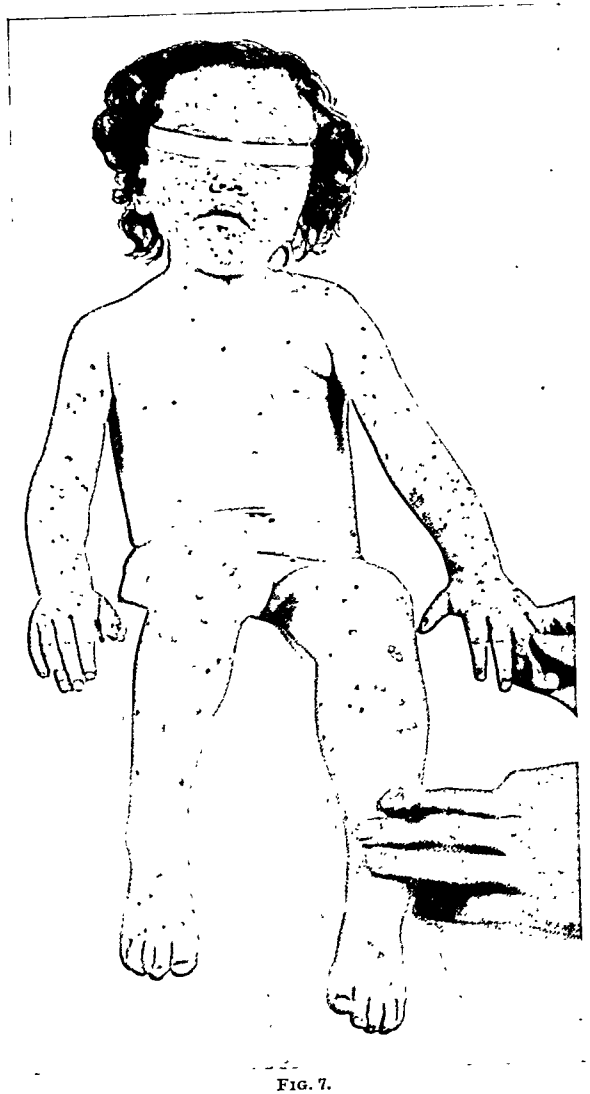

FIG. 7.

FIG. 7.—Sister, aged 3 (unvaccinated), of patient shown in Figs. 5 and 6. More profuse rash.

roup—those showing a similarity to the paralysis agitans yndrome, and (*b*) those showing other miscellaneous ymptoms. It was to a particular group from the latter ection that he wished to devote his attention. It comrised three cases, each of which showed a condition closely llied to torticollis.

CASE I.

A young woman, aged 28, had an attack of encephalitis in 1920, vith marked drowsiness lasting several weeks, and ocular trouble ollowed shortly afterwards by the movements which she at present as. The movements consisted of an irregular spasmodic turng of the head to the right, with a slight forward and hrugging movement of the right shoulder. Each spasm lasted bout one or two seconds. Accompanying these head movements, hough not always, were movements of extension and internal otation of the upper limbs with wide separation and extension of he fingers. The extension movements of the left arm were someimes replaced by a movement of flexion, with flexion of the ngers. The lower limbs were usually unaffected, though here were slow movements of them, as well as of the upper mbs, apart from the head movements. The movements of the xtremities resembled those of torsion spasm, except that the ame movement was often repeated. All reflexes were normal and o Parkinsonian features were present. The accommodation conergence synkinesis was absent.

CASE II.

A young woman, aged 31, about a year before had an illness hich she called influenza and in which she was very drowsy or several days. This was followed by side-to-side movements f the head, more to the left than to the right. These movements ad continued up till the present time. The patient now had he head constantly inclined to the right with the chin very lightly turned to the left and the occiput approximated to the ight shoulder, while this shoulder was slightly higher than he left. Side-to-side head movements of small amplitude were ontinually present while she was erect, but ceased in the ecumbent position. While she was standing there were also egular up and down movements of the whole body, at a rate of bout 60 to the minute. Reflexes were normal.

CASE III.

A young man, aged 28, had an attack of encephalitis lethargica n 1921, followed by the paralysis agitans picture. This state coninued for many months, then his condition became that which vas found on readmission to the National Hospital last year. The nask-like features had entirely disappeared, as also had the aralysis agitans tremor, and his complaint was of head movenents; they consisted of spasmodic forward movements of the ead with elevation of the left shoulder and slight turning of the hin to the right. Associated with them were deep nasal inspiraions. Reflexes were normal except for the left plantar which was xtensor in type.

These cases were interesting not only from the point of view of the disease under discussion, but also on account of the light they might throw on other conditions. The ymptoms following on encephalitis lethargica could be grouped into well known syndromes, yet the knowledge of hese syndromes had allowed them to draw very few conclusions as to the pathology of this disease. They might ook at the matter from the reverse side and ask themselves whether their study of encephalitis lethargica had allowed them to draw any conclusions with regard to the syndromes which occurred in consequence of it. As far as paralysis agitans was concerned it had merely taught them that such a condition might have an infective origin. With regard to torticollis he submitted that it gave additional ground for believing that some cases at least had their basis in an organic lesion of the brain. Dr. Macbride said that he was much indebted to Dr. James Collier for permission to quote the above mentioned cases.

Dr. W. A. POTTS (Birmingham) said that the theory of temporary oedema in certain regions of the brain seemed to explain the rapid recovery which occurred in some cases. For instance, a young woman on the first day was only slightly ill, on the second she was in a state of stupor, not able to move, not speaking or taking food; on the fourth day she was up and dressed, and almost quite well. She recovered rapidly and had no sequelae. Dr. Hinds Howell's interesting group of cases prompted Dr. Potts to ask if psychological analysis had been tried, not so

the fat globules described point to the necessity of a istering adrenaline hypodermically? He had made adrenaline injections, and also of influenza vaccines early stage, and thought them useful, but he had n enough cases to justify a decision. There was a s group of cases occurring in pregnant women, in whc symptoms were sometimes mistaken for thre eclampsia, with the result of treatment sometimes carried out to induce labour. Such a procedure happi not necessarily disastrous, because, curiously enoug prognosis in pregnant women appeared to be good.

Dr. D. N. HARDCASTLE (London) wished to draw tion to the symptom of depression which was l stressed by Continental and American writers, an mentioned by Dr. Hinds Howell The question aros this depression the direct result of (1) organic cha cerebral cortex (example, the depressed general para (2) cerebral anaemia, as found in some types of a sclerosis, or (3) was it the patient's mental react the knowledge of the severity of his illness or its cri effects? The second point he wished to raise was, was the cause of the reversal of the "sleep-wake" Was this to be explained on an organic basis or wa psychological phenomenon? In support of the view there were superadded to the organic conditions sym that were psychogenetic, there were the patients tremor dreams and night starts, feelings of infe and lack of self-confidence, and others, such as th mentioned by Dr. Hinds Howell, whose reactions typical of the psychoneuroses. It was with these before him that while doing everything to ameliora purely organic aspect Dr. Hardcastle was attackin psychological aspect by means of psycho-analysis.

DISCUSSION ON THE PROGNOSIS OF PSYCHOSES OCCURRI DURING ADOLESCENCE.

OPENING PAPER

BY

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THE prognosis of mental disorders occurring at the a cent period is a topic of tremendous magnitude and c reaching importance. It is only limited by the appli and meaning we give to the word "mental." Fo purposes of this paper, and in order to limit the s and keep the discussion within more or less well d limits, I have made an attempt to formulate my of prognosis in regard to those types of mental re which ordinarily are termed the dementia praecox While this is so, and although this paper deals esse with hospital cases, yet I trust my remarks may b as even more applicable to potential cases than t completely dissociated ones.

I do not know of any more tragic event tha occurrence of a mental disorder at the time of life the period of childhood training ceases, and life w its possibilities seems to be opening up. Until the de ment of mental symptoms the boy or girl affecte have shown a capacity for work, and an intelligen in advance of the average. On account of this, pa teachers, and friends have all predicted and looke ward to a bright and successful future, and in quence these symptoms, which in other circums might have given cause for uneasiness, are all to quently glozed over and explained away. It thus h that the early preventive period becomes lost. W not familiar with colleagues who up to a point have s

It is the weighing up of all points that produces the convinced diagnosis, and it is this diagnosis in an early case of mild small-pox that is at the same time both essential and difficult. A missed case (for the doctor is not always sent for) or an error in diagnosis is the usual and regretted beginning of epidemics, mild or severe.

There is no dividing line to be plainly seen between small-pox *sine eruptione*; mild small-pox, with one, two, ten, twenty, or a hundred lesions; severe, discrete, confluent small-pox, and the haemorrhagic forms of this disease.

The conjecture that there is a separate and distinct disease—alastrim—must be rejected. Leake and Force of the United States Public Health Service made certain experiments on rats and monkeys with material from cases of so-called alastrim in the West Indies. They found[1] that in monkeys a vesico-papular eruption was produced by inoculation of crusts or the contents of vesicles from such patients and that the animals were protected against re-inoculation with the virus or with vaccinia. Rats inoculated with alastrim did not develop an eruption, but became almost completely immune to vaccine virus. When intracutaneous inoculation is made with small-pox crusts, alastrim material, and vaccine virus in rats in the manner used in the Schick test for diphtheria, a reaction occurs. Rats previously inoculated with vaccine virus gave an intracutaneous reaction to small-pox crusts, alastrim material, and vaccine virus, but remained negative to chicken-pox crusts. They conclude that definite immunity to vaccinia is produced by previous inoculation with alastrim and that this affords additional evidence of the essential identity of alastrim with small-pox.

Taking an average of small-pox fatality for 276 cities in the United States of America and Canada, the rate has increased from 0.6 per cent. in 1920 to 5 per cent. in 1922, and at the present moment it would be unwise to presume that the mild type of small-pox as seen in Gloucester and the North of England will not revert in the future to the more fatal form of the disease.

I have endeavoured in this short article to bring out the fact that a definite diagnosis between these two diseases is at times extremely difficult. In the recent Gloucester epidemic the two diseases existed side by side in the same family; in such an instance a case of chicken-pox was admitted to hospital as one of small-pox. The patient, on recovery, was discharged from hospital, and a few days later passed through a typical prodromal history and developed a typical and profuse small-pox rash! The converse has also happened, a small-pox patient on discharge from hospital developing a typical chicken-pox eruption within a month of discharge.

Administrative measures for dealing with an epidemic of mild small-pox must at present remain the same as if we were dealing with the virulent type of the disease. One matter of paramount importance which should never be omitted where small-pox threatens is the provision of an observation ward where cases of doubt can be isolated. As stated before, a correct diagnosis can and should be made, and the number of cases for observation should be small.

REFERENCE.

[1] Report of U.S. Public Health Service, vol. 36, No. 25, June 24th, 1921.

CLINICAL NOTES OF FIFTY CASES OF SMALL-POX (1923).

BY

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IN the following notes of 50 consecutive cases occurring in West Gloucestershire, the main consideration has been to show on which of the classical diagnostic points reliance may be placed in the light of present experience, and especially to emphasize those points in which the current type of the disease differs from the classical. The cases are the first fifty admitted to the West Gloucestershire Small-pox Hospital during the present epidemic, and occurred between May and October, 1923. The first and several subsequent cases were imported from Gloucester; the remainder were contacts of earlier cases.

Of the 50 cases, 27 were males, 23 females; the youngest was 2 years of age; 2 belonged to the age-group 2 to 5 years, 9 to the group 5 to 10 years, 13 to group 10 to 15, 9 to group 15 to 20, 9 to group 20 to 30, and 8 were from 47 to 55 years. Forty-two were unvaccinated; the remaining 8 had been vaccinated in infancy and never re-vaccinated; the youngest vaccinated case was 23, and the next youngest 47 years old, so that none of the patients had been vaccinated within twenty-three years and only one within forty-seven years.

In type the cases were fairly clearly divided into a mild type (36 cases) and a semiconfluent type (14 cases). The mild type had a less severe prodromal illness, fewer spots, and a quicker convalescence. Some of these were very mild indeed, the prodromal illness being negligible and the rash confined to a very few spots on the face, wrists, or ankles. There can be no doubt that several cases of this kind passed unrecognized, so keeping up the epidemic; it was established beyond doubt that the mildest cases could hand on the disease in semiconfluent form to contacts. Previous vaccination did not appear to affect the type—of the 8 vaccinated cases 6 being of the mild and 2 of the semiconfluent type.

The semiconfluent type of case had a more severe prodromal illness, being in every case confined to bed, a profuse rash consisting of many hundreds of spots so that the features in the worst cases were quite unrecognizable, and usually a longer convalescence. In none of these cases was the constitutional disturbance at all so severe as one would have expected from so many pustulating vesicles.

One of the patients had been successfully vaccinated in the incubation period, four good vesicles forming; his subsequent illness was in no way different from that of the other mild cases. The remaining 49 were vaccinated on admission to hospital to confirm the diagnosis; immunity to vaccinia was complete in every case.

Incubation Period.—As a student, the writer was once asked by his chief on what day of the week the rash of small-pox most often appeared: the correct answer was "Sunday"—that is, fifteen days from the most likely day of infection under prevailing social conditions. Although difficult to establish with accuracy, this appears to have been about the interval in these cases.

Prodromal Period.—The onset being in the great majority of cases quite definite, it has been possible to define the length of this period with more accuracy and the result has failed altogether to confirm the four days universally described in textbooks. In three cases it was impossible to determine accurately the commencement of the disease; of the remaining 47 cases the rash appeared once on the second day, three times on the third day, twelve times on the fourth day, fourteen times on the fifth day, twelve times on the sixth day, four times on the seventh day, and once on the eighth day; in a certain number of cases, however, medical advice was not sought until the rash was well out, and it is possible that the rash may occasionally have been present a day before it was recognized by the patient's friends.

In the great majority of cases the prodromal illness was first diagnosed as a "chill" or "influenza"; two patients who had had pneumonia before complained of "pain like pneumonia but a little lower down"; one case was diagnosed "lumbago." Only four times was lumbar pain at all prominent, headache being the pain usually complained of. Initial vomiting occurred in 3 cases; there was no case of convulsions and no prodromal rash. Those cases which were under observation during this period had usually a temperature of from 100° to 103° F., which fell to normal when the rash appeared, and in quite a number of instances on the day previous to the rash. It was impossible to establish any relationship between the duration of this period and the severity of the subsequent disease.

The nature and distribution of the rash was very consistent in all cases, differing only in quantity. Appearing

to carry everything before them, and then suddenly have dropped out and been heard of no more?

The adolescent period, then, is an epoch in a person's life fraught with possibilities for good or evil development; it is a period of plasticity and elasticity, a time when good or bad habits are most easily cultivated, when a step is taken either in the right or wrong direction, and when adjustments and adaptations are most easily effected. Everyone who thinks about it realizes that life all through is a process of adjustment, a question of balancing aright the different forces in one's nature, but it has been less generally recognized that mental disorders of whatsoever nature can be studied in exactly the same way. An attack of what some people commonly call insanity is nothing more than a reaction of the central nervous system towards a definite difficulty either of physical or psychic origin. I feel that our attitude in regard to prognosis in general must be based very largely upon the views we hold regarding the mechanism of the disorder, and I wish very briefly to focus the discussion in the first place on some of the main ideas which have been expressed in regard to the evolvement of the adolescent psychoses.

Roughly, cases can be considered as physiologically determined and as arising on the basis of organic visceral disease, or else we can utilize the broader psycho-biological conception of adaptation and adjustment. In 1896 Kraepelin formulated his views, and on the basis of symptoms he differentiated the two large groups of manic-depressive psychosis and dementia praecox—the former carrying with it a good prognosis, and the latter a grave one. He, however, qualified this latter statement by asserting that upwards of 15 per cent. of his katatonic cases made a good recovery. In some ways this differentiation on the basis of symptoms into a prognostic-diagnostic grouping was a master stroke, because it at once stimulated the more careful analysis of the individual cases, and allowed groups of cases to be compared. Symptoms, however, are always very unsafe, and often are more or less arbitrary, depending on the setting in which they occur, so that a division of clinical groups on such a basis has tended to make the problem of prognosis and diagnosis too cut and dried, and although it is true that in general we may say manic-depressive is a benign reaction type, and dementia praecox a malignant one, yet most people with experience realize that there are considerable exceptions on either side. As a result of the above differentiation, the opinion gained ground that, irrespective of treatment, the manic-depressive cases would get better, and, on the other hand, that cases of the dementia praecox type were outside all therapeutic endeavour. Kraepelin's conception, then, although formulated in a very useful way, has been unfortunate, because it has tended to breed a pessimistic spirit, and not infrequently one has heard the question of treatment dismissed by the statement "Oh, he is a praecox."

In 1911 Bleuler—principally, it seems to me, on account of the fact that many cases showing a dementia praecox tended to become better—drifted away from the Kraepelinian nosology, and used the term "schizophrenia" to designate all cases of so-called functional brain disturbance, with the exception of typical manic-depressive cases. He laid it down that all such conditions as dementia praecox, paranoid states, hallucinoses, prison psychoses, and conditions which might simply be referred to as abnormalities of make-up, were due to one underlying disease process. Mott, of course, explains this on the basis of impaired functioning of the reproductive glands. Considering the wideness of the group described as schizophrenia by Bleuler, it is not to be wondered at that only approximately 22 per cent. show a severe grade of deterioration; but, in addition, he maintains that in the others there is always a certain residual defect which may only amount to a lack of insight. More recently, working from the same point of view, and apparently with very much the same type of case, McCarthy, in his discussion of dementia praecox and the adolescent psychoses from the organic visceral viewpoint as regards prognosis and therapy, divides his cases into the unfortunately termed groups of (*a*) degenerative, and (*b*) non-degenerative. The latter curable group is subdivided into:

(1) Those whose toxic factors were dependent on pulmonary disease at the first development period, leading to constitutional and endocrine disturbances at the adolescent period.

(2) The syphilitic group, when early acquired or inherited syphilis produces a similar reaction as in (1).

(3) Steadily progressive infections in the adolescent period, belonging in a general way to the focal infections, and leading to reactionary states in the endocrine field.

(4) Non-determined infections with thyroidal disturbances.

(5) Stress reactions in the moron group, due either to infection or overload, leading to a praecox syndrome.

McCarthy's work and results are based on cases seen in private practice, but he believes that a very large proportion (he does not give figures) of the cases of mental disorder occurring at the adolescent period get well, and he considers that the field of the psychoses of adolescence is much broader than is embraced by the terms "manic-depressive" and "dementia praecox."

Cotton and his co-workers at Trenton have been working on much the same principles, and on the basis of treating the condition from the point of view of focal infection they have reported from 60 to 80 per cent. of recoveries. The work of what might be termed the Trenton school has been adversely commented on by Kopeloff and Cheney, and, despite the glowing reports which have been published, the work done and the results accomplished must be accepted with considerable reservation. There is no doubt, however, that the attempt to benefit dementia praecox and adolescent conditions by stressing the existence of organic visceral disease is a side which demands attention and carries with it a certain hopefulness, but it is not entirely satisfying, and I do not believe that it is a complete explanation. I believe that a wider conception altogether is necessary, and although in every case we must keep in view the possibilities of focal infection, of endocrine disturbance from whatsoever cause, yet we must also attempt to estimate the psychic factors and to bring the illness into line with the personality as a whole. This viewpoint has, of course, been particularly emphasized and illuminated by Freud, Jung, and other workers belonging to the psycho-analytic school. They have shown that the varied forms of psychic disturbance in the way of hallucinations, delusions, and symbolical interpretations are based largely on complex factors which have not been in harmony with the individual's personality. I wish, however, particularly to draw attention to the dynamic psychological views of the American school, led by Meyer and his co-workers and pupils. Meyer has shown in his paper on the fundamental conceptions of dementia praecox that "the older symptomatic considerations have very largely failed to bring out the most vital factors." He has emphasized the importance of considering mental illness in terms not of clean-cut groups but of reaction types, and of attempting to understand the mechanism of the disorder. He has shown how every individual is capable of reacting to a very great variety of situations by a limited number of reaction types, which he has attempted to characterize.

"The full, wholesome, and complete reaction in any emergency or problem of activity is the final adjustment, complete or incomplete, but at any rate clearly planned, so as to give a feeling of satisfaction and completion. At other times there results merely an act of perplexity or an evasive substitution. Some of the reactions to emergencies or difficult situations are mere temporizing, attempts to tide over the difficulty, based on the hope that new interests crowd out what would be fruitless worry or disappointment; complete or incomplete forgetting is the most usual remedy of the results of failures, and just as inattention and distraction correct a tendency to overwork, so fault-finding with others, or imaginative thoughts, or praying, or other expedients, are relied upon to help over a disappointment, and, as a rule, successfully."

Now, acting on this conception, in every case an attempt should be made to size up how satisfactorily or unsatisfactorily the individual has met what was in front of him. In many cases the reactions no doubt may be modified, aggravated, or accentuated by physical factors; but such a method of approach means that every possible point of view is taken into consideration, and, furthermore, an attempt is made to modify whatever is harmful. If we look at our cases in this way, then we need not hesitate to diagnose such a patient as a dementia praecox type of reaction, for

always first on the face, it followed in a few hours on the arms and legs, with a few spots on the back; the chest and abdomen were nearly free, in many mild cases absolutely free, the picture so formed being very striking in its contrast to varicella; on the limbs the rash was always centrifugal. There was no succession of crops as in varicella, all the spots in a given part of the body being of the same age. The individual spots were in the deeper layers of the skin as opposed to the superficial vesicles of varicella, and passed through the classical stages on the face in about ten days; in the limbs much longer was required, unbroken pustules being often present after the face was clear; the last to clear up were always round the ankles and on the soles of the feet. A few of the largest spots were punctured and found to be unilocular; umbilication was frequent but not universal. So uniform was the rash in its essential features as regards both its nature and distribution that the diagnosis rarely gave any anxiety once the rash was well out.

Secondary rise of temperature occurred in all but one of the semiconfluent cases and in 10 of the mild cases—twenty-three times in all. It was invariably septic in type, and while it lasted patients always felt worse than during the early days of the rash, though usually not so ill as in the prodromal period. It commenced on the third or fourth day of the rash and lasted for one day only in 7 cases, for two days in 4 cases, for three days in 2 cases, for four days in 7 cases, and for five, six, and nine days in one case each. In only 10 cases did it exceed 100°, the highest recorded being 101.6°.

Conjunctivitis occurred during pustulation in 6 cases and appeared to be caused by pustules on the eyelids; arthritis of the knee occurred once during convalescence, in a man of 55 not previously subject to "rheumatism." There were no other complications; one case each of imperfectly compensated mitral disease and of six months' pregnancy were unaffected, both being cases of "mild" type.

Treatment was symptomatic only. From the period of scabbing onwards all patients were liberally treated with olive oil and hot baths; the nursing staff as well as the author were convinced that this materially shortened convalescence.

Duration of Infectivity.—After the scab had fallen off a purple scar remained, at first slightly raised; around its edge was often attached some dry skin, the remaining circumferential part of the skin originally covering the vesicle. Until this had disappeared from all the spots the patient was regarded as still infectious. The last part to clear was invariably the ankles and soles of the feet, and the process was completed within three weeks of the appearance of the rash in 23 cases; in 20 cases infection persisted to the fourth week, in 3 cases to the fifth, in 3 cases to the sixth, and once to the seventh week. Liberal applications of olive oil and hot baths materially assisted the removal of this dry skin; premature picking off of the scabs, on the other hand, delayed the process. The patients were discharged immediately at the end of this period and there were no "return cases"; the scars faded gradually in the course of several weeks after discharge and do not appear to have left any pitting.

Conclusions.

1. It is impossible to diagnose the present type of small-pox before the appearance of the rash.

2. Fall of temperature without appearance of rash in a suspected case does not immediately preclude the possibility of small-pox; nor does the non-appearance of rash on the fourth day.

3. The centrifugal distribution of the rash and its comparative absence on the chest, its depth in the skin, and the absence of successive crops are reliable guides in the differentiation from chicken-pox.

4. Successful vaccination performed after the disease has appeared excludes small-pox, but successful vaccination during the incubation period has no diagnostic value.

5. The protective value of recent vaccination is once more abundantly confirmed.

TWO CASES OF INTRA-ABDOMINAL HERNIA.

BY

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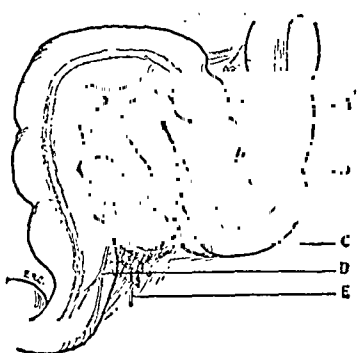
I.—HERNIA INTO THE INTERSIGMOID FOSSA.

THE intersigmoid fossa has been described by Treitz,[1] Waldeyer,[2] and Treves[3]; the mechanism of its formation, suggested by Toldt,[4] was confirmed by Moynihan.[5] Records of hernia into the fossa are very rare. Bryant,[6] Eve,[7] Eccles,[8] Coley,[9] Murphy,[10] Barnard,[11] Black,[12] and Marsh[13] relate or refer to cases, but, in some of these, particulars are wanting. There are no doubt others, overlooked, but the references have not been verified. Most of the cases were seen as "intestinal obstruction," without previous history of abdominal disorder; in one or two there was a history of attacks of constipation with left-sided abdominal pain.

The patient, aged 47, a man of fine physique, at the end of a journey from the Continent, was seized with sudden abdominal pain, at first in the right iliac region; later it spread across the whole lower abdomen, and he vomited. A few hours later he was seen by Dr. Cumming Grant, who found him collapsed. He had had an urgent desire for stool, which persisted although the bowels did not act, nor was flatus passed. At first he had micturated easily, but now had difficulty and pain. Vomiting recurred.

When seen by us the whole abdomen was distended, rigid, and tender, the greatest tenderness being in the left iliac fossa; there was no recognizable hyperaesthesia, nor could any "lump" be felt; the whole abdomen was slightly tympanitic. On rectal examination oedema of the mucosa was found high up and general fullness of the recto-vesical pouch, but no "lump" could be felt.



Intersigmoid Fossa. A, Approximate outline of sac behind descending mesocolon. B, Sigmoid branches. C, Mouth of pouch as distended by incarcerated gut. D, Superior haemorrhoidal artery. E, Approximate position of ureter.

The patient himself, although he had had no previous attack, felt sure he was suffering from appendicitis. Without dismissing that possibility, the abdomen was opened as for intestinal obstruction. On entering the pelvis the hand at once encountered an indefinite fixed fullness on the left posterior wall. Coils of small intestine of unequal calibre were seen passing towards this region, but not until the sigmoid had been drawn up and over to the right was the mass revealed. It proved to be incarcerated small gut behind or between the layers of the sigmoid mesocolon. The whole sigmoid and upper part of the rectum were markedly oedematous. The opening looked downwards and to the right. The intestine, 8 to 10 inches, was easily withdrawn and was clearly viable. The pouch admitted three fingers to their whole extent, and was directed upwards and to the left. The margin of the opening was rounded though oedematous, and the sigmoid artery, arching in the upper edge, coursed down the left rim. The ureter was not identified; the bifurcation of the iliac was below and slightly to the right. It was thought inadvisable to attempt any suturing of the opening; the sigmoid was turned down and its outer edge stitched to the abdominal wall as far down and to the left as possible.

Recovery was without incident.

II.—HERNIA THROUGH A DEFECT IN THE MESENTERY.

The anatomy of the aperture in the following case corresponds exactly with the description given by Treves.[14] Possibly the type may not be very rare, but records are certainly scarce. Howard Marsh[15] described one in 1888, and Barnard[16] mentions two, but both of them were traumatic. This case differed entirely from the two of deficiency of the last part of the mesentery recorded by Armstrong,[17] in that the terminal part of the ileum was quite free from attachment to the abdominal wall. There was no history of trauma in this instance. It seems probable that the attacks of pain were due to incarceration of a loop of gut.

A single woman, aged 31, one of twins, a patient of Dr. Garden, was admitted to the Westminster Hospital in May, 1923, having had attacks of "appendicitis." The first attack, in February, 1923, was

that will only draw attention to the fact that the individual has not reacted in an entirely satisfactory way, has either temporized or has shown some peculiarity or oddity of speech or conduct, but it does not necessarily follow that the prognosis is altogether bad. Hoch and Amsden in their studies of the personality have emphasized the same point of view, and they have shown how a candidate for such a condition as dementia praecox—the dementia praecox type—tends to get out of touch with reality, and to suffer from what has been aptly enough termed the shut-in personality. Such persons are asocial, lacking in aggressiveness, ultra-conscientious, diffident, prudish, and so on. If this argument is accepted, then your prognostic outlook will become entirely altered, in so far that one thing will not be stressed at the expense of another, but each case will be looked upon as exhibiting certain individual reactions which must be considered in relation to the personality, and all the factors—heredity, environment, temperament, toxic-infective agents—must be taken into account in all their bearings. We need not in future consider whether all psychoses at the adolescent period are manic-depressive or dementia praecox, but we must attempt the much more difficult matter of trying to understand the individual reaction type.

A medical student, 21 years old, on January 16th, 1922, was admitted to the Glasgow Royal Mental Hospital. His history, as obtained from his relatives, showed that for a number of months he had not been so well. In August, 1921, out of petty jealousy, he broke off a love affair, but the way he rationalized it was because he feared he might become like his father, who was suffering from paralysis agitans. In September, when examined for life insurance, he was told that one of his heart valves was not quite right. Following this he began to worry, feared that he might become mentally affected, and in October, when the winter session started, he complained of his head buzzing, could not concentrate nor apply himself to his lectures. As a result he gave up his studies, grieved about his prospects, thought that he might have to become a tramp, because he was not fit for anything else. A few days previous to his admission to this hospital he became excited and elated, showed a certain number of clang associations, but, on the whole, his vocabulary was limited, and he tended to repeat such phrases as "I am the only man in the world." Later this excitement became more marked; he tried to injure himself, and attacked the nurses by biting and striking. Following his admission, his condition was one of great excitement, the principal element being pressure of speech, interrupted from time to time by response to auditory or visual hallucinations, or by some impulsive act, which may have also been in response to hallucinations. His talk centred on a few themes, principally his health, the girl he loved, and his own accomplishments. He said, "I am on the stage. I am not Martin Harvey—Martin Harvey says I have no heart. Look at my heart, doctor, and see if I have one. It is a far, far better thing I do now," etc. At another time he talked of mesmerism, of his will-power, how he was going to buy a two-seater car, a house of his own, marry the girl of his heart, that he was a doctor, and had qualified when he was 21 years old. During his residence he continued for a period of time to be impulsive, to have spells of attitudinizing, of being negativistic, of not reacting to painful stimuli. Gradually, however, his interests were developed, he took part in what was going on, and, on the surface, made a fair recovery, although he never did acquire satisfactory insight.

An analysis of the family situation showed that there was a hereditary predisposition on both sides, and his brothers and sisters were all of a high-strung, neurotic type. His relatives described him as a normal, healthy boy, who did well at school, and, in addition, made friends, was excellent at games such as golf, tennis, cricket, and football. A friend, however, threw light on his case by emphasizing his shy, bashful, retiring nature, his silence in company, his reserved, solitary disposition, and the girl whom he was in love with is supposed to have encouraged him more out of pity for his solitariness than for any other reason.

The hereditary and constitutional and developmental factors, along with (*a*) his failure in his medical studies, (*b*) his father's illness, and his intimate companionship, (*c*) his refusal by the insurance doctor, and (*d*) his love affair, seem to have been the principal etiological factors. There was no evidence whatsoever of any abnormal organic bodily or toxic state.

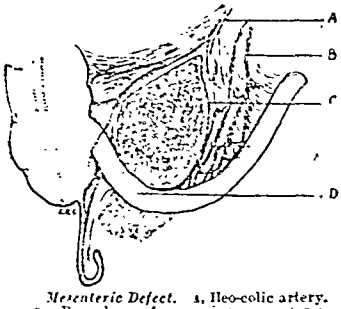
His illness must, therefore, be looked upon as a faulty mode of reaction to a set of definite circumstances. It started with a petty jealousy because the girl in whom he was interested went out to golf with another fellow. In response, a feeling of inferiority and depression developed, and in consequence of this he became convinced that his life had been a failure; he wanted to die, he made actual attempts on his life, and later he attempted to compensate by expressing religious ideas, and identified himself with Jock Troup, the revivalist. Finally, there was a definite regression to an infantile, dream-like state, during which all his hopes were realized—he had a motor car, a home, Ada, and himself a doctor, who had qualified at the age of 21.

Taking all these facts into consideration, particularly the acute onset, the fact that despite a somewhat shut-in type of personality and ominous symptoms, he had had healthy outside interests, I felt that a good prognosis was justified, and if the etiological factors were kept closely in mind that a readjustment could be brought about. The result justified this, because although he did not acquire insight, yet his compensatory mechanism was built up, his interests were developed, and his concentration and application have so far recovered that he has been able to start engineering.

Another case is that of a school teacher, who had always been shy and retiring, very sensitive, and ultra-conscientious. She was too serious-minded, had great ambition in regard to making herself a success at her work, and was essentially a "plodder" rather than an imaginative, romantic person. Her life was devoted entirely to her work, she had no hobbies, no outside interests, was afraid of boys. She was greatly interested in religious matters, and at one time wished to be a missionary. Her illness dated back for two years previous to admission to hospital, and is supposed to have been the result of a very heavy class, with arduous work and much preparation. She seemed tired, became more solitary, did not make any spontaneous remarks, would sit by the fire doing nothing. In June, 1920, about six months previous to admission, her great friend, a teacher, died suddenly. The patient had been greatly attached to her, and was so upset by her death that she was given leave from school for a period of two weeks. She herself had often spoken of her friend's words as being "like food to her." Since that time she was never quite the same. She felt that her soul was dead, that God had departed from her. On one occasion she woke suddenly, complaining of "feeling funny," said that there was "something there," pointing over her left breast. She gradually became more dull, unstable, tense, and frightened. Her dullness increased, she had crying and excitable spells, said that someone within her was speaking, but there was no history of any actual hallucinations. The patient complained of being depressed, and had peculiar bodily sensations, such as that her brain was tired out, that she had no initiative, that she could not interest herself nor start an idea. On account of this, and on account of the fact that she was off school for short periods of time, she began to wonder whether the other teachers were not adversely criticizing her, whether her head was changed, her brain so affected that she might become insane, her personality different from what it used to be. Then a vague, dreamy kind of state developed, in which she felt that she "could go on walking and walking quite indefinitely, and never get tired"; but at other times a fear seemed to take possession of her, and she said, "Terrible moods come over me—it is in the nature of a fear. I don't know how to change them." This, she thought, must be due to her evil life; she should have had more interests; she should have thought more of her people; she had been too proud; she had avoided and despised her father—she felt ashamed of him because he spoke so loudly, and for a time she was afraid that he might go insane when he was worried over business affairs. In talking about the past, she told about how at times she felt that someone was laughing at her: "It was like torture; it is too late now to change—something in me seems quite dead; everything seems different. I feel as if my soul was quite dead because I am so wicked. I have no love for anyone; all my feelings are wrong—jealousy and things like that. I see everybody living, and I feel that life is gone." Her physical condition was poor. She was a pale, thin, sallow-complexioned young woman, with slightly prominent eyeballs. Her heart was slightly enlarged, and her pulse rate was 120. There was no tremor of her hands, and no enlargement of her thyroid gland. During her stay in the hospital she was able to give a very good account of herself, and described in detail the etiological factors. She felt that her work had been overmuch for her, and on account of this she lost interest. She wanted to be left alone, thought she was wicked. She also spoke about the death of her friend, and described this friend as a strong, self-reliant type of lady, just the very opposite to what she herself was. It was only a week or two after this lady's death that the patient felt so much worse. "I feel as if it was my head that was strange—as if the life were dying out of me—not out of my body, but somewhere else." It was following this that she experienced not a fear of death, but a wish to die, because it was "all such dreadful misery." Her illness, she felt, was not an illness in the real sense of the word, but it was more a defect of conscience; she said, "I am going on getting worse and worse, wickeder and wickeder. It is all inside me—I should have been worried—but I have no kind feelings."

The case was one in which we had to take into consideration (1) the hereditary factors, (2) her poor bodily health, (3) her difficult school work, and (4) the death of her friend, to whom she had been greatly attached. In such a case some people might emphasize the psychogenic factors, others the hereditary, or environmental, or exhaustive elements; but if we regard the case as a whole we at once see that the symptoms are merely the individual's way of reacting towards all of them, and we will be able to think of the case in terms of a biological reaction; furthermore, we will be able to work with it in an understanding way, so that her various interests can be built up. Again, if the case were to be considered merely for the purpose of grouping, one person might emphasize the depressive factors, and think of it in terms of a manic-depressive reaction type, while another person might emphasize the ideas of reference and the feelings of un-

accompanied by abdominal pain, a dull aching across the belly above the umbilicus, shooting down into the right iliac fossa and right loin. There was nausea but no vomiting. Micturition was normal; the attack lasted twenty-four hours. There were recurrent attacks in March and April; the former lasted two days; in the latter, which coincided with the onset of a menstrual period, the pain was very severe, and continued intermittently until admission on May 19th. The diagnosis was "appendicitis." The patient was said to have suffered from "gastric ulceration" in 1913 and "gastric influenza" in 1921.



Mesenteric Defect. A, Ileo-colic artery. B, Branches of superior mesenteric. C, Edge of gap held widely open. D, "Free" part of ileum.

Examination on admission disclosed nothing beyond rigidity in the right iliac region, tenderness over the caecum on deep palpation and high up on the right wall of the rectum; there was slight but definite hyperaesthesia in the right lower quadrant of the abdominal wall. The temperature was 98.6°, pulse 90.

At operation the appendix was found, 5 inches long, with a definite kink; the superficial vessels were injected, but there were no adhesions. On further examination a defect was found in the mesentery of the terminal part of the ileum. The slit-like aperture was about 5 inches long; the edges could be freely separated, and then allowed passage to all the fingers and palm; the margins were firm, smooth, slightly thickened, and opaque. Surrounding the defect was an arcade between the ileo-colic artery and a terminal branch of the superior mesenteric. A loop of small intestine, 6 to 8 inches long, passed with its mesentery through the opening; it was withdrawn with but little difficulty. There were no signs of previous inflammation in the region. The margins of the aperture were approximated by a continuous suture. Recovery was without incident.

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British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

HENRY DEVINE, O.B.E., M.D., F.R.C.P., President.

DISCUSSION ON THE SEQUELAE OF LETHARGIC ENCEPHALITIS.

OPENING PAPER

BY

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ALTHOUGH only about five years have elapsed since lethargic encephalitis was first recognized in this country, we have become so familiar with the ravages caused by this disease that the consideration of its sequelae can hardly fail to prove interesting and instructive. In opening this discussion it is perhaps desirable to define as far as possible the meaning of the term "sequelae" as applied to encephalitis. This in itself is no easy task because the active phase of the disease has little uniformity in regard to its features, its severity, or its length. It is often difficult, therefore, to separate the primary results of the inflammatory process from signs and symptoms which appear at a time when the inflammation of the cerebral tissues may be presumed to have died away.

For the purpose of this discussion it may be convenient to regard as sequelae (1) those disorders of function which appear for the first time after the disease has spent itself, and (2) progressive alterations in defects of function which have been left as more or less permanent legacies of the disease. A good example of the first category is epilepsy and of the second is the progressive intensification of the Parkinsonian syndrome already inaugurated during the acute phase. The acceptance of these two classes of sequelae can be justified on the plea that the pathological process underlying either is sufficiently obscure to warrant our closest inspection.

The interest of our discussion is likely to lie in three directions. In the first place we shall be glad to learn from one another of the varieties of sequelae which have been met with, their relative frequency and their relationship to the features of the primary disease. Further light on this subject would be invaluable in regard to the question of prognosis. In the second place we can exchange views as to the nature of the changes in the cerebro-spinal system responsible for those defects of function which we include in our definition of "sequelae." This is a pathological problem of fundamental importance. Finally, we shall welcome the opportunity of acquiring any information which may be available in respect to the prevention or cure of these distressing disabilities.

It is more than probable that our list of sequelae, already long, will be added to from time to time, seeing that every function of the central nervous system may be affected by the disease. I shall be content to draw your attention to those phenomena which are common and to those which may have some special interest.

Mental Sequelae.

When the relatives of a patient suffering from encephalitis are told that his brain is inflamed their first concern is the mental state of the victim in the event of his surviving the disease. An answer to this question must always be carefully guarded, as experience has taught us that encephalitis may leave in its train many defects of function on the part of the higher centres varying greatly both in regard to severity and duration. From a practical point of view it is well to warn relatives, and often the patient himself during convalescence, that, however slight and transient the active phase of this disease, it is apt to leave the nervous system very much below par for many months and sometimes for years.

In simple cases the patient may complain only of those symptoms which we associate with the term "nervous exhaustion" and which include lack of energy, of concentration and decision, depression, restlessness, and insomnia. Unless the warning note is sounded children are sent back to school and adults return to business long before they are fit for work, and sometimes with disastrous results. Knowing what we do of the pathology of the disease, it is folly to expect such a delicate piece of machinery as the human brain to recover its normal functions unless it is given ample time for rest and recreation.

Fortunately mental changes are not more severe than this in the majority of cases. But there are other patients in whom the disease initiates a complete alteration of mental capacity or a revolutionary change in behaviour and adaptation.

A woman developed an acute attack of delusional insanity lasting for a fortnight about two months after recovering from encephalitis. Another woman displayed for many months a mental attitude which was quite at variance with her normal personality. She was boastful, conceited, lacking in reserve, and loquacious. Curiously enough she recognized and deplored her tendencies, although unable to control them. Perhaps the most common and most tragic cases of mental deterioration are seen amongst children.

reality—for example, the feeling of depersonalization—and thus the symptomatology of conditions such as dementia praecox might be thought of. The important thing, however, not only from the point of view of diagnosis but also from that of psychosis, is to realize that here we had a case who had certain constitutional difficulties, but, in addition, had been an individual with good potentialities in her constitution, and who up till a certain period of time had been able to meet whatever lay in front of her. The point which I would therefore emphasize is that, irrespective altogether of symptoms, we here have an individual with sufficient good stuff to enable her with encouragement and help to react satisfactorily to her illness. This she did, and in the course of a few weeks she made a good recovery. The case, however, shows in addition, very clearly, the difficulties which were actually present in her life, her inadequate reactions and her subsequent failure, so that a psychosis developed. It also brought to light certain definite trends—for instance, her attitude towards her father, and her attitude towards her teacher friend—and it shows how the symptoms were merely an indication of the struggles of development; the probability is that the instinctive forces in her nature had never developed beyond the homosexual stage. The prognosis in such a case, therefore, must depend on elucidating the etiological factors, on building up the personality, and on the constitutional adaptability of the individual.

A young woman, perhaps rather past the adolescent period, 23 years old, was admitted to this hospital in June, 1922, in a state of great emotional excitement, expressing ideas of great wickedness and crimes, which were known to be delusions. She stated that she wished to kill herself, that she had tried to do so, but had failed in courage; she wished to kill her mother and the rest of the family. Among other things, she stated that the Almighty had visited her with a dreadful affliction, that her bowels were burnt out, but that there had been no physical or mental pain. The patient was a twin, but had been a hardy healthy child, who had developed in a perfectly normal way, and had always been keen and anxious to outstrip her companions. At school she was very clever, and after leaving qualified herself for the position of a post-office clerk, later becoming a telegraphist and sorting clerk. She was graded first class. In regard to her work, she tended to be over-conscientious, and constantly blamed herself for not doing better than she had actually done. She was a bright, sociable girl who had many friends, who took an interest in most things that went on, and who showed no particular nervous traits. She belonged to the sect of Plymouth Brethren, was keenly interested in religious work, and studied theological books. Following a period of physical illness, she became somewhat duller, did not talk quite so freely, and things seemed to be a burden to her. About this time the Peel case was receiving a great deal of publicity, and the patient took herself to task in regard to timing certain telegrams. She stated that one day a "bookie" had handed in a bunch of wires, asking her to time them at once. She refused to time them until he had stamped them, and then she took her time from the office clock, as was customary. When she went to the machine clock, however, she found that the office clock was two minutes fast, and on account of this she now says that she did the bookie a wrong turn in not timing his wires by the instrument clock. Apart from this idea, she became obsessed with a feeling that she was immoral, and threatened not only to injure herself, but to kill her mother and her brother. Another point which should be emphasized in connexion with this illness was the fact that for a considerable period of time she had been troubled with dysmenorrhoea, and also with sleeplessness, so that latterly she was only sleeping for about two hours every night. There was, perhaps, as well, a somewhat unusual attachment to her father, and a very definite antagonism towards her mother. A physical examination showed that she was a very thin, poorly nourished girl, who had numerous bruises over her body. She had a high, arched palate, and projecting teeth. There was, however, no definite disorder of her general system. During the first part of her hospital residence she was very distressed and emotional, was constantly talking about the "awful girl" she was, and what a trouble and worry she would be to the nurses who had to look after her. She was perfectly clear and connected, talked about herself being a depraved person, and related episodes when she had lost her temper with her mother and struck her. In investigating her life-history, she gave a history of auto-erotic habits which had been practised ever since her school years. She described also episodes between her parents which she had witnessed when four years old, and how these episodes had made a lasting impression on her, even although at the time she had not understood them. There were various other sexual traumata which made a very definite impression on her, and which she had attempted always to repress and forget. When her mother knew of her difficulties, instead of helping her, she became angry with her, and did her best to knock such ideas and feelings out of her daughter by terrifying her with threats of eternal punishment, and by herself ill-using her. On account of all this she felt that there was no possible hope for her, that there was not a God, that the only thing that kept her from destroying herself was the knowledge that when she died she would go to a worse hell, and that her name would go down to posterity as "that girl H—who lived in Gartnavel." She asked to be put into a straight-jacket, and placed in the deepest dungeon. Apart from this condition of great emotional depression, there were no special psychotic symptoms; there was no evidence of any hallucinatory phenomena, and the ideas which she expressed were more or less in harmony with her mood. Perhaps also one might emphasize the fact that when she was 17 or 18 years old she had an affair with a boy who also belonged to the sect of the Plymouth Brethren. She stated how she had despised him because she had fancied he was beneath her socially, and often she was ashamed of being seen in his company. During the course of eight or nine weeks this patient was able to readjust herself, and has resumed work in the post-office.

A case such as this again brings forward very strongly the biological viewpoint, and makes one think in terms of a life-history, and much less in terms of symptomatology. Indeed, if one had to think of the symptoms in such a case—of a depression with both suicidal and homicidal impulses, with self-accusatory ideas in regard to her sex life and her misdemeanours in general, occurring in a setting of relative clearness—the general tendency would be to regard such a type of illness as likely to run a very prolonged course, and to give, to say the least of it, a very guarded prognosis. If, however, one thinks of it in terms of etiology and of reaction to actual difficult situations, then one comes to realize that here one was dealing with a girl who up to a certain point had shown capabilities of a very exceptional degree, who had been a leader among her friends, and had been beyond the average in general intelligence. Following a period of ill health we have a reaction characterized by various psychotic symptoms which have dealt with, and been related to, the disordered instincts of her life, and which have not been met either in a healthy way by herself, or been benefited by her mother's treatment of her. I would therefore again emphasize in connexion with this case that our prognosis should not, and must not, depend on the symptoms or on classification, but it should be brought into close relation with the etiological factors and the life-history.

In contrast to the above cases I would like, very briefly, to report three further cases, which bring into prominence the consideration of exogenous factors as opposed to constitutional ones.

A young man, in the early twenties, who had a history of joining the army when he was 16 years old. He served both at home and abroad during a period of five and a half years, and was very severely strained on more than one occasion. On resuming civil life he entered the university to take his B.Sc. degree for engineering. A few months later he began to feel that one of the professors was making pointed remarks which he referred to himself. This was the basis for the beginning of ideas of persecution, which culminated in his making a written statement to the police, not only detailing the methods by which he was being persecuted, but threatening that he would take the law into his own hands. His attitude was so suspicious, and his general emotional condition was so tense, that he was examined by a mental specialist and admitted to the reception wards. Later he was transferred to one of the parochial institutions, where he had a history of being very violent and impulsive, of threatening those about him, of saying that he would murder one of the attendants if the opportunity ever came his way. On admission to this hospital, his condition was similar to what has been described. He was very tense and suspicious, and for a period of time following his admission he made many determined attempts to escape. On more than one occasion he used extreme violence, and was sullen and threatening in his whole demeanour. He would not admit that he was mentally ill, but on the other hand maintained that he was perfectly well, and that his detention in the hospital, and the strict observation under which he was kept, had influenced and determined his behaviour. He maintained that his suspicions were correct, and could not be induced to believe that they were the result of a disordered method of thinking. This patient did not show any very marked constitutional symptoms; he was described as always very serious-minded, perhaps above the average in general intelligence, but, in addition, sensitive and secretive in that he did not confide particularly in anyone. He was, however, many-sided in his interests, and had always taken a prominent part in games as well as in his intellectual studies.

A case somewhat similar is that of a medical student in his final year, who after attending a meeting of representatives of the different Scottish universities developed the idea that he was marked out for some very important position, and identified himself both with Lloyd George and with Michael Collins. In addition, he formed an attachment to a very wealthy girl, and in the midst of his studies he developed the idea that a distinguished alienist in a neighbouring university was exerting his influence to prevent him from becoming engaged to this lady. As a result of his ideas he

Bright, well behaved individuals before the illness, subsequently lose most of their moral sense and become quite ungovernable either at home or at school. A particular group of them display somnolence during the day and restless uncontrollable excitement at night. A few children show a progressive mental deterioration, sometimes, but not always, associated with epilepsy. Severe paroxysmal headaches are not uncommon in patients who continue to exhibit attacks of drowsiness and a progressive impairment of intelligence.

Involuntary Movements.

Much has been written about involuntary movements in encephalitis. They may occur during the acute phase or may make their first appearance weeks or months later. They may involve any muscular territory and vary from rhythmical twitches of one or two muscles to complicated and more or less co-ordinated movements of a limb. Speaking generally, these muscular spasms occur chiefly when the patient is at rest and unoccupied, voluntary activity apparently being able to inhibit temporarily the involuntary disorderliness. I need not detain you with any further description of these movements, but should like to refer to one case in which the muscular spasms had features of interest.

In December, 1920, I saw a man, 45 years of age, whose illness had commenced three weeks earlier with intense pain and hyperaesthesia over the right side of the scalp. This was followed a few days later by fever, drowsiness, diplopia, and left-sided ptosis. When I saw him his temperature was 102°, he was difficult to rouse, and when roused quite disorientated. His pupils were small and sluggish in their reaction to light. Ptosis was more marked on the left side. He displayed clonic contractions of various muscles, particularly the left external oblique, the right pectoral, and the flexors of the fingers of both hands. The abdominal reflexes were absent, jerks present, right plantar response extensor, left flexor. He recovered from the acute phase of his illness in a few weeks and in the latter part of March, 1921, came to see me at my house. He then felt well in himself, but complained of pain on the radial side of the right arm and along the ulnar border of the left. On examination his pupils responded badly to accommodation and power of convergence was defective. The right face and arm were slightly weaker than the left. When stripped he displayed rhythmical contractions of the right deltoid, pectoral, latissimus dorsi, biceps and pronator radii teres and of the left pectoral and latissimus dorsi. The number of muscles involved varied with the position of the patient. Most were in action when lying relaxed on the couch, fewest when upright and walking about. The muscular contractions were quite regular and careful observation showed that their frequency corresponded to the pulse rate—about 72 to the minute. Three months later the spasms were much diminished in severity and in distribution, but were still regular and in time relationship with the heart beat. As far as I know this relationship has not been recorded, although Dr. A. J. Hall, in his interesting Lumleian lectures, refers to the fact that involuntary movements synchronizing with respiration have been observed.

More information is required in regard to the duration of these involuntary movements. I have seen them disappear in a few months, and I have seen them last five years, but as far as my experience goes the general tendency is in the direction of improvement as time goes on.

The Parkinsonian Syndrome.

This is one of the commonest sequelae of encephalitis. It may develop in an intense form early in the disease, gradually become less marked, and never show any signs of progress. The first case of this kind was one which I reported in 1918. The patient was then completely disabled but he gradually recovered sufficiently to get back to his work, which he is still following in spite of the fact that he is 59 years of age. Not unnaturally one was at first inclined to regard the prognosis in these cases as favourable. Further experience has shown, however, that this is not by any means the invariable rule, and most of us must have seen patients whose symptoms and physical signs have become steadily intensified and whose disablement has become gradually more and more complete. On the other hand, there appears to be a middle group of cases in which the amount of disability tends after a while to become stationary, especially if the conditions of life are favourable. Youth does not seem to be a factor of much advantage in this relationship as my younger patients have certainly not done better than their seniors.

Respiratory Disorders.

Various disorders in the nervous mechanism of respiration have been recorded in the literature of encephalitis. One of my patients, a young subject with a progressive Parkinsonian syndrome, complained of shortness of breath which came on in attacks for no apparent reason. Under observation it appeared to me that from time to time involuntary respiration was replaced by voluntary and exaggerated breathing, but whether this was induced by failure of the involuntary mechanism it was impossible to determine.

Hiccup and Vomiting.

Spasmodic contractions of the diaphragm giving rise to hiccup are frequent complications of encephalitis, and may persist as sequelae for many months after the acute illness. Not infrequently they recur at intervals when the patient is tired or under stress. Attacks of vomiting are much less common and may be unaccompanied by any feeling of nausea.

Optic Neuritis.

Slight papilloedema is not infrequent in severe cases during the height of the disease, but Foster Kennedy has drawn attention to the occasional occurrence of severe optic neuritis as a late symptom in convalescing patients. I have recently observed optic neuritis in a young woman who developed the complication when headache, drowsiness, and other symptoms were disappearing. It persisted for many weeks and was associated with paroxysms of transient amblyopia lasting for a few minutes. When last seen the patient was well in all other respects and the papilloedema was decreasing in intensity.

Lethargy.

In some cases lethargy may be regarded as a sequela, although there is little doubt that recrudescences of the active disease are sometimes responsible for its late appearance. I have seen several patients in whom lethargy has been a marked feature of the primary illness, who have made sufficiently good recoveries to allow of their taking up active life and who have still recurrent attacks of sleepiness, sometimes associated with headache. In this group there is nothing clinically to suggest a recrudescence of the cerebral inflammation, and I am inclined to think that the drowsiness has a mechanical basis—in other words, that the patients are suffering from a mild degree of hydrocephalus.

The Pathogenesis of Sequelae.

It must be conceded, I think, that all the sequelae of encephalitis cannot be attributed to recurrent attacks of cerebral inflammation, although there is experimental evidence to show that the tissues of the brain shelter an active virus for many months after the primary infection. Encephalitis lethargica is alone among the encephalitides in being characterized by the frequency and disabling effects of sequelae, and we must study the morbid anatomy of the disease to obtain any enlightenment as to their origin. It is now generally recognized that vascular accidents of great severity are more common in this form of encephalitis than in others, and many of the symptoms of the acute phase are produced by large haemorrhages, thromboses, and infarctions. Moreover, many observers have now recorded remarkable changes in the vessels of the brain, both in patients who have died during the acute stage and in others who have survived for many months. These changes have consisted of hyaline and calcareous degeneration of the vessel walls, chiefly involving the media and adventitia. It is obvious that such a process must interfere with the circulatory function of the vessels and sooner or later lead to defective nutrition of the tissues. This defect need not necessarily involve necrosis, but it is not unreasonable to

wrote a threatening letter, saying that unless this influence was removed he would take steps to carry out his threats. He did actually make an assault on one of the university lecturers. This condition had arisen in a boy who had many-sided activities, who up to a certain point had developed in a very efficient and satisfactory way, and who had served in the army during the period of the war years. The constitutional element in his case likewise was not of very great importance.

A third case, somewhat different, but showing again the same train of symptoms, is that of a young man who suffered severely from auditory hallucinations, on account of which his conduct was impulsive, and dangerous to himself and to others. During a period of residence in another hospital he made various definite attempts to mutilate and harm himself. In this case likewise the constitutional symptoms, although present in a mild degree in the form of shyness and sensitiveness, had not been particularly well marked, but the condition seemed largely to have evolved from the stress and strain of war service. There were other elements in the case as well, which would take me too long to mention.

I think these last three cases which I have mentioned may be considered for the moment together. They all—as opposed to the cases already reported—show a severe and serious group of psychotic symptoms developing in youths at the adolescent period. The nature of the symptoms is such that at first one would be inclined to give a very grave and serious prognosis, but if we put these cases on a different basis, and consider them in the light of the life-history of the individual, and think of them as reactions to the very definite periods of strain in each of their lives, then the outlook becomes to a certain extent modified.

During the war years I reported a group of cases which I termed "the dementia praecox type of reaction occurring in soldiers," and I maintained at that time that such cases occurring in ordinary civil practice would at once have carried with them an ominous outlook; but the striking thing was that as a general rule they reacted very quickly to hospital treatment, and made better adjustments than at first sight seemed possible. This, I believe, was due to the fact that in war time cases occurred at a more superficial level, and, furthermore, were detected early. I hold that these three cases which I have merely mentioned bring up the same viewpoint. They are cases which most people would readily group as being in the nature of a dementia praecox reaction type, but the important thing is that they have all evolved in response essentially to exogenous factors. I would therefore maintain that, irrespective of their present symptoms, each of these cases has a potentiality to react in a much more favourable way than at first glance might be thought. I believe that the prognosis of the psychoses occurring at the adolescent period, whether of the manic-depressive, dementia praecox, or the undiagnosed group, depends very largely upon whether one can demonstrate or not constitutional anomalies during the period of their development. If the constitutional anomalies, in the way of changes in their temperament, are particularly well marked, then I do believe that the prognosis is a very different thing, and a very much graver thing, than it is in these cases where one can point to more definite exogenous factors as being responsible. In the latter group, those cases which may in one or other particular show some constitutional involvement, but where the outside interests have been more prominent the prognosis is infinitely better.

All these three cases which I have mentioned are at the present time adapting themselves in satisfactory ways, and the difficulties that have been mentioned in dealing with them are not now prominent. One of the factors which I believe has been largely instrumental has been the development of their occupational activities. I realize risks—considerable risks—have been taken in all of these cases, but the end has justified the means. Each of them has been steadily employed in occupational work of a varied and interesting kind, and their outlook has been so modified that instead of being difficult and refractory people to deal with they have become quiet and bidable, and have acquired a control over themselves and an adaptability towards the general situation which at first sight had seemed impossible to attain. I therefore believe that although these cases may not make an entire recovery in the medical sense of the word, although they may not gain complete insight into the actual nature of the illness, each of them may even yet make a social—in contradistinction to a medical—recovery. By this I mean that their interests may be so far developed that they will learn the value of keeping themselves in hand, and, provided their after-life can be so arranged as to be free from any great anxiety or strain, there is no reason why they should not continue to maintain good health over an extended period of time.

This biological way of looking upon mental illness, whether or not it occurs at the adolescent period, will alter one's hopefulness towards one's cases considerably, and on that account alone it will allow medical officers to tackle these problems of mental illness occurring at the adolescent period with much more enthusiasm than previously, and, in consequence, our recovery rates will be influenced to a very much greater extent. It is not merely a question of eradicating focal infections, of attempting to establish the endocrine balance, of developing occupational interests, or of analysing the psychogenesis of the disorder; but the important thing is to keep an open mind in regard to all of these factors, to estimate how one has dovetailed into the other, and above all to realize that very often the prognosis will depend on the intensity and individuality of the treatment.

In addition, there is no doubt at all that if cases come under observation and treatment early in the course of the disorder the prognosis is infinitely better than it would otherwise be. The trend of public opinion is in that direction. The establishment of out-patient departments and psychiatric clinics is gradually being brought to pass, and these agencies, along with more enlightened methods of treating our mental cases, and with the spread of the knowledge of the principles of mental hygiene, should gradually enable us to take a more hopeful view in regard to so-called functional brain disorder.

Summary.

The above remarks may be summarized in the following paragraphs:

1. The adolescent period is such a critical one that parents, doctors, teachers, and all those interested in the training and development of children, should constantly be on the alert for changes in character and behaviour which possibly might indicate the beginning of a serious form of mental illness.

2. The formal differentiation of mental disorders occurring at the adolescent period into prognostic-diagnostic groups was a great advance on previous work, but further experience showed that differentiation on the basis of symptoms was unsafe.

3. The attempt to treat such cases from the organic, visceral, and toxic side has met with a fair measure of success, and has stimulated research work, but there are still many cases which are outside the scope of such therapy.

4. The psychobiological conception is the most satisfying one, not only because it means an investigation of all those factors which have tended to produce the disorder, but also because it emphasizes the importance of working with whatever material is at hand, and of attempting to modify it.

5. Cases are reported which illustrate the above conception, and which show that the symptoms must always be considered in the light of the personality; other cases are reported which emphasize the importance of attempting to differentiate between what is constitutional and what is exogenous.

6. A grave prognosis is indicated in those cases which have shown well marked constitutional abnormalities, but there are many cases which, irrespective of constitutional defects, have sufficiently developed their outside interests to enable them, under the best conditions, to satisfactorily readjust; the prognosis in cases which have developed on an exogenous basis is infinitely better.

7. A complete recovery with good insight in cases of the dementia praecox reaction type is comparatively infrequent, but a social, as opposed to a medical, recovery takes place more frequently than is generally recognized.

suppose that the blood supply to the nervous elements in territories where the vessels have undergone these changes is of an unreliable description. In this connexion I would remind you of the myoclonia with pulse rate rhythm to which reference has already been made. Moreover, it is comprehensible that tissues exposed to such a precarious source of nutrition should gradually lose their functional activity and so give rise to symptoms of progressive deterioration such as are recognized clinically in various ways.

It is difficult to avoid the conclusion that in encephalitis lethargica the virus has a specific affinity for vascular structures and that the resulting inflammation leads in some cases to temporary and in others to permanent interference with the blood supply of the tissues. If this is allowed it is not difficult to understand that certain areas of the brain may display a transient or progressive defect of function. Some observers have found that these vascular changes are more common and more pronounced in the basal ganglia than elsewhere, thus providing an explanation of the frequency with which the Parkinsonian picture is met with as a sequela. The problem of involuntary movements is not so easy as it involves the question whether they can be regarded as the product of irritative stimulation or of the unopposed activity of particular nervous centres. The solution of this problem cannot yet be stated with any degree of certainty, but I would remind you that an artificial anaemia of the cerebral cortex may give rise to involuntary clonic movements.

But there are other sequelae which cannot be attributed to vascular deficiencies. I have always regarded the lethargy of encephalitis with its remarkable fluctuations as impossible to understand except as the result of mechanical interference with the drainage of cerebro-spinal fluid from the third and lateral ventricles. In the active phase of the disease this may be explained by the inflammation and oedema of the tissues around the aqueduct of Sylvius. When lethargy appears as a recurrent sequela it may be justifiable to regard it as evidence of imperfect drainage of the ventricles due to scarring of the periaqueductal tissues. I am aware that there are other theories in regard to the origin of lethargy. The suggestion that it is a symptom of defective pituitary function and therefore associated with other evidences of hypopituitarism sometimes observed to follow encephalitis is interesting and worthy of consideration. Hitherto there has been no definite anatomical evidence that the hypophysis is often implicated.

Papilloedema, when it is accompanied by headache, vomiting, and other signs of increased intracranial pressure, does not require any special interpretation, but the late form of optic neuritis after signs of increased pressure have subsided, to which I have already referred, asks for a different explanation. Foster Kennedy suggests that local meningitic changes causing obstruction to the venous flux from the optic nerves may be the exciting cause of this condition, a suggestion which my own experience leads me to support.

Summarizing the later pathological changes resulting from encephalitis lethargica which may be responsible for the clinical sequelae, they appear to fall into three main categories: (1) Changes in the vessel walls with local impairment of blood supply to particular areas—especially in the basal ganglia; (2) a condition of chronic or intermittent hydrocephalus due to imperfect drainage of the ventricles; and (3) meningeal thickenings and occasionally perhaps loculated meningeal cysts interfering with venous drainage from the optic nerves.

Treatment.

We are still without any specific treatment for the acute disease and consequently unable to prevent the development of sequelae. Perhaps some of the mental disabilities already referred to may be avoided by the simple precaution of giving patients a sufficiently long and sufficiently protected convalescence. The same precaution may be effective in clearing up the residual symptoms and in rendering the appearance of physical sequelae less likely. The chief problem we have to face, however, is that of treating such serious disabilities as epilepsy, involuntary movements, and the distressing disability associated with the Parkinsonian syndrome. The treatment of post-encephalitic epilepsy requires no special comment. In the main it is medicinal, but there are occasional cases in which the symptoms point to a definite focal lesion and in which the question of surgical intervention must be considered. I have seen meningeal cysts following encephalitis productive of Jacksonian epilepsy and cured by surgery.

So far it has been difficult to credit any therapeutic measure with success in preventing or diminishing involuntary movements. Perhaps tremor may be lessened by the exhibition of hyoscine, but my experience has not been very encouraging in this direction. Some observers have found that hyoscine and gelsemium are effective in mitigating the rigidity characteristic of the Parkinsonian patients and suppositories of belladonna have in one case at any rate produced dramatic if only temporary amelioration.

Speaking generally, I have had to rely chiefly on a combination of psychotherapy and physical re-education for any results in the way of alleviating distress and disability. If our conception of the pathological changes underlying the sequelae of encephalitis is correct, our only hope of success lies in helping Nature in its efforts to restore functional activity to damaged tissues.

DISCUSSION.

Dr. GEORGE RIDDOCH (London) considered it justifiable to limit the term "sequelae of encephalitis lethargica," as Dr. Buzzard had done, to two groups of disorders—namely, (1) those that had appeared first in the acute attack and persisted, and (2) those that had developed only after an interval of varying duration. But, at the same time, it was difficult to exclude subsequent acute attacks which not uncommonly occurred and were probably due to lighting up of the infection that had lain dormant in the nervous system. In illustration, the case of a girl of 16, at present a patient in the London Hospital, could be cited.

In the autumn of 1918 she had had a febrile illness in which profound lethargy and nocturnal delirium were prominent symptoms. She recovered in about a month. Eight weeks ago she again became ill with fever, diurnal sleepiness and nocturnal restlessness. Two weeks later diplopia developed followed after a week's interval by persistent hiccup that prevented her from sleeping. On admission to hospital two days later she was excited and mentally alert; she laughed immoderately and insisted that she felt perfectly well in spite of severe hiccups recurring at a rate of about 120 a minute. The other physical signs were as follows: photophobia, dilated pupils, which reacted fairly well on convergence, very poorly to light, and not at all on accommodation; weakness of both external recti with diplopia; slight right ptosis, which later we found had been present from childhood; myoclonic movements of the abdominal wall and both upper limbs and weakness of the abdominal wall in the right upper quadrant, where the abdominal reflex was brisker than in the other segments. After a hot bath the hiccups disappeared, and in a few days the myoclonic movements had greatly diminished in frequency and vigour.

If the original illness be regarded as an attack of encephalitis lethargica this patient had an acute recrudescence of the infection after the unusually long interval of five years. It should be remembered that a recrudescence might occur in cases in which the original attack appeared to be slight.

During the past year Mr. Duncan, late house-physician to the Medical Unit, London Hospital, had carried out an investigation on the after-effects of encephalitis lethargica in patients who had been admitted to the hospital between March, 1918, and September, 1921. During this period of three and a half years there were 136 patients, 35 of whom died in the acute phase of the illness. Of the remaining 101, 83 were traced and examined at least one and a half years after their discharge from hospital. The majority of the survivors showed defects, either severe or slight. Mental disorders, varying from defective memory or emotional instability to moral degradation and dementia, were found in nearly seven-tenths of the patients. The high proportion of cases in childhood and early adolescence was striking, for in more than one-half the age was under 20 years. There were nine children who had been under 6 years of age at the time of the acute illness, and six of them two or three years later were backward in mental development. Moral perversions, such as purposeless stealing, outbursts of rage with destructiveness, neuroses, and periodic automatisms were met with, especially in children.

8. The prognosis should not be based on symptoms, but should depend on the acuteness of the disorder, on its early recognition, on the individuality and intensiveness of the treatment, which in turn must be modified according to a study of the reactions of the personality.

DISCUSSION.

Dr. C. P. SYMONDS (London) said that Dr. Henderson had laid down no absolute rules governing the prognosis in adolescent insanity, but indicated the opportunity afforded to every intelligent student of human behaviour of formulating a rational opinion upon the case of the individual patient. In this matter of prognosis there was a wide divergence between the psychiatry of Kraepelin and the psychiatry of common sense. Dr. Henderson had pointed out that the patients whom they were discussing often failed to come within the range of proper treatment until the stage for preventive treatment was past. One of the reasons for this was, as he said, the ignorance of the general public in these matters and their tendency to overlook peculiarities of conduct, or to take cover behind the blessed excuse of "nerves." Educational propaganda in this direction was sorely needed, and there were signs that this was forthcoming. The fault, however, was, Dr. Symonds felt, not wholly with the layman. The average medical student in the course of his curriculum had scarcely any opportunity of acquainting himself first-hand with such problems as they were discussing. Formal lectures and demonstrations taught him very little, and as a rule he went into practice with a feeling that cases of mental disorder—major or minor—belonged to the province of the professional psychiatrist, who had some mysterious formula for dealing with them, and that such cases were outside the sphere of his own usefulness. Hence the regrettable tendency among members of the medical profession to encourage the hypothesis of "nerves" until the stage of preventive treatment was past and the patient's asocial trends demanded certification.

This defect in the system of medical education would not, Dr. Symonds believed, be repaired until they had established observation wards for mental cases in the teaching hospitals. The advantages of this plan would be threefold: (1) The very fact of the existence of such a ward in a general hospital would make the student realize that the treatment of mental disease was an integral part of medical practice; (2) the student could also have the opportunity of observing in individual cases the part played by the various factors—heredity, habit of mind, physical disease, and environmental stress; (3) the hospital patient would be encouraged to find that he could obtain help in the solution of mental problems outside the walls of a mental institution. If the patient with early symptoms of mental disorders sought medical aid it was to the neurological department of the general hospital that he came. And yet, with one exception, there were in London, so far as he knew, no facilities for his treatment as an in-patient.

Dr. Henderson had stressed the importance of the environmental factor in cases of adolescent insanity and had indicated the possibility that an individual, who had failed to make a successful adaptation to ordinary difficulties, might preserve his mental health if life was made easier for him while at the same time he was taught to meet his problems more frankly. In practice it was very often very difficult to find a sheltered path for the individual who was handicapped. One of the commonest obstacles was the economic factor, which was especially prominent today. It was not easy for a man who had suffered from any kind of mental disorder to find employment. In the after-care of these patients more co-operation was needed between the general practitioner and the psychiatrist. This, Dr. Symonds was sure, would come when psychiatrists in general acquired the habit of talking about their subject intelligibly, as Dr. Henderson had done that day, and when the general practitioner on the other hand learned that there was no real mystery in the study of mental disorders. For hospital cases much more might be done in the way of after-care by means of proper organization. There were many charitable bodies and after-care communities who were ready to help, but social service workers were needed in connexion with the hospitals who would make it their aim to follow up individual patients and secure that help for them when it was most wanted.

In conclusion, Dr. Symonds emphasized once more the supreme importance of enlisting the understanding and sympathy of the general practitioner if they were to make any progress in the early diagnosis and treatment of adolescent insanity. The great majority of these cases were in his hands. In many instances, no doubt by the light of nature, he discerned their problems and gave the needed help. But if instead he looked at them askance and gave them "tonic for their nerves" they had to ask themselves where the fault lay. He had endeavoured to indicate where, in his opinion, the fault was and what were the chief remedies.

Dr. GEORGE RIDDOCH (London) was in entire agreement with Dr. Symonds in urging the necessity of making provision in general hospitals for teaching on, as well as investigation and treatment of, mental illnesses in the early stage. Unfortunately it was true that psychiatry was a branch of medicine about which the average practitioner was very ignorant. This was largely the result of two causes: (1) the clinical teaching on insanity at present offered to the student was dissociated from general medical work in the sense that it was almost entirely carried out in asylums. This dissociation must often be a handicap to the teacher as well as a great disadvantage to the student. It might to some extent explain why the course was so often looked upon as a joke and a source of amusement; (2) the cases used for demonstration were usually examples of advanced mental disorders. He had the most meagre opportunities for coming into contact with illnesses of that kind at their beginning. Altogether he was apt to be handicapped by ignorance—not due to his teacher but to circumstances—that psychiatry had no relationship with medicine as he studied it in the medical wards, but was a thing apart—in fact, a mystery. He knew only how to certify a lunatic, and even in that legal matter was frequently far from being proficient.

The obvious remedy for this general ignorance of an important branch of medicine was to give the student the opportunity and encouragement to investigate mental disorders for himself and in relation with his other clinical work. This could be best done at his general teaching hospital. Such a reform would not in any way call for the elimination of the present teaching in asylums but would greatly increase its value. Dr. Riddoch also spoke of the increased understanding of many mental ailments, especially the psychoses of adolescence, that had already followed the study of them as modes of reaction, and its bearing on more accurate prognosis and treatment.

Sir FREDERICK MOTT (London) said that though his own attention had been mainly fixed on the pathological side, he was much interested in the psychogenic factors, especially in their relation to the endocrine systems. He emphasized strongly the factor of genetic inadequacy as a predisposing factor of insanity. Each case was a biological problem of its own, and too much classification was a mistake. He discussed briefly his own work on the changes in the productive organs in dementia praecox, especially in regard to nuclear degenerations.

Dr. F. E. STOKES (Portsmouth) discussed the question of the recovery rate in the dementia praecox type of case, and recalled the fact that Clouston had 15 per cent. of recoveries in five and a half years' work. The figures he gave showed a higher recovery rate among the manic-depressive type than in the dementia praecox type.

The PRESIDENT said that the most important thing was the study of the reaction type of the soil in which the psychosis appeared. If it was a "shut-in" type a deteriorating psychosis was probably present. The greater the exogenous stresses present in any case the greater were the chances of recovery. This dictum was well exemplified during the war. He quoted two very interesting cases, and concluded by pointing out the value of finding the right environment for the patient.

straightforward attack. The interesting points about the case are the rash and the history of acidosis. The child had been taking sodium bicarbonate 7 grains three times a day for some months, and the sudden withdrawal of this in favour of the antifebrile mixture, coupled with the administration of aspirin, may have precipitated the second attack. The child is now, some weeks later, in perfect health.

London, W. HILARY LEDGERWOOD.

Reports of Societies.

THE OXFORD OPHTHALMOLOGICAL CONGRESS.

THE fourteenth annual meeting of the Oxford Ophthalmological Congress was held at Oxford on July 4th, 5th, 6th, and 7th. Members met at dinner on the evening of Wednesday, July 4th, in the Hall of Keble College. The proceedings took place in the Department of Human Anatomy of the University, which had been once more placed at the disposal of the Congress by Professor Arthur Thomson, the University professor of human anatomy. The majority of the members attending the Congress were again housed in Keble College, by the courtesy of its authorities—an advantage which is deeply appreciated and adds not a little to the success of the meeting each year. The attendance, especially from Britain Overseas and from the Continent, was greater than that of last year or any previous year, making the Congress of an even more international character than usual and a record in numbers.

At 10 o'clock on the morning of July 5th a short opening address was given by the Master, Mr. Sydney Stephenson, who received a hearty welcome.

A discussion on the relationship of dental sepsis to diseases of the eye was opened by Mr. W. R. Ackland of Bristol from the dental point of view, and by Mr. W. Lang from the ophthalmic aspect; it was well sustained by Dr. T. Harrison Butler (Leamington), Professor J. Van der Hoeve (Leyden), Dr. S. Lewis Ziegler (Philadelphia), Mr. P. H. Adams (Oxford), Dr. Sandford Gifford (Omaha), Mr. N. C. Ridley (Leicester), Miss M. Gilchrist (Glasgow), Mr. A. W. Ormond (London), and Dr. Richard Kerry (Montreal).

At the close of the discussion the annual general meeting was held, when the Secretary reported that twenty-two members had been elected, making a total membership of 350, and further that the report of the Honorary Treasurer, Sir Anderson Critchett, K.C.V.O., showed that the financial position was sufficiently good to enable the Congress to make a second donation of ten guineas to the illustration fund of the Ophthalmological Society of the United Kingdom.

In the afternoon papers were read by Lieut.-Colonel H. Herbert (Hove), Dr. C. F. Bentzen (Copenhagen), and Dr. H. Gjessing (Drammen), bearing upon the subject of glaucoma. Afterwards Mr. N. C. Ridley (Leicester) read a report of a case of orbital neoplasm. Colonel Herbert's paper was discussed by Professor Arthur Thomson.

On the morning of July 6th the chief contribution was the Doyne Memorial Lecture, delivered by Mr. H. Moss Traquair (Edinburgh), who chose as his subject the differential character of scotomata and their interpretation. The lecturer's work on the subject has achieved world-wide repute, and his admirably delivered address was warmly received. At its conclusion Mr. Traquair was presented with the Doyne Memorial Medal for 1923.

Two papers were taken before the lecture—the first by Dr. Sandford Gifford of Omaha, U.S.A., on intracisternal injections in the treatment of luetic optic atrophy, and the second by Dr. Lundsgaard (Copenhagen) on the Finsen treatment of conjunctival diseases. The latter was of especial interest in that the author, working in the birthplace of the Finsen light treatment, is an authority on the subject. After the lecture Professor Van der Hoeve (Leyden) read a paper on the rare condition known as tuberose sclerosis and its relationship to Recklinghausen's disease. A rather long morning session was concluded with a paper by Dr. T. Harrison Butler on the organization of ophthalmic clinics and hospitals.

In the afternoon Mr. Rayner Batten showed so beautiful drawings of conditions at the macula, poin out the value of drawings of the fundus in cli ophthalmology, and made some remarks upon the train of those who desire to undertake such work. Mr. J Batten followed, and as an artist gave an extrem interesting contribution on memory drawing by his c method of training. Professor Van der Hoeve (Leyd described some original work on accommodation, and report by Dr. T. Harrison Butler of his experience muscle recession and muscle tucking concluded a strenu day's work.

On Saturday, July 7th, the morning was devoted al wholly to a discussion, introduced by Mr. R. J. Coulter Newport, Mon., on the diagnosis of coal-miners' nystag and its relationship to the Workmen's Compensation A An excellent exchange of views took place, to which following contributed: Dr. J. S. Haldane, F.R.S., G. H. Pooley (Sheffield), Dr. T. Lister Llewellyn—memb of the Miners' Nystagmus Committee of the Med Research Council—Dr. Elworthy (Ebbw Vale), Dr. Harrison Butler (Leamington Spa), Professor Van Hoeve (Leyden), Mr. Percival Hay (Sheffield), Mr. R. Dickson (Newcastle, Staffs), Mr. Cridland (Wolv hampton), Dr. Stewart Barrie (Glasgow), Mr. A. Paterson (Durham), Mr. J. Jameson Evans (Birmingha and Mr. Herbert Caiger (Sheffield).

A paper by Dr. T. Stewart Barrie on colour vision amblyopic eyes associated with strabismus converg followed, and was discussed by Dr. T. Harrison Butl This concluded the proceedings of the Congress.

The official dinner was held in the Hall of Keble Coll on Thursday night, and among those present as guests w Mr. W. R. Ackland, Sir Archibald Garrod, K.C.M.G., a Professor Arthur Thomson. On Thursday afternoon garden party was given at St. John's College, Lie Colonel C. G. Douglas, C.M.G., Fellow of the Colle acting as host. On Friday afternoon, after tea in Ke Gardens, a visit was made to the Pitt Rivers Museu when the curator, Mr. Henry Balfour, kindly pointed o and described many of the objects of interest.

The Congress may well be said to have again this ye realized the aim of its founder, the late Robert W. Doy by combining good work with the opportunity of memb becoming more closely acquainted with one another.

THE "FAILED FORCEPS" CASE.

AT a meeting of the Edinburgh Obstetrical Society held June 13th, with the President, Dr. LAMOND LACKIE, in chair, Dr. D. SHANNON read a paper on the "failed forceps case and its treatment.

Dr. Shannon said that by a failed forceps case was mea a case in which forceps had been applied and efforts ma at extraction, without the desired result. Reviewing series of cases treated by himself and his assistants, I found that out of 2,720 full-term deliveries, 70 cases, 2.6 per cent., came under this category. A more detail analysis showed the cause of the dystocia to be as follows:

Contracted pelvis, in varying degree, in 52 per cent.
Occipito-posterior positions of the vertex in 26 per cent.
Post-mature cases.
Brow presentations.
Face presentations.
Retraction ring.
In some of the cases no cause could be found.

The mortality, morbidity, and the great amount invalidism following the treatment of these cases was, Dr. Shannon's opinion, a reflection upon the art obstetrics: 7 per cent. of the mothers died, and 50 pe cent. developed temperatures in the puerperium; 60 p cent. of the children were stillborn. Two of his case developed vesico-vaginal fistulae; two cases had rupture the symphysis pubis; and in two rupture of the uterus to place. One became insane as a result of septic infection and in nearly every case tears of the soft parts were presen in varying degree.

The cause of this great mortality and morbidity, Dr. Shannon asserted, lay not with the cause of the dystocia so much as with the want of judgement shown by the practitioner who operated in the first instance. He deprecated the too early application of forceps, and also urged the practitioner not to apply instruments until a proper diagnosis had been made as to the size of the foetal head relative to the pelvic brim in cases of contracted pelvis. Nature should be given a chance to play her part, more especially in those cases in which the occiput lay posterior. He commented on the great necessity of preliminary examination three weeks before the onset of labour in all cases, and remarked that in very few of the cases under review had any examination been made at that time.

Some of these cases were admitted to hospital in a dying condition and died before any obstetrical treatment could be carried out. Others were infected and torn to a marked degree. In a few instances the vagina was practically torn to ribbons. Cases in such a complicated condition gave the consultant little chance of success.

In cases of contracted pelvis in which the child was dead, Dr. Shannon said that he always performed craniotomy. The same treatment was recommended in cases in which the child was obviously dying. In some cases he performed craniotomy on the living child rather than the classical Caesarean section, as under the circumstances the latter operation was too risky for the mother. Lately he had performed Caesarean section with a lower uterine segment incision in these cases, to test whether it was safer for the mother than the classical operation, but so far he had not reached a decision. Many cases in this group were, with excellent results, left to Nature after the relative size of foetal head to pelvic brim had been ascertained. In other cases a second forceps operation succeeded because the forces of labour, between the failure of the first operation and the admission of the patient to hospital, had caused a marked diminution of the diameters of the foetal head by moulding. Dr. Shannon did not recommend the operation of pubiotomy in these cases. In some instances in which the occiput lay posterior he gave Nature a chance, and was rewarded often by spontaneous deliveries or easy forceps operations. In other cases he turned the occiput anterior and delivered by forceps. In the occipito-posterior persistent case he advocated rotation of the occiput, and failing that delivery by forceps. The treatment of the other groups were also reviewed in a detailed manner. In conclusion, Dr. Shannon said that he wished to bring before the notice of the general practitioner the importance of expert advice and aid being called in early in these serious cases, and the danger of delay in sending them into hospital.

The paper was discussed by Drs. HAIG FERGUSON, KEPPIE PATERSON, OLIPHANT NICHOLSON, R. W. JOHNSTONE, JAMES YOUNG, ROSE, F. J. BROWNE, H. S. DAVIDSON, SOMERVILLE, and the PRESIDENT.

CLINICAL DISCUSSION AT CORK.

A MEETING of the University College, Cork, Scientific and Medical Society (Medical Section) was held on June 11th, with Professor C. Y. PEARSON in the chair, when Professor W. ASHLEY CUMMINS presented a case of Little's disease in a child aged 6, and pointed out the differential diagnosis of this form of cerebral palsy from other congenital paralyses of infancy and early childhood. Drs. M. CAGNEY, D. MORRISSEY, R. C. CUMMINS, and J. M. O'DONOVAN contributed to the discussion of the case, in which was pointed out the depressing contrast between the academic accuracy of diagnosis of such cases and the inadequate treatment in our present state of knowledge.

Professor C. Y. PEARSON presented a specimen of a malignant stricture of the pelvic colon.

The patient, a man aged 56, had suffered thirty years previously from dysentery, and had been treated during the past two years for abdominal pain and constipation. On coming under the speaker's care the patient was suffering from symptoms of subacute obstruction, and declined operation. The lower bowel was emptied by a small saline enema, slowly administered, and a hard mass was then palpable halfway between the umbilicus and the anterior superior spine. Subsequently the patient accepted operation, and on the abdomen being opened by a left linea semilunaris incision a malignant stricture was found in the pelvic colon. The ileum, which was adherent at two places, was found to be easily removable at one place, but owing to malignant infiltration it was found impossible to separate it from the pelvic colon at the other. Enterectomy was then performed; about a foot of the colon, including the growth, was removed, the continuity of the pelvic colon being restored by end-to-end anastomosis. The patient made a good recovery, and beyond some faecal discharge from the wound had no complications. An interesting condition was pointed out in the specimen—namely, that the inseparable adhesion of the ileum was actually sealing the peritoneal orifice of a perforation in the colon caused by ulceration at the site of the growth.

Dr. J. M. O'DONOVAN showed a case of cretinism, which had been treated with thyroid gland for twelve months, together with a photograph of the patient before treatment.

The patient was a male child, aged 2 years when first seen, and at that time he presented all the mental and physical stigmata of congenital cretinism. Thyroid gland was administered in doses of 2 grains per day, and in five weeks manifest improvement had taken place, especially in the mentality, eruption of teeth, and disappearance of the mucinoid infiltration of the body. The dose was then increased to 3 grains per day, and this dose was continued. The child was now normal for its age, mentally and physically, as was demonstrated to the meeting.

In the discussion which followed, Professor CUMMINS pointed out the importance of recognizing cases of subthyroidism not amounting to actual cretinism or myxoedema, especially in relation to "backward" children.

Dr. M. CAGNEY read a communication from Professor D. T. Barry (who was unavoidably absent) describing tests of the viscosity of the blood in a case of mitral stenosis under Dr. Cagney's care at the North Infirmary, Cork.

The patient presented marked mitral stenosis with pulmonary oedema, and the thesis of the communication was that in such cases the determining factor in the production of the oedema was as much an alteration of the physical properties of the blood (viscosity and osmotic pressure) as back pressure. Consequently, the routine examination of such cases should include an examination of those properties, and the proper line of treatment might be found in the intravenous administration of gum saline and not in cardiac stimulants.

A short discussion followed, in which Dr. J. M. O'DONOVAN suggested that the oedema in such cases, and in the heart-lung preparations in which Professor Barry had mentioned its frequent occurrence, might be due to a vaso-dilator toxin, as in the wound-shock experiments of Cannon and Bayliss, in which case the injection of gum-saline solutions might be expected to give relief. Dr. M. CAGNEY emphasized the need for team work in such cases.

THE DUCTLESS GLANDS.

A MEETING of the London Association of the Medical Women's Federation was held on June 12th, with Dr. LOUISA MARTINDALE, President, in the chair, when Professor WINIFRED CULLIS spoke on the physiology of the ductless glands. She emphasized the importance of co-operation between physiology and medicine in endocrine study, so that unnecessary repetition of experimental work might be avoided, and the great quantity of information that had accumulated might be accurately assessed. Dr. CICELY PEAKE read a short paper on the ductless glands from a therapeutic point of view, pointing out the need for standardization of preparations. Dr. ROSA FORD said that in her experience in general practice she was making less use of ductless gland preparations than in former years. She was impressed with the importance of securing normal intestinal function in avoiding and treating dysfunction of the ductless glands. Dr. MURRELL, Dr. KING, and Dr. SAVILL also took part in the discussion.

SINCE 1919 persons visiting French watering places pay a small tax, which in 1922 yielded a total of over eight million francs. *La Presse Thermale et Climatique* has published a classified list, from which it appears that the largest sum paid was collected in Nice (one million and a half francs); Vichy, with over 800,000 francs, comes next, and Biarritz, with nearly half a million francs, third. Inspection of the list shows that the greater part of the total amount is received at Riviera resorts and other seaside places. There is, in addition, a still smaller tax for the benefit of the Office National du Tourisme; it yielded in 1922 a million and a half francs.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF IRITIS WITH TUBERCULIN.

THE following case is of interest on account of the fact that tuberculous infection of the cornea and iris had evidently existed for a considerable time without doing any permanent damage, that local ophthalmic treatment had no effect on the disease, and that tuberculin, unaided by any other treatment, produced a cure in a short time.

A girl aged 15 years was brought to my out-patient department with a history that the right eye had been inflamed for four years; the inflammation had improved at times but had never got quite well. During practically the whole of the four years she had had special ophthalmic treatment, but the condition was as bad as when the attack first started. The left eye had never been involved. The cornea of the right eye showed a diffuse haze, and scattered through its deeper layers were some small yellowish-grey patches of infiltration. The iris was difficult to see owing to the corneal haze, but was contracted, discoloured, and did not react to light. There was intense ciliary and conjunctival injection accompanied by much photophobia and lacrymation, but very little pain. There was no ulceration of the cornea and no corneal staining with fluorescine. The tension of the eye was slightly reduced. There was a considerable degree of convergent strabismus. The patient's general condition was poor, and there were several enlarged glands on both sides of the neck. The condition was considered to be one of tuberculous kerato-iritis. An examination by a physician showed no other obvious tuberculous focus. The Wassermann reaction was negative.

The local treatment prescribed was atropine, hot bathing, and protection of the eye. A tonic was given also. This treatment, the child's mother told me, had been ordered many times before, but had done no good.

At the end of a month, as no progress was being made, injections of tuberculin were commenced, and all treatment to the eye discontinued. At the end of six weeks there was a very decided improvement. The cornea began to clear, the infiltrations in it grew smaller, and the iris, which became more clearly visible, showed some small buff-coloured nodules towards the periphery. The tuberculin injections were continued, the eye receiving no local treatment, and in another month (ten weeks from the commencement of the tuberculin treatment) the cornea and iris were perfectly clear and the ciliary and conjunctival injection had quite disappeared.

I have seen the patient at intervals for the last nine months. There has been no recurrence; the glands in the neck are considerably smaller, and the patient's general health is much improved.

I have to thank Dr. Campbell Faill, tuberculosis officer of this city, for kindly supervising the tuberculin treatment.

E. R. CHAMBERS, F.R.C.S.E., D.O.M.S.,
Ophthalmic Surgeon, Bristol Royal Infirmary.

A RECORD PLASMACYTOSIS.

A BOY, aged 7 years, had a suppurating gland in the neck which was opened. After doing well for a fortnight he suddenly became ill, the wound became inflamed, and his temperature reached 104° F. Antistreptococcic serum was given. Next day (May 12th, 1919) he had a bright red rash like scarlet fever and the case was notified as such.

On May 13th at noon he was very ill—pulse 140, temperature 105° F. Blood films showed numerous well stained platelets, marked leucocytosis, and conspicuous iodophilia not entirely confined to polymorphs. The differential count was: myelocytes 6, polymorphs 86, lymphocytes 3, mononuclears 5. Neutrophil granules were intensely stained. The majority of the polymorphs had bar, bent, or S nuclei, and two distinct lobes or more were uncommon. In the former Döhle bodies were usual, in the latter vacuolation was frequent.

On May 14th the general condition and films were little altered. The rash was dusky, the tongue raw, the throat much inflamed, and the cervical glands swollen. Next day the general condition was better—temperature 100° F., leucocytosis less, and the differential count was: Myelocytes 1, polymorphs 80, eosinophils 1.5, lymphocytes 10, mononuclears 5, plasma cells 2.

On May 17th the boy was much better; the films showed anaemia, slight leucocytosis, and a differential count of 400 gave polymorphs 50, eosinophils 2, mast cells 0.5, lymphocytes 18, mononuclears 10, and plasma cells 19.

Plasmacytosis is common in the course of many diseases, but I have not seen more than 5 per cent. in any other patient. Gruner cites a case of scarlet fever with 11 per cent. (*Biology of the Blood Cells*, p. 270).

Ealing, W. ROBERT CRAIK, M.D.

Reports of Societies.

SURGICAL TREATMENT OF PHTHISIS.

ON November 27th the Medical and Surgical Sections of the Royal Society of Medicine held two joint meetings to discuss the surgical treatment of pulmonary tuberculosis. Dr. ROBERT HUTCHISON was in the chair at the first meeting, Mr. C. A. R. NITCH at the second.

Professor P. BULL of Christiania spoke on the subject of extrapleural thoracoplasty with apicolysis. This belonged to the same category in the treatment of pulmonary tuberculosis as the creation of an artificial pneumothorax. Both aimed at producing a collapse of the lung with retraction due to the development of connective tissue; thereby the lesion was healed. This retraction and development of fibrous tissue was the general method throughout the body whereby tuberculous lesions were healed. The lung, however, was at a great disadvantage compared with other tuberculous organs, since without operation it could not shrink further than was permitted by the negative pressure in the pleural cavity, nor further than the stiff thoracic wall could follow. Since artificial pneumothorax was less risky than thoracoplasty the speaker usually tried inflation first. If this were unsuccessful, thoracoplasty might be advised. On the whole the indications for thoracoplasty coincided with the indications for artificial pneumothorax, and the former should be employed when the latter could not be used. In cases of doubt repeated haemoptyses should hasten the decision to undertake thoracoplasty. Theoretically the lung of the opposite side should be healthy. He was satisfied that operation was justifiable when symptoms in the opposite lung had quite disappeared, or when during a long period expert observation had found them to remain stationary and of slight extent. Even though little or nothing were found clinically, the x rays often caused a proposed operation to be abandoned. Progressive or greatly extended tuberculosis in the opposite lung was a contraindication. He believed that there were a great number of patients with unilateral pulmonary tuberculosis or whose tuberculosis in the opposite lung was only slight or had temporarily subsided. A slight tuberculosis of the larynx or an infection of one kidney was not a contraindication. Absolute contraindications were an advanced degree of infection in the other lung or a bad general condition. A cavernous unilateral pulmonary tuberculosis gave a much more unfavourable prognosis after thoracoplasty than the infiltrating shrunken type. The closest co-operation between physician and surgeon was necessary.

Professor Bull said that he operated with the patient lying on the healthy side, and used the hook-shaped Sauerbruch incision on the back. Resection of ribs was made from the tenth or eleventh up to and including the first. It was vitally important to resect as far back as possible right up to the costal tubercle and the point of the transverse process. He believed a two-stage operation was best. When done in two stages his mortality rate was about 4.5 per cent., in one stage it was 30 per cent. At the first operation the eleventh to fifth ribs were resected; in the second operation the fourth to the first. When he reached the fourth or third rib he performed an apicolysis—that is, he made an incision through periosteum and endothoracic fascia and loosened the top of the lung from the thoracic wall with his finger. This made resection of the two upper ribs more easy. He recommended general anaesthesia. Should there be difficulty in getting cavities in the apex to collapse, intrathoracic transplantation of fat might be found useful. After the operation it was important to relieve expectoration. An extra nurse remained with the patient day and night to support the operated side during attacks of coughing, and to encourage him to expectorate. A good compressing bandage, and morphine or omnopon, were necessary. The temperature often remained high and the

not a few consist of two or three children, while those of single children are by no means uncommon. In Dr. H. C. Cameron's opening paper at Portsmouth there are many references to such families in which the child receives too much attention; if he or she is of a neurotic diathesis this is apt to lead to bad results. The picture drawn of the child who exhibits the phenomenon of negativism, and responds to the obvious wishes of his mother and nurse by opposition, as, for instance, when he refuses to eat simply because they are overdesirous that he should do so, corresponds pretty closely to the picture of the spoilt only children —the Tommy Mertons—of our great-grandfathers, although we question whether wilful enuresis, which according to several speakers may be a symptom of negativism, was ever a characteristic of the merely spoilt child. This symptom is but one piece of evidence of the want of proper development of control by the nervous system, another manifestation of which is contrariness in general. Further research into the functions of the endocrine glands may demonstrate as a fact what is now little more than a surmise—namely, that many manifestations of nervousness and ill control are caused by defects of internal secretions. Meanwhile it is significant that several speakers in the discussions mentioned the good effect of thyroid feeding in some cases of enuresis. No doubt children are susceptible to suggestion, which may be usefully employed in treatment. They are often very reticent as to their troubles, and fear of ridicule or reproof may prevent a child from giving the real reason for his fears or for his conduct. To gain the confidence of a nervous child is often a hard task, but its attainment is a most important step in relief or cure.

A reader of the reports of these discussions cannot fail to be struck by the extent to which the physician and the pedagogue have invaded one another's territory, so that it is very difficult to say where the respective frontiers are situated. A large part of the field is neutral ground, but it is by no means unoccupied, for both parties work amicably in it. The association of lordosis and other compensatory deformities of posture, due to lack of muscular tone, especially in the abdominal musculature, is interesting, but it is, we venture to think, of secondary importance, an effect of the abnormality of the nervous system just as much as are the mental attitudes and the consequent defects of conduct. Normal and abnormal postures in the erect position have been less studied in this country than in the United States, where much attention has been given to the subject, especially by orthopaedic surgeons. The erect postures of many hundreds of university students have been recorded and classified, and for some years a society has existed under the title of the Posture League, the object of which is to inculcate and encourage good and discourage bad postures. Those American surgeons who have made special studies of the effects of lordosis, kyphosis, and enteroptosis do not, however, appear to have discovered any obvious correlation between these defects and the neuroses of adolescence.

Environment has much to answer for, but the observations recorded by Drs. Inman and Harford on the connexion between squint, left-handedness, and the more commonly recognized syndrome of the

is dangerously compromised by this habit, whic should be discouraged by all possible means, but n to the extent of frightening the patient into the beli that he is socially damned because he cannot entire restrain this propensity.

Charles Lamb was at one time under restraint in a asylum, and his sister, as is well known, was afflicte all her life by attacks of mania, in one of which sl committed homicide. Supremely sane though all h writings be, yet there can be no doubt of his neurot diathesis. In his essay on " Witches and other Nigl Fears " he has left us a moving picture of the suffe ings of the nervous but not spoilt child. " I w terribly alive," he says, " to nervous terrors. Tl night-time, solitude and the dark, were my hell: never laid my head on my pillow, I suppose, from tl fourth to the eighth year of my life, without an assu ance which realized its own prophecy of seeing son frightful spectre." Evidently Lamb realized the in portance of auto-suggestion, although that term ha not then been invented. He goes on to say " Parents do not know what they do when they leav tender babes to go to sleep alone in the dark! Tl feeling for a friendly arm, the hoping for a familia voice, when they wake screaming and find none soothe them—what a terrible thing it is for their po nerves! Dear little T. H., who of all children ha been brought up with the most scrupulous exclusion every taint of superstition, who was never allowed hear of goblin or apparition, or scarcely to be told bad men, or to read or hear of any distressing story- finds all this world of fear, from which he has been rigidly excluded *ab extra*, in his own ' thick comin fancies '; and from his little midnight pillow, th nurse-child of optimism will start at shapes, un borrowed of tradition, in sweats to which the reveri of the cell-damned murderer are tranquillity." Tl sufferings of T. H. (Thornton Hunt) were probab increased if not caused by the very means intended prevent them—that is to say, the over-solicitude of h parents. The views of Charles Lamb on the ev effects of making nervous children sleep in the da and on the spontaneous or inherent origin of nigl terrors are not generally shared by modern pediatris and psychologists.

Most of the speakers at both meetings were agree as to the injurious effects wrought by injudicious an fussy parents on the nervous child, and it would see that it is necessary to direct attention to the parent education as well as to that of the child, throug some such body as the Parents National Education Union, as was suggested by Dr. Helen Boyle. Tl problem is very far from a solution, but the body opinion and experience brought together in these di cussions should be of great value; its publicatic cannot fail to encourage progress, although it is evide that in this special branch of medicine diagnosis ha at present far outstripped treatment. Moreover, better instance than this could, we think, be found the gradual divorce which has taken place betwee the physician and what used to be popularly known " physic." Speaker after speaker deprecated the u of drugs (unless thyroid extract may be included und that term), and nearly all relied upon what ma perhaps be called subjective therapy.

pulse frequent for four or five days; then in favourable cases it fell to about normal with considerable diminution of pain. The amount of sputum often diminished whilst the patient was still in the hospital. A rapid diminution of sputum was a good but not completely reliable prognostic sign as regards lasting recovery. In a considerable number of cases the tubercle bacillus disappeared from the sputum during their stay in the surgical clinic, nor did it return. This suggested a good prognosis. Later there developed a scoliosis of the spinal column with the convexity toward the diseased side, the reverse of the post-empyemic scoliosis. The post-operative rise of temperature was probably due to increased absorption of toxins from the collapsed lung which, like a sponge, was pressed partly free from its contents.

Professor Bull then gave several instructive tables illustrating his results. Out of 56 left-sided extrapleural thoracoplastic operations he had had 2 deaths from operation (3.5 per cent.); of 36 right-sided cases 7 deaths (19.4 per cent.). The right-sided operation was therefore considerably the more dangerous. The following table may sum up the speaker's results:

Results of Fifty-five Extrapleural Thoracoplastic Cases observed from three to nine years after Operation.

Dead, 23 = 51 per cent.—	
From operation	5 = 9 per cent.
From tuberculosis	22 = 40 ,,
From other causes	1 = 1.8 ,,
Still alive, 27 = 49 per cent.—	
Symptomless and able to work ...	17 = 31 per cent.
Tuberculous	10 = 18.2 ,,

The danger to the patients lay in a new outbreak in the other lung, often several years after operation.

Dr. CLIVE RIVIERE said that cases suitable for pneumothorax usually came to the physician with disease already crying out for treatment. It was only a particular type of pulmonary tuberculosis which was suitable for collapse therapy, and this type often reached a definite diagnosis only when moist sounds already covered a good part of one lung. Earlier the disease escaped diagnosis because it was deep and out of reach of the stethoscope. The common type of deep-seated or hilus tuberculosis was double. In the fortunate cases suitable for collapse therapy only one lung was seriously affected. The *x* rays showed an "interstitial" spread on both sides, but the parenchymatous outbreak following this was in these cases confined to one side only. The majority of such cases were found in adolescence. It was common to see patients with advanced one-sided disease clinically but double disease to *x* rays. Therefore a radiogram should always be used in deciding suitability for pneumothorax. The better lung was seldom quite free; there was generally a thickening of strands seen by the *x* rays, but if these were not very lumpy and if the outline of the lung field was clear or contained only a few sharp-cut shadows the lung would probably function safely whilst the other was collapsed. To the stethoscope the better lung would probably appear quite clear, and if at a later stage the disease spread and became active in this lung the first clinical signs were found, not at or near the apex, but about the mammary region or in the axilla. It was remarkable how in the class of case described the disease might have spread through the whole lung, and surface signs might have been present for a long time, and yet complete collapse by pneumothorax might be obtainable. A lung should never be presumed adherent without pneumothorax having been tried. Negative pressure might draw heart and mediastinum into one side of the chest and deform the diaphragm without any pleural adhesions being present. When pneumothorax completely failed through an adherent pleura, or only a partial and ineffective pneumothorax could be obtained, the question of further surgical measures would arise. In cases of a partial pneumothorax often a patient trial would be needed before its work could be fully gauged. If its effects on symptoms were unsatisfactory, if large cavities were left uncollapsed, or if, in spite of measures to prevent it, large febrile reactions followed the refills, additional methods of lung collapse should be used. The cauterization of adhesions might help, but usually thoracoplasty, with or without a pneumothorax, would be necessary. He himself had had no experience of a combined pneumothorax and thoracoplasty, but in certain cases it should prove rational by avoiding the permanency which was perhaps the most embarrassing feature of thoracoplasty and similar operations. If pneumothorax alone had been tried and had failed, the "better lung" must be examined with yet more meticulous care before a thoracoplasty was advised, for further factors now came into consideration—the finality of this further move, the strain of operation, and the yet more violent mechanical and toxic disturbance brought about. In these cases there must often be a choice between an operation of doubtful outcome and, on the other side, certain death. The patient's interest must be placed before the physician's reputation, but these operations should not be dragged into undeserved discredit. Of other indications and contraindications, good nutrition was an important asset and cachexia a decided contraindication. The heart would have to meet considerable strain and must be fairly sound. Intestinal tuberculosis was an absolute contraindication, but a moderate laryngeal lesion might be allowed. Certain methods of operation other than thoracoplasty might be cited. Multiple adhesions might be separated by opening the pleura through an intercostal space; single or few adhesions might be divided without opening the pleural cavity. These methods were sometimes useful. With regard to pneumolysis, the parietal pleura was easily stripped from the endothoracic fascia; thereby the lung was collapsed, but a space between lung and chest wall remained. This could be filled with gas or air or with fat or paraffin. In each case the risk of sepsis was considerable. The disadvantages of thoracoplasty as compared with pneumothorax were: first, the strain of the operation and the rapid collapse of the lung with auto-intoxication and risk of aspiration pneumonia; secondly, the collapse was permanent—there was no return; and lastly, the collapse might not be sufficiently complete to arrest the disease. In this case supplementary measures might be used.

Mr. H. MORRISTON DAVIES agreed that pneumothorax should be the first surgical manœuvre tried. If the collapse were complete the result was excellent. Often, however, pneumothorax failed completely or partially because of adhesions. If there were a broad adhesion and pneumothorax was continued the adhesion did not break but the lung ruptured and a pyo-pneumothorax resulted. Other methods of removing adhesions were to introduce a thoracoscope and remove them by the electric cautery; others might be dealt with by a special tenotome; and yet again, in cases more extensive, the chest might be opened and the adhesions exposed, ligatured, and cut. Another method he would like to mention was section of the phrenic nerve. This was useful in cases of pneumothorax where there were adhesions between base of lung and diaphragm. In these patients cough was a troublesome symptom. If the phrenic nerve were divided the cough went. If the disease were localized to the upper lobe the speaker advocated apicolysis. Paraffin or wax, not gas, should be used to fill the cavity remaining. The danger lay in the fact that paraffin might be extruded later, with the risk of secondary infection. Fat was better, but this might liquefy and then be extruded. If the adhesions were more extensive thoracoplasty was necessary. The speaker had found that local anaesthesia alone was too great a strain. He now used novocain, alcohol to paralyse the intercostal nerves, and a little chloroform. He strongly advocated the paravertebral incision. The ribs must be removed right back to the transverse processes. The first rib especially must not be neglected. He had found a one-stage operation best. There was little deformity. In children the axillary incision might be used.

Dr. E. BEAUMONT emphasized the very small number of patients suffering from pulmonary tuberculosis who required any operative treatment. The percentage had been variously estimated at from 2 to 20. He would suggest that the indications for a pneumothorax were: (1) patients with unilateral lesions who failed to respond to one month in bed on absolute rest; (2) similar patients who responded to rest in bed but in whom getting up was followed by active manifestations; (3) haemoptysis which did not respond to other measures. The type of operation necessary was a decision for the surgeon and not for the physician.

TUBERCULIN AND THE TUBERCULIN DISPENSARY.

IN 1909 the Tuberculin Dispensary League was founded with the object of demonstrating the possibility of treating the tuberculous poor by Dr. Camac Wilkinson's method of tuberculin administration. For three years at Kennington, and thereafter at Chelsea, several hundreds of patients passed through the dispensary, and in the opinion of the promoters of the scheme appear to have benefited greatly. Owing partly to a desire for financial assistance, and also for more public recognition, the executive committee of the league drew up a petition to the Minister of Health requesting that the work should be examined and reported upon. This petition was handed to the secretary of the Medical Research Council, who asked for the submission of a report by the committee of the league on the evidence which had been collected as to the value of the tuberculin treatment. Following the reception of this report the Medical Research Council arranged for an examination of the work, and accordingly deputed three medical men to investigate the work of the dispensary and to express their opinion of the results obtained. So far as can be judged from what Dr. Camac Wilkinson says, these three medical men were not given the benefit of his personal opinion; they were received by the honorary treasurer and by one of the assistant medical officers. The sequel of this inquiry was the preparation of a confidential report which stated that Dr. Camac Wilkinson's system of treatment "did not appear to have claims over other methods of treating tuberculosis either with or without tuberculin which would justify its general adoption." To this Dr. Camac Wilkinson has replied by the publication of an essay on the tuberculin dispensary for the poor.[1]

As may easily be imagined, it is quite impossible to form an unbiased opinion of the reply when one has not had the opportunity of reading the original document to which the reply has been made; and however emphatically he may write, and however pertinent—or otherwise—may be his strictures on other methods of treatment, it is only fair to say that he can scarcely hope to carry conviction to those who are interested merely in ascertaining the facts on which his case is based, for these facts are not provided. It is true a few summary data are given, but owing to their incompleteness they mean very little. We have compared them—as far as it is possible to compare them—with the Bradford statistics,[2] and find that there is no marked superiority to which they may lay claim. But on this we would not place much emphasis. The real point is that there are no figures, so far as we know, which are quite comparable with those from Chelsea, and it is hence impossible to form any adequate opinion on their meaning.

If Dr. Camac Wilkinson is really convinced of the superiority of his method—and of this there is no reasonable doubt—we would advise him to collect the notes of all the patients who have passed through his hands since 1910, to summarize them in the way in which the Midhurst notes were summarized, to obtain their after-histories as fully as possible, and to submit them to the scrutiny of a first-class actuary who may be trusted to draw up an impartial report upon them. Supposing then that this report is favourable we shall be justified in concluding that the results obtained by Dr. Camac Wilkinson surpass those obtained by other physicians. But—and it is important to emphasize this point—we shall not be justified in concluding that these results are due solely to tuberculin. This may well have been one of the factors, but it is obviously not the sole one, for the patients apparently receive much the same general education as to their mode of life as is given in the ordinary tuberculosis dispensaries. In order to prove indubitably that treatment by Dr. Camac Wilkinson's method of tuberculin administration is superior to all other forms of treatment it will be necessary for him to take two series of patients, comparable alike in age, sex, stage of disease, occupation, and place of residence, and to treat them identically, except for the sole difference that one series receives tuberculin injections and the other does not. Only in this way will he be able to prove his case. Until this is done judgement must be reserved.

[1] *The Tuberculin Dispensary for the Poor.* By W. Camac Wilkinson, M.D.Lond., F.R.C.P.; with a preface by Randall Davies, Honorary Treasurer of the Tuberculin Dispensary League. London: Nisbet and Co., Ltd. 1923. (Demy 8vo, pp. 67. 1s. net.)

FINSEN LIGHT FOR LARYNGEAL TUBERCULOSIS AND LUPUS VULGARIS.

DR. OVE STRANDBERG, of the Finsen Institute at Copenhagen, delivered an "occasional lecture" at the Royal Society of Medicine on December 3rd on the treatment of rhino-laryngological tuberculosis by Finsen light baths. He was introduced to the audience by the Danish Minister in London (Count Laurvig), who referred to Queen Alexandra's interest in the Finsen method. Dr. Strandberg said that the treatment of rhino-laryngological tuberculosis by means of Finsen light was not entirely new. About nine years ago he published his first few cases, and since that time the number of cases had been greatly increased and the results thoroughly tested. The Finsen bath consisted of an electrical carbon arc light used in one of two sizes. The smaller was an arrangement of three lamps using 20 ampères and 55 volts each, for the treatment of the more serious cases which could not sit up, and the larger embodied two lamps, each of 75 ampères and 55 volts, which made it possible for six or eight patients to be treated at the same time. Patients with tuberculosis of the larynx were placed in the Finsen bath for from ten to fifteen minutes on each of the first few days, and the application slowly increased up to the full dose of two and a half hours every alternate day. Patients with lupus vulgaris, if their general health was good, could begin with thirty to forty-five minutes' application with the large lamps. After the Finsen bath a tepid shower-bath was always given, and the out-patients could then go back to their work. The first baths were followed by an erythema of varying strength, darkening in a short time to a brown pigmentation, and once this was obtained the patients suffered no further inconvenience. Contra-indications were shown only in certain heart and kidney troubles. When treating lupus vulgaris he always combined with the Finsen bath surgical treatment or electro-coagulation simultaneously, and he did the same also in many cases of tuberculosis of the larynx. He showed the results of this treatment in 379 patients treated for lupus vulgaris over the years 1913 to 1921. Of this number 304 were pronounced cured; 165 of the cured cases had been under observation subsequent to cure for more than twelve months. There had been recurrences in 25 of the 304 cases, and 21 of these had been cured again, 9 of them having kept well for more than twelve months. In tuberculosis of the larynx—in which category he did not include ordinary laryngitis, but only the infiltrative or ulcerative affection of the larynx which occurred among patients with tuberculosis of the lungs—he gave particulars relating to 100 patients. In 53 of these cases the affection had been

Dr. S. VERE PEARSON said that before deciding upon a thoracoplasty the general condition and symptoms of the patient must be considered rather than any physical sign. Prognosis should be considered from two points of view: what was likely to happen if the operation was undertaken, and what if it were not attempted. The anaesthetic should be both general and local. He wished to put in a plea for thoracoscopy and removal of adhesions with the electro-cautery and a pneumothorax. This procedure was simple and scientific. The danger of cutting the lung with a knife was avoided. The risk of surgical emphysema was lessened by pulling down the skin before making the incision and so making a valve-like opening. A tight bandage was very important.

Mr. J. E. H. ROBERTS quoted some important figures from the work of Continental surgeons. Saugman and Gravesen had 45 cases in which incomplete pneumothorax only was possible by reason of adhesions. Of these, 11.1 per cent. were finally able to work; 86.7 per cent. died from tuberculosis. In 77 cases no pneumothorax was possible. Of these, 11.8 per cent. recovered sufficiently to work. 81.8 per cent. died. Sixty-nine cases were treated by thoracoplasty: after two to seven years 44.9 per cent. were able to work; 10.1 per cent. were alive but unable to work, and 42.1 per cent. were dead from tuberculosis. Jacobaeus and Einar Key had 44 cases treated by thoracoplasty. The following results were disclosed three to seven years later:

Able to work	27	per cent.
Better	18	,,
No better or worse	7	,,
Dead from operation	11	,,
Dead from tuberculosis	26	,,

All the figures included early operations. Some were done in one stage and some in two stages. There was therefore a case firmly made out for thoracoplasty. Posterior resections of the ribs should be continued to the transverse processes. Professor Bull, by combining thoracoplasty with apicolysis, had got rid of the objection that thoracoplasty did not compress the apex. Mr. Roberts administered glucose and saline twenty-four hours before operation and bound broad strips of strapping on the chest after. If there were present a fairly high degree of pneumothorax care should be taken in doing thoracoplasty lest cardiac symptoms occurred.

Dr. L. S. T. BURRELL recommended the operation of cutting the phrenic nerve. It was simple, gave additional rest to the lung, and did not permanently paralyse the diaphragm. He emphasized the serious nature of thoracoplasty. By doing this they burnt their boats. Other methods of resting the lung could be stopped if the other lung made this necessary; but thoracoplasty was final. Mr. TUDOR EDWARDS advocated in many cases thoracoscopy and cauterization of adhesions. He showed a very instructive series of pictures illustrating the views obtained through the thoracoscope, the types of adhesion seen, and the best methods of dealing with them. Dr. CUTHBERT emphasized the value of radiology in deciding the operation of choice.

THE NERVOUS CHILD.

A DISCUSSION on the nervous child took place at a meeting of the Medical Officers of Schools Association on November 28th. Mr. R. C. ELMSLIE presided.

Dr. H. CRICHTON MILLER, in opening the discussion, said that he proposed to restrict his remarks to some fundamental psychological conceptions of the child and its difficulties. Those who had to deal with education in any shape or form must never forget that they were supervising the child in his long, tedious, and difficult pilgrimage from the outskirts of society towards its centre. In that pilgrimage the child was called upon to make numerous new adjustments. Hardly was one adjustment stabilized before the time came for another. In the process of making those new adjustments the child often fell behind. A large number of children who came into the world were problem children from the very beginning, and no sort of education or environment would ensure a smooth progress for them. Such children were bound to meet special difficulties owing to their hereditary maleequipment. In the present discussion, however, these children must be left alone, and he would deal only with the child who began with a normal equipment and had a normal environment and who ought to make good as an adult. Unfortunately, the child who started well in this way often went to pieces, and psycho-analysts were constantly coming across adults who were nervous wrecks, and whose wreckage was traceable to some period in their early development when they began to go "off the lines." It must be agreed frankly that the teacher and the school would be beaten every time by the parent and the home. Those of them who had to do with education must accept the fact that they had not the last word to say as to failure or success. Whether the child went to a great public school at the age of 13, to a preparatory boarding school at 9, or even to an elementary school at 5, he went in each case as an individual already developed to some extent—he went as one who had up to a point made an adjustment to a social environment suitable to his years. Often, however, something was lacking about such adjustment. The child of 7 or 8 should be beginning to throw off the shackles of maternal magnetism, yet often at this age there remained a quite morbid and exaggerated craving for maternal protection and comfort. The wife of the head master of a good preparatory school said to him that the little fellows who came to such a school now at the absurd age of 8 really had little use for the masters; she and the matron were the only people in the school who meant anything to them. If the child were cut off from sources of maternal protection he might be expected to break down in one form or another. At the usual age for entering a public school one might expect a certain amount of independence and readiness to accept responsibility, yet here again it was often found that the child's moral and emotional development had been retarded, and the reason was that the father had been a source of fear, if not of terror, in the home, while the mother, instead of being ready to let go the emotional domination which was her prerogative during the first seven or nine years of the boy's life, was quite definitely holding on to that domination. Some boys of 14 in the public school were still "mother's darlings," and it was no use expecting from such boys a normal reaction to social environment. The child was naturally anxious to obtain status in the eyes of his fellows. Some children tried to do it by "showing off," or by various forms of self-assertion, while some became criminals. There was no limit to the number of ways in which the immature specimen of the human species would seek to obtain status in his social environment. It was necessary to go behind this desire to acquire status. The child was suffering from a sense of inferiority. The world into which it had been born was largely an adult world in which the child was incomplete and immature and was reminded on every side of its incompleteness and immaturity. The children and adolescents who made good adjustments were those who accepted the necessary degree of inferiority. But a certain if not a large percentage of children refused to accept that sense of inferiority, and therefore they "compensated" by seeking superiority in some morbid fashion. Many nervous children were children suffering from a very profound sense of inferiority for which they were compensating all the time by an enormously exaggerated or overdetermined manifestation of superiority. The conflict between the attempt to assume superiority and the consciousness of fundamental inferiority produced the nervous make-up.

Dr. Crichton Miller went on to show how this great factor of inferiority might be studied in a special way with reference to the sexual life of the child. There were three different aspects of this which he asked the audience to consider. The first was nocturnal enuresis, one of the most interesting problems in the whole of medicine. In this condition there was no doubt a physical element—by which he did not mean an anatomical element—depending upon some lack of endocrine equilibrium, having something to do with the pituitary certainly, and possibly also with the thyroid. Many of these cases were cured by thyroid treatment alone, but many were not so cured. Nocturnal enuresis, however, was also the result of auto-suggestion. The child became terrified at the thought of its repetition, and the fear was enough to bring about the act. Also it lived within an atmosphere of suggestion.

:ondition had been aggravated or had remained ;ed, and all who had died. In the 53 cases cured ıths alone had been used in 34, and light baths : with surgical treatment in 19. The period of :ion of 18 of these cases had extended over twelve

In almost all the cases treated the patients were and many were completely aphonic before treat- et 78 of them regained a full and clear voice; 37 . difficulty in swallowing, and 32 were freed entirely trouble. The number of treatments with the light each case averaged about 86. He claimed that cent. of cures of tuberculosis of the larynx was a ›roportion than that obtained so far by any other

Moreover, the affections of the larynx which he ated were in a very advanced stage, and no doubt had been taken earlier the recovery rate would have ill higher. About three-quarters of the patients t-patients, many from very poor homes, so that the nt was not in these cases supported by conditions ort and good nutrition, and the result was all the ›markable on that account. Sir StClair Thomson, ›sing a vote of thanks to the lecturer, said that the › given by Dr. Strandberg showed that this treat- laryngological tuberculosis was well worth a trial. self had in the press at the moment his own results rst sanatorium and afterwards local treatment, over a period of ten years. His results showed arrest—he would not speak of cure—in 25 per cent. . Dr. Strandberg's method, which did not exclude ther resources, gave, by the statistics brought , more than 50 per cent. of successes, and was y full of promise.

OLD ITALIAN PHARMACY JARS.

OR ARTURO CASTIGLIONI of Trieste has recently d an article[1] emphasizing the importance of ceramic ıe history of medicine. It is illustrated by pictures tiful specimens from his own collection of the pharmacy jars of the fifteenth century. Italian ies, although in existence in convents and royal rom the early Middle Ages, did not assume the r of public institutions until the middle of the th century. The apothecaries then formed corpora- ıich were almost always associated with those of lical profession, and the apothecary's shop then ame and remained for several centuries a centre lectual culture. The apothecary, besides being a r of drugs, also used to sell books and works of art, addition was often an astrologist or alchemist. out the fifteenth century the apothecary's shop the chief sphere of the physician's activity. Not l it serve for the reception of patients and the tion of their urine, as is seen in many contem- ›ictures, but also as a resort for scientific and pro- discussion. It was the birthplace of experimental y. Moreover, it was in the Italian pharmacies of enth century that ceramic art reached its highest nent and found its most beautiful expression, y in the larger hospitals, such as that of S. Maria ala at Florence and that at Siena, where the y jars and the shelves on which they rested were of the most accomplished contemporary artists. the end of the fifteenth century, when the whole was pervaded by the spirit of the Renaissance, not l Italian medicine become freed from Arabian , but ceramic art, as exemplified in the pharmacy increase in the number of pharmacy jars required, with an inevitable deterioration in their quality. During the seventeenth and eighteenth centuries they were generally smaller in size and more sober as regards decoration; only large and rich pharmacies could afford jars of the size and magnificence of those produced by the Ligurian workshops, which served rather for decorative purposes than for the preservation of drugs.

DANGERS TO HEALTH IN PHOTO-ENGRAVING.

IN March, 1922, the Italian Federation of Photo-Engravers published a report on health conditions among its members in Rome, calling attention to the fact that several had died within a comparatively short period. It was suggested that the poisonous substances with which photo-engravers work might be a cause of disease, and that unhygienic conditions of work might lower the power of resistance. The federation called for investigation of conditions in photo-engraving shops, and of the effects of the processes used on health. The Industrial Hygiene Service of the International Labour Office took up the question, and obtained information from Great Britain, Germany, Italy, the Netherlands, and Switzerland; the data collected by this investigation do not altogether bear out facts hitherto alleged.[1] An essential feature of one common process of photo-engraving is the placing of a metal plate, usually of zinc, to which the image to be reproduced has previously been transferred by photographic methods, in a bath of nitric acid. The image itself is protected by a resistant, such as powdered bitumen, colophony, or "dragon's blood," and the exposed portions of the plate are etched out by the action of the acid. The details of the process vary considerably in different countries, more particularly with regard to the construction of the etching bath and the strength of the acid employed; some etching baths are covered in and provided with a fume shaft, others are open and of a more primitive type. The conditions of work vary also in different countries. Dr. Legge reports that in Great Britain photo-engraving is generally conducted in the upper rooms of the building, often on the top floor, as a good light is needed; good natural ventilation is also thus secured. In Rome it was found that photo-engraving was carried on on the second, first, or ground floor, and in one case even in the basement, but the etching baths were generally in the open air or in an open shed. The reports from some countries give the impression that equipment and hygienic conditions have not kept pace with trade development, and that the necessity for ample ventilation has not always been recognized. The chief danger to health in photo-engraving arises from the escape of fumes from the acid etching bath. The conditions under which these fumes appear were investigated in the chemical laboratories of the Netherlands Labour Inspection Department, and led to the following conclusions. Solutions of nitric acid, from 10 to 25 per cent. absolute strength, when brought into contact with zinc give off a large quantity of nitric oxide vapours which, on mixing with the air, become nitric dioxide, the notorious brown fumes. When inhaled they penetrate into the pulmonary alveoli and combine with vapour exhaled to form nitric or nitrous acid. If this process is intense serious affections of the pulmonary alveoli may be set up, with the typical character of acute poisoning by nitrous fumes. The danger from these fumes is increased when the etching is carried out in an open bath and when the nitric acid is used in higher strength than 15 per cent. Dr. Legge reports that in this

[1] *o del museo internazionale delle ceramiche in Faenza.* . 1922. Faenza: F. Lega. 1922. (Pp. 15: 13 plates.)

[1] *The International Labour Review*, vol. viii, No. 1, 1923.

The admonitions of its elders, and the precautions employed, such as the use of a waterproof sheet, all encouraged the very thing which the child and its elders wanted to prevent. Nocturnal enuresis was the most definite symptom of the cradle condition; the child who in adolescence was resisting development held on to this symptom as a thing symbolical of the cradle. And the child who felt that he could not help his symptom realized that the scoldings and threats were unjust, and that he was the victim of an uncomprehending adult society; thereupon he turned to acts of revenge, and an astonishing number of petty thefts were committed by boys who suffered from nocturnal enuresis. The speaker's next point was masturbation. It was very important that the emotional atmosphere should be cleared away from this subject. All of them had suffered from well intentioned masters and chaplains who had dealt with the subject of masturbation on the most solemn and sacred basis. In all sex matters he was an idealist, but he did feel that extreme harm was done by presenting to the child his conflict of masturbation, which was largely a simple biological one, as though it were one on which his future depended, possibly his immortal destiny. This was grossly wrong, and only rarely did such methods have a good result. They might cure the symptom, but their influence on character was not wise. Finally, he dealt with homosexuality. Every boy and girl normally passed through a phase of potential homosexuality, and when active homosexuality was found amongst school children it was necessary to remember that it was merely a smouldering fire which had been fanned into a flame. It was most disastrous, thoroughly bad for the community and the social group; but, nevertheless, it should not be regarded in the same way as adult homosexuality, which was a perversion. In the child homosexuality meant merely that the normal romantic homosexuality which belonged to this phase of development had most unfortunately turned from romance into passion.

Dr. H. C. CAMERON, who dealt with the subject from the physical point of view, repeated some of the observations made in his paper read at the Portsmouth Meeting of the British Medical Association (BRITISH MEDICAL JOURNAL, November 24th, 1923, p. 963), but inasmuch as he had had no opportunity in that paper of dealing with the treatment of the nervous child he thought he might say a few words on that subject. After showing some photographs of the amyotonic child, illustrating the typical pose of the child suffering from nervous exhaustion, he said that the first line of treatment for the muscular condition would be drill, gymnastics, dancing, and massage. Drill placed the body in a position which was the direct opposite to the characteristic stance of the nervously exhausted subject, and it had more than the effect of a physical corrective. Quickness to act and obey, control and co-ordination, resistance to fatigue, courage, and all the muscular virtues were imparted by drill. With regard to gymnastics, it would be an immense advantage if these could be carried on with the greater part of the body uncovered. The old Greeks knew what they were about in this respect, and the word "gymnastics" meant exercises carried out naked. Without the removal of the clothes the shameful weaknesses were not exposed and improvements were not noted. Massage had immediate benefits in improving the muscle tone, but none of that remote significance which was the essence of drill and gymnastics. In the case of these nervously exhausted children, he would interspace the exercises with frequent short periods of rest, and the rest position which he favoured was what he called the "Little Lord Fauntleroy" position, the ventral position with the upper part of the body resting on the elbows in front of the fire. He had found benefit also from skin friction. Nervous children always did well at the seaside, where their bodies were whipped into a glow by the winds. Hot and cold baths alternately were useful, followed by friction with the roughest possible towel. Just as improvement in the body showed itself in an improved mind, so improvement in the mental environment showed itself in an improved muscular posture. Another important factor was that in all this management of children they must be prevented from observing all the apprehensions which their somewhat pathetic state aroused in the parental mind.

Mr. R. C. ELMSLIE said that although the treatment of posture seemed to be clearly indicated, the difficulties of improving the posture were very considerable. He had known children to receive most capable instruction for long periods, with practically no improvement. His own feeling was that this postural tonus was a thing which in human beings was not entirely instinctive—not quite the natural thing which would be expected if the regulating centre were in the basal ganglia of the brain—but that it was something learned, and that children showed great differences in the way they learned it. This would point to the existence of the regulating centres higher in the brain than the basal ganglia, rather in the cortex, where one would expect to find the centres of those actions which were at first voluntary and afterwards habitual.

Dr. C. E. SHELLY referred to the element of nutrition and its importance in respect to the nervous condition. What chance had the food customarily given to a young child to build up a stable nervous system? The child was fed largely on white bread, from which the real value of the grain had been extracted. The child was deprived of the material most likely to promote mental and muscular development.

Dr. ELWIN T. NASH said that these cases were sometimes amenable to suggestion, but at other times a more powerful counter-suggestion, probably from the mother, upset this line of treatment entirely. It was extraordinary how perverse some parents would be. He had desired to hear something from the openers of the discussion on phobias. Here again he found some children yield easily to treatment, while others resisted all his efforts.

Dr. LETITIA FAIRFIELD considered that in the case of some nervous children it was a waste of time and a real cruelty to endeavour at the outset to improve the muscles. These children could not respond to an increased call on their nervous energy; they needed mental therapeutics before these physical methods were applied. She was extremely sorry for the child who had been driven too soon and too hardly into the cold world. If these children were not given some sustenance and comfort in their effort to get rid of the inferiority complex which was at the root of the trouble, the mere effort to force the muscles would result in harm. Of course, when they had improved a little, massage and similar methods might be tried. It was extraordinary how the "Peter Pans," if allowed to open their hearts to a sympathetic recipient, would reveal their fears in all sorts of ways. It was useful to have had emphasized the part which the mother played, not, indeed, in originating a neurosis, but in augmenting and sustaining it.

Dr. L. R. LEMPRIERE said that his reply to the question whether the nervous child was fit for public school life would be that that was the best place for him. His own careful studies at Haileybury College did not suggest that the nervous children were increasing in numbers, notwithstanding the war and its aftermath. He gave some interesting details of exercises which he had instituted, and their results. He advocated the continuance of the use of belladonna in the treatment of nocturnal enuresis. Dr. M. L. DOBBIE criticized Dr. Cameron's advocacy of the ventral rest position, which she considered harmful in the case of the weak child.

Dr. CRICHTON MILLER, in a brief reply, could not agree that belladonna, to the use of which he objected, was the solution of the treatment of nocturnal enuresis. He had found thyroid of service in some difficult cases. Dr. CAMERON, also replying, said that if enuresis were to be overcome it could only be by securing the whole-hearted support and understanding of the mother. Undoubtedly the apprehension of the thing persisted in the child's sleeping state. He had found it help matters to adopt different devices according to the child's age. In very young children something in the nature of an amulet was useful.

THE PSYCHO-NEUROLOGICAL CLINIC AT UTRECHT.

AT a meeting of the Medico-Psychological Association of Great Britain and Ireland, held at the rooms of the Medical Society of London on November 22nd, the President, Dr. EDWIN GOODALL, referred in sympathetic terms to the death of Dr. W. Ford Robertson, and a resolution of sympathy with his relatives, and marking the sense of loss which the Asso-

country symptoms of respiratory irritation seem to occur only with the open rocking bath; since the introduction of closed baths and more modern methods conditions in the photo-engraving industry in Great Britain have improved materially, and few complaints are now received. It has proved difficult to obtain precise information on mortality and morbidity among photo-engravers, as separate statistics are rarely kept for this class of workers. In Great Britain the secretary of the Amalgamated Society of Lithographic Artists, Designers, and Engravers says that no severe illness directly attributable to acid fumes has come to his knowledge. He adds, however, that "generally speaking, our experience is that all the members of this society are particularly liable to complaints of the respiratory organs, and probably the line-etcher would be more susceptible than workers in other branches." The report from the Netherlands states that complaints of the effects of nitrous fumes have been very rare in recent years. Professor Loriga reports that the investigation conducted in Rome does not provide grounds for inferring that there is any specific liability to disease among photo-engravers. The chief means that can be taken to protect photo-engravers from the dangers of their trade are adequate ventilation in the workshop, cleanliness, good lighting, and closed-in acid baths with ventilating apparatus to carry fumes off to the outer air. Workers are frequently ignorant of the dangerous nature of nitrous fumes and of the methods of rendering harmless acid if spilled; in the Netherlands printed pamphlets on nitrous fumes have been distributed amongst the engravers.

RED DISCOLORATION OF SALTED FISH

ARTICLES of food appear peculiarly liable to chromatic affections, the causes of several of which have been investigated by the Food Investigation Board of the Department of Scientific and Industrial Research. A condition known as "pink" or "pink eye," to which dried salted fish is liable, has just been investigated by Dr. P. C. Cloake on behalf of the Fish Preservation Committee of the Board.[1] Dr. Cloake gives a history of previous work on the subject; from this it would appear that the condition was investigated for the first time in 1878 by W. G. Farlow for the United States Commission of Fish and Fisheries, and in later years by French, British, and Canadian workers. Their views, however, regarding its causes and hygienic significance have been most divergent. At one time outbreaks of food poisoning in France, for example, were erroneously attributed to consumption of "red cod," and the sale of salted cod with red discoloration was at one time prohibited in consequence. Dr. Cloake's investigations clear up much that was formerly obscure. He describes the process by which cod is salted and dried for the market, and the conditions under which the "pink" growth takes place on the cured fish. He attributes the discoloration to the presence of a "red coccus," occurring in coccal or sarcinal form, and to another unidentified organism to which the name "organism X" is given for convenience; it breaks up in diluted salt solutions into an amorphous slime. An alga also grows in great abundance on the surface of dried and salted fish both on the "pink" and on uncoloured areas, but has nothing to do with the coloration. The two organisms associated with the red discoloration are conclusively proved by Dr. Cloake to be derived from the use in the process of curing of salt already contaminated by them. Contaminated salt is found in the salt-encrusted walls of the curers' stores and on the surfaces of the tables used for curing; it is only in high salt concentrations that the organisms grow. The prevention of "pink" can be effected, therefore, by sterilizing the salt, exposure to 248° F. for thirty minutes being necessary for this purpose, and cleansing the stores and utensils. The "pink"-producing growths can also be inhibited by adding 5 per cent. of sodium bisulphite to the salt, but for hygienic reasons this is not recommended. Another method is to dry the fish to a greater extent that at present, as "pink" organisms will not grow on highly dried fish. The capacity for reabsorbing sufficient water to make the salted cod palatable, however, is lost when the drying has been excessive; and an account of experiments by Dr. Moran and Mr. Piqué are appended to Dr. Cloake's report to show this effect of overdrying. One gathers from the report that the "pink" growths in themselves are not necessarily injurious to health, but the conditions of warmth and moisture under which they appear are favourable to the growth of putrescent organisms, which are liable to render the discoloured fish unfit for food. The relation, however, of the growth of "pink" to putrefaction has not yet been sufficiently investigated.

[1] Special Report, No. 18, of Food Investigation Board. H.M. Stationery Office. 1923. (8vo, pp. 22; 3 figures, 1 chart. 1s. net.)

SICKLE-CELL ANAEMIA.

THE striking but appropriate title of sickle-cell anaemia has been employed so far on five occasions only in medical literature, commencing with 1910, the first four records were of single cases, but Dr. J. G. Huck of the Biological Division of the Medical Clinic, Johns Hopkins University and Hospital, has recently investigated twenty cases and has written[1] a valuable and generously illustrated account of the new disease, which is evidently not very rare in negroes, though so far it has not been detected in any other race. It is defined as a hereditary disease, transmitted by and occurring in males and females with equal frequency, in which the red blood corpuscles acquire a characteristic sickle or crescent shape *in vitro*. Examination of blood directly after withdrawal shows only a few sickle-shaped cells, but after six to twenty-four hours from 25 to 100 per cent. of the red cells, according to the severity of the disease, have taken on bizarre forms. The resistance of the red cells to isotonic salt solutions is slightly below the normal, and the bilirubin content of the serum is high; the sickling, however, is an inherent property of the red cells, the patient's blood serum being without effect on normal erythrocytes. The sickle-cell condition is inherited according to the Mendelian law for the inheritance of a single factor, and is dominant over the normal condition. Blood cultures are negative, and attempts to transmit the disease to animals have failed. The Wassermann reaction of the blood and cerebro-spinal fluid was also negative, a point of some importance as it was first imagined that the disease might be syphilitic or tuberculous. Symptoms may be absent, mild, or severe, and the patients are prone to relapses for periods of one to two weeks. Weakness, inability to work, a low grade of fever, and the usual symptoms of anaemia may be present. Slight injury is enough to provoke round punched-out ulcers on the legs; they are stated to be characteristic and to resemble those due to syphilis. The sclerotics are greenish-yellow and the urine contains urobilin. The red blood count varies from four to one and a half millions, and the haemoglobin from 63 to 30 per cent.; moderate anisocytosis, polychromatophilia, slight leucocytosis, nucleated reds, especially normoblasts, and myelocytes in small numbers are described. The prognosis in the symptomless and mild cases is excellent, but in severe forms decidedly unfavourable, as the patients are prone to intercurrent infections, especially pneumonia and tonsillitis, and seldom live beyond the age of 30. It should, however, be noted that in very rare instances—so far, indeed, five instances only have been

[1] *Bull. Johns Hopkins Hosp.*, Baltimore, 1923, xxxiv, 335-344.

ciation had sustained, was carried by members rising in their places.

Professor D. C. WINCKLER gave an address, illustrated by a series of slides, on "Psychiatrical and Neurological Teaching at the Dutch Universities, especially at the University of Utrecht." He said that the organization of the study of neurology and psychiatry at the universities in Holland had been a very difficult matter. The Utrecht Society of Psychiatry was established in 1871, and it organized many petitions urging proper psychiatric instruction. In 1877 it succeeded in having an enactment passed which was entitled "A Law on Higher Education." At this time there were no recognized examinations in psychiatry, and medical men in asylums were recruited from among military medical men who had returned from the Colonies. Donders strongly favoured the efficient teaching of psychiatry, and the lecturer's eyes were specially opened to the need by Professor Leidesdorff, professor of psychiatry in Vienna. In this country it was the exception to have whole-time professors, but in Holland it was a stipulation that professors should not undertake private practice—a wise provision in some ways, but it did not ensure that the professor was necessarily the best man on the subject. In Holland the paying patient constituted a great financial help to the teaching schemes. The 1877 law permitted the establishment of the Amsterdam Municipal University, the Faculty of Medicine of which operated in that city. In 1885 Professor Winckler was nominated a university lecturer on psychiatry and neurology, and money was set aside for research. The Society of Psychiatry held a number of discussions on the need for the teaching of neurology and psychiatry by one professor. The chief opposition to this idea came from practising specialists. He showed how intimate the two subjects were, and that to place the tuition in separate hands must result in much overlapping and duplication. He contended that even a skilled neurologist was not necessarily a psychiatrist; moreover, psychiatry based only on psychology had proved dangerous, as witness Weinroth's contention, in 1882, that "All alienation reposes on sin." In many asylums the clergyman was accepted as the leader, the physician being relegated to a secondary place. Later, the Society took the ampler title of "The Society of Psychiatry and Neurology," and the two departments were successfully fused. At the Utrecht University students could not be trained as specialists before passing their final examination. It was now possible, as a result of various controversies, to retain specialism within certain limits, but he was anxious as to the future.

A project was successfully started for building a clinic of psychiatry and neurology in Utrecht, but as it was to cost £50,000 some hesitation was felt, and the authorities argued that the best place at which to teach psychiatry was the asylum. This, however, was opposed by the Society, and by the Faculty of Medicine at the University, chiefly on the ground that cases of the various transient psychoses—hysteria, neurasthenia, hypochondria, etc.—were seldom seen in asylums. Matters remained stationary from 1885 to 1891, but in 1892 everything seemed in readiness for commencing the new building. However, a small mistake on the part of the architect led to a controversy between the State and the municipality, and there was a further delay. Dr. Winckler paid a great tribute to the energy and perseverance of Dr. Heilbronner, which culminated in the establishment of a new clinic. He did not survive beyond 1914, his death being sudden; and Dr. Winckler succeeded him, becoming director of the newly built clinic of psychiatry and neurology. It had to fill a double rôle: to secure the best possible care to nervous patients, and give them the best chance of recovery; secondly, to give teaching in psychiatry and neurology. Here all patients were nursed on the ground floor; the scientific installations, laboratories for photography, Roentgen rays, etc., on the first floor, and the higher floors were used by house-doctors, administrative staff, nurses, etc. The lecture room was placed between the wards on the ground floor. He described the equipment and the plan of working by the aid of some excellent photographs. The dispensary was visited by 1,200 new patients per annum; and the lecture room had accommodation for 145 students. In the library department a special feature was the scheme for filing ready for immediate use all the photographs, microphotographs, skiagrams, etc., taken; and for each subject there was a definite series of slides. He showed that there exists a happy spirit of co-operation with the Justiciary as well as with the other departments of the University. The average residence in the clinic was three weeks, but some patients stayed there much longer.

The PRESIDENT expressed the Association's gratitude to Professor Winckler for having come so far to deliver the address, and at the same time he congratulated him upon his excellent command of the English language. He had shown the high level on which psychiatry stood in Holland.

Sir FREDERICK MOTT supported the President's remarks. It had been his privilege to see the very fine institution which the Professor directs, and on his recommendation other English alienists visited it, and came back with a fund of instruction. When William of Orange rode into Leyden, after the siege, he asked the burghers whether they would have a university or a remission of taxation, and they chose a university. Sir Frederick wondered in how many English towns such a choice would be made. In conclusion he referred to the many-portal system of entry to the profession in this country, and commented on the advantage if a single State examination was operative.

CORK MEDICAL SOCIETY.

THE opening meeting of the Cork University Scientific and Medical Society (Medical Section) was held on November 6th, with Professor C. YELVERTON PEARSON in the chair. Dr. MICHAEL CAGNEY showed a case of mitral stenosis with aortic incompetence and pericardial adhesions, which was remarkable for the almost negligible rheumatic history in comparison with the extensive cardiac damage. Professor D. T. BARRY demonstrated optogram records of this case, which showed a pulsus alternans which was not appreciable by palpation of the radial pulse, and in which the appearances of the venogram suggested that regurgitation was occurring in the isometric as well as in the sphygmic period of ventricular contraction—a point of bad prognostic import. Dr. J. B. HORGAN described, with specimen and radiograms, a case of right-sided hypopharyngeal diverticulum in a male aged 32.

Professor YELVERTON PEARSON presented a case of pyometra due to a suppurating fibromyoma.

Manual removal of the placenta had been performed on the patient a year before, after a difficult labour, and at that time the obstetrician had noticed no intrauterine fibroid. On coming under Professor Pearson's care, there was great uterine enlargement, with pyrexia. A few days later some two pints of pus containing *Staphylococcus aureus* were spontaneously evacuated from the uterus, and on examination the tumour was felt blocking the internal os, where it acted as a ball valve. Panhysterectomy was performed after douching the vagina and packing the vagina and cervix with gauze. Recovery was uneventful, although previous to operation the patient's condition had been very bad.

Dr. P. KIELY demonstrated two cases of successful use of radiotherapy for rodent ulcer. In one of these cases—a large rodent ulcer involving the bridge of the nose, inner canthus of the left eye, and both lids of the right eye—considerable improvement had taken place. He emphasized the need for patience, as even in apparently hopeless cases involving deeper structures the x rays would bring about marked improvement. Dr. R. C. CUMMINS demonstrated a case of amoebic liver abscess, with partial right-sided pyopneumothorax.

THE International Congress of Comparative Pathology, which is to be held in Rome, has been postponed to the spring of 1924.

THE thirty-third French Congress of Surgery will be held in Paris on October 6th, 1924, under the presidency of Professor Tuffier. Professor Roux has been elected an honorary member. The following questions will be discussed: (1) Results of treatment of simple fracture of the neck of the femur, introduced by MM. Dujarrier and Julet. (2) Indications for surgical treatment of fibroids, introduced by MM. Robineau and Tixier. (3) Pre-operative and post-operative treatment and anaesthesia in gastro-intestinal affections, introduced by MM. Lardennois and Lambert.

races (Huck and Bigalow[2]). This special form of poikilocytosis is inherent in the cells and cannot be transmitted by intravenous injections of blood. It is regarded as in no way related to sickle-cell anaemia, for the cells are abnormal in shape in fresh blood and no change occurs on standing as happens in sickle-cell anaemia; the condition is compatible with lifelong good health.

CATTLE PLAGUE AND CONTAGIOUS ABORTION.

Several interesting records of research work reach us from time to time from India, and we have before us two studies by the Veterinary Department of the Department of Agriculture in India—one on rinderpest by W. A. Pool and T. M. Doyle of the Imperial Bacteriological Laboratory, Muktesar, and the other on the etiology of equine contagious abortion by the latter observer. The results of the study on rinderpest go to show that the immunity conferred by preventive inoculations of anti-rinderpest serum alone, even when double, treble, or more doses are given, has been overestimated and at times grossly exaggerated. It is, in fact, of comparatively short duration; and the general conclusions drawn by Pool and Doyle from their experiments are that a single dose of the serum confers a passive immunity for nine days only, and that increased doses prolong the immunity but not in proportion to the increase. This passive immunity is an artificial condition by which the severity of an attack of rinderpest is lessened, but which does not prevent invasion by the virus of rinderpest. In order, therefore, to stamp out the disease in herds the veterinary officers in India advocate inoculation with anti-rinderpest serum simultaneously with a dose of the active virus. The effect of this "serum simultaneous method" of inoculation, as it is called, is to confer active immunity for long periods. The mortality in this method should not exceed 1 per cent. Inoculations with serum alone are insufficient to prevent infection, and the immunity conferred by them rapidly disappears. In his study on the etiology of equine contagious abortion, a disease which has attracted a great deal of attention both in Europe and America during the last ten years, Doyle points out that it is probably widely spread in parts of India, notably in Northern India. He undertook a series of investigations to determine the etiology of the disease, and to discover whether the causal organism was the same in India as in Europe and America. His experiments showed that the causal agent is the *Bacillus abortivo-equinus* in the case of outbreaks of specific abortion in India both amongst pony and donkey mares, and is identical in all particulars with that described by European and American observers. It was capable of producing abortion by intravenous, alimentary, and intravaginal infection. These and other research studies are printed and published for the Imperial Department of Agriculture in India and the Agricultural Research Institute, Pasa, and may be obtained from Messrs. Thacker, Spink, and Co., Calcutta, or Messrs. Thacker and Co., London, for a small sum.

THE APOTHECARIES' SOCIETY OF LONDON.

The Livery Dinner of the Society of Apothecaries of London was held at Apothecaries' Hall on Tuesday, December 4th, under the chairmanship of the Master, Dr. Thomas Wakefield, who was supported by the Senior and Junior Wardens, Dr. A. D. Brenchley and Dr. T. Vincent Dickinson, the Presidents of the Royal Colleges of Physicians and Surgeons, the Directors-General of the Medical Departments of the Navy and Army, the Secretary of the Medical Research Council (Sir Walter Fletcher),

the Master of the Society, situated in Water Lan provides a very attractive setting for this annual dinne The original hall, acquired in 1633, was destroyed by t Great Fire of London; it was rebuilt some ten years lat and enlarged in 1786. Until 1902 the Society maintain the Physic Garden at Chelsea, and the wholesale and ret trade in drugs which had been carried on as one of t functions of the Society was discontinued last year. B the work of a City Company and of a licensing corporati for the medical profession is continued, and the hospitali of the livery dinner comes as a graceful reminder of the twofold duties. After the loyal toast had been honour the Master proposed "The Navy, Army, and Air Forces and this was responded to by Vice-Admiral J. Chambe Medical Director-General, R.N., and Lieut.-General S William Leishman, D.G.A.M.S. The toast of the Roy Colleges and the Universities was submitted by the Seni Warden and responded to by Sir John Bland-Sutto P.R.C.S., and Sir Sydney Russell-Wells, who represent the University of London in the late Parliament. T toast of the Society of Apothecaries of London was pr posed by Dr. T. J. Duffield (medical statistical officer of t League of Nations) and replied to by Dr. F. Gordon Bro (Senior Past Master of the Society). The health of t guests was proposed by the Junior Warden and replied by Brigadier-General B. R. Kirwan (Director of Artille War Office). The speeches, though numerous, were co mendably short.

EPSOM COLLEGE.

Epsom College, as all our readers should know, is a publ school having special associations with the medical profe sion, for it was founded by a large-hearted medical ma the late John Propert, and many practitioners ha received their early education there. The foundation sto was laid in 1853, and the school was opened in 1855 by t Prince Consort. Though founded under the name of t Royal Medical Benevolent College, the school is not by a means one for the sons of medical men only; but it pr vides, free of charge, a high-class education, together wi clothing, maintenance, and pocket-money, for fifty nece sitous sons of medical men. Another important branch the work of the Royal Medical Foundation of Epso College is the giving of pensions of £30 a year to fif aged and impecunious medical men or their widows. Sin 1903 the words "medical" and "benevolent" have bee removed from the title of the school, because it was fou that they hindered its development along the lines pr jected by the founders, by suggesting that the institutio was a charity school for the sons of doctors. Nevertheles Epsom College is indeed a medical foundation by reason the circumstances outlined above, and both the school a its Royal Medical Foundation have a special claim to t interest and support of the profession. We therefore a glad to have this opportunity of calling the attention our readers to the appeal contained in the letter by S Henry Morris, the honorary treasurer, which appears th week in our correspondence columns.

Mr. Joseph Barcroft, F.R.S., reader in physiology the University of Cambridge, has been appointed Fulleri professor of physiology at the Royal Institution, in succe sion to Sir Arthur Keith.

The office of Milroy lecturer for 1925 is vacant, and, will be seen from our advertisement pages, applicatio should be sent to the Registrar of the Royal College Physicians of London, Pall Mall East, S.W.1, on or befo January 1st next. The course must comprise not less tha

Reviews.

DIGITALIS AND ITS USES.

THE Netherland State Institute for Pharmaco-therapeutic Research, a body which resembles somewhat our Medical Research Council in some of its activities, has organized the publication of a series of monographs on important drugs; one of these on digitalis and its therapeutic uses,[1] published in Dutch by a group of Dutch authors, has been translated into German by Professor P. NEUKIRCH. The aim of the volume is to give practitioners and pharmacists a general account of the nature and action of digitalis and its allies, and the chemistry, the pharmacological action, and the therapeutic action of digitalis are described in turn. In the introduction a very interesting account is given of the work of the English physician Withering, the discoverer of the therapeutic action of digitalis, and an excellent portrait of him is reproduced.

In the chemical section the history of the isolation of the digitalis glucosides is related. They were isolated in an impure form nearly a hundred years ago, and since then there has been almost continuous research on this subject. The results have been very contradictory because several glucosides are present and all are relatively unstable, consequently a remarkably large number of different products have been obtained. The book gives a very clear summary of the prolonged and confusing controversies that have arisen over this question. While there is no doubt that both a water-insoluble glucoside (digitoxin) and one or more water-soluble glucosides (digitalein) can be obtained from the leaves of digitalis, the writers point out that it is not certain to what extent these substances are artefacts produced in the processes of extraction, and that it is possible that certain methods of extraction may change the water-soluble substances into the water-insoluble form. An account is given of the various pharmacopoeial preparations of digitalis, and the nature of the active principle present in each form is described. The article concludes with an interesting description of the various proprietary preparations of purified digitalis principles and the composition and relative value of these are discussed.

In the section devoted to the pharmacological action of digitalis the account of the earlier work is full, and the experiments which have been made to show the effect of digitalis on the force and duration of the ventricular contraction are described clearly. Very little, however, is said concerning the influence of digitalis on the rate of conduction of the wave of contraction in the heart, and no mention is made of any of the work of Lewis on this subject after 1911.

The chapter on the therapeutic use of digitalis similarly reveals that the authors have a conception of the action of digitalis quite different from that held in this country. In England the work of Mackenzie and Lewis has led to the belief that the action of digitalis in benefiting auricular fibrillation is of considerably greater importance than all its other actions put together. In this book, however, only a page is devoted to auricular fibrillation, and the chief question discussed is the effect of digitalis in strengthening the force of the heart's contraction in such conditions as acute pneumonia, etc. In fact, it is not unfair to say that the opinions expressed concerning the pharmacological and therapeutic actions of digitalis are nearer the opinions held in this country fifteen years ago than to those of to-day. A discussion of the relative curative values of the different pharmacopoeial preparations of digitalis reveals the fact that powdered digitalis and infusion of digitalis are the two preparations in chief use in Holland, whereas in England and America chief reliance is placed on the tincture. This difference appears to be merely the result of custom, for equally good results can be obtained with either kind of preparation. The whole is interesting in its way, but the views expressed by the writers on many points cannot be accepted; they have not taken sufficient account of the recent English and American work.

[1] *Die Digitalis und ihre therapeutische Anwendung.* Edited by Professors A. A. Hijmans van den Bergh and R. Magnus, and Drs. U. G. Bijlsma, J. S. Meulenhoff, and M. J. Roessingh. Translated into German by Professor Dr. P. Neukirch. Berlin: Julius Springer. 1923. (Roy. 8vo, pp. 112; 32 illustrations. 1.35 dollars.)

BLOOD PRESSURE.

DR. J. F. HALLS DALLY's manual on *High Blood Pressure: Its Variations and Control*[2] is intended for general practitioners who are not prepared to explore the copious scattered and to some extent inconclusive literature of the subject. It combines in a readable form a great deal of information with the results of much practical experience. With regard to the choice of a sphygmomanometer Dr. Dally says that no matter what claims are put forward by enthusiastic inventors or manufacturers of aneroid instruments, no instrument can give such exact readings over a long period of time as a simple and accurately made mercurial sphygmomanometer. Descriptions of the various forms of instrument are illustrated and figures of their mechanisms and indications of the features that are undesirable in an instrument are given, so that such sphygmomanometers may be avoided. After reproducing tables of the blood pressures normal for various periods of life, Dr. Halls Dally gives his simple rules; thus for the ages of 20 to 60 the standard systolic pressure equals 120 *plus* one-fifth of the age; at the age of 60 the standard systolic pressure is 135, and for each year above this up to and including 80 add 1 mm. Hg. The relations of hyperpiesia and arterio-sclerosis are fully considered, and attention is directed to the information to be obtained from examination of the conjunctival blood vessels as a substitute for ophthalmoscopic detection of changes in the retinal vessels.

The control and treatment of high blood pressure are discussed under three headings according to the conditions present; thus the patients showing simple high blood pressure (hyperpiesia), cardio-vascular (arterio-sclerosis), and renal (nephro-sclerosis) symptoms are considered separately. Of the numerous drugs suggested for intestinal disinfection four only have seemed of value: the official thymol, the benzene derivatives dimol and benzyl benzoate, and garlic. There are special chapters dealing judiciously with the blood pressure in pulmonary tuberculosis and in relation to examinations for life assurance. The whole subject is reviewed in a thoroughly up-to-date manner, and as the book is written in an easy and interesting style it deserves, and no doubt will achieve, popularity.

MEDICAL BIOMETRY.

THE art of statistics and the mathematical theory of probability—its first cousin—are better provided with textbooks than most branches of knowledge. It is very unlikely that anyone else will write as good a textbook of general statistics as that of Mr. Yule or a better book on probability than Professor Czuber's; but when we difference ourselves within a narrower circle and seek a good book on the specifically medical aspects of statistical methodology the case is altered. Both Sir Arthur Newsholme and Dr. Prinzing have written books which give the reader sound instruction in the data and some of the problems of the medical statistician, but both have refrained from a discussion of biometric methods. Professor Whipple went a step further and did excellent service, but there is something of the atmosphere of a railway junction about his little manual: one is hurried along and fearful of missing many important trains.

Professor RAYMOND PEARL has now entered the field. Like Mr. Yule before him, Professor Pearl has not joined the ranks of textbook writers before having placed his reputation as a first-hand investigator beyond cavil or before having learned by teaching how one must teach. We should therefore have expected him to produce a good textbook, and we have not been disappointed.[3] He is under no illusions whatever as to the probable mathematical knowledge of his public, whom he neither perplexes with algebra nor treats with an exasperating condescension. Professor Pearl approaches the subject by the historical route. He first shows what the pioneers aimed

[2] *High Blood Pressure: Its Variations and Control.* A Manual for Practitioners. By J. F. Halls Dally, M.A., M.D., B.C.Cantab., M.R.C.P.Lond. London: William Heinemann (Medical Books), Ltd. 1923. (Demy 8vo, pp. xii + 155; 23 figures. 10s. 6d. net.)

[3] *Introduction to Medical Biometry and Statistics.* By Raymond Pearl. Philadelphia and London: W. B. Saunders Co. 1923. (Med. 8vo, pp. 379; 71 figures. 28s.)

NINETY-SECOND ANNUAL MEETING
of the
British Medical Association,
BRADFORD, 1924.

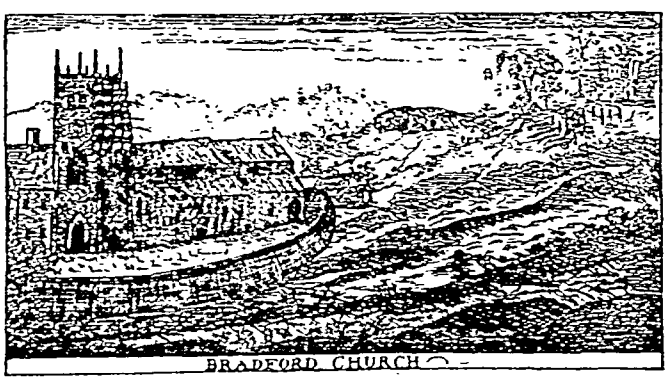
THE ninety-second Annual Meeting of the British Medical Association will be held at Bradford next summer, under the presidency of Mr. J. Basil Hall, M.Ch.Cantab., consulting surgeon to the Royal Infirmary, Bradford, who will deliver his address to the Association on the evening of Tuesday, July 22nd. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the mornings being given up to discussions and the reading of papers, and the afternoons to clinical and laboratory demonstrations. The Annual Representative Meeting will begin on the previous Friday, July 18th. The provisional programme for the work of the twelve scientific sections is being drawn up by an Arrangements Committee, consisting partly of Bradford representatives and partly of members elected by the Council. The names of the presidents of sections were given in a Current Note published in last week's SUPPLEMENT, and the full list of officers, together with other details of the arrangements for the Annual Meeting, will appear in subsequent issues. On the last day of the meeting —Saturday, July 26th—there will be excursions to places of interest in the neighbourhood. We publish below the first of a series of descriptive and historical articles on Bradford.

BRADFORD: AN HISTORICAL SKETCH.

BY
J. HAMBLEY ROWE, M.B., C.M.,
FELLOW OF THE SOCIETY OF GENEALOGISTS.

"WORSTEDOPOLIS," as Bradford has been named from its chief industry, is the ninth town in England in regard to its population. Though its written history stretches back to the Domesday Book, yet its marked industrial importance may be regarded as chiefly of modern if not of mushroom growth. In the census of 1801 the population of its present area was recorded at about 24,000; to-day it has close on 300,000 people, a notable expansion and paralleled by but few towns in the British Isles.

A small market town for many centuries, Bradford in 1847 received a charter of incorporation and became a borough. In 1889 it was raised to the status of a county borough, and in 1897 it was created a city. Its chief magistrate became one of the Lord Mayors of England in 1907, and on December 6th, 1919, Dr. Perowne was appointed first bishop of the new diocese of Bradford.



BRADFORD CHURCH IN THE CIVIL WAR, 1643.
Showing packs of wool on tower protecting it from bullets and cannon balls.

Bradford lies in a tributary valley of Airedale and has to the north and west quite extensive health-giving heather-clad moorlands, attaining in one instance to the height of 1,400 feet. The altitudinal range of the city itself varies from 300 to 1,100 feet.

It is on the moorlands that we find numerous evidences of Neolithic man in flint implements, barrows, stone circles, and notably cup and ring marks. Indeed, two examples of urn burials have been discovered within the city boundary. In the upper reaches of the Aire and the adjoining Wharfe many important remains of early man have been found, and just over the watersheds of these rivers is the famous Victoria Cave at Settle, which yielded to Professor Boyd Dawkins a wealth of prehistoric remains.

Of the Brigantes who inhabited this part of England few traces are to be found. Perhaps the most interesting is the method of scoring sheep in corrupt Celtic enumeration which persisted in the Yorkshire dales to within the last few years. Certain dialect words explainable only by Celtic roots occur, such as to *posset* (the bringing up of curdled milk by an infant), *sad* (that is, solid, firm—as in sad cake), *brat* (an apron), *boggart* (a bogy, hobgoblin). A few place names of Celtic origin survive, such as Pennyghent, Pinhow, Pennythorn, and Carn Fell, the names of hills.

In respect to folk-lore we still meet with the couvade, which has been explained as a survival of a phase of matriarchy and therefore of pre-Celtic and non-Aryan days. In Nidderdale the souls of unbaptized infants pass into or are embodied in that strange bird, the night-jar. Infants that are bad are often screaming and wakeful when their parents want to sleep, and the selection of the night-jar as a receptacle appears extremely appropriate.

The Roman occupation coincides pretty nearly with the last phase of Celtdom in Yorkshire. Though no Roman road has yet been proved to have passed through Bradford, near to the south-west corner of the city well marked traces of the Roman road from Manchester to Boroughbridge (Isurium) via Ilkley are yet to be seen. At Ilkley there was a Roman camp of some pretensions which was partly excavated in 1921 and 1922. Numerous remains of buildings, ware, coins, and altars have been found. Another Roman road from Ribchester to Tadcaster and York also comes through Ilkley, and a fort on this route has been excavated at Elslack near Skipton.

That the Saxons colonized the West Riding very thoroughly is indicated by the great majority of the place names, amongst which those ending in *ton* and *ley* predominate, whilst *ford*, *shaw*, and *worth* are very frequent terminations. There are crosses of this age in Ilkley

at and then describes practically the methods by which modern biometricians can solve at least some of the problems which our predecessors dreamed of solving. Medical men have complained that the delectable city of the statistician is surrounded by a barbed wire entanglement of algebra and that the usual welcome accorded a visitor who attempts to creep under the wire is a shower of bombs discharging gamma functions, determinants, and other poisonous gases. Professor Pearl has cut a path through the wire and provided gas masks. That some of the denizens of the city will be able altogether to refrain from bombing the visitors, and that the gas masks will be entirely impervious to the fumes, are propositions we are not prepared to maintain. We can see, in the mind's eye, hands reaching out to the store of bombs when sundry philosophers chance on Professor Pearl's calculation of the probability that the sun will rise to-morrow. The terrible spectre of "spurious correlation" which haunts all those who have to correlate rates may squeak and gibber over the interpretation of such examples as that of page 329. For our part, however, we think Professor Pearl entirely justified in refraining from highly technical discussions. Without courage one arrives nowhere. No medical man could read this book without learning a great deal, very few could read it without becoming interested in the subject. In other words, Professor Pearl has succeeded, and we congratulate him heartily.

PSYCHO-ANALYSIS.

A Critique of Psycho-analysis.

DR. JOHN T. MACCURDY has written a book entitled *Problems in Dynamic Psychology*,[4] in which he subjects the theories of Freud to a critical discussion. The author differs from most critics of Freud in that he is himself a professed Freudian, and has had considerable experience of psycho-analysis from the practical standpoint. He has discovered from the study of Freud's writings and from his own observations certain limitations and inconsistencies in psycho-analytic formulations, and he feels that the greatest service which can be done to psycho-analysis to-day, and the most practical form for tribute of gratitude to Freud to take, is the dispassionate criticism of his work.

In the first part of the book the author deals critically with Freud's views on the unconscious, instinct, sex, repression, and ego-libido, dementia praecox and paranoia, depression, the neuroses, emotions, and dreams. The work of two other psycho-analytic writers, Ferenczi and Burrows, is also discussed in a section dealing with the preconscious phase of development. These discussions presuppose an intimate knowledge of the intricate details of psycho-analytic theory, and the writer's arguments will only appeal to those readers who are versed in Freud's terminology and to whom it conveys a meaning. The ordinary reader will find Dr. MacCurdy's criticisms difficult to understand, and we could have wished that he had done more to clarify the obscurities of Freud's teaching. A lengthy chapter is devoted to a criticism of the theories of the late Dr. W. H. R. Rivers as outlined in his book on *Instinct and the Unconscious*. The author's criticisms are almost wholly adverse, but he, nevertheless, regards this book as extremely valuable in its suggestiveness, and thinks that it may prove to be a landmark in the evolution of psychopathology. Dr. MacCurdy's own views are given in the concluding chapters, which are thus constructive rather than critical. He is dissatisfied with the exclusive importance attached by Freud to the sexual as an explanation of practically all psychopathological phenomena, and his experience has led him to the view that any general formulations must include the factors of social and ego-instincts as well as sexual. Dr. MacCurdy's studies of these instinctive tendencies and their interactions are of value and interest, and include a number of observations which the psychopathologist will find helpful.

[4] *Problems in Dynamic Psychology: A Critique of Psychoanalysis and Suggested Formulations.* By John T. MacCurdy, M.D. Cambridge: The University Press; New York: The Macmillan Co. 1923. (Cr. 8vo, pp. xv + 233. 12s. 6d. net.)

Group Psychology.

In a book the English translation of which has the title *Group Psychology and the Analysis of the Ego*,[5] Professor SIGMUND FREUD subjects the theories of Le Bon, MacDougall, and Trotter on the psychology of the crowd and the herd instinct to a critical examination. An interesting feature of the book is that it contains a clear statement of what the author means by libido or sexual energy. He writes as follows:

"We call by that name (libido) the energy of those instincts which have to do with all that may be comprised under the term 'love.' The nucleus of what we mean by love naturally consists (and this is what is commonly called love, and what the poets sing of) in sexual love with sexual union as its aim. But we do not separate from this on the one hand, self-love, and on the other, love for parents and children, friendship and love of humanity in general, and also devotion to concrete objects and to abstract ideas."

From this wide conception of libido or sexual energy—so wide as obviously to embrace the whole field of emotional attraction—Freud proceeds to develop the view that love relationships (or, to use a more neutral expression, emotional ties) constitute the essence of the group mind. He combats the view that the "social" or "herd instinct" is an irreducible and primitive one, and endeavours to show that it is possible to discover the beginnings of its development in the emotional ties of the family group. The study of the affective relationships between one person and another leads the author into a discussion as to the nature of hypnosis from the standpoint of psycho-analytic theory. He also gives a complex analysis of the process of "identification," and illustrates the importance he attaches to this process by examples taken from morbid mental states, especially some forms of melancholia. The book contains some of Freud's most recent views and is of interest on that account.

Psychotherapy.

Three lectures delivered by Dr. WILLIAM BROWN at King's College, London, have been published in a small book entitled *Talks on Psychotherapy*.[6] The first lecture deals with dissociation, hypnotism, and suggestion; the second with psycho-analysis, abreaction and transference, and the modern development of the libido theory; and the third with Freud's recent views on the psychology of melancholia, auto-suggestion, and the will. Certain obscure passages are included in the first lecture, where the author considers the relation between mental and spiritual healing. A distinction is here drawn between mind and spirit, and Dr. Brown does not make it clear whether he means by the latter term a creative life principle or a mystical essence which is part of an external spiritual power. In the former sense the word "spirit" might be legitimately used in psychology; it merely implies that life and mind are creative rather than mechanistic, and there are a number of facts in regard to the behaviour of living organisms which might be held to justify the erection of a psychology on a non-mechanistic basis. In the latter sense, however, the word "spirit" would seem to be out of place in psychological nomenclature; it is not a concept based upon the observation of facts; rather is it one derived from certain feelings, experienced by individuals at moments of mystic insight, of being one with an ultimate spiritual reality. The introduction of this definitely religious concept into psychological theory and practice would appear to be an innovation of doubtful value. The book as a whole, however, is clear, readable, and interesting, though it naturally only touches the fringe of the subjects considered by the author.

HEREDITY AND EUGENICS.

THE greatest obstacle in the way of an author who compiles a treatise on heredity is to avoid both the dullness of a catalogue and the minute detail of a memoir, or rather a collection of memoirs. Professor GATES[7] in his book on

[5] *Group Psychology and the Analysis of the Ego.* By Sigm. Freud, M.D., LL.D. Authorized translation by James Strachey. London and Vienna: The International Psycho-Analytical Press; London: G. Allen and Unwin, Ltd. 1922. (Roy. 8vo, pp. 134. 7s. 6d. net.)

[6] *Talks on Psychotherapy.* By William Brown, M.A., M.D.Oxon., D.Sc., M.R.C.P.Lond. London: University of London Press, Ltd. 1923. (Cr. 8vo, pp. 56. 2s. 6d. net.)

[7] *Heredity and Eugenics.* By R. Ruggles Gates, Ph.D., F.L.S. London: Constable and Co. 1923. (Demy 8vo, pp. x + 288; 33 figures. 21s. net.)

The incursion of the Scandian and Danish races and their settlement in Bradforddale and Airedale is also indicated by the not infrequent terminations in place names of *thwaite* and *gill* (Norse) and *by* and *thorpe* (Danish). The dialect of the district also affords evidence of the influence of these peoples. A child is said to *lake* when it plays, or to *skrike* instead of shriek or screech. To *kittle* means to tickle or to *lig* down means to lie down, *neive* is a fist, and a bridge is yet a *brigg*, and to *skift* is to shift. This shows that the Norse influence was sufficiently strong to resist the palatalization of the guttural.

In the Domesday Survey of 1086 we first find the town mentioned as the manor of Bradford, together with six unnamed berewicks attached to it which were in the possession of Gamel, *Tempus Regis Edwardi.*

The description of Bradford, like many another Yorkshire Domesday manor, finishes with the words, *It is waste.* Four years after the battle of Hastings the Conqueror came north to crush a rebellion and swore by God's splendour, his usual oath, that he would not leave a soul alive, and his words were evidently effectual, for Simeon of Durham says that the inhabitants in the North who escaped William's vengeful wrath "ate rats, mice and other vermin to sustain life," so devastated was the country.

Bradford, with many another manor, was given to Ilbert de Lacy, one of the Conqueror's Norman followers, and so vast were his possessions that he could journey from Pontefract to Blackburn over his own land. Eventually John of Gaunt, "time-honoured Lancaster," succeeded to this estate, and a singular tenure of land was granted by him to John Northrop of Manningham. On the many occasions that the Duke of Lancaster passed through Bradford, Northrop "was on the blowing of a horn (*Unum flatum cornu*) to wait upon the Duke with a lance and hunting dog for forty days and to have for yeoman's board one penny for himself and a halfpenny for the dog." A descendant of Northrop granted land to one Rushforth on condition that he held the lance whilst Northrop's man blew the horn. The horn is still preserved and is now in the possession of the Corporation.

In mediaeval days we do not get many items of outstanding interest in the history of Bradford. But plenty of material of great local interest bearing on the social life of the people in successive centuries is extant in the very fine series of court rolls for the manor of Bradford preserved in the Public Record Office and in the muniment room of Viscount Mountgarret. The former set was transcribed at the expense of the late J. Norton Dickons, and presented to the Free Library, where they may be consulted by anyone interested in the development of English social life and laws from 1330 to 1539.

In 1378-9 Richard II levied a poll-tax, and the membranes containing the names of persons taxed and the amounts paid exist in the Public Record Office. The returns for the West Riding of York have been printed, and therein we find that the total of the tax paid by the then inhabitants of the present area of the city came to £6 16s. 4d.—that is, a little [illegible] of what the whole wapentake paid. Out

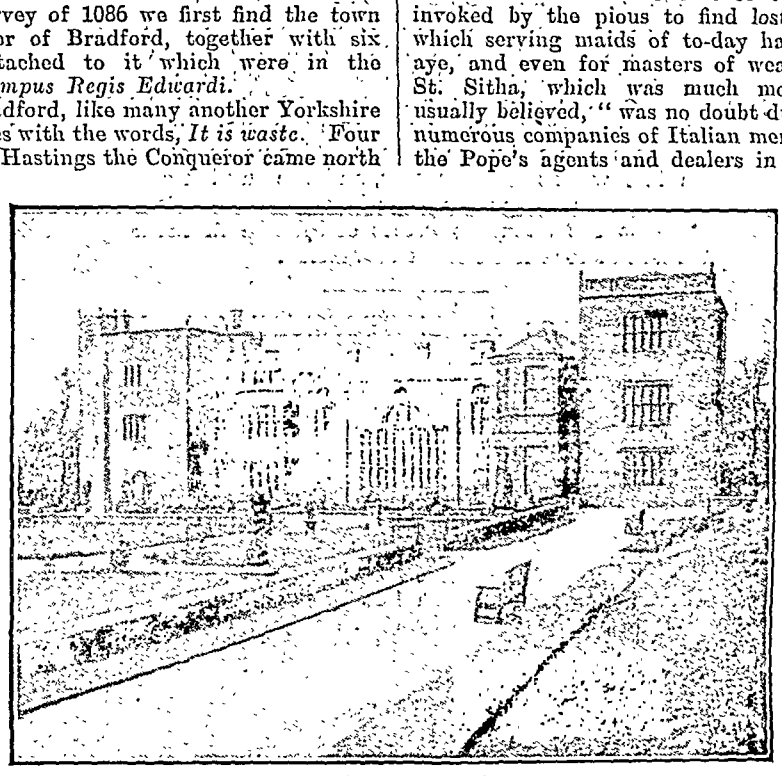
Leland, the diligent travelling topographer to Kin VIII, visited the town, and his quaint remarks may recorded here:

"Bradeforde a praty quik market toune, dimidio aut c minus Wachefelda (Wakefield). It hath one paroche ch a chapel of Saint Sitha. It standith much by clothing distant vi miles from Halifax and 4 from Christestal (Kirkstall).

The chapel of St. Sitha was dedicated to St. Z serving maid of Lucca esteemed for her zeal in att at church and for her care of the poor. She w invoked by the pious to find lost keys—a domes which serving maids of to-day have to do for mi aye, and even for masters of weak memory. The St. Sitha, which was much more widespread usually believed, "was no doubt due to the influenc numerous companies of Italian merchants whose bu the Pope's agents and dealers in wool took them parts of the c

There was traffic with t tinent in Engl in the twelft teenth, and fo centuries, as judged from that at the en thirteenth c about 2,380 s English wool, some £25,0 £30,000, were ally sent to F

The Civi brought much to the inhabit Bradford. In 1642, Charles I his standard tingham, and his first acts send troops i larger towns West Riding, the Puritan ment, owing to



Bolling Hall from the South.
Headquarters of the Earl of Newcastle, during the siege of Bradford, 1643.

and able preachers, had taken strong root. T brush in the North of England between the o factions took place at Bradford early in De 1642, and on this occasion the Royalist troop repulsed. On Sunday the 18th of the same mo William Savile with a large force attacked the to was beaten off without doing much damage. The lo were an undisciplined body, badly armed, for they co muster "forty muskets and calivers and about fowling, birding, and smaller pieces," the others being with scythes, hay-forks, clubs, and such like weapons

Some six months afterwards the second siege of B took place. The Earl of Newcastle, with an army or twelve thousand men, marched on Bradford and w on Adwalton moor, about four or five miles to the so of the town, by Fairfax with three thousand men. encounter ensued, known as the battle of Atherton, Puritans, though within an ace of victory, were bea

Newcastle then moved on to Bradford and gave that next day no quarter was to be shown to the inhab But as he lay that night at Bolling Hall, the ancie of the Tempests, an apparition in female guise ap saying in plaintive tones, "Pity poor Bradford," poor Bradford." The stern man relented and the the people were spared, but all their valuables and li were taken. The setback Bradford received durin wars was very great and a retarding effect on its pro and development lasted for a hundred years.

Bradford had for many centuries been a marketing whereto the weavers of the surrounding country cou

Heredity and Eugenics has not altogether avoided the former danger; it cannot, indeed, be avoided in a volume of 250 pages without devoting disproportionate attention to some one phase of the subject or line of research. His book is a useful guide to the literature, for its plan is to recapitulate briefly the conclusions of the authors cited and to indicate some of the difficulties of interpretation. The logician will probably think that in many instances the evidence that the traits considered are inherited is incomplete, since it amounts to no more than the statement that in certain pedigrees such or such a character recurred in several generations. The evidential value of these concurrences depends on the assumption that the characters considered occur so infrequently that their independent existence in several members of one stock is an improbable event, less probable than that a common organic factor was responsible. In some of the cases the alternative may be accepted without further evidence, but not in all. Again, in instances of purely functional traits, the factor of common environment cannot be ignored.

Professor Gates justly points out that various effusions of psychopathologists—usually, we think, the less intelligent followers of the psycho-analytic cult—"frequently fail to appreciate that any element of mental inheritance exists." He instances the lucubrations of Kempf, who seeks to explain the development of Darwin's genius on psycho-analytic lines and descants on his mother-fixation and other such topics. As Professor Gates remarks, "it ought to be obvious that if Darwin had been a person of mediocre ability, neither his mother attachment nor anything else could make of him a great naturalist." This is one of the obvious facts that some psychologists are constantly overlooking.

Professor Gates has written a useful book which, we think, will be valuable to the busy medical man who has no time to consult the enormous literature of the subject.

NOTES ON BOOKS.

THE series of *Optotypes* by GREEN and EWING[8] present some new features; much of the work on the series was done in 1913 before the death of Dr. Green. The types embody the fundamental theory and classical notation of Snellen; the variations are conceived with a view to eliminate unequal ratios of gradation, by adopting a gradation in geometrical progression—that is, 1, 2, 4, 8, 16, 32, 64; to simplify the routine and to enlarge the scope of trustworthy clinical determinations by providing varied sequences and arrangements of the letters and of other characters; and to minimize the differences in the legibility of the several test letters through a conservative change of the typographical character. The letters are printed in block capitals on each side of the cards, and the pictographs for illiterates are treated similarly; the pictures are simple and show such common objects as a teapot, a jug, a cross, a square, and a circle. It would be a good plan to print these optotypes and the pictographs on long vertical cards, which could be conveniently placed in the trial drum in general use; for rapid testing a series of thirty-five plates is rather a large one to juggle with; the letters are certainly very good and legible, and if the surgeon is concerned for any reason to determine the maximal acuity of any case, they will be found useful and trustworthy; we have got 6/4 quite easily with them.

Mr. J. T. HACKETT has enjoyed the uncommon pleasure of seeing his *Commonplace Book* put into print. The first edition was published in Adelaide in 1919; the first edition published in England appeared, we gather, in the same year, the second and third in 1920, so that the book pleased the public; the fourth edition,[9] larger than the first, has been issued this autumn. The extracts, which show wide reading and catholic taste, have been thrown together without any order, a want of method the author justifies on the ground that it introduces the element of surprise. Two observations suggest themselves. The first is that the beauty of verse must depend in part on the cadence produced by the mere choice and order of words, for in some of the most beautiful lines in the English language the thought is neither very profound nor very original. The other is that the eighteenth century knew better how to pack much matter into few words than any English writer of to-day or for many days. Pope, for example, as some of Mr. Hackett's extracts show, could sometimes equal the polished gems of the French epigrammatists. The author has inserted a number of explanatory notes, and also a few longer commentaries which are not quite so appropriate.

The *Medical Directory*[10] for 1924 has been issued, and the reviewer may well wonder what he can find to say new about an annual which has so thoroughly established itself in the esteem of the profession. It contains 1,297 more names and 26 more pages than the issue for last year. We welcome the list of honorary secretaries of Local Medical and Panel Committees, which now seems to have become a standing feature, but regret the continued absence of the summary of laws affecting the medical profession. Long experience has enabled the editors to make the volume as nearly perfect as a yearbook in this changing world can be. From the table showing the numbers of the profession year by year since 1915 it appears that there are now rather more registered practitioners resident abroad (7,648) than in London (7,239); this is the third year in succession in which this phenomenon has presented itself, but the list of practitioners beyond the seas does not include those who hold degrees from Dominion universities but have not taken diplomas or degrees in the home countries. The number of practitioners in the provinces of England, in Wales, Scotland, and in Ireland, all show small increases; in fact the only decrease is in the Services—Navy, Army, Air Force, and Indian—and even there the decrease is small, from 3,458 to 3,452. In the *Directory* for 1914 the number was 3,356.

Messrs. John Wright and Sons, Ltd., of Bristol, have sent us a copy of one of their visiting lists—*Wright's Improved Physicians' and Surgeons' and Consultants' Visiting List*, arranged by Mr. ROBERT SIMPSON, L.R.C.P., L.R.C.S. The lists are made in six sizes to accommodate the names of from 40 to 240 patients each month. By means of an ingenious system of half-page interleaving patients' names need only be entered once a month, thus economizing the practitioner's time. A number of useful tables have been incorporated in the book, together with much valuable information, a consultant's record, and space for notes and cash accounts. The visiting list is not much larger than an ordinary pocket-book; it is a very handy and useful little volume. The prices range from 10s. 6d. to 13s.

[8] *Optotypes: Consisting of Test-Letters and Pictographs for Measuring the Acuteness of Vision.* By John Green, M.D., LL.D., and A. E. Ewing, A.M., M.D. London: Henry Kimpton. 1923. (Med. 8vo, pp. 24; 19 cards containing letters, tests, etc. 25s. net.)

[9] *My Commonplace Book.* By J. T. Hackett. Fourth edition. London: Macmillan and Co., Ltd. 1923. (Demy 8vo, pp. xx+433; 12s. 6d. net.)

[10] *The Medical Directory* for 1924. London: Messrs. J. and A. Churchill. 35s. net.

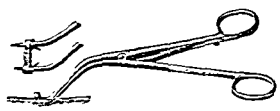
PREPARATIONS AND APPLIANCES.

Oleo-Bi.

IT was generally thought that the organic compounds of arsenic of the type introduced by Ehrlich were specific in their effect on the *Spironema pallidum*. Slowly it became clearly apparent that this assumption must be abandoned. Other metallic compounds have been found to possess similar efficacy, and there is now no doubt that the discoveries of Ehrlich did no more than open the gate to a rich field for exploration. In this connexion bismuth has attracted particular attention, and the remarkable fact has emerged that effective results are obtained from very simple compounds. Acting on decisive successes obtained with these the Hoffmann-La Roche Chemical Works (7, Idol Lane, London, E.C.3) have engaged in the manufacture of two such preparations, named Oleo-Bi and Tarto-Bi. The former consists of a suspension of bismuth oleate in oil, and the latter is an aqueous solution of sodium bismuthyl tartrate, a substance of analogous constitution to tartar emetic. A specimen of the Oleo-Bi submitted to us has been examined analytically with satisfactory results as to the chemical purity and the quality and permanence of the emulsion.

A New Michel Clip Remover.

Dr. Frank H. Edwards (Shrewsbury) writes: I have often wished that there were a simple way of removing Michel clips, as the two methods commonly used have great disadvantages. In one the under blade of a special pair of forceps has to be forced up against the actual wound; in the other, where two hooks are used, the method is clumsy and the hooks are not easy to manipulate. I have designed a pair of forceps angled twice on the flat with two points instead of blades, one point being 1/16 in. longer than the other. These points are separated by closing the handles and are normally held together by a strong spring. The method of use is to insert the longer point into an eye of the clip, and while this point is steadied the shorter one can easily be fitted into the other eye. The handles are then closed and the clip is stretched out flat, being then easily removed. There is no discomfort to the patient and the forceps are very easy to use. Messrs. Mayer and Phelps have made the above instrument for me.

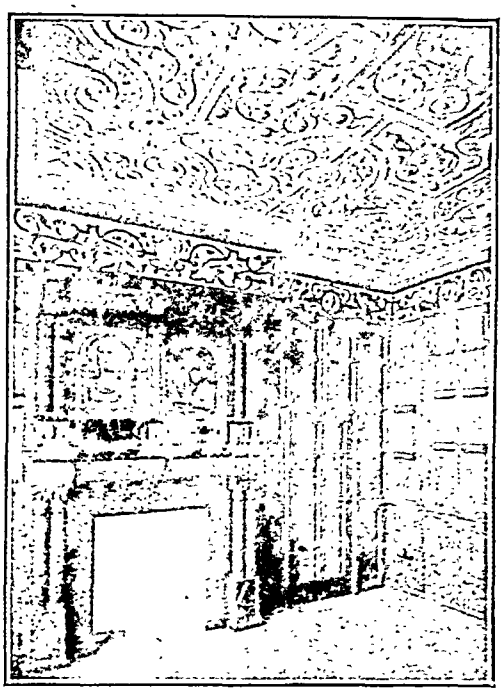


r sale. Up to within the last 150 years the th was carried on in cottages and in some cases ouses all over the countryside. The farmers, esmen, and the labourers of the surrounding ombing, spinning, and weaving appliances of simple design in their houses, and with the wives and children made cloth week in and any generations.

l the goods were he "pieces," as loth were called, or sale and found ers in the open in 1773 the old as erected. To- of the eighteenth began to employ rk for them as s allowing the te all their time work of weaving, ployer took upon sk of finding the woven and also or the finished cialization took departments and lyeing, spinning, eased to be a one passed into the al.

irther specializa- velopment took s were set up in large buildings many cases the worked by water the buildings ls. The introduc- driven machinery siderable opposi- mass of weavers. at large numbers be thrown out of these labour-saving devices. Their mistaken uite reasonable, for no similar revolution had dustry before, and consequently there was no rience from which to draw a correct inference. n 1793 formed the design of erecting a factory o be wrought by a steam engine. He was e threats of his neighbours, some of whom years cted mills of their own. In 1798 the first mill worked by steam was built, its propelling force being an engine of 15 horse-power. Shortly after more engine-worked mills were built, until in 1819 the aggregate of horse-power amounted to 492, all built in the face of severe opposition.

At Heckmondwike, in the neighbouring Spen Valley, in April, 1812, the Luddites (a mob calling themselves the army of General Lud) attacked Rawfold's Mill and caused much damage. Several of the rioters were tried at York Assizes and received punishment. Charlotte Brontë, in her novel *Shirley*, incorporated many of the incidents in her account of the riot at Hollows Mill. A year or two ago these incidents were cleverly filmed at the exact place of their occurrence. Since those troublous days Bradford has expanded by leaps and bounds in spite of strikes, breaking of banks, imposition of tariffs, and other hindrances to trade development.



Bolling Hall: Bedroom in which the ghost appeared to the Earl of Newcastle.

Several causes have contributed to the rapid expansion of the town: (1) The proximity of coal and iron deposits and their development by the Low Moor and Bowling Companies; (2) the erection in the early decades of the last century of many weaving and spinning mills equipped with machinery which drew country folk in great numbers to the town—a people, too, who could and would work; (3) the presence of suitable building stone in an inexhaustible quantity in the neighbourhood; and (4) the fact that the air of Bradford possesses just that degree of humidity which enables the spinning of wool to be perfectly effected. It is said that in no other part of England or of the world can wool be spun so easily and efficiently as in Bradford. This is probably due to the fact that the town lies in the hollow of a tributary valley of Airedale, and that the loam lining that hollow is in most places not much more than 9 inches deep, while below it is an extensive deposit of glacier-borne boulder clay which is more or less impervious.

PROFESSORSHIPS OF THE ROYAL SOCIETY.

ESIDENT'S ANNIVERSARY ADDRESS.

rsary meeting of the Royal Society on Novem- President, Sir CHARLES SHERRINGTON, G.B.E., reviewed the Society's policy in respect of the of the various funds at its disposal for the of research. He prefaced his remarks on this oting Sir Alfred Yarrow's wish that his of £100,000 should be used "to aid scientific quate payment and by the supply of apparatus ities rather than to erect costly buildings." ion was specially germane to a line of policy o shape itself in the Society last year and further developed. The Foulerton, Messel, Mond funds, taken in conjunction and wishes of their individual donors, lent them- ll to a systematization of the Society's pro- ncing research. In view of the fact that the y possessed funds derived from various sources l it to render valuable aid to workers of early period of their career, it was decided consideration that the form of help now led and specially likely to be effective in advancing discovery was the creation of a greater opportunity for fully experienced investigators of already proved first-rate capacity in research. It was felt that increased opportunity afforded to such investigators was likely, with a prospect of comparative certainty, to attain its recompense in the achievements such investigators would accomplish. The Society, by virtue of its own organization, had the opportunity of knowing the powers and scientific circumstances of representatives of this class of investigator. Over an ample field, and at many points in that field, it lived in contact with their endeavours, was conversant with work they had already done and often with work they were in fact prosecuting and could prosecute more fully had they increased opportunity for so doing. In institutions, university or other, such investigators for the most part occupied positions to which opportunity for research was an adjunct to calls of other nature upon their strength and time. Such seats of learning showed themselves in instance after instance desirous that their personnel should prosecute research, but also, in instance after instance, were embarrassed to secure to them adequate time for so doing. Therefore it was felt that the Society, by securing, in co-operation with this or that particular institution, ample freedom of time for a distinguished member of the staff to prosecute research undividedly, would be helping the

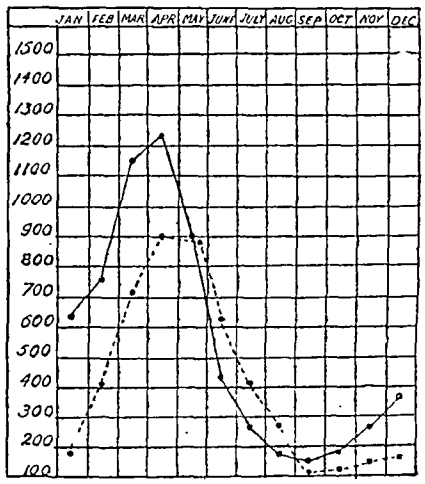
BLACKWATER FEVER:

ITS ETIOLOGY AND PARASITOLOGY.

IN our last issue we referred briefly to the recent research activities of the London School of Tropical Medicine. During the past two years Dr. J. Gordon Thomson, Director of the Department of Protozoology of the School, has been engaged upon an inquiry into the etiology of blackwater fever in Southern Rhodesia, and his preliminary report has just been issued.

In all parts of the world where pernicious malaria is rife blackwater fever is known, while it does not occur where there is only the benign tertian type of malaria. Although this is presumptive evidence that pernicious malaria (*P. falciparum*) is associated with blackwater or haemoglobinuric fever, yet many clinicians and not a few investigators have been attracted to the hypothesis that there is a special protozoan or spirochaetal parasite. The most recent and apparently convincing evidence in this direction was the work of Blanchard and Lefrou, who by a special technique claimed to have demonstrated a new spirochaete, named by them *Spirochaeta biliohaemoglobinuriae*. In an earlier communication* from South Africa

MONTHLY INCIDENCE OF MALARIA AND BLACKWATER FEVER, SOUTHERN RHODESIA.



Hospital admissions 1913 to 1922 inclusive.

●———● Malarial curve.

●- - - - ● Blackwater fever curve (this curve is multiplied by 10).

Total malaria treated in hospitals, 6,608.

Total blackwater fever treated in hospitals, 492.

Dr. J. G. Thomson conclusively showed by the study of a series of fifteen cases from the first day of illness to its termination that true spirochaetes did not occur, but that the Blanchard-Lefrou technique gave what he has termed "pseudo-spirochaetes"—that is, artefacts or filaments showing Brownian movement and resembling spirochaetes. These non-living pseudo-spirochaetes could also be recovered by the same technique from cases of malarial anaemia and from the blood of cattle with piroplasmosis.

In his new preliminary report† Dr. Thomson frankly adopts the view that blackwater fever is due to infection with the malignant tertian malaria, which gives rise to 96 per cent. of the malaria cases in Rhodesia, and is of the same morphology as in Panama and Macedonia, although there are variations in individual infections. The close monthly relationship in the rise and fall of these two diseases is shown in the striking chart here reproduced of the admissions to the hospitals of Southern Rhodesia for the past ten years of 6,608 cases, and 492 cases of blackwater fever.

In discussing this chart Dr. Thomson makes the following observations:

By making an analysis of the hospital statistics of Southern Rhodesia for ten years (1913 to 1922 inclusive) I have been able to represent graphically the monthly relationship between malaria and haemoglobinuric fever. This chart shows clearly that as the incidence of malaria rises the cases of blackwater increase, and as the malaria falls we have a corresponding diminution of blackwater fever.

The cases of malaria commence with the first rains at the onset of summer in October, and steadily increase during November, December, January, February, and March, finally reaching a maximum in April. The first and last three months of every year supply the rainfall and ideal temperature required for the rapid multiplication of anopheline mosquitos. Observations and collections of anopheline mosquitos showed that these were most numerous during the month of April. . . .

It will be noted that the worst months for blackwater fever are April, May, and June, as it is during these months the full effects of malaria occur, and the sudden drop in the incidence of blackwater during the months of July, August, and September corresponds in a remarkable manner to the diminution of malaria and the disappearance of mosquitos.

Such a co-relationship as indicated by this chart over a period of ten years, which includes 6,608 cases of malaria and a total of 492 cases of blackwater fever, shows definitely that malaria and haemoglobinuric fever are either one and the same disease or that both diseases are conveyed by the same biting insect or by insects with similar seasonal and domestic habits.

The fact that blackwater fever occurs principally amongst persons who live in unprotected houses and are careless about mosquito nets gives us positive evidence that this condition is associated with the bites of mosquitos, and reference to the chart proves that it is undoubtedly associated with the period when anopheline mosquitos are most active. It is important to note that a temperature of over 61° F. is necessary for the successful development of the sexual cycle in the anopheline female, and . . . in October, November, December, January, February, and March the mean minimum temperature never falls to 61° F., and therefore ideal conditions exist for the rapid production of infected mosquitos during these months.

It is well known that malaria parasites generally disappear from the peripheral blood after the onset of blackwater, and this has been regarded by some as evidence that the disease cannot be due to the malaria parasite. Dr. Thomson was so fortunate during his inquiry as to examine 23 cases prior to the onset of blackwater symptoms, and in every case was able to demonstrate the presence of malaria parasites, although these disappeared with or shortly following the commencement of haemoglobinuria. He recognizes a condition named the "pre-blackwater fever type"; in it a small dose of quinine will actually precipitate haemoglobinuria, and it develops in patients suffering from chronic malaria who take quinine irregularly and inefficiently. While quinine will cure malaria and so prevent blackwater it is useless to attempt to cure malaria with a few doses of quinine given once a week or fortnight, for this only results in chronic malaria, and so in a highly dangerous condition which may fulminate in blackwater fever.

A study of the anopheline mosquitos of Rhodesia implicates *Anopheles costalis* as the chief carrier of malaria. This mosquito abounds all over Southern Rhodesia, is wild in its nature and avoids large towns, but breeds in pools of water in the veld and in the margins of slowly flowing spruits. It is, therefore, a problem of grave complexity and menace for the new Government of Southern Rhodesia. Happily the publication of Dr. Thomson's report among the earliest of the White Papers laid before the Legislative Council is a good augury that those undertaking the new administrative responsibilities are alive to the wisdom of early efforts to ameliorate the health conditions of the newest apanage of the Crown.

* The Common Occurrence of Pseudo-spirochaetes in the Blood of Blackwater Fever Cases and of Normal Human Beings and Animals when using the Technique of Blanchard and Lefrou. *Journal of Tropical Medicine and Hygiene*, August 1st, 1923.

† Preliminary Report on the Results of Investigations into the Causation of Blackwater Fever in Southern Rhodesia. By J. G. Thomson, M.B., Ch.B. Presented to the Legislative Council of Rhodesia, 1923. Salisbury: Printed by the Government Printer.

tions had been wont, indeed in many instances had been compelled by force of circumstances, to regard teaching as the primary occupation of professoriate and staff: the Society had in its new policy deliberately inverted that order of precedence. By this inversion it desired of set purpose to recognize research as a definite profession and to advance, and to maintain, the principle that the labourer is worthy of his hire no less when engaged in research than when engaged in class instruction.

The President referred to the appointment of Professor E. H. Starling just a year ago to be Foulerton Professor, and announced that two Yarrow professorships had been awarded—one to Professor Alfred Fowler, F.R.S. (Royal College of Science, South Kensington), the other to Mr. G. I. Taylor, F.R.S. (Cambridge). Professor Fowler was well known the world over as a spectroscopist whose researches had been of the greatest value to astronomy, to physics, and to chemistry. Professor Taylor had started his scientific life as an applied mathematician and had proceeded from abstract hydrodynamics to practical problems of geophysics and meteorology. The record of both gave every justification for hoping that in the unfettered freedom of the Yarrow professorships they would find opportunity for still ampler fulfilment of brilliant work. It was fortunate that both would continue their researches in the laboratories from which their outstanding work had issued in the past, and of whose tradition indeed their reputations already formed a part.

The Council had not thought fit to insist that the professors should either teach or not teach; the sole condition laid down was that to research their main energies should be devoted. Sprat, the first historian of the Royal Society, records that to Bacon's *New Atlantis* much of the inspiration for the inception of the Society and for its early life was due. Bacon had dreamed of "a college for the obtaining of knowledge of the causes of things" and enumerated its grounds and apartments, its Fellows and their functions. "Of its Fellows," he said, "twelve there be that sail into foreign countries to bring patterns of experiments from all other parts. These we call merchants of light. Then three we have that collect the experiments which are in all books. These we call depredators. . . . And," he continued, "on our foundation we have three Fellows who all their days try new experiments such as themselves think good. These we call pioneers." To-day, on the completion of its two hundred and sixty-first year of existence, the Society found itself able to fulfil closely this particular of Bacon's enthusiastic imagining. Three Fellows on its Foundation were to "try all their days new experiments such as themselves think good." They might well be designated in Bacon's word "pioneers."

Munificent as were the gifts the Society had received it hoped that the funds already in hand would prove but the auspicious starting-point for yet others of similar destination, and that either the Royal Society or other bodies might have it in their power to endow the research of all those individuals whose life ought, in the best interests of the community, to be devoted to scientific research as the main purpose of their life-career.

At the previous anniversary, the President continued, he had adverted to the high promise implied in the discovery of insulin; that promise had in the elapsed twelve months proceeded satisfactorily towards further fulfilment. It would seem possible that under treatment by insulin the beta-cells of the pancreatic islets might be able to re-establish permanently their functional powers, and that in certain cases the treatment might produce not only temporary, but lasting relief from the diseased condition. All the more welcome, therefore, was the recognition of their work received by Dr. Banting and Professor Macleod by the award of the Nobel Prize for medicine for 1922. The success of their work was based on intimate co-operation between physiology and biochemistry—if indeed these cognate studies could be considered separate—and the success of their research early in its progress was an instance of the value of team work in the best sense

sharing the prize with their two collaborators, Dr and Professor Collip. The furtherance of a scienti quiry by organized collaborators on a wider scale, yet mount in fact to team work, was exemplified by th of advance made for the year in the whole study, pr and theoretical, of insulin and insulin treatment, the wise direction of the Medical Research Council award of the Nobel prize for medicine for 1923 to Pr A. V. Hill, of University College, London, was univ gratifying to physiologists. Professor Hill's investig had dealt with the thermodynamical processes unde muscular contraction and underlying also muscular r tion after contraction, enabling contraction to itself. His elucidation of the whole problem, whic long occupied and taxed the powers of many e physiologists, was as far-reaching in outlook as it ha masterly in conception and execution.

The President then presented the Society's m among them was a Royal Medal presented to Pr C. J. Martin, Director of the Lister Institute. President said:

"Professor Martin is distinguished for contrib both to physiology and to pathology. Investigating venoms he differentiated two groups in virtue of action—one nervous, the other, so to say, humoral work on heat regulation in monotremes threw lig the evolution of the thermotaxis of warm-blood a More recently his researches have lain in the co chemistry of proteins, and in protein metabolism. A of experiments carried out by him in collaboratio his colleague, Mr. Robison, on the minimum nitrog penditure of man and the biological values of se kinds of protein-food, stands as one of the most va contributions yet made to a subject as difficult as important. Besides these personal researches at first Professor Martin has influenced inspiringly the cou research in medicine in this country. He was a m of the Plague Commission which organized the rese finally determining the mode of transmission of disease. He was chairman of the War Office Com on antityphoid inoculation. As director of the Institute he has contributed to many investigatio addition to those actually issued in his name. Th has been intimately associated with the inquiry in influence of accessory food factors of diet in the prev and remedying of 'deficiency' diseases, such as and rickets, an inquiry the success of which m regarded as one of the recent triumphs of prev medicine. His abilities have been ever at the call colleagues, and in the most public-spirited way d to the service of the community in general."

ROYAL MEDICAL BENEVOLENT FUND.

At the last meeting of the Committee forty-three case considered and £499 15s. voted to thirty-four appli The following is a summary of some of the cases relieve

L.R.C.S.I., aged 65, who owing to paralysis has been unable regularly. One daughter is out of employment, the second one is n and the youngest has a post at thirty shillings a week and is un help her father to any great extent. The Fund made an emergenc of £3 and voted at this meeting £18 in twelve instalments.

Widow, aged 81, and daughter, aged 55, of L.R.C.S.Edin. who 1918. Their only sources of income is the sale of eggs and the old age pension. They live in a bungalow of their own which h damaged by fire; the damage is estimated at £18 and they were uni A grant of £9 in six instalments was voted (to the mother) and o the daughter towards the damage through the fire.

Widow, aged 26, of M.B. who died suddenly in May, 1923. He h been in practice for one year and left his widow penniless. H was not born until July. Voted £20 in two instalments.

Widow, aged 62, of L.R.C.P.I. who died in 1902. She has maintai self by acting as a companion and up to two years ago had a per appointment, but owing to her health breaking down she had to During the last twelve months she has only received £10 from nec and £20 as temporary companion. Applicant's rent is £25 per Voted £18 in twelve instalments.

Widow, aged 46, of L.R.C.S.Edin. whose last appointment was i Africa, where he died three weeks after landing. The War Em Fund helped considerably whilst the applicant's late husba searching for an appointment. Applicant has been in hospital wi trouble. A vote of £5 was made and it was decided to reconsider t

Subscriptions may be sent to the Honorary Treasur Charters Symonds, K.B.E., C.B., M.S., at 11, Cl Street, Cavendish Square, London, W.1.

British Medical Journal.

SATURDAY, DECEMBER 8TH, 1923.

THE LIMITATION OF PHYSIOLOGICAL STANDARDIZATION.

IN a lecture delivered recently to the Pharmaceutical Society Mr. H. A. D. Jowett, D.Sc., of the Wellcome Chemical Works, who has had long experience in the manufacture of drugs which can at present only be standardized by the physiological method, emphasized the fact that the method is inherently inaccurate and therefore unsatisfactory. It should be regarded merely as a stopgap, and researches pushed forward to discover satisfactory ways of isolating pure chemical bodies. Nevertheless physiological standardization is a great advance on no standardization at all, and is usually accurate within 20 per cent. This margin of error is wide, but the drugs to which it is applied are in the main those whose active principles are so unstable that they have not yet been isolated or estimated quantitatively, so that but for physiological standardization there would be no guarantee that the finished product, made from the raw material of such drugs, would have any therapeutic activity whatever. The chief drugs which require physiological standardization are ergot, the digitalis group, pituitary extract, insulin, and the organic arsenicals. Of these the first is a rather special case; in it standardization is especially unsatisfactory because it contains a variety of active principles, and it has not yet been decided which is of chief therapeutic importance. Under such conditions no form of standardization can be of any great value, so that the unsatisfactory state of affairs as regards ergot cannot be attributed to the methods used, since the position would not, for the reason given, be materially improved did we possess exact chemical means of standardization for every constituent in the crude drug.

The chief objection to physiological standardization in the other cases is its inherent inaccuracy; there are numerous reasons for this. One is that if intact animals are used the worker is at the mercy of variations among individual animals, for living animals refuse to be standardized. This difficulty can only be evaded by using very large numbers of animals; not only is this very expensive, but there remains the problem of seasonal variations in susceptibility. On the other hand, if isolated organs are used the least variation in technique may produce enormous errors. Another difficulty is to establish some unvarying standard with which to compare the drugs tested. In the case of digitalis ouabain is used, but unfortunately it is very difficult to obtain. A non-variable standard pituitary preparation has not yet been put on the market, although hopes are expressed that such a preparation may soon be forthcoming.

The outbreak of war cut off the former German supplies of the arsenobenzol group of compounds, and the results of any undue toxicity in these drugs would have been so serious that the Board of Trade, before allowing any batches manufactured in this country to be sold, determined that they must be submitted to biological tests. The establishment of a suitable toxicity test was very difficult. With novarsenobenzol a fresh difficulty arose; a product was obtained which, though of very low toxicity, had also a very low curative power. This led to the establishment of a therapeutic test, and now the products have to satisfy biological tests for undue toxicity and for satisfactory therapeutic potency. The present position, as summarized by Dr. Jowett, is that while the biological test undoubtedly eliminates any product having an undue degree of toxicity or of low curative efficiency, yet it is possible that some batches just as good as those passed are rejected owing to variations in the animals used. The manufacturer has to face the awkward situation that the drug he produces must satisfy tests which have a possible error of about 30 per cent. Dr. Jowett mentions one instance in which, when two samples of the same batch of novarsenobenzol were submitted, one sample was passed and the other rejected. Nevertheless he concludes that, despite these limitations and the accident of experimental error, the biological control of these potent remedies is most desirable; it should, however, be recognized that manufacturers are put to serious inconvenience and expense, in the first place by not feeling confident whether their preparations will be passed either by their own or the official biologists, and secondly, by finding that improvements in the process are rendered difficult. It has been pointed out that a more accurate method of testing is highly desirable, as the losses caused by an error of testing in the case of such costly material as insulin may be considerable. While there is no need to feel alarm about the efficiency of physiological standardization it is necessary to guard against the assumption that it has a greater degree of accuracy than it actually possesses. The limitations of the method emphasize the importance of replacing it as soon as possible either by chemical methods, if satisfactory ones can be produced, or, better still, by the employment of the pure active principles.

This is a very fair summary of the situation from the manufacturer's point of view. Medical men will naturally emphasize the point that some form of standardization is essential for all potent drugs, and that most particularly it is necessary in those cases where the active principles are so unstable that they cannot be isolated quantitatively. Obviously it is in these cases that there is the greatest danger of obtaining inactive products, and it is in them that physiological standardization is employed.

Physiological standards have been adopted in the *United States Pharmacopoeia* in the case of cannabis indica, aconite, digitalis, strophanthus, squills, adrenaline, pituitary extracts, and antitoxic serums. A conference was held at Edinburgh this summer under the auspices of the League of Nations, at which all the chief countries of the world were represented: it endeavoured to fix international standards for biological assay. So far nothing has been done in the *British Pharmacopoeia* in this direction to protect the medical public.

THE NERVOUS CHILD.

THE discussion at the Annual Meeting of the British Medical Association at Portsmouth (BRITISH MEDICAL JOURNAL, November 24th, p. 963) and that on the same subject at the meeting of the Medical Officers of Schools Association reported this week (p. 1098) mark the extent of the change which has occurred of late years in the attitude of adults in general and of the medical profession in particular towards children. In the eighteenth century, in the Spartan Wesley family, the children, even babes, were not allowed to cry, and they did not. In those days and for long afterwards

THE "LANCET" CENTENARY DINNER.

IN celebration of the centenary of the *Lancet* a dinner was given to the proprietors and staff of that journal on November 29th. A company of more than four hundred gathered at the Hotel Victoria, Northumberland Avenue, with Sir DONALD MACALISTER, K.C.B., in the chair. Among those present as sponsors for the dinner or their guests were:

S.E. M. le Comte de Saint-Aulaire (French Ambassador), Lord Hewart (Lord Chief Justice), Sir Squire Sprigge (Editor of the *Lancet*), with Lady Sprigge, Viscount Burnham, Sir Louis Newton (Lord Mayor of London), with the Sheriffs, Lord Dawson of Penn, Lord Riddell, Sir Humphry Rolleston (President, Royal College of Physicians of London), Sir John Bland-Sutton (President, Royal College of Surgeons), Vice-Admiral J. Chambers (Medical Director-General, Navy), Lieut.-General Sir William Leishman (Director-General, A.M.S.), Major-General J. B. Smith (President, India Office, Medical Board), Air Commodore D. Munro (Director of Medical Services, Royal Air Force), Sir George Newman (Chief Medical Officer, Ministry of Health and Board of Education), Sir Charles Sherrington (President, Royal Society), Sir W. Hale-White (President, Royal Society of Medicine), Lady Barrett (President, London Association of Medical Women), Mr. H. J. Waring (Vice-Chancellor, University of London), Sir Walter Fletcher (Secretary, Medical Research Council), and Sir Stanley Leathes (First Civil Service Commissioner).

The British Medical Association was represented by Mr. C. P. Childe (President), Dr. R. A. Bolam (Chairman of Council), and Dr. Alfred Cox (Medical Secretary), and the JOURNAL by Sir Dawson Williams (Editor) and Dr. N. G. Horner (Assistant Editor).

In proposing the loyal toast, Sir DONALD MACALISTER remarked that His Majesty had been pleased to accept the Diploma conferring upon him the Honorary Fellowship of the Royal College of Surgeons, but with equal graciousness he had been persuaded not to present that Diploma to the General Medical Council for registration, thereby most considerately relieving that body and its President from a situation that would have been embarrassing.

THE PROFESSION OF MEDICINE.

The Right Hon. LORD HEWART (Lord Chief Justice) proposed the toast of "The Profession of Medicine." He began with a few remarks in jocular vein on the association of medicine and the law. The two professions received unstinted and universal gratitude. With the single exception of the law, there was no profession more devoted to the art of healing than the medical profession; again, with the exception of the law, there was no profession which was wiser or more humane, and he would go one step further (as they said in Parliament) and affirm that, with the single exception of the law, there was no more ancient profession than the medical. Descending to a serious topic, the Lord Chief Justice referred to the recent report of the committee of inquiry into the question of insanity and the criminal law. At present, if a person was to be held not responsible for a crime on the ground of insanity, it must be proved either that by reason of infirmity due to disease of the mind he did not know that what he was doing was wrong, or that he did not know what he was doing at all. That was the view put forward in the answers of the judges to the questions asked them in the M'Naghten case (1843). But he understood that a third alternative was now recommended—namely, that a person might still be held not to be responsible, although he knew what he was doing, and that what he was doing was wrong, if, nevertheless, by reason of disease of mind, he was uncontrollably impelled to do it. It that was indeed to be the law, he would not say that they were launching upon a sea which had no shore, but certainly they were launching upon a sea the shores of which were far more widely separated than the shores between which as lawyers they had hitherto navigated.

The PRESIDENT called upon "Sir Humphry Rolleston, my former pupil, and Sir John Bland-Sutton, my former master," to respond to the toast.

Sir HUMPHRY ROLLESTON reviewed the changes that had taken place during the last century in medicine. Whatever the present condition of the body politic, those who spoke for medicine would be tempted to adopt the attitude of Dr. Pangloss that in this department of human affairs the present was the best of all possible eras. The last hundred years had seen the rise and the results of laboratory research in medicine. It was nearly a hundred years ago that the idea of the modern laboratory originated; he instanced Purkinje's physiological laboratory in Breslau and Liebig's chemical laboratory in Giessen. The leading position of British physiology and neurology must be regarded as the outcome of this method of investigation. The middle third of the nineteenth century was pre-eminently that of structural pathology, while the remaining part of the century saw the rise of etiology after the founding of bacteriology by Pasteur and Koch. Lister's practical application of this new science to surgery was followed by Almroth Wright, whose dictum, "The physician of the future will be an immunizator," represented an ideal not yet finally reached. With the inspiration of etiology, preventive medicine, especially in tropical diseases, had led to an enormous saving of human life. The present century was the era of research into functional disorder, of biochemistry, chemotherapy, and comparative medicine and pathology. He went on to speak of the increasing share which the Government was taking in the prevention and control of disease, also to the increase of team work both in research and clinical practice. What the future might bring forth in the way of State service and State-run hospitals remained to be seen, and though this consummation did not appear to be devoutly wished for ("Hear, hear") it should be considered with an open mind. The early stages of disease still remained a problem for extensive investigation, and perhaps after all, while they were congratulating themselves that they did not live in the reign of the fourth George, they were still only looking out from the borders of the promised land of health.

Sir JOHN BLAND-SUTTON, while hesitating to talk about surgery, said that he would trespass a little on the province of the physician. In all religions of the world there existed the belief that from time to time gods assumed the form of animals and in fleshly garb rendered service of a supernatural kind to man. But it had remained for physiology to teach us the nature of the service which some animals rendered. In our gross bodies there were smaller bodies called ductless glands, and it was the action and interaction of the gods of this glandular pantheon which determined our morality or moroseness, our wit or wantonness, our fame or infamy, and whether we were fat or thin, dwarf or giant. If it happened that one or other of the gods was idle the balance was disturbed, and clever physicians observed the signs and symptoms, noted which gland was deficient, and set to work to restore the balance by injecting an extract of the corresponding gland from perhaps the chimpanzee, the armadillo, or the ass. Sir John Bland-Sutton then turned to say a few words about sugar, a remarkable substance, whether regarded from the point of view of commerce or of science. In the production of cane sugar enormous fortunes had been made and lost, and it had been a source of as much misery to the natives of the West Indies as ivory to the natives of the West Coast of Africa. But human sugar had been a source of misery to hundreds of thousands, also a source of great interest to physiologists and of profit to physicians. To surgeons it had been a source of dismay, for unsuspected sugar in the urine was as big an obstacle to the surgeon as an uncharted rock to the mariner. When the islands of Langerhans were first discovered they were regarded as histological curiosities, but it was now known that they exercised a greater influence on human fortunes than the comet which was reported last month in the constellation of the Ram. Physicians as a rule plumed themselves that although they got their living by attending to the sicknesses and frailties of human beings, they were active in trying to find the cause of disease and destroying the very agent out of which they got some sort of a living. If he were speaking in the House of Commons he would say, "Mr. Speaker, I can assure you that the discovery of insulin has raised the cost of human sugar to the producer." (Laughter.) Taking into account the cost of insulin, the cost of the analyses which had to be made from time to time, and the cost of the fashionable physician himself, he believed that in the millionaire patient the increased cost of production was from £700 to £1,000 a year! Thus the encomiums which physicians passed upon themselves no longer held good. To wipe out the reproach they must set to work to find some synthetic substance—coal-tar, perhaps—

Reviews.

MEDICINE IN THE WAR.

THE second volume[1] of the *Medical History of the War* dealing with *Diseases of the War*[2] contains three sections in particular which must be of prime importance to all students of the art of war as well as to military physicians and surgeons—namely, the sections on war neuroses, the medical aspects of aviation, and the medical problems of gas warfare.

It is not only the medical services which are concerned with neurasthenia and the war neuroses. Medical officers may encounter curious problems in psychology and in the frailty of the nervous "make-up" of man, but to the Adjutant-General these problems threaten incalculable and conceivably avoidable wastage of man-power. Captain W. Johnson's account of neurasthenia and the war neuroses in France is admirable up to a point. His observations suffer, however, from being confined almost entirely to stationary warfare, as seen in the Second and Fifth Armies in the Ypres salient and at the base in France. He describes in detail the arrangements for retaining casualties from psychical disorders in the army (that is, forward) areas. There is scarcely a hint that when military operations changed into a "war of movement" these arrangements were a hindrance without any compensating advantages. The "N.Y.D.N." centres were left miles behind, yet were still under the administration of an army which, in 1918, was rapidly advancing, so that valuable R.A.M.C. personnel (officers, nurses, and other ranks) credited to the strength of the army were hopelessly lost in back areas. The vaunted moral advantages of keeping the patients within earshot of the guns no longer existed; the centre became isolated in some remote spot, wasting personnel, and, almost more important, wasting transport. Even in a stationary army the moral advantage was highly doubtful. This chapter would have been more useful as a guide in future campaigns if the neuroses of war could have been described also from the viewpoint of the regimental M.O. or an A.D.M.S. of a Division like the Guards. Thus it comes about that there is a complete lack of evidence as to the real factors which minimize wastage from psychical factors. Frank criticism from the "front line" standpoint of the fighting value of men sent back as cured would have enriched this chapter. It is said (on p. 44) that the occurrence of relapses amongst patients treated in France was never a very serious problem. The practical lessons of the war are probably best expressed in the report of the War Office Committee appointed in 1920, whose findings are epitomized on page 65. The recommendations of this Committee will meet with the whole-hearted approval of combatant officers and of every medical officer who served with the fighting troops.

Lieut.-Colonel Henry MacCormac's chapter on skin diseases deserves special attention and the highest commendation. Skin diseases as a cause of wastage did not gain the notice they demanded until Colonel Soltau drew up in 1917 his memorandum on the classification of admissions to hospital in the Second Army. Then for the first time in the annals of military hygiene the real importance of skin diseases in the field was made clear. Dr. MacCormac expands this theme in language intelligible to the non-medical mind. The occurrence and spread of various skin affections (and diseases derived therefrom) are described under the headings of scabies, impetigo, pediculosis, and tropical dermatoses. The part played by seborrhœa in the causation of impetiginous eczema is rightly emphasized. The extent to which wastage of men could be avoided by adequate provision of baths and clean clothing ought to make the appointment of "O.C. Laundries" one of the principal staff billets in all future campaigns. German bathing and delousing stations were the one heritage of their occupation upon which we entered joyfully when we advanced in 1918.

Venereal diseases had a pitiable share in the production of invalidism from all fronts. Lieut.-Colonel Harrison writes temperately on this subject. Such hotly debated questions as prophylaxis and early disinfection he leaves as being too controversial for the evidence brought forward to assist materially in judging of their real merits. One paragraph in his article mentions the almost unaccountable difference between the British rates of venereal infection and those of the Dominion forces. He says: "The average British soldier proceeded to some village or small country town; the average soldier of the Dominion forces found his way to London. The former found abundant distraction in many home interests, the latter had perforce to seek more artificial amusements. The first operated against sexual incontinence, the latter favoured it." By comparison with this all other measures of prophylaxis sink into insignificance. The organization of special treatment centres is well described, but the results of treatment were not on the whole encouraging.

The medical aspects of aviation and examination of candidates (by Lieut.-Colonel Bowdler) bear witness to the scientific spirit which animates the youngest branch of our fighting forces. In the navy and army the interference of the physician and physiologist are not so gladly suffered. The Air Force allows scientific medicine almost a free hand in appraising the fighting qualifications of officers or flying ranks. This attitude was the outcome of the institution of a special medical board at the end of 1916 for the purpose of examining candidates and dealing with officers and pupils who had broken down. The results of the experiment were soon evident; at the end of a few months the percentage of pupils breaking down during training was reduced by 50 per cent. The methods used for testing candidates' fitness and their temperamental aptitude for flying are extremely interesting. In popular parlance, "guts" were the essential qualification, and the medical officers of the Air Force devised many subtle ways of discovering those candidates who had "guts" and those without any. These tests did not require elaborate scientific apparatus, as witness the so-called "breath-holding or respiratory test." Wing Commander Martin Flack considers that British experience proved that a history of special aptitude at various sports requiring eye and hand co-ordination as well as physical stamina is of equal value with experiments based on psychomotor responses to stimuli in assessing mental fitness for flying. The value of oxygen administration in aviation was left unsettled when the war ended. Martin Flack says: "The dislike of wearing something over the face when fighting for one's life is not prejudice but instinct, and constitutes one of the problems which the future has to solve." Even the men who climbed highest on Mount Everest are not agreed on the solution to the same problem.

Nearly half the volume is given up to the story of gas warfare. The employment of poison gases in warfare filled the civilized world with horror, yet it seems from these chapters that the rates of mortality and of permanent invalidism that gas can cause are far below the corresponding rates resulting from any other weapon of modern warfare. In other words, the man who becomes a "gas casualty" has a better prospect of escaping with his life and of recovering completely from his disablement than the man hit by shell, bomb, or bullet. This was not the conception of the man in the trenches nor yet of the public at home. Unpublished figures showed that in one army in 1918 during heavy gas attacks 60 per cent. of all gas casualties were fit to return to the line in a fortnight. The most fatal gas was chlorine, but the difficulties of directing it with certainty against the enemy limit its employment. A change of wind brings the chlorine cloud back into the faces of the troops launching the gas. Phosgene, too, is difficult of directional control, whilst both gases are efficiently guarded against by masks, and disperse rapidly. Mustard gas delivered in shells proved by far the most potent weapon of attack. It could be placed where it was

[1] The first volume of this part of the series of volumes edited by Sir W. G. Macpherson was reviewed in our issue of October 14th, 1922, p. 691. The two volumes which treat of surgery were reviewed in our issues of February 17th (p. 283) and February 24th (p. 332), 1923.

[2] *The Medical History of the War, based on Official Documents: Diseases of the War.* Vol. II. By Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., Major-General Sir W. P. Herringham, K.C.M.G., C.B., Colonel T. R. Elliott, C.B.E., D.S.O., and Lieut.-Colonel A. Balfour, C.B., C.M.G., London: His Majesty's Stationery Office. 1923. (Demy 8vo, pp. viii+621; illustrated. 25s. net; post free, 25s.)

desired, it remained for hours and sometimes for days on the ground where the shells burst, and it attacked not the respiratory passages alone, but the whole surface of the body although covered with clothing.

Gas warfare thrust upon the medical services a new task. After the Ypres gas attack in 1915 protection became so urgent a need that chemists, physiologists, and physicians co-operated to devise protective masks or respirators for the troops. Thus the medical department became an essential and active branch of combatant defence. What bearing this may have in future wars upon the maintenance of Geneva Conventions and the semi-neutrality claimed for the Red Cross time will show.

In the great war scientific anti-gas defence established a superiority over attack. It is true that a mustard-gas bombardment could render localized areas untenable by defending troops, but the evacuated ground could not be occupied or advanced over by the attackers. The demoralizing effect of gas attacks was short-lasting, and the permanent invalidism was small in proportion to the number of casualties. There was no doubt, however, that at various times the number of men reporting themselves as gassed was disproportionate to the number who presented any signs of having really been exposed to the action of "poison gas."

The most important after-war problem is the sequelae of pulmonary irritant gases. Mustard gas is apt to leave extensive and progressive fibrosis, which may be mistaken for tuberculosis. The ultimate disability which may result in such cases cannot be foreseen. This renders final assessment of pensions uncommonly difficult, and needs to be borne constantly in mind by the Ministry of Pensions. Mr. Maxwell's artistic paintings of the effects of gassing are well reproduced in colour, and add greatly to the value of these chapters.

Although the medical problems in tanks occupy little space they are of grave importance, especially when we read that "*one of the most serious disabilities encountered* amongst tank crews was dependent on the design and mode of employment of the tank itself, and was in no way determined by enemy action. Whole crews developed symptoms of carbon monoxide poisoning from the exhaust fumes, even to the extent of becoming unconscious or occasionally demented." The section on poisoning in mines and mine rescue work deals in the main with the effects of carbon monoxide poisoning, and will be familiar to those medical readers who are acquainted with colliery work.

SABOURAUD'S LECTURES ON DERMATOLOGY.

WHY do not more of the masters of dermatology write books like SABOURAUD'S volume of clinical lectures,[3] which is far more stimulating and useful than the conventional "Textbook of diseases of the skin for practitioners and students," examples of which are multiplied by well meaning compilers? It is no exaggeration to say that anything that Sabouraud writes is worth reading. He is endowed with a clear and logical mind, by no means destitute of the tinge of scientific imagination which is very stimulating to the reader, even although he may not entirely agree with all the opinions expressed.

The lectures are arranged in three groups—diseases of the scalp, general dermatology, and venereology—and one useful feature is that the subjects dealt with are almost without exception common conditions such as are often encountered in practice, and yet on almost all of them Sabouraud has something new to say, or at least is able to exhibit them in a new light. The lectures, of which there are in all no fewer than thirty-eight, are of very varied length—some of them hardly more than a note of a few hundred words, others are considerable essays. Among the matters dealt with are alopecia of various kinds, with observations on the care of the scalp, not omitting reference to the effect of soaps, dyes, and alkalis commonly used for cosmetic purposes. This is not the first time that the author has written on these subjects, and to a certain extent views previously expressed are repeated. For example, in the first lecture he returns to the discussion of the relations betwen the sexual system and the growth of hair, and notes in particular that eunuchs preserve the covering of the scalp. After all, it has long been known that there was some connexion between hair and sex, and Sabouraud has now supplied another proof. But even Sabouraud is not much nearer the solution of the old problem as to why men go bald and women do not. He has, however, new ideas to impart as to the proper treatment of alopecia seborrhoeica; he recommends carbon disulphide as the best remedy, although unpleasant. If the patient is unwilling to put up with the inconvenience and discomforts of this substance, one of the less potent varieties of sulphur must be used.

In the section of the book in which the author deals with general dermatological subjects he tells the general practitioner how to diagnose scabies—a piece of instruction he considers to be not unnecessary—and how to treat psoriasis both by internal and external methods. He gives hints on the employment of vaccine treatment for furunculosis, and insists on the importance, in many cases of eczema, of limiting the patient's consumption of bread, an article of diet commonly supposed to be harmless, but which, in excess, is by no means innocuous. There is also a chapter on the theory of the causation of psoriasis, the problem which is perhaps the most insistent and the most baffling among those now engaging the attention of dermatologists. It cannot be said that Sabouraud has yet supplied the solution. In these pages he is chiefly concerned with demolishing the idea, rather prevalent in France, that psoriasis is a variety of tuberculosis, and he does this effectively enough. In discussing the capricious way in which the disease reacts to different internal remedies possessing, so far as can be seen, no common chemical basis whatever, but apparently acting (when they do act) by administering some "shock" to an erring metabolism, he puts forward the suggestion that when we have solved the problem of what this "shock" means we shall solve the problem of the nature of the disease.

Sabourand is strongly in favour of venereal prophylaxis, and considers it a disgrace to France, the country where Metchnikoff and Roux first demonstrated the efficacy of calomel ointment, that vigorous measures have not been instituted, especially in the army. To the clinician the most interesting portion of his remarks on syphilis is his thesis that inherited syphilis is responsible for a far greater variety of disastrous sequelae than is usually acknowledged. He is of opinion that many individuals afflicted with ichthyosis, eczema, alopecia areata, and prurigo are really victims of congenital syphilis, although these conditions are not direct manifestations of the activity of the syphilitic virus. He revives the term "parasyphilitics" for these sufferers. Here he is on debatable ground, but his arguments are certainly worthy of attention.

Not only dermatologists but all practitioners should read this book; they cannot help learning something from it, but it will make them think more.

THE BRITISH CLIMATE.

THERE are three subjects of considerable importance in practice which are sadly neglected in the present medical curriculum—diseases of children, dietetics, and climatology. Of the first two it is possible to acquire a knowledge from the numerous textbooks which are available, but of the last, how is a student or a qualified man, without reverting to original papers, spending harassed hours over meteorological reports, or gaining information from continual personal observation and intercourse with others, to be expected to know anything at all? It is a subject on which he is taught nothing. It is left to him to pick up what he can about it. And unless the subject presents a particular interest for him, he is unlikely to learn very much. It was probably to redress this state of affairs that Dr. HAWKINS embarked upon his *Medical Climatology of England and Wales*.[4] He wanted to produce a manual which would gather into a small compass material scattered widely throughout the literature.

[3] *Entretiens Dermatologiques à l'École Lailler (Hôpital Saint-Louis).* By Dr. R. Sabouraud. New Series: first volume. Paris: Masson et Cie. 1922. (Roy. 8vo, pp. 333. Fr. 13 net.)

[4] *Medical Climatology of England and Wales.* By Edgar Hawkins, M.A.Oxon., M.D.Edin., D.P.H. London: H. K. Lewis and Co., Ltd. 1923. (Demy 8vo, pp. xiv + 302; 144 charts. 25s. net.)

which would furnish a drug as easily obtainable and purchasable as aspirin and which could be used for the advantage of diabetics. Care must be taken that this drug did not get into the hands of a druggist who would corner it, for such a druggist, having amassed a great fortune, might turn philanthropist in later life and devote his millions to the rebuilding of the Royal College of Physicians and to reimbursing physicians themselves for the heroic losses, bravely borne in the true spirit of the profession, which they had sustained through the absence of diabetics from their consulting rooms. (Laughter.)

THE "LANCET" AND ITS FOUNDER.

Sir BERKELEY MOYNIHAN, in proposing the health of the *Lancet*, paid that journal many compliments, but reminded the company that it had not always been as gentlemanly and persuasive as in these latter days. A hundred years ago, when the *Lancet* was founded, the profession was the victim of many abuses, from within and from without its own ranks. The Apothecaries Act was then only eight years old, and there had been no time, inclination, or opportunity for the organization of the profession. The profession in those days suffered from vexatious and intolerable things, from shameless nepotism, from harsh and unjust ordinances of governing bodies, from despotic methods among teachers and examiners which rankled in the minds of the general body of practitioners, but for which there was no redress. The *Lancet* helped to change the picture. It was born in an age when men were restive against authority. The French Revolution and the revolt of the United States had affected the mind of a generation. Thomas Wakley lost no opportunity of attacking privilege and injustice. Looking back upon that stormy figure, they had to acknowledge that his contentions were almost always right. His methods of procedure were perhaps crudely conceived, and carried out with something approaching savage rancour, but he was fighting against interests which were disregardful of the rights of others, and possibly no other procedure would have gained his end. He bestowed now and then a word of praise, but in general his onslaught was as virulent as it was persistent. Wakley's achievements called for admiring gratitude. His robust independence, his faith in great causes, his loathing of injustice, his disdain for that professional eminence which was built only upon favour, appealed to them all. His pungent wit, his merciless invective also attracted them, because, although these powers were harshly used, they were never, he thought, used unfairly. Men such as Wakley were brought into being in all countries of the world, but especially in our own, where the human spirit was quickly roused to active protest when strength was devoid of right, or control was dictated by caprice. Monuments to the benefactors of the past were sometimes carved in stone or cast in bronze, but few memorials were so enduring as the journal which perpetuated the memory and labours of Wakley. From Wakley's day to this the *Lancet* had grown in influence and authority. Its pages steadily reported the progress of medicine, and by its help greater medicine had been inaugurated. The world was a little weary of journals, especially those which, unmindful of responsibility, sought ever for larger circulations and greater power. The first duty of journalism was to educate, to enlarge the general outlook, to stimulate men to a sense of responsibility, and to convey truth. In this task vigour was necessary, and humour would not come amiss. But honesty in the search, and truth as the distant goal, and sanity in expression were the attributes of the highest journalism, and these the *Lancet* had always shown, and never more plainly than under the guidance of its present editor. (Applause.)

Viscount BURNHAM, on behalf of the newspaper press, joined in the tribute. It was said that those who made idols were never idolaters, and he was free to confess that he did not idolize his journalistic contemporaries. But he did admire that great section of journalism which was devoted to technical and professional interests. While the circulation of the daily newspapers was national, the circulation of the professional and technical press was world-wide. Wakley's achievements greatly interested him, but as a journalist the thing he admired most about Thomas Wakley was that, whereas ten libel suits were brought against him, in which a total of £8,000 was claimed as damages, all he had to pay was the sum of £150 and one farthing!

Sir SQUIRE SPRIGGE, who was received with prolonged applause, said that although the foregoing speeches provoked reminiscence, he declined the invitation to indulge in memories. The past outrageous energies could never be repeated. The violence of past days was gone, but the desire for the right and the zeal to achieve it remained as forcible as they were a hundred years ago. He likened the centenary dinner to a milestone on the road of progress, and himself to a robin sitting twittering thereon. The *Lancet* was a friend-made paper. It relied on the good offices of its supporters who read each other's wisdom and clarified and corrected each other's views. If he might be forgiven a personal note on that occasion, he himself was a friend-made man, and he had called shamelessly upon the services of his friends. Through school, college, and hospital associations he had exacted levies from them, and as time went on enlarging environment gave him enlarging opportunities for such exactions. Further, any measure of success which he had gained had been in return for labours which he had loved to pursue. It was those who had to discharge a dull routine and to face distasteful duties whose devotion was really admirable, but as for himself he had enjoyed his work; it had been his delightful duty to record the phases and ramifications of medicine, which, although it might be only one section of the world's activities, was ever-developing and all-permeating. (Applause.)

Sir ERNEST HODDER-WILLIAMS, Chairman of the Directors of the *Lancet*, also responded to the toast, and expressed his great pleasure that when the change of proprietorship took place it involved no change in editorial direction, and that there never had been a single matter of policy upon which the Editor and Directors had not been in spontaneous and complete accord.

THE GUESTS.

LORD DAWSON OF PENN proposed the health of the guests. If they were right in saying that a man might be judged by his friends, surely that distinguished assemblage gave vivid and delightful expression to the appreciation in which the *Lancet* was held. The company represented other professions than the medical, and the professions had need to understand each other. Medicine in former days held itself in almost monastic detachment from social progress. But now that the health of the community, and not merely the cure of disease in individuals, was within its orbit, and was likely in the future to claim a dominant part of its attention, contact with other callings must be more close, and the thoughts and conclusions of medicine a necessary part of all-round statesmanship. That evening they were honoured by the presence of the French Ambassador, the genius of whose people had created much for which civilization stood, which genius was ever and abundantly evident in the field of medicine. The Lord Chief Justice was also among them, one of those disciples of the law who could not only entertain thought but adequately phrase it. Lord Burnham represented the Press, and the speaker could not help noting the conflict of advice which the Press gave in the nation's present controversies; evidently it was not only doctors who differed! In the Press also there appeared to be a good deal of reliance on "expectant treatment." A guest to whom they gave a special welcome was Mr. T. J. Wakley, now at Oxford, a great-grandson of the founder of the *Lancet*. He coupled with the toast the name of the Lord Mayor, who brought with him the lustre of personal distinction earned in the field of civic administration, and of Sir Dawson Williams, who had found in journalism the greatness of medicine, and in medicine the greatness of journalism, and to the great advantage of them all upheld the best in both. (Applause.)

The LORD MAYOR briefly expressed his pleasure at being present, not only as a civic administrator, but as President of the Hospital Sunday Fund, and spoke of the close connexion between the Corporation of the ancient City and the profession of medicine and organization of charity.

Sir DAWSON WILLIAMS offered to the *Lancet* the congratulations of what he supposed was the smallest specialty

PROFESSOR LEVADITI'S Harben Lectures, announced in our last issue (p. 1071), will be delivered in English on December 11th, 12th, and 13th, at 5 p.m., at 37, Russell Square, W.C.1. All interested are invited to attend.

THE late Dr. Margaret Lucy Augusta Boileau of Wymondham, who left net personalty of £16,183, has bequeathed £200 to the Norfolk and Norwich Staff of Nurses, Ltd., and £100 each to the Norfolk and Norwich Hospital, the Royal Free Hospital, Gray's Inn Road, and the Elizabeth Garrett Anderson Hospital, Euston Road.

DR. KONSTANTIN VON MONAKOW, professor of neurology in the University of Zürich and the author of numerous works on the normal and morbid anatomy of the brain and spinal cord, has recently celebrated his seventieth birthday.

A MONUMENT to the late Professor Monprofit, the well known surgeon of Angiers, was recently unveiled there by Professor Hartmann of Paris.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

DANGEROUS DRUGS ACT.

"SENEX" asks *if his local pharmacist is right in refusing to supply* him with opium for domestic use on the ground that he is retired from active practice. "I was under the impression," he adds, "that the final revision of the Regulations under the Act withdrew this very invidious provision largely through the efforts of the BRITISH MEDICAL JOURNAL."

*** The pharmacist is wrong. He cannot refuse to supply opium to a registered medical practitioner "on the ground that he is retired from active practice." The amending bill to the Dangerous Drugs Act, 1920, sought to impose a restriction on the sale of dangerous drugs to registered medical practitioners "not in actual practice," but on strong representations by the British Medical Association and JOURNAL the words "in actual practice" were removed from the bill by an amendment moved by the Home Secretary. The pharmacist should be referred by our correspondent to Clause 3 of the Dangerous Drugs and Poisons (Amendment) Act, 1923.

INCOME TAX.

Motor Car Renewal.

"W. G." bought a 13·9-h.p. "D" car for £310 and subsequently sold it for £750, buying a 13.2-h.p. "O" car for £505. He has now sold the latter for £70, buying a 16-h.p. "B" car for £500.

*** Our correspondent is entitled to an allowance of £430. The fact that he had an allowance for the "O" car does not affect the allowance due on his second renewal. The case referred to by "W. G." was complicated by the fact that the sale of the old car and the purchase of a new one were independent and not simultaneous transactions.

LETTERS, NOTES, ETC.

CLOTHES MOTHS.

OUR grandmothers had a very confident belief in the efficacy of camphor to repel clothes moths and to preserve their furs and woollen garments, but recently its rather agreeable perfume has given way to the pungent smell of naphthalene. But doubt has now been cast on the efficacy of both. Mr. Reginald J. Johnston has recently recalled in the pages of *Nature* the opinion of the famous French naturalist, Fabre, that neither had any effect upon moths, and has declared that these insects are utterly indifferent to such odoriferous substances. In an editorial note our contemporary stated that there was no real foundation for the popular belief in the efficacy of camphor, but that naphthalene was satisfactory as a repellent if placed inside clothing which is afforded the additional protection of a wrapping of stout paper, the edges of which freely overlap and are tightly secured by pins. Housekeepers have noticed in recent years that moths now attack cotton fabrics. The explanation of this last observation seems to be that there are nowadays at least three species of these moths in this country, and that the larva of one of them likes cotton. Mr. F. J. Stubbs, of the Oldham Corporation Museum, while admitting that at one time the chief pests were moths belonging to the genus Tinea, which are animal feeders, attacking furs, feathers, wool, silk, etc., states that about 1840 a new moth was introduced, *Oecophora* (or *Depressia*) *pseudospretella*, which eats both animal and vegetable substances. It is, he says, a disastrous guest of neglected herbaria, preying indifferently on the dried plants or on the paper. It is also, he says, known to be a lover of cool climates and to prefer slightly damp surroundings, which may account for it being extremely abundant in London. It appears to be almost as omnivorous as old Father William, for it devoured a stuffed wheatear which had been put away in a dark and rather damp cupboard. The skin had gone, and even the horny rhamnotheca of the beak and the scales of the feet had been eaten. The same correspondent asserts that he has seen Oecophora larvae feeding on a Chinese "joss-stick," which is a compound of resins, and has found one in an excavation in a "vegetable ivory" nut. The larva—which is, of course, the stage in which the insect does the damage—is very difficult to kill; fumigation with hydrocyanic acid has no effect on it, chloroform vapour cripples it for a few days only, and if dropped into a strong solution of naphthalene and then dried until it is thickly encased with a crystal coat it may be able to crawl about when the naphthalene is sufficiently evaporated to give freedom of action to the segments. Carbon bisulphide was found to kill the larvae, and naphthalene scattered in museum cases keeps the moths away to some extent. Another correspondent of *Nature*, Mr. James Ritchie, of the Royal Scottish Museum, Edinburgh, gives references to work for the U.S. Department of Agriculture, which led to the conclusion that naphthalene in good condition is "one of the safest and best materials for protecting fabrics against moth injury." It must, however, be used in moderately tight receptacles so that the fabrics remain in a naphthalene permeated atmosphere. Mr. Ritchie adds that camphor used in the same way is said to be almost as effective, its fumes killing all stages of clothes moths.

A CORRECTION.

SIR ROBERT ARMSTRONG-JONES writes: I cannot usually complain of lay press misinterpretations of lectures on medical subjects which my position as Gresham Professor of Physic makes it necessary for me periodically to bring before the public, but in a lecture delivered before the National Union of Teachers upon "Fatigue and Sleep" I am reported to have said that I had discovered a vaccine which I was using to combat fatigue. This, of course, is wholly inaccurate and has caused me much annoyance. I read my lecture from a carefully prepared manuscript. I referred to the work of Drs. Myers, Stanley Kent, and Vernon, as also to that of Mosso, Crile, Cannon, and others, and to the experiments of Miss May Smith. I pointed out that fatigue was probably due to the accumulation of intra- and extra-neuronic toxins, but that the body had the power to form antibodies or antitoxins to combat these, and if ever their nature could be ascertained a vaccine might not impossibly be prepared to antagonize the feelings associated with fatigue.

DR. GRAHAM GRANT wishes to thank the many correspondents who have written to him about intestinal antiseptics.

THE *Simplex Investors' Pocket Diary*, now in its tenth year of issue, is published by the proprietors of the *Financial Review of Reviews* in conjunction with Messrs. Charles Letts and Company. The 1924 edition includes special features which should prove useful to investors for reference. The diary has a back loop and pencil and is fitted with a self opening memo tablet and leather pockets for stamps, cards, etc. The sale price is 3s. 6d.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 267.

in the medical profession—namely, medical journalism. Very few journals lived to celebrate their centenary. Times changed, and it required great powers of adaptation and phylatic vigour for a journal to adjust itself to the changing environment. The phylum of editors of the *Lancet* had shown this vigour from its founder and first editor down to his friend, the present editor, Sir Squire Sprigge, in whose hands its natural force had been in no way abated. A medical journal could not exist in these days unless it had the support of the profession. In saying this, it was not of the subscription list he was thinking, but of the support which came to such journals from specialists on every side, who were ready to place their knowledge at the journal's disposal. The principal motive which actuated them was probably love for their own particular subject, though they were moved also by a desire to help their colleagues, and perhaps by a feeling of loyalty to a certain journal. A general medical journal must at least touch on the immense variety of subjects raised by the progress of science in every department, and every author seemed to feel the necessity of writing at greater length than before. (Laughter.) This tendency affected all the sciences, and even the pure mathematician would replace a column of type by a formula so long that it must be printed lengthwise on the page! The multiplication of special journals was to be commended. Their conductors had their reward in the knowledge that they were smoothing the road for their fellow workers. He likened such journals to the large-scale ordnance maps which a man obtained when he wanted to buy an estate, but the general medical journal was like the map for the whole kingdom—the inch to a mile. He associated himself with all that had been said about the *Lancet*, and offered his good wishes for its future. (Applause.)

Sir CHARLES SHERRINGTON proposed the health of the Chairman, a toast which was pledged with much heartiness. Sir DONALD MACALISTER thanked the company for their kind forbearance with a chairman whose state of health was not of the best, and who was doubtful almost to the last whether he would be able to come at all. He joined in the tribute to Sir Squire Sprigge, who, to paraphrase the lady's description of her husband, was "more like a friend than an editor."

Paris.

[FROM OUR CORRESPONDENT.]

VERY comforting is it in these troublous times to discover that frontiers are not heaven high. The petition recently signed by the Academy of Medicine pleading for the maintenance of the Lister ward in the Glasgow Royal Infirmary is very significant in this respect. Few of our Academicians can ever have seen the ward, but there is not one who does not claim with pride to be the fellow citizen of Lister in the ideal city of science and humanity; there is not one who does not wish reverently to preserve for ever the footprint of Lister on the shifting sand of the ascent of man. We know next to nothing about the main question of the present necessities of the Glasgow Infirmary; we only ask ourselves, "What would Lister desire?"

The Spahlinger problem confronts us also in an unfortunate form owing to the publicity it has received in the public press; the public are told on the one hand that tuberculosis is conquered at last by a secret remedy, and on the other hand that this remedy is not available. Rarely has there been a more bitter jest. The general attitude of the medical profession betrays its indecision: for the first time we are asked to make an act of faith in the scientific sphere, and to turn our back on every principle that has been taught since Descartes. Faced with a problem the solution of which all the world is feverishly awaiting, we are asked to accept uncontrolled assertions. Three years ago when Spahlinger visited the Pasteur Institute, Dr. Calmette suggested to the Genevese researcher that he should proceed to publish the proofs which are indispensable, yet the secret was still kept. Unlike Great Britain we believe in Spahlinger, but we feel somehow that we are being false to a treasured tradition; the spirit that was in Pasteur, Lister, and Koch must not leave us.

The annual meeting of A.D.R. has revealed the fine progress made by this Association for the Development of Medical Relations between France and the countries belonging to the League of Nations. Our Foreign Office has instituted a department which is working in association with the Faculty of Medicine. A medical society has been started in conjunction with the Argentine Republic which is erecting a building for Argentine students in the students' quarter on the site of the dismantled fortifications. We hope that others will follow this example and that in the end we shall succeed in establishing an organization for post-graduate study. Professor Hartmann is energetically arranging courses of instruction so that foreign students may be able to concentrate their work into the minimum of time, following the example of Vienna before the war. It is hoped that a similar organization will be formed in every country, and that the time will come again when no man of science will begin to practise without having previously studied in a foreign school. So once Sir William Osler dreamed.

In the large amphitheatre at the Sorbonne there has just been held an important meeting to discuss international co-operation. M. Romain Coolus, the president of the Confédération des Travailleurs Intellectuels, set out the objective of this movement with which the BRITISH MEDICAL JOURNAL has already concerned itself. M. Destrée, at one time Minister of Art and Science in Belgium, spoke on the subject of co-operation of the League of Nations in intellectual matters. So from all sides comes the watchwords Co-operation and Mutual Understanding. Everyone should set himself to bring his stone to be built into the rampart which is menaced by the wave of gross materialism flung against it by the world crisis: particularly clear is the duty of the doctor whose culture is essentially world-wide.

The death of Dr. George Linossier, of Vichy, has robbed France of one of her best workers. He took up medicine late, having given himself first to chemistry. This foundation, was however, of great assistance to him. He devoted himself to the study of metabolism, a subject on which he became an expert authority. His solid scientific attainments enabled him to tackle the problems of gout and diabetes with a clarity of vision rarely met with in a clinician. We owe to him many theoretical publications on proteid metabolism and some practical observations produced by his experience in a very large private practice. To Linossier belongs the credit of having explained the significance of "diarrhée prandiale," and of demonstrating the value of a reduced diet in the treatment of diabetes twenty years before it received the unanimous recognition now accorded to it. His nature was simple and modest. He was a professor agrégé at Lyons and a corresponding member of the Academy of Medicine. He leaves to his colleagues the finest example of the virtue which characterized him all his life—uprightness.

England and Wales.

SUN AND AIR.

AT a meeting of the Royal Society of Arts on November 28th Sir Henry Gauvain repeated the now familiar story of the work in the Treloar Homes at Alton and on Hayling Island among children suffering from surgical tuberculosis. His photographs illustrated even more effectively than his words the excellent results secured. Lord Dawson of Penn, who presided, said that if he allowed himself to indulge in prophecy he would declare that in the region both of diagnosis and of treatment there was no direction in which the power of knowledge over health and disease would be more prolific of results during the next few years than in the scientific utilization of the action of radiations and the action of air. Dr. Rollier of Leysin must be regarded as a pioneer in the scientific application of that which had been known and applied in a loose

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

402. Insulin Therapy.

D. M. LYON (*Edinburgh Med. Journ.*, November, 1923, p. 565) considers the insulin treatment of diabetes mellitus, and describes the method he employs. The author gives the insulin two hours before meals. Many fear to give insulin in the evening lest a hypoglycaemia should occur during sleep. But if given in the evening, and a meal rich in carbohydrates is taken two hours later, the dangerous period will be tided over before the patient retires, and hypoglycaemia will be avoided. The author considers blood-sugar examinations unnecessary during the treatment. Frequent urinary examinations for sugar are more satisfactory (carried out by the patient every two hours on certain days). The toxic effects of insulin through hypoglycaemia, if slight (weakness, sweating), may be checked promptly by carbohydrates (the juice of an orange, sugar, or sweets). If more severe symptoms develop (mental disturbances, coma) glucose may be given subcutaneously or by the rectum, or the blood sugar may be raised by a hypodermic injection of adrenaline (5 to 10 minims). The benefit of insulin treatment is enormous. It causes an increased feeling of well-being, a gain in strength, improved appetite, increase in weight, and the polyuria is checked. For diabetic coma and acidosis it is a specific. In young children with severe diabetes the results are marvellous. Insulin can be used in any case of true diabetes, but mild cases do not require it. It should not be used in renal glycosuria. Dieting is still the chief factor in treatment even when insulin is used. When marked signs of acidosis are present large doses of insulin should be given, along with a diet containing a large quantity of readily assimilable carbohydrate (as milk, bread, orange juice) and a large amount of fluid by mouth or rectum. In comatose cases insulin should be injected and glucose solution given by rectum or subcutaneously. In ordinary cases of diabetes without symptoms of acidosis a diet of 1,500 calories, containing milk, vegetables, oatcake, meat, bacon, eggs, and butter, is given with 10 units of insulin at 6 a.m. and 6 p.m. Breakfast and supper, containing between them most of the carbohydrates, are taken at 8 a.m. and 8 p.m. respectively. Dinner at 12 and tea at 4 p.m. contain only a small quantity of carbohydrates (as vegetables). If the glycosuria is not checked in three days, either the insulin is increased (10 units at 11 a.m. and 20 units at 6 p.m. and 6 a.m.) or the diet is reduced. The latter is mostly advisable. When the urine becomes sugar-free, then the diet tolerance is determined, and reduction of insulin may be attempted.

403. Jaundice in Enteric Fever.

M. GARNIER and J. REILLY (*Paris méd.*, September 29th, 1923, p. 229) remark that the relatively new idea of the typhoid or paratyphoid origin of most cases of acute jaundice became very popular in France, so that at one time in any case of acute jaundice cultures of the blood and stools as well as Widal's test were always made for organisms of the typhoid group. The discovery of *Spirochaeta icterohaemorrhagiae* threw new light on the pathogenesis of infectious jaundice, and showed that all cases of jaundice with febrile relapses were of the nature of spirochaetosis. In a study of 1,300 cases of acute jaundice the authors found only four which could be attributed to typhoid or paratyphoid infection, so that many have come to the conclusion that jaundice is extremely rarely due to typhoid or paratyphoid bacilli, which accords with the experience of earlier clinicians as to the rarity of jaundice in enteric fever. In each of the four cases the symptoms were identical. The clinical picture was that of typhoid fever complicated by jaundice which was always of slight degree and accompanied the ordinary signs of typhoid. The discrepancy between the authors' experience and that of previous observers is to be explained by the fact that in a large number of cases the laboratory tests performed by the latter were unsatisfactory. As regards the outbreaks of epidemic jaundice which occurred in the war—for example, in the Anglo-French armies at Gallipoli in 1915, and later in the French army in Macedonia, the Rumanian army on the Balkan front, and the Italian army on the Isonzo—Sarrailhé and Clunet, Cantacuzène and his collaborators attempted to make paratyphoid bacilli responsible owing to the frequency of bacilli of the paratyphoid group in the blood or stools. The authors, however, point out that the organisms were atypical; in the Rumanian epidemic, for example, fourteen different strains were isolated. Moreover, the extreme degree of contagiousness and the short duration of the incubation period completely differentiated the disease from typhoid. The authors conclude that jaundice in enteric may occur under two different conditions—namely, (1) exceptionally in patients with typhoid or paratyphoid fever running an ordinary course; (2) more frequently in individuals subjected to a massive infection either accidentally (alimentary intoxication) or experimentally, as was carried out by Cantacuzène.

404. Post-encephalitic Neurasthenia.

CALLIGARIS (*Ref. Med.*, September 24th, 1923, p. 919) draws attention to a group of neurasthenics whose condition was due to a previous attack of epidemic encephalitis (usually a slight attack). In addition to the symptoms common to neurasthenia, the group in question present some differential symptoms. In the first place they do not, like the typical *l'homme à petit papier*, come armed with long details of their various sensations; on the contrary their symptoms have to be elicited by examination. Disturbances in sleep are common, especially a sudden "exposition" of sleep in the daytime. The physical and psychical asthenia is very marked, and does not improve, as in post-influenzal asthenia—sometimes fainting attacks are noticed. Gastric disturbances (anorexia, dyspepsia, and coated tongue) are seldom absent. The majority of cases are wasted, but occasionally one may see obesity. There is pronounced apathy, a Parkinsonian mask, and frequent slight fibrillary tremors in the face and other muscles. In treatment it is more important to advise what not to do than what to do—it is a great mistake to send them exciting voyages or urge violent distractions. They should be told to "go slow" in all respects and take plenty of rest.

405. Intestinal Infantilism.

W. PIPPING (*Finska Lakaresällskapets Handlingar*, September-October, 1923, p. 431) has recently observed half a dozen cases of a condition described by Herter as intestinal infantilism. It begins comparatively late in infancy, and is characterized by attacks of diarrhoea and sudden great loss of weight, more or less complete arrest of physical development, and the presence of a number of Gram-positive germs in the stools. Herter correlates the symptoms with these germs, assuming that a chronic inflammation of the intestines exists and is the primary cause of the disease. The author questions even the existence of an intestinal inflammation, and in one of his cases, which came to necropsy, he found no inflammatory changes in the digestive tract. The stomach was dilated, the liver showed fatty degeneration, all the organs were anaemic, and there was bronchopneumonia of recent origin. The author concludes that the cause of this condition is a constitutional anomaly depending on endogenous factors, and he notes that in several cases evidence of a neuropathic strain is demonstrable some time before the appearance of severe intestinal symptoms.

406. Chronic Sepsis and Mental Disorders.

H. A. COTTON (*Journ. of Mental Science*, October, 1923, p. 434) urges that the most important etiological factor in functional psychoses is a toxaemia originating from chronic foci of infection situated anywhere in the body, as Ford Robertson suggested in his remarkable book *Therapeutic Immunization*. By clearing up all foci of chronic sepsis in this group of cases Cotton has raised the recovery rate at Trenton State Hospital from 37 per cent. of the admissions to 85 per cent. The common sources of infection are the teeth, tonsils, alimentary canal, and, in the female, the genito-urinary tract, the organisms being of the streptococcus and colon bacillus groups. The teeth were affected in every case—unerupted and impacted third molars, devitalized teeth, periapical and gingival granulomata, periodontitis, caries, and root abscesses. He advocates extraction of septic teeth (at Trenton the extractions do not average 5 per patient) and the clearing out of all infected and necrotic bone. Infected tonsils were found and removed in 90 per cent. of the cases. The presence of bacteria, with a reduction of the HCl content, on fractional gastric analysis, determines the presence of gastric infection. These patients had a course of autogenous vaccine, followed by a specific serum in many cases. Habitual constipation, frequent bilious attacks, and marked delay in the passage of a test-meal, varying from forty-eight hours to eight days, indicate

empirical way for ages. In this country, thanks to the late Sir William Treloar and to Sir Henry Gauvain, a successful scheme had been organized along the same lines, in spite of the fitfulness of our sun and the gloom of our winters. It appeared that the ultra-violet constituents in light raised the resisting and fighting power of the blood against infection, and thus a possible field for the treatment of many diseases at present baffling was opened up. Caution, of course, was necessary, because any application of such treatment beyond what careful research had indicated was likely to do harm and not good. He thought that Sir Henry Gauvain's results would have an effect on the general hospital service of the country. There would be a tendency for hospitals to be removed from cities, and for only such accommodation to be retained within the cities as was necessary for the reception of cases or for dealing with cases whose stay in hospital was likely to be brief. In the ensuing discussion, Mr. A. Green, a master in charge of the open-air schools of the London County Council, spoke of the successful institution of a sun-cure class at Stowey House, the L.C.C. school on Clapham Common, for "pre-tuberculous" children. This class was held last summer, and although the climatic conditions were far from satisfactory the thirty-six youths from the slum areas of South London who constituted the class showed distinct improvement both in physical and mental capacity. Next year, given a better summer, it is hoped to extend the experiment. Dr. Harriette Chick recalled her experiences in Vienna, where infants suffering from rickets had shown no particular improvement so long as they were kept in the ward, however well lighted and well aired, but in the cold sunshiny spring to which Vienna was accustomed these infants were placed out on the verandah, and within a very short time the improvement, as shown by the *x*-ray photographs periodically taken, of the bone formation was quite definite.

Scotland.

ROYAL EDINBURGH HOSPITAL FOR INCURABLES.

AT the annual meeting of the Royal Edinburgh Hospital for Incurables (Longmore Hospital) held on November 30th, Sir Henry Cook, Chairman of the Board of Management, who presided, announced that an anonymous donor had presented £10,000 for the purpose of improving the accommodation for the nurses. Plans had been prepared for a greatly improved dining-room, for a recreation room, lecture room, and for sick-room accommodation. The work was already in hand and the chairman hoped that this valuable addition to the hospital would be ready in another year. In the report submitted by the surgeon and physician to the hospital, Sir David Wallace, P.R.C.S., and Dr. Robert A. Fleming, F.R.C.P., it was mentioned that a number of cases had been discharged cured during the past year. A former patient who suffered from tuberculous disease of the spine, and who had been under treatment for about three years, was now successfully pursuing his profession.

CENTENARY CELEBRATIONS OF THE ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

During the last week of November a series of meetings and social functions were held to celebrate the centenary of the foundation of the Royal (Dick) Veterinary College at Edinburgh, by William Dick in 1823. Professor M'Eachran, LL.D., F.R.C.V.S. of Quebec, Canada, has presented a portrait of William Dick to the College. On November 27th Professor Theobald Smith, director of the department of animal pathology in the Rockefeller Institute for Medical Research, at Princeton, New Jersey, delivered an address in the University on "Comparative Pathology." After discussing some of the more technical aspects of animal pathology, he referred to its economic significance. Many of the causes or accessory factors of disease among animals were made by man. The task of the pathologist was to find methods to counteract the evil consequences arising from man's exploitation of animal life. The solution must differ from that demanded in human medicine. In the latter it was anything to save life, but in animals individual treatment must in a way be replaced by more preventive measures.

On November 28th the celebrations were continued by an oration from Sir John MacFadyean, LL.D., who said that in a sense the science connected with disease among the domesticated animals was quite modern. The first veterinary college had been founded at Lyons in the middle of the eighteenth century. In 1791 a school was founded in London, and William Dick had become a pupil of this school in 1817. Five years later he founded the College in Edinburgh. Speaking of foot-and-mouth disease, the lecturer said that in the present state of knowledge the veterinary profession could not be held guilty of incapacity because the virus of the disease in some obscure and indirect method at intervals found its way into this country from abroad. Stock owners in Scotland might, at least, be thankful that they had not been farming on the Continent of Europe during the last four years; they owed their comparative immunity from the disease in the last thirty years to the vigilance of the profession. With regard to glanders, the losses in the British Army from 1914 to 1918 were almost negligible in comparison with those experienced in recent great wars, and smaller than in the armies of any of the other combatants. In nearly every other civilized country the progress of veterinary science had been viewed as a concern of the State, and in France and Germany the maintenance grants to veterinary schools for a single year before the war exceeded the total amount given by successive governments of this country for veterinary education during the last 120 years. The greatest progress in the knowledge of animal diseases had been made in the last fifty years, during which period veterinary pathology had commenced to stand on its own legs. It would not be possible to create a class of men with an intimate knowledge of both human and veterinary pathology, but it would be better if veterinary surgeons knew more about human pathology and doctors more about animal diseases. The future progress of veterinary science in this country would largely depend upon whether it was at last considered worthy of national support, but next to that it would depend on the number of those who would enter the profession fully determined to leave it better than they had found it. Lord Forteviot presided at a reunion dinner held in the Royal College of Surgeons, which was attended by over 100 guests and members of the Veterinary College. Lord Provost Sleigh, in proposing the toast of the Royal (Dick) Veterinary College, traced its development from the time in 1823 when William Dick was appointed lecturer by the Highland Society of Edinburgh, later the Highland and Agricultural Society of Scotland. In 1844 the Royal College of Veterinary Surgeons came into existence by Royal Charter, and in 1916 the classes had all been transferred to the present building, where it was destined, he hoped, to a new era of prosperity.

With the object of raising a sum of £10,000 to institute a post-graduate Fellowship for animal research, a three-days' bazaar was held in the Music Hall, Edinburgh. The opening ceremony was performed by Field-Marshal Earl Haig, who said that they were taking part in a function of much more than local importance, and the occasion gave him an opportunity to say a word of thanks to a profession which, during the war, rendered very notable service to the army he then commanded. As the army grew so did the veterinary corps, and so did the work it had to do. The original Expeditionary Force started with well under 1,000 officers and men of all grades, and 6 veterinary hospitals with accommodation for 1,500 animals. The corps ended the war with 765 officers and between 16,000 and 17,000 other ranks; and 20 hospitals provided accommodation for 40,000 horses. The Expeditionary Force started with 53,000 horses, and in the course of the war this total reached a maximum of 475,000. This did not, however, represent anything like the whole work of the veterinary profession, for disease was reduced to a minimum. The skin disease statistics had been the envy of our allies; glanders, that scourge of the armies of other wars, was banished altogether; and while foot-and-mouth disease was raging throughout the

these required operation. In 80 per cent. of the cases the female the cervix was eroded and infected, and had be enucleated. Cotton stresses the importance of early atment. The majority of his failures have been in cases over two years' duration, where permanent damage had urred to the brain cells.

07. Subepidermal Treatment with Tuberculin.

SAHLI (*Schweiz. med. Woch.*, September 20th, 1923, p. 877) gests that his system of injecting tuberculin into the perficial layers of the skin should be called subepidermal l not intracutaneous, as the former term stresses the portance of depositing the tuberculin at a depth of only mm. from the surface. He deplores the tendency of ysicians to inject tuberculin into the centre of the total ckness of the skin, several millimetres below the surface the skin of fat patients. When the skin is transparent it is sible to see the point of the needle when it is only 1 mm. m the surface, and the tuberculin has been deposited at proper depth only when it forms a well defined and pable pomphus.

Surgery.

08. Paget's Disease of the Nipple.

NTHAL CHEATLE (*Brit. Journ. of Surgery*, October, 1923, 295) describes in detail his conclusions concerning Paget's ease of the breast, arrived at by means of reproduc- ns of whole sections of eight breasts suffering from this ease. Paget's disease begins as a primary disease in thelial cells situated above an imaginary line drawn rallel with the surface of the nipple below the expansions t occur in the mammary ducts before they terminate on surface. Carcinoma starting below that line is very ely associated with Paget's disease. Handley attributes disease to the plugging of the subjacent lymphatic ssels by carcinoma cells arising in a growth more deeply uated. The author shows two specimens of Paget's ease in which the carcinoma of the breast had not reached y lymphatic vessels, therefore the nipple disease could not ve been due to that cause. Moreover, Paget's disease can ur elsewhere in the body as a primary disease and in the sence of all other forms of carcinoma. The disease as it ects the nipple is a carcinoma, and the disease begins in pigment cell layers, but the tumour itself is not gmented. When permeation occurs in the lymphatic ssels which lie under a Paget's disease, the permeating rcinoma cells must be derived from a carcinoma of the east; the cells of a Paget's disease rarely if ever permeate uphatic vessels. Paget's disease appears to be usually sociated with carcinoma of the breast. The connexion tween these two is that the agent of irritation which is lucing Paget's disease is also concerned in inducing mary carcinoma in the epithelial cells of the underlying east, which is reached by means of the mammary ducts. e associated carcinoma in the breast varies with the types epithelial cell that are affected. The practical result of s paper is to enforce the principle that a breast suffering m Paget's disease of the nipple should be subjected to a st complete operation for its removal, together with the mphatic glands.

09. Tuberculosis of the Kidney.

KÜMMELL (*Klinische Wochenschrift*, November 5th, 1923, 2085) reviews the pathology, symptoms, and treatment of berculosis of the kidney, and records his results of surgical atment. Tuberculous kidney is usually unilateral at first. e affection of the other kidney is a late infection, and be prevented by early operation. One of the first portant symptoms of tuberculous kidney is frequent eturition. Haematuria is often an early sign, whilst later s rare. An acid sterile urine containing pus is charac- istic. Detection of tubercle bacilli in the urine is t evidence of the disease. The injection of animals with sediment of the suspected urine may settle the diagnosis doubtful cases. Detection of tubercle bacilli in the urine icates tuberculosis of the urinary tract, and nothing re. The cystoscope and the ureteral catheter give the

curred within four years in 14 (8.8 per cent.), most tuberculosis of the other kidney or the lungs. Af years renal tuberculosis is rarely a cause of deat author considers his late mortality of 8.5 per cent. up fifth year, and 11.3 per cent. up to the eighth year, as able results. One of the author's patients was in goo after thirty-three years, 2 after twenty-six years, twenty-five to twenty-two years, 30 after twenty sixteen years, 38 after fifteen to ten years, 63 afte four years. Since tuberculous kidney is usually u at first, the results of early operation are very fa after early diagnosis; and early operation is the most means of cure.

410. The Association of Malignant and Benign Tu of the Breast.

GOTTSTEIN (*Zentralbl. f. Chir.*, October 27th, 1923, records a case of carcinoma of the breast in a aged 63, who had had a benign tumour of the sam for more than thirty years. The supposition t benign tumour had undergone malignant degeneratio to be false, as naked-eye and microscopic exa showed that side by side with the scirrhous tumo was a fibroma enclosed in a capsule. Malignant d tion of benign tumours has frequently been obs cysto-adenomata (10 per cent. according to Tirtze otherwise very rare. Bernhard, Fischer, and Sc have recorded two cases of adenofibromata, and examples of fibromata which had undergone m degeneration. The present case shows that clinical tion alone does not justify the diagnosis of malig generation of benign tumours, as a carcinoma may alongside of a benign tumour, although clinically th distinction between the two growths.

411. Cryptogenic Peritonitis.

F. MANDL (*Deut. Zeit. f. Chir.*, September, 1923, p. 2 records ten illustrative cases which occurred at the Surgical Clinic of Vienna University between 1908 a applies the term "cryptogenic peritonitis" to cases i no adequate explanation can be found for the per either at the operation or autopsy. The cases recorded have been classified as follows: (1) Pneu peritonitis; (2) streptococcal peritonitis; (3) gonoco tonitis without obvious affection of the genitals; (4) itis in little girls (Riedel) which is not included in (1) and (2); (5) peritonitis caused by passage of or through the bowel without any obvious perforation; (in which no etiological factor can be found at the o or autopsy, even on histological and bacteriological e tion. The prognosis of cryptogenic peritonitis is v owing to the impossibility of closing the portal of e the organisms. Of Mandl's ten cases two were exa fatal pneumococcal peritonitis in girls aged 6 and 10; fatal streptococcal peritonitis in girls aged 4 and 6; gonococcal peritonitis without obvious lesions of th and vagina in women aged 17 and 22, who both re after operation; two of peritonitis following intestinal tion without perforation in women aged 21 and 68, o the latter recovered after operation; and two fat in females aged 6 and 81, in whom no explanation peritonitis could be discovered, either at the opera autopsy.

412. The Etiology and Prevention of Chronic Middle-ear Suppuration.

A. H. CHEATLE (*Acta Oto-Laryngologica*, vol. v, Fasc. p. 283) suggests that if measles and scarlet fever c abolished chronic middle-ear suppuration would comparatively rare. The reason why an acute p infection of the middle ear causes a chronic disc anatomical; in about 20 per cent. of all persons the cells extending from the middle ear into the mastoid or adjoining structures. This condition may possibl to sclerosis of the bone following acute middle-ear i in the newborn. This type of bone is present in near case of chronic middle-ear suppuration. When the ear is infected under these conditions the outer wa antrum cannot be penetrated, nor can the mastoid pr reached. If complete resolution does not take pl intracranial or labyrinthine complications do not o

territory in Belgium occupied by our allies, they asked for help from our veterinary officers, who gradually stamped it out, and—what was more important—prevented the disease from coming to Great Britain.

Ireland.

DUBLIN BOARD OF GUARDIANS DISSOLVED BY MINISTRY OF LOCAL GOVERNMENT.

THE following letter has been addressed by the Ministry of Local Government to the clerk of the Dublin Board of Guardians:

I am directed by the Minister for Local Government to state that he has had under consideration the report of Mr. Seumas McLysaght, Inspector, on his recent public inquiry at the Dublin Union. A copy of the report is forwarded herewith. The Minister is satisfied from the facts adduced in the report that the duties of the guardians in the Dublin Union are not being duly and effectually discharged. He has been impressed by the inspector's comment—that the work of an elected board of seventy-two members has been in effect mainly carried out by only twenty-five, and that there was reason to believe that the sporadic attendance of negligent members had nullified the efforts of those who had been devoted to their public duties. It appears obvious to the Minister that it has become an imperative duty on him in the interests of effective and economical administration to dissolve the guardians of the Dublin Union. The decision is embodied in the accompanying order dissolving the Board of Guardians and appointing Mr. Seumas Murphy as the person to whom their several powers and duties have been transferred. The Minister trusts that those who have been guardians and others interested in the important public functions with which Mr. Murphy has been entrusted will accord to him a full measure of co-operation and assistance.

The Inspector in his report discussed some matters of medical interest.

Referring to the administration under the Medical Charities Act, the report stated that the dispensaries were in a dirty condition. It had been complained that the supply of coals usually received early in October had not yet been delivered, resulting in patients having to wait in the cold. In one instance, continued the report, the Local Government Inspector had failed to find either doctor or porter on the premises during dispensary hours. In all cases the inspector found measure glasses in a dirty state. Medicine seemed to be thrown about in an untidy manner; in many cases poison presses were not locked. The report further declared that neglect shown in the past of Poor Law dealing with the boarded-out child, the child at nurse under the Children's Act, and the child adopted on payment of a lump sum, just prior to the present administration, was painful. Evidence showed that an actual system of child farming had been indulged in. The case where six babies died in two years painfully illustrated this. The unregistered nursing home was an equally grave danger. There would appear to be serious need of legislation under which nursing homes, private or otherwise, would be compelled to register before accepting the care of any child.

Supervision of workers by the system is, the report continued, very defective. Serious attention is drawn to the method of making appointments. Attention is drawn to the fact that the collective number of days lost in respect of sickness totalled 23,931, and the total cost of providing substitutes amounted to £7,305. Appointments are made with enthusiasm by the Board, but, it is complained, there is, if anything, a disinclination to order dismissals or suspensions. It would appear (the report continued) that every officer was a law unto himself, and, although the master, matron, and doctors were responsible for the efficient discharge of multifarious duties, the Minister was satisfied that they were not able to exercise that control so very essential to the proper and economical management of various departments. The result of the guardians' indifference in dealing with complaints weakened the authority of the executive, and that served to strengthen dangerous tendencies and cause a spirit of insubordination to develop that would be highly prejudicial to the best interests of the institution. The doctors were powerless to enforce discipline, and complaints received such scant attention that it was only in very exceptional circumstances that the Board was troubled in this respect. The guardians had not exercised proper management in connexion with hospitals, dispensaries, outdoor relief (particularly in rural areas), stores, staffs, appointments, discipline, admissions, and discharges.

A LOCAL centre for combating cancer has been established for the region of Lyons and South-east of France, under the directorship of Dr. Léon Bérard, professor at the Lyons Faculty of Medicine.

DR. G. DE CLÉRAMBAULT, the successor of the late Ernest Dupré, has recently commenced a course of lectures on urgent psychiatry and psychiatry in general at the Police Infirmary, Quai de l'Horloge, Paris. The lectures, which are free to medical practitioners, are held every Saturday afternoon at 3 p.m.

Correspondence.

GAS LEAKS AND CARBON MONOXIDE POISONING.

SIR,—Mr. A. Webster and I have been testing the smellable limit of coal gas and find it about one part in 2,000 parts of air. Gas can just be distinctly smelt when one sniffs the air issuing from a cylinder containing this dilution. Taking the normal percentage of oxygen in the arterial blood as 18, the prolonged breathing of one part of coal gas in 2,000 parts of air would, if there were 10 per cent. of carbon monoxide in the gas, finally saturate the haemoglobin with carbon monoxide to the extent of 1 volume per cent.; if there were 20 per cent. in the gas to the extent of 2.7 volumes per cent. The former is the amount of saturation which Mr. H. Hartridge found in the blood of one heavy smoker. All smokers must have some amount of carbon monoxide in their blood when smoking, and give it off between whiles. Carbon monoxide can only accumulate in the blood up to the saturation corresponding to its partial pressure in the air—no further.

Dr. Hazleton in his paper "On carbon monoxide—a predisposing cause of pulmonary tuberculosis" (BRITISH MEDICAL JOURNAL, October 27th, 1923) leads the reader to think that the longer the breathing of air containing 0.01 per cent. of carbon monoxide the greater must be the saturation. This is not the case. Equilibrium is reached and the saturation proceeds no further. There will finally be 2.7 volumes per cent. of carbon monoxide and 15.3 volumes per cent. of oxygen in the blood. The saturation process is a slow one at such a low dilution, but will not go above this figure however long the air is breathed. In fresh air it again escapes from the blood. In the *Journal of Physiology*, vol. 44, p. 275, 1912, "The laws of combination of haemoglobin with carbon monoxide and oxygen" are given by C. G. Douglas, J. S. Haldane, and J. B. S. Haldane.

Suppose the 18 volumes per cent. of oxygen in the blood is diminished by 2.7, this is of no consequence to the resting person because he has more oxygen in his blood than he requires; a surplus is kept ready for use on exertion. Douglas and Haldane found that when the partial pressure of oxygen corresponded to an altitude of 15,000 feet, a 23 per cent. saturation of the blood with carbon monoxide was tolerated without inconvenience (*Journal of Physiology*, 1912, 44, p. 332). Apart from deprivation of oxygen, carbon monoxide has no poisonous effect. There is no evidence that the employees of gasworks, who are daily exposed to the smell of gas, are less healthy than others. Many live to old age and draw their pensions for many years.

The public, of course, must be taught that the least smell of coal gas is a danger signal and that all leaks must be stopped. Only a wanton disregard of the warning smell, the close shutting of rooms, and prolonged breathing can raise the percentage of carbon monoxide in the blood to the danger point.

I gave evidence to the recent Board of Trade Committee, appointed to consider this subject, in favour of allowing a higher percentage of carbon monoxide in coal gas, on the grounds that the cheaper gas becomes and the more it is used for heating the less fouled will be the cities from smoke. Smoke does incomparably more harm to health and happiness than is caused by the few accidental and suicidal deaths resulting from inhalation of coal gas. The Committee, in their report, took this point of view. I hope Dr. Laird will consider it. An essential part of this policy is the teaching of "safety first" in the matter of leaks and fittings.—I am, etc.,

Loughton, Dec. 3rd. LEONARD HILL.

SIR,—The symptom-complex described by Dr. Hazleton in the BRITISH MEDICAL JOURNAL of October 27th (p. 763) as due to carbon monoxide poisoning is common. The usual train is (1) headache, (2) lassitude and anorexia, (3) shortness of breath on slight exertion, (4) anaemia of the yellow type, not ordinary house pallor. The next stage is myocardial degeneration, evidenced by increased pulse rate, possibly a pushed-out apex beat and signs of

ute or subacute stage, and an dertaken, with the result that ed. To wash out the normal sinfectant is merely to upset the 1 and to increase the chances of

ılmology.

ole Clinical Feature in ondary Syphilis.

TH FRASER of Cape Town (*Brit.* r, 1923, p. 525) report a case as on of the cerebro-spinal nervous l known, though not sufficiently olvement of the central nervous essarily a tertiary phenomenon. itic lesions of the cerebro-spinal The first is a meningo-lympho- es gummatous and endarteritic a parenchymatous affection of t case was that of an unmarried l a hard chancre on the left side was a long way from medical d, and the sore was his only after infection when he was he then noticed a film in front t his field of vision. On examina- L. 5/5, the left palpebral fissure ie right, and there was complete of each field. In other respects . It was significant that the l reaction was not obtained, undoubted cases of hemianopic other signs of syphilitic involve- ie body. One month after treat- eas had receded to the 50 degree arently left-sided and situated tract between the chiasma and absence of other localizing signs ie lesion more exactly.

lo-tumour of the Orbit.

. KNIGHT, from the Mayo Clinic, *Ophthalmol.*, November, 1923, of this rare condition. It is disturbance in ocular motility, rease in the bulk of the retro- slow and is not accompanied by on. Microscopical examination , however, points to an inflam- is held that a focal infection he probable etiological factor. iese pseudo-tumours as follows: drome of benign or malignant ically, but in which recovery is iistration of drugs. (2) Cases in l tumour is made on the clinical not found on opening the orbit. s diagnosed at operation, but on found to consist of chronic e present series, in Case 1 no ition; in Case 2 an ill defined enteration, microscopic sections onsisted mostly of connective lymorphonuclear cells scattered ndings suggested the results of a , and 6 a more definite tumour icroscopic findings were similar the exception that in Case 4 eucocytes were conspicuous. In od count in any way abnormal. septic focus found. In Case 1 fection, and in Case 4 there had yocystitis.

Tumours of the Retina.

française pour l'étude du Cancer, case of so-called retinal glioma light on the genesis of this type from a boy aged 11 years. The mour had been present at birth, rapidly. Histological examina- ite elements were represented ibes of neuro-epithelium, the ical shape with deeply staining disposed regularly in a single e elements derived from the primitive spongioblasts; these were of two types—ependymal rosettes and neuroglia. The latter was seen in the form of fibres arranged in parallel bundles in the midst of which were typical spider cells with clear oval nuclei. Thirdly, there were glandular epithelial cells similar to those of the choroid plexus. With the exception of ganglion cells and meningoblasts there were in this tumour all the differentiated forms which occur naturally in the development of the brain tissue. The author believes that these retinal tumours are identical with the cerebral neoplasms, and would therefore designate them by the name of "neuro-epitheliomas."

416. Pseudo-glioma.

GIFFORD and LATTA (*Amer. Journ. of Ophthalmol.*, July, 1923, p. 565) report three cases of pseudo-glioma due to remains of the tunica vasculosa lentis. The diagnosis between glioma and pseudo-glioma is always a matter of difficulty, and usually it is best to "play for safety" and remove the eye. Pseudo-glioma may be due either (1) to an inflammatory condition, such as tuberculosis, resulting in the formation of exudative masses in the vitreous; or (2) to developmental anomalies, such as the persistence of the posterior fibro-vascular sheath of the lens and of the hyaloid artery. These latter changes are often not so extensive as the former, but this is no direct guide to diagnosis. There may be, however, other congenital defects, such as coloboma of the iris, which will assist in arriving at a decision. In the former type, the inflammatory, the eye may be somewhat shrunken; however, true gliomata can occur in microphthalmic eyes. It has been suggested that puncture with removal of fluid for diagnosis might be advisable, though it would appear that this would involve too much danger of extension outside the globe should the condition prove to be a glioma. To wait and watch for evidence of growth is obviously undesirable. The necessary distinction to be made out is between glioma and pseudo-glioma, and the authors advise enucleation of the affected globe in every case in which there is any doubt.

Obstetrics and Gynaecology.

417. Carcinoma Uteri with a Positive Wassermann Reaction.

E. LOUDON (*St. Michael's Hosp. Med. Bulletin*, September, 1923, p. 64) records a case of carcinoma of the cervix uteri in a nullipara, aged 27, in whom the presence of a four *plus* Wassermann reaction resulted in the provisional diagnosis of carcinoma being revised to one of syphilitic ulceration. The cervix was hard, irregular, enlarged to the size of a small apple, and slightly movable. Notwithstanding antisyphilitic treatment she became rapidly weaker. Six weeks later operation revealed a large, friable, easily bleeding, fungating mass filling the upper part of the vagina and infiltrating the fornices, with fixation of the uterus. This proved to be an adenocarcinoma. In spite of *x*-ray treatment she became extremely emaciated and had recurring severe haemorrhages, death taking place about six months later. Although the Wassermann reaction remained strongly positive throughout there was no history of any sore. She had had no children and no miscarriages, and the husband's Wassermann reaction and that of a sister were negative—points against the diagnosis of either acquired or congenital syphilis. On one occasion she left hospital in order to visit her father, who was dying of cancer. The case is of interest because of the rarity of carcinoma of the cervix in a nullipara, and at the early age of 27; and had not the presence of a strongly positive Wassermann reaction led to an altered diagnosis the growth might have been removed when first seen. The antisyphilitic treatment may have been a factor in its rapid development.

418. Prevention of Puerperal Fever by Serotherapy.

F. CHATILLON (*Schweiz. med. Woch.*, September 13th, 1923, p. 869) supports his advocacy of the prophylaxis of puerperal fever with serotherapy by statistics obtained from Professor Beuttner's hospital in Geneva. At this hospital for about a year the practice has been adopted of giving injections of polyvalent antistreptococcal serum, obtained from the Pasteur Institute in Paris, to every maternity case in which some obstetrical operation had been performed. For the sake of comparison the records of 1920 and 1922 were investigated, and the cases were classified in four groups, the first group representing normal confinements, the fourth group representing the cases which terminated fatally, and the two intermediate groups representing different degrees of puerperal fever not terminating fatally. Among the cases not given serum there were only 29, or 46.7 per cent., in which the patients belonged to the first class, whereas 65.8 per cent. of the patients who had been given serum

slight dilatation, and evidence of decreased cardiac reserve.

A cultivation of the senses of smell and taste is essential to success in general practice. Diagnosis begins on the doorstep. As I cross the threshold I deliberately savour the smells by drawing a long breath through the nose, and employing also the sense of taste by deliberately "tasting the air." Some aromas merely smell, others only taste, many do both. Small gas leaks only smell; the products of the imperfect combustion of gas—equally if not more dangerous—both smell and taste. Wherever gas is really sensed a lowered condition of health will be found in the whole household, or at least that part of it—mainly, of course, the feminine element—which spends most of the twenty-four hours at home. This occurs very nearly as frequently in the larger houses of the well-to-do as in the small homes of the working classes, but the evil effects in the latter are more pronounced, as these homes are difficult or impossible to ventilate without draughts. In my mind the effects of gas leaks and oral sepsis run a very close race for pre-eminence as primary causes of general malaise, and later of serious disease. I am an enthusiastic gas user; my house is entirely heated by gas fires, and all cooking is by gas. But every fitting fits, and every fire is properly flued, and every flexible tube is renewed every six months and tested very frequently. Dr. Hazleton has indicated one of the sources of gas leaks—namely, the pendent position of the ordinary gas burner cock or tap. But leaks due to this cause form only a tithe of the usual domestic leaks. The gas cooker is by far the worst offender; then comes the gas fire as usually fitted, and the flexible gas tube is a good third. The gas companies will not fix proper flues to gas fires and will not adequately block off the chimney openings up which the gas flue must pass. Consequently nearly all gas fires suffer from a down draught containing much carbon monoxide. Gas-fitters will daub white lead on faulty joints and fail to screw up connexions, and will even at a pinch fix a section of faulty pipe. The modern gas fire itself is as nearly perfect as such an apparatus can be. Until the gas companies and the public generally come to recognize the importance of the prevention of even the smallest leaks the mass of ill health due to this cause will continue. As Dr. Hazleton points out, 0.01 per cent. of carbon monoxide will in eight hours saturate the blood to the extent of 17 per cent. Smaller amounts inhaled daily for weeks will cause chronic ill health even amongst the young and vigorous. To the feeble and aged confined to sick-rooms the results are much worse. Monopolies are not good things, and one wants to see the brave fight between gas and electricity continue. But the gas companies must eradicate gas leaks.—I am, etc.,

October 29th. M.A., M.D., D.P.H.

ETIOLOGY OF CANCER OF THE OESOPHAGUS.

SIR,—In your issue of November 24th Dr. G. D. Parker makes eight "suggestions as to facts to be observed" in connexion with the origin and course of carcinomatous tumours in the human subject.

That the use of the expression "facts to be observed" is, to say the least, unfortunate appears to be realized by Dr. Parker himself, for he rather naïvely adds, "such facts as here stated are put down as individual observations, and no doubt are inaccurate on many points." In other words, he is prepared to find that some of the alleged facts may turn out to be either unproved or unprovable assumptions, if not obvious fictions.

Under the latter category I would put the assertion "(*b*) In cancer of the oesophagus—the very common association either with the excessive drinking of concentrated forms of alcohol or of excessively hot fluids." Cases of cancer of the oesophagus investigated oesophagoscopically and otherwise by me can be reckoned not merely by the score but run into many hundreds. The number of living individuals of cancer age who indulge excessively in ardent spirits and in very hot fluids, or both, must be relatively large, say at least 160,000 probably, whereas the number of individuals who acquire cancer of the gullet is comparatively small—the average yearly death rate for England and Wales from gullet cancer for the ten years 1911 to 1920 was a little under 1,600! In my investigations the number of those individuals who were found to be the victims of cancer of the oesophagus who gave a clear history of excessive drinking of either ardent spirits or very hot fluids or both has not been such as to impress me with the correctness of the alleged association implying cause and effect which Dr. Parker formulates. The conclusion I have arrived at is, of course, quite contrary to my preconceived expectations based on what I was taught as well as on *a priori* grounds.

There would not appear to be anything antecedently improbable in the suggestion, in accordance with current teaching, that the consumption of large quantities of unwatered spirits and hot drinks might be one of several possible factors operative in the origination of cancer in the buccal cavity (including the tongue), the fauces, the pharynx, the gullet, and the lesser curvature of the stomach; all that I can affirm is that in my large series of cancers of the gullet I have failed to find any convincing evidence of the frequent presence and operation of this factor as a predisposing or exciting cause.—I am, etc.,

London, W., Dec. 4th. WILLIAM HILL.

SUPRAVAGINAL HYSTERECTOMY AND PANHYSTERECTOMY.

SIR,—Your issue of December 1st, in the report of a meeting of the North of England Obstetrical and Gynaecological Society (p. 1045), contains an abstract of a paper by Dr. Fletcher Shaw on the above subject. "He said that some gynaecologists believed that panhysterectomy should be done whenever the uterus had to be removed." As one who holds that belief and has exclusively practised panhysterectomy for twenty-three years, I should like to make a few comments on his paper, so far as I can judge it by the abstract.

Dr. Shaw has had, in a period of eighteen months, three patients in whom cancer of the cervix occurred after supravaginal hysterectomy, "although," he adds, "these cases were the only ones he had ever had." The important point is not whether he had had other cases, but whether other patients whose uteri he had amputated had had the disease and had taken their cases elsewhere. I have recently seen a case of carcinoma of the cervical stump twelve years after supravaginal amputation of the uterus for myoma by another gynaecologist. May I ask how many consecutive cases of supravaginal hysterectomy Dr. Fletcher Shaw has seen and examined after twelve years? (Dr. Chisholm's case shows that it may occur even after twenty-five years.)

Is Dr. Shaw, who has in fact had three cases in eighteen months, justified in saying that malignant disease of the cervical stump is "very rare"? No less than 276 cases have been collected from American sources alone. It formed 6.5 per cent. of all the (123) cases of cancer of the cervix admitted to the Massachusetts General Hospital in a period of five years (1917-22).

I have personally seen six cases, of which four had been operated on by other gynaecologists and two by myself. My two cases occurred amongst thirty amputations (6.6 per cent.), and caused me to give up the operation last century.

The superiority of total hysterectomy over amputation has been emphasized in recent years by Polak and Mayo in America, Döderlein, Bumm, and Franz in Germany, Weibel in Vienna, and de Ott in Petrograd. I have performed it consistently for twenty-three years. Dr. Shaw asked his hearers if they had had cases of cancer in the cervical stump. Of the five who replied three had had cases (two in nulliparae) and two did not remember. The president, Professor H. M. Phillips, however, believed that panhysterectomy was the better operation in all cases.

If Dr. Fletcher Shaw had acted on the advice I gave in 1916 (*Proc. Roy. Soc. Med.*, vol. x), and had performed total hysterectomy instead of amputation, he would not have had those cases of cancer of the cervical stump to record. In the same volume and in vol. xi I published three papers showing the superiority of panhysterectomy:*

* See also my first paper, "Total Abdominal Hysterectomy for Fibromyoma Uteri," BRITISH MEDICAL JOURNAL, October 11th, 1902.

to the technique of the injections of serum, the first gives an injection of 1 c.cm., and then, an hour 40 c.cm. Next day another injection of 40 c.cm. is and if there be reason to suspect trouble this injection eated on the third day. As a rule there is only a local reaction, and there was but one case in which nt reaction followed, with hyperpyrexia, a scarlatini-ish, and pains in the joints lasting for about four days.

Indications and Technique of Intrauterine Plugging.

TEIN (*Zentralbl. f. Gyn.*, September 1st, 1923, p. 1413) es the fact that the treatment of various conditions, rated later, by intrauterine plugging has been omitted nost of the present-day textbooks. For the last thirty the author has carried out the treatment with great s in many hundreds of cases. The indications given warrant such treatment are (1) any serious bleeding , pregnant or non-pregnant uterus, which requires to cked speedily; (2) cases of incomplete abortion which eeks or months have given rise to bleedings or rge; (3) induction of abortion from the first to fifth s; (4) post-partum haemorrhage due to uterine atony; ntion of discharge following an abortion or a labour; ases of febrile abortions, when the retained products cretion cannot be expelled with certainty, this latter one of the author's most important indications. It is en that the plugging may act as a haemostatic, as a , as a drain, or as a disinfectant. Plugging is in all ontraindicated by all inflammatory febrile conditions adnexa and pelvic peritoneum, as uterine displacement to be produced by it. The plugging is allowed to *in utero* for twenty-four hours, and the usual sequence nts is that pains begin in one to two hours and reach naximum intensity in six to eight hours, and if plug-nd intrauterine contents are not expelled in twenty-ours evacuation of the uterus is easily performed. ervix must always be dilated up to size No. 6 Hegar in with, if not already that size, and the author sizes the fact that the fundus should first be packed this preventing any of the contents of the uterus squeezed down the tubes into the pelvis by the pack-After the packing is removed ergot is given orally, but t not be given before removal, else rupture of the may occur. Some cases develop a slight rigor with cking *in situ*, which is taken as a sign that the os is g well. After this treatment the patient is kept in bed r or five days and is only allowed fluid diet.

Dystocia of the Shoulders in Head Presentations.

VILLIAMS (*Boston Med. and Surg. Journ.*, October 4th, . 465) laments the fact that in the present-day teaching xtbooks little emphasis is put on the difficulty in the f the shoulders in some cases after successful delivery head. Yet in his private practice the author has ven cases—a ratio of 1 : 150 cases. One of these was rn, three suffered from brachial paralysis, two from e of the clavicle, and one from a fractured humerus. ld seem from the findings of Weil and of the author ojury to the brachial plexus is most likely to occur the head is bent to the opposite side from which n is being made on the shoulder and when the face is l away from the obstructed shoulder, the tissues of the of which the plexus forms a part, having been put on etch thereby. It is also noted that in cases in which avicle is broken there was no injury to the plexus, and ersa, this being due to the broken clavicle causing the nce to be diminished. The chief causes of dystocia o be (1) excessive size of foetus, (2) contraction of outlet, and (3) faulty mechanism of labour. In the ement of such cases delivery should not be accom-l by traction on the head solely, but is best performed rting pressure on the fundus and thus on the foetus axis of the superior strait and in the interval between ctions, the head being merely guided downwards until terior shoulder comes to view and then upwards for th of the posterior shoulder, this being named by the "Kristeller's manœuvre"; at the same time care be taken to see that the brachial plexus is not put he stretch by rotating the head too much to one side

being the more common condition. The first case, a ma came into hospital following a "stroke" which left h disoriented. During the next six weeks Rombergism, st gering gait, unintelligible speech, choked discs, vomiti without nausea, severe headaches, and delirium develop Death then occurred from bronchopneumonia. At necro a primary carcinoma was found in the lungs, with metasta in the brain, adrenals, liver, and bronchial lymph nod The feature of the case was the remarkable infiltration of pia arachnoid and the nerve roots, spread having been al the lymphatics. A growth in the occipital region and anot in the choroid plexus was due to blood spread. The sec case, a woman with an inoperable carcinoma of the breast, had two convulsions with mental disturban Haziness of the margins of the discs, disorientation, hallucl tions, and delirium were observed during the next four we when death occurred from bronchopneumonia. At necro carcinomatous metastases were found widely scatte through the body. In the brain were large nodules, s situated deeply. The nerve roots were normal. The pia dura were not involved, except in continuity over metasta

422. The Rate of Sedimentation of the Red Corpuscles in Surgery.

K. HALLBERG (*Hygiea*, August 31st, 1923, p. 675) has inv gated the Fahraeus reaction in 100 surgical cases in Serafimer Hospital in Stockholm. The object of his inv gations was to ascertain whether or not the rate of s mentation of the red blood corpuscles is of value (1) in differential diagnosis of surgical cases, and (2) in the deci for or against operative treatment. Adopting Westergr technique, and accepting as the normal rate 3 to 5 mm. hour for men and 7 to 8 mm. for women, the author found in cases of thyroid disease, with or without signs of Grav disease, the rate of sedimentation was proportional to severity of the constitutional disturbances. The ave rate for 13 cases of Graves's disease was 11.6 mm. and highest rate 26 mm. Among the 36 abdominal cases exami the rate was, as a rule, higher in such diseases as appendic and cholecystitis than in hernia and early acute intest obstruction. This test should therefore prove of valu distinguishing between simple acute intestinal obstruc and appendicitis. The 12 cases of appendicitis investig were classified according to the severity of the local chan and it was found that the rate of sedimentation increa with the severity of the disease. Thus, in a case of chr appendicitis it was only 3.8 mm., whereas in a case of a appendicitis with perforation it was as high as 22.6 mm. temperature in this series of 12 cases did not conform faithfully to the pathological changes, and it would seem the Fahraeus reaction may prove a more reliable guide indication for operation than the temperature. The au refers to an instructive case in which the temperature only 36.8° C., but the rate of sedimentation was high 32 mm. An operation performed two hours later reveal perforation of the appendix and an abscess. The fac influencing this reaction are not yet fully appreciated, merely the administration of a general anaesthetic seem hasten the rate of sedimentation in many cases.

423. Amyloid Liver in Germany since the War.

H. SCHRANK (*Muench. med. Woch.*, September 28th, 1 p. 1227) refers to the observations made in Munich w show the increase of amyloid disease in Germany in years of deficient feeding following the war. He then statistics from the pathological institute of the Münc Schwabing Hospital for the years 1919–20–21, and comp them with statistics for the years 1911–12–13. These statis show that the total number of cases of amyloid diseas the three years after the war was certainly not increa but the opposite was the case as regards the severit the affection, and especially as regards amyloid degen tion of the liver. In the years 1911–12–13 amongst 1 *post-mortem* examinations the percentage of cases of amy liver was 0.55; whilst in the years 1919–20–21 the percen (amongst 2,056 autopsies) was 0.88. Not only the nun of cases but also the extent of the amyloid degenera of the liver was greater in the three years following war. In the autopsies before the war in only one case the weight of the amyloid liver above the normal wei in the period after the war the weight of the amy

but my view received no support either from the president or any other gynaecologist except Mr. Malcolm. Now I am glad to have the support of the President of the North of England Obstetrical and Gynaecological Society. I shall hope some day to have the support of the Manchester school, and, in order to encourage them (especially my friend Dr. Clifford), I may add that in my opinion the total operation, properly performed, has a lower mortality and is in all important respects superior to amputation. Amputation of the uterus is, in my opinion, an operation which should not be performed, and unless it ceases to be performed—and it is being done every day—I do not say your columns will be filled with the records of cases of cancer of the stump, for all will not have the courage of Dr. Shaw and publish them; but many women will lose their lives as a result of that specious but unsatisfactory operation.—I am, etc.,

London, W., Dec. 2nd. HERBERT R. SPENCER.

DIFFICULT MIDWIFERY IN GENERAL PRACTICE.

SIR,—I am glad to see in your correspondence columns a letter which shows that I am not alone in feeling that experience of midwifery in general practice does not accord with the very serious pronouncements of the eminent obstetricians and gynaecologists whose opinions and teaching have been published in the JOURNAL during the last few weeks.

Being still in touch with many general practitioners who, like myself, have been in practice for the past twenty or thirty years, I have so far failed to find anyone prepared to admit the practical possibility of carrying on, with the severe restrictions, specially in the use of forceps, which are now pronounced to be necessary: Dr. Vincent Norman's quotation, "if the head does not descend with gentle traction, perforation of the head should be performed," is by itself a killing criticism; my teachers—all, alas! passed over: Dr. Herman, Dr. Cullingworth, and later Dr. Drummond Maxwell—would, I feel sure, never have admitted the necessity for such a confession of impotence.

Although in gynaecological practice one does see not infrequently serious tears, with consequent disabilities, these are not, in my opinion and experience and that of many friends, inevitable, and even if they do sometimes occur they are remediable, while life cannot be restored to an infant destroyed to make the obstetrician's job easier.

While I make no plea for force as a universal remedy, I am sure that the majority of medical men of large experience will remember scores or hundreds of cases in which force, applied intermittently without compression as one can do with axis-traction forceps, proved to be certainly the greatest power for good in the doctor's armamentarium. I venture very humbly also to question the necessity for the comparatively frequent performance of version now advised; with an ordinary breech presentation, while the danger to the infant is very slightly increased in comparison with a vertex, this danger is very small if delivery is properly managed and not hurried by efforts at traction; version of course has its application for delivery when used in appropriate cases of pelvic deformity.—I am, etc.,

London, N.W., Dec. 2nd. CORAM JAMES.

SIR,—I was more than interested in Dr. Vincent Norman's letter. I entirely agree with all that he has to say. Only last week I delivered, with forceps, single-handed, out in the country, a patient with an unreduced occipito-posterior presentation. Certainly I had rather a hard pull, but I secured a healthy child and the patient made a perfect recovery. Had I read Dr. Luker's remarks previously I am afraid it would have upset all my confidence. Midwifery is a practical art and should be taught by practical men; and the less we read of purely textbook difficulties, and operations that require performing once in a generation, the better for the patient and ourselves.—I am, etc.,

Devon, Dec. 2nd. J. J. BROWN, F.R.C.S.E.

SIR,—General practitioners who complain of the hard things said about the treatment of some cases of difficult midwifery in general practice seem to be inclined to think that specialists who read papers on the subject have no grounds for the statements which they make. There are some points worth their consideration. No one who has read a paper on difficult labour in general practice has been so foolish as to suggest that the majority of general practitioners did their midwifery work badly. A doctor who takes the trouble to attend British Medical Association meetings at which obstetrical matters are discussed is not likely to be so careless or haphazard in his methods as to warrant the strictures which are sometimes passed on his less careful brethren.

Another point is that the readers of such papers have the best grounds—namely, that in their hospital work they have to try to repair the damage which has been inflicted by unwise methods of delivery. There must be something wrong or we should not see patients maimed or dying from the treatment of conditions in which ante-natal examination and appropriate treatment would have resulted in both mother and child surviving undamaged. When a prolonged pull with the forceps has failed to deliver and the child is dead, it is undoubtedly better to perforate the head and to deliver without injury to the mother than to persist in attempts to drag out the child with the forceps, with the almost certain result of severe damage to the mother, or to deliver by the very dangerous method of version after the forceps has failed. The manipulation necessary in this method of delivery is likely to cause severe injury to the mother and a great risk of sepsis. I have recently seen a case in which the following occurred in a young primigravida: Occipito-posterior position, unsuccessful attempt at manual rotation, prolonged pull with the forceps, version, delivery of a dead child, complete rupture of the perineum, death of the mother from general peritonitis. These tragic occurrences are mostly avoidable, and a member of a hospital staff who comes in contact with them is not "throwing stones" if he does his best to point out the way to avoid them.—I am, etc.,

London, W., Dec. 3rd. HENRY RUSSELL ANDREWS.

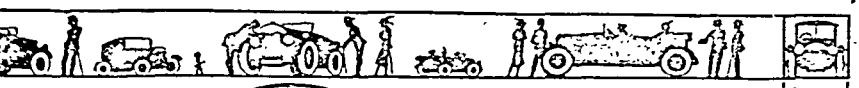
THE USE OF BUTYN.

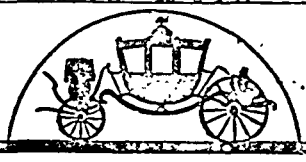
SIR,—Like cocaine, butyn is not an anaesthetic which can be used haphazard, and though its danger is probably less than that of cocaine the recognized dosage should be adhered to, and Dr. E. Watson-Williams's warning should not be forgotten—"caution is required in using butyn." It should not be administered in association with cocaine or other local anaesthetics, but there is no objection to adding *adrenaline*.

Experiments have shown what is the minimum lethal dose with small animals, but at present the amount is not known in the case of human beings. In a letter I have received from Professor Roger Adams of the University of Illinois—one of the joint inventors of butyn—he informs me that of the five deaths which have occurred from its use "no details could be obtained from the doctor" in one case.

"In one other case only," he says, "was a death reported where butyn alone was used, and this was when a very large amount was injected intraspinally. In the other three cases there was a combination of troubles which were probably an important factor in the deaths, although butyn was given as the primary cause. In particular, two of these deaths, reported by a well known eye, nose, and throat specialist, may be mentioned. When these deaths occurred two men from the Abbott Laboratories immediately went to the place where they occurred. In both cases morphine and butyn were used, and the attending nurse reported that cocaine was also used. I mention this latter fact because in the American Medical Association report no mention was made of the fact that other drugs were used with the butyn in these particular cases. An autopsy showed that one of the patients had a severe chronic trouble and the other patient, although no autopsy was made, was not a strong individual. Since it has been shown that administration of several drugs of this kind tends to increase the toxicity to the patient, it seems unfortunate that greater care has not been used in reporting the details connected with each death.

"The Abbott Laboratories have had a continuous fight to prevent surgeons from using too large amounts of butyn. It is not claimed that butyn is non-toxic, but it is claimed that it is less toxic than cocaine in man, and has a greater anaesthetic effect. The inclination of the careless surgeon has been to use amounts corresponding to those that he might use of novocaine, in spite of the warning given in the circulars describing the use of butyn."





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Dr. Burdick, President of the Abbott Laboratories, informs me that he was present at the autopsy of one of the fatal cases and that "it was probably due to endocrine disturbance, as the autopsy showed enlarged thyroid, persistent thymus (the patient was a boy of 15), disease of one adrenal, enlargement of the mesenteric glands, etc." Regarding the use of butyn in intraspinal anaesthesia, the weaker anaesthetics seem to be sufficient, and neither cocaine nor butyn is required. Nevertheless, Dr. Babcock of Philadelphia, who is probably the leading advocate of intraspinal anaesthesia in America, is employing the latter with much satisfaction.

In conclusion, it is claimed that although like cocaine butyn has some degree of toxicity, yet with ordinary care it may be used with safety, always remembering that smaller doses are required than in the case of the older anaesthetic. —I am, etc.,

Bath, Dec. 2nd. W. M. BEAUMONT.

TWO SOLECISMS.

SIR,—At a time when all pious citizens are devoutly considering the respective demerits of Protection and the Capital Levy as cures for unemployment it may seem frivolous to look up words in Liddell and Scott's *Lexicon*. However, on so doing I find that σολοικισμός means incorrectness in the use of language, σόλοικος using provincialisms, and that the verb is used of one who errs against good manners. Martial uses "soloecismum" for a mistake, or a slip of any kind.

The word occurs in a similar context in Juvenal, and in *Anthologia Graeca* of orators using uncouth words and gestures. Liddell and Scott mention only to reject the statement that the word means a provincialism.

Addresses on letters seem no more important than names on brass plates or on farm carts. The truth is we have no regular mode of addressing each other either by mouth or in writing. Only in the last fifty years has the title "esquire" become general. Anyone conversant with the literature of the last age will bear me out in this. Again, we have no general word for a medical man, such as "médecin" in French. "Leech" is obsolete. Surgeons now are all great operators, and physicians folk who write prescriptions. My father, who has been dead nearly fifty years, was known (in the country) as "Lawyer X." to distinguish him from a neighbouring farmer of the same name. I believe that in private barristers always address judges as "judge" without further addition, although in court "Your Lordship" is the proper phrase, and I have heard that bishops are addressed in the same way by their intimates (if such there be). The rector of a parish or the warden of a college is usually addressed on letters as "The Rev. the Rector of Blankton," "The Rev. the Warden, . . . College," but in private as "Rector" or "Warden." Many people still address letters to the clergy as "The Rev. Mr. Brown, the Vicarage, Blankton," and though I cannot lay my hands on it, I have a recollection of a letter addressed to "Mr. (=Master) Dr. Latimer," the Reformer.

As to the familiar address "Good morning, doctor," I can produce a parallel from Arabic—"Ya hawadji," meaning "Thou merchant," and many visitors to Egypt have received demands for backsheesh under this term.

Perhaps after all, these matters may be left to wait till we have settled Protection, the Capital Levy, Panel practice, and the peace of Europe.—I am, etc.,

November 25th. OBSCURUS.

SIR,—May I ask to whom the remarks of the letter of "Suum Cuique" in the JOURNAL of November 24th (p. 1006) are addressed? Surely the "you" which is used several times cannot refer to yourself as editor or to members of the medical profession as JOURNAL readers! The "you" and the "wine merchant, lawyer, and housewife" seem incompatible.

Regarding habit No. 1—how should we address the doctor? Surely not plain "Smith" or, if we remembered his Christian name, "John Smith"? The "John Smith, Esq.," which "Suum Cuique" seemed to hint at would certainly not be correct in these days when the majority of doctors are no more squires than other hard-working folk.

If "Suum Cuique" made the contents of the letter a little less intricate we might be able to understand his point of view.—I am, etc.,

November 24th. SEDGE.

SIR,—Your correspondent "Suum Cuique" has hit the nail, but not right on the head. The truth is that "Doctor" —or the abbreviation "Dr."—is in reality an academic and not a professional title. It implies the holding of a doctor's degree, whether in medicine, science, philosophy, divinity, or music. Strictly speaking, it ought not to be applied to a medical man unless he holds the degree of M.D. Custom gives it to anyone holding a medical qualification, but in such case it is only a courtesy title, and the qualified physician who does not hold the M.D. degree ought not to *call himself* "Doctor," whatever his friends may do.

A somewhat analogous case occurs in the use of the term "Esquire." This should be applicable only to landed proprietors, though it is now applied indiscriminately to every man holding any social position at all. But to call *oneself* "Esquire" or to put it on one's visiting card would be the action of a "bounder"—it is purely a courtesy title.—I am, etc.,

November 27th. SCIENTIAE DOCTOR.

SIR,—"Suum Cuique" has fallen into the common—or shall I say vulgar?—error of supposing that the word "doctor" connotates a medical practitioner.

Doctor is, of course, the highest degree granted by a university, in the faculty of medicine amongst others. It is, therefore, perfectly correct to address the possessor of this degree, both verbally and in writing, by the title "doctor." Indeed, a failure in this respect is a distinct breach of the amenities.

"Doctor" ranks with "colonel," "major," "general," etc., as an honourable title. It does *not* indicate the holder's profession; in this respect it differs from the examples given above. My remarks do not refer to the use of the title "doctor" by medical practitioners who have not a university degree.—I am, etc.,

Salford, Nov. 25th. STANLEY HODGSON.

*** As often happens, this correspondence appears to be drifting away from the points raised by our original correspondent. It is, of course, true that the title of "Dr." cannot be limited to the medical profession, since universities grant doctorates in other faculties. It is also true that the title of "Dr." is commonly applied to medical practitioners, even though they do not hold a university degree. In 1903 the Association decided that practitioners other than graduates in medicine and surgery were not justified in styling themselves "Dr."; but at the Annual Representative Meeting in 1913 the matter was reconsidered and the resolution of 1903 rescinded. This action was taken after the Royal College of Physicians of Ireland had resolved that a Fellow, Member, or Licentiate of that College might, by courtesy and usage, call himself "Dr.," but had no right to use the letters "M.D." or call himself "Doctor of Medicine," unless he held that degree from a university. In 1912 the Royal College of Physicians of London modified one of its bye-laws which had forbidden a Fellow, Member, or Licentiate of the College to assume the title of "Dr." or append to his name the title of "Doctor of Medicine," or the letters "M.D." or any letters indicating that he was a graduate of a university, unless he had obtained a degree entitling him to do so. The modification was the omission of the words "assume the title of Dr. or."

VACCINATION PROPAGANDA.

SIR,—The great flaw in Dr. Killick Millard's argument is his assumption that every attack of small-pox in an unvaccinated person would be so severe as to lead to immediate diagnosis. Experience in the North and Midlands proves, however, that even in unvaccinated people the disease may be so mild as to be unrecognizable by the general practitioner. If, therefore, the whole population were unvaccinated it does not appear that we would have any greater

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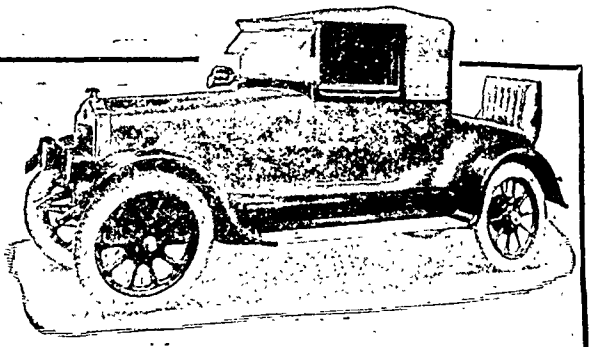

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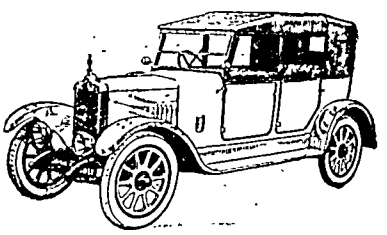

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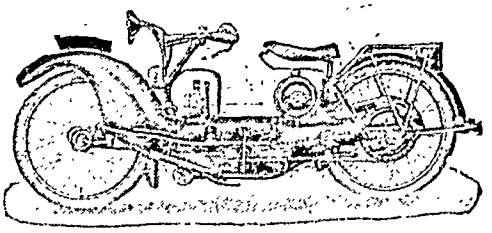

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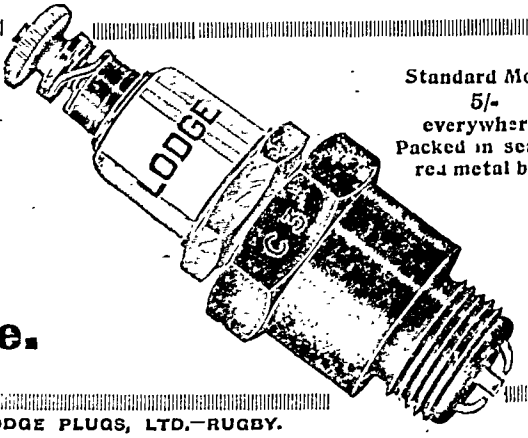

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London, E.C., Nov. 30th. T. F. MANNING.

SIR,—One has always rather admired Dr. Killick Millard, but he is now shown to be even more admirable than one thought. A man, and a medical officer of health into the bargain, who after (1) side-slipping, and (2) plunging into a mirage, finally (3) "still stands on his head"—such a man has unwonted stuff in him. It makes one proud to be an M.O.H.—I am, etc.,

Bromsgrove, Nov. 30th. H. CAMERON KIDD.

EPSOM COLLEGE.

SIR,—It is again my duty to bring before your readers the good work carried out by the Royal Medical Foundation of Epsom College, which consists of (a) giving pensions of £30 a year to fifty aged and impecunious medical men or their widows; and (b) providing, free of charge, a high-class education, together with clothing, maintenance, and pocket money, for fifty necessitous sons of medical men.

To enable these beneficent objects to be carried out the Council have had to supplement the moderate income derived from invested funds by procuring contributions from medical men and others amounting to over £6,000 a year. It is necessary to obtain this large sum from subscriptions and donations owing to the greatly increased cost of food, clothing, lighting, heating, wages, repairs, and general expenditure. Furthermore, Epsom College, like other secondary schools throughout the country, has had to incur a heavy additional expenditure in masters' salaries, while a more costly masters' pension scheme has recently been instituted in order to attract the best masters to the College.

I therefore urge all friends of the College to do what they can to assist the Council to procure the further financial support needed, by increasing their own subscriptions for a few years, and by bringing the good work of the Foundation before medical men and others.

The Foundation has strong claims on the public, bearing in mind the services rendered by the medical profession in the prevention of disease as well as in the treatment of illness and accidents. It frequently happens that, owing to the exceptional risks to which medical men are exposed, permanent disablement and even premature death occur in the course of the discharge of their everyday duties. The Council have received numerous applications for assistance as a direct consequence of the war, and Foundation Scholarships and Salomons Entrance Scholarships have been awarded to several boys whose fathers were killed in action or lost their lives in torpedoed vessels. But these Scholarships, together with the Council Exhibitions, very inadequately meet the calls for aid in forwarding the education of many very necessitous and deserving sons of medical families.

The Pensioners and Foundation Scholars are elected in June each year by the votes of the Governors, who are allotted ten votes for every guinea subscribed annually, and ten votes a year for life for every donation of ten guineas.—I am, etc.,

HENRY MORRIS,
Honorary Treasurer of Epsom College and its Royal Medical Foundation.

November 30th.

PUERPERAL MORBIDITY.

SIR,—With the authority of the honorary surgical staff of the Jessop Hospital for Women, Sheffield, I beg to make the following statement in reply to the criticism of Dr. Gibbon FitzGibbon in the BRITISH MEDICAL JOURNAL for November 24th (p. 1004) levelled at their interpretation of the British Medical Association standard of puerperal morbidity in the report for 1922.

Their method of arriving at the morbidity rate is carefully defined in the report as including "all cases in the first eight days with a rise of temperature *over 100° F.* occurring twice in twenty-four hours and excluding the first day," and the rate is given in percentages of deliveries to exclude fatal cases and also to include them.

Substituting the word "reaching" for "over" before the figure 100° F. in the above definition, then the morbidity rate, including fatal cases, works out at 10.8 per cent. as against 7.9 per cent. in the published report for 1922.

It is debatable as to whether Dr. Gibbon FitzGibbon's interpretation of the words "on any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery" as given in his letter but not in the Rotunda Hospital Report, or that given in the Jessop Hospital Report, is the correct one. If the former, then the morbidity rate for 1922 should read 11.6 per cent.—I am, etc.,

J. ERIC STACEY, M.D.Lond., F.R.C.S.Edin.,
Registrar, Jessop Hospital for Women, Sheffield.

Sheffield, Dec. 4th.

THE RIVIERA.

SIR,—I am writing to impress on the medical profession that the French Riviera, to which patients may be sent during the coming winter, is not, as the textbooks teach, a marine climate. It is essentially a mountain climate, in that during the winter the air passes almost continuously at night, and during nearly all fine days (and most days are fine), from the mountains to the sea. The sea-fronting hotels are, climatically, as remote from the sea as those more inland. Patients needing moist, soft, soothing seaside air will find it at Biarritz, or on the Cornish Riviera, but not on the French Riviera, where the air is dry, fresh, and stimulating.

This letter was called forth because I have lately purchased an English book on treatment, which classes the French Riviera with Bournemouth and Torquay, and says that, because of the sea air, it is "apt to disagree with those who have inactive livers." Starting from false premisses, the conclusion is false. For inactive livers, as also for catarrhal conditions, whether bronchial, aural, or intestinal, the Riviera is pre-eminently suitable. The malady often disappears without any professional help.—I am, etc.,

Mentone, Nov. 27th. D. W. SAMWAYS.

Obituary.

G. DUNCAN WHYTE, M.D.EDIN., M.R.C.P.LOND.,

Examiner in Medicine, Hong-Kong University.

GEORGE DUNCAN WHYTE, who died at Hong-Kong on November 25th, will be remembered by a large circle of Edinburgh men who graduated about 1900. He was a remarkable man, and even those who knew him least will recall the unmistakable characteristics of his rapid walk and his still more rapid talk. But those who knew him intimately—and they were perhaps few—recognized in him one quality above all: he was *indomitable*. His sense of duty was always driving him along, and it would be difficult to name a student of his time who contrived to pack so much activity into his undergraduate career. He certainly did more than his share of public work, and his earnestness in study was only equalled by his enthusiasm for clinical work. While he did not achieve many prize medals he kept up a remarkably high average in his classes. Indeed, those who knew him best realized that if he had been a "pot-hunter" he could have collected a remarkable series of honours. But Duncan Whyte was an all-round man at work. He had always intended to be a missionary, and he kept before him an ideal of all-round efficiency that precluded half-heartedness even in the least interesting subject. If he excelled in one subject more than another it was perhaps anatomy, when he became a demonstrator and prosector to Sir William Turner.

In 1902 he joined the English Presbyterian Foreign Mission and sailed for Swatow. His value and efficiency as doctor and surgeon, as teacher and preacher, can easily be guessed by those who knew the man, his spirit, and his equipment. *In 1913 he received a gold medal for his M.D.* thesis on "An epidemic of cholera treated by intravenous saline injections." But this was merely one indication of his all-round professional efficiency. It was impossible to mention any department of therapeutics in which he did

The Vicary Lecture

ON THE

LIFE AND TIMES OF WILLIAM CLIFT,

FIRST CONSERVATOR OF THE MUSEUM OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

GIVEN IN THE THEATRE OF THE ROYAL COLLEGE OF SURGEONS, FRIDAY, DECEMBER 7TH, 1923,

BY

SIR ARTHUR KEITH, M.D., F.R.S.,
CONSERVATOR OF THE MUSEUM.

ON the 14th of February, 1792, the household of John Hunter, on the east side of Leicester Square, was the scene of two events. In the first place, its master's birthday was being celebrated; sixty-four years before he had been born on the farm of Long Calderwood, situated within sight of the smoke of Glasgow. In the second place, a country lad, William Clift, had arrived from Bodmin, in Cornwall. Probably no one in the household knew, or cared to know, that the day of his arrival was also William Clift's birthday; he was born at Bodmin on February 14th, 1775, and thus on the day of his arrival in Hunter's house had just completed his seventeenth year. He was a poor lad; all he possessed in the world were the clothes he stood up in, with "four changes of shirts and neckcloths," unless we add certain indentures which he is said to have carried in his pocket, wherein Hunter had undertaken to teach him, "in his best manner," to draw, write, and dissect. It is difficult to believe that Hunter could have made a promise about writing and drawing, for he could not draw and his writing was indifferent, whereas Clift was already a skilful draughtsman and an exquisite penman.*

WILLIAM CLIFT.
First Conservator of the Museum of the Royal College of Surgeons of England.
Appointed 1800; retired 1842. Died 1849.
(From a Lithograph in the Conservator's Room at the College.)

Thus in this household in Leicester Square we have brought together, from Scotland and from Cornwall, two men of diverse ages whose lives were destined to be linked together in an altogether peculiar manner. The bond between them was soon to be broken; Clift had only served his master for twenty months when the catastrophe at St. George's Hospital left him stranded in Hunter's derelict Museum. For fifty years Clift remained the honest steward of the great collection which Hunter left behind, and the undaunted upholder of his name and fame.

There was more than a mere coincidence of birthdays to link these two men together. As Clift aged, those who had known Hunter saw in him a remarkable physical likeness to his master. Both were small, active men; Hunter's height was only 5 ft. 2 in. To those who insinuated that this likeness was due to more than a coincidence Clift would reply: "If I thought what you insinuate were true there is not a Duke in London I would touch my hat to."

*A list of the documents and publications from which the facts given here have been drawn is added at the end of this lecture.

Clift's Parentage and Upbringing.

Before following young Clift to the place he was to occupy in Hunter's household we must turn aside for a moment to trace his early life in Bodmin. His birthplace—a flour mill—was swept away when the London and South-Western Railway built its station in the valley about one mile to the west of the centre of the town. But the little stream which turned the wheel of Burcombe Mill is still running; there are still men and women who remember the old dilapidated millhouse.† In 1775, when his youngest son, William, was born, the affairs of the miller, Robert Clift, were hastening from bad to worse; he had to leave the mill, and three years later died in Bodmin at the age of 58, leaving his wife, Joanna Courts, and his family, in poverty. The widow and daughters earned a scanty and precarious livelihood by carding and spinning wool in the winter and by working in the fields in other seasons—each member earning from fourpence to sixpence a day. "My mother," says Clift, "starved herself to save threepence a week for my schooling." Then in 1785, when Clift was eight years of age, his mother died, and thus, to use his own words, "I was cast adrift on the wide wide world." He did not drift very far; he entered the service of Mr. George King, a nurseryman at Bodmin, at fourpence a day. Mr. King was given to brandy and water, or as Clift expressed it, "to brandy without water," and in his cups, and after them, was passionate and dangerous. In one of these fits, some two or three years after Clift entered his service, he chased, while mounted on horseback, his nimble-footed apprentice from the nursery. The young apprentice made his foreman and fellow workmen merry by producing a graphic caricature of the incident, but when shown to Mr. George King it made him so angry that young Clift again found himself "adrift in the wide wide world." He thought of enlisting, but as he put it, "neither Mr. George King or King George" would have anything to do with him. He thereupon obtained further employment in Bodmin with one who carried on an extensive business as farmer and corn merchant. Here he found himself, so he declared, in the congenial company of horses: and here, too, but for an incident to be mentioned presently, he would likely have remained, for as we shall see he had ingrained within him that spirit of timidity and tendency to self-criticism which makes men seek for service rather than for command. Men of his nature are often the hardest judges of their fellow men, and to this Clift was no exception.

Near by Bodmin Church is the Priory: from its grounds issues the stream which flows by Burcombe Mill. In Clift's youth the Priory was occupied by Major Gilbert, and his wife, Mrs. Gilbert, had been at school with Anne Home,

† I gladly avail myself of this opportunity of acknowledging my indebtedness to Miss M. S. Collins of St. Gurons, Bodmin, who has supplied me with many details relating to Burcombe Mill and Clift's early history; Miss Collins, through my friend Mr. Walter Rogers of Falmouth, has presented a water-colour sketch of Burcombe Mill to the Hunterian album kept by the Librarian of the Royal College of Surgeons. To Mr. Victor Plarr, the Librarian, I am deeply indebted; he has placed the manuscripts in his keeping most freely at my disposal. In the College there are preserved a lithograph and a water drawing of Clift and also a plaster bust, done in 1842.

not show a practical knowledge of the most recent developments. To his hospital and medical college he used to take with him after each furlough not only the very latest appliances and apparatus, but also a thorough knowledge gained by strenuous study in the months that should have been given to relaxation. But he never learned how to relax; it was almost as if he had known from his student days that his life was to be cut short in its prime, and as if that sense of pressing haste and strenuous activity arose from such a source. Some of us who took our Hippocratic oath with him may live to hoary old age, but it is unlikely that, even so, any will achieve what Duncan Whyte crowded into the twenty-three years of his professional career.

In 1922 he came near to death by sprue, and reached this country in a serious condition. He improved, and persistently minimized his symptoms. He was soon doing post-graduate bacteriology when he should have been resting. Finally he sailed early in October to return to his post; but soon became seriously ill. At Colombo he was already in danger; he reached Hong-Kong, and soon after landing he died. One of the deepest regrets of his life was that his Mission Board refused to give him permission to serve with the R.A.M.C. during the war. Had he done so, and had he fallen in France, he could not have given his life more directly than he has done in the cause of humanity. Those who had the privilege of his intimate friendship will know that there will never be another quite like George Duncan Whyte.

H. C. M.

Dr. WILLIAM GOWANS of South Shields died on November 15th, aged 77. He was a native of Galashiels, and took the diplomas of L.R.C.P. and S.Edin. in 1868 and F.R.C.S. Edin. in 1883, and graduated M.D.Durh. in 1886. Soon after qualifying he went to South Shields and took charge of the old dispensary, now merged in the Ingham Infirmary, with which institution he was associated for many years as honorary surgeon and subsequently as consulting surgeon and vice-president. He continued to practise in South Shields up to the time of his death. Dr. Gowans was elected a member of the British Medical Association in 1870, and served as president of the North of England Branch, and from 1912 to 1915 was chairman of the South Shields Division. He was also a former vice-president of the Durham Medical Society. He was appointed to the Commission of Peace in 1892, and took great interest in the volunteer movement, having served as surgeon and afterwards as commanding officer of the 3rd Durham Volunteer Artillery; he retired with the rank of lieutenant-colonel. During the war Dr. Gowans had six sons holding commissioned rank, and he received a letter from Buckingham Palace expressing the King's appreciation of the patriotic spirit which had prompted them to give their services. One son died of injuries received during the war. Two other sons are members of the medical profession—Dr. Thomas Gowans, ophthalmic surgeon to the Ingham Infirmary, and Surgeon Commander Francis J. Gowans, R.N. The funeral took place on November 17th, and was attended by several members of the bench and the medical profession, as well as by representatives of institutions with which Dr. Gowans had been connected.

We regret to record the death on November 21st, at the age of 63, of Dr. ARTHUR JALLAND STILES, of Spalding, Lincolnshire. He had been for some time in ill health, and his death, though sudden, was not altogether unexpected. The family of Stiles has long been connected with the Spalding district. Dr. Thomas Stiles practised for many years in the village of Pinchbeck, two miles from Spalding, and lived there to the age of 97. He was succeeded by his son, Dr. Henry Tourney Stiles; he was a widely known and respected medical practitioner, and was the father of Dr. A. J. Stiles and of Sir Harold Stiles, Regius Professor of Clinical Surgery in the University of Edinburgh. Dr. Arthur Stiles received the early part of his medical education at University College, London; afterwards he entered at the University of Edinburgh, took the degrees of M.B., C.M., with distinction in 1883, and the M.D. with commendation in 1886. After graduating he joined his father at Spalding and, when Dr. Henry Stiles died at the age of 83, remained at the old home, taking a partner and continuing to practise for five years. He then retired, but retained his interest in the affairs of the district with which his family was so long identified. He was J.P. for Holland, a member of the Holland Standing Joint Committee, a governor of the Spalding Grammar School and the Spalding High School for Girls, a trustee of the Spalding Johnson Hospital, and a member of the Spalding Town Husbands, having the administration of the principal charities of the town. He was at one time chairman of the Divisional Liberal Association and at the time of his death was a vice-president. He was a considerable owner of property in the town and district, and a keen horticulturist. At one time he took a keen interest in growing bulbs for the market; he afterwards gave this up but still made his garden his hobby. The funeral, which took place on November 25th at Pinchbeck, where four generations of Stiles rest, was of a semi-public nature. It was attended by a large gathering, including many leading residents and his brother, Sir Harold Stiles.

Dr. ARTHUR WILLIAM HARE died from pneumonia at Gateshead on November 22nd, aged 62. He was the son of the late Samuel Hare of Darlington, and received his early education at Oliver's Mount School, Scarborough. After a very distinguished student career at the University of Edinburgh, he graduated M.B., C.M. with honours in 1882; and in 1886 he took the diplomas of M.R.C.S.Eng. and F.R.C.S.Edin. He became resident surgeon at the Edinburgh Royal Infirmary and assistant at the University under the late Professor Chiene. He continued his studies at Leipzig, Berlin, and Vienna, and in 1888, at the early age of 26, was appointed professor of systematic and operative surgery at Owens College, Manchester, and surgeon to Ancoats Hospital; but owing to a breakdown in his health he had to resign those posts five years later. On returning from travels in America, Hare settled at Newquay, Cornwall, and practised there for more than fifteen years. On the outbreak of war in 1914 he offered his services to the War Office and, receiving a temporary commission as lieutenant in the R.A.M.C., was stationed at Devonport. For the past seven years he had been assistant medical officer of health and school medical officer for Gateshead. Though handicapped always by indifferent health, he had been able to carry on his work until within a few weeks of his death. During the early and brilliant part of his professional career, Hare wrote frequently on surgical, anatomical, and pathological subjects. While at Edinburgh he collaborated with Sir G. Sims Woodhead in a work on *Pathological Mycology*, and he made a number of contributions on cranial surgery to encyclopaedias and medical journals. He leaves a widow and three daughters.

Mr. G. T. BROOKSBANK JAMES, who died of cancer on November 15th at the age of 56, gained the entrance scholarship at the Westminster Hospital Medical School, and subsequently acted as house-surgeon there, and as clinical assistant at the Westminster Ophthalmic Hospital. He became a Fellow of the Royal College of Surgeons in 1896, and later ophthalmic surgeon to the Westminster Hospital, and to the Royal Eye Hospital, Southwark. In addition to his London practice, he developed a further considerable one at Eastbourne, where he was ophthalmic surgeon to the Princess Alice Memorial Hospital. James was a well read man and a good conversationalist with wide and varied interests. His fitness for the work of an ophthalmic surgeon was exhibited in his patient dealings with cases of refractive error and in the skill he showed when operating for chronic glaucoma. He was always prepared to enter upon a discussion over minute details concerning the establishment of a filtration which would persist. That he was well acquainted with the literature of his special subject is shown by the fact that the Section of Ophthalmology appointed him the representative on the Library Committee of the Royal Society of Medicine.

Dr. FRANCOIS HELME, a well known contributor to the *Presse médicale* of articles concerned with the welfare of the medical profession, has recently died.

Priory that Hunter had lost the services of William Bell —his draughtsman, amanuensis, and assistant in the Museum. In 1789 Bell, who had been in Hunter's service for fourteen years, had accepted a surgeoncy in Sumatra, and although three years had come and gone since his departure Hunter could find no one fit to become his successor. It was upon Mrs. Gilbert's recommendation that this Cornish lad, earning some tenpence a day, had his course of life suddenly diverted; from a poverty-stricken home in Cornwall he was suddenly transported to one of the most remarkable households which London has ever seen—to become the worthy successor of William Bell.

Hunter's House and Museum.

The household in which young Clift now found himself an inmate stretched from Leicester Square eastwards to Castle Street—now converted into Charing Cross Road. Our intimate knowledge of the shape and size of the establishment we owe to Clift; forty years after he first entered it he sat down late one night and drew a ground plan on which are entered all details relating to Hunter's house. The property which Hunter had acquired in 1783, with a lease which had only twenty-four years to run, was built on a long narrow strip of ground only 30 feet wide. Everyone is familiar with our modern town houses standing upon a strip of ground which stretches from a main street to a back lane; the house faces the main street, the stables, and coach-house stand on the back lane; the garden occupies the space between. Hunter's establishment was built on the same plan. The house, facing Leicester Square, had four tall windows on its drawing room or first floor, where Mrs. Hunter, her flaxen hair turning grey, entertained the select literary and artistic circle in which she moved. The second and third floors—bedroom floors—had also their four windows; the ground floor had only two windows—dining room windows—for the front door with Hunter's plate was to the visitor's right as the house was approached. The door opened into a commodious hall—where the butler had his chair. Passing through the hall one entered a passage leading along the ground floor of the house to the garden or yard; to the right and left of this passage or back hall were Hunter's consulting room and his study—rooms with which Clift was to become familiar. At the Castle Street end in place of stables there was a roomy dwelling, where Hunter's five house-pupils had quarters, and where Elizabeth Adams presided as housekeeper. As time went on she came to take an important part in Clift's life. Here was the dissecting room and quarters for Robert Haynes, who looked after it and the lecture room, and here, too, was Clift's abode. In the garden or yard stretching from the one house to the other, about 110 feet in length and 30 feet in width, Hunter had erected a building with an inside measurement 51 feet long and 28 feet wide. The ground floor was divided so as to serve as a reception room towards the Leicester Square end and a lecture room towards the Castle Street end. The lofty upper floor of this building served as a Museum; round it ran a gallery on the shelves of which stood Hunter's wonderful collection of physiological preparations—the part of the Museum which became Clift's special pride. From the gallery a fossil or cabinet room opened off.

The Museum did not occupy the whole length of the garden or yard; between it and the house on Leicester Square (No. 28) there was room for the building in which Hunter kept his collection of drawings and prints and where his artist worked. The space between the Castle Street house (No. 13) and the eastern end of the Museum was enclosed by a glazed roof, covering the sunken basement or souterrain where Hunter kept his six horses, his coaches, and the skull of a large whale-bone whale. To reach the Castle Street level the coachman had to drive up an inclined way.

Life in Hunter's Household.

Clift found himself a member of a very large establish-

floor there was the butler, the housekeeper (Mr the Welsh cook (Mary Edwards), Mrs. Hunter's housemaids, and the needlewoman: William ently became acquainted with the kitchen; wrote of this period: "I knew there was plent but no pocketing; Mrs. Martin (the housekee too sharp after all but her own friends." Th the stables there was Mrs. Hunter's coachm footman as well as Mr. Hunter's coachman a In the drawing room there was the tall and e Hunter; for her and for Miss Hunter (after Campbell) Clift acquired and retained an unbou and devotion. Miss Hunter had her visiting elec Then, in vacation times, there was also young from learning expensive habits in St. John's C bridge. Workmen and tradesmen kept coming all day long.

We have touched on the social side of Jol house; we must now turn to its professional far as they concerned William Clift. The dini to be cleared at 9.30 sharp, as patients began to Hunter was busy in his consulting room until 1 hour the carriage had to be at the door and h see his hospital and his private patients, hopi home again for dinner at 4, and have time for 4.30 to 5.30. With this part of the day's wor nothing to do; nor was he concerned in the t lecturing which went on in the Castle Street premises, nor with his master's duties as surg there was a special secretary, with his quarters i Street house, to look after army affairs. It was morning before the professional round commenc in the evening and night after it was finished t Clift had his busy time. He had to meet Hu dissecting room at 6 in the morning—to fetch, c draw, and learn to display structures with a sca when Hunter's nap in the evening was over, h in the study to write fair his master's rough n sections, of clinical observations, and of new t ideas which had occurred in the course of the d It must have taken the lad some months to system, orderly as it really was, in which h manuscripts and folio volumes were arranged. thirty years Hunter had been researching and his Museum the subjects of his inquiry were ever new accounts had to be continually opened in l ledgers and old general accounts distributed un of new headings. When Clift joined him he f one hundred special subjects being pursued, fasciculus being kept for each. Then there were scripts of the eighty-seven lectures on surgery, a augmented and improved; there were records of cases and *post-mortem* examinations; but beyo in value were the ten folio volumes, each devote ticular section of the Kingdom of Life, in inscribed in its appropriate place the dissection ments, and drawings made by Hunter in the ea hours. Three of these volumes lay on the Reynolds painted the master's portrait. On opened to show us the illustrations of a page devoted to man and apes—from which we may Hunter was a pre-Darwinian evolutionist. O below this folio lies a sheet of drawings which Hunter had invented a method of measuring the of man and beast. His Museum was but a coner tion of the contents of his manuscripts. This ha lifetime of a man of genius—all save a few fra the manuscripts which Clift had copied and thus were used in Sackville Street, some thirty years a baronet's chimney on fire!

Mr. Everard Home.

There remains to be mentioned a very impor of Hunter's household, when Clift entered i Everard Home, aged 36, brother of Mrs. I assistant surgeon to St. George's Hospital. Hu

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examination indicated:

D.P.H.—*Part I:* J. G. Johnstone, A. A. E. Newth, H. Shannon, A. C. Tibbits. *Part II:* W. H. Butcher, H. W. Hardy, A. A. E. Newth, H. Shannon, A. C. Tibbits.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.

ELEVEN medical entrance scholarships and exhibitions of an aggregate total value of £1,134, tenable in the Faculty of Medical Sciences of University College and King's College, and in the Medical Schools of King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered. The examinations will commence on April 28th and June 24th, 1924. Full particulars and entry forms may be obtained from the Secretary of the Board, S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, London, S.E.5.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—J. R. Couche, J. E. Elam, S. Halperin, J. B. Sweet, S. Thompson.
MEDICINE.—J. E. Elam, E. J. R. MacMahon, W. McLaren, D. Parsons, L. Satnigresch.
FORENSIC MEDICINE.—J. E. Elam, D. Parsons.
MIDWIFERY.—P. V. Cooling, E. J. Creais, J. E. Elam, E. J. R. MacMahon, W. McLaren, I. Morgan, D. Parsons, F. R. Ratnagar, M. A. E. Somers, J. B. Sweet, E. W. Warner.

The diploma of the Society has been granted to Messrs. J. E. Elam, S. Halperin, D. Parsons, M. A. E. Somers, and S. Thompson.

The Services.

AWARD OF C.B.

THE King has appointed Surgeon Commander William Perceval Hingston, R.N., to be a Companion of the Order of the Bath (Military Division), "in recognition of the gallant conduct displayed and the valuable services rendered on the occasion in September last of the destruction by earthquake and fire of the R.N. Sick Quarters, Yokohama, when by his gallantry and presence of mind he was the direct means of saving the lives of the large number of refugees who sought escape from the fire in the hospital grounds."

DEATHS IN THE SERVICES.

Inspector-General Thomas Lyle Horner, R.N. (retired), died at Plymouth last month. After taking the L.R.C.P. and S.Edin. in 1858, he entered the navy as surgeon, attained the rank of deputy inspector-general on March 9th, 1893, and retired, with an honorary step as inspector-general, on October 1st, 1905. He was medical officer of the old battleship *Dreadnought* when King George was serving on her as lieutenant and Prince Louis of Battenberg was her commander.

Surgeon Major Alfred Lewer, R.A.M.C. (retired), died in London on September 29th, aged 86. He was born at Wimborne, Dorset, educated at King's College, London, and took the M.R.C.S. in 1858, the L.S.A. in 1859, and the L.R.C.P.Edin. in 1860. Entering the army as assistant surgeon in 1853, he served in the Royal Artillery till the regimental system was abolished, became surgeon major on January 21st, 1874, and retired on May 23rd, 1891.

Medical News.

THE following have been appointed Knights of Grace of the Order of the Hospital of St. John of Jerusalem in England: Lieut.-Colonel Gerald Hamilton Goddard, D.S.O., R.A.M.C., Dr. Hugh Falconer Oldham, M.B.E., and Lieut.-Colonel William Booth Skinner, D.S.O., S.A.M.C.

AT the annual meeting of the Scottish Women's Hospital Association of the Royal Free Hospital on December 1st it was announced that the Duchess of York had accepted the presidency of the Association. As a war memorial of the Scottish Women's Hospital it has been decided to endow four beds in the Royal Free Hospital, and the endowment plate for the first of these, to be called the British Macedonian Expeditionary Fund Bed, was formally presented by General Sir George Milne and accepted by Mr. Langton on behalf of the hospital.

THE fourth medical salon will be held in Paris from March 2nd to 9th, and, like the three previous salons, the first of which was held in 1909 and the last in 1912, will contain pictures, sculpture, engravings, etc., which are the work of medical men and pharmacists. Further information can be obtained from the founder and general secretary, Dr. Paul Rabler, 84, Rue Lecourbe, Paris, XV.

SIR HUMPHRY ROLLESTON, K.C.B., M.D., has accepted the chairmanship of the Propaganda Committee of the National Association for the Prevention of Tuberculosis.

SIR THOMAS BARLOW, Bt., who has been elected president of the National Temperance League—the first medical man to occupy that position—attended a meeting of members and associated workers last week, when speeches of welcome and congratulation were delivered by, among others, Mr. McAdam Eccles, Mr. Arthur Evans, and Dr. Basil Price, C.M.G. Sir Thomas Barlow gave an address, in the course of which he dealt with Professor Starling's recent book *The Action of Alcohol on Man*. It departed, he said, from impartial presentation, by the general implications it contained in favour of the ordinary use of alcohol on grounds other than scientific.

AT a meeting of the West Kent Medico-Chirurgical Society to be held at the Miller General Hospital, Greenwich, on Friday, December 14th, at 8.45 p.m., the Purvis oration will be delivered by Sir Thomas Horder. The subject selected is carcinomatosis.

THE autumn dinner of the Irish Medical Schools' and Graduates' Association was held at Pagani's Restaurant on November 27th. Sir William Taylor presided, the guest of the evening being Surgeon Vice-Admiral Joseph Chambers, C.M.G., Medical Director-General R.N. The members of the association and their friends—over a hundred all to d—spent a pleasant evening, enjoyed a good dinner, listened to some excellent speeches and to some delightful Irish songs. It is to be hoped that an even larger number will meet at dinner on next St. Patrick's Day.

A COURSE of post-graduate lectures will be delivered at the Cancer Hospital (Free), Fulham Road, S.W.3, weekly during January, February, and March, 1924, dealing with various aspects of cancer. Medical practitioners and students may attend without tickets. The syllabus of the lectures will be published in due course.

DR. HAROLD SCURFIELD will give his presidential address to the Maternity and Child Welfare Group of the Society of Medical Officers of Health on Friday next, December 14th. The address, which will be on the lines of advance in maternity and child welfare work, will be delivered at the house of the Society, 1, Upper Montague Street, Russell Square, W., at 5 p.m. Members of the profession interested in the subject are invited to attend.

PASTEUR day in Paris, when collections were made for the better equipment of laboratories in France, yielded, it is stated, 13 million francs.

TWO lectures on graphic methods in heart disease will be delivered by Dr. John Parkinson in the Anatomical Theatre of the London Hospital Medical College on December 17th and 19th, at 4.30 p.m. The lectures, which will be illustrated by lantern slides, are intended for senior students of the hospital and post-graduates, to whom a cordial invitation is given.

THE annual report for 1922–23 of the Livingstone College, Leyton, bears witness to the benefit derived from instruction in medical matters as part of the general missionary training. During the last thirty-one years 752 students have received the full training of the college; of these 482 remain at work mainly in districts of Africa, India, and China, where the invaliding and death rates are higher than in any other missionary field. Not only are those so trained enabled themselves better to withstand the dangers of disease but they are able to train others to help in such work as the preventive and curative treatment of leprosy and other diseases. This latter point was emphasized at the College Commemoration Day on June 13th by Sir Leonard Rogers, C.I.E., F.R.S., who spoke very highly of the value of the training supplied by the institution. Additional testimony was given on this occasion by old students of the college who had been working in South India and Nigeria, and in the annual report there are letters from missionaries in Rhodesia, Bechuanaland, and Nigeria expressing similar appreciation of the medical training they had received.

PROFESSOR BIEDL of Prague recently delivered the first Harvey lecture in New York, his subject being organotherapy.

THE Nobel Prize for Chemistry has been awarded to Dr. Fritz Pregl of the medical faculty of Graz.

PROFESSOR BARD, who left Lyons to occupy the chair of clinical medicine at Geneva in 1900 and was nominated professor of clinical medicine at Strasbourg at the end of the war, has returned to Lyons to succeed Professor Teissier. He is succeeded at Strasbourg by Dr. Prosper Merklen.

DURING the recent earthquake in Japan the houses and all the property of eight professors of medicine were destroyed, but none was killed. The Tokyo University library was completely destroyed by fire during the earthquake.

of assistance; Home lived in and helped him in his operations, did the night work, read his lectures in the classroom in the Castle Street establishment, and looked after the pupils. Clift found him, on the morning after his arrival, having his hair powdered, engaged to be married and on the best of terms with himself. He was almost patronizing in his attitude towards Hunter's merits. Twenty years before, as a mere schoolboy, and "ambitious to tread the paths of science," he was, so he has told us, "struck with the novelty and the extent of his (Hunter's) researches"! Only two years before Clift's arrival and at a time when Hunter was ill, Home was elected to give the Croonian Lecture at the Royal Society, and read without a qualm of misgiving an essay which, in substance, was Hunterian from beginning to end. In later years he felt he had risen higher than Hunter and was apt to criticize the opinions of his old master.

Let no one think Everard Home was a man of mean ability; he was recognized by his contemporaries as an excellent practical surgeon and a clear-headed man of business. He had a masterful way of dealing with men; he was ambitious—particularly for scientific eminence. He pursued this aim throughout his life with an unexampled diligence, and if only his discoveries had possessed the value he placed on them his career would have been one of unqualified success. All these attributes we must bear in mind if we are to understand the relationship which became established between Home and Clift, ending in the tragedy of the manuscripts.

The Débâcle.

In the spring of 1793, Clift having passed his first year under Hunter's roof, things in the household, although prosperous on the surface, were really moving to a catastrophe. War had broken out with France and Hunter was busy with his duties to the army. The income of the house was large, but the expenditure was lavish. Hunter, to get a supply of ready cash, had been borrowing; he had to accommodate urgent creditors, and Clift, although worshipping the ground on which Hunter trod, was not happy. The suit of clothes he had come in and "the four changes of shirts and neckcloths" were verging on rags; he had no pay, no means of renewing his wardrobe!

"Then Mr. Hunter, probably to avoid having a footman in green found writing with him in his study, ordered me a coat of twopenny cloth, without a collar, and lined with serge up the fronts to the neck-band, a pair of corduroy breeches and speckled worsted stockings, unbound shoes with leather strings and full of nails. I perfectly remember the respectable appearance I made on that Sunday the new clothes came home. . . . Haynes (the dissecting room assistant) several times gave me a sixpence. . . . so low they (the servants) looked on me. . . . condescended to call me the West Country Hickey, though what it meant I never exactly understood. . . . Not trusted with a candle and therefore I must go back to bed through the dead bones. . . . I had sense enough to know that things could not get worse and must mend."—*From a fragment of his autobiography preserved in the Sherborn papers, Library, R.C.S.*

With Hunter's death on October 16th, 1793, the great Leicester Square establishment came down with a crash. Mrs. Hunter had to leave the house, and for a time her drawing room was occupied by lodgers. The whole staff was dismissed save two: Mrs. Elizabeth Adams, the housekeeper in Castle Street, and William Clift, who was at first allowed one shilling a day board wages to look after the Museum—an allowance afterwards commuted to £21 a year. Home sought to continue Hunter's lectures which were given under the Museum, but after two years he gave up, for he was an indifferent teacher. Clift attended his second course and tried to take notes from him. The care of the Museum devolved on Hunter's executors, Everard Home and Matthew Baillie—both young men struggling for practice. Home was 37; Matthew Baillie (John Hunter's nephew), one of the finest characters to be found in the whole realm of medical biography, was 32; he was chief partner and lecturer in the medical school founded in Windmill Street (Piccadilly) by his uncle William Hunter. He invited Clift to attend the lectures given by himself and by his partner Mr. Cruickshank—a privilege of which Clift availed himself to the full. So far as concerned the Museum and Clift, Everard Home was the senior, dominant, and acting executor. Immediately after Hunter's death he became most prolific in the output of papers—both scientific and surgical. He stepped into Hunter's shoes and attempted to use the Museum and Clift's services just as Hunter had done. In the intervals between Home's visits Clift studied the contents of the Museum and particularly Hunter's manuscripts, which had been removed from the study and were now kept in a small room off the Museum. There was nothing Clift loved better than transcribing, and in these years in which he nursed the Museum alone and worked for Home he copied in his beautiful hand, and for his own use, nearly half of Hunter's writings.

Clift's Finances.

During the seven years which followed Hunter's death, while the Museum lay derelict waiting for an owner, Clift's salary was £21 per annum. We are therefore surprised to find, in 1799, this young man of 25, on the limited income just mentioned, leading a young bride, Caroline Amelia Pope, aged 19, to the altar in St. Martin's Church, Trafalgar Square, and taking her home to the house in Castle Street to set out together for what proved to be a long and very happy journey through life. Fortunately Clift was one who kept a very minute account of his income and expenditure, and when we turn to the ledger in which he recorded his incomings in these seven years we get a clue as to how it was done. At Christmas, 1794, more than a year after Hunter's death, we find that Home has given him a Christmas box of 10s. 6d. "for helping at lectures"; for transcribing the MS. of a book he earned £2; for transcribing the MS. of a novel £1 10s.: for copying a play by Joanna Baillie (for Mathews), £1 1s. At Christmas, 1795, things were looking up a bit; he was paid £5 5s.—the first instalment of his settled salary—and to this he appends the note: "The first money I have received since Mr. Hunter's death—excepting 7s. per week as board wages and tailor's bills for clothes." Then his pencil began to have a market value; Baillie employed him to draw the illustrations for his *Morbid Anatomy* at £1 1s. a plate; he had similar commissions from Monro of Edinburgh, Hey of Leeds, Sir Joseph Banks, and many others.

Home got off cheaply; all his drawings, dissections, inquiries, and odd jobs were done for a Christmas box of £5 5s.; but in 1800, when the Museum had passed into the keeping of the College of Surgeons, a new arrangement had to be instituted. Home had promised, and Clift expected, that his salary as conservator under the College would be fixed at £100 per annum, but £80 was the sum fixed upon. Whereupon Home magnanimously undertook to make the deficiency good by purchasing every Christmas £21 worth of 3 per cent. stock and placing it to Clift's credit until the capital produced an annual income of £21—a promise which he kept, and as we shall see, in later years, claimed thereby to have been Clift's magnificent patron. For this sum Clift supplied his patron with the splendid drawings which adorn a hundred papers published by Home in the *Philosophical Transactions*, besides those in the great volumes on *Comparative Anatomy*. For this sum Clift carried out investigations and experiments for Home year after year; he looked after his papers for him, did his odd jobs at his house in Sackville Street, and was always at his beck and call, although Clift after 1800 was the servant of the College and not of Everard Home.

To this period, too, belongs another important event. In 1799, just before the Museum passed into the care of the College, Home ordered the manuscripts to be removed from Castle Street. Clift loaded a cart with them and conveyed them to Home's house in Sackville Street.

The Board of Curators.

When the College of Surgeons took over the care of Hunter's Museum the managing body, then known as the Court of Assistants, appointed seven of its members to form a "Board of Curators" to look after the new charge. In the summer of 1800 the Board met at Castle Street, and amongst their instructions to their newly appointed conservator were clauses instructing him to live and sleep in the Museum and to accept no gratuities from visitors. Although Home was not yet a member of the Court of Assistants, he was present at this early meeting of the Board and volunteered, with the aid of the Conservator, to prepare a complete catalogue of the collection—an offer

To do this he has spared no pains. He has gone to the four winds of heaven in search of knowledge. His choice has ranged from the imposing blue books of the Meteorological Office to the common Bradshaw of the railway bookstalls. And by dint of perseverance extended over many years he has succeeded in compiling a veritable encyclopaedia—and an encyclopaedia arranged so well as to enable any item to be found at a moment's notice. Commencing with a general introduction on geology, climatology, and the physiological effects of meteorological factors, he passes on to a description of the climate of the British Isles as a whole, followed by a more detailed account of each of the seven districts into which he divides England and Wales. In these chapters, which are meant for reference rather than for continuous reading, besides affording information as to geology, temperature, sunshine, cloud, rainfall, relative humidity, snow, hail, fog, gale, thunderstorm, and prevalent winds, he includes a description of the various towns, health resorts, and spas, with useful data as to their social and recreational amenities. In conclusion he discusses the therapeutics of the English climate, and indicates the localities which are likely to prove most beneficial to sufferers from particular diseases. Two appendices are provided, the one a seasonal therapeutic guide to the health resorts, the other a classified list of waters at the various spas. An index of unusual clarity completes the volume. Perhaps the most valuable feature of the book is the attractive collection of coloured charts, which are intended to convey at a glance information concerning the various climatic factors in the area under consideration. In this their success is such as adequately to recompense the author for the relatively enormous labour he must have expended in their compilation.

As for criticism, there is little to be said, but we should like to make one or two suggestions. In the next edition, which will probably be called for rapidly, we would welcome the inclusion of a few maps. It is impossible to read the book intelligently without the aid of an atlas, and we feel it would be an advantage if, perhaps, two or three general and a dozen or so district maps could be supplied, just to refresh one's memory of the geography of the places under discussion. The section dealing with the effects of climate on the human organism might very well be enlarged. At present it covers only two pages and gives but a summary of the subject. Would it not be wise to include the recent work of Leonard Hill on the effects of temperature, winds, and humidity; that of Rollier, and of Miss Chick and her co-workers, on the effect of sunshine; to dilate upon the results of exposure to heat and cold of varying degrees—in fact to dwell more fully on the changes wrought by the physical conditions of the atmosphere? There is no book of which we know that treats of these subjects comprehensively, and it is in a volume of this nature rather than in one of general hygiene that the reactions of the climate upon the body should be described.

But enough! The present edition is excellent. And it has fulfilled its function of affording data which cannot be obtained elsewhere in a single volume. It would be understating the case to say that the book carries our recommendation. It does more. It leads us to assert that it is a book of such value that it should find a place on the desk of every practitioner — consulting and general alike. Only when used daily as a handbook of reference will it be appreciated at its full value, and only when it is appreciated at its full value will the author be repaid for the extraordinary diligence and care which he has bestowed upon it.

ENCYCLOPAEDIA MEDICA.

THE ninth volume of the second edition of the *Encyclopaedia Medica*[3] has a melancholy interest, for it brings again to our minds the premature death of Dr. J. W. Ballantyne, who so successfully brought out the first eight volumes in the face of many difficulties, and appears to have done some of the labour entailed by this volume, at any rate he revised his articles on "Maternal Impressions" and "Midwives." In his place the publishers have obtained the services of Dr. ALEXANDER GOODALL for the completion of this and the remaining volumes which it is hoped will all be brought out before the end of next year. This is, perhaps, rather optimistic, as the present volume, dealing with articles in alphabetical order from "Mammillaplasty" to "Obesity," still leaves a considerable field to be covered.

The volume contains new articles on military surgery by Sir D'Arcy Power, neurasthenia by Dr. Ivy McKenzie, and mycetoma by Major W. S. Patton; the articles on diseases of the muscles, nursing, and obesity have been rewritten by Mr. Tubby, Miss White, and Dr. D. Murray Lyon respectively. The account of the anatomy, physiology, vascular disturbances, inflammations, tumours, and some other conditions of the meninges has been revised by Dr. George Riddock, and the late Sir William Osler's account of cerebro-spinal fever by Dr. Claude B. Ker, who points out that a meningeal reaction due to serum sickness may, unless this possibility is borne in mind, be regarded as a relapse of the disease, but that in such a case the cerebro-spinal fluid will be found to contain a normal amount of glucose, whereas this is much diminished or entirely absent in the original attack and a relapse. There are nine articles on the nose and its diseases, Mr. Logan Turner's description of the inflammatory affections of the accessory sinuses being illustrated by some fine plates. In his article on nephritis Sir Nestor Tirard adopts with modifications Dr. John Gaskell's classification of the forms of nephritis, and refers to war nephritis and the tests for renal function. Dr. J. S. Browne's article on natality, or birth rate in its relation to population, is concise, suitably supported by statistics showing the widespread decline of the birth rate as a result of a search for "voluptuous sterility," and quite definite as to the need for a substantial remission of the income tax based on the number of children. Among the numerous short unsigned articles there is a judicious account of masturbation.

Altogether this instalment worthily maintains the standard set up by its predecessors, and we wish the new editor a continuation of his initial success.

THE "NAUHEIM" TREATMENT AT HOME.

THE sixth edition of Dr. LESLIE THORNE THORNE's book on *The "Nauheim" Treatment of Diseases of the Heart and Vessels in England*[4] contains some new matter dealing with the treatment of arterio-sclerosis, alternation of the heart, and auricular fibrillation. The balneological treatment of heart disease has been received with a certain degree of scepticism in this country, and no doubt much of the discredit which attaches itself to it has been due to the over-zealous claims put forward and to the commercial advertising which has been adopted to impress the doctor and the layman and to attract him to the Continental spas. The author of the volume before us endeavours to demonstrate that the results claimed for the method are not dependent on residence in a foreign country, nor due to the mode of life adopted at the health resort, but can be equally well secured in any private house which has a bath and a supply of hot water. The general principles underlying the action of the baths and the method of administration are dealt with in a simple and explicit manner in the opening chapter. Great stress is laid on the necessity for selecting a bath suitable for the condition to be treated, as the author considers that failure to obtain a satisfactory result is in many instances due to giving an effervescing bath when a still bath is indicated.

All classes of heart and blood vessel disease would appear to be benefited by this line of treatment. Many cases are described and charts are given of the cardiac dullness and also polygraph tracings both before and after treatment. The cases of cardiac dilatation seem to have reacted in a most remarkable way, and the cardiac dullness as illustrated by the figures in the text has been reduced from an area which in some cases extended from well to the right of the sternum to the nipple line, to an area almost less than the

[3] *Encyclopaedia Medica*. Second edition, vol. ix, "Mammillaplasty to Obesity." General Editor, Alexander Goodall, M.D., F.R.C.P.E. Edinburgh and London: W. Green and Son, Ltd. 1923. (Roy. 8vo, pp. x+672; 15 figures, 9 plates. 30s.)

[4] *The "Nauheim" Treatment of Diseases of the Heart and Vessels in England*. By Leslie Thorne Thorne, M.D. Sixth edition. London: Baillière, Tindall, and Cox. 1923. (Post 8vo, pp. vi+232; 135 figures. 7s. 6d. net.)

is one usually obtains in health. The figures esult of percussion, as the author finds this to as the *x* rays. Polygrams are used to supply evidence of the improvement, and while we follow the writer in his interpretations of rves, it is possible to appreciate differences of and volume. Separate chapters deal with s, angina pectoris, valvular disease, auricular l alternation, irritable heart, etc., while the r treats of resistance exercises as an adjunct gical method of treatment. The exercises are a way as to "cause dilatation of the muscular us reducing arterial tension, and thereby eart; a fact that is demonstrated by the pulse lume, lowered tension, and lessened or altered

is an enthusiastic advocate of the Nauheim elieves that it will give more relief to a patient auricular fibrillation than any other treat- ote an error in the Contents; Chapter III 89, not 95 as printed. There is no index.

EMORIES OF SIXTY YEARS.

ho became a university graduate in 1859 has this year 1923 a volume of vigorous and pers and addresses[7] is a fact to encourage arians not to let their faculties rust. Dr. who is in London now to attend the meeting tional Surgical Society, took part in what he rrible surgery" of the American Civil War, to be able to contrast it with that of the 1914-18. He himself was a pioneer of anti- in America, and the longest article in the priately entitled "Before and After Lister." rs he denounces antivivisection, and advocates m alcohol. But the book is not confined to ubjects. In an address delivered in 1913 in h the hundredth anniversary of peace between and America, Dr. Keen tells how, a few days se, he had been one of the signatories to an ifully engrossed on vellum, to be presented n Emperor, congratulating him on the fact 15th of that year he would complete a twenty- reign of unbroken peace." Alas! in the the Emperor plunged into the great war, and icizes his conclusion that the world's hope lies co-operation and solidarity of all the English- les.

emonials seem to have an attraction for Dr. gives pleasantly readable accounts of some d other celebrations in which he has taken burgh, St. Andrews, and Upsala. He also of the early years of Brown University, of graduate. Though the author is now eighty- his outlook is rather that of a young man, des his book with a "message of hope" to the malignant disease, if only they will seek atment early. Some of his cases were enjoying d twenty years after operation, and he holds great field for *x* rays and radium. Long may tinue to write reminiscently for the edification ion which is still in the fighting line of medical duty.

NOTES ON BOOKS.

k on acute infections diseases in childhood, KLEINSCHMIDT,[8] Director of the University nic at Hamburg, forms part of a series edited . SCHWALBE of Berlin on diagnostic and thera- and their prevention. The diseases discussed t volume are the commoner infectious diseases which are classified in four groups, according atory system, as in whooping-cough, influenza, and diphtheria; the digestive apparatus, as in enteric, dysentery, and mumps; or the nervous system, as in tetanus, cerebro-spinal fever, and acute poliomyelitis, is mainly affected. The acute exanthemata are placed in a group by themselves. In the introduction he points out that children are very liable to develop gastro intestinal symptoms at the onset of an acute infection, so that the occurrence of anorexia, vomiting, and diarrhoea should lead to a careful inspection of the whole body, especially of the throat, and examination of the urine. Among the numerous diagnostic errors in the various infectious diseases mentioned are the possibility of overlooking pertussis in adults and typhoid fever in infants, and the failure to recognize the influenzal nature of gastro-intestinal symptoms, especially in children. Errors in treatment to which special attention is directed are delay in injection of antitoxin in suspected diphtheria or inadequate dosage, administration of a low diet in typhoid fever through fear of causing perforation of the intestine and in scarlatina to prevent nephritis, and the neglect to isolate cases of acute poliomyelitis. In addition to an account of the errors to be avoided, an outline is given of the proper treatment to be followed in each disease.

The forty-second volume of the *Proceedings of the Pathological Society of Philadelphia*[9] contains the record of the work done during 1921. Among the numerous specimens shown were several illustrating comparative pathology. The papers deal briefly with subjects of modern interest, such as a chemotherapeutic consideration of some of the newer organic mercurials and a comparative study of encapsulated bacilli isolated from cases of granuloma inguinale. There is an abstract of Professor Eugene L. Opie's Gross lecture on latent tuberculous infection and its relation to phthisis, in which he states that the lungs of adults with few exceptions show evidence of tuberculosis usually acquired in childhood; that latent apical tuberculosis occurs in approximately one-fifth of all individuals dying from diseases other than tuberculosis; and that pulmonary tuberculosis in most instances is not the result of infection in childhood. Tuberculosis in adult aborigines of countries into which tuberculosis has been introduced by more civilized races is not of the type familiar to us; in Chile a third of the cases among the Indians were acute, with massive caseous pneumonia involving whole lobes with little tendency to fibrosis.

[7] *Reminiscences and Addresses.* By William Williams Keen, M.D., Professor of Surgery, Jefferson Medical College. Philadelphia: W. Jacobs and Co. 1923. (Cr. 8vo, pp. 340.)

[8] und therapeutische Irrtümer und deren Verhütung. Herausgegeben von Professor Dr. J. Schwalbe. *Akute Infektionskrankheiten im Kindesalter.* Von . Kleinschmidt. Leipzig: Georg Thieme. 1922. (Sup. 3 figures, 11 charts.)

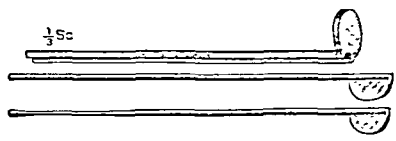
[9] *Proceedings of the Pathological Society of Philadelphia.* New Series, vol. xxiv; Old Series, vol. xlii; for year 1921. Edited by F. B. Lynch, jr., M.D. Philadelphia: W. J. Dorman. 1922. (Med. 8vo, pp. 93.)

MEDICAL AND SURGICAL APPLIANCES.

Staff for Perineal Section.

MR. G. H. EDINGTON (Surgeon, Western Infirmary, Glasgow) writes: In some cases of stricture calling for external urethrotomy the surgeon is faced by great difficulty, amounting sometimes to impossibility, in passing Syme's staff. I find that with patience it is possible ultimately to pass the smaller sizes of Lister's straight bougie. Sometimes this is the prelude to the passage of larger sizes of straight instruments, to be in their turn followed by the ordinary curved conical bougies. In other cases, however, the stricture even after successive attempts fails to admit more than the small straight instruments, and the necessity for urethrotomy arises.

It is possible to perform perineal section on a small bougie; but the operation is not easy, and the absence of a grooved staff may lead to irregular division of the urethra. The operation is greatly facilitated by the use of the special staff here depicted. The small straight bougie having been introduced through the stricture is held in place by an assistant while the patient is put into the lithotomy position. The bougie acts as a guide for the staff, which is then introduced and run along it till stopped at the face of the stricture. Perineal section is then performed on the staff, and the stricture divided from before backwards till the staff passes home beyond it. The bougie and staff are then withdrawn, and a No. 10 or 12 G.E. catheter tied in for forty-eight hours. Subsequent passage of large curved bougies is carried out as usual.



The staff has an outside diameter corresponding with a No. 10 catheter, and a blunt extremity. The groove, which extends the whole length of its under surface, should be wide and deep enough to completely bury a No. 1 straight bougie, so that the groove may be appreciable to the finger on the perineum, and may also accommodate the point of the knife. In order to facilitate the introduction of the staff its handle is turned up at right angles to its long axis, and the upper half of the disc-handle of the bougie has been cut away. The instrument has been made to my directions, of stainless steel, by Messrs. Down Bros., St. Thomas's Street, London, S.E.]

which was at once gratefully accepted. By 1803 Home had been elected to the Court of Assistants, and was naturally appointed a member of the Board of Curators, and thus acquired a dominant influence in the affairs of the Museum. He set Clift down to compile catalogues of all sections of Hunter's Collection; these catalogues were mere lists of contents, but were drawn up with great care and written into folio volumes with meticulous accuracy. Home was too busy looking after his hospital, his practice, and the output of scientific and professional papers to take any part in the work of cataloguing.

Board of Trustees.

In the summer of 1805, on a Saturday afternoon, the Trustees, appointed by Parliament to see that the College of Surgeons carried out the conditions attached to its trust, met for the first time. The Trustees inquired about catalogues and about lectures, and were told that the College had already spent £2,547 on the Collection, and that, as the lease of the Castle Street Museum was almost up, the College had bought for £4,600 Mr. Jenner's house (No. 42) next door to the College House (No. 41) on the south side of Lincoln's Inn Fields as the site of a new Museum. It was resolved by the Board of Curators not "to make the narrow finances of the College the measure of their proceedings." I suspect the phrase is Home's; at least in seeking Government aid to build a new museum, just as on the occasion of the purchase of the Collection by the Government in 1799, Home was chief ambassador in the transaction.

Building of the New Museum.

The houses on the south side of Lincoln's Inn Fields, where the Corporation of Surgeons sought a home in 1796, were built on the same plan as Hunter's house in Leicester Square. The strips of land on which the houses had been erected stretched from Lincoln's Inn Fields in front to Portugal Street behind; the strips were wider but not quite so long as the site on which Hunter had put up his Museum. The College house was No. 41; the next house to the west (No. 42) became the Museum house—where Clift was ultimately to live—and its garden was the site on which the new Museum was to be built. In the spring and summer of 1806 Clift moved the Hunterian Collection from Castle Street* and stowed it safely away in the rooms of the Museum house, until the new building was erected behind; it was not until 1813 that the new Museum was finished and opened to visitors. The conservator's chief duty was to conduct visitors round the Museum twice daily and explain its contents to them. Of this daily duty Clift never tired.

Everard Home as Master.

In 1808, in his 42nd year, Everard Home was appointed Sergeant-Surgeon to the King; he was elected in 1811 to give the first course of lectures on comparative anatomy; the Board of Trustees begged him to publish the lectures, but he modestly declined. Then in 1813, having become Master of the College, a baronet, and having given a second course of lectures, he acceded, with all diffidence, to a renewed request from the Hunterian Trustees to publish, and succeeded in persuading the Board of Curators to spend £165 of the College money on their distribution gratis. It was in the year of his Mastership that the Prince Regent paid a visit to the Museum; a scarlet cloth was spread at the gateway for the reception of the royal visitor. Home's colleagues on the Board of Curators complained that they had not received due notice of so distinguished a visit. The Master excused himself on the ground that the honour was altogether unexpected, leaving his colleagues perplexed to explain the foresight which had provided a scarlet cloth of reception for the occasion.

Renewed Demands for a Catalogue.

The Board of Trustees kept urging the need of supplying proper catalogues for the Museum. In 1816 Sir Everard's colleagues on the Board of Curators were resolving to divide the Museum into sections, each member undertaking the task of preparing a catalogue for one department. At this meeting of the Board Sir Everard struck an attitude and demanded that the duty and honour of preparing catalogues must be his and his alone. He made the Conservator arrange an important section of the Museum, wrote a short guide or synopsis for this section, and in the meantime (1817) resigned from the Board of Curators and was elected to the more influential Board of Trustees. He did not in any way lose his prestige in the Court of Assistants, for in 1821, when this body became known as the Council of the College, they elected him to be their first President. Then in 1822 he resumed the Hunterian professorship and gave a course of lectures which his colleagues on the Board of Trustees begged him to publish. He humbly submitted; two more folio volumes on comparative anatomy were issued, rich in plates prepared from Clift's drawings. Again the Board of Curators purchased volumes for distribution.

Burning of the Manuscripts.

It was in June, 1823, just over a century ago, that Clift helped to correct the last proofs of these two handsome tomes of Hunterian lectures. In the spring of this year Sir Everard Home placed certain fossil bones, discovered in caverns near Plymouth, at Clift's disposal for description and publication. Clift gave a very accurate description of them which was read before the Royal Society. Just after this paper was read Home championed the election of William Clift to the Society; on May 6th, 1823, this act of justice was done to Clift—he became F.R.S. We have several letters which show the relationship which existed between Home and Clift at this time: "My dear Clift, Will you dine with me to-day and read over your paper—on the Plymouth fossil bones?—Yours truly, Everard Home." (November 1st, 1822.) "My dear Clift,—I wish you to attend my lecture at the Hospital on Tuesday at 12. Let me have the coloured prints of the blood and the sections of the aneurysm for Tuesday." (January 3rd, 1823.) Sir Everard still held, in the relationship between the two men, the place of patron and master.

On a summer afternoon, July 26th, 1823, Home was driving in his carriage to Kew with two companions—one was William Clift, the other was Robert Brown the botanist and discoverer of the nucleus. They were to attend a small and select society named the Medico-Botanical, of which Home was the leading light. Looking at Clift, Home announced that the night before firemen had forced their way into his house, because his chimney was on fire; he went on to explain that the damage had been done while burning Hunter's papers. "You don't mean," said Clift to the baronet, "you have burned Hunter's manuscripts." Home said he had done as he said; to which Clift relates that he made this reply: "Then, you may as well set fire to the Museum too." One would have supposed that the atmosphere in this coach driving towards Kew would have become sultry, but apparently nothing more happened, and the Medico-Botanicals met and parted as usual. On Home's side there was no trace of a breach, for we find him on September 23rd—two months later—still addressing the conservator, "My dear Clift, You are to be here (Sackville Street) on Saturday at one. Brown and Bauer have already been told, so you have only to write to Aiton." Clift adds a note to this letter saying he was unable to attend on this day. In November it was still "My dear Clift." At this juncture, August, 1823, Sir Everard's co-executor—Dr. Matthew Baillie—died. He never knew the fate which had overtaken Hunter's manuscripts, exactly thirty years after their author's death.

William Clift Turns on Home.

Clift, on returning from Kew, took an early opportunity of telling the chairman of the Board of Curators, Sir William Blizard, Hunter's old pupil, what had happened to the manuscripts. Nothing was done then; the first step was taken in February, 1824, when Clift was called in by the Board of Curators, which included Cline, Norris, Astley Cooper, Abernethy (Clift's particular friend), Anthony Carlisle, and Lynn. Clift enumerated the manuscripts, and

* Mrs. Adams, the housekeeper, refused to move; Clift had to obtain an order from the Board telling her to do so, and also that "she was to take her orders from the Conservator." She died on April 22nd, 1812.

(5) streptococcus and *M. catarrhalis;* (6) streptococcus and pneumococcus.

If the bacteriology of successive attacks were always the same it would be possible to raise the resistance of the patient and ward off future attacks by administering every few weeks prophylactic doses of the particular organism. Although this is not practicable I think a useful purpose is served by administering during quiescent periods prophylactic doses of one of the various stock vaccines, which are sold for the prevention of catarrhal conditions. Such generally contain streptococci and pneumococci, *M. catarrhalis* and *B. influenzae.*

Clinical Results.

The first effects of the vaccine are seen to be, almost in all cases, alleviation of the cough and diminution in the quantity of sputum. Together with this there is nearly always an improvement in the patient's general health. Gradually cough and expectoration should entirely disappear. The type of case, in my experience, which benefits most is that in which there is bronchiectasis, either a single bronchiectatic cavity or dilatation of many of the tubes. For instance, a middle-aged man with chronic bronchitis and a large right-sided bronchiectasis was found during March, 1922, to have an infection by pneumococci and streptococci. A vaccine was administered in doses rising from 25 to 3,000 million in eight injections, lasting over six weeks. All his symptoms were cured by that time and he left the hospital. Similarly a child of 11 years of age, in whom there were signs of multiple dilated tubes and in whom the sputum was abundant and fetid, was admitted in May, 1923. The infection was a mixed one, *M. catarrhalis* and pneumococci. A vaccine was given in doses of 10 to 200 million, with intervals of three days. The cough and expectoration rapidly diminished. A second culture was made from the sputum at the end of three weeks and the same organisms were found. Further doses varying from 250 to 1,500 million were administered, and all symptoms had disappeared in six weeks. In this case the cough, expectoration, and vomiting had persisted for four years and the fingers were beginning to show signs of clubbing.

It is stated that cases of chronic bronchitis which are due to a single type of organism are those which are most certainly benefited by vaccine therapy, and that the pneumococcus and *M. catarrhalis* cases are peculiarly susceptible of relief. Such cases of a single infection are, however, very rare, and none have come under my notice. One would naturally regard them as being most favourable for an autogenous vaccine. Very striking results are sometimes obtained in cases of chronic bronchitis complicated with asthma such as one frequently sees in middle-aged persons. Here the use of an autogenous vaccine results in the relief not only of the bronchitis but almost invariably of the asthma also, and by persistent inoculations one is able to ward off attacks for many months, and to mitigate the severity of attacks when they return. I should, however, like to emphasize the fact that care must be taken in treating asthma with a vaccine, as it is a foreign protein. It often happens that a dose of vaccine will precipitate an attack by introducing the protein to which the patient is hypersensitive. In these cases much patience and care is required in cutting down the dose so that gradual immunity can be established. These cases may certainly be made worse by indiscriminate dosing with large quantities.

Immunity.

It can certainly be claimed for vaccine therapy that it establishes a fairly long immunity—the intervals between the exacerbations of chronic bronchitis become longer and the severity of the attacks diminishes. Absolute immunity is seldom or never secured. Of course one does meet with cases of chronic bronchitis in which vaccine therapy fails. Such failures are probably due to some error in the preparation, dosage, or administration of the vaccine, and can

has been overlooked, such as gout, emphyse
sclerosis, or cardiac insufficiency.

Speaking generally, we have in vaccine thera
potent of all our weapons for the preventi
amelioration of chronic bronchitis. Its use, of
not contraindicate the employment at the sam
lesser remedies—drugs, hydropathy, climatic t
other remedial measures.

III.—E. HYLA GREVES, M.D.Edin., F.R.
Honorary Physician, Royal National Sanatorium,

Climatic Treatment of Chronic Bron
Practising, as I do, in a winter health resort
mouth, one meets with all varieties of chroni
chiefly, of course, amongst the well-to-do, rang
comparatively simple cases of recurrent winter
severe types of chronic catarrh with profuse a
fetid expectoration. It is frequently assum
starting-point of chronic bronchitis is an acut
the respiratory mucous membrane, influenzal
which, in susceptible subjects, frequently
mately drifting into chronic catarrh. There
however, who refuse to recognize the existence
bronchitis in any circumstances, except in
where there has been prolonged exposure
example, in millers and stonemasons—and one
being struck with the frequency with which in
of so-called chronic bronchitis a much more seri
is present, the bronchitis being only a secondar
tion. I refer to conditions like gout, arterio-s
high blood pressure, chronic kidney disease, h
chronic alcoholism, and obesity, and last, bu
tuberculosis, and until these diseases are e
diagnosis of chronic bronchitis is untenabl
observations lead me to think that a considerab
cases of chronic bronchitis are really secondar
termed peribronchial tubercle—frequently asso
more or less pulmonary fibrosis; and I think
growing tendency to regard the chronic bro
emphysema of old age as manifestations of
tuberculosis. Careful inquiry into the early hist
cases often reveals the story of an attack in
pneumonia or bronchopneumonia, following ei
or whooping-cough—probably leading to a h
culosis of a chronic character, which may rema
for years, and show itself in later life in chron
of a very obstinate type. I have occasionally rec
shock in the discovery of tubercle bacilli in the
case hitherto regarded merely as one of ordin
bronchial catarrh. Prolonged search is often
find tubercle bacilli in these cases, and not infre
cannot be found at all. An *x*-ray examination
disease of the lungs which the stethoscope h
detect. It is, therefore, in the interests of the
that a periodic examination of the sputum
bacilli should be made in all cases of chroni
catarrh of a severe and unyielding type.

The presence of disease of the upper respirat
must not be overlooked, as they are often the
chronic catarrh of the bronchi—but this ques
fully gone into by other speakers.

In the treatment of chronic bronchitis clima
important part, for there is no class of case mor
to changes of temperature than the bronchitic, a
ing a suitable winter climate for him it is esse
in mind certain important points—namely, e
temperature, sunshine, shelter from wind (esp
the north and east), and dryness of subsoil.
the South of England provides several suitable h
fulfilling these conditions—namely, Southsea, B
Ventnor, Sidmouth, Torquay, Falmouth, an
But before deciding upon any specific line of t
is necessary that any underlying or predisposi
should be recognized and dealt with as far as it i

rightly held them to have been an intrinsic part of Hunter's Collection and essential for the preparation of a real catalogue. A month later (March 5th) the Board requested Sir Everard to hand over the manuscripts which they had just learned were, or ought to be, in his possession. On March 9th Sir Everard replied that he had destroyed the manuscripts because they were unfinished and unfit for the public eye; further, he had extracted from them and published all that was essential; and finally, that he had closed his thirty years' executorship by destroying them, which, so he wrote, Hunter had instructed him to do! On March 16th the Board replied to Sir Everard that it could not believe that which his words seemed to imply, and again demanded the MSS. On March 22nd Sir Everard informed them that Hunter had made two last requests to him—one, that his body should be examined; the second, that his manuscripts should be destroyed. In the meantime Clift, who knew the inner affairs of the Sackville Street house almost as intimately as those of his own, had learned that there were still some Hunterian manuscripts in existence. So, on April 6th, the Board of Curators addressed a third letter to Sir Everard, saying that they "had good reason to believe" that he had still Hunterian MSS. in his possession. To this third letter Sir Everard replied, three days later, that he declined further correspondence with the Board of Curators. So the Curators carried, "with painful reflections but in pursuance of duty," the matter to the higher authority, the Board of Trustees.

Sir Everard Home is Tried—and Let Off.

On May 24th, 1824, about six weeks after the correspondence just mentioned took place, the Trustees held a special meeting—ostensibly to consider the preparation of proper catalogues for the Museum. Lord St. Helens was in the chair; Mr. Peel and many other distinguished public men were present. Sir Everard, being a trustee, was also present. He laid the correspondence with the Board of Curators before his fellow Trustees, and begged that it should be entered on their minutes. The Trustees then decided to confer with the Board of Curators, Home having the grace to withdraw when this conference was being held. After the Curators retired he returned, and on being questioned replied that he had destroyed the manuscripts as a duty but he was willing to offer all possible help in the preparation of catalogues. He did help in a small degree, for at the next meeting of the Trustees, on November 27th, he sent a sealed packet, which, when opened, was found to contain descriptions of about fifty of Hunter's own accounts of *post-mortem* examination of cases. At the following meeting, on February 19th, 1825, another sealed parcel came with a like series of Hunter's *post-mortem* records. Clift began to think "the phoenix might yet arise from its ashes," but no more came then. It was at the February meeting, just mentioned, that Sir Everard informed the Trustees. "The Conservator feels himself so outraged at my destroying these papers that he has not only complained to the Board of Curators but asserts that in my whole life I have never done him one act of kindness. In the face of this declaration I beg to state that through me he is now in possession of £1,370 in the 3 per cents." We have already seen how Clift had more than earned this sum. The transaction reflects Home's clever business ability, and at the same time the lengths he was prepared to go to crush one who had given him thirty years of faithful service.

Sir Everard Home's Death.

In his diary for August 31st, 1832, Clift makes this entry: "Reported at the Board of Curators that Sir Everard Home died this morning at half-past three, at his house at Chelsea Hospital; 77th year; of Scots extraction; born at Hull Dec. 6th, 1756. *Sic transit gloria mundi.*" Then, in another entry, he alleges that the glowing eulogium of Home which was pronounced at the Royal Society on the occasion of his death was written by the deceased gentleman himself! Six weeks after his death young Sir Everard Home, Captain of H.M.S. *Racehorse*, handed Robert Keate, the ex-President of the College, a bundle which was found to contain Hunter's famous folio volume on *The Natural History of Vegetables*, and also ten separate manuscript fasciculi. Seven years later (February 14th, 1839), when young Home entered the theatre to hear Edward Stanley deliver the Hunterian Oration, he handed Robert Keate, again the President of the College, another sealed packet. This contained Hunter's folio volume on *Fossils*, wherein we learn that Hunter had been thinking forty years ahead of the geologists of his time. The open page in the Reynolds portrait tells us that he was seventy years ahead of his contemporary anthropologists. Alas! no further discovery of Hunterian MSS. had to be reported.

What was Home's Motive?

What motive led Sir Everard Home to commit such an act of vandalism? Clift supposed, and his supposition has usually been accepted, that it was to keep the public from discovering how many discoveries and observations Sir Everard had stolen from Hunter's manuscripts. I do not believe this to be the true reason. We have seen, in his correspondence with the Board of Curators and Trustees, that he *not only* admitted but claimed as a merit that he had extracted and published all that was of value in Hunter's manuscripts before burning them! We have seen that Home was vain, ambitious, extremely conventional, and orthodox in his beliefs. Hunter was the exact opposite—he was heterodox; there were in his writings statements which would have made the hair of the orthodox stand on end if *all* his works had been published in 1793. Home declared *they were unfit for the public eye, and we may safely infer* that he counted Hunter as in error when he was heterodox—Home himself saw the dire fate which overwhelmed William Lawrence when he spoke out his true thoughts concerning man's relationship to animals in the theatre of the College in 1816. Home, fearing the contumely which would descend on Hunter's memory, as well as on the reputation of his living executor, thought he was doing his old and wayward master a true service when he destroyed his unpublished manuscripts. It was vain stupidity—a dangerous possession—rather than criminality, which lay at the root of Sir Everard Home's crowning act of vandalism.

Conclusion.

In 1827 Richard Owen, only 23 years of age, came to Clift's rescue and showed all the world how a catalogue should be written of a great collection of Comparative Anatomy. There is no space in which to tell how James Paget came in 1842 to render a similar service for the pathological side of the Museum. Richard Owen married Miss Clift, and his father-in-law's self-confidence declined as his own grew. Clift's nerve was sapped by the tragic death of his wayward son from an accident in the autumn of 1832. The father hoped to see his son his successor. When the Board of Curators—by then known as the Museum Committee—met on June 7th, 1842, Clift, who was now in his 67th year, was left standing at the door while Owen went in to help in the transaction of business. Clift was presently informed that his salary of £400 per annum was to continue for the rest of his life, that he was to move out of the Conservator's quarters in the College, and that Owen was to move in. He retired to Stanhope Cottage, near Mornington Crescent, off the Hampstead Road, and there, on June 20th, 1849, he died in his 75th year. His wife died six weeks before him. Richard Owen had inscribed on his tomb in Highgate Cemetery: "He carried a child-like simplicity and single-mindedness to the close of a long and honoured career." Faith in himself may have waned, but his faith in Hunter was never shaken.

The data of this lecture have been drawn from the following records and books:

Sherborn Papers in the R.C.S. Library; contains a fragment of Clift's autobiography.

Collection of letters to William Clift from Sir Everard Home and from Sir J. Everard Home, ranging from 1805 to 1840. Library, R.C.S.

William Clift's Museum Diary, 32 vols., from 1811 to 1842 inclusive; preserved in the Library, R.C.S.

William Clift's note-book containing survey of College House and Museum House, Lincoln's Inn Fields, with plan of Museum in Castle Street. Made about 1806.

William Clift: Personal memoranda and accounts. R.C.S. Library, No. 275 h, 10, 1794 to 1814.

Ditto. MS. folio in R.C.S. Library numbered 275, containing Clift's memoranda relating to his private expenditure.

Ditto. Note-book. R.C.S. Library, 1800 to 1825.

Ditto. His personal Account book for 1824.

ing—in other words, to hibernate; this accounts for the ze number of very old people in these parts, for there is doubt that many old people precipitate the final cata- ophe through exposing themselves to severe cold in winter. sudden drop of temperature which occurs in the early irs of the morning often accounts for acute exacerbations bronchial catarrh in the aged, and it is important to pro- t them from this by keeping the temperature of their room at a suitable level, but overheated rooms and over- hing are to be strongly deprecated. I am convinced that custom of keeping chronic bronchitics in overheated ms is largely responsible for keeping up and increasing ir susceptibility to changes of temperature. Gradually ustom them (if not too old and feeble) to living and ping in comparatively cool rooms, and you will do much restore their resistance to cold—just as happens in cases phthisis when submitted to open-air treatment. A house h a southern aspect, and not surrounded by trees, should selected.

As regards the treatment of chronic bronchitis generally, s of the utmost importance to recognize the underlying dition of which bronchitis may be merely a secondary mptom. The irritable winter cough of elderly people is quently associated with definite gouty or rheumatic thesis, and must be treated accordingly by diet and neral measures to counteract the diathesis. Such cases en derive much benefit from a course of treatment by ays and inhalations at Mont Dore, also at Harrogate, xton, Bath, and other English spas.

The habit of deluging the unfortunate patient with drugs the expectorant variety is happily rapidly dying out, and their place the use of vaccines has become the vogue. her speakers will enter more fully into their use, but I uld like to emphasize the necessity of having the culture ten direct from the patient at a pathological laboratory—this is not possible, that means should be taken to ep the culture swab or sputum warm. For if it becomes lled, the organisms causing the catarrh will fail to develop en cultivated. With this precaution I think many of the lures could be avoided. As a prophylactic measure to pro- t the patient against acute exacerbation of the catarrh, hink vaccines are of considerable value.

The method of continuous inhalation of dry vapours, er the method of Burney Yeo, or the various forms of porizers, often gives very definite relief, especially where ociated with a tendency to bronchial spasm. But this ds in the direction of asthma, which would require in elf more time than the whole allotted to this discussion. hould like to draw attention to the value of dry cupping er the bases in the treatment of acute or subacute exacer- tion of the catarrh, especially when the bases become gorged and dyspnoea and cyanosis become pronounced d the right side of the heart embarrassed. This method universally practised on the Continent, but has fallen into use in this country. The relief it gives is often quite finite.

'.—MICHAEL G. FOSTER, O.B.E., M.A., M.D.CAMB., F.R.C.P.LOND., Harrogate.

CLIMATIC TREATMENT ABROAD OF CHRONIC BRONCHITIS.

HAVE been asked to devote myself to the climatic treat- ent of chronic bronchitis. Part of the ground has been ready traversed by Dr. Hyla Greves; I would, therefore, nfine my remarks to treatment abroad. As in every her disease, the first question with which we are con- onted is. Can the disease be arrested? To my mind too tle consideration has been given to those cases which e drifting into chronic, or, in the strict sense of the rm, lifelong bronchitis. A man between 35 and 45, who as probably suffered from colds from his youth wards, begins every winter or spring attacks of cough ith expectoration; year by year these attacks become nger, the cough more persistent, the sputum harder to t up: the moral being that there is slight increase of mphysema with each winter.

He becomes increasingly careful, avoids night air, uffles up; the general upshot of his coddling is in the main increased susceptibility. In this type of case a sojourn in the Alps for a winter or even a month or two may effect a complete cure. The rarefied air opens out the alveoli gently, in place of the jerky distension due to cough, fresh areas of lung tissue are opened up, and the bronchial tubes are enabled to empty themselves. In addition the dry air tends to a lessening of secretion. Such a course of treatment will often entirely renovate the bronchial tree.

I can call to mind a very distinguished man in the scientific world who thirty years ago had such constant attacks of winter cough that his friends were anxious as to whether he could continue his duties. He went for a month or two to the Engadine for two or three years, and now, hard on 70, is in robust health and full activity. The sojourn should be undertaken in the winter, first on account of the invigorating effects of dry cold, secondly because the air is drier and more aseptic when the snow is on the ground. Two cautions should be observed: the heart and arteries must be sound, sleep normal, and the chest walls must not show any marked rigidity. The late Dr. Huggard laid great stress on the fact that cases with rigid chest walls never did well in the high Alps; subsequent experience by others has confirmed this dictum. I wish to urge the importance of such a method, and the advantages to be derived from its early employment.

Spa treatment affords another useful method of benefiting these cases. The methods employed are largely variants of that originating from Ems. The procedure consists in spraying the throat with pulverizations of varying fineness, regularity being ensured by working the machine with compressed air, whereby the force can also be adequately controlled.

This treatment is carried out with the same machinery with natural mineral water at English spas—Harrogate, etc. At Mont Dore in Auvergne, which has acquired a great reputation for the treatment of asthma, a like treatment is carried out by means of sprays of arsenical water. The cure is enhanced by the effects of altitude. Similar methods of inhalation are carried out with sulphur water at Cauterets and Luchon in the Pyrenees. At Salso Maggiore the patient sits in an atmosphere of finely pulverized bromo-iodine water.

Turning to the next type of case in which bronchitis is firmly established, whether in consequence of persistent winter cough or spasmodic asthma, the position is entirely different. Repeated congestive attacks have largely bereft the bronchial mucous membrane of ciliated epithelium, emphysema has impaired the elasticity of the lungs: consequently what the French term *nettoyage des bronches* is an operation performed with steadily decreasing efficiency. Treatment in such cases must aim at the reduction of irritating qualities in the inspired air with a view to lessening secretion. Warmth and absence of fog are the fundamental requisites; to those for the majority of cases may be added dryness of the air, though some cases are more benefited by a moist climate. It has been a traditional custom to send these cases to the Riviera, to Algiers, Egypt, or the Canary Islands. The value of climate has, to my mind, received striking confirmation of later years from the occurrence of what I may term experimental bronchitis. I refer to the sequelae of gas poisoning. These cases are not of common occurrence: and as far as my observations go are due either to chlorine, or occurred in the period July to September, 1918, when—as many of you will remember—some of the cases sent to the base differed from ordinary cases of mustard-gas poisoning. In cases such as these we have examples, not of slow degenerative changes in the bronchi and lungs brought about by years of repeated attacks of congestion, but the whole bronchial tree, previously in a perfectly healthy condition, changed at once into a state like to that produced by years of winter cough. The fundamental pathological change in chronic bronchitis is loss of ciliated epithelium. When we reflect on the *post-mortem* appearances seen in cases of gas poisoning—the sloughy mucous membrane of the trachea and the raw bronchi—the pathological analogy becomes apparent. I have been much struck by the influence of the Riviera climate in the cases which have come

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RECURRENT OR HABITUAL DISLOCATION OF THE SHOULDER-JOINT.

BY

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RECURRENT dislocation of the shoulder-joint is an uncommon condition, the real nature of which appears to be little understood. It may almost be said to be peculiar to athletes and epileptics—a rather curious association which, as I shall show, is not without etiological significance. Most of the former class are powerful, healthy, athletic young men to whom the frequently recurring dislocation from trivial causes is a great and serious disability. In epileptics the dislocation sometimes recurs with every fit. The dislocation is nearly always anterior. I have only seen one case of posterior recurrent dislocation. That case was in a woman, and she was not operated upon.

The condition has been attributed to abnormal laxity of the capsule of the joint, and to weakness of the surrounding muscles. The abnormal laxity of the capsule is supposed to be due to stretching or imperfect healing of that structure after the reduction of an ordinary traumatic dislocation, and it has been thought that too early and too vigorous use of the arm may be the cause of the defect.

Various Operations.

Two types of operation have been performed for the relief or cure of this disability: (1) Operations designed to diminish the size of the capsule. These comprise various folding, pleating, plication, or overlapping procedures, with or without incision or excision of a portion of the capsule. (2) Operations designed to give support to the capsule, particularly at its lowest part where the dislocation is believed to take place during movements of abduction. The most favoured of these operations is that of Clairmont and Ehrlich, in which a strip of the deltoid muscle is transplanted in the form of a sling beneath the joint, and is supposed to contract and hold up the head of the humerus when the arm is abducted.

Both these types of operation are based upon erroneous ideas of the pathology of recurrent dislocation of the shoulder. In the first place, the capsule in these cases is not unduly lax. The capsule of the shoulder-joint is normally a lax structure. The [illegible] more than one surgeon has commented upon the [illegible] was [illegible] of raising a satisfactory fold when doing a [illegible] to expiration for recurrent dislocation. Secondly, the [illegible] of recep[illegible] not weak. There may be a little wasting after th[illegible] any other injury to the shoulder-joint but the [illegible]nds for a usculature that is usually exhibited by these [illegible]pt urging [illegible] a sufficient commentary on this point. Third[illegible]useum. joint does not need support below, for it is not here Cure the dislocation takes place.

It must be admitted that the[illegible]e operations have sometimes been successful in preventing the recurrence of the dislocation, but this result has usually been due to limitation of the normal movements of the joint by the operative procedure. One surgeon, indeed, has suggested that the operation might be simplified if it were done deliberately with this purpose, and he proposed to graft a band of fascia between the chest wall and the humerus in order to limit the movement of abduction to 60 degrees.

Causes of Recurrent Dislocation.

It has been too readily assumed that recurrent dislocation is an unfortunate sequel of ordinary traumatic dislocation, and I have known medical men reproach themselves quite unnecessarily for their treatment of the original injury. Recurrent dislocation has nothing whatever to do with ordinary traumatic dislocation of the shoulder-joint. It is an entirely different injury, and it is produced in an entirely different manner.

Ordinary dislocation of the shoulder is the commonest of all dislocations of the joints. It is caused by a fall on the abducted arm. In extreme abduction the neck of the humerus impacts against the acromion process, and by leverage the head is forced through the lowest and weakest part of the capsule between the subscapularis and triceps muscles. When such a dislocation is reduced, the rent in the capsule heals rapidly and soundly, and the dislocation rarely, if ever, recurs.

But the dislocation which afterwards becomes recurrent is caused, not by a fall on the abducted arm, but by a fall either directly on the back of the shoulder or on the elbow which is directed backwards and only slightly, if at all, outwards. The head of the humerus is forced out of the joint, not by leverage, but by a direct drive from behind forwards. In its passage forwards the head shears off the fibrous capsule of the joint from its attachment to the fibro-cartilaginous glenoid ligament. The detachment occurs over practically the whole of the anterior half of the glenoid rim. The reason why the dislocation recurs after reduction is that, whereas a rent in the fibrous capsule heals rapidly and soundly, there is no tendency whatever for the detached capsule to unite spontaneously with the fibro-cartilage. The defect in the joint is therefore permanent, and the head of the humerus is free to move forwards over the anterior rim of the glenoid cavity on the slightest provocation.

In quite a number of the cases the original injury is stated to have occurred at football, and it should be noted that in this game, at least, a player is seldom sent sprawling with his arms out, but, when he falls or is thrown to the ground, it is usually in some moment of strenuous action, when his muscles are tense, and his arms are more or less close to his sides. Usually he is too preoccupied to make much attempt to save himself, and in falling backwards he is likely to strike either the back of the shoulder or the point of the elbow, which is directed backwards. The epileptic, too, falls with his muscles tensely contracted, and he, of course, makes no effort to save himself. Frequently the arms are drawn backwards and little, if at all, abducted. So that, if he falls backwards, he is likely to strike either the back of the shoulder or the point of the elbow. Thus both athletes and epileptics are liable to sustain dislocation of the shoulder-joint by direct violence rather than by indirect force or leverage.

Some cases have been described in which fractures, either of the anterior margin of the glenoid cavity or of the greater tuberosity of the humerus, have been associated with recurrent dislocation. Such fractures have not been seen in any of my cases, but it is easy to see how they might be caused by the direct force which produces the initial dislocation. They must, however, be regarded as incidental, and not essential, to the recurrent dislocation. The essential feature is the detachment of the capsule from the fibro-cartilaginous glenoid ligament.

The Operation Recommended.

I have now exposed this typical lesion at operation in four consecutive cases. A satisfactory exposure cannot be obtained by the anterior incision ordinarily employed for arthrotomy and plication operations on the capsule, and

ı such cases the amount of sputum rapidly diminished, ıe moist sounds becoming audible only in the cavity itself, hile the generalized bronchitis entirely disappeared. I ıote these instances only to emphasize the local effects of ry warm air rather than any constitutional effect of imate. What, then, are the most suitable climates? It has ɔen an old rule, which has been proved worthy of acceptnce, that cases with excessive expectoration do best in a ry warm climate, those with hard cough and scanty exectoration do best in a warm moist climate. As regards ıe Riviera, the western Riviera is drier than the eastern. ases with scanty expectoration are probably better off at 'apallo than further east. Another point is that cases in hich asthma has developed consequent to chronic bronchis should always live above the sea-level. As small an *levation as a hundred feet may make all the difference* s to frequency of paroxysms. Hyères, the higher parts f Cannes, Mentone, or San Remo are, therefore, most ıitable. Rome, Florence, Naples, cannot be regarded as ealth resorts. The island of Sicily is, moreover, too hangeable in the winter for bronchitic invalids Arcachon nd Biarritz are climatically intermediate between England nd the Riviera. Cases of chronic bronchitis would in the ıain do better by going to the latter. *Algiers is somewhat* ıore humid, and suitable for cases with scanty expectoraıon. Egypt is probably the ideal place for certain months ɔr cases with profuse expectoration. Madeira and the anaries are suitable for cases with scanty expectoration nd *irritable cough. In the end we have to answer the* nestion, Is change of climate other than palliative? If e order a man into exile, have we any assurance that he ill be good for much eventually? For the first class of ıse the answer I should give would be an unhesitating Yes." *Men and women do not grow out of bronchitis.* ı the second the lives of the elderly are prolonged and ɔndered easier, and any middle-aged patient can, by ɔmely climatic treatment, completely clear up an attack f bronchitis, and may keep the enemy at bay.

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Chronic Bronchitis in Relation to Nose and Throat Infections.

HAVE been extremely interested to hear the preceding apers, and I only wish that, having had nearly twenty years t ear, nose, and throat work, I could have twenty years s a physician so that I could have some of their experience ıth regard to chronic bronchitis.

I should like to say as a dogma that all cases of chronic ıonchitis are descending infections from the upper respiraɔry tract—the mouth, nose, throat, larynx, and trachea. ɔf course, every case I have seen of chronic bronchitis has f necessity *been due to infection* from the area in which have been interested, and consequently I have not had the pportunity of seeing any cases of primary chronic ıonchitis, *if indeed such cases occur.*

To start at the beginning of life, children with bronchitis sually have a poor airway through the nose and unhealthy onsils and adenoids. The removal of these very frequently ures the condition even in fat rickety children. It is true hat operation *is generally associated with medical treat*ıent, including proper diet, hygiene, etc., but I cannot xclude the establishment of a proper airway and the bolition of sources of sepsis as at any rate a prominent actor in the improvement which occurs. In young adult ife, from 15 to 25, nasal obstruction, due to a traumatic eptal deflection or a narrow nose from neglected adenoids nd tonsils in childhood, is a very frequent cause of coldatching and chronic catarrhal rhinitis.

autumn and winter catarrhal infections and man bronchi, being chronically infected, secrete muco-pus during the summer, so the patient is never free fr certain amount of bronchitis. Finally, a specially vi infection occurs and the patient succumbs to an acute of bronchitis or pneumonia. Such patients are esp liable to post-operative pneumonia because the soil is r

Nasal infection sooner or later generally leads to sepsis. This may be limited to chronic infection of the mucous membrane with acute exacerbations, but is to spread to infection of the lining membrane of the accessory sinuses. These are, of course, merely an ext of the nasal mucous membrane. If the outlet of the in sinus becomes blocked and an acute condition super the patient *is often lucky because the condition is t* and the nose rendered healthy by operative or other ment. In chronic sinus cases the patient may co of no symptoms except, perhaps, some catarrh, an descending infection gradually progresses until a c *bronchitis is established.*

I need not weary you by a recapitulation of a se cases, but two cases come prominently into my mind think are worth quoting. A patient between 50 and had chronic bronchitis for twenty years. *He always co* up a large quantity of muco-purulent secretion every His heart was acting badly, his complexion very sallo his lips bluish.

He was sent to me because, despite his careful lif the fact that he wintered in the places recommend his doctors, he nearly died each winter from an acute of bronchitis or *bronchopneumonia* which supervened chronic condition. On examination he had a very n obstructed nose and was a confirmed mouth-breather projecting front teeth and a markedly gothic palate. right side of the nose contained *multiple polypi* issuing the ethmoidal cells, and a stream of thick pus could b oozing from under the anterior end of his right n turbinal bone. On transillumination the right antru dark and on taking a radiogram the right frontal and antrum were found to be opaque.

He was taken into a nursing home and kept there f days until an acute *attack of bronchitis* from which suffering had subsided. I then did a submucous resect his septum, curetted the right ethmoid, did an intr operation on the antrum, and enlarged the infundi so that his frontal sinus could drain. He made a recovery, and after washing out the frontal sinus and a for some time and putting him on a course of autog vaccine, his health and colour were much improve lost his frontal headache, and the secretion from the practically disappeared. He has had no bad atta winter bronchitis since, and ten years after is a much life than he was previously.

The second case was one of prostatectomy in a man who had had chronic nasal catarrh and frontal pain for years. I was called to see him after the preliminary of the operation, which was done under a general thetic. Following on this he had an acute attack of b itis which nearly killed him. The condition persiste continued secretion from the bronchi, and the second was done under a spinal analgesia. I washed out t frontal sinus and antrum, put him on local treatmen he then had a course of autogenous vaccine. A bronchitic symptoms have cleared up and he is in ex health.

Just as nasal obstruction leads to sepsis and a dese infection, so does undue patency of the nose. In a c congenital or acquired syphilis the septum may be des together with the lateral ethmoid masses and with th middle turbinals. The nose becomes dry and cruste an atrophic naso-pharyngitis follows. The process extend downwards, due to destruction of the phar

no doubt this is the reason why the condition has not been generally recognized. The operation which I have done has been planned to expose completely the anterior margin of the glenoid cavity.

A small pillow or sandbag is placed beneath the scapula, so as to keep it forwards. The arm lies on the table by the patient's side, and it is rotated inwards, so as to relax the pectoralis major muscle. The incision extends from the upper border of the clavicle above the coracoid process downwards and outwards for about five inches. The deltoid and pectoralis major muscles are separated, and the coracoid process and the three muscles attached to it (pectoralis minor, biceps, and coraco-brachialis) are defined. Perthes, who used a similar incision in operating upon fractures of the glenoid, divided the pectoralis major, but I have not found this step necessary. The coracoid process is next divided with an osteotome or bone forceps, and drawn downwards with the three muscles attached to it. Lastly, the tendon of the subscapularis is divided close to its insertion, and this muscle is retracted inwards.

The damaged area is now fully exposed. Internally one sees the neck of the scapula with the fibro-cartilaginous glenoid ligament lying upon it. This ligament has usually been torn up a little way from the glenoid margin, so that it appears as a free edge lying upon bare bone. External to this is the glenoid cavity with the head of the humerus in contact with it. Running from above downwards over the joint cleft is usually to be seen a band of fibrous tissue which represents the free edge of the capsule which has been torn from the glenoid ligament. It appears as a band because immediately external to it is the not inconsiderable and perhaps enlarged opening of the subscapularis bursa. Lastly, external to this is the fibrous capsule of the joint covering the greater part of the head of the humerus. The mechanism of the recurrent dislocation can now be easily demonstrated, for on taking hold of the arm and pushing its upper end forwards, the head of the humerus can be made to pass freely over the anterior edge of the glenoid cavity.

To anyone who has seen this typical lesion exposed at operation it must be obvious that the only rational treatment is to reattach the fibrous capsule to the glenoid ligament whence it has been torn. It is clear that a plication or similar operation performed on some distant part of the capsule can only have the effect of drawing the detached edge outwards and further away from the glenoid margin. No doubt, if the capsule is sufficiently diminished in size, it may prevent displacement of the head of the humerus notwithstanding the defect at the glenoid margin, but this is at the expense of free movement in the joint. It should be remembered that the capsule of the shoulder-joint is normally a lax, and not a tense, structure.

It is exceedingly difficult to believe that operations of the Clairmont-Ehrlich type can have any influence in preventing recurrent dislocation, except by limiting the normal movements of the joint. Even if one could think that the transplanted strip of muscle acted in the way it is supposed to do, it is not clear how this would prevent the dislocation, for the displacement does not take place downwards, but forwards.

In my cases the joint defect has been repaired by interrupted sutures of silkworm gut passed between the free edge of the capsule and the glenoid ligament. It is well to freshen the bone on the neck of the scapula, so that the glenoid ligament may adhere to it. Having repaired the joint defect, the divided subscapularis tendon is reunited, the detached portion of the coracoid process is sutured in place, and the wound is closed. After the operation the arm is kept at rest for four weeks, and then active and passive movements are begun and persisted in until the movements of the joint are normal.

Two of my cases were epileptic, and both the others sustained the original injury at football. One case—a powerful epileptic—had some limitation of abduction two months after operation, and he has not been seen since. This relatively poor result was due to his neglect of after-treatment. The others recovered full movement at the shoulder-joint, and in none of them has the dislocation recurred.

TREATMENT OF MIGRAINE BY CALCIUM LACTATE.*

BY

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MIGRAINE, passing under many names and treated by a host of different remedies, is a condition of surpassing interest on scientific grounds alone. To practising physicians the condition is of similar importance for three reasons: (1) Migraine is a very common ill; although referred to by those who have never suffered from it as a minor malady, yet in reality it accounts for an enormous amount of wretchedness and impaired efficiency. (2) Migraine appears to attack with great frequency the professional classes in general and medical men and women in particular. In the literature splendid accounts of the condition have been supplied by doctors who were themselves sufferers, and in my series of twenty cases eight were members of the medical profession or medical students. (3) The old treatment of migraine, as evidenced by the long list of so-called remedies, is not satisfactory. More recently fresh conceptions and new drugs have been tried with some success, and the results obtained with one of these remedies is the justification for this communication.

It appears probable that the fundamental cause of migraine is an anaphylactic shock. How this shock is manifested, and indeed in what particular part of the brain the manifestation occurs, is not known. The accurate, subjective localization of the headache and the external phenomena associated with the superficial temporal artery suggest the area of the brain underlying the squamous portion of the temporal bone as the probable site of the lesion; the occasional aphasia and even rarer hemiplegia met with in migraine point to the motor cortex. On the other hand, the visual phenomena, which are so common, can only be explained by referring the disturbance to the occipital cortex, and the vomiting is possibly associated with the medulla. It has been suggested that the pituitary gland may undergo temporary enlargement and thus cause symptoms, but the type of hemianopsia met with in migraine is opposed to this view. It would appear, therefore, that no single cerebral area can be held responsible for the various phenomena of the disease.

The undoubted relation between eye-strain and migraine is difficult to explain upon an anaphylactic basis unless it be that a brain already sensitized will react unduly to any stimuli and among them impulses connected with the ocular apparatus. On the other hand, the equally well known connexion between migraine and other nervous disorders, such as epilepsy, can best be explained on an anaphylactic basis; these conditions also are considered by many to have a similar origin. On this assumption it is not exactly correct to say that migraine is hereditary, but rather that a liability of the nervous system to become sensitized and react to certain stimuli in themselves innocuous may be transmitted. Migraine in the parents may be represented by asthma or angio-neurotic oedema in the children.

It is remarkable that organic disease, especially perhaps that of the cerebral vessels, is not more often associated with migraine, for temporary aphasias and hemiplegia are comparatively common in the former (Case v).

Of the symptoms occurring in the attack those connected with vision come first in point of time and in importance, since they may be the sole manifestation. A sudden general dimming of vision is a very common prelude, followed by scotomata, coloured dazzling spectra, and hemianopsia. These constitute the aura of an attack and, as might be expected, they are often associated with vertigo. In a short time follows the headache, which is usually localized very accurately to one temple and practically always to one side of the head. The least movement or any temporary increase in intracranial tension, as by coughing, is accompanied by

* Based upon a note read before the Liverpool Medical Institution on January 4th, 1923.

mucous membrane and its replacement by scar tissue; laryngitis, tracheitis, and bronchitis easily follow. A similar process occurs in atrophic rhinitis and in undue patency due to trauma, operative or otherwise.

Tonsillar infection in adults is, in my experience, less likely to lead to chronic bronchitis than nasal infections. Recurrent tonsillitis and quinsies are apt to lead to chronic ill health and in voice users to laryngitis, with weakness and hoarseness of the voice.

Oral sepsis is undoubtedly a factor in the production of chronic bronchitis, and people of middle age with septic teeth and pyorrhoea would be well advised to part with their teeth if they have bronchitis.

Hay fever, paroxysmal rhinitis, and asthma are part of a syndrome and can be conveniently discussed together in relation to chronic bronchitis. They can, perhaps, be defined as abnormal reactions to stimuli which affect the upper respiratory tract.

Essentially hay fever is produced by undue sensitiveness to pollen which causes acute congestion, swelling, and secretion of the nasal mucosa. Many hay fever cases are susceptible to different stimuli, such as mimosa, horse chestnut, tobacco plants, roses, emanations from animals such as horses and cats, as well as the typical cases due to grass pollen. Some of them are susceptible to several of these. In addition, typical hay fever may go on to typical asthma.

In the same way paroxysmal rhinorrhoea or vasomotor rhinitis may be caused by differences of temperature, change of posture such as getting up in the morning, and also occurs in hay fever and asthma cases.

The typical asthma case is in my experience more often than not associated with one of the above. Whatever the type, chronic bronchitis is very apt to follow. Why is this? Obviously because swelling and hypersecretion of the mucous membrane of the upper respiratory tract sooner or later allow of infection. In hay fever and vasomotor rhinitis there is at any rate intermittent congestion and obstruction of the nasal mucous membrane with consequent infection.

In these cases the chronic bronchitis, as in cases of primary nasal obstruction, may be and often is a descending infection. The frequent association of nasal polypi and asthma is well known, but it must not be thought that the presence of polypi is the primary cause of the asthma, or that the removal of polypi from the nose will necessarily cure or even alleviate the symptoms. Often the removal has no such effect. It is true that the mechanical effect of the polypi may determine the onset of an attack; we must look deeper for the cause. Polypi are an evidence of nasal infection most frequently of the ethmoidal cells and it is this infection of sinuses which follows on the nasal obstruction due to swelling of the mucous membrane of middle turbinals and septum, which produces the polypi and often a descending infection of the bronchi.

The removal of polypi may and often does improve asthma and bronchitis by allowing free drainage from the affected sinuses.

Others more skilled than myself are dealing with the question of infection and immunization of the upper respiratory tract, and I would only suggest the following clinical observations. If a patient coughs up sputum and this is cultured, an idea of the bacteriology of the bronchi may be obtained, but the picture may be obscured by mouth organisms, saprophytes, etc.

In my experience a post-nasal swab will often give the true organism responsible for the condition. In every case cultures should therefore be taken from the gums and post-nasal space, in addition to culture of the sputum. Often Pfeiffer's bacillus may be found in the latter which cannot be got or is obscured in a culture from the sputum.

Similarly a Friedländer infection may be shown by culture from this area uncomplicated by dust infections or casual organisms, which would be found in a culture from the anterior nares. These frequently have no significance in the production of the clinical condition.

In conclusion, I will briefly epitomize the main points on which I should like to lay stress.

1. Many if not the majority of cases of chronic bronchitis have their source of infection in the upper respiratory tract and are descending infections.

2. All cases of chronic bronchitis should have the nose and throat examined from this point of view.

3. Pathological conditions of the nose and throat should be treated.

4. Special attention should be directed to the treatment of nasal obstruction, nasal sepsis, and nasal sinus infections.

GENERAL DISCUSSION.

Dr. A. C. INMAN (London) said that in every case of chronic bronchitis the sputum must be examined as a routine for the presence of tubercle bacilli; also the possibility of a syphilitic infection must always be borne in mind. It was advisable to examine the blood as regards the Wassermann and Sigma tests (2 to 3 per cent. cases being positive in hospital practice). He said that from a bacteriological point of view the most important micro-organisms in chronic bronchitis were the streptococcus and the bacillus of Friedländer. In the former infection the treatment with vaccines is disappointing, in the latter very successful. A possible explanation of this might be found in Professor Dreyer's recent publication of the lipoidal content of the Gram-positive and Gram-negative microbes. The "defatting" of the streptococci, which were intensely Gram-positive, might lead to better results from antigenic treatment. Preventive inoculation should be carried out during periods free from catarrh.

Professor E. L. COLLIS (Cardiff) said that he had investigated records of morbidity and mortality in England and Wales from bronchitis among adults. As a result he found that this disease contributed so much to sickness and death as to make it *facile princeps* among diseases. It was probably responsible annually for 80,000 years of invalidity, and accounted for some 28,000 deaths at ages of 15 and over. The mortality particularly concerned late life, and was somewhat heavier for males than females. It had been falling rapidly since 1870, and rather more for males than females. The fall had been greatest where the mortality formerly was highest—that was, in the lower grades of the industrial community. Statistics of mortality due to bronchitis presented the characteristics of a disease entity, varying independently of pneumonia and phthisis. They indicated that bronchitis was conduced to by severe climatic conditions, such as wintry weather and more particularly by atmospheric pollution. Industrial work influenced bronchitis less than pneumonia or phthisis; and evidence was lacking that aggregation of persons in industry, which represented opportunities for infection, influenced the prevalence of the disease; herein bronchitis differed from phthisis. Occupations which entailed exposure to atmospheric pollution, whether due to irritating gases or injurious dusts, carried with them risk of bronchitis. Generally mortality records suggested a chronic traumatic origin for the disease rather than an infectious origin. Reduction in morbidity and mortality from bronchitis might be expected to follow from (*a*) such social uplift as increased the health of lower grades of society, and from (*b*) smoke abatement in industrial districts and great towns.

Dr. FLORENCE STONEY (Bournemouth) drew attention to a very common cause of bronchitis in dental sepsis. This might frequently cause no local trouble and could only be detected by *x* rays; the dentist and the doctor could see the state of the apices without this help. Even one tooth with an abscess at the apex might be responsible for chronic bronchitis. A child aged 13, who had had bronchitis for six years, was completely cured by the *x* rays discovering a hidden apical abscess, which was removed, and the chest condition at once cleared up. Many cases of chronic bronchitis were left with their teeth in a very septic condition.

Dr. ASTON KEY (Southsea) discussed, from the standpoint of the general practitioner, the pathology of the condition, especially as regards the capacity for repair possessed by the damaged mucous membrane. It was this inability adequately to repair the damage which was their chief difficulty and which so often defeated their efforts, and on this account

agonizing pain. Nausea, terminating in retching and vomiting, completes the painful picture. The whole attack may last only a few hours or be prolonged for a day or two. All the stages of the typical migraine attack just described may not be present in any given case. The ocular symptoms alone, or the headache alone, frequently occur, and even nausea and vomiting may be the sole manifestation of an attack (Case III). In the last eventuality grave mistakes in diagnosis may be made.

It will be plain from the formidable list of drugs used in combating migraine how unsatisfactory our treatment is. Following upon accustomed lines the treatment of a paroxysmal malady is best discussed under the headings: (1) measures used between attacks, and (2) measures used during attacks.

Measures Used Between Attacks.

Under this heading prominence must be given to the importance of correcting refractive errors. There are grounds for supposing that slight errors, which are sometimes regarded by oculists as negligible, may be more potent as migraine producers than are the obvious ones, in which owing to their magnitude the ocular mechanism appears to give up the unequal contest of correction.

Under this heading, too, must be considered methods for desensitizing the nervous system so that it can no longer respond to anaphylactic toxins after its migrainous habit. A full account of such measures has been given by Pagniez.[1] Good results are described from repeated small doses of horse serum and crotaline and from taking peptone on an empty stomach. I have had no experience with these remedies, but judging by the poor results of this line of treatment in epilepsy I am not encouraged to pursue them.

Treatment During Attacks.

This heading is more comprehensive. A strenuous brain worker cannot go to bed in a darkened room with cold towels round the head and all the other paraphernalia of the luxurious sick-room. If modern medicine can offer nothing better than this to a man whose living depends upon working many hours every day at high pressure then the subject of migraine might well be excluded from practical textbooks. Fortunately the picture is not so gloomy as this, for one of the following two lines of treatment offers a reasonable hope of success. The first is the use of sedative drugs, and of these two are particularly helpful. Phenacetin in the hands of Byrom Bramwell has proved a potent weapon.

He writes:[2]

"I order the patient to take a 20-grain powder of phenacetin as soon as the attack occurs. I tell him, if the first powder does not relieve the headache, to take a second at the end of an hour; and if the second does not cut short the attack to take a third at the end of another hour. I attribute the success which I have had from phenacetin, in a very large number of cases, in which the remedy had been previously given by other practitioners or taken by the patient on his own initiative, to the large doses which I give."

Luminal, as advocated by Wilfred Harris,[3] is also worthy of trial. Not more than 3/4 grain three times a day should be taken, and even this dosage may be reduced considerably. Apparently drowsiness is the great objection to the use of this drug.

The second means of attack is the one upon which I wish to lay particular emphasis. For some time I have been using calcium lactate in migraine with success. The only reference to this drug as a cure for headache that I have been able to find in the literature is in a paper by Ross.[4] Here is reported the cure by calcium lactate of cases in which headache is associated with oedema, anaemia, and lowered coagulability of the blood. Among these cases are two of migraine and these also were relieved by this remedy. Calcium lactate is also popularly supposed to cure the morning headache following an evening's gaiety.

The method of administration in migraine is as follows: At the first sign of the approach of an attack, as evidenced by the ocular aura, 30 grains of calcium lactate must be taken immediately; as there must be no delay, the drug must be constantly carried by sufferers, and for this purpose the tablet form is essential. The tablets must be made by a reliable firm and they must be fresh. I have seen instances in which tablets carried in the pocket for some time gave no effect, while the use of a fresh solution, procured from a chemist near by, gave speedy relief. It must be clearly understood that no claim is made that calcium lactate as given above cures migraine, merely that it aborts the attack and in many cases prevents the appearance of the headache and vomiting and enables the sufferer to continue at work.

Description of Cases.

CASE I.

Medical woman, aged 35. For the last eleven years has been troubled with migraine—very marked visual phenomena, including hemianopsia, severe headache, but no vomiting. Attacks, in spite of many drugs, lasted about two days. Though the onset was usually associated with fatigue and eye-strain and a strong light appeared to precipitate an attack, there was no refractive error. During the last eight years every attack has been aborted by calcium lactate and the headache stage has in no instance been reached. In no attack since calcium treatment was begun has work been interfered with, while formerly in some instances a day, or even two, were spent in bed. Also the attacks have become more and more infrequent.

CASE II.

Medical man, aged 28. For many years has had headaches of two distinct kinds—the one is true migraine and the other is apparently due to some alimentary toxaemia. The migrainous attacks since taking calcium lactate have been entirely aborted, whereas the other type of headache is absolutely uninfluenced by the drug.

CASE III.

Female clerk, aged 24. For some years has had attacks of vomiting preceded by hemianopsia but no headache. In March, 1921, the patient consulted me for attacks of vomiting which lately had been of daily occurrence; these sometimes were associated with visual aurae, but often not. The general condition was naturally very bad and the girl was becoming more and more depressed. Calcium lactate 30 grains was ordered to be taken every night for a few weeks with occasional breaks. The result was quite marvellous: the symptoms disappeared immediately and, owing to the cessation of the attacks, the general health rapidly improved. The doctor reported later that the patient was her old happy self again and quite free from attacks. In this case it would appear that warding off the migraine paroxysms, with their resulting weakening effects, enabled the patient to build up her general condition so that with better health the migraine habit was broken.

CASE IV.

Married woman, aged 53. Consulted me in October, 1922, for paroxysmal headaches from which she had suffered all her life. The three stages of typical migraine were experienced. Apparently refractive errors were present, but the correction of these gave no relief. Calcium lactate was ordered, and shortly afterwards her son, himself a medical man, reported that the first attack of migraine was always completely aborted by the treatment, but that a second one often occurred a few days later and then the drug did not give relief. Accordingly luminal, 3/4 grain twice daily, was ordered, and this combined with the calcium gave very good results. In August this year her son wrote saying that his mother's attacks formerly kept her in bed two days in every week, now the attacks are much slighter and she is able to get up in a few hours after a paroxysm. "My mother never goes away from home without a full supply of tablets and powder."

CASE V.

Married woman, aged 63, first consulted me in September, 1920, for a curious condition of her hands and feet. The appearance was that of a combination of Raynaud's disease and erythromelalgia, and there was acute tenderness added. Though marked arterio-sclerosis was present calcium lactate gave wonderful improvement. In August, 1922, she again consulted me, but this time for typical migraine attacks in which all the stages were represented. Again calcium lactate was successful. There can be little doubt but that the condition of the vessels in this case played a part in the causation of both affections.

CASE VI.

Married woman, aged 29; seen in September, 1921. For the last year had suffered from weekly attacks of pain behind the eyes lasting for hours. There was no headache nor vomiting. No errors of refraction were present. A tentative diagnosis of migraine was made and calcium lactate was tried. Two months later the report was "quite cured."

CASE VII.

Woman, aged 22 (medical student). When 14 years of age suffered from eye-strain which was relieved by glasses. While reading for the final examination this summer headaches became so bad that even using the eyes for a few minutes for reading was impossible. Oculists were consulted and various remedies tried, but without success. She consulted me as to the advisability of trying calcium lactate. I agreed to this as an experiment. In a précis of her case she reported later, "Calcium lactate grains 30 whenever the headache started was then tried and found to relieve it in about three hours, the effect lasting one and a half to two days." She has now resumed hard work. This patient also suffers from chilblains, but on this condition the drug has no effect.

In neither of the last two cases could a diagnosis of migraine be made and yet the result of treatment was very satisfactory.

had existed prior to operation, a large number of them succumbed to bronchitis ultimately, in spite of all that had been done surgically.

Dr. G. B. Batten (Dulwich) mentioned his experiences as a general practitioner for thirty-seven years, and stated that the gradual weaning of chronic bronchitics from stuffy rooms and overclothing to fresh air habits and rational clothing had practically prevented cases of habitual chronic bronchitis from occurring. This line of treatment was of more importance even than the undoubtedly valuable treatment by vaccines or surgical procedures in the upper air passages.

Sir Thomas Horder (London) said that he had been prepared to expand in greater detail Dr. Perkins's reference to certain general or constitutional factors present in many cases of chronic bronchitis, but Dr. Hyla Greves had done so in some measure. It was a question, he thought, if the infective element had not been stressed too much of late years in this disease. Dr. Inman's experience of vaccine treatment confirmed that idea, and the speaker's experience was very similar. No pains should be spared to assess the nutritive, circulatory, metabolic, and nervous factors in these cases. To rely entirely upon a vaccine, which was not seldom done nowadays, was courting failure. He would like to raise another question: Was there no such thing as a "mucous diathesis"? Whether the mucous factor were regarded as an expression of a response to subinfection or not was really a quibble; it was certain that this factor differed enormously in different subjects. And the difference was quite likely to depend upon one or more of those general factors already mentioned. He drew an analogy between certain cases of bronchial catarrh and cases of mucous colitis. Not rarely both of these conditions occurred in the same patient. They had dropped the term "bronchial catarrh" of late, and they tended to speak of all cases as "bronchitis." He doubted the wisdom of this change in nomenclature, since he considered that the term "bronchial catarrh" had a definite connotation. There was, he thought, every transition between a true (infective) bronchitis and the bronchial mucous secretion of spasmodic asthma.

Dr. Donald Hall (Brighton) said that he recalled a discussion on vaccines at the Royal Society of Medicine many years ago, at which it was said it was hopeless to attempt to treat *Bacillus coli* infections or chronic bronchitis with vaccine. In his own practice he had found autogenous vaccine of value in chronic bronchitis, and had had a very mixed experience of the results of operative treatment of the upper respiratory tract.

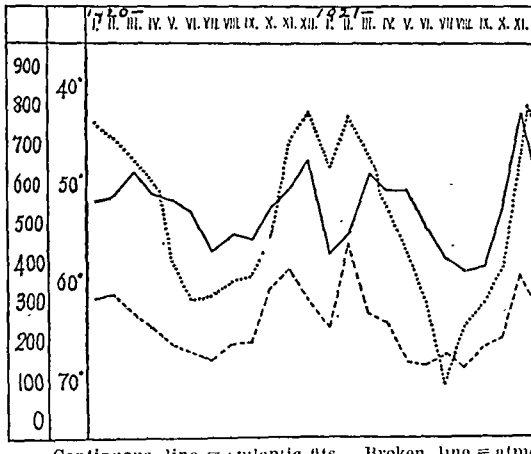
Dr. J. J. Perkins, in reply, said that he was satisfied on the whole with the result of the discussion. Speakers appeared to regard chronic bronchitis in the main as a secondary or symptomatic condition. All were agreed on the importance of educating people to an open-air life in any part of this country, to the necessity for removing underlying conditions, and to building up the patient.

THE RELATIONSHIP BETWEEN ATMOSPHERIC ELECTRICITY AND EPILEPTIC FITS.

(*Abstract.*)

Mr. George Mahomed (Bournemouth) displayed some charts showing the relation between variations in atmospheric electricity and the incidence of fits among epileptics. Dr. Tylor Fox, of Lingfield Epileptic Colony, had furnished him with the details of fits occurring daily among the patients for two years. A chart showed these for the whole of 1921. On the same chart was the daily range of atmospheric potential. It was seen that there was a similarity, especially a seasonal one. In the spring and autumn both fits and potential were generally above the mean for the year; and in the summer months both were well below the average. Mr. Mahomed thought it might be expected that when the electric condition was high fits might be more numerous; but many would think that an epileptic

pared, and the parallelism was very obvious. that other meteorological factors might show a re



Continuous line = epileptic fits. Broken line = atm electricity. Dotted line = temperature (curve inverted). figures = months (1920-21).

took temperature; the fits might vary inversely temperature. He prepared a chart of the monthly temperature. There was some corres but not so close as when compared with the me spheric potential. The depression was more ste summer months, and the lowest point of fits wa lowest point of temperature, which were in differe in both years; whereas with the potential they identical months. He thought the interdepend incontrovertible, and it opened up a new field o not only in regard to epilepsy, but towards numer nervous manifestations—for example, asthma, neu psychoneuroses, etc. It enhanced the value of th logical factor, and he regretted the inadequac observatories in this respect. There was only on tion station for electrical variations in England and one in Scotland (at Eskdalemuir).

SECTION OF NAVAL AND MILITA HYGIENE.

Surgeon Rear-Admiral Sir Percy William Basset K.C.B., C.M.G., F.R.C.S., R.N.(ret.), Presid

OBSERVATIONS ON THE LIFE-HISTORY AND BIONOMICS PHLEBOTOMUS PAPATASII.*

BY

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AND

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(*Abstract.*)

Previously it was not understood how the phlebotomus fever was carried over the winter n the imagines of the phlebotomus do not live th winter, and as Doerr[1] and Birt[2] claimed to have s the blood of man only contains the virus during forty-eight hours of the fever. This latter point ful, otherwise how are relapses to be explained?

* These observations form part of the researches carried out the R.A.F. Sandfly Fever Commission, during the years 192 1923. The Commission consisted of: in 1921, Squadron L Whittingham, Corporal G. H. Noakes, and Aircraftsman R. 1922, Squadron Leader H. E. Whittingham, Flight Lieutenant Corporal R. Stewart, and Aircraftsman H. A. Collett; in 1923, mander H. E. Whittingham, Corporal R. Stewart, and Leadir man H. A. Collett, all of the Royal Air Force Medical Service.

CASE VIII.

Medical man, aged 33. Occasional attacks of migraine for some years with marked visual phenomena and headache but no vomiting. In 1922 there were five attacks within a short period and in four of these absolute and immediate relief was obtained after taking calcium lactate. In the fifth attack no supply of the drug could be obtained and the consequent headache lasted for more than twenty-four hours. After this an error of refraction was corrected and the attacks ceased.

CASE IX.

Medical man, aged 26. Typical migraine attacks unaccompanied by vomiting since February, 1923. I ordered calcium lactate in the usual dose. He reports (October, 1923) that he has experienced eighteen attacks, of which fifteen were aborted by the treatment and no headache resulted. In two of the remaining three attacks no calcium lactate was taken and in the third the dose was taken too late, with the result that headache followed in each instance.

CASE X.

For notes of this case I am indebted to Dr. E. I. Claxton of Bootle. Woman, aged 47. This patient had had recurrent headaches, showing all the typical events of the migraine syndrome, since she was 7 years of age. At first the attacks were at monthly intervals, but since reaching the age of 30 they have become more frequent. In November, 1922, luminal was exhibited, but this drug, even in small and widely separated doses, made the patient so drowsy that its use had to be discontinued. Speaking of this patient the doctor wrote in a letter received in September of this year: "After hearing your note read at the Liverpool Medical Institution on January 4th, 1923, I put her on a 30-grain dose of calcium lactate, which must be taken within half an hour of the appearance of the visual symptoms. This aborts the attack; the only time it failed was when she neglected taking the dose within the prescribed half-hour." He adds: "I feel convinced that this drug is the only one that has given relief to a patient who has been a life-long sufferer from migraine." It is only fair to add that in a verbal communication Dr. Claxton has since informed me that quite recently the patient has vomited on one or two occasions.

Dr. J. Flanagan of Bootle reports that he has tried my method of treatment in three typical migraine cases occurring in women during the last nine months. The attacks were aborted in all.

No object is to be gained by multiplying such examples; suffice it to say that, in my series of 20, 16 patients stated that their attacks have been aborted by the calcium lactate treatment. Of the remaining 4, 2 were apparently cured by general remedies and consequently had no need to try calcium, and 2 experienced no relief. Of these two apparent failures one is a medical man whose case is complicated by a gunshot wound of the skull, and in his attacks he experiences great pain in the region of the scar; the other is the wife of a friend whom I have only treated by proxy, and possibly she may not be suffering from true migraine at all.

It is not right that definite conclusions should be drawn from such a small series of cases. Nevertheless, I have taken the opportunity of publishing my results in order that this treatment may be tried on a wider scale and its efficiency proved.

REFERENCES.

[1] *Presse Médicale*, January 15th, 1921. [2] *Clinical Studies*, vol. 1, p. 52. [3] BRITISH MEDICAL JOURNAL, October 28th, 1922, p. 726. [4] *Lancet*, January 20th, 1906.

THE NATURE AND TREATMENT OF SPRUE.*

BY

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VARIOUS theories of the causation and modes of treatment of sprue have been advanced, but hitherto treatment has been almost entirely empirical. The method I wish to bring forward has at least the merit of a rational basis. The best way in which I can briefly place before you the line of reasoning on which the theory first originated is to relate the history of a patient a consideration of whose symptoms and progress formed the basis of the theory.

The patient in question contracted the disease in China in 1920. The usual symptoms were present: the loss of weight was rapid, sometimes 3 lb. in a week, and the mouth symptoms were very severe. On more than one occasion there were over thirty aphthae in the mouth, so that the taking even of milk was painful. These spots are spoken of as aphthae, but they differ from what we usually recognize under this term. After a bout of "acidity"—burning pain in the stomach with acid rising into the oesophagus—there would ensue in twenty-four hours or so a crop of four or five very tender spots on the tongue, the fraenum, or the level of the second molar, or on the gums and cheek. There was nothing visible at this early stage, but in a few hours small red patches would develop which in another twenty-four to thirty-six hours would break through or become abraded and intensely painful little ulcers would appear.

Another symptom not mentioned in the books, but very marked in this case, and in many others whom I have questioned, was cramps, or rather carpo-pedal spasms. Tetany is spoken of, but the former is, in my opinion, much more common. During the night the patient frequently had to spring out of bed and pace the floor to relieve these cramps of the legs and feet; when writing, cramps of the hands would come on, so that the penning of more than a brief letter became impossible.

He suffered many things of many physicians. He took nearly all the yellow santonin there was in the colony; he was given autogenous vaccines (*Streptococcus salivarius* and others), emetine injections, was dieted with milk at one time, with the Salisbury method at another, with a diabolical preparation to which sprue itself is, in my opinion, preferable—namely, liver soup—at a third. Finally, he was sent on a voyage to Canada with the idea that a "spell of cold weather would drive out the sprue."

After some months, during which he became progressively worse, he managed to crawl with aid on to a vessel for England, and arrived in March, 1922. He was taken into hospital the following day, fortunately under the care of one who had for years been studying the disease both at home and in its endemic centres abroad. Confinement to bed and a milk diet for some weeks led to considerable improvement, and the patient went to the country to convalesce. Any attempt, however, at passing on to even decent invalid food led to more sore mouth, more flatulence, acidity, large stools, loss of weight—in fact, to a return of the typical symptoms. Two relapses occurred during the ensuing nine months, and the patient was invalided from the service in consequence. At each of the relapses the cramps returned as badly as ever.

I now began to ponder whether it was not possible to trace to some common origin these various symptoms. Dyspepsia and large pale, pasty motions are amongst the earliest manifestations. The stools show a relative excess of fatty acids and a relatively large excretion of calcium. The urine also in some cases contains more calcium than normal. The flatulence, acidity and diarrhoea, the aphthae, languor, and loss of weight, might all arise from states of intestinal intoxication. Next came to mind the peculiar association of carpo-pedal spasms with calcium deficiency, the correlation possibly of these with the diarrhoea and intestinal toxins, referring them to the group of organs which have been credited with the control of both these conditions—the parathyroids. These are believed to have a twofold function—namely, the regulation of calcium metabolism and of detoxication, in particular of the poisons of intestinal origin. In addition to this, but as subsidiary and not acting in all cases, is the condition of hyperchlorhydria. If this is present we may have as a result an excessive production of secretin by the action of the acid of the gastric juice upon the prosecretin of the mucous membrane of the duodenum. Excess of secretin leads to stimulation of the pancreas with an increased splitting up of fats, so that the normal ratio of neutral fats to fatty acids is diminished, as I have detailed in a former paper. This, however, is but a side issue, and does not come into play in all cases, for in sprue the gastric contents may show hyperchlorhydria, normal acidity, or hypochlorhydria.

Here was enough to start on. Examination of the blood revealed the fact that the total calcium was little, if at all, diminished, except in later stages or in very severe cases, nor was the coagulation time prolonged. The inference, therefore, was that in spite of the loss of calcium in the excreta sufficient was being absorbed to maintain the normal total calcium in the blood.

Calcium, according to the researches of Vines and Grove, is present in the blood in two forms—the ionic or free, and the combined or coagulative. Seeing that the latter was

* Read at a meeting of the Section of Tropical Medicine and Parasitology of the Royal Society of Medicine (see page 1157).

certainly occur as long as forty-six days after the initial attack of fever.[3] Recently the R.A.F. Sandfly Fever Commission has shown that the virus of the disease is handed on from generation to generation of *Phlebotomus papatasii*.[4] The fever was transmitted to man by the bites of phlebotomi bred in sterile soil in England. Further experiments are in progress to endeavour to determine whether the phlebotomus inherits the virus, or whether the larvae infect themselves in the breeding grounds by eating the excreta or the dead bodies of the parent flies. But until evidence is forthcoming on this point there are two facts that should be clearly grasped:

(1) That *Phlebotomus papatasii* is the true carrier of phlebotomus fever.

(2) That the infection of the phlebotomus takes place in the breeding grounds.

Therefore it is essential that we should have a sound knowledge of the life-history and bionomics of this insect.

Phlebotomus papatasii is a small midge measuring about 3 mm. in length (Plate II, Figs. 13 and 14). It is of a very delicate build and thickly covered with fine, long hairs. The body is of a pale lemon tint. The eyes are relatively large, black, and conspicuous. The antennae are long, filiform, and consist of sixteen segments. The proboscis is long and contains delicate piercing organs; on either side the bushy labial palps are folded back on themselves to protect the proboscis. The wings are lanceolate, covered with fine hairs, and possess characteristic venation; they are always held erect, except when newly hatched and shortly before death. The female fly has a spindle-shaped abdomen (Fig. 14), while the external genitalia of the male are large and give the posterior extremity of the abdomen the appearance of the tail of an aeroplane (Fig. 13). The insect is readily recognized by its small size, erect wings, and short hopping flight. It is common in the littoral of the subtropical regions of Europe, Asia, and Africa.

In the past, numerous attempts have been made to breed the phlebotomus in captivity. Grassi,[5] Howlett,[6] Marett,[7 8] Newstead,[9] King,[10] and Waterston[11] have accomplished part of the life-cycle. Some eggs have been hatched and the developing larvae kept alive for over sixty days, but none of these larvae pupated, whereas other larvae found in nature have pupated and eventually imagines have hatched out from these. However, in 1922[12] the whole life-cycle was observed, and now several hundreds of phlebotomi have been bred in captivity in Petri dishes, test tubes, and specially constructed cages. This success was only obtained by a close study of the natural habits and habitats of the fly, each observation being confirmed by experiment. Special attention was paid to the food supply and to various meteorological conditions, including the daily maximum and minimum atmospheric temperature, humidity, and the earth temperature (4-foot tube).

Space does not permit of more than a brief résumé of the life-history of the phlebotomus as it occurs in Malta. The complete life-cycle of *Phlebotomus papatasii* in summer covers a period of about eight weeks, the exact time depending on food supply, temperature, and humidity. The ovum stage lasts about nine days; the larval stage about twenty-eight days; the pupal stage about ten days; and the imago stage about fourteen days.

THE OVUM. (Plate I, Figs. 1 to 6.)

The ovum measures 0.385 mm. in length by 0.12 mm. in breadth, is ovoid in outline, being convex dorsally and flattened or slightly concave ventrally. Its surface is moist, glistening, and of a pale yellow colour when first expelled. By transillumination the fatty globules in its interior can be seen (Fig. 1). Within twenty-four hours the egg-shell becomes opaque and the colour darkens to a light brown. Daily for eight days the colour darkens, passing from light to dark brown, and then to sepia. At the same time surface markings appear. These are dark, granular, longitudinal ridges running from pole to pole of the egg, and intersected at intervals by short cross ridges (Fig. 2).

Maturation of the egg, in summer, occurs in nine to ten days. On the ninth day the transverse markings of the embryo are visible through the distended egg-shell. Later in the day the caudal bristles can be seen as two distinct black lines running from one pole to the other of the egg, usually on the ventral surface (Fig. 3). Presently, a slow side-to-side rolling motion of the egg is seen, and within two hours the shell is ruptured in the dorso-anterior region by the action of the egg-tooth. If the atmospheric conditions are favourable the young larva has completely emerged within five minutes of the first appearance of the head through the egg-shell. An excess of moisture will retard the process for hours, or even cause the death of the insect. The effect of drying is more injurious than too much moisture. Drying for a few minutes is fatal. A humid atmosphere (80-90 per cent. humidity) without a surface film of water is the optimum condition. In nature the ova usually hatch out between midnight and dawn. A typical example may be given.

An egg, observed on August 6th, 1922, showed the transverse markings of the embryo and the caudal bristles distinctly through its ventral surface. Except for a slight side-to-side rolling movement, the appearance of the egg did not change until 3 a.m. on August 7th. Then a small fracture occurred on the dorsum of the anterior end of the egg, and within the next ten minutes a distinct bulging of the egg-shell was seen on the ventral surface. This bulging was due to air collecting between the embryo and the egg-shell. The distension of the egg-shell caused a temporary obliteration of some of the surface striations. Between 3 and 3.35 a.m. the fracture of the shell gradually extended in an oblique direction towards the posterior pole. At 3.35 a.m. the head of the larva was seen projecting between the torn gaping edges of the anterior pole. The larva now commenced to crawl out; first of all by a stretching movement of its body—the larva being slightly greater in length than the egg-shell which had contained it. The head was born in this manner, and the rest of the body was gradually extracted from the egg-shell by a wriggling, caterpillar-like motion, aided from time to time by pressure of the mouth of the larva against the surface on which the egg was lying. The last part to be born was the caudal bristles. The time taken for the larva to completely emerge was only two and a half minutes from the first appearance of the head (Figs. 4, 5, and 6).

THE LARVA. (Plate I, Figs. 6 to 10.)

The whole larva appeared white, moist, and glistening, except for the brown mouth parts and egg-tooth, and the black shining caudal bristles. These caudal bristles were bent up in the egg and lay along the ventral surface of the larva. After the emergence the larva lay still for a few minutes, then started to move very slowly, its speed being about 1 mm. in two minutes. It soon remained still again until its body had dried and hardened somewhat. Stippling marks were visible on its head; these gradually increased in size and became darker in colour, passing through various shades of grey, and eventually becoming black, except for a white Y-shaped area in the dorsum. Twenty-five minutes after birth the larva had crawled on the top of some insect débris, and the caudal bristles were sufficiently dry to be raised to an angle of about 45 degrees (Fig. 7). An hour after birth the head was almost black and the creature had become more active, the rate of progress being 1 mm. in fifty-eight seconds. An hour and a half after birth the head was jet black, except for the white Y-shaped mark, and the insect had commenced to feed on soft earth. Throughout the following hour it continued to feed greedily and a considerable amount of brown earthy material could be seen in the gut.

The larva consists of a head and twelve body segments. There are no eyes. The head is furnished with strong jaws, consisting of two mandibles dorsally and a single ventral labial plate. On the dorsum of the head, throughout all stages of the larva, is a conspicuous white, Y-shaped mark, and a pair of small conical antennae. Short white or yellow hairs, depending on the stage of development of the larva, are present on the head and body. On the body they are arranged in rings around each body segment—eight to each segment. The striking feature of these larvae is the presence of long, black, shining caudal bristles arising from the end of the last body segment; these are two in number in the first stage, and four in the succeeding stages of larval life.

For the first five days of life the larva feeds voraciously and increases rapidly in size. On the sixth day the gut is emptied of the contents and the larva becomes sluggish, frequently lying motionless on a piece of earth or insect débris. The body is of a creamy white colour, bloated, dull, and waxlike. At times the little creature looks dead. This death-like condition is most marked when there is a thin film of water around the larva. As the moisture becomes less the larva raises its head every now and again. For several minutes the anterior end of the larva may be held erect, like a cobra preparing to strike. Suddenly the larva taps its head sharply on the ground many times. A period of quiescence follows, lasting perhaps half an hour. This process is repeated again and again for eight to twelve hours, the time depending on the amount of moisture present—an excess of moisture retards the process. This is the end of the first stage or instar of larval life, the insect now being ready for the first moult.

not deficient, although the symptoms pointed to calcium deficiency, it was inferred that the ratio between the two might possibly be upset. In the blood plasma there is normally between 10 and 11 mg. of calcium per 100 c.cm., of which 6.5 mg. or thereabouts is in the ionic state and the remainder combined. This latter fraction is concerned with the process of coagulation, and during the clotting this 4 mg. of "combined" calcium becomes changed to free calcium, due to the breaking down of a calcium-lipoid complex. In normal persons the whole of the 10 mg. should, after the blood has clotted, be in the free state in the serum—that is, there should be no residual combined calcium. In conditions of so-called "calcium deficiency" the blood after clotting is found still to contain some calcium in the combined form, and there is thus a relative deficiency of ionized calcium.

Calcium in the form of the lactate was then prescribed for the patient and the symptoms improved, but though the drug was continued relapse took place. Further increase of the calcium led again to improvement, followed again by relapse. Perhaps the augmented intake brought the ionic calcium temporarily to the normal, and the relapse would then be explainable by the ratio again becoming, or still remaining, disarranged. The amount of the calcium was then reduced and parathyroid extract was given. I am not sure now whether the former drug need be given at all, since the food as a rule contains sufficient calcium for the needs of the body. A wonderful change took place. Developed aphthae rapidly healed, commencing ones, as sore papillae and tender spots, receded without becoming aphthae, the flatulence was diminished, the stools became fewer and smaller, the colour began to return, and the general sense of well-being was regained. Within so short a time as a fortnight all the more acute symptoms had disappeared; food was increased, calcium was stopped, and in five weeks the patient was on ordinary diet. The parathyroid was gradually left off, and in six weeks from its first employment was stopped altogether. Nearly eleven months have gone by and he has lived a normal life, working hard Sundays and weekdays, paying no regard to diet, taking alcohol on occasion, and has not had a day's illness since.

This is not altogether an exceptional case. I have records of other patients who have done nearly, some quite, as well; one even better.

Let me now briefly review the symptoms associated with calcium deficiency, or, as it is preferable to call it, irregularity of calcium metabolism, and see how they apply to the disease we are discussing.

When the European goes to the East—for instance, to India—he continues to indulge his preference for a meat diet and partakes also of some of the native dishes, such as curries and highly seasoned rice. His thirst is slaked by iced drinks, often sweetened, and sometimes containing a considerable quantity of alcohol. His diet there is thus in several ways unnatural, and hyperchlorhydria is common. The effect of this I have already mentioned elsewhere.[1] Gastric and intestinal disturbances are commonly associated with stomatitis and aphthae. The excess of acids in the food also plays a notable part in sprue; the saliva itself is, in many cases, acid.

In other countries where sprue is endemic—China and Porto Rico for example, to instance places in the Far East and in the West—the food and the methods of cooking lead to an increased ingestion of fats. Kochmann and Petzsch by adding fats to the diet of healthy dogs showed that a considerable loss of calcium occurred, while Rothberg and others noticed that in children to whom an excess of fats was given the retention of calcium was reduced. This they explained by the increased formation of calcium soaps in the intestine, unabsorbed fatty acids being eliminated in the stools as soaps of potassium, sodium, and calcium, leading thereby to the impoverishment of the body in respect of bases. Again, Korenchevsky found that in animals on a diet deficient in calcium diarrhoea was noticed, together with such symptoms as loss of weight and increased nervous excitability.

How far vitamin action comes into play I do not venture to say, though, according to Aulde, a lack of calcium when vitamins are supplied induces the same changes in the endocrine glands as are seen in conditions where calcium in the diet is abundant but the vitamins are deficient. In other words, vitamins are unable to fulfil their function in the absence of inorganic salts.

In calcium starvation (accompanied by deficiency of fat-soluble factors in the diet) there is a considerable loss of calcium and phosphorus from the organism. Korenchevsky found in his experiments that administration of calcium salts under these conditions led to a temporary improvement in the balance of calcium, but as soon as the extra intake ceased the retained calcium was soon excreted. Before I came across the account of Korenchevsky's work I had stated that this was what probably occurred in sprue. The taking of calcium led to improvement of symptoms, but the dose had to be increased because, so I inferred, it was being improperly regulated. If we think for a moment of the nutrients recommended for sprue—certain fruits, milk, carrots, young spinach, potatoes—we see that all are characterized by an excess of bases and a richness in calcium.

The amount of calcium in the blood does not depend solely, or even in the main, upon the amount of calcium salts taken in the food or as medicine, but on the efficiency of the calcium-regulating mechanism—the parathyroids with their twofold function of detoxication and regulation of calcium metabolism. The mechanism of this regulation would naturally be upset if the toxins were more than could be dealt with, and the absorption of certain toxins appears to lead to such disturbance; the ionic calcium suffers diminution and becomes relatively deficient first, while in the later stages there is an absolute deficiency. Calcium deficiency is therefore regarded as an indication of toxin absorption.

In cases of sprue, then, we have one of two conditions. In the one where fats are in excess we have an excessive excretion of calcium in addition to intoxication of intestinal origin; in the other protein excess with intestinal toxin formation. In both, the parathyroid detoxicating function is overburdened, with a resultant disorganization of its calcium-regulating function, while there may be in addition diminished calcium absorption. Both functions, therefore, of these glands are interfered with.

A few figures of the calcium content of the blood of a normal person and of patients suffering from sprue are given in the table. The specimens were sent to Dr. H. W. C. Vines, of the Cambridge Medical Schools, Fellow of Christ's College, who very kindly undertook to examine with regard to their calcium content specimens of blood sent up. He was not told the histories of the cases when the specimens were sent, and I think it will be agreed that the results obtained afford remarkable corroboration of the theory I have brought forward.

Table of Calcium Contents of Blood Normal and in Cases of Sprue.

	Free Ca.	Combined Ca.	Total in mg. per 100 c.cm. serum.
Normal (after clotting)	10.7	0.0	10.7
McG. Fairly severe case.			
Before starting treatment	6.1	3.8	9.9
After one week	8.1	1.8	9.9
After two weeks (good progress) ...	10.1	0.0	10.1
H. S. Average case. Not taken on arrival. Weight 118 lb.			
After one week (gained 3¾ lb.)... ...	7.0	2.9	9.9
After two weeks (weight 127 lb.) ...	7.4	2.7	10.1
After three weeks (weight 133¼ lb.) ...	10.8	0.0	10.8
After four weeks (weight 142¾ lb.) ...	10.8	0.0	10.8
C. W. Mild case; nine months ill. (Bombay.)			
Before starting treatment	8.0	1.9	9.9
After two weeks (to have fish, chicken, potatoes, milk, biscuits, carrots, eggs)	8.9	1.2	10.1
After three weeks (to have meat, beef, mutton, ordinary food. After four weeks, reported himself quite well, 2 lb. above normal weight.	10.4	0.0	10.4

It will be seen that in a case of somewhat severe sprue before commencing treatment there was a reduction of

[1] *Trans. Roy. Soc. Trop. Med. and Hyg.*, February, 1923.

Instar.	Days of Larval Life.	Characters which Vary in each Instar.				Characters which Remain Constant throughout eac						
		Length of Body including Head.		Width of Body.		Width of Head.	Length of Body Hairs.	Colour of Body Hairs.	Pairs of Caudal Bristles.	Length of Caudal Bristles		Pigment of Posterior
		Beginning of Instar.	End of Instar.	Beginning of Instar.	End of Instar.					Inner Pair.	Outer Pair.	
		mm.	mm.	mm.	mm.	mm.	mm.			mm.	mm.	
First	1 to 7	0.46	1.06	0.09	0.15	0.09	0.02	White	1	0.40	—	Termination c
Second	7 to 12	1.05	1.68	0.17	0.22	0.13	0.04	White	2	0.52	0.30	Distal quarter
Third	12 to 17	1.70	2.50	0.24	0.33	0.15	0.08	Yellow	2	0.76	0.45	Whole of last
Fourth	17 to 26	2.55	3.78	0.36	0.52	0.22	0.16	Yellow	2	1.06	0.75	Last segment penultimate

The First Moult.

When the creature is fully ready to moult, usually on the seventh day of larval life, the body markings are indistinct and the body hairs appear blurred and duplicated, like outlines in a negative which has been slightly moved during exposure. This appearance is due to a separation of a portion of the chitinous head from the rest of the larval skin, by means of which some air enters between the skin to be cast and the new skin. The new body hairs lie between the two skins; the skin to be cast is so delicate that the hairs can be seen through it. At this stage the larva becomes more active and frequently taps the ground with its head—the portion of the head to strike the ground being in the region of the mouth. The chitinous head-cover becomes loose and quivers as the head sways from side to side. Eventually, one relatively severe tap causes the chitinous covering of the head to roll off like a mask, or else fall down and be held to the anterior and ventral portion of the larval skin as if by a hinge. The rupture of the larval skin takes place on the dorsal surface at the junction of the head and body. With the removal of the chitinous head-covering, the head of the emerging second-stage larva is displayed. The head is pearly white, except for the mouth parts at the anterior extremity, which are yellowish-brown. Gradually the larva withdraws itself from the old skin; the caudal bristles and ventral body hairs help to anchor the old skin to the surface on which it is lying. The larva gradually emerges by the combination of such actions as the raising of its anterior end, wriggling from side to side, arching of the body, and levering with its head against the ground. In some cases the discarded larval skin remains intact with the black chitinous head-cover attached to the thin, delicate body skin; in other cases the head-covering is completely separated from the rest of the shed larval skin, the two being some little distance apart. Twelve minutes is the average time taken for the complete emergence of the larva after the head-cover has separated. The last portion to emerge is naturally the caudal bristles, and during the moult they can be detected through the shedding skin. Not only are these bristles present at the time of moulting, but they are black and have attained their maximum length for the second instar of larval life. There are now four bristles, arranged in two pairs, the outer pair being about two-thirds the length of the inner pair. In some instances the caudal bristles are straight when the creature emerges from the cast; in others they are coiled round the posterior extremity of the body in the fashion of a pigtail. In the latter case the bristles straighten out during the next two to three days.

(*Note.*—Each larva was kept in a separate Petri capsule, and it was noted that those larvae which possessed coiled caudal bristles after moulting showed the same characteristics in future moults, and on the emergence of the imago the sex was found to be male in the three cases under observation. Too few observations were made to establish, or otherwise, any relation between the characters of the caudal bristles and the sex.)

The Second Instar. (Plate I, Fig. 8.)

Immediately after the moult the larva appears pearly white, moist, and glistening, except for the yellowish-brown mouth parts and black caudal bristles. It measures about 1.06 mm. in length and 0.17 mm. in width; these measurements increase daily during the instar. The determination of each particular instar is accomplished by measurements of the size of the head, length of the body hairs and caudal bristles, which remain constant throughout that instar.

The hardening and darkening of the chitinous parts of the larva in this instar take place in a manner similar to that which occurs after the larva has emerged from the egg. Within two hours of moulting the mouth parts are [illegible]

for the insect to feed voraciously on organi on the remains of insects, whereas the first soft earth. Frequently in the search for foo on top of or get inside the chitinous remai The addition of a thin film of water caus leave their hiding place and come out into t degree of moisture increases their activity moisture retards it. The quickest rate of is capable of making is 1 mm. in five seconds.

Without repeating the description of the and subsequent growth, it is enough to stat larva passes through four instars of about four moults, during which there is not on but developmental changes characterizing tabular statement). The average length of la six days in summer, and in that time the la times its original size—that is, from 0.46 mr to 3.78 mm. in length on the last day of insect passes the winter months in the fourth fairly resistant to drying and moisture.

The first instar lasts about seven days; the ch are a single pair of caudal bristles and the tooth on the dorsum of the head, just ant (Plate I, Fig. 7).

The second instar occupies the seventh to larval life and is characterized by the posse of caudal bristles and a brown pigmentation the distal quarter of the last segment of t Fig. 8).

The third instar lasts from the twelfth to s larval life. This stage has two pairs of cauda be distinguished from the second stage by the of the whole of the dorsum of the last segme by the yellow coloration of the body hairs (Plat

The fourth and last instar lasts from t twenty-sixth days and is easily recognized by size of the larva, and the dark brown pigment dorsum of the last body segment and the cen penultimate segment. The body hairs are lo yellow colour (Plate I, Fig. 10).

There is a moult between each instar, and of the fourth moult pupation occurs.

Pupation.

The duration of time between the hatching pupation may be as short as twenty-four d 202 days. The latter figure refers to hiberna hibernates in the fourth larval stage.

The larva gradually empties its gut for t before pupation. An excess of moisture or ture below 65° F. retards pupation. When the larva seeks a drier spot—the under su forms an ideal situation. The surface of distinctly bloated, dull, wax-like, and semi- creature becomes very sluggish. It may lie with its head raised like a cobra preparing and again it taps its head against the surfa resting. During the twenty-four hours prece three anterior body segments of the larva tended than the rest, the third segment be Eventually, after numerous slow arching n head and anterior portion of the body, th covering separates on the dorsum from the Through this rupture the pupa gradually arching backwards of its body and by wr movements in the air. The cast-off larval s crumpled up and collects around the three ter the pupa like a wrinkled stocking. The act the pupa, in nature, usually occurs at night, [illegible]

more than one-third in the ionic calcium, though the total was very little reduced. In all, as they progressed, this figure went up, almost *pari passu*, and when the free calcium reached normal and there was no residual combined calcium the patients expressed themselves as feeling well and very hungry, and there were no untoward symptoms.

In my previous paper records were given of individual cases and also an explanation, or possible explanation, of the rationale of the modes of treatment in vogue. There is no need to repeat these, but as Sir Leonard Rogers believes so strongly in the efficacy of vaccines in this disease and has reported many good results, I may perhaps be allowed to say a word or two on that head, as it bears on my own theory. According to what I have advanced the detoxicating function of the parathyroids becomes overtaxed; it has been working overtime, as it were, for probably a considerable period, and has finally had to succumb or at least take a temporary rest. The organism cultured from the mouth or stool is only one of several which may have had a hand in the toxin production, and the effect of the vaccine would be to render one of the foes *hors de combat* and reduce the inimical influences to such an extent that the parathyroids can now cope with them, especially when the treatment is combined with mental and bodily rest in bed and an addition of calcium by a diet consisting largely of milk. This explains, I think, the good results obtained from so many different vaccines, provided they are autogenous.

> "There are twenty different ways
> Of writing tribal lays,
> And every single one of them is right,"

says Rudyard Kipling. It may be the same in sprue. Twenty different men might find twenty different organisms, make vaccines from them, and report good results in each case, for they might each have hit off an organism responsible, in part at least, for the toxin produced in each individual patient, and by combating it relieve the overworked parathyroid and enable this gland to take up its duties again. But no single vaccine would prove effectual in all cases, and we may thus explain the individual good results of streptococci in some of Sir Leonard Rogers's patients, of monilia in Ashford's, of coliform bacilli in various others.

Another form of treatment, highly commended by some in the Far East, is powdered crabs' eyes and cuttle-fish shell. I do not know the chemical composition of the former, but the latter contains much calcium. Another favourite medicine is pulvis Bataviae co. What is this but concentrated calcium?

It has already been stated that the foods found best for sprue patients contain quantities of this base. In a word, the best diet and the most successful drugs hitherto used have supplied abundant calcium, a base which serum analyses have shown to be deficient—sometimes absolutely, more often relatively—without exception in those tested so far. The constituent parts are ill balanced, and the disease, therefore, calls imperatively, not so much for a more abundant supply of calcium as for support in regulating its disposal—that is, for parathyroid. The rest in bed, which is important in the early stage of treatment, puts the whole system under the best conditions for recovery of function.

When I wrote the last communication on this subject I could only speak of patients treated in England, but I stated that it would be of interest to know whether such felicitous results could be obtained abroad as I had had here with cases which, by the great kindness of the physicians to the Hospital for Tropical Diseases, I had been permitted to see in addition to those whom I myself had treated outside. I have since had reported to me the cases of eight patients in the Far East all of whom had been under the usual methods of treatment for one and a half years or more. One had come to this country for treatment, and, having been kept for a long time in hospital, had been obliged to return. He was assured that he would not live through the voyage, and, in fact, was carried ashore on a stretcher. He started the calcium and parathyroid treatment: in three weeks was up and about, and in five was carrying on his business.

If such fortunate results can be obtained in countries where the disease is endemic (and in most of these its prevalence appears to be increasing), much sickness and invaliding will be avoided and not a few deaths prevented, a marked contrast to what obtains at present—a miserable voyage home on ship's food, a stay of several months in hospital on the diet of a toothless infant, followed by months of food restriction, an ever-present haunting dread of a recurrence of symptoms, and a veto on any idea of a return to a tropical climate; in other words, the ruin of many a young man's career.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF MEDICINE.

Sir THOMAS J. HORDER, Bt., M.D., F.R.C.P., President.

DISCUSSION ON CHRONIC BRONCHITIS.

I.—JOSEPH JOHN PERKINS, M.A., M.B.CAMB., F.R.C.P.LOND.,

Consulting Physician, St. Thomas's Hospital.

THE subject before us this morning, which may seem a very simple one, was chosen in deference to the feelings expressed by Branches that bronchitis was well worth discussion, on account of the frequency of these cases in practice and the high death roll that follows—the Registrar-General's figures for 1920 were 1,010 deaths per million living.

The Branches felt that little advance had been made in treatment, except perhaps that with some men a routine use of vaccines has taken the place of a routine giving of expectorants, and they hoped that a comparison of counsels which Sophocles has said is characteristic of the wise, might lead to improvement in treatment and even might help towards prevention also.

The Committee agreed and accepted the suggestion, but decided that the time at our disposal would not admit of a discussion of the whole subject, including acute bronchitis and pulmonary lesions consequent on bronchitis. They therefore limited the subject to recurrent and chronic catarrh of the trachea and bronchi.

I shall be brief in my opening remarks, and will first outline the ground which will be covered this morning.

Catarrh, one may say, is immediately due to invasion by infecting organisms. Dr. Inman and others will deal with the bacteriological aspect of the subject and the value to be placed on vaccines. But we may go deeper than the question of immediate treatment, and consider the possibility of prevention. Preventive anticatarrhal inoculation is a method largely used, of the value of which many members hold a high opinion. This, we hope, will come into the discussion this morning, and we expect to get some solid information from their experience.

Further, are there not conditions which predispose in individual cases to recurrent bronchitis and invasion by micro-organisms? If such can be found and dealt with treatment and prevention will be placed on a sounder footing. In other words, to use the well known simile, the soil should be borne in mind as well as the seed.

Predisposing conditions would seem to fall under the following heads: (1) The part played by occupations and trades; on this Professor Collis has sent in a short statement in which he emphasizes the importance of "atmospheric pollution" in the causation of bronchitis. His paper, with full statistics, will appear in print shortly. (2) The part played by climate in causation and treatment. (3) How far are pre-existing local pathological conditions present, especially in the upper respiratory tract, in those patients, with the result that they carry in themselves a

PLATE I.

(Figs. 1 to 5 are magnified 80 times *circa*; Figs. 6 to 10, 40 times *circa*.)

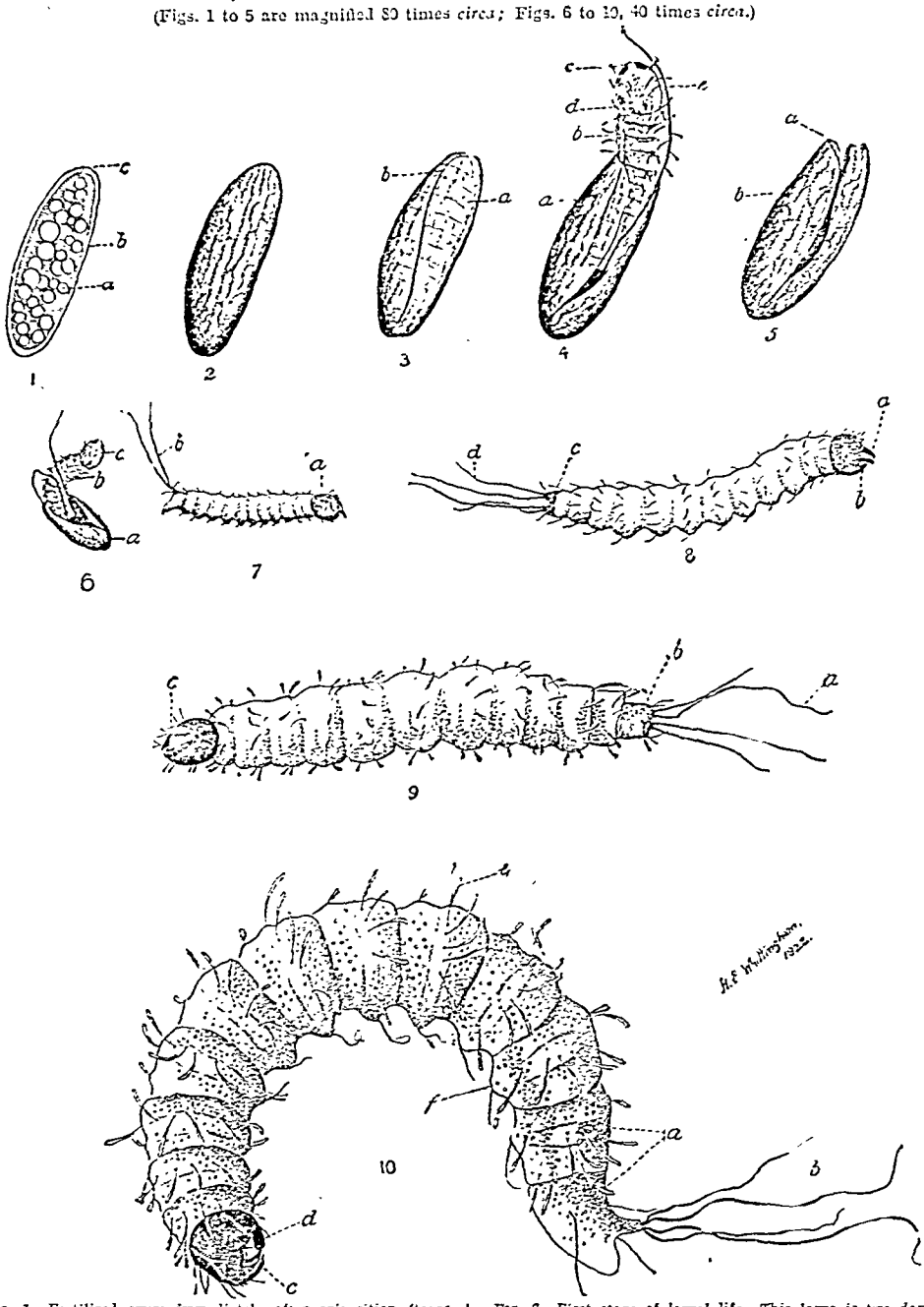

FIG. 1.—Fertilized ovum immediately after oviposition (transmitted light). *a*, Fat globules; *b*, egg-shell; *c*, micropyle through which sperm gains entrance to fertilize the ovum.

FIG. 2.—Fertilized ovum seven days after oviposition. Note the flattened (ventral) surface, and the convex (dorsal) surface, also the striations or sculpturings of the egg-shell.

FIG. 3.—Fertilized ovum nine days after oviposition. *a*, Segmentation of embryo; *b*, caudal bristle seen shining through the thin distended egg-shell. Some of the surface striations of the shell are obliterated by the distension.

FIG. 4.—Fertilized ovum nine days after oviposition. *a*, Ruptured egg-shell; *b*, larva in the process of emerging; *c*, mandibles; *d*, egg-tooth; *e*, caudal bristles. The emerging larva is pearl white except for the brown pigmentation of mandibles, labial plate, and egg-tooth, and the black caudal bristles.

FIG. 5.—Ruptured and emptied egg-shell of *Phlebotomus papatasii*. The larva has completely emerged. *a*, Rupture of shell extending from anterior almost to posterior pole; *b*, striations of shell.

FIG. 6.—Larva emerging from egg-shell. *a*, Shell; *b*, larva; *c*, head of larva. The larva is depicted undergoing [illegible]

FIG. 7.—First stage of larval life. This larva is two days old. *a*, Black head showing Y-shaped mark and egg-tooth within Y-shaped mark; *b*, single pair of caudal bristles. Note the twelve body segments.

FIG. 8.—Second stage of larval life. This larva is seven days old; the first moult had taken place the previous day. *a*, Mandibles; *b*, labial plate; *c*, pigmentation of dorsum of distal end of last abdominal segment; *d*, two pairs of caudal bristles.

FIG. 9.—Third stage of larval life. This larva is thirteen days old; the second moult had taken place on the twelfth day. In this stage there are two pairs of caudal bristles (*a*), and pigmentation of the whole dorsum of last segment of body (*b*). This is a dorsal view of the larva. The minute antennae (*c*) are seen just in front of the Y-shaped mark.

FIG. 10.—Fourth and last stage of larval life. This larva is twenty-two days old and is shown in a typical attitude adopted for a few days prior to passing into the pupal stage. In this stage there is pigmentation of the dorsum of the penultimate and last segments of the body (*a*), and two pairs of large caudal bristles (*b*). Note man-

constant reservoir of micro-organisms ready to infect the bronchi by aspiration? These are local predisposing conditions in the nose and pharynx, but (4) Are there no general constitutional factors in these patients, which prepare the way for infection, and which well considered treatment could seek out and remove? Before the the morning is over I feel that we shall have reason to see that these suggestions are well founded, that in a large number of the cases of chronic and recurrent bronchial catarrh such predisposing conditions, atmospheric or personal, and in the latter local or general, are certainly present and that they are the key to the position, too often overlooked or perhaps not sought.

For myself, I draw a distinction between chronic or recurrent bronchial catarrh and a single acute attack of bronchitis. A single acute attack, it seems to me, may occur in anyone without special predisposing conditions; it is a matter of opportunity, the result of a sufficiently virulent microbic infection which the patient chances to encounter, and which may overcome even a stout resistance. For the single acute attack I find the ordinary drugs very useful and vaccines so valuable as to be truly curative. But when catarrh recurs frequently or becomes chronic and constant, vaccines, I find, are more efficacious in relieving symptoms, such as cough or spasm, in which they are undoubtedly very useful, than in curing. In fact, as the sceptic puts it, in chronic bronchitis as you chase out one microbe another takes its place. In such chronic cases my experience leads me to look for a pre-existing or underlying predisposing condition, and I believe one can be found in a surprising proportion of cases; on the treatment of this underlying condition success depends.

Among the predisposing conditions none is so common, in my experience—and I wish this to be my particular contribution to this morning's discussion—as some chronic diseased condition of the upper respiratory tract—mouth, tonsils, pharynx, nose—a local reservoir of microbes, as I said before, from which infection of the bronchi by inhalation can easily take place. Unless this focus of infection is dealt with, other treatment, including vaccines, is futile.

Bad pyorrhoea, unhealthy tonsils, a foul pharynx, nasal disease or trouble of all kinds, whether mechanically obstructive or infective only—these are the lesions I find so frequent, and believe to lie at the root of so many cases of chronic or recurrent bronchitis, and the treatment of which I find to be so effective in preventing the bronchial catarrh. I allow this is well enough known in a general way, but it is not sufficiently realized or acted on in practice. The frequency with which in childhood adenoids predispose to bronchitis is a truism, but similar conditions, such as those just named, are true for the adult. The nose and pharynx should never be overlooked. It is unnecessary for me to pursue the matter in detail, as Mr. Seccombe Hett will deal with it later.

To touch on other predisposing factors which require attention, if treatment of chronic bronchitis is to be effective, in many cases metabolic conditions are the key. Here I place obesity, whether its effects be toxic or mechanical, overfeeding (the so-called gouty bronchitis), and alcoholic excess. For these patients self-denial in food and drink and reduction in weight (by graduated exercise, massage, the Turkish bath, and spa treatment), a reduction of the intake and an increase of the output, to promote elimination and restore mobility to the chest, are necessary.

I wish, then, to urge the importance of such predisposing conditions as I have named, local and general, especially the local, in the causation of recurrent attacks of bronchial catarrh. Neglect of these factors I respectfully suggest is one of our two main failings in dealing with recurrent bronchitis. Our other fault, I believe, is our failure to continue our efforts until a really satisfactory convalescence is secured. We are too apt, as soon as an attack has subsided, to rest on our oars and think that everything necessary has been done, whereas we should still press on until we secure a return to the former active life.

I refer here to the importance of the preservation or restoration of the open-air habit of life, and the value of respiratory exercises. Fresh, pure air is of value not only for the consumptive. In chronic bronchitis, as Professor Collis will tell us, contaminated impure air is the enemy, not chills and exposure. It has been well said that no one ever "catches cold" while deer-stalking in the Highlands—only on return home.

The bronchitic should cling to the open-air life or habit as long as possible, and postpone as late as possible the evil day when he is shut up in the hot stuffy rooms to which he is too prone—the beginning of the end. A change to a milder climate, after being laid up indoors, is, of course, a useful stepping stone to the resumption of ordinary life; and a good general plan for the bronchitic is to take the usual annual holiday in the winter, securing a change to some place where outdoor exercise is freely possible and pleasant. Such a break helps many a patient to get through the winter without an attack, and, reinforced by the following summer, puts him in a strong position to face the dangers of the coming winter.

With such simple precautions the bronchitic can be kept in fair working condition for several years. Ultimately, in the later stages of the malady, permanent residence in a warm climate may possibly become a necessity, but that should be reserved for the later stages. A bracing climate should be adhered to as long as possible, and that climate is sufficiently warm which allows of daily open-air exercise. The climate of the Alps, pure dry cold, has long been known to be of great benefit in the earlier stages of the complaint, and many a bronchitic does not fear cold provided the air is dry. On this point I cannot do better than quote a letter received from an old medical friend, now well in the seventies, who suffers much from catarrh in London. He writes: "I am wonderfully well. I went off on May 10th to stay with a friend on the Welsh moors, 1,500 feet above the sea; heard on my arrival that they had had four inches of snow round the Lodge that morning. I arrived in a snowstorm; we had gales and blizzards every day till May 21st, then gales and hail. We often found the ground white in the morning, but we got some gleams of sun. I was out all day, and four days we went into the valley to fish. In spite of the weather I felt as fit as possible and lost my cough almost entirely. Nothing like fresh air."

It is often impossible, I know, to alter a man's occupation or get him an expensive climatic change, but we can improve the conditions of his life in office and home; we can do away with the heated atmosphere, which acts as an incubator for microbes. The atmospheric pollution which, you will hear later, Professor Collis finds to be the main source of bronchitis, does not apply only to "trade dust." We can keep up the practice of outdoor exercise and encourage the hardy habit of body which defies chills.

Finally, a valuable adjunct in the treatment of the bronchitic is to be found in respiratory exercises, such, for example, as have been successfully systematized by Mr. Cortlandt MacMahon of St. Bartholomew's Hospital. In most people the lower portions of the lungs are habitually hardly used, and the object of such exercises is to restore and even increase the movement of the lungs. They carry with them also the improvement in oxygenation and circulation which follows increased activity. Training in singing has often, in earlier life, the same effect in banishing a catarrhal tendency.

Briefly, MacMahon's system is divided into two courses. The first course aims, by a series of inspiratory exercises carried out in the recumbent position, at increasing the movement of the lower ribs and developing the inferior lateral region of the thorax. By this means the lower chest is expanded and the action of the lower part of the lungs improved. When this has been attained the patient is taught, in the second part of the course, to contract the abdominal muscles and drive the diaphragm forcibly upwards. By the combined movement he is educated to make the most of his lung capacity, and once thoroughly learnt the improved breathing becomes habitual. The result of this powerful increased respiration, inspiratory and expiratory, is to bring into play the large area of lungs towards the bases which is ordinarily unused, and so to add many millions of air cells to those already in action.

Work is less exclusively thrown on the upper part of the chest; the faulty tendency of the bronchitic towards

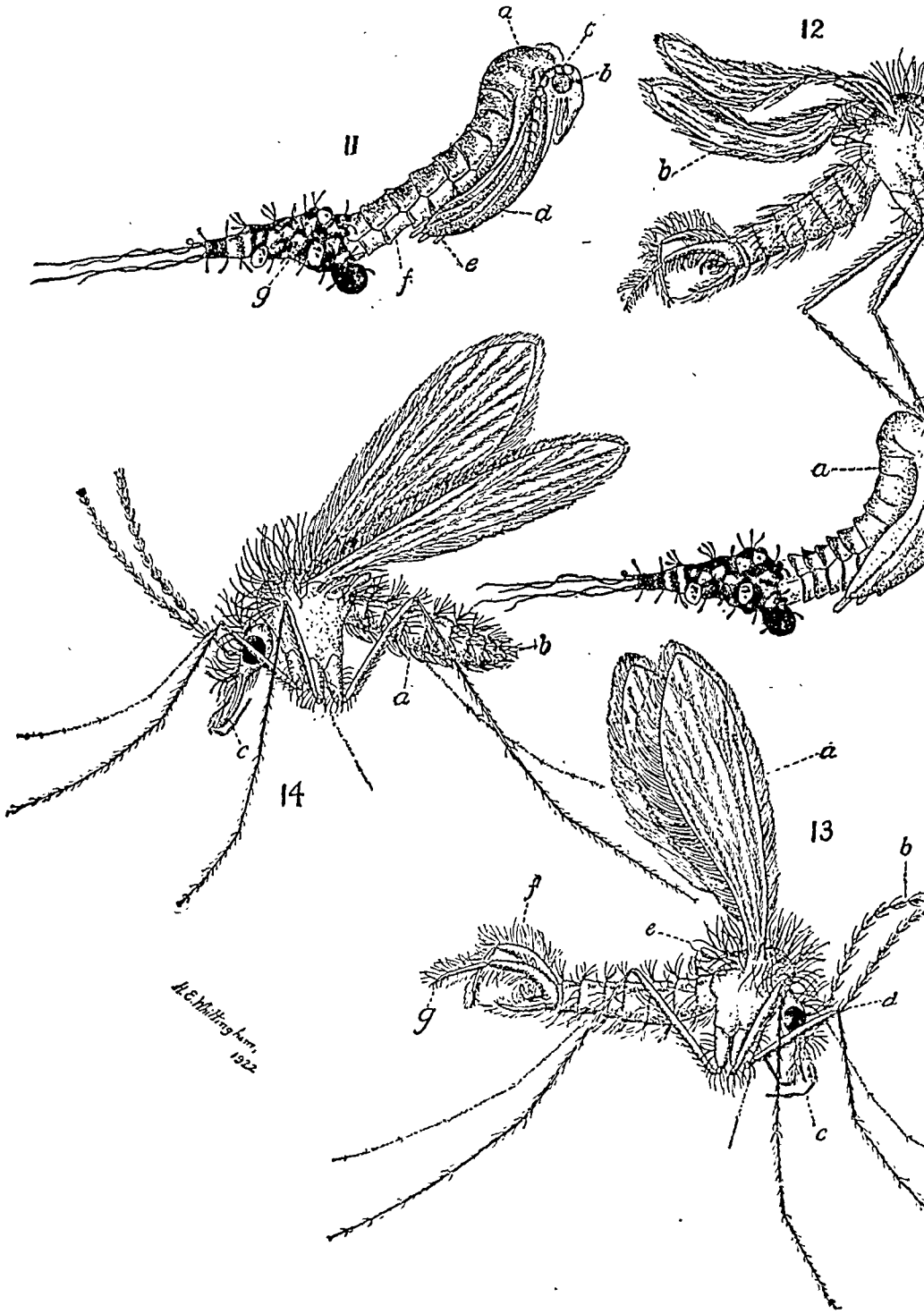

FIG. 11.—Pupa in seventh day of pupal life. *a*, Cephalo-thorax; *b*, eye; *c*, antenna case; *d*, wing sheath; *e*, leg sheaths; *f*, abdominal segments; *g*, remains of larval skin around tail of pupa.

FIG. 12.—Emergence of imago from pupa case on the tenth day of pupal life. *a*, Pupa case; *b*, crumpled up and horizontally fixed wings of imago. In this stage the insect can only crawl, and the recognition of this fact helps in the detection of the

FIG. 13.—Fully developed male imago. *a*, Erect *b*, antennae; *c*, labial palps; *d*, conspicuous black e *f*, claspers; *g*, genital spines which aid in the rec species of phlebotomus.

FIG. 14.—Fully developed female imago. Note that are arranged in tufts and the abdomen (*a*) is

quick shallow breathing of the upper chest type is overcome; respiration is deepened and markedly slowed. It goes without saying that at the same time aeration and circulation, both of blood and lymph, are promoted; the nutrition of the lung is improved thereby, congestion and oedema disappear, cough is markedly diminished, and the heart is relieved. The total effect on the bronchi and lung is to bring the whole organ into that state of functional activity which stands for health and resistance to invading organisms.

In conclusion, while not undervaluing our present methods of treatment of chronic bronchitis, I beg to suggest, first, that important predisposing conditions are often present, the treatment of which is essential, and that medicinal measures, whether by drugs or vaccines, do not cover the whole ground; but that it is important by pure air, exercise, and even by special respiratory exercises, to maintain and increase the functional activity of the lung. On the one hand, by removing foci of infection, we can do much to prevent catarrh. On the other, after an attack, by enjoining, with suitable precautions, the value of pure fresh air and exercise of the lung, we can do much to defend the patient from sinking into a chronic

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THE VACCINE THERAPY OF CHRONIC BRONCHITIS.

IF we exclude the chronic catarrhal conditions which arise from irritation by dust, or such as are seen in cardiac and renal conditions, we may regard chronic bronchitis as essentially an infective disease. The resistance of the individual is lowered by chill or by illness, and the organisms which are normally present in the nasopharynx are enabled to establish themselves in trachea and bronchi and set up inflammatory changes there.

It is my purpose to-day to discuss briefly the bacteriology of chronic bronchitis, and more particularly its treatment by vaccines. In no branch of vaccine therapy have I met with greater success than in the treatment of chronic bronchitis. Occasionally one fails to obtain a favourable result, but speaking generally an improvement may be assured and frequently a cure established. I have never seen a case made worse by vaccines. This favourable result has not been only in my own practice, but I have received, from the majority of medical men from whom I have inquired, reports which are very largely favourable to this method of treatment. Personally I am opposed to the use of stock vaccines, but I have received several reports from doctors who have found them invaluable both from a prophylactic and curative standpoint. The organisms most frequently responsible for the continuation of cases of chronic bronchitis are in their order of frequency the pneumococcus, various streptococci, and the *Micrococcus catarrhalis*. Pfeiffer's bacillus, Friedlander's bacillus, and staphylococci are also frequently found.

Unfortunately it is much more common to find two or three varieties of organisms in a sputum than to obtain what is practically a pure culture. It is this multiplicity of organisms in the sputum which militates against the success of vaccine therapy and which makes it imperative that peculiar care shall be taken in the collection and treatment of the material from which the vaccine is to be prepared.

Collection of Material.

In cases where sputum cannot be obtained satisfactorily—that is to say, where the mouth is septic or where for a time the bronchial symptoms are in abeyance—a nasal swabbing may be taken, as suggested by Mackey. He has shown that in cases of chronic bronchitis the exciting organisms are constantly present in the nasal passages, and there is less chance there of contamination with extraneous organisms.

Preparation of Vaccine.

In making a nasal culture it is well to introduce the swab through a glass tube which is inserted into the nostril and so protects it from contact with the skin, hair, and dried crusts, which are found at the meatus and which would otherwise be a source of contamination. West's swab, as generally used for the nasopharynx, is excellent for this purpose. If the vaccine be prepared from the sputa then the patient should be directed first to wash out the mouth and to gargle with sterile water, and then to cough up and expectorate into a sterile vessel. It is better that these procedures should be carried out at the laboratory so that the plates may be inoculated immediately while the material is fresh and warm. If, however, this is not possible the tube or swab should be promptly sealed, placed in the waistcoat pocket, and at once conveyed to the laboratory. Any delay in the inoculation of plates—such, for instance, as is entailed by transmission by post—very much diminishes the probability of securing an efficient vaccine, for it may suffice to allow of the death of delicate organisms, and the multiplication of saprophytic varieties. The whole success of a vaccine may depend on this speedy transference of the material to the nutrient medium.

It is not my province to trespass on the technique of the bacteriologist, but I cannot leave this subject without saying that the preparation of the vaccine calls for much fine discernment and careful consideration. A film of the material should be stained and those organisms selected which are evident in the film and which show the freest growth on the various culture media. The vaccine should not be prepared from subcultures as this procedure much attenuates the strength of the organisms. If possible the bacteriologist should have the opportunity of seeing the sputum in bulk and should be given a history of the case. The manufacture of a vaccine for chronic bronchitis is an art—there are no set scientific principles—and some bacteriologists are more successful than others. From the foregoing it is evident that stock vaccines are not likely to meet with more than a modicum of success, and when it is remembered how many different strains there are of pneumococci and streptococci and how widely they differ one from the other, there can be no doubt that for successful treatment one must rely on the autogenous vaccine.

Dosage.

In the matter of dosage there is great variety of opinion, but one thing is essential—namely, that the dose be sufficient to excite reaction—a local reaction at the site of inoculation, and a mild general reaction—for example, malaise, slight rise of temperature, and a temporary increase of cough and expectoration. An overdose may result in a temporary set-back, and shake the confidence of the patient. It is well, therefore, to begin with small doses—say, 5 million of each organism—and gradually and at short intervals to raise the dose until a reaction is obtained.

The interval between the early tentative doses should be five days, and when once reaction is established this may be lengthened to seven days. If reaction is excessive, causing distress to the patient or a rise of temperature of more than 1°, the size of the next dose should not be increased, or the interval should be prolonged to ten days.

The essential point to remember is that the administration of the vaccine is not a mechanical process but a scientific procedure, requiring the same watchfulness and careful adjustment as the administration of digitalis in a case of failing compensation.

Vaccine treatment of bronchitis must be prolonged over a period of at least three months although the immediate symptoms may have disappeared, the object being not merely the amelioration of the present condition but also the establishment of a high degree of resistance. Preferably a new vaccine should be prepared at least once during such three months' course, as certain of the organisms which were originally present may have died out or fresh varieties may have supplanted them. In the same patient the bacteriology of successive attacks of bronchitis (winter recurrences) is seldom identical, so that it is no use relying for treatment on a vaccine founded on past experiences. One patient of mine, a lady whose chronic bronchitis is complicated by dilatation of the bronchi, has had vaccines prepared from her sputum or nasal passages on six occasions between 1910 and 1923. On each occasion the flora has been different—(1) *Micrococcus tetragenus* and streptococci; (2) streptococci and *M. catarrhalis*;

THE PUPA. (Plate II, Fig. 11.)

The newly emerged pupa measures about 3 mm. in length, is roughly club-shaped in outline, moist, glistening, and of a milk-white colour. The head and thorax appear fused in one mass which forms the head of the club. The handle of the club is represented by the abdomen, which tapers somewhat towards the posterior extremity. The outlines of the abdominal segments are seen as distinct ridges; only seven of the ten segments are visible, as the three terminal are enveloped by the remains of the fourth larval skin. The antennae are seen as curved ridges, one on either side of the cephalo-thoracic mass. The eyes are not visible at first, but after a few hours they appear as clusters of faint red dots, just below the curve of the antennae. These dots become more distinct and alter in colour almost daily; they change in colour from light to dark red, brown, and finally become black. Moreover, the various parts of the pupa become more distinct daily. By the ninth day of pupal life the component parts of the imago can be clearly recognized, and pigmentation of the eyes and hairs is pronounced. The imago is now preparing to emerge from the pupal case.

Emergence of the Imago. (Plate II, Fig. 12.)

Here again this further step in the life-cycle of the phlebotomus takes place between sunset and dawn; usually between midnight and 4 a.m., when the atmospheric humidity is between 80 and 90 per cent. The pupa periodically, with a flicking motion, bends its body backwards and forwards, the posterior end remaining fixed to the surface on which it lies. The pupa is of a pale silver grey colour. During the next two hours the dorsal curvature which was previously present disappears as the pupa stretches out in its length. Suddenly a rupture of the pupal case occurs at the cephalo-thoracic junction, and the delicate white hairs which cover the thorax of the imago project through. The head is the first part born, then the antennae, one wing, abdomen, the other wing, and finally the legs. The insect works itself from side to side to get the various parts free, the whole process lasting about ten minutes.

THE IMAGO.

The newly hatched imago is snowy white, except for the black piercing eyes. The body and wings are densely covered with long downy hairs. The wings are moist, crumpled up, and held horizontally over the body. They do not dry and unfold until the atmospheric humidity decreases; this usually occurs within three hours after dawn. When the wings are dry they are raised at an angle of 45 degrees above the body, and the insect is able to fly. By this time the mouth parts are hardened and the creature is ready to feed (Plate II, Figs. 13 and 14).

The Act of Feeding.

Only the female phlebotomus bites. A feed of blood is absolutely essential for the eggs to become fertilized. If flies of both sexes are caged together, but are fed on earth and organic débris only, they never become pregnant; whereas those which are fed on blood become pregnant. The phlebotomus usually bites after sunset, unless strong winds have been blowing for a few days. In the latter case they are held captive in their breeding haunts, and hunger causes them to seek a feed of blood at the earliest opportunity, night or day. Man is bitten wherever the skin is exposed, even through a thin sock.

The phlebotomus alights with wings erect and body parallel to, but raised off, the skin on which it rests. The legs are gradually spread out so as to bring the point of the proboscis close to the skin; at the same time the labial palps are raised upwards and outwards; apparently the fly is sensing a vein, for it always pierces one with great precision. In this attitude it may make short runs over the skin, but at last a suitable site is found. The fly steadies itself, then quickly lowers its body by a sudden spreading out of its legs; there is very little tilting forward of the body, if any. The palps are widely separated laterally and the proboscis is inserted into the skin for half to two-thirds its length. The actual bite is not felt, the pricking sensation is caused by the injection of saliva which takes place a few seconds later. This saliva delays the clotting of the blood. The blood is soon sucked up; within ten seconds it appears in the stomach. At the end of two and a half minutes this organ is so distended that it practically fills the whole abdomen. The abdomen is bent downwards so that the posterior end almost touches the skin surface. The proboscis is withdrawn and the insect flies away to a low part of the room. Complete digestion of the meal takes five days in a pregnant, longer in a non-pregnant, fly.

Copulation.

Copulation usually does not occur until the second day of adult life. In the majority of cases (96 per cent.) the female has had a feed of blood prior to the act. The female feeds on the first day of life, and it is about twenty-four hours later before the process of digestion has lightened the abdomen sufficiently for the posterior end to be raised off the ground. The somewhat lightened female mounts to the higher parts of the room, for it is here the males congregate. Phlebotomi, unless in copulation, are always found with their heads pointing upwards on a wall. The male phlebotomus approaches the female from behind and a little to one side, stands still, then energetically swings his abdomen from side to side as if judging the distance. Suddenly he swings round through half a circle and grasps the posterior extremity of the female with his powerful claspers. The act of copulation lasts about thirty minutes. One copulation is sufficient to fertilize the female.

The duration of pregnancy varies from seven to ten days; further feeds of blood may be partaken of, but are not necessary. Oviposition occurs about the ninth to tenth day of life and continues for two to three days, the fly usually dying in the process on the fourteenth day of adult life.

Process of Ovulation.

Oviposition takes place over a period of two to three days. If the fly partakes of a feed of blood when the ova are ready to be deposited the sudden increase of the intra-abdominal pressure causes the forcible extrusion of one or more eggs. The eggs may be ejected for a distance equal to that of the length of the fly (3 to 4 mm.). Usually the eggs are gently dropped just clear of the posterior extremity of the insect, singly at first with a period of half an hour to an hour between each. The following day the fly shows signs of exhaustion, the legs are spread out, the labial palps unfold, and the wings drop to the horizontal position. Now the contractions of the abdomen become very spasmodic, the posterior end is raised, the ovipositors widely opened, and the abdomen foreshortened. This contraction is shortly followed by a sudden dropping of the abdomen. After several such contractions those eggs which remained in the ovaries are discharged in a mass—perhaps fifteen to twenty eggs. Thereafter the fly dies exhausted.

The full complement of eggs in the ovaries is about forty. These are rarely all laid. The average number to expect from each female fly is about five—that is, after allowing for unsuitability of environment, sudden death, and non-pregnant condition of some flies. Of the eggs laid less than 50 per cent. reach maturity. These figures have been obtained from the results of repeated observations on thousands of flies.

A pregnant phlebotomus, when the ova are mature, must either deposit them or die egg-bound. If the atmospheric humidity is not fairly high (that is, above 65 per cent.) the fly does not oviposit. This fact has been established by keeping pregnant phlebotomi in test-tubes under various degrees of humidity. Granted the requisite amount of humidity the fly usually chooses certain situations, if obtainable. The favourite situation is some dark sheltered spot where there is nitrogenous organic matter and a moderate degree of moisture. Where soil is available the majority of the flies deposit their eggs underneath pieces of earth, stones, or insect remains. In such places the eggs are somewhat protected from dislodgement by air currents and heavy rains, and from the injurious effects of excess of moisture or undue evaporation. Phlebotomi frequently deposit their eggs in garden soil, and in the loose earth at the foot of walls and buildings. The latter is an excellent site, for much nitrogenous organic débris blown about by the wind gathers here, and the requisite moisture is obtained by the condensation of the atmospheric humidity on the walls. Loose earth, stones, and rubble of any sort provide breeding grounds, and flies have actually been found ovipositing on

CONFERENCE ON INFANT WELFARE.

A CONFERENCE on infant welfare, called by the National Association for the Prevention of Infant Mortality and the National Baby Week Council, and attended by over 400 delegates, was held at Caxton Hall, Westminster, on July 2nd, 3rd, and 4th. The representatives of the British Medical Association were Dr. E. R. Fothergill, Professor A. Louise McIlroy, and Dr. D. H. Paterson. Two sessions each day were devoted to debates on the medical, social, and governmental side of the subject, two lectures intended for a wider audience were delivered each evening by medical men, and a number of tours were arranged to schools of mothercraft, day nurseries, and hospitals.

The Minister of Health on Present Needs.

The conference was opened by the Minister of Health (Mr. Neville Chamberlain), who referred to the comparative newness of the subject in its national aspect; it really dated from the Act of 1918, which prescribed the duties of local authorities and resulted in an extraordinary growth of the work throughout the country. Infant mortality had fallen to about half the rate per thousand at which it stood a generation ago, and he regarded it as unthinkable that, even in the name of economy, the nation should retrace its steps. The Ministry was determined that the efficiency of this service should not be cut down. The number of infant welfare centres and of health visitors should be increased, because experience had shown that where health visiting was most complete, and where there was an infant welfare centre within fairly reasonable reach of every mother, the greatest reduction in infant mortality was forthcoming. Another matter of urgency was the further provision of maternity homes with the object of reducing maternal and infant mortality. The unwillingness of mothers to attend maternity hospitals for their confinement, partly on account of prejudice, and partly because they would not go long distances from their homes, pointed in the direction of a large number of small homes rather than a small number of large ones. The provision of a large number of small homes would mean increased capital outlay and maintenance costs, but he hoped that as the financial condition of the country improved it would be possible to face expenditure under this heading. There was need also for the better provision of trained midwives in rural districts; the difficulty here also was financial—that of paying higher salaries.

Causal Factors of Infant Mortality.

The first discussion, over which Dr. G. F. Still presided, was on the causal factors of early infantile mortality. Dr. J. S. Fairbairn, in opening, said that roughly half the infantile mortality occurred in the first week of life, and was due to a bad start and not to mismanagement and lack of care after birth. Apart from birth injuries, the conditions causing early infantile deaths were chiefly comprised under the headings of maternal disease, prematurity, and foetal deformity. Prematurity was a large factor, and was partly the result of maternal disease. The supervision of pregnant women from as early in pregnancy as possible would diminish the number of premature births and births of feeble infants, but better co-ordination of ante-natal clinics with hospitals and other institutions capable of providing expert investigation and treatment was essential. He advocated strongly that all ante-natal clinics should be linked up with the scientific service of some of the large hospitals. Without this it was not possible for much reduction to be made in the incidence of premature and weakly-born infants.

Dr. R. C. Jewesbury presented statistics which showed that the recent reduction in infant mortality was most marked in the age-group between six and twelve months, and next in that between three and six months. Taking these two groups together, the death rate in infants between the ages of three months and one year had fallen from 47 in 1910 to 29 in 1920.

Dr. Donald Paterson said that less than 30 per cent. of the total number of neo-natal deaths investigated were unpreventable; in the remainder almost the whole of the causal factors could be disposed of, provided mother, midwife, and medical practitioner were continually on the alert. If the importance of breast feeding, the care of the child after birth, and the efficient treatment of syphilitic parents or prospective parents received serious attention, he held strongly that the neo-natal death rate should be reduced by at least 30 per cent.

Professor A. L. McIlroy maintained that hitherto overmuch attention had been focused on the baby, by which she meant that there had been too much interference with the natural processes governing the animal creation. A great deal could be done by sending properly qualified doctors and nurses to country districts.

The Value of Maternity Homes.

Dr. W. Allen Daley (M.O.H. Blackburn) opened a discussion on the value of maternity homes in a maternity and child welfare scheme. He said that at a conservative estimate there were over 2,000 preventable deaths of mothers in childbirth every year, associated in the main with lack of skilled assistance when needed in pregnancy and at and after childbirth. There were relatively few such deaths in the metropolitan boroughs, and relatively many in the county boroughs of the north, where maternity hospital facilities were notoriously lacking. In view of the fact that so very large a proportion of expectant mothers in industrial areas consulted a midwife in the first instance, the efficiency of the midwifery service and the attitude of midwives towards the homes was all-important. Co-operation between midwives and ante-natal centres must be promoted by devices mutually beneficial.

Miss Wishart, matron of Queen Mary's Maternity Hospital, Hampstead, said that at the moment the practising midwife was not a little apprehensive of the gradual development of institutional treatment for her *clientèle*. Although the midwife welcomed the help of maternity homes in cases where complications were anticipated, or where the mothers could not have the care, feeding, and comfort necessary, she was, nevertheless, naturally anxious to retain those cases with which she could well deal. If maternity homes were indifferently equipped or staffed they would do harm instead of good, not only to the mother but to the baby. An outstanding advantage of the maternity home environment was the opportunity it gave for education.

Administration of Maternity and Child Welfare Centres.

Dr. W. G. Willoughby (M.O.H. Eastbourne), in opening a discussion on this subject, said that it was the business of a child welfare centre to arrange that everything pertaining to the welfare of children from conception to birth, and from birth onwards, should have proper attention. A limitation of scope at present was the frequent lack of very early visiting in the homes by the health visitors after births had occurred.

Dr. E. R. Fothergill maintained that the objective of maternity and child welfare centres should be educational and advisory, and therefore preventive. No medical treatment should be given at the centre. When the expectant or nursing mother or the child required medical treatment, the fact should be communicated to the mother, with the advice that the family doctor should be consulted. In the case of the child, if the family doctor preferred not to undertake treatment, it would be treated at the clinic provided by the local authority. Clinics should be quite distinct from centres. With regard to the medical officer at the clinic, while specialism had its charms it had also its limitations. If the general practitioner were excluded, the better-to-do, who did not require attention at the centres or clinics, would be deprived of competent general practitioners to attend them in their homes. Every source of information and experience in the life of the community should be placed at the disposal of the general practitioner, who was the bedrock of the medical service of the country.

The Washington Maternity Convention.

An interesting discussion took place on the Maternity Convention passed by the Washington Convention, 1919, which provides that a woman in industry shall for six weeks before and six weeks after confinement be set free from work, be paid benefits sufficient for the full and healthy maintenance of herself and child, and be entitled to the free attendance of a doctor or certified midwife. Miss Margaret Bondfield described this as the first international charter of motherhood; it had been ratified by eleven countries, and she regretted that Great Britain was not among the eleven. The proposals of the Convention, if linked up in some way with the provisions of the National Insurance Acts, would not be too costly even in these times. A resolution was carried recommending the Central Committee to take some definite action in connexion with the Washington Convention.

Other discussions of the Conference were on the question whether out-relief should be given in cash or kind, with special reference to dietaries for children under five, and whether it was advisable in urban areas to combine the functions of the health visitor with those of other officers of local authorities. In the course of the very full discussion on the latter subject, Dr. J. W. Robertson (M.O.H. Birmingham) said that the scheme suggested in the title of the discussion would mean that the health visitor was working under two or three seniors, and would involve a good deal of conflict. Housing in relation to infant welfare was the subject of another discussion, presided over by the Hon. Sir Arthur Stanley, who said that at a baby centre he had visited, in one of the worst slum areas in London, the babies looked well; the only explanation was that the education of mothers was counteracting the effect of an adverse environment.

THE SMALL-POX SITUATION.

IN view of the public attention attracted by the outbreak of small-pox at Gloucester, the Ministry of Health thinks it well to issue the following statement.

The particular outbreak at Gloucester was not dealt with as soon as it might have been because of the refusal of the local medical officer of health to admit the presence of small-pox on a large scale in the city. There were, however, admitted cases of small-pox as early as April, and he was advised of the danger by the Ministry of Health early in May, on cases of small-pox occurring at places as distant from Gloucester as Liverpool and Abertillery, the source of infection in which was traced to Gloucester. At the end of May, a medical officer of the Ministry of Health, present in Gloucester on a public inquiry, visited various suspected cases reported to him by medical practitioners, which he diagnosed as small-pox. The medical officer of health did not agree, and Dr. Cameron of the Metropolitan Asylums Board was then invited to the city and agreed with the diagnosis of the medical officer of the Ministry of Health. A subsequent house to house visitation by officers of the Ministry of Health established the existence of epidemic conditions beyond dispute. The local authority dealt with the situation by entrusting charge of it to Dr. Davison, senior assistant medical officer of health, Birmingham; a special hospital was set up, special vaccination stations were established, and all contacts were traced as far as possible in view of the time which had been allowed to elapse. While fresh cases are still occurring, the situation is fairly in hand, though there is urgent need of vaccination of the population.

The particulars given as to the outbreak at Gloucester indicate the dangers of incorrect diagnosis. It is the duty of the general practitioner to notify small-pox to the medical officer of health, and if he is in doubt as to diagnosis he consults that officer. If in his turn the latter has any doubt he applies to the Ministry of Health, and the medical staff of the Ministry at once assists him by advice on the spot as to diagnosis and as to the action which should be taken to stamp out infection locally and prevent its spreading. In view of the number of calls now being made on the Ministry and the limited staff available, arrangements have been made by which medical officers of health especially expert in small-pox are ready to give immediate help as required in each of twelve districts into which the country has been divided for this purpose.

The following table shows the number of cases of small-pox reported during each of the four weeks ended on June 9th to June 30th in the various sanitary districts of the country. (These figures are subject to revision.)

District.	Week ended—			
	June 9th.	June 16th.	June 23rd.	June 30th.
Basford Rural District ...	3	—	—	—
Bentley-with-Arksey Urban District	—	5	2	1
Heanor U.D.	5	1	4	—
Doncaster Borough	—	2	—	—
Middlesbrough County Borough	2	—	1	—
Nottingham C.B.	1	—	—	2
Alfreton U.D.	—	—	1	1
Stockton-on-Tees Borough ...	4	—	1	—
Clowne R.D.	1	—	1	—
Doncaster R.D.	2	4	10	1
Stapleford R.D.	—	5	—	—
Hereford City	—	—	1	—
Long Eaton U.D.	—	—	5	2
Cheltenham Borough .. .	1	—	1	—
West Bromwich C.B.	—	—	—	1
Gloucester C.B.	27	51	73	90
Dursley R.D.	—	—	—	1
Gloucester R.D.	—	3	3	—
East Dean and United Parishes R.D.	1	—	4	3
Stroud R.D.	5	1	—	1
Cirencester U.D.	1	—	—	—
Stroud U.D.	1	—	2	—
Westbury-on Sovern U D. ..	—	—	1	—
Cardiff C.B.	5	—	—	1
Lydney R.D.	1	—	—	—
Wheatenhurst R.D.	—	2	—	1
Risca U.D.	—	1	1	—
West Ham C.B.	—	2	—	—
Martley R.D.	—	—	1	—
Warsop U.D.	—	—	15	2
Belper U.D.	—	—	1	—
Birmingham C.B.	—	—	1	2
Kirkby-in-Ashfield U.D. ...	—	—	6	11
Millom U D. (suspected) ...	—	—	—	2
Rhondda U.D.	—	—	—	7
Smethwick C.B....	—	—	—	1
Port of London	—	—	—	1
	60	77	140	151

It will be seen that the total number of notifications for these four weeks is 408—as compared with 151 in January, 154 in February, 214 in March, 141 in April, and 112 in May.

The statistics show that the incidence of small-pox at present is very widely spread over the country. The number of notifications in the first six months of the present year is largely in excess of the notifications for the whole of last year and is out of all comparison with the experience recorded since the last epidemic period, 1902-4. In view of the extent to which vaccination of infants has ceased (the percentage of vaccinations for the whole country in 1921 being 38.3 per cent. of births, as compared with 70.9 per cent. in 1907), and in view of the rarity of revaccination among the adult civil population, the Ministry of Health regard the situation with concern and hold the view that there is distinct risk of an outbreak of a serious character. The only practical remedy, now that the infection has been introduced, is increased recourse to vaccination, and the Ministry of Health would urge that this remedy should be made use of as widely as possible. Vaccination can be obtained free of cost by reference to the public vaccinator in the area, who uses lymph of approved quality supplied by the Government lymph establishment at Hendon. The reserve of tubes at Hendon is well over a million at present and can be expanded as required.

GLOUCESTER, GLOUCESTERSHIRE AND DERBYSHIRE.

The number of patients, suffering from small-pox, under treatment in the Gloucester isolation hospital on the morning of Saturday, July 7th, was 247; owing to discharges the number had declined to 236 on July 10th. Eleven fresh cases were notified in the city in the twenty-four hours ending on the morning of July 10th and were admitted to the hospital, and fifteen cases were discharged. The type of the epidemic has hitherto been, on the whole, mild, but it is reported that an infant died from the confluent form at Gloucester on July 8th. While many vaccinations are being performed daily in the city, the propaganda of the antivaccinationists continues and a large proportion of the residents is still unvaccinated. The Public Health Committe of the Gloucestershire County Council reported on July 9th that the epidemic of small-pox in the county had reached serious dimensions and that there was reason to anticipate that it would continue for some months. The epidemic continues to smoulder in Derbyshire. There are now twenty cases at Long Eaton and one has been notified at Sandiacre.

clothing and mosquito nets during the damp summer weather (sirocco). Experiments have confirmed these observations.

Earthenware pots were lined and covered with sterilized butter-muslin. These were placed in soup plates containing water, so that the lower half-inch of the pot was immersed. The water saturated the butter-muslin lining at the bottom of the pot; above this level varying degrees of moisture were obtained, depending on absorption by the muslin. Moreover, by evaporation of the water a high degree of humidity was obtained in the air in the pot. Phlebotomi were introduced and allowed to lay their eggs. When all the flies were dead the lining was removed and examined with a lens: 30 per cent. of the eggs laid were found on the muslin in the first inch, 42 per cent. in the second inch, 19 per cent. in the third inch, and 7 per cent. in the fourth inch above the water-line. Or, expressed in another way, 81 per cent. of the eggs were laid in the area from 1 to 2½ inches above the water-line.

In pots of similar construction, except that a plaster stand covered with some organic matter (earth and blood mixture, or insect remains) was placed in the bottom of the pot inside the muslin lining, most of the eggs were deposited in the organic matter; only 38 per cent. were found in the muslin.

These results show that a considerable degree of humidity is required for ovulation, and that the presence of nitrogenous organic matter creates a favourable soil.

It might be thought that those eggs that were laid on the muslin owing to the absence of nitrogenous organic matter would not mature. On the contrary, over 50 per cent. reached maturity in the normal time (nine to twelve days). Eggs laid in the second inch above the water-level hatched out first, then those in the upper part of the first inch, to be followed by those in the third inch, and in a few instances those in the fourth inch and lower part of the first inch. Many of the eggs that had been too dry or too moist failed to hatch. Most eggs will stand submersion for at least an hour, the result being a delay in maturation.

Movements.

The ovum is stationary, except for the rolling motion which precedes the hatching of the larva.

The larvae have a caterpillar-like motion. Their rate of progression varies with each stage of life and with the type of surface. The really active larvae are those in search of food, especially when in the last instar. The latter frequently attain a speed of 1 mm. in four seconds. The filamentous hairs and the sucker-like false legs on the under surface of the larvae give them a firm foothold. Various U-shaped and S-shaped attitudes are adopted by the larvae before and during each moult.

The pupa is fixed to some piece of earth, insect débris, or rock by the remains of the last larval skin. Now and again, from the action of such stimuli as changes of temperature and humidity, air currents, or chemicals, it moves the anterior part of its body. The movement consists of a series of quick backward and forward flicks, the body bending in the region of the fifth abdominal segment. These movements are most evident for a few hours before the imago emerges, but can take place from the earliest moment of pupal life.

The adult phlebotomus, when newly hatched, can only crawl. Later, when the wings are dry, it progresses by a short hopping flight usually to one side or other. The distance of a single flight is never more than four yards, and it does not travel more than fifty yards from its breeding haunts, probably less. This knowledge is important in connexion with prophylaxis.

The insect rests during the day and is active at night. It is attracted by the odours of man and other animals. Phlebotomi enter buildings by apertures in the walls—windows, doorways, ventilators, or even cracks. The females remain in the lower levels of the room in quest of blood, while the males collect near the ceiling to await the females for pairing purposes. The flight of the phlebotomus is so feeble that it avoids all currents of air, natural or artificial. There is a definite relationship between the force of the wind and the number of flies found indoors; roughly speaking, they are present in inverse proportion to the force of the wind. Upstair rooms, which are more exposed to air currents, are less infested with phlebotomi than those on the ground floor.[13]

Food Supply.

The young larva, for the first few days of its existence, prefers soft earthy material containing nitrogenous organic matter. Later it is frequently found to devour the softer parts of the remains of insects. It thrives on mixtures of earth and human or sheep's blood, earth and human faeces, lizard's faeces, and ground-up cockroaches. This food material must have a thin film of surface moisture. A considerable number of larvae breed in the earth at the foot of walls and buildings—situations where other insects and reptiles congregate and leave their faeces and dead remains. Moisture condenses on the walls at night, gravitates to their bases, and provides the necessary degree of humidity.

The adult fly, if of the male sex, feeds on any organic matter that it can suck up from the earth, vegetation, clothing, or even the sweat of man; it can exist for six days on water. The female phlebotomus can live on similar organic matter, but requires a feed of blood before she can become pregnant. The eggs of females fed on earth and organic débris only never become fertilized. *Phlebotomus papatasii* prefers the blood of warm-blooded animals; *Phlebotomus minutus* feeds chiefly on cold-blooded animals, but can feed on man.

Drying in the Shade.

The ova withstand drying in the air for a short time—about an hour.

The effect of drying on the larvae varies with their stage of development. When newly hatched the larvae, if allowed to dry, die almost immediately. Throughout the first and second instars the resistance to drying is not much greater, while the third and fourth stage larvae possess considerable powers of resistance. Such larvae have survived for three weeks without any addition of water to the shallow soil in which they lay, exposed to the air. These larvae eventually completed their life-cycle.

Pupa may be dried in the air for weeks and still retain their vitality.

The adult flies live longest, other things being equal, in a relatively dry atmosphere (40 to 50 per cent. humidity). The duration of life in such an atmosphere may be as long as thirty days, whereas in a moist atmosphere the flies rarely live longer than fourteen days.

Moisture.

The ova sink in water; submersion for twenty-four hours does not kill them, but delays their development. If left submerged for longer periods of time they do not mature. A fairly moist site is required for their healthy maturation. All stages of the larva sink in water after a few minutes. They do not withstand complete submersion for long, but partial submersion, such as would be experienced during the heavy rains, is endured for at least three consecutive days in the case of the larger larvae. The young larvae are less hardy.

The pupa does not withstand complete submersion in water for more than an hour. If kept covered with a thin surface film of water for three consecutive days it usually dies. Submersion in absolute alcohol took twenty minutes to kill one pupa.

Adult phlebotomi can live in a humid atmosphere, but, as has been stated, they prefer one which is relatively dry. These flies are killed almost immediately if water is sprayed on them; their wings are damaged, and probably also their delicate respiratory apparatus. Instinct apparently defends them, for they avoid skin that is bathed in perspiration, especially damp hairy parts.

Temperature.

The various stages of the life-cycle of the phlebotomus require an earth temperature (4-foot) of over 65° and under 80° F. for their healthy development. When the mean daily atmospheric temperature falls below 65° F. the adult fly cannot oviposit, but dies in a few days. An atmospheric temperature of over 90° F. is injurious to the adult. The optimum atmospheric temperature for all stages lies between 70° and 80° F. The insect hibernates in the fourth larval stage when the earth temperature falls below 65° F., and, as the shortest period of time in which the pupal state can be completed is nine days, the geographical distribution of the phlebotomus is restricted to places where the earth temperature (4-foot) is maintained above 65° F. for at least ten consecutive days.

It has been stated that the fall in the incidence of phlebotomi in July and August is due to the heat killing these flies; but this fall may be explained by the fact that during these months most of the summer brood are in the ovum, larval, or pupal stage. Thus the length of the life-cycle explains the two distinct waves in the incidence of the phlebotomus—the first in June, the second early in September.[13]

It is possible to prolong the larval stage considerably by the retarding effect of increased moisture or lower atmospheric temperature. In this manner several larvae have been kept in the fourth larval instar for six months, and then, by reducing the amount of moisture and incubating at 80° F., pupation has occurred. Adult phlebotomi eventually hatched out from these pupae.[14] This shows that *Phlebotomus papatasii* hibernates in the fourth larval stage—the stage which is best adapted to cope with the heavy rains and the cold of the winter months.

(pernicious vomiting), or puerperal septicæmia, both of which could be excluded in this patient. The clinical features so closely resembled the type seen in France during the war as to suggest a common etiology, and although the donor gave no history of neuritis he had served in France and might be a carrier of the disease. The patient subsequently became pregnant and had been delivered by Cæsarean section at full term; pregnancy and the puerperium were uneventful.

Mr. G. P. Newbolt read a note on four cases of intestinal obstruction caused by gall stones. Three of the patients were women, all of whom recovered; one was a male, who died. The symptoms were those of intestinal obstruction. Faecal vomiting with intermissions was present. Constipation was not absolute and there was not much abdominal distension. The patients were all stout and elderly, one woman weighing 19 st. The chemical examination of the last stone removed was that of a typical gall stone.

Mr. G. C. E. Simpson said that he had seen two cases of this condition, both in women. One, aged 70, died of pneumonia after operation. In the other case gall stones were diagnosed but the vomiting passed so insensibly into the vomiting of obstruction that some days were lost: in the latter case on exploration the adhesion of the gall bladder to the duodenal angle was seen and two stones were felt firmly impacted low down in the common duct. Presumably the fistula first formed in the initial severe attack, the only attack accompanied by jaundice, six months before the big stone passed and gave rise to obstruction. Operation on the biliary region had not yet been undertaken.

Dr. C. O. Stallybrass read a paper on the recent outbreak of encephalitis lethargica. Having referred to the past history of the disease, he said that while it was not new its pandemic extension was a new feature. As the disease spread there had been observed in France, Italy, etc., a tendency to evolve from a type presenting depression of function to one exhibiting exaltation of function; instead of palsies, lethargy, and somnolence, there were involuntary movements, delirium, and sleeplessness. In Liverpool, in 1921, 81 per cent. of the cases were of the first type. In the winter of 1922-23 a considerable outbreak involving over a hundred cases occurred and only 52 per cent. were of the first type. The delirium was usually occupational. Alteration in type was accompanied by increased fatality as well in the lethargic as in the overactive type; age incidence was identical in both types. A definite history of contact with a preceding case was found in 9 per cent. of the cases. Dr. Stallybrass described four abortive cases. The virus he regarded as a variable one which at times exhibited marked malignancy and increased pathogenicity, as at Derby, Rudduvoorde, and, probably, at Mülheim.

Dr. A. G. Gullan said that he had first seen cases of encephalitis lethargica at the end of 1919, when they were of the lethargic type, and though they were not paralysed the patients lay motionless in bed, were only roused with difficulty, and spoke in a monotonous, toneless voice. The only sign of interest the patients showed was by asking in a feeble voice "whether they were going to recover." He agreed that the expressionless face was the most characteristic symptom of the disease, both in the lethargic and in the restless varieties. In 1922 he saw a considerable number of cases of the excited form in which choreic movements, wakefulness, and in some instances occupational delirium were present. Dr. Gullan added that his mortality was considerably lower than that given for the whole of Liverpool: at the present time he had in his wards a case of the lethargic type which gave a previous history of trauma.

PYELOGRAPHY.

At a meeting of the Royal Medico-Chirurgical Society of Glasgow held on November 16th, with Dr. Leonard Findlay, Vice-President, in the chair, Mr. Walter W. Galbraith made a communication on pyelography.

genito-urinary cases. He emphasized the
bladder or kidney case in his wards wa
without the most searching examination—cys
graphic, and chemical—of the whole genito
and expressed his appreciation of the tho
thusiastic way in which Mr. Galbraith h
this work.

Mr. Galbraith said that the purpose of
tion was to show that pyelography could b
without danger and with only a minimum
to the patient and that it was a valuable ai
He began by considering in detail the poss
danger—(1) the opaque solution, (2) the pr
making the injection, (3) sepsis, (4) trauma t
renal pelvis, (5) constitutional disturbance—
how they had been eliminated by him. He
the technique, emphasizing his opinion that
thesia was unnecessary and in fact contrai
fluid used for bladder lavage was a soluti
oxycyanide 1 in 4,000; for injecting the rena
found after experiment that sodium iodid
was most suitable. To avoid trauma he n
a ureter catheter of larger size than No. 5
and this was passed, in the absence of an
for a distance not exceeding 28 cm. Great
used in avoiding any pain or discomfort w
loin as indicating overdistension of the rena
this end in view the only force used in mal
tion was the weight of the piston of a delic
10 c.cm. Record syringe held about two inches
of the kidney, and the amount of fluid in
exceed 5 c.cm. unless the pelvis was distende
by previous aspiration or pyelogram. The
then taken and the fluid aspirated. By att
technique he had never found any ill effe
procedure, nor had any of the patients comp
or discomfort other than that due to the
cystoscope. Mr. Galbraith then showed a se
slides and the original films, illustrative of
in which pyelography had proved of value.
conditions were:

(1) Cases of typical renal colic pain in which the was negative; here pyelography demonstrated hydronephrosis, etc. (2) Cases of renal colic pai x ray showed a shadow in the region of the kidney pyelography demonstrated the exact relation of the kidney or ureter. (3) Cases of renal colic pa x ray showed the shadow of a calculus; here pyel strated the exact site of the shadow, thus facilitat at operation. (4) Cases of indefinite urinary symp with a negative x-ray and cystoscope examinatio showed an abnormal condition of the renal p example, to tumour. (5) Cases of kidney diseas condition and function of the supposedly normal more accurately determined.

In the discussion which followed Dr. Leo referred to the difficulty encountered in th of the method to children; and Mr. Archiba J. Mill Renton, and Dr. Joan Ritchie also

TREATMENT OF CANCER OF THE BY X RAYS.

A meeting of the Section of Obstetrics Academy of Medicine in Ireland was held on with the President, Dr. Louis L. Cassidy, when Dr. Zweifel of Munich read a paper on of cancer of the cervix uteri by deep x-ray t

Having described the apparatus Dr. Zwe there were three different methods of tr primary radium or x rays, followed by operati tion followed by radium and x-ray treatment; followed by either radium or x rays, or b Of twenty-one gynaecological clinics in Germ operation was performed upon all operable the other six every patient was treated radium. He pointed out that in Bumm's c

Habitats.

In nature the larval and pupal stages are found in the cracks of embankments, in the loose earth at the base of walls and buildings, in cultivated soil, and in other places where suitable conditions of food, moisture, and temperature exist. Larvae are found even to a depth of a foot or more in loose soil; they are freely mobile, and can migrate to the level of optimum environment. When ready to pupate they seek a drier spot, so that the pupae are usually found within a few inches of the surface of the ground.

Phlebotomus papatasii is directly responsible for the conveyance of phlebotomus fever to man. Prophylactic measures against this fever must be directed upon the fly. It is only by having a sound working knowledge of the life-history and bionomics of this insect that these measures can be applied successfully and economically.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE FIBULA AS A BONE GRAFT FOR UNUNITED FRACTURE OF THE NECK OF THE FEMUR.

A YOUNG adult male suffered a fracture of the neck of the left femur in a railway accident. After nine months, in spite of immobilization in a Thomas's hip splint and walking exercises in a calliper splint, there was no evidence of union. The usual causes of non-union of fractures in Egypt—syphilis, ankylostomiasis, and bilharziasis—could be eliminated.

At operation, under stovaine anaesthesia, the glutei muscles were reflected upwards by chiselling through the tip of the great trochanter. The joint was then exposed from above and the loose head of the femur secured by lion forceps. A hole was drilled, by an electric burr, through the base of the great trochanter and the neck of the femur into the cancellous tissue of the head of the bone. A length of the fibula, previously removed with its periosteum intact, was then driven through the hole into the head of the femur.

No splint apparatus was applied; but the patient was encouraged to move the quadriceps and, finally, to perform all the movements of his leg while lying in bed. The strength of the fibula was sufficient to give the necessary stability to the neck of the femur to allow of these movements. Radiographs taken at regular intervals showed new formation of bone and a progressive attenuation of the graft. At the end of two months, the muscles of the leg being in excellent condition, the patient was allowed to walk with a crutch. At the end of three months he was walking upstairs and down by progressive steps and without any support. The hip-joint allowed voluntary flexion to 45 degrees. There is shortening to the extent of one inch.

The conclusions to be drawn are: (1) That access to the hip-joint by this method of approach is easy. (2) That the loose head of the bone can be simply secured while the cancellous bone is being drilled. (3) That early and complete mobilization by voluntary movements without massage is valuable. (4) That new bone develops rapidly as a direct result of the presence of the graft and the trauma occasioned by the bone drill. (5) That stovaine anaesthesia almost completely eliminates surgical shock. (6) That this method of bone grafting is, as compared with others, relatively easy.

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INTESTINAL SPASM DUE TO ASCARIS LUMBRICOIDES.

I OPERATED recently upon a boy, aged 12, for appendicitis. After cutting through the abdominal wall and opening the peritoneal cavity I pulled up into the wound a piece of small intestine which presented an unusual appearance. The bowel appeared to be in a state of spasm, the free border forming a firm, hard, rounded cord about three-eighths of an inch in thickness; the rest of the walls were in accurate apposition. This condition was traced above and below for about ten inches in all, the "cord" tapering off at each end. The intestine immediately above and below was quite normal. The cord-like appearance was due to the wall of the bowel at its free border firmly embracing an *Ascaris lumbricoides*.

I record this case because such a phenomenon must have been rarely seen. Although we know that "worms" produce colicky pains and other dyspeptic and nervous symptoms, yet few can have realized that an *Ascaris lumbricoides* could give rise to a spasm causing a total though transient occlusion of so great an extent of the intestine. Surely this must mean some considerable functional disturbance, either directly or reflexly, of the digestive tract, and emphasizes the necessity, in the interests of the patient, of an early diagnosis and removal of these parasites.

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in a long series of cases the percentage of definite cures after operation had been doubled by post-operative *x*-ray treatment. The unit skin dose of *x* rays was that which after six to eight days produced a red discoloration of the skin and after three to four weeks produced toning. If this unit skin dose was represented by 100, then the cancer dose, as determined by Seitz and Wintz, was from 90 to 110. The depth of the cervix from the abdominal wall was from 7 to 10 cm., and experiment had shown that at that depth the effective dose was 20 per cent. of the surface dose, so that the rays had to be concentrated from six or seven fields in order to get the cancer dose at that depth. As it was not possible by that method to radiate the whole pelvic cavity effectively at one sitting, the tumour itself was radiated first, and after about six weeks' interval the parametria were treated. The duration of the radiation for each field was about half an hour. The after-treatment was of great importance, as cure depended upon the ability of the organs to react against the cancerous disease. The treatment was attended with considerable risk to both the operator and the patient, and should be regarded as a major operation.

Of all patients treated for cancer by deep therapy about 20 per cent. could be cured, and of all operable cases about 50 per cent. could be cured for five years or longer. When cure was not obtained great relief from the symptoms was often obtained.

Dr. MAURICE HAYES said that deep *x*-ray therapy was not new. The only new thing was that with improvements in the apparatus they were now able to produce a more penetrating ray than formerly. They were now working with apparatus which could produce continuously a voltage of about 200,000. Dr. Zweifel had sounded a note of warning which he was glad to hear. Deep *x*-ray therapy was a major operation, but the shock after the treatment, which was as great as that which followed hysterectomy, depended more or less on the method in which the therapy was produced.

Dr. PILGER (Erlangen) said that he thought *x* rays could be considered as a medicament, and that there should be certain doses for the different parts of the body. This dosage had of late years been more accurately determined than formerly, but there were still great difficulties to be overcome in connexion with it, and they were really still in the dark on the subject, as all they knew was that a certain amount of *x* rays would produce a certain amount of cure. Certain doses had been determined for certain parts of the body, but it had still to be determined which doses gave the best percentage of cures. The human body was a very complex construction, and therefore it was very difficult to be sure whether one was giving the right dose or not. In cases in which it were possible he thought an operation should be performed before treatment by *x* rays was tried, unless a very extensive operation would be necessary, the result of which would be uncertain, and in such cases treatment by *x* rays should be considered. It was not a question of competition between operative treatment and *x*-ray treatment, but a question of doing whichever it was thought would be best for the patient.

Dr. T. G. HARDMAN, Dr. W. C. STEVENSON, and Dr. C. M. O'BRIEN also took part in the discussion, and a vote of thanks to Dr. Zweifel was unanimously carried.

A MEETING of the Birmingham and District Medical Women's Association was held on November 17th, when Dr. MARY GORDON, late H.M. Inspector of Prisons, spoke on analytical psychology. She referred to that large unexplored territory of the mind now recognized as functioning unconsciously, and to the valuable contributions that had been made to the knowledge of psychology through the researches of scientific observers in every field. Modern psychology signified the coming of a new realization of ourselves, and although it was, as yet, little understood, it had already thrown a flash of expectancy round the world. Dr. Gordon referred to the dislocations of all kinds met with in those who were, in some way or another, in the power of the unconscious, and which brought the sufferer to the medical practitioner. Life could only be understood by living it. Dr. Gordon explained the four orientating mental functions—thinking, feeling, intuition, and sensation—and showed how the almost exclusive use of one of these could cause this and that to become inferior and unconscious. She gave illustrations of the effects of this one-sided development on vital human relations. She described the irrational mentality of primitive man as illustrating the primitive and archaic characters taken on by any part of the mind that was mainly unconscious. Only a conscious differentiated individual could make things happen; to all others things simply happened. She described the typical attitudes of introversion and extroversion, and the reactions of the individual to these. The unconscious part of life and mind must not be regarded as necessarily morbid. The accumulation of energy, tension, and explosion in the unconscious was the biological way by which the individual was carried forward to new adaptations to life. Only when a man knew himself and was his own could he touch his world creatively. This was what a thorough analysis stood for, and it resulted in an enlargement of understanding and of life that was well worth while.

Reviews.

CONTROL OF THE TRAFFIC IN ALCOHOL.

DR. ARTHUR SHADWELL's new book *Drink in 1914-1922: A Lesson in Control*[1] is an important contribution to the study of the problems raised for the whole community by the misguided individuals who indulge unduly in alcohol. It gives a general account of the measures of control taken in this country during the war, and though other writers have dealt with the subject previously, and most of the figures given are available elsewhere, the author's judgements upon the results attained by control are of very special interest, because he has devoted many years to the study of temperance reform, and, what is most important, still finds it possible to write as a man of science rather than as a propagandist. This is a rare virtue in publications dealing with drink control legislation, for, as Dr. Shadwell says, "I know of no field of legislation in which the teaching of experience is more needed, yet more often subordinated to fancy, prejudice, and interest."

The main portion of the book consists of an admirably clear history of the reasons why control was instituted in 1915, of the successive measures of control adopted, and of the results produced by these measures. A final chapter is devoted to a consideration of the lessons which the author considers these experiences teach; various important memoranda, orders, and statistics are given in appendices.

The history of the origin of drink control shows very clearly that it was adopted at the urgent instance of the naval and military authorities as a measure necessary for the successful prosecution of the war. The difficulties of the Control Board are traced, and it is made plain that pressure was constantly being brought to bear on it to go beyond measures of simple military necessity and to strain its authority in the interests of teetotalism; the people accepted control up to a certain measure without opposition other than the grumbling which is a traditional British privilege, but when control had been carried to a certain point any further restriction aroused very keen opposition.

Considerable attention is devoted to the Carlisle scheme, its successes and disappointments. The author gives a qualified approval to the scheme; he admits that it produced a great improvement, but compares post-war figures for drunkenness in Carlisle and comparable towns, and concludes "that the special conditions of the trade in Carlisle have not produced any distinct or corresponding effect in the improvement of public order." It is not suggested that the reforms in Carlisle have produced no benefit, but the figures seem to prove that they have not reduced drunkenness. This result, which, as the author remarks, has been a surprise and a disappointment, must be taken as proof that improvements in public houses, reductions in their number, and increased facilities for the sale of food in licensed houses cannot be expected to produce any striking increase in sobriety. The debatable point is, of course, whether the figures of convictions for

[1] *Drink in 1914-1922: A Lesson in Control.* By Arthur Shadwell, M.A., M.D., LL.D., F.R.C.P. London: Longmans, Green and Co. 1923. (Demy 8vo, pp. xi + 243. 10s. 6d. net.)

TWIN PREGNANCY IN A BICORNUATE UTERUS WITH CONTRACTED PELVIS: DELIVERY BY CAESAREAN SECTION.

A HINDU woman, aged 38, full-time pregnant, was admitted to hospital on April 6th, 1922, labour having begun twenty-four hours previously. She had had two previous labours: (1) the child died soon after birth; (2) a breech, in which there was difficulty with the after-coming head and the child was born dead.

On admission the patient's general condition was good; the abdomen was very large, and two foetuses could be distinctly felt. Per vaginam the os was found to be fully dilated, the membranes ruptured, and the breech of the first child presenting. The sacral promontory was within easy reach of the finger; after labour the true conjugate was estimated as 3 inches. As a living child was very much desired I decided on delivery by Caesarean section.

On opening the abdomen the appearance at first suggested a normal full-term uterus and a large tumour or cyst; this latter proved to be the second horn of a bicornuate uterus. The two horns appeared equal in size, and separation occurred about a handbreadth below the round ligament. The lower uterine segment was distended by the breech of the first child. A living male child was delivered from the left horn of the uterus and the incision closed before opening the right horn. On opening the latter the membranes were found unruptured, and a second living boy, also presenting by the breech, was delivered. The second incision was then closed.

The patient made an uneventful recovery, and she and both children were doing well when discharged from hospital at the end of three weeks.

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PRELIMINARY NOTE ON THE *X*-RAY TREATMENT OF INTERSTITIAL KERATITIS.

OUR interest in the treatment of interstitial keratitis by *x* rays was aroused by an article by Japiot and Bussy.[1] Several cases have now been treated for us by Dr. Oram, honorary radiologist to the David Lewis Northern Hospital, Liverpool. All attended St. Paul's Eye Hospital and received the usual treatment for interstitial keratitis during the course of *x*-ray therapy. The action of the rays has proved a beneficial adjunct to the usual treatment, and the response has been more noticeable in patients over the age of puberty. The results encourage us to make further use of this method of treatment. On the suggestion of one of us, other surgeons are now, we believe, trying this treatment. Three cases might be recorded here:

1. A man, aged 22, under the usual treatment to the right eye from February 13th to August 24th, 1923; he then went back to his work. On October 19th he reported again to St. Paul's with the left eye affected. From the first *x*-ray therapy was combined with the usual treatment, and after three *x*-ray treatments he returned to his work and expressed himself as delighted. There has been no relapse to date.
2. A girl aged 16, a typical and very severe case, after five treatments by *x* rays had no photophobia and was able to recognize her friends easily and considered herself "quite well."
3. A girl, aged 15, has had four *x*-ray treatments and has improved so rapidly that the mother volunteered the statement that no treatment previously received by the girl had made such a marked improvement in the condition.

Dr. Oram reports particulars of the dosage: Five minutes' exposure once weekly; 5-inch spark gap; 1 milliampère of current; 9 inches from the anticathode to the eye filtered through 1/2 mm. aluminium and two felts.

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[1] *Journ. de Radiol. et d'Electrol.*, March, 1921.

Reports of Societies.

INTRACRANIAL HAEMORRHAGE IN THE NEWBORN.

THE Medical Society of London held a discussion on "Intracranial haemorrhage in newborn children: its pathology, effects, treatment and results," on December 10th. The President, Dr. HERBERT SPENCER, occupied the chair.

Mr. EARDLEY HOLLAND, in opening the discussion, said that as an obstetrician he had been chiefly interested in the etiology and pathology of intracranial haemorrhage. He referred to the excellence and importance of Dr. Herbert Spencer's work[1] on visceral haemorrhages in stillborn children. He proceeded to give in outline an account of the mechanics of traumatic intracranial haemorrhage which he has so fully considered in his admirable report to the Ministry of Health.[2] His remarks were well illustrated by epidiascope reproductions of drawings and diagrams which have already been published in the same report. Cranial stress consisted of a general compression of the whole head, and a simple longitudinal compression by opposite forces acting at the ends of the long diameter of engagement of the head in the pelvis. The more rapidly these forces were applied the more serious was their result. Excessive stress led to an overstretching and tearing of the tentorium cerebelli and falx cerebri, and to the rupture of certain blood vessels. The commonest site for tears was in the tentorium at its junction with the falx. The changes in the septa were transmitted to the vein of Galen, which became stretched, kinked, and engorged; the consequent rupture of this vein or of its tributaries resulted in subdural haemorrhage of greater or less extent. Normally the septa exerted a protective function in labour, by preventing excessive alterations in the shape of the foetal head. With this object they contained special strengthening bands and fibres, beautifully arranged on mechanical principles along the lines where stress was likely to fall during moulding of the head. Antero-posterior compression of the head and the consequent vertical elongation were particularly dangerous, and application of forceps to the antero-posterior diameter always involved considerable risk. The risk of applying forceps to the extremely plastic head of a premature foetus was well known. In all cases of forceps delivery the degree of stress obviously depended on the amount of force exerted. In breech deliveries the high percentage of intracranial injuries was probably to be explained by the rapidity with which forces were frequently brought to bear on the structures concerned. A less common cause of intracranial haemorrhage was foetal asphyxia, which might lead to venous congestion. Pressure on the umbilical cord or separation of the placenta presumably gave rise to an accumulation of carbon dioxide in the foetal blood which stimulated respiratory movements. Such respiratory attempts on the part of the foetus would lead to a partial closure of the ductus arteriosus, and about half the blood in the right auricle would be dammed back; the lungs not being expanded, the circulation of this blood through them would be obstructed, and in consequence there would arise a most intense venous engorgement. Intracranial haemorrhages of this type were usually associated with multiple haemorrhages in other organs.

The actual sites of intracranial haematomata produced by one or other of these causes were of interest; but exact diagnosis was extremely difficult during life. They were not usually definitely circumscribed, indeed they were commonly multiple and diffuse. Operative treatment, for this and other reasons, was not hopeful. Lumbar puncture was only of temporary value.

Dr. H. C. CAMERON dealt with the after-history of such infants as survived. Obstetricians in this and other countries had demonstrated the frequency of intracranial haemorrhage in infants born dead or moribund, and it had

[1] *Trans. Obstet. Soc. of London*, 1892, vol. xxxiii, "On Visceral Haemorrhages in Stillborn Children."
[2] Reports on Public Health, No. 7, "The Causation of Foetal Death," by Eardley Holland. Ministry of Health, 1923.

drunkenness are a reliable index of the amount of undesirable drinking occurring in any society. The chief conclusions arrived at by the author are as follows:

(1) "The war proved to demonstration that, though the nation is more sober than it used to be and more sober than others, the habit of excessive drinking still prevails to such an extent as to constitute a serious national disability."

(2) "That excessive drinking can be effectively checked and the disability caused by it proportionately reduced by appropriate measures, which yet leave an amount of liberty sufficient to avoid a widespread revolt against the law or a resort to wholesale evasion."

(3) "That the principal measures contributing to this result were (1) curtailment of hours, (2) limitation of supply and diminution of strength, (3) raised prices."

(4) "That under peace conditions the volume of intemperance can be kept far below the former level by means of short hours and higher taxation, which at the same time provides an increased revenue. These measures have proved really efficacious while others—particularly state ownership and control, the reduction of licensed houses, alteration of premises, disinterested management and the supply of food—have failed to exert any appreciable influence on sobriety and public order."

Dr. Shadwell is strongly opposed to prohibition because he holds that it is impossible to enforce it in a free country for three reasons—namely, the ease with which alcoholic drink can be produced, the lucrativeness of the illicit traffic, and the refusal of society to regard drinking as a crime whatever the law may say. He holds that the experience of the United States amply supports these conclusions. He concludes that the only sound lines upon which temperance reform can advance are the education of the people to improved habits, and holds that no permanent good can come of coercion. This is a sound democratic doctrine to which everyone will be ready to subscribe as a general principle, although most persons are apt to forget it in the case of any particular reform in which they are specially interested.

What has been said will be sufficient to make it clear that Dr. Shadwell's book is unlikely to be popular with those engaged in propaganda, either for or against the drink trade. He is definitely against prohibition, but on the other hand considers it to be clearly proved that the consumption of alcohol in this country is still excessive, and that any return to pre-war conditions would be disastrous.

DISEASES OF RECTUM, ANUS, AND COLON.

WE have to record yet another attack on that most popular surgical fortress, the lower alimentary tract. This consists of a salvo of three volumes from Dr. S. G. GANT of New York City. The dominant idea in his book *Diseases of the Rectum, Anus, and Colon*[2] is to present to specialists, general practitioners, and students a complete and practical treatise of the surgery of the large bowel from the ileo-colic angle to the anus. Each subject is discussed in full detail, and the semi-diagrammatic illustrations in particular help to make the context clear. It is a pity that the index for the three volumes should appear in the third volume only. This means that for two-thirds of the work one has no index at hand, and that one must possess all or none, which is a handicap to those whose special interest is only in parts of the whole subject.

Of the treatment of haemorrhoids the author writes with conviction. He produces local anaesthesia by injecting eucaine or novocain into each pile, divides the skin round its base, ties the pile, and cuts it off. The operation is painless, is over in ten minutes, and keeps the patient in bed from one to four days afterwards. As to the method of injecting piles with carbolic acid, quinine, and urea, the writer sounds a warning note: "When the injections go wrong the patients suffer a great deal more and are confined to bed for a longer time than if they had undergone the radical operation." He quotes the cases of two patients who died as a result of this operation, one from septic pneumonia, the other from sloughing of the rectum, and knows indirectly of three others who died of embolism following the ministrations of the advertising or itinerant "pile doctors." This pessimistic view is no doubt based on the results of this type of unqualified quack, who seems to enjoy a wider range of public favour in the United States than in this country.

On the debated question of the association of fistula in ano with pulmonary tuberculosis, Dr. Gant states that not more than 5 per cent. of consumptives suffer from fistula, and that in 5,000 sinuses examined less than 10 per cent. were tuberculous.

Diverticulitis is well discussed; if the diverticula are few in number he recommends infolding or excision; if numerous or if resection is impracticable, short-circuiting or colostomy. He quotes Mayo's statement that carcinoma supervened on diverticulitis in 7 out of 27 cases, and states that he has himself had two cases in which this happened.

The kindred subjects of constipation, "obstipation," intestinal stasis, and auto-intoxication are treated at considerable length, and there is a good deal of overlapping. Obstipation is defined as a type of constipation induced by mechanical obstruction preventing normal passage of faeces through the small intestine, ileo-caecal valve, colon, rectum, and anus, and is essentially surgical. All the various "pexies and plications" are enumerated for the different kinds of visceroptosis. From the diagrams these fixations would appear ideal, but almost nothing is said about the after-results, which is the main reason for their performance. On the prevention of post-operative adhesions no new light is thrown. The treatment of malignant disease is exhaustively dealt with. The different kinds of operation and the various modifications are plainly set forth and well illustrated. Many statistics are quoted with reference to mortality and operability, and it is shown that the prognosis remains grave. The author's percentage of cures works out at about 26, and is based on an operability of 65 per cent. He quotes the cures of European surgeons as varying from 10 to 40 per cent., with an average of about 16 per cent.

The book is very comprehensive; everything which has a direct or indirect bearing on the title, whether medical or surgical, is mentioned. The arrangement is apt to be loose, and the book makes heavy reading. It would have saved a good deal of cross-reference had the whole subject of malignant disease and its operative treatment been relegated entirely to one volume. It is a little difficult to see how a special chapter should have been given to spina bifida. Nor are we enamoured with many embellishments to the nomenclature. Thus we read of appendectomy, sphincteralgia, celialgia, enteralgia, obstipation, to mention a few.

The desire to clear up the confusion in the minds both of the laity and the profession on the subject of their nature and treatment has led Mr. ARTHUR S. MORLEY to publish a small book on *Haemorrhoids*.[3] Its main theme is the value of interstitial injections of carbolic acid. Operative treatment in the author's view is rarely indicated for internal haemorrhoids. He claims that the patient treated by interstitial injections need not be confined to bed and is spared considerable pain, inconvenience, and expense. The book, though short, deals in succession with surgical anatomy; etiology and prophylaxis; pathology, symptoms, and treatment of external haemorrhoids; pathology, symptoms, and diagnosis of internal haemorrhoids; treatment of injections and its technique; the pathological effects of injection; complications, recurrence, advantages and disadvantages of injection and illustrative cases. The author states that among 3,000 cases he has had 14 of severe pain; haemorrhage followed in 0.25 per cent., and there was one case of sepsis; recurrence was observed in 16.6 per cent. after two years. Contraindications to injection are fissure and fistula, strangulated and gangrenous haemorrhoids, displacement of the uterus, enlargement of the prostate, and cirrhosis of the liver.

It is interesting to compare with this other recent publications on the same subject. Gant, in the book

[2] *Diseases of the Rectum and Colon, including the Ileocolic Angle, Appendix, Colon, Sigmoid Flexure, Rectum, Anus, Buttocks, and Sacrococcygeal Region.* In three volumes. By S. G. Gant, M.D., LL.D. Philadelphia and London: W. B. Saunders Co. 1923. (Roy. 8vo. Vol. I, pp. ix + 543; 361 figures, 6 plates. Vol. II, pp. 515; 345 figures, 2 plates. Vol. III, pp. 528; 368 figures, 1 plate. £6 6s. the set of three volumes.)

[3] *Haemorrhoids: Their Etiology, Prophylaxis and Treatment by Means of Injections.* By Arthur S. Morley, F.R.C.S. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1923. (Demy 8vo, pp. viii + 114; 9 figures, 1 plate. 6s. net.)

been commonly believed that certain cases of cerebral diplegia represented some part of the survivors of this form of injury at birth. Little himself had advanced this view. Present-day neurologists, however, as represented by Collier, tended to regard cerebral diplegia as due to a primary error of development pre-natal in origin. It might be argued that intracranial haemorrhage was invariably fatal at or shortly after birth, but his (Dr. Cameron's) experience of infants and children had impressed upon him the essential soundness of Little's contention. The immediate signs of large subdural haematomata were well known. A day or two after birth the majority of cases showed retinal haemorrhages and oedema of the optic disc, and certain characteristic symptoms. The seriousness of the condition was most clearly indicated by impairment of two vital functions—sucking and breathing; the suction reflex was entirely absent. Attempts were being made to localize the sites of haemorrhage with a view to surgical relief. The obstetrician dealt only with the beginning of the story; the neurologist only with the end. For the intervening period reliance must be placed on the general practitioner and the pediatrician. The latter was usually called to see a newborn infant only when immediate death was feared or expected. A skilled investigation of any infant whose well-being gave rise to doubt was surely indicated by the observations of Mr. Holland. Prematurity or feebleness alone must not be regarded as a sufficient explanation of the failure to suck, of asphyxia, or of insomnolence. The nature of the labour was rarely indicative of the infantile lesion; the symptoms exhibited by the child itself had far greater significance. A history of constant screaming or of stupor, of aphonia, refusal to suck, rigidity, convulsions, asphyxia, facial or oculo-motor paresis or twitching, was extremely suggestive, but unfortunately, from want of early examination, rarely attainable. Observations on the colour of the stools were too frequently substituted for a routine physical investigation. A further difficulty was afforded by the long latent period which ensued after recovery from the immediate symptoms before the after-effects were commonly appreciated. Those parts of the brain which controlled complicated motor activity and equipoise of the body were not developed at birth, and, as these particularly were the areas affected in non-fatal cases of haemorrhage, the backwardness of the child was not generally recognized until a year or more had elapsed. The term "Little's syndrome" was properly applied to two groups of cases and to two only. First, to cases of paraplegic rigidity without mental defect and without convulsions; secondly, to cases of general rigidity usually without convulsions and without mental symptoms or with only that degree of backwardness which was accounted for by delay in the auto-education proceeding from grasp and touch. The treatment of the first group was generally orthopaedic, and no question of mental defect arose. It was only when the hands had become stiff, immobile, and anaesthetic that an appreciable delay in the mental development of the child resulted. When, in addition, the face was stiff and immobile, when speech was long impossible, and when the laugh and cry were expressionless and not charged with emotion, the stimulation of gross idiocy or imbecility was close. Yet these children were not idiotic; their backwardness was due to sense deprivation, the sense of touch. Their intelligence was always much greater than would appear from a cursory examination. The ultimate result, compared with the initial backwardness in achieving voluntary control of movement, was often surprisingly good. It was possible that neurological studies held to prove the negligible bearing of birth trauma on cerebral diplegia had been based on material derived from very different sources.

Dr. Cameron illustrated his graphic description by demonstrating a well marked case of general rigidity whose mental development he had been able to trace and follow.

Mr. LAMING EVANS gave an outline of the treatment and results of treatment from an orthopaedic point of view. He referred to the question which had been raised by previous speakers as to the origin of the spasticity, and regarded it as important to decide whether this was primarily due to intracranial haemorrhage or to a fundamental nervous lesion. He proceeded to describe the common deformities of the upper and lower extremities which were presented to the surgeon for treatment. Children were brought to him between the ages of 2 and 18. He stressed the value of accessories to purely surgical measures; it was essential to pay strict attention to hygiene, and especially to the general and physical education of the subject. Muscle education was a factor of first-class importance. In his experience electrical stimulation had proved useless in these cases. He described the merits and demerits of various appliances, and discussed operative procedures in some detail. Foerster's operation—the resection of posterior nerve roots—had now been generally abandoned in the treatment of this condition. In certain cases a plastic operation was advisable, and attention was directed chiefly to the muscles and tendons; in other cases the nervous system formed the centre of attack.

Mr. H. A. T. FAIRBANK considered the actual origin of the deformity to be immaterial so far as the orthopaedic surgeon was concerned. He regarded three years as the optimum age for operation. It was extremely desirable that the child should have been encouraged to make some attempt to walk and co-ordinate its movements beforehand. At a later age the condition naturally became more difficult to treat. There were several contraindications to operative measures. Education was invaluable. The nature of the operation varied; it was impossible to prescribe set operations to meet different types of case; each individual should be considered as a separate problem, and a surgical attack planned according to its particular features. The most satisfactory operation to correct the adductor deformity of the lower limbs was usually ex-section of the obturator nerve.

Dr. L. G. PHILLIPS referred to necropsies made at Queen Charlotte's and St. Mary's Hospitals in a hundred cases of foetal death. In twenty of these intracranial haemorrhage had been found. Premature delivery was an important factor; apparently it multiplied the foetal risk in this respect by four. As a result of the observations it seemed clear that the induction of labour should not be undertaken before the thirty-fifth or thirty-sixth week of pregnancy, and that forceps should not be applied in the delivery of premature infants. Four of the cases of intracranial haemorrhage had occurred in cases of toxaemia of pregnancy. To explain these Dr. Phillips postulated a defect of the endothelium of the blood vessels; in his opinion a similar defect characterized and resulted from the toxaemias of pregnancy in general. The prevention of intracranial haemorrhage in the foetus was to be attained by prevention of ante-partum and intra-partum asphyxia and of the development of toxaemic conditions in pregnancy. Forceps deliveries should be reduced to a minimum.

The PRESIDENT congratulated the speakers on their investigations and the lucidity of their observations. He introduced certain points which had occurred to him in the course of his own researches. One potential factor in the production of intracranial haemorrhage in the foetus appeared to be a depression of the lower angle of the parietal bone in difficult labour; in obstructing one of the most important veins in the head this would lead to local engorgement and consequent haemorrhage. His original investigations had been directed towards the study of visceral haemorrhage in general, and, in spite of the particular subject of discussion, he felt justified in referring to a line of research which appeared to him to be of considerable interest and importance—namely, a study of the condition of the testes in cases of foetal death. This might have an important bearing on one aspect of the problems of sterility.

Mr. EARDLEY HOLLAND, in replying, referred to the main point raised by Dr. Cameron. He thought it inevitable that some children suffering from the milder degrees of intracranial haemorrhage should survive. Certain infants had lived for a week and had then been found *post mortem* to have had enormous haemorrhages. If these were not immediately fatal it was impossible to believe that lesser haematomata should be incompatible with a continued existence. He had been very interested to see the cast of an asymmetrical head which had been demonstrated by Dr. Cameron, and from previous experience judged that the abnormality had been accompanied by a tentorial tear.

noted above, says that injections are indicated for moderate-sized and protruding varicose and capillary internal haemorrhoids, but not for large hypertrophic, inflamed, strangulated, and prolapsed haemorrhoids, nor where local complications exist. Mr. Lockhart-Mummery's opinion is that injections are convenient, and within certain limits and in selected cases the results are very good. They are useful when operation is contraindicated, but the haemorrhoids recur after short intervals. He has never seen any serious complication from injections, which, however, are contraindicated when there are more than three haemorrhoids, when they are large and prolapsed, and when there is haemorrhage or other rectal complication.

Mr. Morley is not precise enough in stating to what degree he selects his cases and the exact indications for injection. In comparing it with other operations it is to be remembered that the latter include cases which are too bad for injection.

THE LONG AND THE SHORT OF IT.

PROFESSORS CZERNY and KELLER have commenced the publication of a second edition of their immense work, *Des Kindes Ernahrung, Ernahrungsstörungen und Ernährungstherapie.*[4] The present volume of 688 large and closely printed pages has for its title *Ernahrung des gesunden Kindes*, and its subject is the nutrition and metabolism of the infant in the first year of life. How completely and minutely the subject is dealt with is indicated by the references to the literature, whose numbers reach the terrifying figure of 1,500. The great subject of metabolism is perhaps most easily studied in the infant, where both the intake of food and the materials of excretion can be more exactly controlled and measured than at later periods of life. And yet with these simplified factors of the problem, with a single food (milk), and with the facilities for collection and measurement of the excretions which are given by the helpless infant, the patient labours of the chemical analyst have heaped up a gigantic mass of data. The aim of the authors has been to collect, arrange, and critically value this mountainous heap of data. The readers of their book may well exclaim with Gremio, "O this learning; what a thing it is!"

The earlier chapters deal with the first day of life, with the examination of the newborn child, with the questions of maternal and wet nursing and of artificial feeding which then come up, and with the physiological conditions of the infant at birth and in the succeeding days. A very full examination is then made of human milk from the earliest stage of lactation to the close, with the variations in its chemical composition and quantity; of cow's and other mammalian milks; of the derivatives of cow's milk; and lastly of the farinaceous and vegetable foods used in the first year. The details and technique of feeding by the breast and bottle are then given, with illustrative charts from many authors of the weight curves under these different types of feeding. The closing chapters deal with the chemical composition of the body as a whole, both in normal and in certain morbid conditions, and give a full account of the digestive secretions and glands, of the bacterial flora of the alimentary tract, and a complete examination of the urine and faeces.

It will be seen from this brief description that the book is an unusually complete presentation of a large and complicated subject, and that it is valuable as a work of reference rather than as a practical manual of infant feeding. For in it all the important data of the subject have been gathered together from the literature of two continents. Facts, statistics, and tables are set down in ordered ranks, and the reader himself can judge from their agreements or discrepancies to what practical conclusions they lead. The book has its value as a storehouse of physical and chemical data on the metabolism and nutrition of the infant, and a high tribute must be paid to the industry and patience of the authors. As a work of reference it suffers from the lack of an index. The list of chapter headings given is only a general guide to the contents; there are many minor points of interest and importance buried in the text, and lacking even there the indication of sectional and paragraph headings. Even a short index of subjects would greatly facilitate reference, and would increase the value and convenience of the book to special students of the subject.

The book on the diagnosis and treatment of diseases of children by Dr. F. LUST of Karlsruhe has reached its third edition.[5] It is a condensed account of the subject, and is arranged on the usual plan; it begins with a short account of the physiology of growth, proceeds to the feeding of the healthy infant, and then deals with diseases. The deliberate plan of compression has no doubt its attraction and value, and reference is facilitated by good indices. Very little is said of pathology; important symptoms are detailed in a somewhat disconnected way; but considerable care and space are devoted to treatment. Indeed, once the difficulty of diagnosis is passed, the book affords reliable and detailed guidance in treatment. The concluding section of the book includes a full pharmacopoeia with instructions for the preparation of food materials, and a list of Continental sanatoriums and health stations for sick children.

SENILITY AND REJUVENATION.

What is Man?[6] is the title of Professor J. ARTHUR THOMSON's lecture—the third course of "Thomson Lectures" he has given at Aberdeen—on the aspect of man according to biologists. In simple and pleasant language man's evolution, physical and mental, is discussed from many points of view, commencing with the pedigree of man from the primate stock, and giving descriptions of the known early types. Man's body is described as a walking museum of relics of which Wiedersheim gives a list of fifty, ontology recapitulating phylogeny. Such vestigial remains are said to be prone to disease and infection, and Professor Thomson regards man's alimentary canal as much too long and the colon as in some measure an anachronism. Following Mr. Morley Roberts's *Warfare in the Human Body*, he recognizes some hostility between the constituent parts of the body, and remarks that, although a compromise may be effected, control may be disturbed, and that such a loss of equilibrium between epithelial and connective tissue is the underlying factor in malignant disease. Old age is differentiated from senility, which is a degenerative process stated hardly ever to occur in wild nature, man and domesticated animals having almost a monopoly of this disharmony, which is a penalty for human complexity. Senility and disease are regarded as the results of man's rebellion against Nature's régime and misdeeds such as his indulgence in various forms of excess.

The volume entitled *Rejuvenation*[7] is a translation of a popular work by Dr. JEAN FRUMUSAN, which reached its fifth edition in the space of a year and a half. It has an optimistic preface from the late Jean Finot, the author of a book on the philosophy of longevity. Frumusan's book is obviously intended for the lay public and contains much sound advice about the laws of physiological righteousness. The errors common in ordinary life, such as fear of light and fresh air, and excesses in diet, drink, and tobacco, are emphasized, and the view that there is any real correlation between the dated age and the age value of an individual is contested. Premature old age indeed is described as the climax of a series of excesses and of sins of omission. The treatment recommended to ensure rejuvenation aims at establishing a new functional equilibrium; for this purpose depuration, it is said, is almost always necessary to remove the extensive auto-intoxication present in premature old age; a form of intoxication stated to be much commoner than is generally believed, is that due to taking medicines.

[4] *Des Kindes Ernährung, Ernährungsstörungen und Ernährungstherapie.* Von Professor Ad. Czerny und Professor A. Keller. Zweite vollkommen umgearbeitete auflage. I Band. I Teil. Leipzig und Wien: Franz Deuticke. 1923. (Sup. roy. 8vo, pp. 688; 84 figures.)

[5] *Diagnostik und Therapie der Kinderkrankheiten: mit speziellen Arzneiverordnungen für das Kindesalter.* Von Professor Dr. F. Lust, Direktor des Kinderkrankenhauses in Karlsruhe. Dritte auflage. Berlin: Urban und Schwarzenberg. 1923. (Med. 8vo, pp. vii + 455.)

[6] *What is Man?* By J. Arthur Thomson, M.A., LL.D. London: Methuen and Co. 1923. (Cr. 8vo, pp. ix–244. 6s. 6d. net.)

[7] *Rejuvenation: The Duty, the Possibility, and the Means of Regaining Youth.* By Dr. Jean Frumusan, with a preface by Jean Finot. Translated from the fifth French edition by Elaine A. Wood. Sixth edition. London: John Bale, Sons, and Danielsson. 1923. (Cr. 8vo, pp. viii + 132. 7s. 6d. net, postage inland 6d.)

e Royal Society of Medicine on December 7th. The was taken by Mr. H. J. Banks-Davis (President of ection of Laryngology), who mentioned that although iscussion was under the auspices of the Society, the of it originated with the Ministry of Health in con- with the official inquiry into the subject now ding.

Laryngology.

P. Watson-Williams said that the quest for cocaine utes had been fruitful, but while some were of great and had already displaced cocaine in certain depart- the majority were of quite ephemeral repute. The entials of the ideal local anaesthetic to be considered naesthetic efficiency and safety in clinical dosage, but ld also be devoid of temptation in the case of the aniac. It was unfortunate that the existence of the habit should have prejudiced most unfairly the use of a valuable anaesthetic. Sir William Willcox ed recently that the claim for any new drug that it ot lead to "addiction habit" needed very careful ation before it could be accepted, and Dr. Watson- doubted whether there was sufficient evidence in of any cocaine substitute to show that it was free s risk. He felt, however, that the "addict risk" out of the surgical use of cocaine had been ted. The comparative clinical value of cocaine sub- urned largely on the purpose for which an anaes- required, and they must be judged, first according thod by which anaesthesia was to be induced, and, cond place, according to the region to be anaes- Apart from the general questions involved, he is remarks to surface anaesthesia in laryngological His personal experience of eucaine and butyn cted to their use by surface absorption, and he that butyn was less efficient than cocaine whilst lly or even more toxic. These, and indeed all n substitutes, had the serious defect that adrena- be added if vascular constriction was desired, gave rise to prolonged and undesirable after- therefore avoided adrenaline wherever possible, ed his use of eucaine and butyn to such cases as ustachian catheterization unless ischaemia of was desired. He had suggested to his son (Mr. -Williams) a research on the toxicity of cocaine titutes, and the results appeared in the British rnal of December 1st (p. 1018). The mind sion should be disabused of the idea that these itutes were safe; they were not safe unless the age were very carefully estimated. He men- ures of fatal cases published in the preliminary e American Committee on toxicity of local included in the paper just quoted), and seeing vas used in far greater frequency than any of s, and that many of the substitutes indeed neral use at all, he urged that these fatalities ey must not be regarded as safe. After using 1886 in rhinological work, he could not recall results when swallowing was precluded and of a strong solution used: when again it was at cocaine was used in every clinic and that atients must be having applications on any of accidents, and the paucity of the cases of ich could be traced to these administrations . The risk was further reduced by the pre- ultaneous use of adrenaline and the alka- aine solutions which enabled smaller quan- Moreover, many of the accidents reported ine were really due to carelessness. He had efficient substitute for it as an intranasal tic.

view they had to consider (1) whether any drug or co bination of drugs was equal or superior to cocaine in t degree of anaesthesia given and the rapidity with whi that anaesthesia was obtained; (2) what amount of irrit tion followed the use of the various local anaesthetics (3) the liability to cause desquamation of the corneal ep thelium. Toxicity, stability, and other questions als entered into the consideration. From the point of view o infiltration anaesthesia, he thought it might be admitte that novocain in 1 or 2 per cent. solutions could properl take the place of cocaine. Cocaine had power to stimulate the sympathetic nerves, and it had been suggested that this action might prove to be the test of its power to act as a stimulant of the central nervous system and therefore of its liability to become a drug of addiction—a very valu- able test if it could be substantiated. He added that he had used stovaine both for inducing superficial anaesthesia and in cataract operations; he had found it unsatisfactory for the latter, and on two occasions had had to complete the operation with cocaine. Butyn anaesthesia he had found satisfactory, but the smarting was rather marked. He knew of no case of drug addiction resulting from clinical applications.

Dentistry.

Mr. F. N. Doubleday referred to a questionnaire sent out by the British Dental Association, the result of which was that 1,912 dentists replied that they considered cocaine, as distinct from its substitutes, essential in dental practice, while 410 replied that they did not: he ranged himself with the latter. He believed that novocain was a most efficient substitute, and he described its value in dental operations. Most of the other substitutes gave similar results, but with less certainty, and with more marked after-effects. A few patients showed a marked susceptibility to novocain, but these cases were very rare, and he had used novocain widely at Guy's Hospital without any ill effects for patients, many of whom were in poor condition, and some suffering from disease.

Anaesthetics.

Dr. Joseph Blomfield said that the use of these drugs in his practice as an anaesthetist was entirely confined to injection, and he had had no experience of their surface applications. He had entirely abandoned the use of cocaine, and he believed most of his fellow anaesthetists had. Novo- cain in strengths up to 2 per cent. was chiefly used for injec- tions into the sacral cavity. In such injections it was apparently harmless, though occasionally, when large amounts were used, the patient appeared to have something like generalized convulsions, affecting almost every muscle of the body, but this condition passed off. With regard to stovaine, since it had been learned that the chief danger with this drug was the fall of blood pressure which it induced, measures were taken to counteract this, and the drug was used safely.

Otology.

Sir William Milligan confined his remarks to the action of butyn. Otological work did not permit of the same range of utility for the employment of a local anaes- thetic as did laryngological, rhinological, or dental work, owing chiefly to the configuration of the organ of hearing and its position. Such local anaesthetics as eucaine, stovaine, and novocain all had their champions, but so far as his experience went cocaine had very easily held the field. The advent of any new anaesthetic called for very critical examination from several points of view, first of all as to whether it was of equal or superior effectiveness to the anaesthetic already in use, whether it was reliable, whether it possessed toxic properties, and, if so, how these compared with those of other local anaesthetics. Butyn might be applied to the tissues in fluid or solid form, by subcutaneous injection or by means of infiltration, but it must be allowed to come into intimate contact with the

and stress is laid on the value of light and electricity in the cure. Treatment by endocrine extracts or operations on the lines of Steinach and Voronoff are not discussed in this volume. The translation suffers from want of supervision from someone conversant with medical terms, as is shown in the sentence about the heart: "its rhythm is distracted by the toxicated nervous centres and considerably inconvenienced by the dilation of the tomacal dome surrounding its point."

GUY'S HOSPITAL REPORTS.

THE concluding quarterly number of this year's volume of the *Guy's Hospital Reports*[8] has a sympathetic notice of the late Sir George Savage by Dr. R. Percy Smith, which is reprinted from the October number of the *Journal of Mental Science* for 1921; it is illustrated by two portraits of this genial psychiatrist, who for thirty years found one of the joys of his life in teaching the students of Guy's Hospital. Of the two papers dealing with rheumatism and tonsillectomy, that by Drs. G. H. Hunt and A. A. Osman shows that enucleation of the tonsils is not a certain preventive of a recurrence of acute rheumatism; indeed, in this series recurrences were actually more frequent in the patients submitted to operation. Many factors must be taken into account in considering tonsillectomy in rheumatic children, and it would seem quite unjustifiable to perform this operation on rheumatic children whose tonsils and lymphatic glands appear to be healthy. The writers also conclude that, although the tonsils may be the primary focus or portal of entry in the first attack, the virus may persist in some other part of the body, such as the heart. From observations extending over four years of tonsillar infection in cardio-vascular diseases Dr. H. J. Starling of Norwich is convinced that the tonsils are the portal and focus of rheumatic infection, that the presence of enlarged glands under the jaw is a more certain proof of tonsillar infections than the appearance of the tonsils, and that enucleation of the tonsils, which should be absolutely completed, as a small remnant may be as effective as the whole tonsil, is a most valuable preventive measure. But he says that, as rheumatic infection is largely influenced by conditions of climate and soil, it is not surprising that a child on returning to the environment of the original rheumatic attack should relapse in spite of tonsillectomy. It is suggested that acute rheumatism and chorea are due to the spread of tonsillar infection by the blood stream, and that rheumatoid arthritis is the result of intestinal infection of tonsillar origin. In a thoughtful paper on cardiac murmurs and their causation, Dr. J. M. Gill, senior physician of the Sydney Hospital, describes a case of auricular fibrillation with a presystolic murmur, and states his opinion that in thoracic aneurysm no murmur of any kind is audible unless the aortic valves are incompetent. He argues that in auricular fibrillation the striated muscular tissue of the auricle is completely paralysed, and that then the unstriped muscular tissue acts unchecked.

Dr. F. A. Knott, writing, under the inspiration of Dr. Hurst, on the gastric germicidal barrier, brings forward experiments to prove that clinical conditions arising from intestinal infection and absorption of their toxins may often be due to deficiency, temporary or permanent, of the hydrochloric acid in the gastric secretion, and that this should be remedied by the oral administration of this acid, alone and not mixed with proteins, such as those in milk, which immediately remove some or all of its germicidal power.

An article "On some cases from 'Clinical'" is prefaced by a note on the history of these wards, to which specially interesting medical cases have long been sent; among the

[8] *Guy's Hospital Reports*, vol. lxxiii (vol. iii, fourth series), No. 4, October, 1923. Edited by A. F. Hurst, M.D. London: Henry Frowde, and Hodder and Stoughton. 1923. (Roy. 8vo, pp. 371—439; 1 plate, 31 figures. Subscription £2 2s. for volume of four numbers. Single numbers, 12s. 6d. each.)

devoid of any peristaltic power. The factors in the
vention of the operative mortality in exophthalmic go
are lucidly set forth by Mr. E. G. Slesinger. In a
reasoned discussion of the causation of cataract,
A. W. Ormond leads up to the conclusion that nox
agents, such as an enzyme, are able from the failur
the protective function of the capsule to reach
hydrolyse the lens fibres. The number contains the in
to the volume.

MAKERS OF SCIENCE.

IN *Makers of Science—Mathematics, Physics, Astrono*
Mr. IVOR B. HART traces the progress of physical
mathematical science from the earliest times to Al
Einstein's theory of relativity. Dr. C. Singer, in an in
esting introduction, says that in recent years the histor
science, which still needs expansion and completion,
begun to displace though not entirely to take the place of
old classical education. There are, as he points out,
possible channels by which the history of science ma
taught: one through science, which demands greater kn
ledge from its students; the other the biographical met
which in the earlier stage is probably the best and
attractive.

The book is not a series of detached biographies, for
pioneers named have been chosen rather from their
ability as pegs on which to hang the scientific event
their times than from any superiority over their con
poraries. William Gilbert (1544-1603), the father of
netic philosophy, and Galileo Galilei of Pisa, the founde
modern physics, were the two outstanding pioneers in
revolution of the scientific method in the sixteenth cent
Gilbert was President of the Royal College of Physician
1600 and a Court physician, dying in the same yea
Queen Elizabeth, as if, in Thomas Fuller's words, such
his loyalty to the Queen, he was unwilling to survive
The middle of the seventeenth century saw the final o
throw of the Aristotelian tradition under Sir Isaac Newt
leadership. The notice of Robert Boyle, who it is
became a life-long stutterer by imitation early in life,
tains an account of the origin of the Royal Society by
virtuosi, as Boyle called the first members. He is sai
have feared death only because he would then know
things and so no longer have the delight of making exp
ments. The remainder of this pleasantly written and ad
ably illustrated handbook deals mainly with magnetism
electricity as exemplified in the work of Ampère, Davy, O
Faraday, Kelvin, and Einstein.

THE ROMANCE OF MEDICAL MISSIONS.

THERE has been published under a most prosaic tit
charming little volume of letters by medical missiona
in various parts of the world—Africa, India, and Ch
The book can be read through leisurely in an aftern
but the reader may be warned that whoever begins
want to finish it.

Perhaps the title, *Medical Practice in Africa and East*,[10] may have been intended to prevent suspicion
the contributors, being missionaries as well as doc
might be foisting on the public something goody-go
The book is all good, but none of it is goody, whilst
high moral tone, and the sympathetic introduction
Mr. Stephen Paget, enhance its value. In brief it g
a vivid picture of medical practice among native ra
often in remote areas where consultation or qual
assistance is unobtainable, and where equipment is ele
tary or incomplete, so that initiative and improvisa

[9] *Makers of Science—Mathematics, Physics, Astronomy.* By Ivor B. H
with an introduction by Dr. Charles Singer. London: Oxford Univ
Press (Humphrey Milford). 1923. (Cr. 8vo, pp. 320; 124 figures. 6s.

[10] *Medical Practice in Africa and the East.* Being a series of
letters on professional subjects from doctors practising abroad, addr
to their colleagues at home. Edited by H. Martin, M.A., and H
Weir, M.A., M.B., with an introduction by Stephen Paget, F.R
London: The Student Christian Movement, 32, Russell Square, W
1923. (Cr. 8vo, pp. xiii + 111. 4s. net.; paper 2s. 6d. net.)

mucosa of the middle-ear cleft. Its range of utility, therefore, was largely narrowed down to those middle-ear conditions in which the mucosa was exposed either as a result of disease or artificial perforation of the membrana tympani. Applied locally to the mucosa of the middle ear or to the Eustachian orifice, it would be found to produce sufficient anaesthesia within one or two minutes to arrest pain following upon the application of certain caustics, though not of all, but it required repetition before a quite satisfactory and profound anaesthesia resulted. He had had no experience of its toxic properties as applied locally, and he had had no patient who was in any way inconvenienced by its use. In painful affections of the external ear or the external auditory meatus, it could not, applied locally, be of much service in consequence of the nature of the integument. Injected subcutaneously, however, it produced anaesthesia sufficient to permit the opening of a furuncle, though he did not recommend it for this purpose. He had not yet attempted to open the mastoid cells under butyn anaesthesia. In oral work, butyn did not appear on balance to offer any advantages as compared with cocaine. Its tendency to produce hyperaemia seriously prejudiced the many excellent properties the drug otherwise possessed. At the same time, his experience in oral work showed butyn to be more rapid in its action than cocaine, and its potency to be nearly twice that of the older anaesthetic. It could be used quite effectively in lower concentrations than other synthetic anaesthetics. In the early days of his practice he found patients who presented symptoms of cocaine poisoning, but these mishaps had long since passed away, and he had no doubt that they were due to faulty technique. He had had the unfortunate experience of seeing two patients contract the cocaine habit, one a barrister, who constantly used a nasal spray and developed such mental symptoms as necessitated his confinement, though he was now quite well; and the other, a medical man who, as a result of vascular changes, had a severe hemiplegia, which proved fatal.

General Discussion.

Mr. ERIC WATSON-WILLIAMS repeated the statement (given in his paper in this JOURNAL) with regard to the report of the proprietors of butyn on five deaths following clinical application of that drug, but he added that a more recent letter from the proprietors stated that butyn in 1 per cent. solution had been used in over a million extraction cases by dentists in the United States, without a single untoward result. It happened sometimes that trouble was attributed to the anaesthetic when actually the cause was something quite different. One of the most amusing examples was a case seriously recorded in a medical journal (which he named) in this country in which a medical man, having toothache, applied cocaine to his gums, and afterwards, beginning to feel queer, suspected cocaine poisoning, and so took an antidote in the shape of whisky, half a glassful every half-hour. He had a most restless and excited night, but on the following day, although he felt very much out of sorts, all symptoms of cocaine poisoning had disappeared. On the general question of deaths reported following the use of local anaesthetics, especially for tonsillectomy, Mr. Watson-Williams wished to emphasize the foolishness of drawing conclusions from any but complete case reports. In a number of reports recently examined by him no mention was made, for example, of swabbing or spraying the fauces before injecting the tonsils or faucial pillars—an almost universal practice. If strong solutions were used on swabs absorption here might be very rapid, for 5½ minims of a 20 per cent. solution contained 1 grain of cocaine; to give the dose only of the drug *injected* might be very misleading, and cause the quite possibly false impression that small fractions of a grain of cocaine, novocain, or the like could cause death.

Mr. S. F. STJ. STEADMAN, in various dental operations, had usually taken a 2 per cent. solution of novocain, and was fairly satisfied with this drug. On one or two occasions he had failed to obtain satisfactory anaesthesia, and in one man not one of five injections was satisfactory. These cases of failure were in ex-service men who had suffered from shell-shock. On using a butyn solution also he had found in one case no anaesthesia at all and in two other cases very unsatisfactory anaesthesia. By using novocain in freshly prepared distilled water he had abolished after-pain.

Dr. G. WILLIAM HILL was in substantial agreement with Dr. P. Watson-Williams and Sir William Milligan in their reference to the fact that cocaine in experienced hands was not a dangerous drug. At the Portsmouth meeting of the British Medical Association he had read a paper on butyn, but since that paper was written events had moved very rapidly, and it appeared that butyn, although previously thought to be safe, was in fact far from being so. In his own experience, however, he had never found the slightest palpitation nor poisonous effect resulting, and his own observations went to show that butyn was very non-toxic compared with cocaine. At the same time, he damned butyn with faint praise because he found it a very inconvenient drug to use on account of the fact that it was not ischaemic, and that when adrenaline was added this acted as an irritant, so that patients complained not merely of coryza but also of very unpleasant sensations. Further, he found that it was uncertain in its action. Sometimes it failed to anaesthetize altogether, and for this reason principally he felt that it was not worthy of the confidence given to cocaine. While it was true that butyn in his hands had given rise to no toxic symptoms, it was not until his seventeenth observation that he discovered the uncertainty of its action, so that a more extended series of observations might have yielded a toxic case. He had been asked by the Ministry of Health Committee to try stovaine, and his experience was that it was not free from toxic dangers, or at least that it caused toxic symptoms. Altogether he was inclined to think that nothing better than cocaine was at present available.

Dr. ALBERT GRAY dealt with the effect of certain of the anaesthetics locally on the membrana tympani. He had found eucaine, stovaine, and novocain all very much inferior to cocaine so far as the production of anaesthesia of the unbroken membrane was concerned. He had never had any patient who became addicted to the cocaine habit. The nearest he had was a patient in whose case he had been employing watery solutions in the nose, and who began to like this treatment. Since he had used ointments, which were very gradually absorbed, instead of watery solutions, he had had no anxiety on this score.

The CHAIRMAN recalled a case in his early days in which a man—the head draughtsman in an architect's office—became addicted to cocaine as a result of cocaine being used to spray his throat. He came up almost daily with fits of coughing which necessitated the use of a spray if the throat was to be inspected at all. Later he had an accident, which confined him to hospital and made it impossible for him to continue his visits, and he admitted that he had been in the habit of coming, not because of the condition of his throat, but because he wanted the spray, and he was able in the exaltation which ensued to go back to his office and make the most splendid drawings. The circumstances of his accident cured him of the approaching habit.

Mr. T. B. LAYTON gathered from the ophthalmologists that from their point of view the important consideration, next to its anaesthetic property, was the irritant effect of the drug. This was not of the same importance in the nose and throat. It was not possible to compare the surface applications of the laryngologist with the ophthalmic applications for work on the cornea or conjunctiva. What the laryngologist or rhinologist would call a surface application was really comparable with the intraocular operations of the ophthalmologist. With regard to butyn, he had noted from pamphlets supplied by the manufacturers that it was twice as toxic as cocaine; therefore he made it up in half the strength at which he was accustomed to use the cocaine. He had never seen any untoward effect, but he would approach it with more anxiety after having listened to Mr. Eric Watson-Williams. The speaker was unable to distinguish between the toxic symptoms of cocaine and its substitutes and the symptoms obtained in mental states such as fear. He was not at all sure that the latter did not explain many of the symptoms attributed to the drug.

have full scope, whilst responsibilities have to be undertaken which would be quite unjustifiable at home. Such a life may repel some, but should attract others, just as practice does in the remote parts of the highlands and islands of Scotland. Part of the object of the book, indeed, as we read it, is to call attention to the fields of work which exist for active, enterprising, and competent young doctors of both sexes, who may be mapping out their own careers. Mr. Paget, while agreeing with one of the contributors who writes, "There is plenty of room for mediocre doctors in the home country, let them stay there," yet argues that many a student at the London School of Medicine for Women may hardly attain a great practice here yet might do very well in Africa or China, where there is a certainty of any amount of work being obtained, though the life will have hardships which have to be accepted as well. The work is not that of medicine alone; the teaching of religion is an essential part of it, but contentious details of doctrine and ritual are clearly outside its sphere, and the broad fundamental truths of Christianity can be inculcated also by the influence of the practitioner's own life and conduct.

The essays vary in their contents. They deal not only with surgery, medicine, and midwifery, but with leprosy and scientific research, hospitals, and tropical diseases. One contribution gives an instructive and illuminating account of medical education in China, explaining the difficulties of language, and of translating English into the Chinese script for the use of native students; the developments which have taken place since the Boxer rising in 1900 are noted, and there is a comprehensive survey of the educational situation in 1913; last and most important of all, the entrance of the Rockefeller Foundation into the field is related. It is recalled that the "sublimely simple direction" given to the trust was, "to be used for the service of mankind."

Space forbids even the mention of many of the good things contained in the little volume, but no doctor or layman will ever regret having spent four shillings on its purchase.

NOTES ON BOOKS.

AN excellent little book on *Elementary Hygiene*[11] has reached us from Lahore. The authors are Mr. BIHARI LAL BHATIA, the lecturer on zoology at the Government College, and Dr. PREM NATH SURI, assistant surgeon at King Edward's Medical School in that city. It has been written to meet the requirements of the matriculation students in the Punjab and other parts of India, where the subject of elementary hygiene is studied alongside a course in physiology. The authors hope to awaken the student's curiosity and enable him to take an intelligent interest in the reasons on which the rules of hygiene are based. In this respect the little book admirably fulfils its purpose. It is written in clear English, but with full appreciation of the Indian point of view. There is no attempt at suggesting radical changes in Indian domestic life, except where the authors, with full knowledge of existing conditions, are convinced of the utility and practicability of their recommendations. They desire, however, to add something to the cause of sanitary reform in India, and have already had much experience in popularizing elementary hygiene by lantern lectures and classes held in connexion with the Society for Promoting Scientific Knowledge. We have nothing but praise for a work of this kind. The chapters touch practically on the whole field of hygiene, and give a brief but simple and sufficient elementary account of the scientific facts on which practical sanitation, in connexion with disease, ventilation, water supply, food, personal and domestic hygiene, disposal of waste products, disinfection, rural sanitation, and so on, is based. As a school book on elementary hygiene the volume is of general value and not necessarily limited to Indian requirements only.

Mr. J. B. PARFITT'S *Operative Dental Surgery* has reached a second edition,[12] and we are glad once more to be able to praise the book. It is essentially one for the everyday dentist. It deals (and deals well and lucidly) with scaling, filling of teeth, treatment of septic roots, crowns, tooth extraction, and the use of local injection anaesthetics. We note that the author expresses himself in a rather guarded manner on the subject of retaining teeth whose root canals have been once septic. He gives the impression of being inclined to wait and see rather than anticipate trouble by timely (or untimely) extraction. He does not appear enthusiastic about the possibilities of ionic medication, in regard to which he remarks, "another treatment applied to septic apical foci is ionization, which sometimes gives good results." Among many well chosen illustrations is a stereoscopic picture of the pulps of two molars which anyone used to squinting at stereoscopic *x*-ray negatives can readily bring out into bold stereoscopic relief. Mr. Parfitt writes clearly, and no dentist will repent the time spent in reading this book. Perhaps he will be inclined to agree with us that we would like more about extraction and better *x*-ray illustrations.

Last year the Board of Education issued a syllabus of lessons for use in schools, and notes for the assistance of teachers under the title of *The Hygiene of Food and Drink*. It excited much thoughtful interest amongst school authorities, and stimulated teaching in the schools. The action of the Board has been appreciated also by medical practitioners, as witness a memorial sent recently by the Council of the Metropolitan Counties Branch of the British Medical Association to the Board of Education, urging that the teaching of hygiene to students in colleges should be undertaken by medical practitioners. The Temperance Collegiate Association has now issued a small hand-book which is a running commentary upon the pamphlet of the Board of Education. The book is entitled *Physical Fitness*,[13] and covers three sections: for children under 12 years of age, between 12 and 14, and a senior course, the last by Dr. Courtenay Weeks. The book is clearly written, with numerous small illustrations. The book is part of a memorial to Professor Sims Woodhead of Cambridge.

ELLIS'S *Practical Bacteriology*[14] is intended primarily for the use of chemical students, to whom many avenues of research are closed if there is a lack of knowledge of the elementary principles of that subject. As an example, the changes in the acidity of a fluid caused by micro-organisms may be mentioned. The nature of the microbial flora in a given medium is largely dependent on the degree of acidity, and as the nature of the end-products varies with the kind of micro-organism predominant in the fluid it is evident that many industrial processes may be accelerated or retarded by exercising control over the development of acidity. The book sets out with a description of procedures of general application, such as sterilization, the preparation of nutrient media, and staining. In connexion with these subjects details are given of the apparatus needed, with directions and precautions as to their use. The author next describes the line of investigation to be adopted in the study of a particular species of bacterium, the points to be noted in the various kinds of cultures, the bacterial colonies, and so forth. The final chapters are devoted to special subjects—namely, the examination of drinking water, sewage and sewage effluents, yeasts and moulds. The book has the advantage of being small; it is eminently practical, complete, and gives the rudiments of the subject, which are apt to be slurred over by the student with the result that the whole of his subsequent work is liable to be defective. Although designed for chemical students it would furnish a good foundation in bacteriology for medical students as well, since it contains nothing that a medical student is not required to be acquainted with.

Professors UHLENHUTH and DOLD have issued a second edition of their book on practical hygiene,[15] the first edition of which was published in 1914 from the University of Strasbourg. The new edition, as a result of the war, comes from the Universities of Freiburg and Marburg. The book is essentially a laboratory handbook. It is written for instructional as well as for practical use, and consists entirely of chapters descriptive of the physical, chemical, and bacteriological analyses of soil, water, food supplies, and beverages of every description and their adulteration; clothing, air and ventilation, are dealt with also, and there is a chapter on the estimation of lighting in dwellings. The work should prove a useful handbook in an hygienic laboratory. It is well printed, and the subject-matter is admirably arranged and illustrated.

[11] *Elementary Hygiene.* By Bihari Lal Bhatia, M.Sc., F.Z.S., and Prem Nath Suri, M.B., B.S. London, Calcutta, New York: Longmans, Green, and Co. 1923. (Cr. 8vo, pp. 141; 31 figures. 2s. 6d.)

[12] *Operative Dental Surgery.* By J. B. Parfitt, M.R.C.S., L.R.C.P., L.D.S. Second edition. London: Edward Arnold and Co. 1923. (Demy 8vo, pp. 342; numerous illustrations. 21s. net.)

[13] *Physical Fitness.* London: The Union Publishing House, 59, Old Bailey. (Pp. 100.)

[14] *Practical Bacteriology for Chemical Students.* By D. Ellis, Ph.D., D.Sc., F.R.S.E. London and New York: Longmans, Green, and Co. 1923. (Cr. 8vo, pp. viii + 137; 55 figures. 4s. 6d. net.)

[15] *Hygienisches Praktikum (Practical Hygiene).* By Dr. Paul Uhlenhuth and Dr. Herman Dold. Second edition. Berlin and Vienna: Urban and Schwarzenberg. 1923. (Cr. 8vo, pp. viii + 258; 85 figures. Fr. 6 Swiss.)

More than one that evening had stated that he used to have these results, but had them no longer, and the speaker suggested that this might be because the technique of application had been better learned, and therefore the surgeon no longer suggested to his patients the symptoms which he himself feared might arise. It was very easy to get toxic symptoms by simply suggesting those symptoms to the patient. One point with regard to adrenaline: there was more danger of reactionary haemorrhage in local than in general anaesthesia, and if one went on adding adrenaline the danger of that reactionary haemorrhage was increased.

Dr. J. B. HORGAN had tried alypin in 10 per cent. solution for surface application on the nose, and had used it about twenty times. It proved to be much more toxic in its action, strength for strength, than cocaine, and he gave it up on that account. He mentioned that 10 per cent. calcium chloride injected intravenously was a rapid and efficient antidote of the severe types of cocaine poisoning.

Dr. A. S. GREEN of Lincoln related his experience as a patient on whom both cocaine and butyn had been used. While the anaesthetic action of cocaine had been very good, it had disagreeable after-effects for a time. Butyn was more satisfactory in this respect, and the anaesthesia was perfect. The sensation in the nose, where the operation took place, was quite different in the case of butyn from what it was with cocaine; with the former the nose felt as if it were frozen.

Mr. SYDNEY SCOTT said that at St. Bartholomew's Hospital twenty-five years ago they were taught that it was exceedingly dangerous to spray the nose with cocaine. The fault was that the old sprays at one squeeze of the bulb would eject a large quantity, some of which might be swallowed. It was very necessary to avoid any swallowing.

Mr. HERBERT TILLEY could only speak of novocain among the substitutes, but of this he had had a fairly large experience. He had used it frequently in resection of the nasal septum and operations on the antrum, and had found it extremely efficient: he had never seen it give rise to dangerous or even to uncomfortable symptoms. He felt, however, that there was no drug which so effectively combined the production of anaesthesia with contraction and retraction of the tissue as cocaine itself. He believed that cocaine might be extremely toxic if used as an injection, but large surface applications seemed quite innocent, perhaps because of some biochemical action of the skin or mucous membrane which, so to speak, filtered out the toxicity.

Dr. P. WATSON-WILLIAMS, in a brief reply on the discussion, said that the profession stood in some danger of getting a wrong mental attitude with regard to cocaine. If a better or more efficient substitute could be obtained it should be adopted, but it seemed a pity that it should now be black-listed so far as its proper clinical use was concerned, because of its social abuse in the past. He thought it ought to stand on a par with any substitute which was brought forward. It was unscientific to start out with the idea that cocaine must be tabooed when such taboo meant the acceptance of something clinically inferior.

ANAESTHETIC PRACTICE.

A MEETING of the Section of Anaesthetics of the Royal Society of Medicine was held under the presidency of Dr. A. L. FLEMMING at the Medical Institute, Edmund Street, Birmingham, on Saturday, December 1st. The time at the disposal of the Section was cut short by the lateness of the arrival of the train bringing the London members.

Dr. K. B. PINSON opened the proceedings with a paper on the condensation of dimethyl ether, and its use as an anaesthetic. He said that when he promised to read the paper his experiments were not yet completed; owing to a succession of accidents they were still unfinished, and he was not able personally to give the drug as an anaesthetic before he read his communication. His attention had been called to it when reading Gwathmey's book by a statement that W. B. Richardson had administered it in some twenty-seven cases and was favourably impressed. Accordingly Dr. Pinson had attempted to prepare and condense the drug with the object of administering it as an anaesthetic. The ideal anaesthetic should be easy and quick in induction, pleasant to take, non-irritating, easily controlled, and quickly eliminated. A gas was more likely to possess these attributes than a fluid. Dimethyl ether at normal pressure and temperature was a gas. Its physical properties were not well known. It might act on metals and on oils and might therefore be difficult to condense, as it might act on the apparatus used for compression. In his experiments he found that it boiled at -24° C., and that at 100° C. it exerted a pressure of 97 lb. to the square inch, and could thus be safely stored in cylinders. He had only got so far in his experiments when the apparatus used exploded and the small quantity of the gas he had been able to procure was totally lost. So far he had not been able to obtain a further supply. He had, however, found that the gas condensed into a thin, limpid, mobile liquid with a slightly ethereal pleasant odour. He concluded by demonstrating the apparatus with which he had conducted his experiments, and explaining the difficulties met with.

Mr. LEONARD GAMGEE, in his paper entitled "A surgeon's thoughts on anaesthesia," stressed the necessity for the complete co-operation of surgeon and anaesthetist, especially in the more complicated operations, such as those on the thyroid gland. At such operations everything in the theatre, including the surgeon and his assistants, should be ready for the operation before the anaesthesia was even started, so that if any respiratory obstruction occurred the surgeon could at once relieve this by rapidly cutting through the superficial muscular layers. Later on, when pulling on the lobe of the gland to free it from the trachea, he should be prepared to let it fall back in its bed should obstruction arise. A surgeon should never dilate the sphincter ani without informing the anaesthetist that he was about to do so, as there was risk of collapse should this be done with the patient too lightly anaesthetized. Mr. Gamgee quoted in this connexion a death resulting from the division of the corpora cavernosa when the patient was in a state of light narcosis during an operation for amputation of the penis. In this case the surgeon could not be freed from blame as he had not warned the anaesthetist of his intention to divide the organs. Lightness of anaesthesia had distinct dangers, and added to the risk of operation and after-shock. There were also other risks. One of these was an inefficient operation, and another, forcible expiratory breathing, especially under ether, of uncertain origin, but possibly due to the surgeon starting too soon. Another possible cause was that ether had been given too long, and this was noticeable in operations upon the upper abdomen. Hampered by this type of breathing, the operator should inform the anaesthetist and give him time to get a deeper anaesthesia. In regard to pre-operative drugging, the tendency nowadays was to give too many drugs before operation.

Respiration was depressed after scopolamine and morphine, sometimes even to the extent of producing a sort of Cheyne-Stokes breathing. While morphine alone was less objectionable, cyanosis and shallow breathing were common sequels; moreover, the patient was apt to remain unconscious longer than was desirable. Morphine should never be given without the knowledge and consent of the surgeon. Atropine came under a different category and could be left to the discretion of the anaesthetist. Ether was the safest anaesthetic, but had after-effects often undesirable. It should not be given for more than half an hour. The complications were due to a lowering of resistance and possibly also to direct inhalation of septic organisms as the result of the deep expiratory breathing already referred to. Gas and oxygen, while valuable, nearly always required reinforcement in abdominal cases, and, except in expert hands, were not as safe as ether. Why was it that the Vernon-Harcourt inhaler was not more used? By it chloroform could be given safely, and with comfort to the surgeon also. The mask and drop-bottle, so far as chloroform was concerned, were a danger in the hands of the inexperienced. Plenty of chloroform and plenty of air was an excellent motto, but one that could not be followed when using a mask covered with ever so many layers of material. A folded

the year 1922-23. The one is the fourth annual report of the Advisory Committee on the Welfare of the Blind,[1] and the other the annual report of the National Institute for the Blind.[2] The Advisory Committee consists of a chairman and vice-chairman appointed by the Minister of Health, representatives of the County Councils Association, of the London County Council, of the Associations of Municipal Corporations and of Poor Law Unions, and of voluntary agencies for the blind. It is a really working committee which collects information on the doings of the statutory authorities, advises them on their duties, seeks to co-ordinate effort, and reports to the Minister; its expenditure for the year was £192, including the cost of the publication of its report.

Progress is being made in the application of the provisions of the Blind Persons Act, and the number of pensioners rose from 9,107 to 9,921. These pensions are a boon to the aged blind, and release voluntary funds for other purposes; but some hardships have arisen owing to local authorities withdrawing aid previously given to aged blind, so that on balance they were worse off. It is hoped that this may be remedied. It had been feared that the introduction of rate-aided services might adversely affect voluntary contributions to funds for the blind, but so far this has not happened; since the passing of the Act new voluntary agencies have been formed and existing ones extended. This may be due partly to the wise method of the Ministry and the local authorities in acting so far as is possible through the existing voluntary agencies. It is considered that co-operation among superintendents of workshops for the blind would lead to economy, and that the uniform system of account keeping prescribed by the Ministry should be adopted; a uniform system of costing is advocated. The necessity for these measures is shown by the inequality of the maintenance charges at various institutions.

In Germany there are 33,000 blind (on a stricter definition) as compared with 35,000 in England and Wales; 3,000 in Germany owe their blindness to the war, as against 1,600 here. Many of the blind are in residential workshops in Germany, a provision rare here. The work done is almost identical, but in Germany some 450 are employed in ordinary factories or workshops. Attempts are being made to introduce the more skilled of the blind into ordinary workshops here also, especially those whose blindness is due to industrial accidents. In France the majority of the blind workers are home workers; only 600 are in institutions for the blind, and 21 in ordinary factories. There are in several areas local centres that buy and sell for the home workers.

The blind beggar still exists, despite all the provision made for him. Some cities have suppressed the blind beggar, but he has generally fled to the next city. The need for general action is pointed out. The report adds:

> "We venture to suggest that the public have the matter very largely in their own hands, as by their generosity to the blind of this class they make it extremely difficult for local authorities and voluntary agencies to persuade blind beggars to accept the provision made for the blind generally rather than appeal for alms in the street."

The evil influence of the easy gains of the lazy and idle upon the minds of the industrious renders indiscriminate charity reprehensible. Attention is drawn to the necessity for the proper examination of those claiming to be blind before they are admitted into workshops for the blind.

> "It is believed that there are in workshops and elsewhere a number of persons in respect of whom grant is being paid by the Ministry who are not properly blind within the definition of the Regulations governing grants in aid of the welfare of the blind and the Blind Persons Act, and it has been suggested to us that

[1] Fourth Annual Report of the Advisory Committee on the Welfare of the Blind to the Minister of Health, 1922-23. London: H.M. Stationery Office. 1923. Pp. 20. Price 6d. net.

[2] National Institute for the Blind, Annual Report, 1922-23. Headquarters, 224, Great Portland Street, London, W.1.

blind is a record of work of which any society may well be proud. There is scarcely any aspect of the life of the blind in which it is not a ready and energetic assistant. One part only of its many-sided work would be sufficient to justify its existence, and that is its publications department. The institute is the general printer to the blind of these islands, and of the Empire, and to some extent of countries outside our commonwealth. The eleven periodicals it issues in Braille and Moon type had a circulation of well over 200,000 in the past year. It printed also some 15,000 books and pamphlets in Braille and a third as many in Moon type. These books are issued at one-third cost to the blind of these islands, at half cost to the Dominions, and at cost to foreign countries. The loss on these publications, to be made up out of the general funds, was £8,169 for the year. Of no less importance is the manuscript department. The institute has a staff of 150 voluntary workers, experts in transcribing Braille, who are prepared at short notice to produce in the type they can read any book required by the blind for advanced study. The demand for these transcripts is so great, especially from teachers of the blind, that the production of light literature has been stopped. Two thousand volumes are now in hand; they include some of the best of our literature in history, science, and law. 875 volumes were produced last year, one worker transcribing thirty volumes.

Another fine piece of work done by the institute was the establishment of the College for Blind Girls at Chorley Wood in 1921. The number of students therein is steadily increasing. Until the full complement of pupils is attained the cost is greater than can be met by the fees of pupils, so that the excess falls upon the general funds of the institute. The King and Queen have approved and recognized the objects of the college by a generous donation. The college is a typical public school for girls; its standards are those of the best known of these schools. Its habitation and equipment are as perfect as well could be. The head mistress is a lady whose previous work at Girton and Roedean is proof of her educational sufficiency. Medical men can do no greater service to this college and to those of their acquaintances or their charges who are blind or nearly blind than by putting the two into communication. The advantage to a blind girl of receiving a full education with a number of her compeers both in ability and disability cannot be overestimated.

The Sunshine Homes for Blind Babies are too well known to need more than a note that the northern home is now ready for occupation, and in it some thirty children will be received. Less conspicuous but no less necessary departments are those for the training of the blind in massage, for the relief of the necessitous blind, for after-care, for home teaching and the training of home teachers, and the provision of homes for some of the older blind. The statement of accounts shows that the expenditure for the year was just over £200,000; and there is here the only blot on the report, for a deficit of £43,268 has to be carried forward for the next year. Here is an opportunity to introduce grateful patients to a valuable mode of expression of their gratitude for their own recovery.

THE second International Congress of Urology will be held in Rome from April 23rd to the 26th, 1924, under the presidency of Professor Alessandri, when the following subjects will be discussed: (1) Renal innervation, introduced by Ambard of Strasbourg and Soja of Pavia. (2) Vaccine treatment in urinary diseases, introduced by Rovsing and Wulff of Copenhagen, Dudgeon of London, Nognès of Paris, and Pirondine of Rome. (3) Remote results of operation for renal calculus, introduced by Brongensma of Amsterdam, Citvente of Madrid, and Tardo of Palermo. (4) Recent progress in urology: (*a*) pathogenesis of hydronephrosis, introduced by Hinman of San Francisco; (*b*) vesiculotomy and transvesical vesiculectomy, introduced by Sir John Thomson-Walker; (*c*) vesical malacoplasia, introduced by Barrington of London. Further information can be obtained from the secretary, Dr. Bonamone, 124, Via dei Gracchi, Rome.

towel held at some distance from the face and freely sprinkled with chloroform was both safe and efficient. The danger signal was pallor of the face, and when this occurred no more chloroform should be given. The best ether apparatus was the Clover machine or its modification by Hewitt. So-called open ether was not open ether at all, but a smothering of the patient accompanied by partial narcosis of the anaesthetist and the whole of the surgical staff, resulting from the amount of ether distributed to the surrounding air. Mr. Gamgee then touched on the psychological element in the taking of anaesthetics. Seldom was trouble experienced in anaesthetizing acute cases; such patients were only too pleased to inhale the drugs in search of relief from pain. It was otherwise when dealing with interval cases of appendicitis, hernias, and operations of that kind; trouble was often experienced in such cases. Theatres were often kept a great deal too hot. By taking a patient from a warm theatre into a cold corridor, down a draughty lift, into a ward in which the breezes were apt to blow from open windows, post-operative bronchitis was more than likely to follow. This was rare in nursing homes and very rare in private houses after operation. Many of the difficulties of the anaesthetist could be put to the blame of the surgeon, and many could be put to the blame of both. The anaesthetist should get the patient sufficiently under for the comfort of the surgeon, and the surgeon should tell the anaesthetist all that he knew concerning the patient, as in many operations the anaesthetist really ran the greater risks. The surgeon should always work with the anaesthetist, curb his own ardour, and be prepared to wait.

Dr. A. L. FLEMMING remarked that chloroform was not taught to the same extent as ether administration, and considered this the direct result of the strictures of coroners when holding inquests on fatalities. He advocated the provision of recovery wards, but these should not be made too attractive or they would be seized by the surgeon, always voracious for empty beds. Such wards, therefore, should be earmarked solely for the purpose for which they were provided; they should be near the theatre to obviate the use of lifts, and should be specially staffed.

Mr. W. BILLINGTON said that anaesthetics were a necessary evil, but if there was danger of explosion, as seemed to be the case with Dr. Pinson's anaesthetic, the evil was increased. As regards scopolamine and morphine, there was danger of acetonaemia following their use. They should never be administered if a psychical disturbance were present. He preferred to administer morphine earlier than was the custom so that some of its immediate effects had passed off before the anaesthetic was administered. He preferred the preparation omnopon to the usual morphine salts. More rapid elimination could be secured by giving the patient large doses of fluids before the anaesthetic was given, and plenty of fluid afterwards. The collapse that sometimes occurred early in operations such as hernia and interval appendicitis operations could be remedied by the prompt use of pituitrin. He then described the method of giving anaesthetics practised at the Mayo Clinic.

Professor HOBDAY stated that, contrary to the usual statements, dogs were ideal patients for the administration of chloroform, provided this was given by means of a suitable apparatus. He showed a portable apparatus which was, he said, both cheap and efficient.

Dr. WALTER JORDAN said that by an accident he was still an anaesthetist although he had gone over to the physicians many years ago. He had forgotten to resign an appointment at the Orthopaedic Hospital, with the result that he had given chloroform there in over 11,200 cases. He had never had a case of acetonaemia, pneumonia had never been seen by him after administration, and death had occurred only once, and in that case the patient was over 70 years of age.

As the time available had now practically come to an end, Dr. Kirkby Thomas demonstrated a new intratracheal apparatus for the administration of ether and chloroform, after which the members moved to the Union Club to enjoy the hospitality of the Birmingham anaesthetists.

METHODS OF BLOOD CULTURE.

SIR CLIFFORD ALLBUTT occupied the chair at the meeting of the Section of Comparative Medicine of the Royal Society of Medicine held on November 28th, when a paper was read by Dr. S. G. BILLINGTON on some unusual methods of culturing the blood, with special reference to distemper. Dr. Billington first dealt with the development of certain "coccoid bodies" which made their appearance when small quantities of blood were incubated for five to thirty minutes at 60° C. in a medium consisting of distilled water containing 0.5 per cent. ammonium carbonate or neutral lemco broth containing 0.05 per cent. ammonium citrate; emulsions of these "coccoid bodies" had been used as therapeutic agents in infective disease, and it was claimed that they exerted some antibacterial effect. Similar media had been used for culturing bacteria from the blood, and by the use of a special technique successful cultures were obtained from a large number of cases in three to ten days. In order to obtain positive cultures there must be the correct proportion of blood to medium, the reaction must be neutral, and the serum or plasma concentration must be correct. In order to check the cultural results obtained Dr. Billington determined to investigate a specific disease of unknown cause and selected distemper, for if the cultural methods described were sound they should yield a constant organism. An outbreak of distemper at the North Stafford kennels provided him with material for twenty-five blood cultures, and fifteen other blood cultures were obtained from sporadic cases of distemper in the Wolverhampton area. The most constant organism obtained was a pleomorphic Gram-negative bacillus which grew best at about 25° C. and failed to grow at body temperature. The 25 blood cultures from the foxhounds yielded 22 positives and the 15 cultures from the Wolverhampton dogs 13 positives. Other bacteria were frequently present with this bacillus. The organism was described as being diphtheroid both in form and grouping, non-motile, and not producing acid or gas in glucose, lactose, saccharose, maltose, dulcite, or mannite. Dr. Billington shared the common belief that the actual causal organism of distemper was a filtrable virus, but he expressed the opinion that these associated bacilli might be utilized to type the disease and to provide prophylactic and therapeutic remedies. He reported some very favourable results obtained by employing an agglutinated haemo-vaccine prepared from the "coccoid body" emulsions, and demonstrated slides and films of the "coccoid bodies" from blood and the bacteria obtained by special cultural technique.

Major CHAMBERS and Mr. TRIGGER both expressed themselves as having been very favourably impressed by the clinical results obtained with Dr. Billington's haemo-vaccine.

Dr. DOUGLAS declared that it was difficult to criticize Dr. Billington's work without having attempted to repeat his experiments, but he stated that it seemed extraordinary that these "coccoid bodies" should develop into bacteria, for they looked to him like débris of organic matter. He remarked that very little information had been given by Dr. Billington of the nature of these bacteria when obtained in pure culture. If the blood of a dog suffering from distemper were taken whilst the temperature was rising and injected into a susceptible puppy distemper could be induced in this second animal. Also Ferry's bacillus had been frequently found in the blood, lungs, and trachea of dogs with distemper, and some workers had used this organism successfully for vaccine treatment. But Ferry's bacillus was not always present.

Sir WILLIAM LEISHMAN pointed to the many pitfalls which must be avoided before concluding that one organism evolved into another; merely morphological records were liable to be unsatisfactory. Many of the films appeared to him like mixed cultures, but the clinical results reported seemed promising.

Dr. ROWLANDS remarked that bacteria were often found in the blood in other diseases, such as swine fever, where they had no causal relationship to the disease. He was not persuaded that the "coccoid bodies" developed into bacteria.

British Medical Journal.

SATURDAY, DECEMBER 15TH, 1923.

THE ENDOWMENT OF MATURITY.

THE new policy of the Royal Society may fairly be called the endowment of maturity; there is no reason to quarrel with it on that account. The Society exists, as William, Viscount Brouncker, its first president, said in accepting the charter granted by Charles II, "for improving natural knowledge," and no body more competent to decide how funds can best be applied to this end could be found than the Council of the Royal Society, upon which experts in all departments of science sit.

The policy was stated and explained by the President in the anniversary address, a report of which was published last week (p. 1113). The Society has been able for a good many years past to make certain annual payments from sums which it receives, chiefly from the Donation Fund and the Government grant. These have been used mainly to assist workers of promise in the early period of their career by providing the cost of apparatus and material, through research studentships, and by the Sorby Fellowship. In recent years the Society has come into the enjoyment of certain bequests and gifts—the Foulerton gift and bequest, yielding £5,050 a year, the Messel Fund, yielding £1,575, and the Yarrow Fund, £5,450. Still more recently the death of Dr. Ludwig Mond's widow has liberated his bequest, which, it is anticipated, will yield an annual income of about £2,500. These new sources of income have placed upon the Society the responsibility of determining the best way of expending them. The policy it has now adopted is interesting from several points of view. It has decided that the income may best be spent in creating greater opportunities for experienced investigators of already proved first-rate capacity in research. Such men as a rule have hitherto occupied positions in universities or other institutions which require from them manifold duties. In almost all such institutions they must give up much of their time to teaching, and there are many other calls upon them of an administrative kind, and such calls are likely to increase rather than diminish. Thus they are taken away from research, the field of work in which their capacity has been proved. The Society has deliberately inverted the order of precedence of professorial functions; it has placed its new professors in a position to regard research as their primary duty, and thereby has sought to recognize research as a definite profession, and to advance and to maintain the principle that the labourer is worthy of his hire no less when engaged in research than when he is employed in class instruction.

The need for a definite sysfematized policy was made the more urgent by the munificent gift of Sir Alfred Yarrow to the Society early this year. In his letter of last February announcing his gift Sir Alfred Yarrow said that he would prefer that the money should "be used to aid scientific workers by adequate payment, and by the supply of apparatus or other facilities, rather than to erect costly buildings, because large sums of money are sometimes spent on buildings without adequate endowment, and the investigators are embarrassed by financial anxieties." In arriving at its new policy the Council of the Society has been advised by a committee of which the donor is a member, so that there can be no doubt that it commends itself to him.

The first indication of the new policy was afforded just a year ago when Dr. E. H. Starling was appointed Foulerton Professor. Down to that time he had held the Jodrell chair of physiology in University College, London, and in that capacity his primary duty was to teach undergraduate students. The series of brilliant researches by which he has laid physiology and medicine under so heavy a debt were, strictly speaking, secondary. At the same time let us recognize that he could not have been so good a teacher of physiology had he not himself been, through all the years of his teaching, an active research worker. He is continuing to work in the Physiological Institute at University College, which was brought into existence mainly through his exertions, and will remain a permanent memorial of the trust his character and achievements have inspired. The two Yarrow professors—the one, Professor Fowler of the Royal College of Science, South Kensington, distinguished for his research in spectroscopy and astrophysics, and the other, Mr. G. I. Taylor of Cambridge, whose contributions to the mathematical theory of hydrodynamics and to the physics of crystals are recognized to be of the greatest originality and importance—will both, like Professor Starling, continue their researches in the laboratories of whose traditions, as the President said, their reputations are already a part.

The policy the Royal Society has adopted to guide it in the administration of the funds that have recently come under its control may therefore be regarded as presenting two closely related but slightly different aspects. In the first place it recognizes that certain professors should be relieved from the duty of teaching in order to devote themselves entirely to researches in which they have already gained distinction; in the second place it establishes the principle that a man of suitable temperament and abilities should be able to look upon pure research as a definite calling or profession in itself, which holds out to him a prospect that in the full maturity of his powers he may be placed in a position to give all his energies to following up the line of scientific inquiry in which he has already achieved success. It is a serious adaptation of Disraeli's rather cynical epigram that nothing succeeds like success.

OESTRUS, OVULATION, AND MENSTRUATION.

IN spite of an accumulation of observations and hypotheses, the very diversity of opinion expressed on the relationship of ovulation to menstruation proclaims our ignorance of this elusive problem. Its interest is not merely academic, nor is its practical importance appreciated only by breeders of stock; every scientific gynaecologist will admit the limitations of our knowledge concerning sterility in women, the functions of the corpus luteum, and the significance of menstruation, normal and abnormal. Clinical and *post-mortem* data have hitherto afforded conflicting evidence, and observations on animals have failed to elucidate the matter, inasmuch as the outstanding peculiarity of the human female finds no exact and certain counterpart in the lower species. The trend of recent work, which is summarized by G. W. Corner in an able

Dr. MERVYN GORDON asked if the "coccoid bodies" dissolved in 1 per cent. NaOH or 1 per cent. acetic acid. He had come across similar bodies when examining cultures on boiled blood media. These "coccoid bodies" were easily distinguished from the granules obtained in filtrates from influenza. With regard to the good results claimed from vaccine treatment he suggested that the filter-passing virus of distemper might be adsorbed on to the "coccoid bodies."

Professor F. HOBDAY explained that he was not qualified to criticize the bacteriological details, but was deeply interested in the successful results of vaccine treatment, and thanked Dr. Billington for coming to London to impart his views. Dr. BARRATT suggested that the evolution of these coccoid bodies might be examined by dark-ground illumination.

Dr. BILLINGTON, in his reply, declared that many of the ordinary methods of performing blood culture were unsatisfactory; it was for this reason that he commenced his researches. He agreed that many of the points raised demanded further investigation. He did not claim that the bacillus isolated was the actual cause of distemper, but groups of bacteria were often associated together in disease—such as staphylococci with Pfeiffer's bacillus in influenza. In reply to Dr. Gordon he confessed he had not tried the effects of NaOH and acetic acid on the "coccoid bodies"; the size of these bodies varied with the concentration of calcium citrate and serum in the medium. The antibacterial properties of his vaccine might be due to the "coccoid bodies" or some hitherto unrecognized element.

DISEASES OF CHILDREN.

A MEETING of the Section for the Study of Diseases of Children of the Royal Society of Medicine was held on November 23rd, with Mr. R. H. ANGLIN WHITELOCKE, President, in the chair, when Dr. J. D. ROLLESTON showed a specimen of hairball of the stomach.

The specimen was from a girl aged 15, an epileptic idiot, who suffered from vomiting and diarrhoea for a week before her death. A mass was found in the epigastrium which was thought to be the enlarged right lobe of the liver. On *post-mortem* examination the stomach was found to be filled with a collection of hair which formed a complete cast of that organ. On inquiry from the mother it was learned that the patient had been in the habit of eating her hair since she was a baby.

Dr. Rolleston reviewed the bibliography of this subject. He considered the *x*-ray appearance so distinctive—the hairball appearing a lighter area in the midst of the dark shadow of the bismuth—that a correct diagnosis should now be the rule instead of the exception. Mr. H. A. T. FAIRBANK showed a photograph of a hairball removed from the ileum of a girl aged 8 years, whose symptoms resembled those of partial obstruction.

Dr. W. E. ROBINSON showed a case of lymphangioma of the foot in a child aged 7 months. The foot was noticed to be growing larger, especially in the region of the metatarsal bones and terminal phalanges. The *x* rays, however, showed the bones to be perfectly normal. He asked for suggestions as to treatment. Mr. C. MAX PAGE suggested that a Syme's amputation appeared to be the most rational surgical treatment for this case. Mr. H. A. T. FAIRBANK suggested that the diagnosis should be that of hypertrophy of the foot, and agreed with Mr. Max Page as to treatment.

Dr. BENJAMIN showed, for Dr. Robert Hutchison, a case of precocious puberty.

The child, now aged 3¼ years, began menstruation at the age of 17 months and had continued to do so at more or less regular intervals of one month up to the present date. The breasts were well formed and hair was present in the pubic region. Her weight and height were that of a child of 8 years. Mentally she was normal for her age, but had fits of bad temper. The carpal bones were ossified. He placed this case by a process of exclusion amongst those due to ovarian hypersecretion, although under an anaesthetic no definite evidence of this could be obtained.

Dr. C. WORSTER-DROUGHT showed a case of progressive neural muscular atrophy (peroneal or Charcot-Marie-Tooth type) in which the upper limbs were also affected.

The patient, aged 13, was one of a family of three, the other two not being affected. After the age of 2½ it was noticed that she turned her toes in and tended to fall down when she walked. During the past four years her feet had become more deformed and the hands and arms have wasted considerably. Her present condition showed her to be thin and nervous, constantly wriggling her feet and legs. There was a tendency to bilateral main en griffe with marked wasting of the small muscles of the hand. The lower extremities showed pronounced talipes equino-varus of both feet with wasting of the peronei. The electrical reactions were given in detail.

Dr. Worster-Drought remarked on the difficulty in drawing a hard and fast line between certain neural atrophies, nuclear atrophies, and muscular dystrophies. Dr. NEILL HOBHOUSE gave the details of a similar but less marked case. The remarkable feature of his case was that one femur was smaller than the other.

Dr. NORAH SCHUSTER and Dr. DONALD PATERSON showed a specimen from a case of paroxysmal tachycardia in an infant aged 9 weeks.

The specimen was the heart from a female child who had been admitted to the Infants' Hospital, Vincent Square, for blueness and shortness of breath from birth. The infant weighed 8 lb. When first seen it was wasted, feeble, and cyanosed, with a pulse of 200 to the minute. The heart seemed enlarged, as also was the liver. During her two days in hospital before death there occurred four different paroxysmal attacks lasting about ten minutes each, during which the infant had marked dyspnoea and cyanosis and was in obvious distress. The pulse at these periods became uncountable, afterwards falling as low as 140. Digitalis had no effect. On *post-mortem* examination a patent interventricular septum, patent foramen ovale, and patent ductus arteriosus were found. The pulmonary artery arose from the left ventricle and the aorta from the right ventricle. Microscopically the heart muscle showed degeneration with intercellular fibrosis.

Dr. GEORGE SUTHERLAND considered the case a very rare one, and cited a similar case of paroxysms of tachycardia which had been mistaken for petit mal. Dr. PARKES WEBER suggested that the cases reported in French literature under the heading of paroxysmal cyanosis were similar to this case. Dr. DONALD PATERSON, in reply, agreed that the reported cases were very few, but considered that attacks of blueness with rapid breathing were not uncommon in children with congenital heart disease. He wondered how many of these might turn out to be cases similar to the one reported were they as closely observed as this one had been. It was only by having the pulse charted hourly and specially taken during attacks that the condition could be diagnosed.

RADIOGRAPHY OF THE FOETUS.

A MEETING of the Obstetric and Gynaecological Section of the Royal Society of Medicine was held on December 6th, with the President, Dr. CUTHBERT LOCKYER, in the chair.

Dr. T. I. CANDY read a paper of very great interest on radiography of the foetus *in utero*. He referred to various technical difficulties and explained how these had been overcome. He was now able to obtain a satisfactory picture after an exposure of not more than five seconds. It was difficult to believe that so short an exposure could possibly harm the mother or foetus. In certain cases pregnancy had been demonstrated at a very early stage. Positive evidence was naturally irrefutable, and he was even inclined to regard negative evidence as definite in cases of supposed pregnancy of six months' duration or more. Pneumoperitoneum had been practised in certain clinics abroad as a means of facilitating *x*-ray demonstrations, but he regarded this procedure as unjustifiable. The advantages of radiography were obvious. It had hitherto been used most frequently perhaps to diagnose multiple pregnancy; it was of further value in demonstrating the position and lie of the foetus, the date of the pregnancy, and the relative sizes of the foetal head and maternal pelvis in cases of doubt. It had been interesting to observe instances of rapid change of position of the foetus *in utero;* also to note the marked separation at the sacro-iliac joints quite early in pregnancy. The recent judgement in the French courts raised points of considerable medico-legal importance.

Dr. GEOFFREY FILDES exhibited reproductions of illustrative radiographs. In one case he had been able to detect the existence of twins *in utero* eleven weeks after the last menstrual period. He had attempted to localize the placenta, but was not as yet satisfied with his results; although, in a case of placenta praevia, the evidence appeared to be sufficiently definite.

that it presents many difficulties. For instance, Siegel[2] has adduced statistical evidence which appears to show that the human female is fertile at all times of the cycle except possibly during the last week of the intermenstrual period.

It is therefore with very considerable interest that we note the results of certain definite experiments recently published by F. H. A. Marshall and W. A. Wood.[3] Dr. Marshall is the author of that invaluable source of information *The Physiology of Reproduction*, and his work demands the greatest attention. It may be explained that the terminology originally proposed by Walter Heape is generally adopted. Thus the "anoestrum" is the period of sexual quiescence; the "prooestrum" is the period of "coming on heat"; and the "oestrus" is the period of desire. The periods of prooestrum and oestrus are commonly referred to together as the "heat" period. Heape regarded the prooestrum, and not the entire "heat" period, in animals as the physiological homologue of menstruation in women.

The experiments of Marshall and Wood consisted in the cauterization, shortly before a "heat" period fell due, of all Graafian follicles visible on the surface of the ovaries of bitches. This destruction of the follicles was found to abolish that particular period, and also to determine a prolonged anoestrum extending over the duration of two or more oestrous cycles. "Heat" subsequently reappeared, however, indicating the ultimate resumption of normal function and also that the uterus had not undergone atrophy. A mere pricking or cutting of the follicles without actual destruction failed to postpone the period of "heat." The authors conclude that prooestrum and oestrus are due to an internal secretion of the ovary produced by the follicles during the pre-inseminal stage of development. This is distinct from the secretion responsible for uterine and mammary hypertrophy during pregnancy, which, in common with the majority of other observers, they assume to be produced by the corpus luteum. They also refer to an ovarian internal secretion which is responsible for maintaining the normal nutrition of the uterus; this they believe to be produced by the smaller follicles or by the interstitial cells. These conclusions in their entirety are possibly somewhat far-reaching on the basis of the actual experimental results, but the latter are obviously worthy of respect. Some further observations quoted in support of the theory are interesting if not conclusive. A condition of nymphomania has been described in cows and heifers in which the animals appear to remain continuously "on heat," and in which the larger Graafian follicles are found to have become cystic. Irradiation of the ovaries by x rays, which, as is well known, occasions temporary amenorrhoea, has been found to cause degeneration of the follicles, whereas the interstitial cells may even hypertrophy. The normal nutrition of the uterus of the rabbit has been preserved by ovarian grafts in which the follicle cells had degenerated, and, of the possible secretory elements, only the interstitial cells remained.

It is difficult to reconcile with various human observations the authors' contention that the corpus luteum

[1] G. W. Corner, *Physiological Reviews*, iii, p. 457, 1923.
[2] Siegel, *Zentralbl. f. Gynak.*, xlv, p. 984, 1921
[3] F. H. A. Marshall, F.R.S., and W. A. Wood, F.R.C.V.S., *Journal of Physiology*, lviii, p. 74, 1923.

points serve to emphasize the need for collabo between the gynaecologist, the comparative p logist, and the veterinary surgeon. A further which Dr. Marshall has recently published internal secretions of the reproductive organs[4] the utmost interest, and may even serve to r the most dogmatic clinician of the deficiencies knowledge.

CANCER AND HEREDITY.

The determination of the part played by heredity in presents peculiar difficulties. One is due to the fac the main incidence is at a time of life later than the reproductive period, so that the natural elimination morbid strain, which usually occurs with hereditary terious factors, would be inoperative in the case of c Furthermore, it renders it very difficult to collect co statistical information of the incidence of the dise the families of cancerous patients, and this diffic increased by the rarity of autopsies and unsatisf systems of death certification. Similar difficulties to the study of the question in animals, but the pr has been attacked from this side by Maud Slye[5] in An During the past twelve years she has made *post-m* examinations on more than 40,000 mice, all descenda a limited and carefully selected stock, bred together a ing to definite plans designed to give evidence as t influence of heredity on the incidence of sponta tumours. Every effort is directed to the one obj permitting each mouse to reach a maximum age, and experience and great care have made it possible to to a large extent the epidemic infections that cons threaten such large colonies of mice. All mice tha whether evidently cancerous or not, are submitte necropsy, and sections of all lesions that might be canc or concerning which there is any doubt whatever example, every pneumonic lung—are examined scopically. In this way more than 5,000 sponta tumours, mostly malignant, have been found, and the r have been summarized by H. Gideon Wells[6] in a recent on the influence of heredity on the occurrence of ca These experiments indicate that cancer in mice ap in most of the forms seen in man, and in far greater va than had previously been supposed. Strains were e lished in which, among many hundreds of indivi through twenty-five or thirty generations, not a single of tumour growth has been seen, while other strains been obtained with figures approaching 100 per tumour incidence for several generations. Not on the incidence of cancer influenced by heredity, but al site and its character. For example, in some st sarcoma is very common; in others it is found rare never. In some strains any form of malignancy than mammary cancer is seldom seen. In another there have been more than a hundred primary tumours, while in all the other mice examined in laboratory not a single liver tumour has been found only two have been reported from other laborat Another strain has yielded a considerable numbe tumours of the testis although not a single case has been reported from elsewhere. The resistance to c in these mice behaves in breeding, in Slye's exper like a typical Mendelian dominant character. The ceptibility behaves as a Mendelian recessive. In spi Wells's assertion that human statistical evidence is n

[4] F. H. A. Marshall, F.R.S., *Physiological Reviews*, iii, p. 335, 1923
[5] *Journal of Cancer Research*, 7, 107, 1922.
[6] *Journ. Amer. Med. Assoc.*, 81, 1017 and 1103, 1923.

In reply to Dr. EDEN, who suggested that x rays might be of value in following the course of the foetal head in labour, Dr. ROBERT KNOX said that he had already had an opportunity of witnessing a demonstration in America.

Mr. T. G. STEVENS showed two interesting specimens: an endothelioma of Bartholin's gland, and an ovarian cyst exhibiting a very early stage of papilliferous growth. The latter gave rise to a brief discussion as to the origin of this type of ovarian neoplasm. Dr. HERBERT SPENCER emphasized the advisability of removing both ovaries in cases of papilliferous cyst where the nature of the growth was discovered at operation.

Mr. J. BRIGHT BANISTER demonstrated a sarcoma of the Fallopian tube; a carcinoma of the Fallopian tube; and a uterus in which the scar of Caesarean section had ruptured at an early stage of labour. On inquiry, he had found the Caesarean section to have been performed at the previous (first) confinement on account of obstructed labour; the uterine wound had been sutured with silk, and the puerperium had been complicated by sepsis. Mr. EARDLEY HOLLAND referred to statistics indicating that Caesarean section scars had ruptured more frequently before the onset or at an early stage of labour rather than later in its course.

Dr. VICTOR LACK communicated a report of a case of cyst development in an autogenous ovarian graft. The graft, subsequently removed, had been found to contain ova in follicles, and follicular cysts. After the primary operation (double oöphorectomy and implantation of the graft into the abdominal wall) a period of amenorrhoea had been followed by the re-establishment of menstruation and eventually by excessive uterine haemorrhage. In the few cases previously recorded menorrhagia had similarly accompanied cyst development. This fact suggested an hypothesis as to the relationship of ovulation to menstruation. The PRESIDENT suggested that only the medullary tissue of the ovary should be used for purposes of grafting.

SPRUE AND COELIAC DISEASE.

AT a meeting of the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine on December 3rd a discussion took place on sprue and coeliac disease.

Sir LEONARD ROGERS, in opening, said that a large number of theories with regard to any particular disease indicated that we were ignorant of its real nature; that was especially true with regard to the causation of sprue—a group of symptoms which might be produced by several etiological factors, the essential factor being still unknown. The various theories might be divided into two groups: those suggesting digestive changes, and the infective theories. Of the latter the most important was that which ascribed sprue to the action of the yeast group of fungi. *Monilia psilosis* had also been suggested. It was probable, however, that yeast fungi were merely an aggravating secondary infection. Organisms of the group *Streptococcus viridans* had been identified, and good results had been obtained from the use of oral streptococcal vaccines. The great loss of colour in the stools lent weight to the theory of digestive deficiency, there being an excess of fat in the stools. In order to discover the originating factor of the disease it was necessary to study the early stages. Sir Patrick Manson had stated twenty predisposing causes, from long endemic residence to fistula and miscarriages. Hill-diarrhoea in India was a very important predisposing cause which threw great light on the subject, as the digestive changes in that disease had a suggestive similarity to sprue, and neglected hill-diarrhoea very often developed into sprue. Hill-diarrhoea was not infective, and would immediately cease upon removing the patient to a lower level. There was strong evidence for the belief that deficiency in vitamins was a predisposing cause of sprue, a diet of tomatoes and marmite giving good results, although marmite was an extract of yeast, the very fungus which was supposed to cause sprue. Vaccines had been used with a certain measure of success. Extraordinarily rapid recoveries had resulted from treatment on the theory of calcium deficiency.

Dr. REGINALD MILLER said that owing to insufficient knowledge of the two diseases there was no agreement as to whether coeliac disease was the same as sprue; but there were notable differences. Coeliac disease always originated in childhood, and, even without treatment, there was amelioration as maturity was reached. It was very seldom fatal, and did not occur in epidemics. Among children the essential feature of the disease was disorder of fat absorption, and it had nothing to do with intestinal disease, in many cases there being no diarrhoea, and usually no ulceration of the tongue. The stools were pale, unformed, frequent, excessively offensive, and contained a large excess of fat. The treatment consisted in withholding fat, and subsequently administering alkalis, the object being to convert irritating fatty acids into non-irritating soaps. Bile salts were also given. He was sure that coeliac disease was not a disease of the pancreas, nor was it an organic disease.

Dr. A. CASTELLANI said that infections by monilia and streptococcus were secondary. He had never had the slightest result from the use of monilia vaccines. He did not agree with the theory that sprue originated in syphilis. He had never found santonin treatment successful; alkaline treatment was certainly useful.

Dr. H. H. SCOTT read a paper on the nature and treatment of sprue, which is published in full at page 1135.

Dr. ARTHUR POWELL emphasized the differences between coeliac disease and sprue. In sprue *post-mortem* examination invariably revealed a shrinkage of the liver, great attenuation of the stomach, with loss of epithelium; these conditions were not observed in coeliac disease, which was characterized by enlarged spleen and great pain in the abdomen. Vomiting was more frequent in coeliac disease than in sprue. In coeliac disease the appetite was poor and capricious, whereas, unfortunately, in sprue it was the opposite. There was a tendency to dropsy in coeliac disease, while there was shrinkage of the body in sprue. In sprue he had known the pancreas to show the symptoms of syphilis.

Lieutenant-Colonel W. P. MACARTHUR said he had tried calcium and parathyroid extract with success in cases of sprue.

Dr. LOW said he had known cases of sprue—if it were sprue—in which the disease had developed ten years after the patient had returned to England. The curing of the septic condition of the mouth had been extremely beneficial, although he believed the effect was secondary. It was extremely difficult to know when a permanent cure had been effected.

Sir LEONARD ROGERS, in reply, said that he thought sprue might be due to the fact that vitamins were not properly digested, and not to any lack in the diet.

LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of the Liverpool Medical Institution held on November 29th, with the President, Professor J. HILL ABRAM, in the chair, Dr. W. JOHNSON read a note on acute infectious polyneuritis. He said that among the rarer forms of multiple peripheral neuritis was that known as auto-infectious or acute toxic polyneuritis. He gave a short account of two cases he had seen recently and pointed out that the disorder was usually ushered in by what the patient described as a "chill" or "influenza." There might be a variable interval between such a chill and the onset of the neuritic symptoms. These usually began as sensations of numbness and tingling in the toes and fingers, followed by marked motor weakness in all four limbs. Soon, the facial muscles became affected, and this observation, combined with, later, the occurrence of trunk muscle weakness, served to indicate the correct diagnosis. Sensation was dulled over the distal portions of the extremities, but the sensory loss was usually much less marked than the motor loss. Apart from other forms of peripheral neuritis, the condition might simulate Landry's paralysis and acute ascending myelitis at the outset. The peripheral distribution of the symptoms, the disordered sensation, and the presence of facial paralysis were the chief points which would lead to the diagnosis of acute infectious polyneuritis. The cerebro-spinal fluid showed no definite change.

Mr. LEYLAND ROBINSON said that the disease in one of Dr. Johnson's cases might be associated with a transfusion

sufficient accuracy or extent to render it of any value in the study of this subject, the problem has been attacked in an ingenious manner by Wassink and Wassink-van-Raamsdonk.[7] Starting from Slye's observation of the organ heredity of cancer in mice they interrogated over 1,000 cancer patients as to the cause of death of their relatives without inquiring specifically for cases of cancer. Among the families of 258 cases of cancer of the breast they found 102 cases of cancer, of which 40 were mammary cases. Taking the number of cases of cancer of the stomach in men —namely, 21—as a basis, and comparing the figures with the general death statistics, they find that the number of cases of mammary cancer in the families of their mammary cancer patients is eight times the figure that would be expected. The authors recognize that patients suffering from cancer in a particular organ would be more likely to remember other cases of disease in the same organ than in other organs in members of their families. In order to correct this error they take Bashford's estimate that one case of cancer may be expected in every two families, and assume that there are no cases of breast cancer among the unreported cases in their series. With this correction the figure is five times what would be expected from the general death figures. Similar evidence of organ heredity was found in cancer of the uterus, skin, lip, and tongue, but was lacking in mouth and throat cancer. This they attribute to the influence of tobacco and alcohol, though it is difficult to see why similar influences should not affect the figures for the lip and tongue. The numbers, however, are much smaller for the last four sites than for the breast, uterus, and skin. A wider application of this method of investigation should give results of considerable value.

AN ANTIMOSQUITO CAMPAIGN IN HAMPSHIRE.

AT the meeting of the War Section of the Royal Society of Medicine on December 10th Surgeon Commander G. O. M. Dickenson gave an account, based on a report by Surgeon Commander D. H. C. Given, at present abroad, of the measures taken to abate the mosquito nuisance in the Alverstoke district of South Hampshire. The nuisance has been known in the district for many years, and was mentioned in diaries half a century old, but there is evidence that it has become much greater of recent years, and is even likely to produce serious economic disturbance. The district, which comprises Browndon Camp and Stokes Bay, is low-lying, and during the spring tides the sea water percolates upwards through the shingle and forms pools which remain for a week or more. The area is also indented by creeks running inland from Portsmouth Harbour. The reasons why the nuisance has lately increased are considered to be that the camp moats are being dammed back by mud brought down by the river Alver; that the river, owing to silting, does not drain the land effectively and has been diverted by the construction of a railway embankment, whereby the original channel was left as a sort of lagoon, which became a prolific breeding ground. When Surgeon Commander Given commenced operations last March he obtained the help of Mr. J. G. Marshall, F.E.S., director of a mosquito control committee on Hayling Island near by, and it was established that the culprit was *Ochlerotatus detritus*, or salt-water mosquito, a species widely distributed around the coasts of Europe, from Denmark to Macedonia, and closely allied to the species infesting the coasts of North America. It breeds by preference in brackish or salt water, and "sows" its eggs extensively over the ground from April to October, and passes the winter in the egg or larval stage. The larvae are consumed by shrimps and small fish, and on this account are not found in the moats. The operations against the mosquito were carried out by a staff of army and navy men. The water level of the moats was reduced by two feet, the outlying pools were sprayed in the spring and early summer with oil and larvicide, and later, to ensure destruction of the eggs, shale oil or fuel oil was applied and lighted so as to form a barrage of fire; over the marshes specially made rakes were used to upturn the light and peaty soil, shallows were pumped out wherever possible and filled with shingle, and the ponds stocked with sticklebacks and shrimps, or with eels, which can live in a stagnant ditch or even in mud for long periods. There had been a marked diminution in the number of mosquitos during the summer, though there was some doubt whether this was due to the measures taken or to the fact that the season was unfavourable for breeding; Surgeon Commander Given's view was that the season was not unfavourable. In the ensuing discussion Lieut.-Colonel W. P. Macarthur expressed a doubt whether the species named was the only one concerned. He would have expected other species, notably the *Ochlerotatus caspius*, to be active, and, indeed, in the specimens sent from Portsmouth to Millbank both species were freely represented. Surgeon Commander Dickenson, however, said that the species mentioned by Colonel Macarthur was found only in very small numbers, and the chief cause of the nuisance was assumed to be the salt-water mosquito, which was present in great abundance. Wing Commander Whittingham and Colonel Crawford Kennedy remarked upon the extraordinary way in which mosquitos of this species bred at Malta.

TIME REQUIRED FOR GALL-STONE FORMATION.

WHILST in laboratory animals gall-stone formation may be induced experimentally in a few days or weeks, sufficient evidence of the time required in the human subject has not been forthcoming. The majority of the cases reported hitherto which are supposed to throw light on the point have been instances in which a surgical examination of the gall bladder was made after an attack of typhoid fever, and the period elapsing between the two has been taken, almost without question, as the age of the gall stones discovered. As calculi may exist during life without giving any noticeable symptoms of their presence it may be objected that their formation was antecedent to the attack of typhoid fever. The presence of typhoid bacilli within the calculus cannot be taken as clear evidence that they were imprisoned by the deposit of cholesterin, for it has been shown experimentally that biliary calculi, rendered sterile, can imbibe organisms from a culture. Cameron[1] reports an interesting case in which the usual criticism would seem to be met. Here the patient was submitted to operation under a diagnosis of cholecystitis. The gall bladder was twice the normal size, acutely inflamed, and tense from distension with fluid. The walls were thin, and no abnormalities of the biliary ducts were found. The gall bladder was evacuated, the escaping contents being first a colourless mucoid material and then normal-looking hepatic duct bile in a free flow. It was concluded that the obstruction to the cystic duct had been due to a mucous plug. The collapsed organ was ascertained by palpation and direct inspection of its interior to be free from calculi or cholesterin deposits, and it was fixed to a catheter for drainage. Normal-looking bile flowed freely for a fortnight, and on the catheter being removed at the end of that time bile continued to discharge through the fistulous tract for five days and then ceased. The patient was discharged twenty-four days after operation, but had to return to hospital on the fifty-sixth day on account of dull aching pains in the gall-bladder region, accompanied by the discharge of pus from the fistulous tract. An attack of influenza delayed the second operation till eighty-six

[7] *Nederl. Tijds. v. Geneeskunde*, 67, 2, 326, 1923.

[1] *Journ. Amer. Med. Assoc.*, November 17th, 1923, p. 1671.

British Medical Journal.

SATURDAY, JULY 14TH, 1923.

RESEARCH AS A PROFESSION.

TOWARDS the end of last February Sir Alfred Yarrow gave £100,000 to the Royal Society to mark his sense of the value of research to the community. He gave it to be used as capital or income, as the Council of the Society might think fit, because he recognized "that conditions alter so materially from time to time that, in order to secure the greatest possible benefit from such a fund, it must be administered with unfettered discretion." To emphasize this point Sir Alfred Yarrow suggested that any rules made for the administration of the fund should be reconsidered by the Council every tenth year, so as to meet modern needs. While leaving the Council this valuable discretion, he expressed his hope that the money would be used to aid scientific workers by adequate payment, and by the supply of apparatus or other facilities, rather than upon erecting costly buildings on which large sums of money are sometimes spent without adequate endowment, so that "the investigators are embarrassed by financial anxieties." He expressed his expectation that care would be taken that "a gift from the fund shall in no case lessen any Government grant."

The Council of the Royal Society has given attention to the best way of using Sir Alfred Yarrow's gift, and has this week published the result of its deliberations. The official announcement states that on reviewing the situation it appeared to the Council "that there was a marked deficiency of positions in which a man who had already proved his capacity could continue to regard research as the main occupation of his life. Consequently at the Council meeting of the 5th inst. it was finally decided to use the larger part of the income in the direct endowment of research by men who have already proved that they possess ability of the highest type for independent research. To this end a number of professorships will be founded, of type similar to the Foulerton Professorships, which were founded by the Society in 1922 for research in medicine. The professors will be expected to devote their whole time to scientific research, except that they may give a limited course of instruction in the subjects of their research to advanced students. There is at present a tendency to regard scientific research as a secondary occupation for men whose primary occupation is the teaching of students. The intention of the Royal Society in founding these professorships is to recognize research as a definite profession."

We make no doubt that the Council of the Royal Society has rightly interpreted Sir Alfred Yarrow's wishes, and it will be observed that the two gifts which have recently been received by it—the Foulerton and Yarrow funds—have enabled it to establish a precedent new in this country at least, and not very common in any other. This new precedent is that research shall be the primary object of the incumbent of one of these professorships, and not, as has usually of necessity been the practice, an occupation secondary to the teaching of students. Sometimes, it is true, the occupant of a university chair has put research first and teaching second, but as it is his duty to teach, the university authorities may be disposed to grumble—not without some reason. No doubt the stimulus provided by a class of students is useful to some men, but, as Sir George Newman has more than once reminded us, the art of teaching requires special training and, perhaps even more, a special aptitude. A man may be an excellent teacher — many examples will come to mind — and not good at research work. The converse also is true. The two aptitudes do not always exist together, and there have been great scientific investigators who had no aptitude for teaching, except by example to a chosen few who assisted in the laboratory. The result of the great experiment the Royal Society is now able to conduct will not be known perhaps for a generation, but in its hands, and administered, as the donor desires, "by the best people from time to time available," there can be no doubt that the scheme must have a favourable influence on the progress of science in this country.

VACCINATION PROPAGANDA.

THE Bishop of Gloucester, who a few weeks ago, as we noted at the time, wrote a very incisive letter about the folly or worse of neglecting vaccination, has more recently, in the House of Bishops of the National Assembly of the Church of England, complained of the lack of propaganda in support of vaccination as compared with the activities of its opponents; he seemed to consider that the medical profession in general, and its Gloucester members in particular, had been remiss.

The question raised by Dr. Headlam is worth discussion, and we will admit that the antivaccinationist agitators are past masters in suppressing the truth and suggesting the false, but he is probably not fully aware of what the medical profession has done to make the truth known. Apart from the abundant and incontrovertible evidence of medical authorities writing for their own profession, there has been from time to time a very considerable issue of pamphlets, tracts, and leaflets for the education of the general public. The Jenner Society, of which the late Dr. Bond of Gloucester was the leading spirit, did yeoman service in this way, and also by publishing in the newspapers letters refuting the specious fallacies the antivaccinationists are always ready to put out. The Vaccination League, founded by the late Mrs. Garrett Anderson, did similar work with the help of its secretary, the late Dr. E. J. Edwardes. All these unselfish workers are dead, but in the present day Dr. Arthur Drury of Halifax, secretary of the Association of Public Vaccinators, continues to track out and refute antivaccinationist frivolities and falsities.

The discussion about vaccination, attack and defence, was specially active after the issue of the Report of the Royal Commission on Vaccination, when new legislation was in preparation. The policy then advocated by the British Medical Association and in this JOURNAL was that vaccination and revaccination should be put on the same legislative footing, for both are required for the prevention of small-pox. It was thought that if this could be achieved the exemption of strenuous objectors might be allowed in respect alike of primary vaccination and revaccination, provided that they were willing to go to the trouble of registering their objection with proper legal formalities. The view was that the notoriety of cheap martyrdom had

a natural attraction for minds of the "anti" type, and that vaccination might rather be hindered than promoted by severe compulsory methods. Parliament, however, unwisely as we believe, declined to make revaccination obligatory to the same degree as vaccination of infants, and subsequent legislation has so slackened the pressure which still remained in favour of infant vaccination that it is now practically optional, though parents even now are reminded of their duty when their babies are about to reach the age of six months. In such circumstances it may properly be asked whether there is any special obligation on members of our profession to adopt methods of propagandism in advocacy of vaccination. In Gloucester twenty-seven local doctors issued in the local press a brief but emphatic statement of their views, which were reproduced in our columns on June 23rd. Are they in addition to spend their time in controversy with any fanatic who chooses to deny that vaccination protects against small-pox? Any man who has a taste for polemics may usefully find exercise for his pen, and is to be commended if he makes himself acquainted beforehand with the stock sophistries of the letter-writing ring of the antivaccinationists, but it is not all of us who have leisure and inclination. Parliament put aside the advice of the profession, and responsibility for the present position lies at its door. The shower of questions that has been falling in the House of Commons on the head of the Minister of Health is proof that in that House to-day there are many members willing and even anxious to accept it.

The British Medical Association has constantly advocated a sound vaccination policy and lent its support to suitable propaganda. A standing sub-committee, appointed in 1912 to take any necessary action in defence of vaccination, had under consideration the possibility of resuscitating the work of the Jenner Society. The Committee was in abeyance during the war, and it was ultimately decided that, as the society depended largely for funds and membership upon lay support, the Association could not wholly identify itself with it, though it would continue to lend active support to its work. The Jenner Society is now incorporated with the Research Defence Society. Meanwhile the Imperial Vaccination League had lost both founder and secretary through death, and the Association gladly accepted such assets as it possessed, holding them in reserve for propaganda work. In accordance with a resolution of the Annual Representative Meeting at Cambridge in 1920 the Association made representations on the necessity for more thorough vaccination of the community, and from time to time information on the subject is supplied to members and others seeking advice. The Association's pamphlet, *Facts about Small-pox and Vaccination*, is at present under revision.

The Ministry of Health a year or two ago issued an admirable little tract[1] expounding the value and importance of vaccination. Like Government publications in general, that tract is not popularly known, but it contains much information of the kind the Bishop of Gloucester considers, and very rightly considers, ought to be placed at the disposal of the public. We heard not long ago that the Association of Public Vaccinators have had in preparation a brief exposition of the realities of the case. If they issue such a document, needless to say they will be accused of wholly mercenary motives; but that need not disturb them—all men of sense will recognize that they speak of what they know.

In the meantime small-pox itself, mild in type though it fortunately be, continues to teach, wherever it appears, the truth about vaccination. The Ministry of Health, in the memorandum it has issued this week (p. 71), states that it regards the situation with concern, and holds the view that there is a distinct risk of an outbreak of a serious character. Small-pox, even when mild, is a hard schoolmaster, but in an invaded locality whoever will take no other instructor has to submit to the risks involved, while those who choose to accept the protection offered them by successful vaccination and revaccination can live with easy minds in the midst of any variolous epidemic, whether mild or severe.

[1] Reports on Public Health and Medical Subjects. No. 8: Small-pox and Vaccination. H.M. Stationery Office. 1921. Price 3d. net.

MEDICAL SERIALS IN BRITISH LIBRARIES.

LACK of access to the literature of his subject frequently baulks the scientific worker. The difficulty is perhaps particularly great in London, partly because it has many libraries devoted to medicine and other branches of science. It is a wearisome business to go from one library to another on the chance of finding the particular periodical wanted. In the hope of obviating this waste of time Professor R. T. Leiper, F.R.S., some time ago suggested to the British Medical Association to produce an index or guide to the libraries in which the very numerous scientific periodicals can be found. He has now, with the collaboration of Mrs. H. M. Williams and Miss G. Z. L. Le Bas, M.Sc., prepared such an index. The primary aim of the compilers was that it should be of practical service to research workers, and in the arrangement of the list now issued they have been guided by their own experience and needs rather than by the standards followed by professional librarians. It is hoped, however, that the work they have done will initiate a movement among librarians to bring into effective working some practical scheme to provide London with the many serials it lacks and to eliminate the unnecessary multiplication of copies of little-used periodicals of which there is a surfeit. The time cannot be far distant when financial consideration and restriction of space must impose limitations upon the growth of most London libraries. Frank recognition of this should lead to the early adoption of a plan whereby two copies of every periodical publication can be provided in London; one filed for reference, the other available, under proper conditions, for loan. The list prepared by Dr. Leiper and his colleagues serves to indicate where much of the periodical literature of medicine and the allied sciences may be consulted, not only in London, but also in Cambridge, Oxford, Edinburgh, Glasgow, Liverpool, and Manchester. It is an approximately complete list of such periodicals (including the serials of learned societies available in Britain), and it is believed that few important titles prior to 1921 have been omitted. Moreover, many publications of an ephemeral character have been included on account of their historical interest. The list has been compiled from library catalogues supplied by librarians or other officials, and from lists made personally by the compilers. Where official catalogues have been published the information contained therein has been in many cases and as far as practicable brought up to date. No direct responsibility rests on the librarians or other officials for the correctness of the information, but great pains have been taken to ensure accuracy. It should be noted that the entries for the libraries of the Universities of Edinburgh, Glasgow, and Liverpool comprise only periodicals still current, and are based upon lists recently

days after the first. Then a thick-walled contracted gall bladder was found containing numerous calculi of various sizes, the largest measuring 17 by 15 by 12 mm. For the most part they consisted of cholesterin, with a small amount of calcium and bile pigments. Thus the extreme age of these stones was eighty-six days, although it is highly probable they had already formed within a period of fifty-six days.

NURSING IN THE UNITED STATES.

IN December, 1918, the Rockefeller Foundation invited persons interested in the development of public health to attend a conference in New York to discuss the status of public health nursing and the education required for training the needed personnel. The result of the conference was that the president of the Foundation appointed a committee of seven in January, 1919, to study the proper training of public health nurses. The committee, amongst whom were such well known authorities as Dr. Welch of Baltimore, Professor Winslow of Yale, and Dr. Stillman of New York, was considerably enlarged, and a year later was asked to broaden the scope of its inquiry to include a study of general nursing education. The report,[1] published this year, is contained in a volume of close on six hundred pages on nursing and nursing education in the United States. The report of the committee, however, covers only thirty of these pages. The remainder of the volume is a survey by the secretary of the committee, Miss Josephine Goldmark, of the exhaustive and detailed investigations, made by herself and several nursing and lay assistants on behalf of the committee, into the conditions of nursing in the United States. These investigators have examined practically the whole field of nursing services, and have left no stone unturned in order to expose the existing conditions and to suggest measures for improving them. Miss Goldmark's survey is divided into two parts—the functions of the nurse and the training of the nurse—and each of these has a number of headings and subheadings, such as public health nursing, the nurse in private duty, the nurse in institutions, the hospital school of nursing, training courses for subsidiary nurses, the university school of nursing, and post-graduate courses. The committee emphasizes the fact that the public health nurse is an all-important factor in preaching the gospel of sanitation in the homes of the people—a fact which has been realized internationally in the present activities of the League of Red Cross Societies. In America 11,000 nurses are employed in this way, but the committee states that 50,000 are required in order to meet generally accepted standards. For hospital and private sick nursing there were at the time of the report 149,128 trained and registered nurses, including the 11,000 employed in public health service, some 11,000 more in hospitals and institutions, and 120,000 in private nursing, the total number representing one nurse for every 700 of population. But in addition to the registered nurses, there were 54,953 student nurses in the hospitals, and 151,996 of an unregistered class of nurses known as "attendants and practical nurses," so that the entire body engaged in nursing work in the United States was equal to one trained or untrained nurse to every 294 of population. The committee recommends the abolition of the untrained nurse and her replacement by a subsidiary class of nurse, to be called a "nursing aide," who should have a definite training, be licensed by the State, and be entrusted with the charge of chronic or convalescent patients, leaving the graduate and registered nurse for public health nursing and for the nursing of serious and acute cases. Three courses of training for nurses are recommended—one for the subsidiary nurse in smaller hospitals and institutions; a highly organized course for the registered nurse in training schools and hospitals, supplemented by post-graduate courses; and a university course for those undertaking special educational duties. At the close of the training in a university school of nursing the student would receive a diploma and a bachelor's degree in nursing or in science. The committee considers that these university schools of nursing are of fundamental importance in the furtherance of nursing education. The volume contains material which should be studied by all engaged in nursing services, and especially by hospital and public health administrators. If the committee's proposals are ever carried out in their entirety the nursing profession in the United States will reach a standard so far unequalled in any other country. The one thing lacking, however, in this highly organized education is the element of human sympathy, which is an essential attribute of the nurse, but cannot be taught. There is also the danger of overnursing in a community where the proportion of nurses is very high.

[1] *Nursing and Nursing Education in the United States.* Report of a Committee for the Study of Nursing Education, and a Report of a Survey by Josephine Goldmark. New York: The Macmillan Co. 1923. (Demy 8vo, pp. xvii + 585. 2 dols.)

COCAINE AND COCAINE SUBSTITUTES.

THE report published in this issue (p. 1154) of the discussion at the Royal Society of Medicine on the comparative value of cocaine substitutes is interesting as summarizing the present attitude of different branches of the profession to cocaine and its substitutes. The quiescent satisfaction with which medical practitioners had for some years regarded cocaine and its substitutes—using cocaine chiefly as a surface anaesthetic and novocain and stovaine as infiltration anaesthetics—was disturbed by the notoriety which the vice of cocaine-taking had gained in this country, giving rise to stringent regulations by the Home Office governing the sale of cocaine. In May last a committee was set up by Mr. Neville Chamberlain, then Minister of Health, to inquire into the whole question of cocaine and cocaine substitutes. This committee issued a circular to members of the profession thought most likely to be specially interested, but has not yet been able to make its report. Among the reasons for setting up the committee were the encouraging reports of a new cocaine substitute named butyn, a synthetic product discovered in Chicago in 1918, by the Abbott laboratories working in collaboration with Professors Roger Adams and Oliver Kamm of the University of Illinois. A committee of the Section of Ophthalmology of the American Medical Association reported in 1922 that butyn was more powerful than cocaine, acted more quickly and for a longer time, was less toxic, had no effect on the size of the pupil, had no ischaemic action and therefore caused no shrinking, could be boiled without impairing its efficiency, did not deteriorate by keeping, and had no attraction for the drug-taker. Mr. W. M. Beaumont[1] reported favourably on it, more particularly from the ophthalmological point of view, and said that he believed butyn to be superior to cocaine as a local anaesthetic. At the Annual Meeting of the British Medical Association last July Dr. William Hill[2] expressed the opinion that butyn might be a useful alternative where cocaine was contraindicated, and emphasized its low reported toxicity as compared with cocaine; on the other hand he pointed out that the cost of butyn was five times that of cocaine, that it was not uniformly reliable, having quite failed to anaesthetize on certain occasions, and that it did not produce shrinking. More recently Mr. Eric Watson-Williams[3] published a preliminary note of some experiments on the toxicity of cocaine, butyn, and other cocaine substitutes, which had

[1] BRITISH MEDICAL JOURNAL, January 13th, 1923, p. 57.
[2] Ibid., November 10th, 1923, p. 876.
[3] Ibid., December 1st, 1923, p. 1018.

simply the absorption of a negligible amount of morphine. The evil effects of excess of opium smoking are too obvious to be easily explained away.

I cannot close this letter without drawing attention to a remarkable little book by Dr. Giles, the professor of Chinese in Cambridge, entitled *Some Truths about Opium* (1923). He gives the history and some of the effects of opium in China. His views are those rather of the Royal Commission than others who periodically raise a scare in Europe. He says:

"An opium-smoker may be a man of exemplary habits, never even fuddled, still less stupefied. He may take his pipe because he likes it, or because it agrees with him; but it does not follow that he must necessarily make himself, even for the time being, incapable of doing business. Wine and moonlight were formerly considered indispensables by Chinese bards; without them, no inspiration, no poetic fire. The modern poetaster who pens a chaste ode to his mistress's eyebrow, seeks in the opium pipe that flow of burning thoughts which his forefathers drained from the wine-cup. We cannot see that he does wrong. We believe firmly that a moderate use of the drug is attended with no dangerous results; and that moderation in all kinds of eating, drinking, and smoking is just as common a virtue in China as in England or anywhere else."

My object in quoting this from the pen of a man who spent many years of free intercourse with the people as well as the officials of China is to show that even some vices may have a good side if practised with moderation. Intemperate language may be a means to an end in politics, but it has no part in science or medicine, and to overstate the case as to drug addictions can in the end serve no useful purpose.—I am, etc.,

Cambridge, Dec. 4th. W. E. DIXON.

COCAINE HABIT FROM EYE DROPS (?).

SIR,—The following case raises a question of some general interest:

A woman aged 56 recently consulted me for rapid deterioration of visual acuity in the right eye. Examination of the fundus revealed thrombosis of the superior temporal retinal vein. The right pupil was moderately dilated and fixed. A mucocele of the right lacrymal sac was present. Questioning of the patient revealed that in 1901 a well known surgeon had been consulted for a swelling over the area of the right lacrymal sac and for the condition had ordered 3 per cent. cocaine drops, to be followed in a few minutes by zinc sulphate drops. The patient never returned for further consultation as advised, but had persisted in the use of these drops twice daily ever since (twenty-two years). Considerable difficulty has been experienced by me in endeavouring to persuade the patient to give up the cocaine application and substitute a miotic, although the increased likelihood of glaucoma becoming added to the already diseased eye was explained.

The unwillingness to give up the cocaine would appear to suggest that a cocaine habit of a mild nature had been formed. Therefore it seemed to me that this case was worth recording.—I am, etc.,

F. C. PLUMMER, M.D.,
Honorary Assistant Surgeon,
St. Paul's Eye Hospital, Liverpool.

November 29th.

THE ETIOLOGY OF MEASLES AND OF SCARLET FEVER.

SIR,—In the BRITISH MEDICAL JOURNAL (October 27th and November 10th) short accounts are given of the recent research work on the bacteriology of scarlet fever. The valuable results obtained by G. Caronia and M. B. Sindoni[1] are therein mentioned, together with the results reported by other authors. The results reported by Professor Caronia in his latest papers[1] [2] must be well distinguished from those obtained by others who have not supported their morphologic and cultural findings by sufficient proof, neither by serologic and immunologic tests, nor by experimental transmission of the disease to animals or—what is more important—to human beings. Professor Caronia has full right to claim that the micro-organism, first described by Di Cristina in December, 1921, and afterwards accurately studied by himself from all standpoints, is the specific agent of scarlet fever; and that the other micro-organism which he has been

[1] Caronia e Sindoni, *La Pediatria*, xxxi, No. 14, July 15th, 1923.
[2] Caronia, Ibid., xxxi, No. 15, August 1st, 1923.

The micro-organism which is constantly visible in smears from the bone marrow, from the spleen, from the scales,[3] from the centrifugalized urine,[4] and from the throat mucus of scarlet fever patients, is a very small coccus which is often united in pairs (otherwise the cocci are isolated) and can be grown in an indefinite series on anaerobic culture media (Di Cristina or Tarozzi-Noguchi type). The same organism constantly grows on these culture media when blood, cerebrospinal fluid, filtered urine,[4] filtered extract of scales,[3] and filtered nasopharyngeal mucus[5] is inoculated into them. Sufficient evidence has been brought to demonstrate that this micro-organism passes through an ultramicroscopic phase (the microscopically visible forms can be obtained by culturing the filtrate of well developed cultures).

From measles patients a similar organism can be isolated and cultivated (in the same way as before said). This micro-organism, which Professor Caronia was the first to isolate, to describe, and to prove to be the specific agent of measles, is morphologically different from the scarlet fever agent: it is Gram-negative and the cocci have a nearly round form, whereas the scarlet fever cocci are slightly oval in form and are Gram-positive.

All the serologic and immunologic tests prove the scarlet fever cocci to be different from the measles cocci. The specificity of these germs (the scarlet fever as well as the measles germs) is proved with certainty by the following facts:

1. An antigen prepared from the cultures reacts positively to the antibodies contained in the blood serum of scarlet fever (or measles) patients (agglutination, complement fixation, opsonic index).
2. Young rabbits inoculated with these cultures develop a disease which is in many features similar to human scarlet fever (or measles); redness of the skin can be detected, which is followed by evident desquamation. The blood serum of these infected animals (rabbits) reacts positively to an antigen prepared from the scales of scarlet fever patients.
3. The inoculation of carefully and duly dosed cultures, to children in anergic state, is followed by an attenuated form of scarlet fever—or of measles. Through this attenuated form of the disease the children acquire a definite immunity. These experiments, which have always been governed by the main thought of doing no harm, and were done in children only after they had been proved to be quite harmless (the authors previously inoculated cultures of the scarlet fever agent to themselves, developing a very attenuated form of scarlet fever), were never followed by any ill consequences.
4. The inoculation of dead cultures to healthy children has an immunizing effect; these children, though kept in close contact with scarlet fever patients, do not develop the disease; their tonsils can be harmlessly swabbed with the nasopharyngeal discharge of sick children in the rash period.

This success in vaccinating children by means of dead cultures, besides being an important proof of the specificity of Di Cristina's and of Caronia's germ, is a result of the utmost importance. In diseases so serious and frequent as scarlet fever and measles it is essential that the value of a preventive vaccine of so great an efficiency should be generally acknowledged. Doubt is no longer possible as to the vaccinating efficiency of killed scarlet fever and measles cultures. In our clinic scarlet fever and measles patients are kept in the same room and in neighbouring beds; in six months some hundreds of children have been thus kept in our clinic after having been vaccinated against the disease—the scarlet fever children against measles, the measles children against scarlet fever—and no child has contracted the other disease. All members of the families to which a scarlet fever child belongs have always been vaccinated against the disease, and the vaccine has never failed to protect the grown-up people as well as the children against the infection.

Evidence of the prophylactic efficiency of the vaccine has already been brought from many parts of Italy where scarlet fever epidemics have in these last months been noted; many families of sick children and all scholars of some infected schools have been there vaccinated. The experiments of Professor Caronia have already been supported by the evidence of various authors, and are to be repeated by French and German investigators.—I am, etc.,

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[3] M. B. Sindoni, Ibid., xxxi, No. 16, August 15th, 1923.
[4] P. Ritossa, Ibid., xxxi, No. 17, September, 1923.
[5] G. Vitetti, Ibid., xxxi, No. 18, September 15th, 1923.

brought him to the conclusion that butyn was at least as dangerous as cocaine. In three of the fatal cases reported by Mr. E. Watson-Williams cocaine was, however, applied as well as butyn, and one death was clearly due to an overdose of butyn. At the joint discussion at the Royal Society of Medicine the consensus of opinion seemed to be that as no other drug than cocaine combines ischaemic and anaesthetic properties no existing substitute can effectively supplant it; that the claims made for butyn as regards freedom from toxicity are apparently unfounded; and that with the control now exercised in this country the possibility of abuse by narcomaniacs need not concern the surgeon. At the same time it may perhaps be suggested that cocaine is often used in unnecessarily large quantities. In 1888 De Havilland Hall showed that the alkalinization of cocaine solution by a trace of sodium bicarbonate greatly increased its anaesthetizing powers. A. Abraham[4] recently stated that he had found a 3 per cent. solution of cocaine to be as effective as a 20 per cent. solution in inducing surface anaesthesia, provided that potassium sulphate (2 per cent.) was added to the solution up to a quarter of its amount; this confirms the observation of Hirsch in 1920.

POIKILOCYTES IN NORMAL BLOOD.

DRESBACH in 1904 described a case, a normal healthy young adult, in which 90 per cent. of the red blood corpuscles were elliptical in shape, the average length of the corpuscles being two and a half times that of the average breadth. In all other respects the appearances were normal. Ten years later Bishop found a similar condition in the blood of a young male who was suffering from appendicitis, 75 to 80 per cent. of the red corpuscles being elliptical. The possible effect of mechanical distortion in making the preparations could be eliminated. The sister of this patient showed the same abnormality, an observation which suggested some congenital peculiarity. Huck and Bigalow[5] now add another case. Fresh preparations made from the blood of a strong healthy female medical student disclosed elliptical and elongated red cells forming between 53 and 84 per cent. of the total erythrocytes. No nucleated erythrocytes could be found, and the various leucocytes and platelets were normal, as was also the haemoglobin estimation. Wet preparations preserved for a period of three weeks showed no increase in the percentage of abnormal forms, in marked contradistinction to the phenomena observed in the so-called "sickle-cell anaemia," of which an account was given recently (p. 1109). The mother of this patient had the same blood peculiarity, but none of the rest of the family. The patient herself has several times acted as a blood donor, and no untoward effects have been noticed in the recipients; indeed, in one patient with secondary anaemia who recovered no elliptical cells could be found after two months. We may conclude, therefore, that the anomaly is inherent in the cells, and cannot be transmitted by intravenous injections of blood. Hereditary transmission, while not definitely established, is probable.

PELLAGRA AND MAIZE.

As we had recently to recall, the etiology of pellagra is still in doubt. There is some evidence that it belongs to the class of deficiency diseases, and the oldest theory is that it is associated in some particular way with a diet of maize. This theory has been called into question over and over again, and fresh evidence against it is afforded by a recent bulletin issued by the American Relief Administration. When it was decided early in 1922 to send seven million bushels of maize to Russia the wisdom of choosing that cereal was questioned on the ground that its use as an exclusive diet might be expected to lead to an outbreak of pellagra in the famine area such as had occurred in Rumania in 1916. The ordinary diet of the Rumanian peasant consisted of corn meal mush, milk, and onions; pellagra made its appearance soon after the milk element of this diet disappeared, when the German invaders drove off all the cattle. Mainly because the money available for relief in Russia would buy two and a half times as much maize as any other cereal, it was decided to risk the chance of pellagra, for, as one of the administrators expressed it, "corn (maize) was the sole hope against death; Russia had got beyond the fear of disease." In the result no outbreak of pellagra occurred; in the whole of the Volga famine district not a single case was reported. In Ukraine there were twenty suspected cases which were specially investigated. Of these only four were found to be suffering from true pellagra, and not one of the four had eaten any of the American corn. The supplementary food of the Russian peasants was negligible, for previous to the arrival of the corn they had existed on the bark of trees, clay, weeds, and even human flesh. With maize as their sole article of diet, nevertheless, they did not develop pellagra.

SMALL-POX AND CHICKEN-POX IN THE UNITED STATES.

A RECENT report[1] by Dr. Hugh S. Cumming, Surgeon-General of the United States Public Health Service, contains some interesting data as to the prevalence and fatality of notifiable diseases in 1922. In health administration the several States are independent of each other, and to a large extent of the federal authority, so that returns are not always strictly comparable, case rates and death rates having a significance depending partly on differing standards of local vigilance and of reporting by practising physicians. Even the total populations dealt with are not absolutely identical, though very nearly so. In forty-three States and three Districts (population 103,318,256) the small-pox cases reported in 1922 numbered 1,691, as contrasted with a "median"[2] of 60,914 in 1913-21. The fatality rates differed immensely as between State and State. In Arizona there were 134 deaths in 468 cases, or 28.6 per cent., and in Colorado 270 deaths in 1,086 cases, or 24.9 per cent. Next came Missouri with 82 deaths in 657 cases, or 12.5 per cent., Kansas with 68 deaths in 842 cases, or 8.1 per cent., and Oklahoma with 57 deaths in 736 cases, or 7.7 per cent. These States adjoin each other in the north-west central and south-west central parts of the United States. Pennsylvania and Maryland, in the north-east, had each a 5.9 per cent. fatality rate, but the total cases were only 102 and the deaths 6, so the figures are not important. At the other extreme from the high fatality of Arizona and Colorado, a number of States were well under 1 per cent. in their case mortality. Of the total 31,691 cases in the year 841 proved fatal, so that the fatality rate over all was 2.68 per cent. Making every allowance for imperfect returns it would seem fairly certain that very different types of small-pox have gone to make up this average rate. Dr. Cumming's report, being only statistical, does not comment on questions of prevalence or types or fatality, and small-pox is only one of twenty-four communicable diseases dealt with. The statistics of chicken-pox are of interest in the present connexion. In forty-six States and three Districts (population 107,385,283)

[4] BRITISH MEDICAL JOURNAL, EPITOME: October 27th, 1923, para. 364.
[5] *Bull. Johns Hopkins Hosp.*, November, 1923, p. 360.

[1] Public Health Reports, Vol. 38, No. 44. Washington. 1923.
[2] The word "median" is not quite identical with "mean" or "average," but is used in preference, and "has been defined as the middle item in an array. If the numbers of cases reported are arranged so that the greatest number reported in any one year is first, the second greatest number is second, and so on, then the number of cases in the centre of the array is the median."

PIGMENT AND CANCER.

SIR,—May I be allowed to endorse the opinion of Sir George Beatson (December 1st, p. 1066) as to the importance and value of the Bradshaw Lecture on melanosis by Mr. W. G. Spencer? It is very probable that a definite knowledge of the mode of origin of pigment would be most helpful in ascertaining the nature of melanotic cancer.

Spencer considers, as did Beatson in his paper on the possibility of a pigmentary origin of cancer (*Lancet*, 1922, ii, p. 655), that melanin pigment is not derived from haemoglobin; though it is interesting to note that the latter, in his letter, regards nutrition as a primary factor in its production, and refers, moreover, to the admitted connexion between chlorophyll and haemoglobin. I have recently endeavoured (*Journal of the R.A.M.C.*, October, 1923) to revive the view formerly in favour that pigment is derived from haemoglobin—as a product of haemetaboly on the part of epidermal cells. It is known that various chromogen groups are contained in or can be obtained from haemoglobin.

In melanotic cancer I would consider the pigment production a concomitant result of increased and modified haemetabolic activity on the part of the cancerous cells rather than as the exciting cause of the growth. One or two observations brought forward by Spencer appear to me to militate against Beatson's view: namely, (*a*) that horses which keep their hair dark—that is, strongly pigmented—rarely suffer from melanotic cancer; and (*b*) that even though melanomas are very common among darker human races (to which may be added the fact of their pigmented skin), yet melanotic cancer is apparently very rare among such. If pigmentation were concerned in the causation of these growths, should we not expect to find them occurring particularly in these two groups?

Spencer points out that cancer tends to arise in the areas of pitch-black pigmented skin, but only in grey horses which are turning white with increasing age—that is, in which pigment production generally is failing. I would suggest that the development of the malignant behaviour in such cases may indicate a biological reaction on the part of the cells concerned to an excessive degree of pigment production, correlated with the general failure of this haemetabolic function elsewhere. Nor is this reaction probably limited to the epidermis, because I think there can be little doubt, from Acton's recent work, that dermal cells can themselves also produce pigment—normally as well as abnormally. In the case of one or both of these types of cells this particular function becomes changed, at any rate largely, into one ministering directly to their growth, nuclear increase, and resultant proliferation. In other words, I agree with Dr. Charles Creighton that such cells have become cancerous because they have taken to living on the blood elements.

On the other hand, again, in white peoples, the normal haemetabolic function of pigment formation is very largely in disuse (customarily) as regards the general epidermis. Pigmented naevi indicate, I would say, an (abnormal) exceptional retention of this property; already there is a tendency on the part of certain cells to the exercise of this special form of haemetaboly in unusual degree. Such cells, therefore, may in the circumstances be particularly liable to go a step further and develop malignant behaviour.—I am, etc.,

London, S.W., Dec. 4th. H. M. WOODCOCK.

CANCER AMONG NEGROES.

SIR,—From time to time I notice in the JOURNAL references to cancer among negro races. Some seem to assume that it does not exist. I had imbibed that theory, and hesitated to remove a tumour that had all the appearance of an early scirrhus of the breast. I was away from the station (Bandawe, Nyasaland) for some time, and when I next saw the patient the tumour was inoperable. It ran an uninterrupted course, completely destroyed the breast, then the soft structures of the chest wall, and then ate through the ribs; when I last saw the negress in her village I could see the heart pulsating. That was just before her death. I have since made it a rule to excise all mammary tumours whenever the patient will agree. I have also seen epithelioma of the face. In this case the eyelids and the whole of one eye were completely destroyed, and the bone of the eye socket was attacked; the case was inoperable. I have seen a tumour, fungating and evidently malignant, that had practically split the bones of the face, causing the eyes to bulge laterally and giving a strange chameleon look to the patient. It was inoperable. I have seen cancer of the left ovary that proved fatal. I believe I have seen cases of malignant disease of the liver, but as there was no autopsy the diagnosis was not confirmed. I have removed many large tumours of the testicle which, if not cancerous, are of a nature unknown to me. Keloids and fatty tumours are very common.

Cancer of the lip or mouth I have never seen. Natives cook their food in earthen pots without handles, and as these pots have to be lifted between the two hands I doubt whether the food is ever so hot as we Europeans cook it. It is always allowed to cool a little before it is divided out for eating. The throat cancer attributed to hot rice among the Chinese is not seen here. They are inveterate smokers, but they do not smoke as Europeans do. They do not go about with an irritating pipe stem between the teeth or a cigarette between their lips. The fashionable pipe supplies a cool smoke. The lips are everted and applied to the end of the pipe like a rubber suction plaything one sees children with at home. One wonders where the smoke is going. Then there is a deep grunt of satisfaction. The pipe is removed, the end wiped carefully, and passed on to the next. But you watch number one, who sits till there is a dazed look in his (or her) eyes and then smoke emerges slowly from the nose like peat reek from a lum. Where this has been accommodated is a source of wonder. But the native has got full value from a very economical portion of tobacco and there has been no prolonged irritation of the lip.

If there is a relative immunity to cancer I do not think we can attribute it to the absence of a meat diet. The negroes, when they can get it, eat far more meat than the white people. There is no limit to the variety or the condition, and some might wonder whether there is a limit to the quantity. They are only vegetarians when there is nothing else to be had. Anything from a fieldmouse to an elephant is welcomed. The meat may still be warm when thrown on the ashes to cook, or it may be so old that the maggots have to be beaten out of it. Even the skin of a hippopotamus is stored away and cooked when other meat is scarce. It makes a dish something like a jelly. My native carpenter calls it "glue." I do not think we can attribute even relative immunity to the lack of a meat diet.

There is one element in modern life of which the white races have more than their share, but which is an almost complete stranger to our coloured friends. That is *worry*. Most of us have seen malignant disease follow periods of great grief or prolonged worry. The negro does not worry. His grief may be acute, but it is brief, and there is no attempt at repressing the emotions. A mourning for the dead means a flood of tears while it lasts. In that there is relief. May not suppressed emotions and the prolonged worry associated with so many callings in life at home be determining factors?

At present we have no reliable vital statistics. The causes of death among the bulk of the population of our African dependencies are still to be investigated. An outbreak of sleeping sickness arrests attention, as does an epidemic of small-pox. But the bulk of the people die and are buried without any medical man making any inquiry whatever.

There is immense scope here for medical men who have the time and the talent to devote themselves to the study of disease. A medical missionary may find a maternity case and a cataract case only incidents in an already overcrowded day. We find microscopic work on the blood, stools, and urine too captivating to allow of our studying the gross pathological conditions. But there is immense scope for the pathologist, and a very interesting field for investigation would be the tumours affecting natives.—I am, etc.,

Kasungu, Nyasaland, Sept. 17th. GEORGE PRENTICE.

there were 131,018 notifications, and in forty States and three Districts (population 98,252,556) there were only 70 deaths, the fatality rate being 0.05 per cent., or one death in 2,000 cases. The largest prevalence was in Pennsylvania, but among 19,112 cases not a single death was recorded. In Illinois there were 13,442 cases with 13 deaths, or 0.1 per cent., and in New York there were 15,481 cases with 16 deaths, again 0.1 per cent. Taking the total figures set down for small-pox as contrasted with those for chicken-pox, the small-pox fatality rate, low though it was, was fully fifty times as high as the chicken-pox fatality rate. Where the small-pox fatality rates were very low the figures for the two diseases more or less overlapped, but the broad indication would seem to be that, notwithstanding possible errors in individual cases, the profession in the States has been fairly able to recognize the distinction between chicken-pox and the mild type of small-pox, just as the two diseases have been distinguishable in this country. To this subject of the comparative diagnosis of these diseases two contributions were published in our last issue, the one by Dr. Painton, illustrated by a set of photographs on special plate paper, and the other by Dr. G. F. Rigden. Both writers have had experience of recent events in Gloucester and Gloucestershire. As regards prevalence apart from mortality, the seven American States in which there was most small-pox, measured by the number of notifications per 1,000 of population, were Oregon 1.41, South Dakota 1.32, Arizona 1.27, Washington 1.13, Montana 1.07, Colorado 1.01, and Wyoming 1.00. The seven States with most chicken-pox, similarly measured, were Vermont 4.17, Columbia (District, not State) 2.71, Mississippi 2.34, Pennsylvania 2.13, Virginia 2.03, Illinois 2.01, and Wisconsin 2.01. It will be observed that no State appears in both of these lists.

A POST-GRADUATE course on diseases of the nervous system will be held at the National Hospital for the Paralysed and Epileptic, London, from February 4th to March 28th, 1924. It will consist of clinical lectures and demonstrations, attendance in the out-patient department, and pathological lectures and demonstrations. The fee for this course will be five guineas. If there are sufficient applicants there will be a special course of lectures on the anatomy and physiology of the nervous system (fee, two guineas). A series of clinical demonstrations on methods of the examination of the nervous system (fee, two guineas) will be given. A course of eight lectures and six demonstrations on neurological ophthalmology has also been arranged; the number for this course is limited, so that applications should be made early. The fee will be five guineas as a separate course, or three guineas if taken as part of the general course. A limited number of students can be enrolled as ward clerks or as clinical assistants in the out-patient department. Applications should be addressed to the secretary of the medical school at the hospital (Queen Square, W.C.1).

DR. JAMES GRANT ANDREW, who two years ago retired to Bournemouth, died very suddenly there on December 6th. After making a recitation at a Scottish graduates' dinner he fell back in his chair and immediately expired. He was consulting surgeon to the Victoria Infirmary, Glasgow, and had served on the Council and many committees of the British Medical Association.

OWING to the Christmas holidays all communications and advertisements intended for insertion in our issue dated December 29th should be received not later than Saturday morning, December 22nd.

ANNUAL DINNER OF THE ROYAL SOCIETY OF MEDICINE.

THE annual dinner of the Royal Society of Medicine was held at the Hotel Victoria on Tuesday evening, December 11th. Sir WILLIAM HALE-WHITE, K.B.E., President of the Society, was in the chair, and the principal guest was H.R.H. the Prince of Wales, who recently became an Honorary Fellow. The other guests were the Archbishop of Canterbury, Viscount Haldane, and Sir W. Joynson-Hicks, M.P. (Minister of Health). About 500 Fellows attended, and among those supporting the president at the principal table were: Sir Humphry Rolleston, Sir John Bland-Sutton, Sir Anthony Bowlby, Sir William Macpherson, Sir Robert Hill, Sir W. Arbuthnot Lane, Sir Berkeley Moynihan, Sir Thomas Horder, Sir StClair Thomson, Sir William Willcox, and the presidents of the Sections.

The Progress of the Society.

The PRINCE OF WALES, who was enthusiastically received, proposed the toast of "The Royal Society of Medicine." He said that he had been looking through the history of the parent body, the old Medical and Chirurgical Society, and he noted the advice given by one of its former presidents, Sir Benjamin Brodie, who urged all, and especially the young, to abstain from medical politics and to keep away from exciting and irritating discussions. He thought that advice very sound, and his object that evening was not to start any irritating discussions, but chiefly to say how deeply he appreciated the honour which the Society had conferred upon him by electing him to the honorary fellowship. Someone had said that society would be happier if there were no societies, but the Prince thought that the community was well able to look after itself in this respect. The law of the survival of the fittest was merciless where learned bodies were concerned. If any learned body failed to prove its worth no artificial feeding would prevent it from becoming a learned corpse. But when a society, having started from small beginnings, developed into an institution of increasing numbers and prestige so that its name was known and honoured throughout the world, one could be quite sure that the world had real need of it, that it had a genuine job to do, and was doing it very well. He did not think anyone could dispute that the Royal Society of Medicine belonged to this latter category, though it was not for him as the youngest honorary fellow to praise its work or predict its future. The Society was a federation of sixteen distinct medical bodies, each of which existed at one time separately in the interests of its own particular branch of medical science. Twenty years ago, with a wisdom that did them credit, they decided to fuse their separate existences into one body representing medical science as a whole. The Royal Society of Medicine was the result of the fusion, and as a consequence all its elements had grown not sixteen but sixtyfold stronger. This achievement was largely due to the energy and perseverance of Sir John MacAlister, who might well be proud of his achievement, as the Society was proud of him. (Applause.)

Sir W. HALE-WHITE, after thanking the Prince, said that the Society was manifestly prospering. It numbered four thousand Fellows and Members. During the past year it held one hundred meetings. To its library—the largest and best equipped medical library in the Empire—2,000 books had been added, making 120,000 in all. During the year it had sent out 3,000 parcels of books to Fellows resident in the country or overseas, in addition to the books lent to those in town. The number of Fellows who wrote for information which was to be gathered out of the library was so great and their wants so particularized as to consume the whole time of one official. The library contained 4,000 medical prints, which, thanks to the kindness of Dr. Arnold Chaplin, would presently be catalogued, remounted, and indexed. He paid a tribute to Sir John MacAlister, the best of friends and the wisest of counsellors, and to the indefatigable staff, honorary and other, all of whom pulled their weight. The year 1923 had seen the Society breaking new ground in two directions. The Society, as His Royal Highness had said, was the result of an amalgamation of some sixteen others. Owing to the development and advance of medicine, several special Sections had had to be added, so that the Sections now numbered twenty-four. It was

Victorian conceptions of the relationships of anatomy to medical science. His remarks on anatomical nomenclature call, however, for some comment.

It may be readily admitted that the present position of anatomical nomenclature is chaotic and reflects little credit on the profession or on professional anatomists. Prior to the introduction of the Basle nomenclature in 1895 there were about 30,000 names, duplicates, and synonyms employed in human anatomy. The Basle commission, by insisting on the principle of one structure one name, reduced these to about 4,500, and at the same time suggested that related terms should, as far as possible, be similar; thus, femur, femoral artery, femoral vein, femoral nerve. It is neither logical nor scientific to retain "femoral" for the vessels and "anterior crural" for the nerve. Similarly the main nerve trunks of the superior extremity—an adjective open to objection—were renamed from their positions—radial, medial, and ulnar; and hence, to the consternation apparently of the older generation, the term "musculo-spiral" disappeared. Had your reviewer read my preface a little more carefully he might have realized that I do not regard even the B.N.A. as the last word on anatomical nomenclature. I merely adopt it, because it has been almost generally incorporated into practically every modern anatomical textbook in the English language, as it is the only standardized, international, scientific, and uniform terminology we possess, and it is not even necessary to employ the original Latin names, as all or nearly all are easily translatable into one's own tongue. Your reviewer imagines that a small band of die-hards are going to impose what they are pleased to call an "old terminology"—that is, a chaotic freedom to call any structure in the human body anything one pleases—on the scientific members of the profession all the world over. He is offended by seeing "'hilum,' the abbreviated form of nihilum, consistently spelt 'hilus,'" which he apparently attributes to ignorance. He does not appear to be aware that it is really the other way about—"nihilum" was derived from "hilum"; and in any case, the Basle commission, which included, I believe, Sir William Turner, Professors D. J. Cunningham, G. D. Thane, and some 120 other non-German European members, dropped "hilum" entirely, and substituted "hilus" in accordance with another of their general principles—that every term should be philologically correct, and as short and simple as possible.

Very unfortunately, as I think, the Basle commission sanctioned two series of descriptive terms, the one only applicable to the human body, the other equally applicable to all animal forms. Your reviewer prefers the former; I the latter. On this point I hold the strongest views. To say that "the transverse colon is in contact cranially with the liver and gall bladder" is "un-English" is ridiculous. Presumably your reviewer would have preferred some such term as "above" or "superiorly," ignoring the fact that such expressions are not here equally applicable to the embryo or the quadruped. Is it to be imagined that it is to-day possible, or even desirable, to teach human anatomy to medical students without constant reference to embryology, comparative anatomy, and even pathology—that is, normal anatomical relations as disturbed by disease? What other term but "cranial" is equally applicable, equally scientific, and equally intelligible? A precise science should have a precise language, and such expressions as "above," "beneath," and "behind" leave the reader constantly guessing as to what the author really does mean.

Surely the time has come, if indeed it is not long overdue, for English-speaking anatomists to determine finally their own nomenclature. Aided by the physiologists and the clinicians, who have to use our terminology, we might even yet arrive at a mutually satisfactory nomenclature which shall be of general applicability, and, at the same time, be precise, concise, English, and scientific. To decry the B.N.A., because it is, not altogether correctly, described as of foreign origin does more credit to the so to put matters right?—I am, etc.,

RICHARD J. A. BERRY.

University of Melbourne, Oct. 25th.

THE USE AND ABUSE OF OBSTETRIC FORCEPS.

SIR,—I hope that this comment on the discussion as to the use and abuse of obstetric forceps will reach you before the subject has become stale or the correspondence on it been closed owing to the violent passions aroused. It seems to be one of those medical questions which touch us all too nearly to allow of its being discussed with the necessary scientific detachment. My own experience in the obstetric art is gained from abnormal cases among Asiatic slum dwellers—Chinese, Malays, and Tamils. As the national customs of these races strictly forbid the presence of a male unbeliever in the lying-in room of their women folk, it will readily be understood that I only attend those confinements which show some definite abnormality. By far the most common symptoms for which I am called in is delay in the second stage, due to the simple atonic inertia to which these anaemic malaria-ridden mothers are subject. In former days it was my practice to apply forceps in nearly all these cases, using every care to avoid damage and carefully repairing what I did do. I get very much better results now from an injection of pituitrin, surely the busy obstetrician's best friend. A point which surprised me in the discussion was the opinions expressed as to what constitutes serious delay in the second stage. My first question to the importunate messenger sent to call me is, "How long is it since labour pains came on?" It is only rarely that the period stated is less than twenty-four hours, and three days is quite a common answer. The oedematous condition of the genitalia and the general condition of the patient usually bear out the statement. Yet, if the mother is not up and about her usual avocations two days later the husband is apt to regard both the practitioner and the mother as dismal failures.

The squatting position is used by most Asiatics, and in reply to Dr. Fairbairn's question as to its efficacy I would say that it largely depends on the state of the abdominal musculature. Given a multipara with a flaccid abdominal wall there is a tendency for the heavy uterus to fall forward early in labour and the expulsive powers then tend to spend themselves in a wrong direction. I well remember the case of an elderly Tamil to whom I was called after she had undergone two days of the ministrations of a local handywife. The labia were greatly swollen and oedematous and bleeding from tears made by predecessors—for your native accoucheur regards the vulva as the only obstacle in such cases—and the uterus projecting forward over the pubis. On putting the patient in the dorsal position and making a little gentle pressure on the fundus the child was delivered at once and without difficulty.—I am, etc.,

Sungei Siput, N.,
Perak, Federated Malay States, Nov. 5th.

G. WAUGH SCOTT.

DIFFICULT MIDWIFERY IN GENERAL PRACTICE.

SIR,—For some reason or another the general practitioner is extraordinarily sensitive to anything which he can construe as criticism of his midwifery. A resentful attitude was obvious at the Portsmouth meeting, in regard to which your leading article of October 6th remarked that "a querulous note did appear to find its way into the discussion."

The correspondence on Dr. Luker's address illustrates this seemingly inevitable effect of papers by obstetric specialists upon general practitioners. It is the natural tendency of every animal (including specialist and G.P.) to defend itself when attacked, and we have a letter from a practitioner giving the *tu quoque* ripost of "You don't know *your* job," in the shape of the proposal that "practical midwifery should be taught by a general practitioner and not by a specialist," and one from a consultant explaining the point of view of those engaged in hospital practice and teaching. I would supplement what Dr.

quite natural that each Section should think itself very important, and so it came about that there was a tendency—only a slight tendency—for some Sections to forget that they were but members of the whole body. There was no such thing as a clear-cut specialty, and it was very necessary if the Society was to function properly that the Sections should realize that they were members one of another. Therefore, during the summer, the presidents of all the twenty-four Sections met together and decided that, in order to prevent any possibility of narrowness, meetings of several Sections together, or even of the whole Society, should be held to discuss subjects of common interest. These discussions were now taking place from time to time, and he anticipated that they would add not only to the usefulness but to the renown of the Society. The other direction in which the Society had broken new ground was in the formation of a Section of Comparative Medicine. It was an extraordinary thing that in the history of medicine the diseases of animals and the diseases of man should have been treated separately. Until recent times the diseases of animals had not been studied at all, in spite of the fact that several great men in medicine—Jenner, for example—had shown that diseases in animals and in man were in many respects similar, though, on the other hand, they frequently differed. In natural science knowledge was acquired by observing how phenomena resembled one another and how they differed from one another. Clearly, therefore, it could only be to the general advantage to study disease as it existed both in animals and in man, and even to extend the study into the plant kingdom. After all, animal and vegetable life had many common characteristics: they were subject to much the same chemical changes, and disease in both cases was nothing but a perversion of the normal processes of life. One instance of the importance of animal diseases in relation to man was that common disease known as simple goitre. This existed not only in man but in many animals. It was known to be due to a deficiency of iodine in the gland. Some experimenters lately had observed that if the mother dog had iodine completely withheld from the food the puppies would have goitre. It had been known, of course, for a long time that iodine was a good thing for goitre, but up to now that knowledge had been empirical and ill understood. As a result of observations on men and animals in all parts of the world, particularly in France, Switzerland, and the United States, where goitre was prevalent, an attempt was being made completely to eradicate the disease by ensuring that food contained a minute amount of iodine. If this combined study of man and animals proved as successful as was expected, it would lead to the extinction of simple goitre both in animals and in man, and with goitre would go the allied disease of cretinism. In the new Section human and veterinary medicine were equally represented, and the Society had been fortunate enough to secure for the first Sectional President, Sir Clifford Allbutt.

The Church, the State, and the Law.

Dr. HERBERT WILLIAMSON, in proposing the toast of "The Guests," said that the Society welcomed that evening the Archbishop of Canterbury, representing the Church, Sir William Joynson-Hicks, representing the State, and Lord Haldane of Cloan, representing the Law. Church, State, and Law were all inextricably woven in the history of Medicine. It was right that His Grace of Canterbury should be at their board, not only because of the dignity and wisdom with which he himself had filled his great office for twenty years, but because from the earliest dawn of civilization medicine and religion had been closely associated. It might justly be claimed that medicine had always respected the prerogatives of religion, though the Church had not always respected the prerogatives of medicine. The sick poor in the hospitals had found in the clergymen their warmest friends, and the Society welcomed the Archbishop because of the debt which medicine owed to the Church, because of the common service which united the two callings, and because of the universal esteem which the Archbishop had won for himself. Sir William Joynson-Hicks, before coming to his present position, gained great success as the head of the Post Office. A Minister of Health should possess many qualities, including the courage of a Daniel: he must be something of a poet and a philosopher, and above all a lover of humanity, possessed of wisdom and understanding, able to dream dreams and see visions, and to translate them into action. It was difficult to discover a man who united all these qualities, unless indeed a search was made for him in the medical profession! He took advantage of the fact that the Minister that evening was unaccompanied by his permanent officials, and pleaded for a more liberal endowment of medical research and education. Lord Haldane was one of those coveted mortals who had attained distinction in many diverse fields of learning and administration. As statesman, philosopher, scholar, and lawyer, his great gifts had been placed unreservedly at the service of his fellows. He had never allowed party loyalty to deflect him from the path which he believed to be right, and he wore the Order of Merit, which was a distinction for all time.

Lord HALDANE said that it fell to him to try to convey a layman's sense of gratitude to the medical profession. The most valuable thing that the medical profession had taught the community was that people were their own enemies and that if they would but trust to Nature and not hinder her all would be well. He was an old conservative, and he looked back to Hippocrates, a man who understood thoroughly what life meant, and that if matters were left to life and to Nature, life and Nature would deliver us. Since the time of Hippocrates there had been only one other individual, and he a representative one, whom he had regarded with the same kind of admiration—namely, the old Victorian general practitioner, particularly the country practitioner of his own earlier days. This general practitioner was a splendid person even if he did not know very much and if his remedies were rough. Lord Haldane had known representatives of that class set out on their rounds in the islands of Scotland, without knowing in the least what demands would be made on their resources, but ready in the course of their visits from island to island to cut off a leg, or extract a tooth, or perform an operation for appendicitis. What the results were he never knew, but they were very useful people. To-day, however, there was a new atmosphere. They had learned to have faith that life and Nature would assert themselves if only the hindrances to their operations were removed. Surgeons discovered this perhaps even earlier than physicians. They learned that it was not necessary to resort to antisepsis, but that asepsis was enough—that is to say, if Nature were allowed to be unembarrassed she would assert herself and restore the equilibrium. That seemed to be the line which medical opinion was following. The President had mentioned the thyroid gland: he might have spoken also of the islands of Langerhans; these were bodies full of vitality and creative power if their stimulating processes were not defeated through lack of knowledge on our own part. A time had been reached when medicine was entering upon an entirely new phase. He looked forward to the day when, with very small provocation, he would go, not into a dismal nursing home, with no books or comforts, but into a gay establishment, which would be set up as a result of the combination of the instincts of science and commerce. They were grateful to the medical profession, not because it could avert death eventually, but because it succeeded in postponing death and warding off its unnecessary surprises for as long as possible.

Sir W. JOYNSON-HICKS, who also responded, said it would have been more appropriate if the doctors had invited him to dinner when he had control of the Treasury. But he was there to express his gratitude for favours to come from the great medical bodies on whom he must depend. The Minister of Health was really a creation of the doctors. It was on account of the demand so incessantly made by various members of the medical profession that he continued in existence. He had numerous requests made to him for more money to be spent on research, for improvements in medical education, for the extension of hospitals, for the eradication of epidemics, and his duties extended not only to the grave but beyond it, for it was part of his business to provide the medical profession with the necessary bodies for dissection. If the Minister of Health were himself a

Russell Andrews says and make a plea for mutual co-operation and support in a common task.

Let us both quit recriminations and recognize that the matter will appear different if looked at from a different standpoint. The first question we all have to ask ourselves is, Are we satisfied with the maternity service of the country? Satisfaction with the present results can only be explained by incapacity to see things as they are, and hence the further question follows, How can these results be improved? There is no room for complacency, for our attention is constantly being directed to the failure to lessen the child-bed mortality and invalidity, the stillbirth rate and the neo-natal mortality (resulting largely from ante-natal disease and prematurity and from complications in labour and birth injuries).

For its new lives the nation has to pay the price of about one maternal death for every 275 children born alive. The price varies from year to year, but there has been no striking or permanent fall; in the last ten years it has varied from a lowest of one mother for 282 (in 1918) to a highest of one mother to 243 births (in 1919 and 1920). Contrast these figures with the remarkable drop in the infantile mortality rate, which, after being almost stationary for many years, has been halved in the course of the twenty-two years of this century. Surely the death of one mother for 500 or 1,000 births would be a heavy enough price for the natural function of reproduction, the greater part of the mortality of which is preventable—if so, why is it not prevented?

Once it is recognized that all is not well with our maternity service, the next step is to put our heads together to remedy it, and to obtain a diminution in the maternity figures equivalent to that obtained in infantile mortality. The experience is required of officers of maternity hospitals and gynaecological departments, of research workers, and medical officers of health, and of those practitioners with knowledge of the conditions under which domiciliary midwifery is conducted and of how these conditions can be improved. If this correspondence can pass from girding at teachers and specialists to some constructive proposals as to what can be done to forward this overdue betterment of our maternity statistics, it would be the best possible augury for the future.—I am, etc.,

London, W., Dec. 10th. JOHN S. FAIRBAIRN.

SANITATION IN INDIA.

SIR,—In your issue of November 17th (p. 933), in a note under the above title, you refer to *McNally's Sanitary Handbook for India*, which has been ably brought up to date by Major A. J. H. Russell, I.M.S., Director of Public Health with the Government of Madras. You commend to notice a "valuable suggestion, applicable to other countries besides India, is that the rudiments of hygiene should be taught in all elementary schools." The usual necessity for economy of space in editing a new edition of a book probably prevented Major Russell from calling attention to the fact that this desirable requirement has long been fulfilled in at least one portion (143,000 square miles) of India—namely, the Madras Presidency. In 1879 the Government of India bestirred itself on the subject by offering an honorarium for "the best English sanitary primer for instruction of the natives of India in elementary hygiene." I believe that Surgeon-Major J. A. Laing, I.M.S., then Inspector of Vaccination, subsequently officially suggested adoption of the subject in schools in the Madras Presidency. The Director of Public Instruction, Madras Presidency, in his letter 3491 of 1914, states that hygiene was taught in schools "apparently before 1880," that "it had not been rendered compulsory, but is, as a matter of fact, generally taught in elementary schools to-day, apart from specific pamphlets for information and instruction in the unhygienic influence, for example, of flies, malaria, etc." Whilst it was not feasible for the director to state, without special inquiry, the total number of many thousands of scholars attending these schools who had formally accepted instruction in the subject, he added that between 1893 and 1914, 2,755 and 1,876 appeared for the elementary and intermediate grade examinations respectively under the Government technical education scheme.

Press statements referring to the recent adoption of medical inspection of schools in the Madras *City*, where (in virtue of an *imperium in imperio* policy) sanitary advance has notoriously lagged, have rendered it possible to conceive that this also is an innovation in India. This is not the case. In the Madras Presidency sanitary inspection of all schools and colleges supported or aided by Government or public bodies was, to my personal knowledge, a well accomplished routine duty of district medical and sanitary officers from 1886 to 1905, and presumably is so—with modification as to staffs—up to date. This valuable method was sanctioned by the Madras Government on the advice of the late Surgeon-General Bidie, C.I.E.

A similar misapprehension has attended the tardy introduction by the Corporation of Madras of placing at disposal of the public the attendance of qualified midwives. Yet, following an order of the Madras Government in 1882, midwives for public and private practice have been educated and afforded certificates of qualification after examination. Outside the Madras City limits both municipalities and district boards have utilized them freely. With some self-gratulation the Corporation within the last three years has started a baby welfare scheme. Yet the Government of Madras (referring to the recommendation of their sanitary commissioner of 1905) urged its adoption in 1906, in the presence of great infantile mortality. The Corporation of this large city in sanitary matters "hasten slowly."—I am, etc.,

W. G. KING,
London, N.W., Dec. 10th. Colonel I.M.S.(ret.).

THE NERVOUS CHILD.

SIR,—Many years of observation have convinced me that, while there are doubtless predisposing factors in the quality of tissue inherited by the type of nervous child depicted by Dr. Cameron (November 24th, p. 963), the first exciting cause is usually disturbance in the character and distribution of the intestinal flora; its exact nature has been studied by Herter and other pathologists. Clinically, its commonest manifestation is chronic gastro-intestinal catarrh with recurrent febrile exacerbations, but all the mucous membranes of the body are apt to be affected. In other words, this type of nervous instability is a graft on the "catarrhal diathesis." Dr. Cameron duly notes this association, but the special opportunities of a family doctor have enabled me to observe that the order of precedence is invariable—the catarrh comes first. There appear to be two proximate causes of this catarrhal disposition. First, the excessive ingestion of carbohydrates; secondly, exposure to damp (especially by living on damp soils) of children whose family or racial antecedents underwent evolution under drier conditions. Examples I would quote are blonds, Jews, or derivatives of undisturbed rural communities long-settled on permeable subsoils—for example, the new and old red sandstones of Devon. These and others of the kind seem to lack resistance to the infection of mucous membranes on the heavy clay soils that serve for many urban sites or when they reside in river valleys or other humid districts.

The immediate result of the engendered catarrh is the absorption of toxins causing, among other symptoms, a general muscular flabbiness. In these circumstances the child's heavy head cannot be held well poised on the spine—it tends to tilt forwards, causing the spine to curve and the shoulders to droop. To compensate for this the pelvis is swung forward in its turn, and the result is the stance described and illustrated by Dr. Cameron. By the time this unfortunate state of disturbed digestive functions, malnutrition, toxic absorption, endocrine perversion, and muscular hypotonus is established the child usually finds itself immersed in the atmosphere of perpetual concern, remonstrance and exhortation so well set forth by Dr. Cameron. Even if the parents are wise and the family history sound, the child may find itself in a condition of nervous tension through its efforts, despite fatigue, to please them or emulate other and healthier children. There is therefore small cause to wonder that psychic maladjustments are added to the other troubles.

Satisfactory treatment of these cases is often very difficult because not only the child but also his environment

medical man it was possible that he would spend too much money on a particular branch in which he happened to be interested. It was his business to judge between the various claims, with due regard to the attenuated state of the public purse, and to prepare the claims in such a way that they might be understandable to that remarkably non-scientific body, the House of Commons. It was to the Fellows of the Society that he looked for advice. The Society was a thoroughly independent body, free from State control. It had no irritating political questions to trouble it. He looked to it for advice and encouragement, and for consolation in his failures. The office of the Minister of Health was the most difficult that he had ever filled, and if to its responsibilities was added, as the President rather suggested, the medical care of animals, he would indeed have no peace. The situation with regard to foot-and-mouth disease was a very grave one. The number of animals now being slaughtered every day on account of this pest represented a value of £70,000. He was a member of a committee of the Cabinet appointed that day to deal with the question, and he would be very grateful for any help which could be given him by the medical profession which might assist in the control and prevention of this scourge.

The proceedings of the dinner were over at the commendably early hour of 10.30.

THE GENERAL ELECTION.

MEDICAL MEMBERS OF THE NEW PARLIAMENT.

THE following five medical men who were members of the last Parliament have been returned to the House of Commons at the recent general election:

Sir GEORGE BERRY, LL.D., F.R.C.S.Ed. (C.), Scottish Universities; returned unopposed.

Dr. W. A. CHAPPLE (L.), Dumfries. Majority 1,727 on a total poll of 24,487.

Dr. F. E. FREMANTLE, O.B.E. (C.), St. Albans. Majority 5,328 on a total poll of 25,077.

Sir SYDNEY RUSSELL-WELLS, M.D. (C.), University of London. Majority 1,444 on a total poll of 8,050.

Dr. J. H. WILLIAMS (Lab.), Llanelly. Majority 9,298 on a total poll of 38,270.

Three medical men who sat in the last Parliament did not seek re-election—namely, Sir John Collie, C.M.G., Dr. L. G. S. Molloy, D.S.O., and Sir William Whitla; another, Mr. C. Harvey-Dixon, died on September 22nd, 1923.

New Members.

The following five members of the medical profession have been elected to Parliament for the first time:

Dr. L. HADEN GUEST (Lab.), Southwark North. Majority 362 on a total poll of 14,968.

Dr. Haden Guest was an unsuccessful candidate in the general election of 1922. He was a civil surgeon in the South African war. During the late war he held various posts in connexion with the British Red Cross and the Croix Rouge Française; he served also in the R.A.M.C. with the rank of Major, and won the Military Cross. He acted as secretary and medical adviser to the delegation to Soviet Russia in 1920, and among other writings on medico-sociological subjects lately contributed a series of articles on "Public Health in Soviet Russia" to the BRITISH MEDICAL JOURNAL.

Mr. SOMERVILLE HASTINGS, F.R.C.S. (Lab.), Reading. Majority 1,542 on a total poll of 37,178.

Mr. Somerville Hastings stood unsuccessfully for Epsom at the 1922 election. He is surgeon in charge of the ear and throat department of the Middlesex Hospital and lecturer on diseases of the ear, throat, and nose at the Middlesex Hospital Medical School. He was a vice-president of the Section of Laryngology and Otology at the last Annual Meeting of the British Medical Association. He is a member of the Public Health Advisory Committee of the Labour Party, and has been a prominent advocate of a State Medical Service.

Professor THOMAS SINCLAIR, C.B., F.R.C.S. (C.), Queen's University, Belfast; returned unopposed.

Professor Sinclair is a Senator of the Parliament of Northern Ireland; surgeon to the Belfast Royal Hospital; professor of surgery in Queen's University, Belfast, and a member of the General Medical Council. He served during the war as consulting surgeon to the British Expeditionary Force with the rank of Temporary Colonel A.M.S., and is a past-president of the North of Ireland Branch of the British Medical Association.

Dr. G. E. SPERO (L.), Stoke Newington. Majority 1,101 on a total poll of 15,629.

Dr. G. E. Spero was an unsuccessful candidate for West Leicester at the 1922 election. He qualified in 1919, having previously served in the Navy. He is a member of the Leicester and Rutland Division of the British Medical Association.

Lieut.-Colonel T. S. BEAUCHAMP WILLIAMS (Lab.), Kennington. Majority 510 on a total poll of 21,149.

Colonel Beauchamp Williams is a retired officer of the Indian Medical Service, in which he served for twenty years. During the late war he was on active service on the North-West Frontier and in Mesopotamia. He is a member of the Executive of the Westminster and Holborn Division of the British Medical Association.

At the general election in November, 1922, there were 35 medical candidates, of whom 13 secured election. At the general election on December 6th, 1923, there were 25 medical candidates, of whom 10 have been returned to Parliament. Besides these ten medical men, two valued members of the Medical Committee of the late House of Commons have been re-elected. Sir Henry Craik was returned unopposed for the combined Scottish Universities, and Sir Martin Conway was returned at the head of the poll for the combined English Universities.

Unsuccessful Candidates.

We regret to record that four medical men who sat in the last Parliament were defeated at the polls—namely, Dr. Walter Elliot, M.C. (C.), Parliamentary Under Secretary for Health for Scotland, who had represented Lanark since December, 1918; Dr. J. E. Molson (C.), who represented Gainsborough during the same period; Dr. Alfred Salter (Lab.), who was elected for Bermondsey West in 1922; and Dr. Thomas Watts (C.), who was elected for the Withington Division of Manchester in 1922.

The following members of the medical profession were also unsuccessful; several of them had previously contested either the same or other constituencies:

Dr. H. B. Bates (C.), Newton, Lancs.
Dr. Ethel Bentham (Lab.), Islington East.
Dr. R. Dunstan (Lab.), Birmingham, Ladywood.
Dr. O. Gleeson (Lab.), Portsmouth North.
Dr. G. B. Hillman (C.), Normanton.
Sir Henry Lunn (L.), Brighton.
Dr. H. B. Morgan (Lab.), Camberwell North-West.
Dr. A. G. Newell (L.), Tottenham South.
Lieut.-Colonel A. C. Osburn, D.S.O., R.A.M.C.(ret.) (Lab.), Walsall.
Dr. R. W. Simpson (L.), Newcastle-upon-Tyne North.
Dr. R. M. Wilson (L.), Saffron Walden.

[Dr. R. L. Ridge, whose name appeared in the list of medical candidates in our issue of December 1st, did not contest the Enfield Division.]

Polling Figures.

The following are the polling figures at all the contested elections in which there were medical candidates on December 6th. Medical names are printed in italics, and an asterisk denotes that the candidate sat in the late Parliament.

DUMFRIES:	
**W. A. Chapple* (L.)	13,107
J. Charteris (C.)	11,380
Liberal majority	1,727
ST. ALBANS:	
**F. E. Fremantle* (C.)	11,968
C. E. Thomson (Lab.)	6,640
H. K. Neild (L.)	6,469
Conservative majority	5,328
UNIVERSITY OF LONDON:	
**Sir S. Russell-Wells* (C.)	4,037
A. F. Pollard (L.)	2,593
H. G. Wells (Lab.-Soc.)	1,420
Conservative majority	1,444
LLANELLY:	
**J. H. Williams* (Lab.)	21,063
R. T. Evans (L.)	11,765
L. B. Thomas (C.)	5,412
Labour majority	9,298

difficulty, or on other plausible or reasonable grounds, and the child is apt to grow up, as I have been long enough in practice to observe, into the doleful type of invalid known comprehensively as the "abdominal neurasthenic," with his flatulence, constipation, mucous colitis, enteroptosis, etc., and the neuroses or psychoses that accompany these woes.

Enlarged tonsils and adenoid growths need prompt removal because they serve as reservoirs of pathogenic organisms at the portal of the respiratory and digestive tracts and greatly aggravate the whole condition, but they are a result and not a cause of the catarrhal state. Remedial exercises, directed with knowledge and experience, are serviceable in correcting the faulty posture, flat-feet, etc., but their utility is much limited unless the defects of the environment are adjusted.

A thorough understanding of child psychology and psychotherapy is also needed, for the "sense of inferiority" is all too readily acquired, as are also the various "fixations" and "complexes" that impede or pervert psychic development.

The root of the matter appears to me to be that the simple traditions and cruder eugenics that served our forefathers, and foremothers, for guidance in the rearing of children no longer suffice us. They were all very well in the days when families were large and the devil took the hindmost, or when generation after generation had bred in the same environment and effected stable adjustments by cumulative acquisitions of mother-wit. We are dealing largely now with the huge, floating, heterogeneous populations of the industrial era, and new and more complex traditions must be devised to meet the needs of a more complex civilization and to give the individual a better chance of satisfactory adjustment to his environment.—I am, etc.,

J. STEWART MACKINTOSH,
M.D., M.R.C.S., L.R.C.P.

Hampstead, Nov. 29th.

HYPOGLYCAEMIA AND EPILEPSY.

SIR,—The use of insulin in the treatment of diabetes mellitus and the discovery that an overdose may produce signs and symptoms of an ordinary epileptic seizure lead me to ask whether we have not here, perhaps, some clue to the cause of epilepsy itself.

It would appear that it is the hypoglycaemia induced by an overdose of insulin which is the causative factor in the epileptiform attack, for insulin does not appear to have any other pronounced effect on the blood stream. At least there is no evidence that it produces either an anaemia or a hyperaemia of the brain. It is, at least, a possibility, therefore, that it is the reduction of the blood sugar below a certain percentage that produces the epileptiform seizure. If this be so, one feels justified in asking whether the cause of true epilepsy may not yet be found to be either a persistent or a recurring hypoglycaemia. I am carrying out some observations in a small way, but investigation by one engaged in general practice is necessarily difficult. I would suggest for those with more leisure and greater scope that investigation along the following lines will at least prove of interest.

(1) Does the examination of the epileptic during a normal state of health reveal any abnormality in the percentage of blood sugar—for example, is there a tendency normally towards a hypoglycaemia?

(2) During the seizure itself is there any evidence of a hypoglycaemia?

(3) Does autopsy reveal any abnormality of pancreas—for example, hypertrophy of the islands of Langerhans; or does it show any atrophy of other antagonistic glands?—I am, etc.,

J. W. MACKAY.

Whitehaven, Nov. 23th.

ATTITUDE IN CATHETERIZATION OF THE BLADDER.

SIR,—I am inclined to think that the answer Dr. Bamber gives to the question he asks (November 17th, p. 947) is not quite complete.

I have noticed repeatedly when passing a glass catheter in

a negative pressure then exists within the bladde
the bladder muscle failing to contract.

If this is the case in a healthy bladder whic
temporarily distended, how much more would it
case in the male bladder, which can never be em
taneously. It will generally be found necessary
the contents of the bladder by pressure above t
the patient is in the supine position, and if the
relaxed before the catheter is withdrawn, unless
has been previously placed over the end of the c
is liable to enter.

When the catheter is passed in the sitting c
position, it is usual to depress the external end
bladder is emptied by siphonage, and the degree
corresponds to the difference between the height
and that of the external opening of the cathet
long as the latter is kept on a lower level than
air cannot enter.

The presence of air in the bladder gives rise
dition favourable to the growth of certain bact
in its absence would not flourish. The urine
cystitis the result of catheterization is commonl
and everyone will recall how rapidly urine unde
line decomposition in warm weather. It woul
appear to be more satisfactory to empty the
siphonage than by expression. This can easily
the recumbent position by attaching a foot or t
rubber tubing to the end of the catheter and lett
over the side of the bed. It is necessary, howev
catheter with multiple eyes, as a single eye migh
the bladder wall by suction, and so become ob
I am, etc.,

T. BRIC

Westcliff, Essex, Dec. 2nd.

VACCINATION PROPAGANDA.

SIR,—Mr. T. F. Manning (JOURNAL, Dece
p. 1122) says that "the great flaw in Dr. Mill
ment is his assumption that every attack of sm
an unvaccinated person would be so severe as
immediate diagnosis," and he instances the exp
the ultra-mild small-pox which has recently pr
the North and Midands as disproving this.

I tried to make it clear that my contention o
to the severe or Asiatic type of the disease
admit that it does not apply when we are dealin
American or alastrim type. But the point i
long as the mild American type breeds true w
all practical purposes, dealing with a different di
the terrible and fatal scourge to fight which
was first introduced and made compulsory. I
assert that if it had only been the America
small-pox which prevailed in Jenner's day
quently he would never have been voted £30
grateful Government, nor would the compulsor
tion law ever have been passed! On the ot
should the American type of small-pox now oc
this country cease to breed true—though so
shown no inclination to do this—then the d
diagnosis in unvaccinated subjects would also c

It is a surprising and disconcerting fact, bu
less I believe it to be true, that under modern
the Asiatic type of small-pox tends to be spread
vaccinated persons, whilst the American type t
spread rather by the unvaccinated. Or, to put
way, under modern conditions vaccinated perso
spread a severe type of small-pox, whilst un
persons tend to spread a very mild type.—I am,

C. KILLICK

Leicester, Dec. 8th.

SUPRAVAGINAL HYSTERECTOMY A
PANHYSTERECTOMY.

SIR,—I opened this week's JOURNAL in the fu
tion of finding a letter from Dr. Herbert Spe
above subject, nor was I disappointed. I thinl
further discussion would be better left over u

SOUTHWARK (NORTH):
L. Haden Guest (Lab.) ... 7,665
*E. A. Strauss (L.) ... 7,303
Labour majority ... 362

READING:
Somerville Hastings (Lab.) ... 16,657
*Hon. E. Cadogan (C.) ... 15,115
F. Maddison (L.) ... 5,466
Labour majority ... 1,542

STOKE NEWINGTON:
G. E. Spero (L.) ... 8,265
*G. W. H. Jones (C.) ... 7,264
Liberal majority ... 1,101

KENNINGTON:
T. S. Beauchamp Williams (Lab.) ... 8,292
Sir R. Blair (C.) ... 7,782
T. O. Jacobsen (L.) ... 5,075
Labour majority ... 510

LANARK:
T. Dickson (Lab.) ... 11,384
W. E. Elliot (C.) ... 11,154
Labour majority ... 230

LINDSEY, GAINSBOROUGH:
Sir W. Winfrey (L.) ... 9,694
*J. E. Molson (C.) ... 7,841
J. Read (Lab.) ... 3,039
Liberal majority ... 1,653

BERMONDSEY (WEST):
R. M. Kedward (L.) ... 9,186
A. Salter (Lab.) ... 8,298
Liberal majority ... 888

MANCHESTER, WITHINGTON:
E. D. Simon (L.) ... 13,944
*T. Watts (C.) ... 10,026
Liberal majority ... 3,918

LANCASTER, NEWTON:
*R. Young (Lab.) ... 12,492
H. B. Bates (C.) ... 8,375
Labour majority ... 4,117

ISLINGTON (EAST):
A. S. Comyns-Carr (L.) ... 10,670
*A. U. M. Hudson (C.) ... 9,038
Ethel Bentham (Lab.) ... 6,941
Liberal majority ... 1,632

BIRMINGHAM, LADYWOOD:
*N. Chamberlain (C.) ... 12,884
R. Dunstan (Lab.) ... 11,330
Conservative majority ... 1,554

PORTSMOUTH (NORTH):
*Sir B. Falle (C.) ... 13,229
O. Gleeson (Lab.) ... 9,523
L. Williams (L.) ... 3,584
Conservative majority ... 3,706

WEST RIDING, NORMANTON:
*F. Hall (Lab.) ... 15,455
G. B. Hillman (C.) ... 4,365
Labour majority ... 11,090

BRIGHTON (2 seats):
*G. C. Tryon (C.) ... 30,137
*A. C. Rawson (C.) ... 29,759
W. Runciman (L.) ... 17,462
Sir H. Luna (L.) ... 16,567
A. Gordon (Lab.) ... 9,545
H. Carden (Lab.) ... 9,040
Conservative majority ... 12,675

CAMBERWELL (NORTH-WEST):
*T. J. Macnamara (L.) ... 6,843
H. B. Morgan (Lab.) ... 6,763
E. T. Campbell (C.) ... 6,045
Liberal majority ... 80

TOTTENHAM (SOUTH):
P. Alden (Lab.) ... 10,312
*P. E. B. Malone (C.) ... 7,687
A. G. Newell (L.) ... 3,974
Labour majority ... 2,625

WALSALL:
*P. L. Collins (L.) ... 16,304
S. K. Lewis (C.) ... 14,141
A. C. Osburn (Lab.) ... 7,007
Liberal majority ... 2,163

NEWCASTLE-UPON-TYNE (NORTH):
*N. G. Doyle (C.) ... 12,715
R. W. Simpson (L.) ... 6,321
J. Beckett (Lab.) ... 5,374
Conservative majority ... 6,394

SAFFRON WALDEN:
*W. F. Mitchell (C.) ... 9,652
W. Cash, junr. (Lab.) ... 6,398
R. M. Wilson (L.) ... 5,752
Conservative majority ... 3,254

Nova et Vetera.

NATIVE MEDICINE AND HYGIENE IN SINGAPORE.

INSPECTOR KING of the Sepoy Lines Police Station, Singapore, informed me one day that recently on a gambling raid—the Chinese and Malays are inveterate gamblers—he had seen two peculiar skulls. Inquiry had elicited the fact that they were very old Labuan skulls which had been handed down from father to son for several generations.

One evening in the golden glow of the setting sun Inspector King escorted me over a hill studded with the graves of departed Chinese. The Chinese are imbued with a spirit of reverence and veneration for their parents and ancestors. The ambition of the average Chinee is to have a large family to support him in comfort in his old age, and for this purpose he may acquire several wives; or he may purchase a few boys and adopt them as his sons. The Chinese bury their relatives on the summits of the highest hills in the vicinity, never omitting to place a dish containing some food at the graveside, lest the spirit of the departed should revisit the place of interment and be in need of sustenance for its gossamer substance. Having settled their ancestors, the mourners descend to the swamps and valleys, there to live huddled together in large numbers, an easy prey for all infective diseases, especially tuberculosis. Having reached the foot of the burial hill, we traversed a clearing in the jungle honoured by the name of road. Here we had an indication of European influence in a concrete trough about two feet in depth and width, which acted as a drain; filthy water laden with sewage slowly flowed along it, and lying in it were two putrefying young pigs. Following the road we came to a large fruit, flower, and vegetable garden owned by Chinese. The gardens were beautifully kept. Being evening, the gardeners were busy watering the flowers and vegetables. The drain was convenient; the material in it was wet, and also provided a certain amount of manure; the vegetables grew well in consequence. Can we wonder, then, at the prevalence of enteric, dysentery, and *Ascaris lumbricoides?* At least 90 per cent. of the native children are infested with the latter. It is a common incident for a child in a fit of coughing to expel from the mouth one or more worms five or six inches in length. A water-borne sewage scheme was commenced in Singapore some time ago, but will not be completed for a considerable period.

Eventually we arrived at a native house of the variety common in this locality: a wooden structure surrounded by domestic refuse of all sorts in which mosquitos breed. The roof is made rain-tight by a thatch made in lengths of about three feet from the dried leaves of the banana tree folded across a light strip of bamboo. To gain admittance to the house we carefully stepped over innumerable chickens of varying ages and avoided a goat tied to one of the door-posts; a sow and her litter of young pigs were browsing close by. The house consisted of two apartments each about twelve feet square. The one nearer the door was used as a living room; the other, separated by an incomplete partition, was apparently a bedroom. In a warm country soft beds are neither comfortable nor desirable. The natives mostly sleep on a flat wooden structure raised from the ground on trestles and for a pillow use a wooden or porcelain block placed behind the neck. The room of which I write contained a structure about twelve feet by eight, covered with floorcloth. There were numerous such pillows lying about, so that this bed was presumably common to the whole family. It is difficult to estimate the number of a native family, for so long as there is a spare corner they do not hesitate to take in a few lodgers. Present in the house at the time, however, were the old doctor, two young men, three women, and several children.

Our arrival caused a little excitement, but on being informed of the peaceful nature of our visit the inmates were friendly towards us. We were shown into the bedroom, and the old doctor lifted the two skulls from their resting place—a wooden box the bottom of which was nailed to the wall to form a small cupboard, while two pieces of cloth

Obituary.

IR FREDERICK TREVES, Bt., G.C.V.O., F.R.C.S.,

Consulting Surgeon to the King; Consulting Surgeon, London Hospital.

IE death of Sir Frederick Treves on December 7th will me as a surprise to his many friends. He had passed rough a severe attack of pneumonia last year, but seemed have recovered. He had lived for some time in Switzerıd at Evian, on the Savoy side of the Lake of Geneva. ıis autumn he moved to Vevey, on the Swiss side, where had just established himself in a flat when he was taken on December 3rd; his ath, which was due peritonitis, occurred a nursing home at ıusanne.

Frederick, the son of illiam Treves of Dorester, who married ıne, daughter of John night of Honiton, was rn on February 15th, 53. His early education ıs received at Merchant ıylors' School; after ıdying at University ollege, he entered the edical School of the ondon Hospital. He ok the diploma of L.S.A. 1874, and passed the .R.C.S. examination in e following year. After ılding the post of resiıt assistant surgeon to e Royal National Hostal for Scrophula (as it ıs then called) at Marıte, and filling several nior resident posts at e London Hospital, he, 1877, began general actice in Wirksworth, erbyshire, in partnership th Dr. William Milliın. He passed the final .R.C.S. examination in 78, and in 1879 was ıpointed surgical regisar and assistant surgeon the London Hospital, ıd acted as demonstrator physiology as well. He ıs also clinical assistant the Royal London phthalmic Hospital. He gan to teach anatomy stead of physiology at the London Hospital in 1880 ıd acted as demonstrator in anatomy and lecturer in actical anatomy until 1883, when he became full ırgeon and succeeded Mr. Rivington as head of the ıatomical school. The light of his inquiring, original, ıd observing mind was not one to be hidden under bushel, and he soon attracted notice as a surgeon and a teacher of anatomy in a much wider field than his vn hospital. He gave the Erasmus Wilson lectures in athology at the Royal College of Surgeons in 1881. Two ears later he published his epoch-making work on surgical ıplied anatomy, and gained the Jacksonian prize of the ollege for an essay on intestinal obstruction.

When Treves was appointed assistant surgeon to the ondon Hospital, intestinal surgery was in its infancy; the roblems which it presented could only be solved by a ombination of boldness and sagacity, resting upon a esh investigation of the anatomy of the abdominal organs egarded from the new point of view. By his writings ı these subjects and by his example as a practical surgeon he had a large share in placing this department of surgery on a sound basis.

In 1885 he was Hunterian Professor of anatomy in the Royal College of Surgeons and delivered four lectures on the anatomy of the intestinal canal and peritoneum in man, which were published in a book issued in the following year. The lectures were based on a careful examination of 100 bodies, and the result of his researches was that many theories and statements then commonly found in textbooks were badly shaken.

In the nineties Treves was the best known and most successful of London surgeons and his success was due to a variety of causes. In his systematic lectures on anatomy and (later on) surgery, he was an impressive teacher, who at the same time interested his class and maintained discipline. Few men worked harder at his public and professional duties than he. Until his private practice became very extensive he regularly attended the hospital on Sundays to examine the cases in his wards more thoroughly and at greater leisure than he could with an immense following of students and visitors from all parts of the world, and he would then go for a forty or fifty miles' cycle ride. With the students he was always immensely popular, and for many reasons; an athlete himself and a certified master mariner, he could excel them in nearly any feat on land or sea. They recognized his ability, surgical skill, and above all his extraordinary powers of work and virility. The portrait we reproduce by the courtesy of the secretary of the London Hospital Medical School shows him at this stage of his career. He was at the head of every meeting and movement of the students, and was the main instrument in affiliating all the students' clubs into a Students' Union, of which he was appropriately the first president. A man of such powers naturally had a commanding voice in the counsels of his colleagues, and until pressure of his work compelled him to retire from the active staff he took an important share in the management of the medical school, and for nearly twenty years was a member of the College Board.

Photograph by] FREDERICK TREVES, *[Elliott and Fry.*
WHEN SURGEON TO THE LONDON HOSPITAL.
(By the courtesy of the Secretary of the London Hospital Medical College.)

Hard work alone will not command success, but in Treves it was combined with a quality of trustworthiness and steadfastness resting on the true self-reliance of knowledge and experience. Those who observed him in the wards of the hospital, at an operation of difficulty or danger, or at a "sing-song" of medical students, never saw him embarrassed or ill at ease. A sense of humour, rarely absent in those who rise to eminence, the power of public speaking associated with a happy and picturesque turn of phrase and word, always placed him in sympathy with his audience, whether at a scientific meeting, a dinner, or at a students' gathering.

Commanding such widespread confidence, his appointment to be a civilian consulting surgeon in the Boer war (1899) gave great satisfaction. In previous Continental wars

hung as curtains in front. I examined the skulls carefully while the old man squatted on the bed. They were typical negroid skulls of adult males, old but not ancient. The base of each was entirely missing, as also were parts of the vault. The only feature worthy of note was the persistence of the metopic suture in both skulls in its entire extent. The skulls were marked all over by fine scratches as though they had been filed, and the alveolar process of each superior maxilla had been entirely filed away; when the Inspector asked why, they replied that the filings were used for curing all forms of gland swellings, including those specially classed as bubos, and the medicine man proceeded to explain his methods. A small biscuit box filled with grass was produced, and from it the old man drew a centipede about nine inches long, three-quarters of an inch in diameter, and of a brownish colour. It was quite harmless, and he allowed it to crawl about on his hand and arm. The centipede is eventually charred in the fire, its ashes carefully collected and ground into a fine powder in a mortar and pestle. The powder is then transferred to a small glass bottle and is ready for use. The skull is filed by means of a piece of skin from the dorsum of a shark dried in the sun to form a cylinder about fifteen inches long. The placoid scales with their enamel tips are admirably suited for grating down the bone.

In the treatment of tuberculous or other gland swellings the skin is washed to remove any sebaceous secretion. A small quantity of the skull gratings and of the charred centipede powder is added to some powder prepared from the root of the camphor tree and made into a paste with water. If the surface of the skin is broken hot water is used and the paste applied hot. If the surface is unbroken cold water is used and the mixture applied cold. In either case the applications must be made twice daily—at 7 a.m. and 4 p.m. To prove the efficacy of the treatment a small Chinese girl about 3 years of age was produced, much against her desire. On her neck there was a dirty sloughy-looking sore the result of a tuberculous gland, which the old man had been treating for three or four months. It was explained to us that the treatment was acting well in this case. Time, of course, is no object here, only the end-result counts. If by natural means and in spite of the treatment a sore is eventually cured it must be due to the treatment. This belief, of course, is not confined to the East. When asked if the native Chinese medicine men ever used a knife in treatment, the old man lifted up his hands and gazed at us in horror. Use a knife! A knife is only for killing with!

Let us now analyse the methods employed and compare them with those used in modern treatment. In both cases on the unbroken skin cold applications are used, and the medicine man, by means of his camphor, was using a mild counter-irritant and skin stimulant with slight antiseptic properties. When the skin is broken and ulcerated, modern and ancient methods agree in the value of heat. The Chinese uses the charred centipede simply as charcoal, which is well known for its deodorant and absorbent properties. The skull gratings are merely a collection of calcium salts of value for their soothing effect on the skin in itching, and for their astringent and desiccative properties. They are useful to promote healing in eczema and ulcers. Although antisepsis is unknown as such, yet it is practised by these old medicine men, whose knowledge is the result of the experience of generations. Asepsis is entirely unknown. One may ask, Why go to such trouble to obtain common materia medica? The answer I suggest is that throughout the whole world faith is one of the great factors in the art of healing, and faith with the natives is inexorably bound up with religion. Undoubtedly the methods employed are supposed to emanate from some deity.

We were now shown two powders invaluable in the treatment of skin diseases; equal quantities are infused with water and the infusion taken regularly over a long period. The powders were simply senna and a special brand of Siam tea. For dirty tongues there was a white powder, obviously borax, which is applied by the medicine man. He moistens his finger with saliva and dips it into the bottle, thereafter rubbing the powder over the patient's tongue. This treatment is combined with a course of powdered liquorice root internally. We had now to inspect a wonderful powder which the medicine man explained with great pride was of great value in the treatment of pains in the female abdomen. It had no specific value in the male. So far as I could judge it was a preparation of hyoscyamus. For wind in the stomach he had a preparation of menthol and liquorice. The great sedative, however, for the Chinese is that maker of happy dreams—the opium pipe; the Government has wisely legalized its use and has licensed special shops for opium smoking. The incidence of venereal diseases is very high in Singapore and is not confined to the native population. Such a condition of affairs is inevitable in a community in which males greatly predominate, and especially in an international port like Singapore. If houses and women were licensed and regular inspections carried out the occurrence of venereal diseases would diminish.

The bottles containing the drugs were of various sizes and shapes and were unlabelled except where a label indicating a former content had withstood the ravages of time. Any preparation which was not distinctive in smell or colour was quickly analysed by the old man by the simple method of dipping his finger into the bottle and tasting the contents. He was very anxious that I should sample some of his preparations, but repulsion at the method of sampling employed was greater than my inherent curiosity, so I refrained. In addition to the cures for the diseases mentioned, he had remedies for fever in the form of ground cinchona bark, and for rheumatism, worms, and a few other diseases the nature of which I could not discover. His stock-in-trade was very small, about a dozen bottles in all, and this, I think, is one of the points in which modern medicine might follow his example with advantage by seriously reducing the number of official drugs in the *British Pharmacopoeia*.

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THE REHOUSING OF SLUM DWELLERS.

THE problem of housing in relation to the health of the community is of such importance that it is a pity that a paper on the rehousing of slum dwellers[1] read by Mr. John J. Clarke at the meeting of the British Association last September should not have been written in a more concise, coherent, and interesting manner. It is not easy at first to gather the exact nature of his proposals for rehousing slum dwellers. In his introduction he says that "the solution of the problem is bound up with the payment of an equitable wage to meet the rent demanded," while in his chapter on Rehousing in the Future he says that "it must be remembered that unless the displaced poor are housed at a rent which is not an equitable rent, they will not be housed in a separate house at all." It is possible that Mr. Clarke felt the need of some restraint in setting forth before the British Association proposals decidedly socialistic in tendency; or peradventure he was afraid of the results of his own ideas. If, however, the housing problem is soluble at all, it may be that the only solution is to be found on the lines suggested in this paper. We shall endeavour to trace the sequence of Mr. Clarke's thoughts.

Slums reproduce all the defects with which a Public Health Department has to deal, and from the point of view of health and morals housing is the one essential reform. Overcrowding in slums leads to increased infant mortality, to impairment of health and unnecessary deaths of adults, to expense in connexion with doctors, nurses, hospitals, sanatoriums, and poor law institutions, to a low standard of morality, to increased cost in policing and cleansing and in the administration of justice, and to much waste of money in public houses. For more than sixty years local authorities had been fighting the housing difficulty, and just when the end of the first stage was in sight the war forced a halt. The problem is, in the words of Robert Browning, a "common problem, yours, mine, every one's"; and as such belongs to the realms of both ethics and economics.

[1] *Some Factors relating to the Rehousing of Slum Dwellers.* By John J. [illegible] read before the Economics and Statistics Section of [illegible] for the Advancement of Science, Liverpool, 192[illegible]. [illegible] of Liverpool, Ltd.; London: Hodder and [illegible] (Cr. 8vo, pp. 68, 2s. net.)

medical staff, and the outbreak of war consequently secured the assistance of Sir William MacCormac, then President of the Royal College of Surgeons, Mr. Treves, and Mr. Makins. Treves sailed for South Africa at the end of 1899 and was attached to Buller's army in Natal. As consulting surgeon with the Field Force he was present at the battle of Colenso and throughout the comparatively prolonged operations which resulted in the relief of Ladysmith, which he visited as soon as he could get in.

The Tale of a Field Hospital (1900) described the work of No. 4 Stationary Field Hospital during the three months for which it formed part of the Ladysmith Relief Column. Treves was attached to this unit and had written a series of letters to this JOURNAL describing incidents from week to week. The book which was based on these letters contained a striking picture of the medical side of the war, all the more vivid and moving because of its simple and unpretentious character.

Many charges had been made in the public press about the inadequate care of the sick and wounded during the earliest months of the war, and a Royal Commission was sent to South Africa in 1900 to investigate and report on the charges. Its report issued early in 1901 showed that while most of the charges were not justified, the unexpected severity and duration of the war had thrown a strain on the Army Medical Service which it had not been able to stand as well as it had been expected. The Commission recommended certain changes, and the War Office subsequently appointed a committee to report on the reorganization of the Army Medical Service. Of this committee Treves, who had been created K.C.V.O. in 1901, for his services during the war, was a member. His recent personal experiences of army medical work were of the greatest service to the committee, which recommended certain changes; these were carried out. That they were judicious was proved when in 1914 the Royal Army Medical Corps was submitted to the supreme test of the great war.

Treves served successively as Surgeon Extraordinary to Queen Victoria, Serjeant Surgeon to King Edward VII (1901), Surgeon in Ordinary to George, Prince of Wales, and Serjeant Surgeon to King George V. It was while holding the second of these appointments that the eyes of the Empire and of the whole world were directed on him during the anxious days of King Edward VII's sudden illness in June, 1902, on the eve of his Coronation. The sudden announcement at 10 o'clock on the morning of Tuesday, June 24th, that the coronation of the King, fixed for that week, was postponed through the necessity of an immediate and serious operation, fell like a bombshell on the nation, for the public generally thought that the King was quite well as he had been, apparently, going about as usual and had moved from Windsor to London the day before. It soon became known that the operation was for the relief of an abscess about the appendix, and when it was further known that Treves was to undertake it the national alarm was greatly calmed. In an hour or so it was further announced that the operation had been successfully performed and that the King was doing well. It was not until some days afterwards (July 5th, 1902) that we were able in the JOURNAL to give an explanation of the suddenness of the illness and the need of the operative treatment. It was then seen that the King had been suffering from June 13th from abdominal pains, but that he had kept up and filled important engagements in the hope that the symptoms would pass off and that the Coronation would not be interfered with. It was recognized from the first by Sir Francis Laking and Sir Thomas Barlow that the appendix was the cause of the trouble, and Treves was called in on June 18th. The King was most anxious that the Coronation should take place on the appointed day, and held on in spite of the uncompromising advice Treves gave as a surgeon. The symptoms subsided somewhat and the King was able to travel to London on June 21st, but that evening the swelling in the right iliac fossa reappeared in more marked form and the temperature, which had been normal for two or three days, suddenly rose. On Tuesday morning Lord

operation was imperative. At 11 a.m. Treves
abscess, which was deep-seated and contained de
pus. It was necessary to leave two large drai
in the abscess cavity, but convalescence was unin
and Edward VII reigned for eight years more.

Treves was a voluminous writer from his ear
The first of his many works was published in 188
on *Scrofula and its Gland Diseases*. It was d
serve as an introduction to the general pathology
and contained an account of the histology, diag
treatment of the glandular affections it produc
progress had been made in pathological science i
of microscopic research since the works of Robert
Benjamin Phillips (1846) and Dr. Price (1861) had
and although Continental observers had applie
methods and knowledge to the investigation of t
English surgeons had not. Though in the boo
made of the foreign work, the greater part of i
of the results of his own clinical investigations
number of cases and of a great deal of microscopi
The book was written before Koch published his
of the tubercle bacillus (1883), but the conclus
reached was that scrofula was a milder form o
tuberculosis. The volume was illustrated by
drawings of the microscopical appearance of disea
prepared by himself for his article on scrofula i
forthcoming edition of Holmes's *System of Surg*

The chief aim of *Surgical Applied Anatomy*,
in 1883, was to assist the student in judging
parative value to him, when applying it prac
the anatomy he had learnt by attending lec
dissecting and to show him how to enco
survival of the fittest of the many hard
assimilable facts he had then acquired. It s
maintained, be one of the objects of applied
to invest these facts with the interest derived
association with the circumstances of daily life;
make the dry bones live. He fully recognized,
anatomy though he was, that all the details of t
have not the same practical value and that th
of many of them may fade without loss to the c
of the practitioner of medicine or surgery. The
intended mainly for the use of students preparing
final examination in surgery, but he hoped it
be of use to practitioners whose memory of their
room had grown a little grey and who wished to
anatomical matters as have the most direct bea
the details of practice. It is interesting to see, e
pioneer book on surgical anatomy, the willing r
by the teacher of the fact that his courses on anato
the student much that could be safely forgotten
examinations were over; in other words, that fo
pass examinations students were taught too mu
book met with extraordinary success, so muc
between 1883 and 1906 six editions and fifteen
appeared—40,000 copies in all. In the sixth editi
the collaboration of Professor Arthur Keith.

His book on *Intestinal Obstruction: its Varie*
their Pathology, Diagnosis, and Treatment was
in 1884. It was in substance the essay for
Jacksonian prize was awarded by the Royal
Surgeons in 1883. For book form it was entire
and rewritten in some parts, and such new mat
as was required to bring the work up to da
importance of this subject at the time of publicat
book may be estimated by the fact that over two
individuals were then dying every year in Engl
from various forms of obstruction of the bowels,
of hernia. It was also a subject which was but
tively little understood from the clinical standp
this reason the classification of the different va
intestinal obstruction was based on pathologica
rather than clinical distinction. The work me
welcome reception because intestinal surgery
more feared than understood, and it had a very
able influence on the progress of abdominal c

Before the war the vast majority of workmen's dwellings were provided by private enterprise in the ordinary course of business. On a smaller scale building was undertaken by building societies, friendly societies, trade unions, co-operative industrial societies, philanthropic societies, employers of labour, societies of public utility, and by local authorities. Unfortunately building houses for the working classes is not attractive as an investment, and the builder alleges that the rent which they command does not yield sufficient profit. In addition to financial difficulties there are other reasons which deter the private builder, such as the effect of the Finance Act of 1910; the increase in rates which it was difficult to pass on entirely to the householder; the rigidity of the Public Health and Local Acts; war restrictions, including the Increase of Rent and Mortgage Interest Restrictions Acts, which are still unrepealed.

For these reasons it seems to Mr. Clarke inevitable that the local authorities should step in to meet the apparent shortage, if only on the grounds of public health. He is optimistic enough to think that a large mass of present-day public health activities would have been obviated if the local authorities had housed the people. This they could have done under powers they have possessed for more than forty years, but have allowed to remain dormant.

In England and Wales there are nearly a million dwelling places which consist of not more than two rooms. At least 200,000 of these are so bereft of ordinary conveniences that they ought to be demolished. According to an investigation by the local authorities in 1919 the nation needed nearly a million new houses; and Dr. Christopher Addison, then Minister of Health, estimated the immediate need for working-class houses in England and Wales alone at 500,000. In many of the existing houses families of ten or twelve persons are occupying one or two rooms; and it has been impossible to obtain conviction for overcrowding in face of the abnormal shortage of houses. The overcrowding is aggravated by the tenants of the houses taking in lodgers, often at exorbitant rents which are obtainable because of the impossibility of finding accommodation elsewhere.

Various expedients have been made to meet the house shortage. Thus in 1918 the Ministry of Reconstruction proposed a scheme by which, after a term of years, the responsibility for any excessive cost would fall upon those who incurred it. This scheme was set aside in favour of a proposal that the State should bear all the loss beyond the proceeds of a penny rate. The defect of this proposal was that it offered no substantial incentive to economy on the part of the local authorities. In addition to this the provision of a large sum of money to enable the Ministry of Munitions to purchase building material seriously inflated prices and contributed to increase the cost of houses. Under the Housing and Town Planning Act in 1919 the Assisted Housing Scheme gave a considerable stimulus to housing. But it appears that on a moderate estimate there was a loss of £60 a house per annum, the difference between the outlay and the rent including the penny rate. Consequently it was decided in March, 1921, that localities should be rationed on the basis of 250,000 new houses, and that the position should be reviewed in June, 1922, in the light of costs and results to that date. Shortly afterwards Dr. Addison ceased to be Minister of Health, and in July, 1921, Sir Alfred Mond made a statement upon the housing policy, in the course of which he said that the obligation to provide new houses rested, not on the Treasury, but on the local authorities, and expressed the hope that in a year conditions in the building industry would be stabilized, and no further Government action would be required. Thus financial stringency entirely changed the policy of the Government.

In discussing the problem of housing finance, Mr. Clarke wisely says that "although there may be sound social reasons for putting into force regulations which will prevent the free monetary expression of the law of supply and demand, all such measures, whether for restricting or raising price, are economically unsound." The capital cost of the 176,000 houses built under the Housing Acts, 1919, will approach £190,000,000; and the annual charge to the Exchequer will be approximately £8,750,000 in the early years. Consequently the Government, as representing the taxpayer, is compelled to insist upon as high a rent as possible. The high cost of these houses was due to the increased cost of labour and material; and the increase in the cost of labour seems to have been the more serious, since the percentage of labour costs to those of material rose from 50 before the war to 84 in 1920, and has descended only very gradually to 57 in 1923. At the same time the state of affairs in the matter of materials was bad enough, so that the Committee on Light Castings in 1919 reported that the association of manufacturers of such castings was restricting its output and retarding efficiency in order to keep up prices. The Committee described this course as contrary to the public interest. At the beginning of the present year a Committee was appointed by the Government to report on the extent to which in any case the price of building materials appeared to be unduly high by reason of the operation of any trade combination, trust, or agreement.

Notwithstanding his statement that interference with the law of supply and demand is economically unsound, Mr. Clarke is so much impressed by the results of the limited efforts in housing carried out by the Borough of Birkenhead, or else is so pessimistic as to the future of private enterprice in building, that he urges the Government to take prompt action. Of the 2,264 houses required in Birkenhead only about 450 will be completed under the Assisted Housing Scheme. But Mr. Clarke finds that the improved environment of the rehoused slum dwellers has undoubtedly had a beneficial effect on the character and health of the people, and that much improvement is noticed in the health of the children. For a time frequent visits by the sanitary inspector were necessary to get the people to adopt a better tone of living; but the help and advice of the inspector were gladly accepted. The indifferent or bad tenant finds himself required to live up to the standard of the other tenants; and a happy and contented home life gives a return greater than the monetary value.

In discussing next the future policy as to rehousing, the opinion is expressed that the first thing to do is to abolish the excess of State regulations under the Assisted Housing Scheme and to limit control; apparently this refers to control by the State of the activities of the local authorities, and not to the control by these authorities of the tenant. The suggestion made is that the local authority should take the subsidy, that it should use its existing officers—for example, town clerk, medical officer of health, and surveyor—and that the houses should be sold to the occupiers or others after erection, in order to relieve the local authority of the cost of maintenance. Nothing is said about the purchase price, so that it is not clear by whom the loss on the houses should be borne. In the next place, in order to prevent overcrowding, it is suggested that the medical officer of health should be empowered to require that all houses—no matter what the rent—should be reported to him whenever there is any subletting. Thirdly, any scheme of rehousing in the future must be linked up with the improvement of transport. It is useless to attempt to house some kinds of slum dweller at a great distance from their work. The problem differs in different localities, but Mr. Clarke thinks that in Liverpool a solution is to be found in transport on the surface and not by underground tubes. Fourthly, wherever possible the self-contained house is held to be the most desirable type to build. On sites where such houses would be wasteful, flats of six or eight floors are recommended, with lifts for passengers and goods, playgrounds on the roof, central heating, a café, and a social institute with a library.

Long before it became a political question exciting party strife this journal maintained that, the water supply of large towns having been put in order, housing was the most pressing public health problem, and that until it was tackled much of the expenditure of public health authorities was little wiser than that of the Winchester chapter which hid the yawning cracks in its cathedral with cement. The difficulty has always been rehousing; obviously it was useless to clear slums if the inhabitants were not rehoused, but allowed to crowd into another or to form a new slum a mile or two away.

Neither the Legislature nor the local authorities have found

Manual of Surgery in Treatises by Various Authors published in 1886. Thirty-five of the leading surgeons ne day co-operated with Treves in writing this work, h aimed at presenting a concise account of the leading and principles of modern surgery. The three volumes hich the manual was composed were concerned mainly the clinical, diagnostic, and therapeutic aspects of ery, and general principles were dealt with, not nical details.

eves was one of the first surgeons to devote special ntion to diseases of the appendix. He opened the ssion on the surgical treatment of "typhlitis" he Leeds meeting of the Association in 1889. The "typhlitis" was then applied to a form of localized conitis occurring in the caecal region. The various s of the disease were fully considered and for the pur- of discussing treatment typhlitis was divided into three es: (1) The mild form, ending in resolution on the ication of simple medical measures and due to faecal mulation in the caecum. (2) The severe form leading ppuration and nearly always dependent on some trouble mencing in the appendix. (3) Cases of relapsing typhlitis nding on some recurring trouble in the appendix which short of producing suppuration. In this first paper, t the term "typhlitis" was used for various conditions ribed, it was recognized that the appendix was the ary source of the trouble in the great majority of cases, ed, in practically all that came to operation. In a sub- ent paper, written for the first edition of Allbutt's *em of Medicine* and reprinted in separate book form 7), the term "perityphlitis" was used, the title of essay being "Perityphlitis and its varieties, their ology, clinical manifestations, and treatment." By typhlitis he meant a peritonitis localized in the region e caecum, and the term was not used to denote the seat rigin of the malady, but to indicate "with sufficient ness the predominant pathological features of an affec- which may arise in more ways than one and which has recise clinical individuality until the peritoneum in the al region has become inflamed." It is interesting to that Treves looked upon the then new name of the se "appendicitis" as uncouth. It is wonderful what an get used to in time. The treatment proposed for itions equivalent to our modern acute appendicitis teresting The mildest cases of typhlitis, due to con- ation, were treated with bowel-evacuating medicinal sures. Any suppuration was dealt with on the general ical principle of first find your pus and then let it out. es was not in favour of operating during an acute ck, such as the American surgeons even then proposed o; he preferred to let the inflammation subside or wait l pus formed. "Deep-seated pus is slow to make its ence evident, and unless there be obvious indications of bscess it could not be safe to assume that pus had formed re the fifth day of the disease." Hence the tendency of ery of 1890 to wait five days before operating for ndicitis and to take the risks of perforation and general conitis developing. The best results were obtained, in e days, in cases of "relapsing typhlitis" by removing appendix during the period of quiescence. Treves first sed this operation in 1887 (*Med. Chir. Trans.*, vol. 71, 65). Even in his perityphlitis article for Allbutt's *em of Medicine* (1897) he still advised medical measures, ding opium and possibly aperients also, in the acute cks unless it was obvious that pus had formed. When was definite an operation should be done at once, but it t be laid down as a rough rule "that the use of the e will seldom be called for before the fifth day. Indeed uld venture to think that surgical interference before fifth day should not be undertaken except in the ence of emphatic symptoms. Indeed the great majority perations for perityphlitis are performed after the first ." He recognized the risk of delay, but even then ght that on the whole it did not outweigh its ntages.

manual of operative surgery (1891) consisted of two e volumes with 422 illustrations. In writing the book as concerned solely with the practical aspects of treat- t by operation, with the technical details of operative surgery, and with such part of the surgeon's work as comes within the limits of a handicraft. He did not deal with the indications for operating, nor did he enter into the "subtle questions, the anxious reasonings, the special doubts, which lie without the operating theatre." Surgical statistics were ventured on with but reverent caution. He was himself responsible for the selection out of the vast and bewildering collection provided by the literature of surgery of practical methods of operating. He selected such measures as appeared to him to be the best, and the majority of the operations were described from personal experience of them in the theatre or dissecting room. The preparation of the patient and the proper after-treatment of the case were dealt with in each section of the book.

The manual met with much success amongst the senior students and the qualified practitioners, but it was too unwieldy for portability and consequently he prepared from it a *Students' Handbook of Surgical Operations* (1892), for the use of students preparing for final examinations and as a handbook to assist them in carrying out operations on the dead body. Only the most essential and most commonly performed operations were described in it. All matters save such as deal with actual technical details of operative surgery were omitted, and he assumed that the reader knew his anatomy. There was no after-treatment, no description of instruments, and no mortality or operation result figures given in the book. Though popular this book was not received with the enthusiasm which met his *Surgical Anatomy*. Both these works were revised with the assistance of Jonathan Hutchinson, junr., and published in second edition in 1903 and 1904 respectively.

With so many interests outside his professional work and so many hobbies to occupy his time, Treves was not one to keep to the humdrum of professional routine life any longer than he could help, and as he made a phenomenally large income even for a popular and successful surgeon he was able to retire from practice in the full tide of life, at the height of success, and with every faculty at its brightest and best. Many men may have the desire to retire at 50 from active work, but few medical men have the means to do so. Treves did practically no private professional work after his operation on the King: he occupied himself by working for the public good, especially in army medical matters. He was a member of the Territorial Forces Advisory Council, chairman of the Executive Committee of the British Red Cross Society, and a member of the London Territorial Force Association, and he was also an honorary colonel in the R.A.M.C. Wessex Division, and an honorary staff surgeon to the R.N. Volunteer Reserve.

He was Lord Rector of the University of Aberdeen (1905-8), receiving its honorary LL.D. degree. He also received honorary degrees from several other universities. He served as an examiner in anatomy or surgery for several years at the Royal College of Surgeons and in Cambridge, Aberdeen, and Durham Universities.

With his love of the sea, his fondness of travel, and his freedom from professional ties, Treves was able to spend a good deal of his leisure time in visiting various and remote portions of the world, journeys which were chronicled in a series of books published over several years. These books were written from the outlook of the unspecialized traveller, of the man who merely seeks somewhere to go. Descriptions of incidents on the journey, impressions of many and varied experiences and scenes, travellers' yarns from the smoke-rooms of liners and hospital clubs, and collations from specialized books in the countries visited are interspersed with shrewd comments and humorous turns of fancy such as might be expected from one who could brighten the dullness of an anatomy book by his thoughtful interest for the anatomical information of a boy who had been recently birched on the gluteal integument.

In the account of his visit to Palestine, Treves did not set out to write a new *Eothen*, nor with his books of wider travel to enter into the word-painting lists with Pierre Loti; he hardly even had the light touch of the surgeon who in his "log" suggested so well the joys of a voyage to the languorous East. He wrote to amuse and occupy himself and to give pleasure to his many friends, and he succeeded well in these objects. The first of these

complete remedy, though something has been done, and efore the war it seemed just possible that the improvement transport, and the building of more houses and flats y private enterprise, supplemented by philanthropy and unicipal schemes, would at least prevent the evil from rowing. This has not happened for the reasons enumerated y Mr. Clarke, and we read on to see what remedy he had suggest, only to be grievously disappointed, for it amounts industrial conscription.

He maintains that the latest attempt of Parliament to eal with the shortage by means of a subsidy under the Housing Act, 1923, is not economically sound. The subsidy f £6 a house for twenty years will not meet the loss. In e race between population and houses in industrial dis-icts population is gaining rapidly; and if all available bour in the trade were at once put on to house building e shortage would not be overtaken for twenty years. But is stated that the number of men engaged in the industry only 60 per cent. of the number in 1911, and continues to ecline. The attitude of the trade unions is not such as to ncourage an influx of apprentices. Meanwhile, abnormal onditions of unemployment exist. On these premisses Mr. larke argues that the nation should organize a war upon sanitary slums. He desires that this should be done by ecruiting into the Royal Engineers, as Housing Battalions, l men between 18 and 25 who have done no work for velve months and can give no evidence of any prospect of ork. After a course of training the men should be drafted to a battalion ready for service, and be paid the trade ion rate of wages. At the same time the Government ould introduce a system of costings for the building trade a whole.

The author of such a plan is practically compelled to urge at a scheme for building houses should be national. Mr. larke affirms that the country would save more than the st of the scheme through the reduction that would be fected on expenditure on the prevention and treatment of sease, on the cleansing of streets and houses, and on licing and the administration of justice. He deplores, owever, the fact that local authorities appear to discourage ther than to encourage the ownership of dwellings, and sires that the Small Dwellings Acquisition Act should ase to be optional. To enable tenants to purchase their uses he advocates the promotion of municipal banks, an terprise which is said at present only to have been under-ken by the Corporation of Birmingham.

But as has been said, his main remedy is a form of indus-ial conscription, and this we cannot regard as a suggestion any practical political importance. Mr. Clarke's paper ust therefore be regarded rather as a restatement of the oblem, with modern instances, than as a contribution of y immediate value to its solution.

Scotland.

THE LISTER WARD, GLASGOW ROYAL INFIRMARY.

CONSIDERABLE amount of discussion has recently taken ace regarding the possibility of preserving the ward in e Royal Infirmary of Glasgow in which Lister carried t his earliest experiments in antiseptic surgery. The ildings have been under gradual reconstruction for a mber of years, and this ward was situated in the last rtion of the institution to be rebuilt; the ground on ich it stands is now required for the new out-patient partment. Last week the managers finally decided by teen votes to seven to demolish this portion of the old firmary buildings entirely. It had been strongly urged at the old walls might be retained (the ward being on e ground floor) and the new building superimposed, as memento of Lord Lister and of the great work done ring his Glasgow period (1865-69). The ward with its old tings was an interesting survival of the early nineteenth ntury hospital, and its disappearance is regretted by any, including the French Academy of Medicine, as noted st week by the Paris correspondent of the BRITISH EDICAL JOURNAL.

GIFT TO EDINBURGH ROYAL INFIRMARY.

The late Miss Jessie Aitken of Glenbervie, Larbert, left the residue of her estate, estimated at between £40,000 and £50,000, to the Edinburgh Royal Infirmary. Two-thirds of this amount, it was stated, would be held as permanent capital. Other bequests were announced, and it was stated by the treasurer that the receipts during the past two weeks had amounted to £3,431. During the two previous weeks the receipts had been over £10,945.

NEW WING FOR AYR COUNTY HOSPITAL.

The new wing of the Ayr County Hospital has just been completed at a cost of £14,000, raised entirely by public subscriptions. It comprises a children's ward, male ward, eight rooms for private patients, as well as accommodation for nurses; being constructed of steel and concrete, it is regarded as fireproof. With this extension the hospital now has accommodation for 107 patients.

DRUGS FOR NATIONAL INSURANCE PATIENTS.

At the quarterly meeting of the Edinburgh, Leith, and District Friendly Societies' Council held in Edinburgh, Dr. Matheson Cullen, of the Scottish Board of Health, in a paper on National Health Insurance, referred especially to the provision of drugs. The lecturer stated that there was a misapprehension in the minds of some persons that insured persons did not always receive an adequate amount of medicine or medicine of the best character. This impression probably arose from the fact that occasionally one heard of doctors being surcharged for what was known as excessive prescribing. Two misrepresentations in the public mind tended to continue this impression—first, that every disease must be treated by drugs, and, secondly, that every disease had its definite and appropriate remedy. In effect, however, many diseases were self-limiting, and with appropriate dieting, nursing, etc., drugs might be unnecessary. The insured person at present got every drug that was necessary for adequate treatment, often at a cost in excess of what he could himself pay. This was obvious from the fact that such a costly drug as insulin was being sanctioned and prescribed for insured persons for whom it was appropriate, and that for some such patients bills of £20 to £40 and more had been incurred in the course of a few months' treatment.

Ireland.

GENERAL MEDICAL COUNCIL IN THE IRISH FREE STATE.

THE action of the Minister of Local Government in suggesting a conference of the licensing bodies to consider the constitutional effects on the present Council of the establishment of Saorstat Eireann, has induced the Irish Medical Secretary to send a letter to the Minister of Local Government pointing out that as the general medical practitioners in the Free State were represented on the General Medical Council they should be invited to take part in the conference with the other bodies. In his reply the Minister stated that in confining the conference to the teaching and licensing bodies he had believed that these bodies were vitally concerned in any administrative action that might be decided on, but he would welcome a statement of the views of the Irish Medical Committee on the question of future arrangements for the control of the medical and dental professions; as regards the particular aspect of the subject with which the pending negotiations are concerned, the Minister is of opinion that it can be more conveniently considered by representatives of the bodies immediately concerned.

SALARIES OF ARMAGH POOR LAW MEDICAL OFFICERS.

In a recent letter to the Armagh Board of Guardians the Ministry of Home Affairs (Northern Ireland) stated that it had noted with regret that the guardians had declined to act on its suggestion to consider this question, and had evaded the matter by postponement. The Ministry did not wish to deal with the question without the co-operation of the guardians, and before taking further action urged on the Board the desirability of reviewing the salaries at the earliest possible date. After a lengthy discussion the

and their daughter in 1903-4. The title of it is explained in a short preface: "A paper lantern, round and red, hangs under a cloud of cherry blossom in a Japanese village. There is a very familiar flower symbol painted upon the other side of it. Some children have crossed the green to see what is on the other side of the lantern. A like curiosity has led to the writing of this trivial book."

The account of the crossing of his green and of what he saw is fresh, interesting, and attractive even to those who have crossed it themselves, and who have read innumerable works on similar subjects. A most impressive chapter is his description of a visit to Canton, and the comparison of his olfactory and optical experience there with a horrible nightmare of the kind which haunts the mind in daylight hours is excellent. In *Uganda for a Holiday* (1910), one of the most striking chapters and the most original is the first in the book, describing the nightmare flight across France in the Lyons mail; it was reminiscent of his strikingly vivid impressions of Canton. In Africa itself we come across pleasant reminders of old friends and heroes of our youth, Burton and Speke, and of much later days Colonel Patterson the lion hunter of Tsavo, but the book had no compelling or abiding interest. *The Cradle of the Deep* (1910) was the record of a voyage to the West Indies made a couple of years previously. *The Land that is Desolate* (1912) is an account of a tour in Palestine, and the comments on the Holy Places visited are what might be expected from one who all his life was accustomed to weigh evidence carefully. The very note to the impressions and conclusions of the journey is conveyed in the very last line of the book. "It was not until we were actually ashore at Port Said that we felt safe (it had been a very stormy and uncomfortable passage from Haifa to Port Said)—safe from the possibility of being asked to visit another sacred site." The other side to the question is, however, fully recognized by a passage in the account of the visit to the Church of the Holy Sepulchre. After describing the actual chapel of the sepulchre and commenting on the genuineness of the place, he writes: "As we were leaving the chapel a woman, old, poor, and unhappy-looking, crept through the small door on her knees and after kissing the stone that covered the tomb laid her cheek upon it in the attitude of one who was tired but content. If she was secure in the belief that she had brought her trouble to the very spot where the body of Christ had lain, then the chapel is assuredly more than a place for the curious."

Another work which revealed another of the many facets of his mind was published in 1913 with the title, *The Country of "The Ring and the Book."* Browning students will appreciate at once the nature of the work. The poem, which described a tragedy of two hundred years ago, was to his mind a wondrous one—"as brilliant, as pathetic, as lurid and as dolorous as a winter sunset," "one of the finest, most imaginative, and most human poems of the nineteenth century," "some passages of which are among the most beautiful to be found in the poetry of any country or any age." To the country in which the tragedy was staged Treves made a pilgrimage and described his travels and investigations in wondrous detail, illustrating them with a profusion of photographs, maps, and plans of the houses, streets, country, and towns where the murdered Pompilia lived and the murdering Franceschini and his hirelings did their work and paid the penalty of their crimes. To show the extreme care taken in the preparation of the book, it may be stated that the hundred photographs used in illustration of the text were taken by himself at various seasons of the year, and, for the most part, at or about the actual date in the calendar on which occurred the episode with which the particular scene was associated. Apart from its value to Browning students the work will open the twelve books and twenty thousand lines of the poem to many who to their regret find this poet in his lengthy pieces too difficult for easy reading. The next two books Treves wrote reflected his moves: the one, on the Riviera, was full of his old spontaneous joy in life; the other, on the Lake of Geneva, written after he had settled at Evian, was in a minor key, perhaps the subject was

p. 1188, and April 19th, 1880, p. 916), and i
the book (February 24th, 1923, p. 335) some o
illustrations were reproduced.

After his retirement Treves was granted by
VII the use of Thatched House Lodge, Richm
in 1920 he went to live abroad. He was made
1902 and promoted G.C.V.O. in 1905. When
broke out he immediately offered his services.
president of the headquarters Medical Boar
Office, and remained a member of the Army S
mittee. He was one of the founders of the
Cross Society at its reconstitution and the
of its Executive Committee. He had a large
foundation and organization of the Radium
London and was chairman of its Committee of

He married in 1877, and had two daughters
died at an early age following an operation fo
the other is the wife of Brigadier-General
Delme-Redcliffe.

The remains are to be cremated at Laus
funeral will take place in England at a
announced.

We are indebted to Sir JOHN BLAND-SUTTON
the Royal College of Surgeons of England, for
tribute:

My friendship with Sir Frederick Treves b
when he was keenly studying the anatomy of
tract in man and mammals. I introduced hi
sectorium of the Zoological Gardens, where he
made water-colour sketches of the dispositio
cated arrangement of the small and large i
marsupials to primates. He contemplated
monograph on the subject, but the pressure of
—for he rose on the staff with unusual rapidi
this broad study, but the main results of his o
comparative anatomy led him to write an exc
of the arrangements, disarrangements, malfo
mechanical disturbance of the intestines of m

I have had opportunities of studying hi
character, for he was a teacher, an anatomist,
as well as a surgeon; also his deep interest in n

Treves's diligence, love of work and writing
able. Early to bed and early to rise make a
wealthy, and wise. Treves was the embodi
ancient and familiar maxim. Much of the
busy hospital period of his life was done in
before breakfast. He was the personificatio
When he had an unusual series of operations a
I sometimes accompanied him. He operated
courage, quickness, and decision based on a s
knowledge of human anatomy, and he was a
sector. He wore spectacles on account of myo
were laid aside when he performed an oper
seemed to peer into the wound. The part
forcing surgeons, and later physicians, to
serious and often fatal consequences that arise
mation of the vermiform process is well kno
happy chance that his extreme familiarity
bowels peculiarly fitted him to be the exp
special form of surgery.

The cosmopolitan crowd of patients at the
pital gave him an unusual insight into hum
and enabled him to manifest his keen interest
and low, rich or poor, maimed and malformed.
the tales he told of benefactions bestowed on
pital patients, he was frequently the interces
the benefactor. I missed Treves very much
London. He was an inspiration, always orig
his own way of looking at things and affairs.
his opinions fearlessly in lectures, demonstrati
tions, and after-dinner speeches. I think the
of his peculiar style of writing is the *Tale of a*

In one of the last letters I received from hi
the wild garden connected with Thatched H
Richmond Park where he lived. He wrote:

guardians decided to appoint a committee to consider a commencing salary for each dispensary district, and also how the difference between the initial amount and the present flat rate should be apportioned amongst the several medical officers, regard being had to the number of tickets in each district, as well as its area. The scale so arranged would do away with the Ministry's objection to a flat-rate salary.

England and Wales.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

THE annual dinner of the London (Royal Free Hospital) School of Medicine for Women was held at the Savoy Hotel on December 6th, under the chairmanship of Sir Alan G. Anderson, K.B.E. The large company of more than 330 included Viscountess Rhondda, Sir Humphry Rolleston (President of the Royal College of Physicians), Dr. Mary Scharlieb, Lady Barrett, M.D., Miss Aldrich-Blake (Dean of the School), Mr. V. Warren Low, Mr. James Berry, Mr. Ernest Miles, Professor Winifred Cullis, Sir Walter Schröder, Lord Riddell, and Dr. May Thorne. The Chairman, in proposing "Prosperity to the School and Hospital," remarked on the great progress made in recent years by women in medicine, and gave an outline of the work of the two associated institutions during the past year, mentioning in particular the lamented death of Dr. Percy Saunders and the approaching retirement of Professor F. Ransom from the directorship of the Pharmacological Department. He detailed also various recent benefactors, and referred to the honours and distinctions gained by students during the year, not only in academic subjects but also in games. The health of the guests was proposed by Mr. Joseph Cunning (Senior Surgeon to the Royal Free Hospital), and responded to in a very amusing speech by Professor W. E. Dixon, F.R.S. (Reader in Pharmacology at the University of Cambridge). Professor Louise McIlroy, in proposing the Chairman's health, spoke of Sir Alan Anderson's constant championship of women and his close connexion with medicine in the persons of his illustrious mother, the late Dr. Elizabeth Garrett Anderson, and his sister, Dr. Louisa Garrett Anderson.

TREATMENT OF CRIPPLED CHILDREN IN LONDON.

At a meeting of the London County Council on December 4th a joint report of the Education and Public Health Committee was submitted of the action taken on reports made to the Council in 1921 and 1922 by Mr. R. C. Elmslie on a survey of physically defective children, and by Sir Henry Gauvain on the treatment of surgical cases of tuberculosis. The increase of in-patient accommodation for surgical tuberculosis among children was so considerable that it could now be described as adequate. The purposes to which the Council's grant to the Invalid Children's Aid Association may be applied have been enlarged, and it may now be used for the supply of surgical instruments as part of the after-care of children who have received residential treatment in institutions of the Metropolitan Asylums Board and elsewhere, and for any other suitable cases of surgical tuberculosis from the Council's schools for the physically defective. The Metropolitan Asylums Board is seeking approval for the establishment of centres in London for the clinical after-care of children discharged from approved institutions, and the question of the after-treatment of cases of deformity of tuberculous origin is being investigated. The Ministry of Health is being approached by the Council with the object of determining the best steps to be taken to secure early diagnosis and early and efficient treatment of poliomyelitis.

SMALL-POX IN THE METROPOLITAN AREA.

A case of small-pox has been reported this week at Wood Green, in the county of Middlesex. The patient had a mild and in some respects an anomalous attack. His infection was derived from Spain, where he had been on a visit. He ailed on his way home, and noticed spots on his face; it is possible that he may have infected other people during the later portion of his journey. He arrived in England on December 7th. Every precaution has been taken to limit the spread of infection.

Correspondence.

SMOKING OF INDIAN HEMP AND OPIUM.

SIR,—In several recent issues of the JOURNAL reference has been made to the smoking of addiction drugs, particularly cannabis indica and opium. Some comments seem to me desirable.

I do not believe that active cannabis indica in a form suitable for smoking can be obtained in this country. Ganja and charas are readily obtainable from most of the wholesale houses, but they are inactive when smoked—that is, they contain little or none of the toxic red oil to which the action of hemp is due. Last year I tried every sample of ganja obtainable, and not one yielded an appreciable amount of active principle on smoking. This is not surprising, because cannabinol is very easily destroyed by exposure to air and light, and crude ganja in particular rapidly loses its activity. For Indian hemp to be really active it should be freshly picked on the Himalayas and sent in sealed tins to this country; the physiological activity of such material is a revelation to the European, though, as one of your correspondents rightly says, it has little place in therapeutics.

Smoking ganja or charas, as these are usually obtained in this country, has a very unpleasant effect, not distinguishable, indeed, from smoking any dried herbs such as coltsfoot, once in vogue as a harmless boy's tobacco, and due to the pyridine, collidine, and other volatile irritating substances given off. The first effect of smoking active hemp is an intense irritation of the throat, so intense and painful that the smoking is generally stopped; this irritation, as shown by salivation, cough, and expectoration, is one of the most characteristic features of the chronic hemp smoker in the East. For this reason it is common for the pipe smoker to draw the smoke through water; this diminishes though it does not stop the irritation. The effect on Europeans of smoking active hemp mixed with tobacco is to cause in a minute or two—that is, after four or five whiffs—a feeling of exhilaration which is particularly noticeable after mental or physical fatigue; if the inhalations are continued higher control is loosened, and the subject becomes talkative and often hilarious. In less than half an hour the whole effect is over.

The Royal Commission on Indian Hemp (1884) reported "that the moderate use of Indian hemp drugs produces no injurious effects on the mind," and again, speaking of these drugs, "the Commission are of opinion that their moderate use produces no moral injury whatever." Throughout the report the suggestion crops up, though I have not found it specially stated, that excessive indulgence is the result of a mind already diseased. The Ministry of Health to my mind were right not to include hemp in the Dangerous Drugs Act, since to do so is but to call attention to a drug which from the nature of things it is impossible to use as a drug of addiction in this country, and the action of which, except to a few experts, is unknown here.

A letter on opium smoking in your issue of June 23rd (p. 1076) by Dr. Maxwell contained a criticism on an address of my own before the Pharmaceutical Society. The principal features of this letter are his amazement that I should quote the findings of the Royal Commission on Opium of 1895 and my views on opium smoking. Perhaps I may make the position clear by pointing out that morphine and allied alkaloids, unlike nicotine and cannabinol, are not volatile, and when smoked as opium are largely destroyed; one analysis of the opium smoke from a great number I gave in the BRITISH MEDICAL JOURNAL for November 19th, 1921. When opium is smoked none of the bitter tastes of the alkaloids are perceived in the mouth. The total of morphine in one pipe is probably not more than 3 mg.—that is, if twenty pipes are smoked a day only 6 cg., which is about 1 grain, are smoked—and

nond Park," and the letter ends with this paragraph—I am never up later than 6 a.m. and as I take a turn o garden, whether pitch dark or light, always at that I have seen a good many strange and beautiful s." My last conversation with him was at Mentone: iscussed the exquisite beauty of an unusually close ach of Venus to the crescent moon, visible that morning o'clock. Now when I spy the thin crescent I always of him!

MALCOLM MORRIS, in response to our request, has sent ollowing brief note:

is forty years since my acquaintance with the late Frederick Treves began—an acquaintance that soon ed into intimacy. It was to me that he committed the nsibility of publishing all his medical works. Early in I called upon him in Gordon Street, Gordon Square, eing at that time demonstrator of anatomy at the on Hospital, to ask him whether he would write a book rgical applied anatomy for a students' series which s then editing. He agreed, and asked when it would nted. I suggested four months from then, and he there hen fixed the day and hour when the manuscript would elivered. The promise was literally fulfilled—my first ast experience of the kind in a long editorial career. ircumstance revealed to me that one of his chief characies was precision—a quality I afterwards found him to plify in everything he did. His industry was amazing. n later he undertook to edit and part-write a system of ry, having at this time a very large practice as an ting and consulting surgeon, it was his habit to rise at lock in the morning to do his literary work for the day e beginning his ordinary duties. A splendid worker, iom work was not a task but a pleasure, he was equally ssful as a holiday-maker. I have vivid recollections of olidays we spent together abroad, in which he proved elf a buoyant and most exhilarating companion. My recent association with him has been in connexion with Radium Institute, of which he was chairman from its lation, and there can be no doubt that its success was o his tact and skilful direction.

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e many friends of Dr. WILLIAM CORE, late medical intendent of Stobhill Hospital, Glasgow, will learn much regret of his death, on November 27th, at the of 77. He graduated M.B., C.M. at Glasgow Univerfifty years ago, and in 1876 he took his M.D. He acted as assistant, in the county of Northumberland, r. Anderson, who died only this year. After a short Dr. Core returned to Glasgow and was appointed ke charge of Barnhill Hospital, then under the Barony sh Council, in 1876. He remained there until 1901, he was appointed medical superintendent of Stobhill ital, one of the largest and most up-to-date Poor hospitals in the country. This position he held till when he retired after thirty-eight years spent in Law. During these years he saw and assisted in revolutionizing of Poor Law hospital work, making hospitals important training schools for nurses. He a keen and capable administrator, devoting all his gies to the efficient working of the hospital. The very number of nurses for whose training he was responare holding positions all over the world, many of them rtant ones. His nature was a kind and generous one, very unassuming. He always tried to find the good in rs, and usually succeeded. He identified himself with Church of Scotland, in which he always took an active The ten years of his retirement were spent in Lenzie. it is good to think that they were thoroughly enjoyed im after his long and strenuous medical work.

. HERBERT EDWARD SIEVEKING, who died in London November 21st, aged 70, had spent most of his proonal career abroad. He was born on April 19th, 1853, the l son of Sir Edward Sieveking, M.D., and was educated Marlborough and at St. Mary's Hospital. He took the .C.S. in 1881, and the L.R.C.P.Lond. in 1889. After holding resident appointments at St. Mary's, he went to Egypt as surgeon to the Victoria Hospital at Cairo, and later took a part in the Government Railway Service of Cape Colony, and was medical officer of the hospital at Fourteen Streams. Afterwards he became medical officer of the British South Africa Company's Police (Rhodes' Pioneers), and when in charge of the base hospital at Fort Tuli had the honour of raising the first flag of the Chartered Company on Hospital Hill, Fort Tuli, on November 12th, 1891, "to welcome Mr. Rhodes on his first visit to the country saved for the Empire by his sole efforts." This flag was presented in 1909 to the Provost and Fellows of Oriel, Rhodes's college at Oxford. Dr. Sieveking received the Order of the Medjidie (4th Class) from the late Khedive of Egypt, Tewfik, for his services in the Cairo Hospital; he also held the Royal Humane Society's bronze medal. He contributed several papers to our columns, including an account of Lady Strangford's Hospital at Cairo, and of the Victoria Hospital there.

Dr. GEORGE WILFRED POLLARD of Birkenhead died from an apoplectic seizure whilst witnessing the recent North v. South Rugby football match at Birkenhead. He was educated at the University of Edinburgh, where he graduated M.B., C.M. in 1892 and M.D. in 1897. He was widely known, and respected by all with whom he came in contact. He was late honorary assistant medical officer to the Birkenhead Borough Hospital, senior house-surgeon to the Children's Infirmary, Liverpool, and junior house-surgeon to the Staffordshire Infirmary. Dr. Pollard, who was a member of the Birkenhead Division of the British Medical Association, is survived by his widow and two daughters.

Dr. JOHN HENRY MAINS of Struanville, Clackmannan, died in a nursing home on November 27th, following an operation, aged 66. A native of Stirling, he was educated at the High School there and subsequently studied at the London Hospital Medical College. He took the diploma of L.R.C.P.Lond. in 1887, and for a number of years practised at Portland, and subsequently at Longriggend. He went to Clackmannan to practise about eight years ago and became parish medical officer and certifying factory surgeon. He took great interest in local affairs, was a life member and lecturer of the St. John Ambulance Association, and a member of the Stirling Branch of the British Medical Association. Dr. Mains is survived by his wife, one son, and two daughters. The funeral took place at Stirling cemetery on December 1st.

Dr. CHARLES NELSON ELLIOTT of Oundle, died on November 22nd. He was born in 1848, the son of the late Rev. Charles Elliott, and was educated at Trinity College, Dublin, where he graduated B.A. in 1871 and M.B. (2nd place) and M.Ch. in 1872. After serving as resident to the Richmond and other Dublin hospitals he went to Oundle, where he practised for thirty-seven years. He was medical officer of the Oundle and Fotheringhay district, M.O.H. for the Irthlingborough Urban District, as well as the Oundle and Thrapston Rural District. He was also medical officer to Oundle School, and medical superintendent of the local isolation hospital. He was appointed to the commission of the peace in 1907. His death took place at King's College Hospital, where he had recently undergone an operation. He is survived by his widow, two sons, and three daughters.

Dr. J. ACRIOL ARMITAGE, whose death occurred at Hastings on November 26th, formerly resided at Wolverhampton, where he had an extensive practice. He was educated at the Universities of Cambridge and Edinburgh and graduated B.A.Camb. in 1881, M.A. in 1901, and M.B., C.M.Edin. with honours in 1886, taking the M.D.Edin. with commendation for thesis in 1888. He had served the offices of resident physician to the Royal Maternity Hospital, Edinburgh, surgeon to the Wolverhampton Orphan Asylum, and honorary gynaecologist to the Wolverhampton and

issued by the universities. The British Museum, as is well known, has the right to a copy of every publication issued in Great Britain, and the list now prepared reveals the important fact, hitherto not generally realized, that the National Library in the British Museum contains also the most extensive and representative series of foreign medical and scientific periodicals in Britain. "This," Professor Leiper says, "must strengthen the many centripetal circumstances now tending to make Bloomsbury in coming years the post-graduate centre of the Empire," a centre in which the British Medical Association is shortly to take its place when it enters into occupation of its new house, of which a picture was published last week (p. 33). Professor Leiper expresses his thanks to the Science Committee of the British Medical Association "for the lively interest it has sustained in a project which has occupied his spare moments for the past four years as well as for its generous guarantee whereby the labour of love of the compilers is placed in the hands of their fellow workers at a price based upon the actual cost of publication." The book will be published next week at the price of 10s. 6d., and will be obtainable through any bookseller. It can also be purchased at the offices of the British Medical Association, 429, Strand, London, W.C.2, or will be supplied by the Financial Secretary by post (10s. 9d.). Copies will be available at Stand No. 64 in the Exhibition of the British Medical Association which will be held during the Annual Meeting at Portsmouth.

EDUCATION OF THE PUBLIC AS TO CANCER.

THE annual general meeting of the Royal Society of Medicine was held at the Society's house on Thursday, July 5th, at 5 p.m. The report of the Council was passed without discussion, and the officers and Council nominated for next session were duly elected. Subsequently a special general meeting of the Fellows was held, under the chairmanship of the President, Sir William Hale-White, for the purpose of receiving and considering a report by the Council on propaganda for the prevention of cancer. At an ordinary meeting of the Society held on March 13th, 1923, and reported in our issue of March 24th, resolutions were adopted affirming that the public should be given more information as to the early signs of cancer and prospects of cure by means of treatment, and inviting the British Red Cross Society to conduct a publicity campaign by means of lectures and pamphlets. The Council of the Royal Society of Medicine appointed a committee to consider the matter and to prepare information which might be supplied to the British Red Cross Society to disseminate widely for the education of the public. This committee held several meetings, including two with a committee nominated by the Ministry of Health to consider the question of cancer. Sir Arthur Stanley attended one of the meetings, and offered the help of the British Red Cross in distributing knowledge to the public if the Royal Society of Medicine would supply the information, to be used by lecturers already provided by the Red Cross Society or embodied in leaflets. The committee felt unable to advise that information should be provided for lecturers, because the Royal Society of Medicine would have no control over what the lecturers might say. But having read the leaflets already distributed by some medical officers of health, the committee drew up a leaflet entitled "What ought to be known about cancer," and advised that the Royal Society of Medicine should supply it to the British Red Cross Society. The Council approved this report and submitted it to the special meeting. At first there seemed to be some doubt in the minds of the Fellows present whether the Society was already committed to the issue of a leaflet by the resolutions of the ordinary meeting on March 13th. This doubt was cleared away by Dr. A. M. H. Gray, one of the honorary secretaries of the society, who stated that these resolutions were merely recommendations which could be accepted or rejected as the meeting wished. Sir Henry Morris expressed grave doubts as to the wisdom of joining with the Red Cross Society in a publicity campaign, though he was quite willing to consider the advisability of a pronouncement of its own by the Royal Society of Medicine. He felt also that some of the statements in the leaflet might produce anxiety in the minds of many people without any real advantage. Dr. W. S. A. Griffith objected to a statement about uterine haemorrhage after the menopause as too sweeping; and Sir StClair Thomson and others complained of omissions in the leaflet. One or two speakers expressed the opinion that propaganda on the subject would be better left to the medical officers of health. Owing to these and other criticisms a proposal to postpone the matter until the autumn session was eventually accepted without a dissentient. The Central Midwives Board has two excellent leaflets, one on cancer of the breast, the other on cancer of the womb, both drawn up by its chairman, Sir Francis Champneys. They are written in general terms, and in plain language convey information of first importance to all women. As is noted above, some medical officers of health have issued leaflets for local distribution. It is true that surgeons often find that the disease is beyond the reach of surgical help when the patient first applies for treatment and are naturally desirous that possible future sufferers should be instructed in the recognition and the early manifestation of the disease, but the Royal Society of Medicine is probably wise in giving this matter of a publicity campaign on cancer further consideration, for any leaflet issued under its authority should be very carefully worded so as not to appear to promise too much.

COMPARATIVE MEDICINE.

A SECTION of Comparative Medicine has been established by the Royal Society of Medicine, and was formally constituted at a meeting on July 6th, when Sir Clifford Allbutt was elected president. The section is open to duly qualified veterinary surgeons as well as to medical practitioners. Half the members of the council represent human medicine and half veterinary medicine. The vice-presidents are Major-General Sir Layton Blenkinsop, K.C.B., Colonel Commandant Royal Army Veterinary Corps, Lieut.-Colonel J. W. Brittlebank, C.M.G., R.A.V.C., Sir William Hale-White, President of the Royal Society of Medicine, Mr. Frederick Hobday, C.M.G., F.R.C.V.S., Major-General Sir William Leishman, K.C.M.G., F.R.C.P., F.R.S., Major-General Sir John Moore, K.C.M.G., F.R.C.V.S., Sir Leonard Rogers, M.D., F.R.S., and Mr. G. H. Wooldridge, F.R.C.V.S. The section will hold its first meeting at the beginning of next session, and thereafter will meet at 5.30 on the fourth Wednesday in each month. Mr. Hobday, who, it will be remembered, opened the discussion on animal pathology in relation to human diseases at the annual meeting of the British Medical Association last year, and who is this year a vice-president of the Section of Pathology and Bacteriology, has rendered important services in the formation of the section, and may without exaggeration be called its founder; if this be so then Sir Clifford Allbutt may be called its father, for it is to his persistent advocacy during many years and in several addresses to the British Medical Association that the recent impetus to the study of comparative pathology and medicine has been in the main due. Another evidence of the success of his labours is seen in the institution of the professorship of animal pathology in Cambridge, which will form part of the great school of comparative medicine and pathology that is growing up in Cambridge.

TRIAL OF DREYER'S VACCINES AND ANTIGENS IN LONDON.

THE Public Health Committee has framed a scheme, which was adopted by the London County Council on July 10th, for testing the clinical efficacy of the diaplyte vaccines and antigens produced by Professor Dreyer. His original paper, giving a preliminary account of his researches and of some clinical trials then in a very early stage, was published in the *British Journal of Experimental Pathology*, and an abbreviated account of his results was given in our columns a few weeks ago (June 23rd, pp. 1065 and 1059). The scheme is to set apart at the Hampstead Hospital (New End Infirmary) fifty beds—twenty for men, twenty for women, and ten for children. The patients will occupy a separate part of the infirmary and will be under the treatment of Captain S. R. Douglas, F.R.S., bacteriological director at the National Institute for Medical Research, Hampstead, formerly director of the inoculation department of St. Mary's Hospital. The proposal has received the sanction of the Minister of Health, and it is intended to enter into a formal agreement with the Hampstead guardians in the first place for six months. The Minister is prepared to approve additional expenditure by the Council at the rate of 50s. a week for the maintenance and care of each of the patients under this treatment. All patients will be selected through the Council's scheme for the treatment of tuberculosis, and in view of the experimental nature of the treatment, only those patients who are willing to undergo it will be accommodated. A small committee of medical experts will be appointed to supervise and to report upon the results of the treatment.

DIPHTHERIA RESEARCH AT GHENT.

THE Institute of Hygiene and Bacteriology of Ghent University, built in 1905, is a centre for instruction in the principles of hygiene and bacteriology, and provides a department for the examination of pathological specimens, the analysis of water, and the performance of serological tests. Much valuable research has been carried out in the laboratories of which Dr. M. Henseval is director, particularly with reference to vaccination against diphtheria by means of toxin-antitoxin mixture, and the value of the Schick test. In 1921 Henseval and Clevers[1] demonstrated that the inoculation of guinea-pigs with an appropriate mixture of diphtheria toxin and antitoxin conferred on these animals a high degree of immunity, manifested by the production of a large quantity of antitoxin, enabling them to resist many times the lethal dose of toxin and to survive a heavy inoculation of virulent diphtheria bacilli on the buccal mucous membrane. They showed also that the inoculation of human beings with a similar mixture of toxin and antitoxin determined a similar immunity, even in individuals positive to the Schick test and not possessing any appreciable quantity of antitoxin. They suggested that this method might be employed for the prevention of diphtheria, provided a carefully prepared product were employed. Working at this institute Dr. Vernieuwe studied the relation of the Schick reaction to cases of nasal diphtheria,[2] and observed that patients suffering from diphtherial ulcerative rhinitis generally gave a positive reaction to the Schick test; but vaccination with toxin-antitoxin mixture modified their receptivity and rendered them negative; he suggested that it might even be possible to prevent the diphtheria bacilli from living on the mucous membrane by suitable vaccination. To achieve this, however, it would be necessary to raise the circulating antitoxin to a high level. The development of a diphtherial lesion depends not only on the presence of the organism and the receptivity of the host, but also on the existence of damage to the mucous membrane or deeper tissues, and the fact that an operation wound in the pharynx or nasopharynx of a patient suffering from diphtherial rhinitis may create a new focus of infection should not be lost sight of. It has often been assumed that the method of vaccination by toxin-antitoxin mixture is a variation of the method proposed by Behring, who, indeed, declared that his vaccine consisted of a mixture with a slight excess of toxin, but did not give any indication of its method of preparation. Henseval and Clevers have found[3] that the methods of administration of the two vaccines are totally different, that Behring's vaccine is much more toxic, and that its injection does not give rise to such a high degree of immunity. They conclude that the two methods are based on entirely different principles, and are not satisfied that the immunizing value of Behring's vaccine has been sufficiently established. The same authors have investigated the minimum quantity of antitoxin determining a Schick-positive or Schick-negative reaction in guinea-pigs,[4] and found that a Schick-positive reaction did not appear whilst the blood contained more than one three-hundredth of a unit. When the blood of these animals contains more than a fiftieth to a hundredth of a unit of antitoxin they resist a heavy inoculation of diphtheria bacilli on the ocular mucous membrane. In another recent communication[5] the fact is confirmed that antidiphtherial vaccination of human beings produces an active immunity which enables the person to resist diphtheria infection for a long time—five years or perhaps longer. This observation, they suggest, might be utilized for young children presenting a Schick-positive reaction. The most appropriate vaccine is one under-neutralized, which does not rapidly cause the death of guinea-pigs in doses of 5 c.cm., although capable of provoking delayed reactions of a paralytic nature in 25 to 50 per cent. of the animals. This is preferable to vaccine completely or hyper-neutralized. Although these authors consider antidiphtherial vaccination to be a method sufficiently established to be recommended, they hesitate to recommend it for universal use.

PSEUDARTHROSIS.

THE complicated arrangement of the tissues found in pseudarthrosis and the transitions met with from one form of tissue to another have been referred by some writers to a process of metaplasia—that is to say, the transitional forms have been held to indicate merely a genetic relationship between the various tissues. In a recent paper on the microscopic structure of pseudarthrosis[6] Mitterstiller, following Roux, seems disposed to adopt the view, which is largely borne out by the observations described in his paper, that the differentiation of the tissues found in false joints is due to the varying mechanical forces to which the joints are subjected in different parts of their structure. Thus, where lateral or gliding movements of one portion of tissue on another are predominant, a fissure is produced; where such movements are associated with pressure, cartilage is developed; in situations where movement is at its minimum bone is found, and fibrous tissue where the tissues are subjected to tension, as at the periphery of the bone-ends in angular movements. The connective tissue, cartilage, bone, and joint capsule are held to arise from a single tissue or blastema, and similar relations are considered to hold in the regeneration of a joint as in its first development. Mitterstiller's observations were made on four cases of pseudarthrosis—two in the tibia of five and eleven months' duration respectively, one in the ulna of four years' duration, and one in the humerus of eleven and a half years'

[1] *Bull. de l'Acad. Roy. de Méd. de Belgique*, September, 1921.
[2] Ibid., October, 1922.
[3] *Comptes rendus des Séances de la Soc. de Biol.*, March, 1923.
[4] Ibid., March, 1923.
[5] *Bull. de l'Acad. Roy. de Méd. de Belgique*, March, 1923.
[6] *Archiv fur klin. Chir.*, 1923, vol. 122, p. 533.

Staffordshire General Hospital. He retired to Hastings in 1912, and devoted his energies to the work of the Society for the Propagation of the Gospel. He went on a world missionary tour in 1914, and also visited Peking with Mr. Rockefeller in 1919 for the opening of the Peking Medical College and Hospital.

Medico-Legal.

AN UNQUALIFIED PRACTITIONER.

AT Woolwich Police Court on November 28th, before Mr. Waddy, Clarence Wilfred O'Donoghue, of Heavitree Road, Plumstead, was summoned for falsely using the title of "doctor" on October 13th, 21st, and 22nd, implying that he was registered under the Medical Act; alternatively he was summoned for pretending to be a general practitioner on the same dates. Mr. G. D. Roberts, instructed by Messrs. W. E. Hempson and Sons, solicitors, prosecuted on behalf of the Medical Defence Union. The case arose out of an inquest held by the Woolwich coroner on October 27th on a woman named Healy. The facts were sufficiently reported in the JOURNAL of November 3rd (p. 843).

At the police court Mrs. Walklin, niece of Mrs. Healy, gave evidence that when her son, aged 3 years, was ill, she, believing O'Donoghue to be a fully qualified doctor, called him in, and he examined the child and gave her a bottle of medicine, for which she paid 2s. 6d. Patrick Healy, son of the deceased woman, repeated the evidence he gave at the inquest as to the belief held by his mother and his family that O'Donoghue was a fully qualified doctor, and as to his attendance on his mother up to within an hour of her death.

The shorthand notes of the proceedings at the inquest were put in. These showed that O'Donoghue, in reply to the coroner, had admitted that he had no qualification registrable in this country.

The magistrate said that the Medical Defence Union had quite rightly taken up the case, and it was his duty to convict. The defendant would be fined the maximum penalty of £20 on the first summons and must pay 10 guineas costs, with the alternative of a month's imprisonment.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on December 8th the following medical degrees were conferred:

M.D.—E. W. Todd.
M.B., B.CH.—L. S. Fry, C. Sturton, G. E. Burton, C. V. Patrick
B.CH.—J. M. Bickerton.

UNIVERSITY OF LONDON.

IT has been decided to institute a readership in pharmacology at the London School of Medicine for Women.

Dr. Lydia Henry has, on the nomination of the Board of Principal Teachers of King's College for Women, been appointed a member of the King's College Delegacy for the period ending February 24th, 1924, in succession to Dr. J. Lane-Claypon, resigned.

Professor A. E. Boycott, F.R.S., has been reappointed Director of the Graham Medical Research Laboratory for a period of one year as from January 1st, 1924.

Internal and external students who under the old regulations have followed an approved course which has included pharmacy and materia medica for the second examination for medical degrees, Part II, will not in future be required to follow courses in the same subject in preparation for the third examination for medical degrees.

Sir Wilmot Herringham has been elected chairman of the Gresham Legacy Committee for 1923–24.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THE following have after examination been admitted as Fellows: Joseph Dunbar, James Hendry, John Marshall, Thomas D. Miller, John R. B. Robb, Sidney H. Waddy.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the monthly business meeting of the President and Fellows, held on December 7th, the following candidates, who had been successful at the Conjoint and Final Examination in November, were duly admitted to the licences in medicine and midwifery of the College:

F. J. N. Carney, A. E. Clements, M. H. Dobbyn, F. D. Fitzpatrick, W. G. C. Fitzpatrick, H. I. Hawkes, Rosaleen H. Hoskin, Kathleen O. M. Kennedy, Catherine M. King, G. A. Little, J. J. Marlborough, Sarah Matson, F. M'Connell, E. A. M'Manus, J. J. O'Donnel, J. O'Donnell, W. O'Neill, V. J. O'Toole, H. C. Patterson, G. F. Plant, P. B. Ryan, J. Unsworth, S. P. Wallace.

Medical News.

THE Purvis Oration before the West Kent Medico-Chirurgical Society will be delivered to-day (Friday, December 14th), at 8.45 p.m., at the Miller General Hospital, Greenwich. The orator is Sir Thomas Horder; his subject is "Carcinomatosis."

A LECTURE on a tuberculosis settlement, illustrated by the cinematograph, is being given by Sir James K. Fowler at the Middlesex Hospital Medical School this day (Friday, December 14th) at 3 p.m.

THE Kensington Division of the British Medical Association has arranged a ball in aid of the Royal Medical Benevolent Fund. The ball will be held at the Kensington Town Hall on Tuesday, February 5th, 1924, from 9 to 2 o'clock, under the patronage of H.R.H. Princess Louise, Duchess of Argyll. Tickets, price 1 guinea each, or six for 5 guineas, can be obtained from the Honorary Secretary, Dr. Howard Stratford, 20, Upper Phillimore Place, Kensington.

THE house and library of the Royal Society of Medicine will be closed from Monday, December 24th, to Thursday, December 27th, both days inclusive.

THE Liverpool Psychological Society has been inaugurated under the presidency of Professor Alexander Mair, M.A., of the University of Liverpool, supported by Dr. Betts Taplin as vice-president and an influential committee. The society intends to pursue the systematic investigation of the recent developments of the science. Further information can be obtained from the Secretary of the Society, The University, Liverpool.

DR. W. L. P. BEVAN, formerly medical officer of health for Alton, has been presented by the townspeople with a fur coat, leather travelling bag, and an illuminated address on the occasion of his retirement from practice after thirty-five years' residence in the town.

THE next meeting of the Central Rhineland Surgical Association will be held at Frankfort on January 12th, 1924, when the following subjects will be discussed: (1) Diagnosis of diseases of the female breast. (2) Results of operative treatment for spinal cord disease in spondylitis and fractures of the vertebrae.

THE Nobel prizes for 1922 and 1923 were formally presented in Stockholm on December 10th by the King of Sweden. Among those who attended the ceremony was Dr. A. V. Hill, Jodrell Professor of Physiology in University College, London.

IT is announced by the Paris correspondent of the *Morning Post* that an international committee has been founded to establish an Institut Coué d'Education physique (Méthode par l'imagination). The committee includes several members of the medical profession in France.

PROFESSOR KARL SUDHOFF, the well known medical historian of Leipzig, has recently celebrated his 70th birthday.

DR. GEORGES GUILLAIN has been nominated professor of nervous diseases in the Paris Faculty of Medicine, in succession to Professor Pierre Marie, and Dr. Sicard has succeeded the late Professor Rénon in the chair of medical pathology.

MESSRS. J. AND A. CHURCHILL announce for early publication the fifth edition of Dr. Henry Jellett's *Short Practice of Gynaecology*, with 10 coloured plates and 318 illustrations in the text.

THE Secretary of the Nurses' Co-operation, 22, Langham Street, W.1, informs us that the year's work of the Nurses' Needlework Guild was displayed at the Howard de Walden Nurses' Club last week. The garments are distributed to various hospitals.

THE first number of a new quarterly Polish publication, which will publish articles on medicine, has been received, and is to be welcomed as a valuable addition to medical literature. Under the editorship of Professor A. Gluziński, of the University of Warsaw, and with the official approval of the Minister for Art and Public Education, it will contain articles by members of the hospital staffs, and include accounts of the progress of medical research. An abstract in French is given of each article. The present number includes papers on the diagnosis of pulmonary syphilis, by Professor Gluzinski; on methods of determining hepatic insufficiency, by Dr. W. Filinski and Dr. W. Proszowski; on neutral fats in the blood, by Dr. Z. Gorecki; on cholesterin in the blood, by Professor W. Orlowski of Cracow University; on the sedimentation of red blood corpuscles, by Dr. Eleonora Reicher; on von Pirquet's reaction, by Dr. L. Sobieszczanski and Dr. Z. Michalski; and on the influence of pilocarpine upon the amount of sugar in the blood and urine, by Dr. J. Wegierko.

notoriety, or both. In compensation cases I have seen many instances in which the condition has been produced or made much worse either by supposed or real inattention to the person at the time of injury; or later on by someone depreciating the amount of the injury received or by offering a quite inadequate sum as compensation.

The signs and symptoms in hysteria are as numerous and varied as the imaginings of the patient; and may be manifested in acute attacks lasting an hour or some days and coming on periodically, or may be more chronic and last months or years.

Alterations of sensation may lead to complaints of localized pain, sometimes in the head or spine, either the whole spine or a localized area, in the breast, over the heart, and frequently in the abdomen. Hyperaesthesia is more common than the spontaneous pain just mentioned, and these tender zones may be on the top of the head, above or below the breast, at the iliac fossae or the vertebral spines, and pressure on such zones may start an acute hysterical seizure. More frequently loss of sensation is found, variously distributed, in one limb or part of a limb or both legs, but hemianaesthesia is more common; as a rule the areas said to be affected do not conform to the anatomical distribution of the sensory nerve roots. In a limb, for instance, the limit of anaesthesia is generally a horizontal line drawn round the limb either just above or below a joint. Affections of vision are common, either total blindness of one or both eyes, marked contraction of the fields of vision, abnormal alterations of field of colour vision (instead of the normal white, blue, red, green, it may be red, blue, white, green), or colours may not be recognized or may be called by wrong names. I have never seen a bilateral homonymous hemianopia in hysteria; it is a manifestation very unlikely to be known to a hysterical subject. There may be unilateral or bilateral deafness, loss of smell or taste; speech may be affected either as aphonia or mutism or be manifested by mere gibberish.

The motor manifestations may be general or partial convulsions, local contractures, various forms of tremor, paralyses of various types, paraplegia, hemiplegia, or monoplegia. But close observation will reveal that in no case do they perfectly conform to the signs of similar affections due to organic disease; the "fit" is never a perfect epileptic fit, the spastic paralysis is never accompanied by the proper associated increased reflexes, nor the flaccid paralysis by wasting of muscles.

To put it shortly, the change, if any such exists, which produces such sensory or motor disturbances is not in any part of the brain or cord known to be directly connected with sensory or motor centres or tracts, but is a dynamic change in the highest cerebral cortex, a psychical change.

Visceral manifestations may affect the digestive system—anorexia, starvation, ravenous hunger, vomiting, flatulence from air-swallowing, meteorism (and pseudocyesis), colic, constipation. Other visceral affections may be constant cough, altered breathing, bringing up blood either by coughing or vomiting (such blood as a rule having been sucked from the gums or throat or injured tongue). About 1889, when resident in hospital, I was told that there was a girl in the surgical wards who was suffering from total loss of sensation and motion of the left arm, due to rupture of the brachial plexus from a fall against a pew in church. At the most earnest solicitations of her friends and herself, as the paralysed arm was a constant hindrance to her, it was arranged to amputate the arm at the shoulder-joint. The night before the operation I was asked to see her as she had vomited a pint of blood. She was transferred to the medical wards. The next morning, from the peculiar transparency of a thin film of the blood, I surmised it was being sucked from the gums, and on examination found this to be the case. Needless to say no operation was performed and she was discharged cured. Polyuria, dysuria, ischuria, and vaginismus are also seen.

I believe that many of the so-called trophic and vasomotor changes described in hysteria are not changes due to disease but are artificially produced. I refer to the bloody stigmata, the blisters, the gangrenes, the erythemata, and the increased temperature. If suitable and full observation be made, such tricks for obtaining sympathy can always be found out. The "blue oedema" and "white oedema" if not artificial are, I think, real vasomotor changes unconnected with hysteria.

Although hysterical subjects may possibly sometimes suffer from a self-induced hypnosis or may apparently have no recollection of what has occurred during an acute attack, or may have a simulation of loss of memory of the whole life-history previous to a particular attack, these, to my mind, are no more real than a hysterical flaccid motor paralysis. It is most important also to remember that however unconscious a hysterical person appears to be, it is probably always a simulated unconsciousness; at any rate that is my personal experience. Indeed, I go further and maintain that, however unconscious hysterical subjects may appear to be, they are really intensely "wide awake" and are watching the observers as keenly as the observers are watching them. A psychic condition of the utmost importance in hysteria is hypersuggestibility; so marked a feature is it that Babinski has suggested the name "pithiatism" (πείθω, I persuade) for hysteria. I thoroughly agree with him that many of the manifestations seen, such as hemianaesthesia and various types of paralysis, have unconsciously been suggested to the patient by the medical examiner, and the more they appear to be the real thing the more they have been suggested.

It would take too long to consider the differential diagnosis of each hysterical manifestation; and indeed it is not necessary to do so. All that has to be remembered is that the hysterical simulation is never perfect and never fully conforms to the anatomy and physiology of the nervous system.

Treatment also must be dismissed in a few words. In very acute cases, such as a "fit," a sudden shock, such as a strong faradic current applied to the neck or a douche of cold water on the head, may cure at once.

A boy, aged 18, was brought into hospital one night in great haste, said to be suffering from hydrophobia; he was in convulsions and there was a vague history of a dog bite some weeks before. As I was the only man in hospital who had ever seen genuine hydrophobia, I was called up to see the patient. The convulsions were of the irregular bizarre hysterical type, and when I approached the boy he "barked" at me and tried to bite me. A strong faradic current applied suddenly to his neck promptly cured him.

But in chronic cases any such violent methods do the greatest harm; isolation from friends and relations is almost essential, and the doctor and nurse must sympathize with the patient, and go fully into the life-history to discover the reason why the morbid craving has arisen. In this way the patient comes to the conclusion that at last there is someone who understands her, and when once such confidence has been gained the medical man can without difficulty persuade the patient to a normal condition. Of course, the sympathy extended must be of the persuasive, encouraging, optimistic type, and not the coddling and pessimistic type which makes things worse.

NEURASTHENIA.

Neurasthenia may be defined as a disease of the nervous system without known pathological change in which there is a persistent weakness and irritability of nerve centres due to chronic overuse of neurones and manifested by purely subjective symptoms—that is, by altered feelings.

In health, fatigue is followed by a repose during which the cell is restored, and in animals the cell changes due to fatigue have been observed—the swelling of the cell body and dissolution of part of the chromophil substance, followed during repose by restoration in size and of the chromophil particles. But if fatigue is either too severe or too prolonged such restorative changes may not occur and the altered cells become at first more irritable and more susceptible to fresh fatigue, and finally their function is lowered.

There is no common standard of fatigue for all men, a point beyond which fatigue must not go if an ordinary repose is to restore the used cell to the normal. But a sharp line must be drawn between the person with a neurotic heredity

THE sixteenth annual report of the British Guiana Society for the Prevention and Treatment of Tuberculosis contains records of the work of three dispensaries in Demerara and one in New Amsterdam. Six lady health visitors are associated with these; 8,844 domiciliary visits were made in the course of the year, and milk, disinfectants, and respirators were distributed. The committee urges that all this special tuberculosis work ought to be made part of the medical service of the colony and be under a whole-time tuberculosis officer. So far it has not been possible to undertake the routine inspection of school children. There is in the report a note by Dr. Massiah on treatment by a preparation of garlic in honey, which he considers a successful palliative but by no means curative. Treatment was unsatisfactory to a large extent because patients ceased to attend when they began to improve, and so the maximum benefit was not obtained. It has been found very difficult to isolate advanced cases owing partly to lack of hospital accommodation and the absence of any scheme of compulsory segregation.

MR. PHILIP KRUSEMAN, publisher (The Hague, Noordeinde 91), has again issued a medical art calendar of the same general character as those that have appeared in previous years—that is to say, it contains reproductions of a number of paintings and engravings representing scenes of more or less medical interest, ranging from the travelling charlatans and dentists to operations and lectures on anatomy. This issue is dedicated to the Netherlands Association for the Advancement of Medicine, which was founded seventy-five years ago. The price is 6s., post free.

IN the notice of the *Medical Directory* for 1924, published last week, it was said that the list of practitioners beyond the seas "does not include those who hold degrees from Dominion Universities but have not taken diplomas or degrees in the home countries." The statement ought to have been "but have not registered in the home countries." So far as we are aware no directory of Dominion practitioners who have not registered on the British *Medical Register* is available.

IN a pamphlet consisting of articles reprinted from the *Hamilton Advertiser*, Dr. Maxwell Adams—the fourth of the name—continues his story (mentioned in the BRITISH MEDICAL JOURNAL of April 23rd, 1923) of the medical family to which he belongs. The matter now published is taken mostly from an autobiography left by Dr. Maxwell Adams *primus*; it tells how this "dynasty of doctors" began, how he, through many hardships, and whilst a married man with wife and family to maintain, succeeded in completing his medical curriculum in Edinburgh in the early years of last century, and entered on practice there.

THE jubilee of the Boston University medical school has recently been celebrated. In one sense the school is older than this, since seventy-five years ago Dr. Samuel Gregory opened the New England Female Medical College in that city, which, on the death of its founder, was taken over by the university and opened as its medical school.

THE Tropical Diseases Library, now arranged in the building of the London School of Tropical Medicine (23, Endsleigh Gardens, N.W.1), was formed by the amalgamation of the libraries of the School and of the Tropical Diseases Bureau. The annual report of the librarian, Mr. Cecil C. Barnard, B.A., shows that the joint library continues to increase and that great efforts are made to keep it up to date. Recent additions include the most important new publications on tropical medicine and a large collection of older German volumes particularly rich in books on cholera. Space had been found in the reading room for an increased number of monographs, so that the number of volumes immediately accessible to readers has increased from 250 to 715. A list of a few numbers of periodicals and reports missing from sets can be obtained from the librarian, who will also be prepared to discuss the disposal of duplicate numbers of certain journals with librarians of other institutions. Volumes can be borrowed, and the library also has a subscription with Lewis's Lending Library. A card catalogue, containing authors and subjects in one alphabetical sequence, is in course of preparation.

AN intensive course at the North-East London Post-Graduate College, Prince of Wales's General Hospital, will begin on February 4th, 1924, and will last for fourteen days. It will include lectures and demonstrations of clinical methods and cases, and work in the general wards and special departments of the hospital. Those proposing to take the course should notify the Dean not later than January 31st.

PROFESSOR R. KRAUS, Director of the Serum Institute at Sao Paulo, has resigned his appointment and returned to Vienna.

THE next Congress of the Royal Sanitary Institute will be held at Liverpool from July 14th to 19th, 1924, by invitation of the Lord Mayor and City Council.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

WE are asked what can be done to prevent players on a certain football ground in the tropics from suffering septic infection from slight scratches that they may receive. The ground is liable to contamination by human and cattle excreta, but the former at least can be prevented or checked. A football ground ought, of course, to be well scavenged, but even so, we conceive that any attempt to disinfect the soil must fail. In this country we believe that it is now customary to treat scratches or small wounds received at football with tincture of iodine—that is to say, to treat the patient and not the ground.

INCOME TAX.

Legal Expenses.

"B. S. F." inquires whether the legal charges in connexion with a partnership deed, necessitated by the introduction of a new partner, are an allowable expense for income tax purposes.

*** Such expenses are not incurred in the carrying on of the profession, but in connexion with the creation of the firm; they are analogous to the formation expenses of a company, are of a capital nature, and not allowable.

Succession to a Practice.

"L." bought a practice in January, 1922, and paid income tax on the basis of his predecessor's assessment for the period to April, 1922. He was asked to send in an estimate of profits for the year to April, 1923; did so, and paid tax thereon. For 1923–24, however, he has been assessed on the basis of the previous three years' average profits of the practice.

*** The last-mentioned basis is correct where there has been a definite succession in a practice. The request for 1922–23 and resulting assessment were apparently based on a misapprehension of the facts by the authorities.

LETTERS, NOTES, ETC.

CIRCULATION AND ASSIMILATION IN PLANTS.

SIR JAGADIS CHUNDER BOSE, F.R.S., of Calcutta, addressed the Royal Society of Medicine on December 6th on some further work he has done on circulation and assimilation in plants. Strasburger's statement that poisoning did not affect the ascent of sap, and that therefore the movement of sap could not be due to the physiological action of living cells, had been widely accepted, but his own observations with a special apparatus showed that complete arrest of sap did take place under the action of poison; he concluded, therefore, that the movement of sap in living plants was essentially due to cellular activity. An active tissue exchange took place throughout the length of the tree, and the propulsion of sap was due to cellular pulsations in regular sequence. Striking results were produced on these pulsations by the action of anaesthetics; a small dose—of ether, for example—acted as a stimulant and increased the rate of ascent of sap. This cellular activity underwent periodic variation in response to environmental changes during twenty-four hours. The pulsatory movement of a plant cell was ultra-microscopic, but by experiments with an electric probe in circuit with a recording galvanometer, the probe being gradually introduced

and the average person with no such heredity. In the *former, much more easily and much earlier in life, fatigue* deleteriously affects the nerve cell in such a way as to make its recovery more difficult and to allow relapses to occur more easily during the rest of life. Thus hereditary neurasthenia as a rule has much more marked symptoms than acquired and is much more difficult to cure.

The immediate causes of neurasthenia are gross overwork, and especially worry. The dictionary definition of "to be worried" is "to be unduly anxious or troubled; to be in a state of solicitude, anxiety, disquietude or pain; to make one's self anxious or harassed; to fret," and inquiry in neurasthenic cases will always reveal one or more of these causes. Trauma, a frequent cause of neurasthenia, is generally one form of worry, sometimes started by shock.

Neurasthenia may affect either somatic sensations or psychic feelings. The symptoms of somatic neurasthenia are often due to increased irritability of nerve centres causing pains, not along definite nerve distributions, but in wide and somewhat indefinite areas. After listening to the tales of hundreds of neurasthenics it would almost seem as if their viscera had become as sensitive as their skins: they can apparently feel their brains working, their hearts beating, and their alimentary canals doing the work of digestion. Other symptoms seem to be due to a lowered irritability of nerve centres, as shown by lack of power of attention or by great bodily fatigue. Headache is exceedingly common and is constant when it occurs; it may be a feeling of weight on the vertex with dragging pains up the back of the neck, sometimes coming forward to the root of the nose or round to the temples, or is like a tight band round the head, or a tight skull-cap: sometimes the scalp is very irritable, at others the pain is across the brows and behind the eyes. Sometimes the pain is as if inside the brain, which is described as "stirred up" or "screwed up," as if something were moving in it; or at other times as if the head felt empty. Other painful sensations are found in the spine, either the whole spine or in some definite locality —spinal irritation—cervical, dorsal, lumbar, sacral, or coccygeal (coccygodynia); not infrequently pains radiate down the limbs or round the chest or abdomen, sometimes, indeed, in so definite a form that it may be difficult at first to exclude gross organic lesion; or there may be paraesthesiae (creepings, tinglings, burnings, etc., down the limbs); but real anaesthesia I have never met with.

Neuro-muscular asthenia is common, and is described as a feeling of lassitude and fatigue, often on waking in the morning, improving after a meal, and getting worse after *any extra effort, mental or bodily.*

The special senses may be affected. There may be "floating specks" in the vision, a feeling of burning in the eyeballs, an inability to read for more than a few minutes, a feeling of grit under the eyelids. There may be noises in the ears, continuous or pulsating, or distress caused by loud noises: vertigo sometimes occurs.

Each heart beat may be felt and may, indeed, be painful, and there may be tachycardia. Hyperaesthesia of the alimentary tract, if I may so describe it, is the cause of a very large number of symptoms—the irritable or painful tongue, the irritable pharynx, pain and spasm of the oesophagus, discomfort and pain after food, eructations, flatulence, a sense of fullness, sometimes a loss of appetite with wasting; sometimes food is not taken because though hungry the patient fears the discomfort of food in the stomach; the tongue is often furred and flabby and there may be constipation; sometimes the symptoms relate more to the bowels than the stomach, the discomforts being then more in the middle or lower zones of the abdomen.

In the genital system there is often loss of sexual appetite, or sexual impotence; burning pains in the urethra, in the testicles, the spermatic cords, or the perineum.

A consideration of the cerebral symptoms will lead on to the psychic symptoms of so-called psychasthenia, much more common in hereditary than in acquired neurasthenia. Many neurasthenics sleep quite well, but in others there is either intense insomnia or disturbed sleep; sometimes they cannot start to sleep, at other times they sleep at once, but only for two or three hours, and are then awake for the rest of the *night. Complaint is often made of loss of power of mental* concentration, of inability to attend to business, of indifference to affairs in general with loss of memory for recent events; then come states of anxiety, mental depression, fear of going insane. The genuine neurasthenic very rarely goes insane, but some, especially those with a family history of insanity, do, and it must be remembered that some cases of genuine insanity (failure, as Mercier said, of adjustment of self to surroundings, which is manifested by disorder of conduct) actually start with purely neurasthenic symptoms. Then there is the irritability of temper, the intolerance of loud noises, the general impatience of the tired-out man. There are constant "doubtings," often about the most trivial circumstances, and these lead on to the many "phobias"—the fear of closed places, or wide open spaces, the fear of disease or of contamination by persons or objects, the fear that "something is going to happen."

Neurasthenia is often classified according to its prominent symptoms — cerebral, spinal, cerebro-spinal, dyspeptic, cardiac, genital, and so on.

The diagnosis is easy when the affection is widespread, but it may be difficult when the symptoms are confined to special organs, and it is in these cases that so many mistakes are made and in which so many useless and often very harmful operations are done. It would be interesting to know how many operations for gastric and duodenal ulcers, for gall stones, for appendicitis, for kidney trouble (including movable kidney), for gastroptosis, for enteroptosis, for ovarian and uterine affections, have been performed on people suffering from neurasthenia with no causative local affection of any of the organs mentioned. I have personally known some hundreds of such cases. These mistakes may often be avoided by taking a large view of the patient's condition and paying less attention to the symptoms complained of. When a patient comes to see me complaining of some altered sensation, the cause of which is somewhat doubtful, I encourage him to talk and then "sit tight," and if it is a neurasthenic it will not be long before a whole host of other complaints, not anatomically or physiologically connected *with the original one, will be poured forth; and then further* inquiry will give the cause as being some form of worry or stress. In all modesty I would suggest that in these doubtful cases it would be well if the surgeon before operating would ask the advice of his physician colleague.

The prognosis of neurasthenia depends on the type. The hereditary neurasthenic may improve from time to time, but will have relapses for many years, although as age advances they may lessen. The patient with acquired neurasthenia very frequently recovers; if the cause is recent recovery may be only a matter of a few weeks or months, but if of older date with constant repetitions of the cause it may be a matter of one or more years.

Treatment is extraordinarily difficult. Each case has to be dealt with on its merits. The cause must be sought out if possible and removed if possible; the full details of the patient's life and work must be investigated and altered if necessary; things must be explained to him in detail, and an explanation given of the cause of his various symptoms. Frequent interviews and long talks are often necessary, so that to deal satisfactorily with these patients is one of the most tedious and difficult tasks, involving the greatest patience and sympathy. Very frequently a total change of surroundings is necessary, and the choice of a suitable place is difficult. Some patients require total quiet, such as a lonely country or seaside resort miles from a station, some a sea voyage or foreign travel, others require the distractions of London, and others interesting occupation on a farm. It is very necessary to treat symptoms medicinally—the insomnia, the dyspepsia, the headache, and so on—and to build up the body tissues if they have unduly wasted.

Hypochondriasis.

Hypochondriasis is a condition so definite that it should be considered apart from neurasthenia. It is a psychical change so closely allied to insanity that if severe it is

across the plant so that its tip came into contact with successive layers of cells, he was led to conclude that intense and ceaseless pulsations were taking place behind the placid exterior. It was through these incessant internal activities that the tree was enabled to raise large quantities of water to a height which, in the giant eucalyptus, reached 450 feet. The energy for doing this work was obtained by the breakdown of complex chemical substances in internal combustion or respiration, and he had devised what he called a photosynthetic recorder to register certain of these changes. This instrument, he said, was sensitive enough to measure a photosynthetic deposit of carbohydrate as minute as one-millionth of a gram. It was a device whereby the evolution of oxygen—a very sensitive indicator of photosynthesis—was recorded electrically by successive dots on a revolving drum. It was found that minute traces of various chemical agents would induce an extraordinary enhancement of assimilation in plants. Extract of thyroid gland, in the dilution of one part in a billion (that is, French measure, equal to 1,000 million), produced a maximum increase of activity of about 70 per cent. The effect of doses of iodine was more or less similar. The demonstration of the effect of minute traces of chemicals on assimilation of plants was of special interest since it offered some analogy to the effects of ultrameasurable quantities of vitamins on general assimilation and of hormones on physiological reaction. The plant was a multicellular organ, and hence the necessity arose for intercommunication and interaction between more or less distant organs. This was accomplished in two different ways, the first being exemplified by hydraulic convection of liquids carrying chemical substances in solution, and the second by the conduction of excitatory change along certain tissues in the plant which functioned as nerves. The plant and the animal were similar in their contractile movement under stimulation, their reaction to particular drugs, their cell-to-cell propagation of pulsatory movement, their circulation of fluid by pumping action, their nervous mechanism for the transmission of excitation, and their reflex movements at the distant effector. He concluded that the simpler type of plant organism offered scope for investigation the pursuit of which would no doubt lead to the solution of many perplexing problems of animal life.

SPIRIT IN HAIR WASHES.

SEVERAL correspondents have written to us with regard to the note on this subject published in the JOURNAL of December 1st (p. 1072), and we find that the information in the *Extra Pharmacopoeia* was incomplete. The Revenue Act, 1906, clause 13, laid it down that a retailer must not use methylated spirit in any art or manufacture unless he has been authorized to do so; but subsequently the Board of Customs and Excise issued an Order (1913) stating that "mineralized methylated spirit may be used by registered chemists and druggists in the preparation of lotions for external use, when prescribed by duly certified medical practitioners." Chemists, however, are liable to a penalty if the methylated spirit is used in any preparation capable of being consumed as a beverage or used internally as a medicine.

ANTE-PARTUM HAEMORRHAGE AND ECLAMPSIA.

DR. J. LEWIS THOMAS (Newport, Mon.) writes: May I recall briefly a somewhat exciting experience of a winter's day in 1910. A butcher's wife asked me to see her as I was going home to lunch. She complained of a "dreadful headache" with much giddiness, and said that she was passing very little urine. As she was more than eight months pregnant the situation was not pleasant. The urine was practically solid on boiling. She was ordered to bed and the usual treatment advised; she was specially requested to send for me at the slightest signs of labour or convulsions. About 9 p.m. I was sent for, and on arrival found that she had got on the bed in ordinary attire. She was unconscious and actively and almost continuously convulsed. I applied a chloroform mask, well saturated, over her face. While a nurse was being secured I examined for signs of labour and was delighted to find placenta praevia. The os was fairly patulous and soft; and as the bleeding was very free I performed podalic version without removing the hand. The convulsions ceased after delivery and consciousness soon returned. The baby seemed recently dead. The same woman had given me great anxiety four years previously owing to post-partum haemorrhage.

ACCIDENTAL HYDROTHERAPY.

DR. J. N. LORING (London) writes: The following incident may appeal to those interested in hydrotherapy. Last year I was acting as surgeon to a ship on the Australian coast. We were lying at anchor in the Spencer Gulf, fifteen miles from Port Pirie, when one of the men was taken ill. His temperature rose to 103°, and there was violent purging accompanied by cramp-like abdominal pains. He was restless and slightly delirious during the night, and it was decided to remove him to hospital before proceeding on our voyage. Accordingly a small open motor boat arrived, and the patient, whose temperature was now 103.5°, was laid on the bottom of the boat. The run to Port Pirie occupied about an hour and a half. The patient vomited three or four times and passed numerous motions, but his pulse remained good throughout the journey. A tablespoonful of brandy was given every twenty minutes. During the passage the patient was drenched repeatedly with salt spray. The launch shipped a few gallons of water, so that the blankets which covered him became nearly saturated. On entering hospital ashore his temperature was found to be 101°, and he fell into a quiet sleep. He woke about three hours later and said he felt much better. His temperature had risen to only 101.5° and was never again higher than this. Henceforward, I am informed, his progress was uninterrupted. This somewhat unconventional method of administering hydrotherapy seems to have lowered the temperature effectively without producing any baneful results.

ETHYL CHLORIDE-CHLOROFORM SEQUENCE.

DR. THEODORE M. KENDALL (Newport, Isle of Wight) writes: I have been much interested in a controversy which has been occupying the pages of the JOURNAL. I notice that many well known men who ought to be able to speak with authority have been condemning the use of chloroform as a general anaesthetic, and have been pointing out the dangers of such use. I have been a busy man for many years and have practised in country places where other help could not be obtained. I have never found chloroform fail me, nor have I—very fortunately, of course—ever experienced any of the dangers alleged to attend its use. I have found chloroform a safe and valuable assistant in cases of childbirth and for operations in young children. I have frequently administered it, in the half-reclined position of the dentist's chair, and have never been confronted with any mishap. I cannot understand why it is considered now so dangerous or why there is a tendency to push its use aside in favour of other anaesthetics which to my mind do not produce such a comfortable and safe anaesthesia. Maybe I have been fortunate in my patients, but still I have been at times fifty miles from any town and have had to administer the anaesthetic and perform the operation quite unaided in order to save life.

THE CAUSE OF HERNIA.

DR. MARTIN J. CHEVERS (Withington, Manchester) sends us a communication commenting on certain statements in the brief note (November 10th, p. 888) giving a summary of Sir Arthur Keith's Banks Memorial Lecture on the incidence and cause of hernia. Dr. Chevers states that after over a quarter of a century's observation in general practice he has come to the firm conclusion that hernia, whether in infancy, adolescence, or old age, is due to a weakness of the guarding tissues, whether muscular or connective, which weakness is brought about solely by rheumatism, oftener than not of the incipient form; he attributes the smaller incidence in the female to the exceptional strength of this neighbourhood in their case; but as a set-off they have vaginal prolapses with, in his opinion, a similar etiology.

SEPTIC PNEUMONIA WITH HAEMORRHAGIC COMPLICATIONS IN AN INFANT.

DR. WALTER FISHER (Kalene Hill, N. Rhodesia) sends the following note which he recently received from a missionary living many miles from medical help: "For the first seven days (after birth) all went well with mother and child (the child 7 lb. in weight and apparently healthy). On the seventh night the child had poor appetite, and next morning some signs of colic, very small curd being noticeable in stools . . . and a few hours later the whole leg became bluish and white in patches. . . . The breathing became heavy, like that of bronchopneumonia. . . . The temperature rose to 105°-107° F. . . . his stools turned tarry black, and later the white and blue patches spread. On the tenth day the temperature came down, but the child took no nourishment and died in the evening, a large amount of brown mucus coming out of nose and mouth immediately after death."

*** In attempting to reach a diagnosis from the data supplied it may be assumed that all the striking morbid conditions have been reported—for example, that there was little or no vomiting, and that the changes in the leg were chiefly discoloration of the skin without gross swelling. The height of the fever, together with the laboured breathing, make it almost certain that acute pneumonia occurred on the seventh day, and killed the child three days later. But the other clinical facts, the bleeding from the bowels and the condition of the leg, suggest that the pneumonia was not the more common pneumococcal type, but septic and probably streptococcal. The most likely source of septic infection at this time is the umbilical cord; and even if there were no apparent inflammation at the navel it is quite possible that there was a hidden focus in the cord tract, from which a haemolytic streptococcus set up septicaemia, septic pneumonia, with haemorrhages from the intestinal mucosa. The condition of the leg seems more difficult to explain. But cases of umbilical sepsis and septicaemia have been reported where a spreading cellulitis has reached the groin along the preperitoneal tissues, and has caused there abscess or septic thrombosis. In the present case it would not be possible to do more than guess at the condition of the leg, in the absence of a fuller report, and to suggest that it was some circulatory disturbance produced by septic mischief in the groin.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 32, 33, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 276.

inseparable from it. In it the patient does not merely complain of altered sensations and feelings, but has gone a stage further and translated these into terms of definite disease, from which he is certain he is suffering, and his conduct is modified accordingly. Many patients have an idea that they may have syphilis or cancer, or ulcer of the stomach, and consult their doctor on this account. But this in itself does not constitute hypochondriasis, for after adequate examination and explanation they may be convinced that their fears are groundless. It is the person with the fixed idea, unalterable by argument, that he has some definite disease and will not therefore take food, or only certain foods, and will not touch other persons for fear of contaminating them, or will not walk lest he suddenly drops down dead from heart disease, or who spends his time constantly examining some part of his body which he considers diseased, or constantly washes and changes his linen because he thinks he is verminous—that is the true hypochondriac. It is in some cases a truly terrible affection, and is often as incurable as a case of chronic delusional insanity.

Traumatic Neuroses.

It would take too long to discuss traumatic neuroses in all their aspects, complicated and increased as they have been by the Workmen's Compensation Act, but a few words are necessary. No signs or symptoms are found in these cases differing from those mentioned in my previous remarks. The manifestations may be those of malingering, of hysteria, of neurasthenia, of hypochondriasis, or even of true melancholia. The only peculiarity is that after trauma it sometimes happens that there is a mixture of hysteria and neurasthenia with some malingering. According to legal decisions hysteria and neurasthenia (including, of course, hypochondriasis and melancholia) are psychical or physical changes and have to be compensated. But malingering, being pure fraud, gets no compensation, and the great difficulty is to prove that the case is one of pure malingering. Sometimes the doctor can discover this himself, but at other times it can only be proved by outside evidence. For instance, a man after injury may have paraplegia, not organic, as it does not conform to this, but apparently hysterical. If, however, there is evidence that when not under observation so far as the man knows he is seen to walk and run in a perfectly normal manner he is an obvious fraud.

Psychical shock producing neurasthenia may occur without physical injury. A lady in a tramcar saw a following car approaching too rapidly and thought the guard would be killed, but beyond a very slight impact of the cars nothing happened. But the lady got out of the car in a state of fright, fainted, and was afterwards at home suffering from profound neurasthenia for weeks, and was given heavy damages at the assizes.

Again, a man is in very great danger owing to an alarming accident, say, of a falling crane crushing him to death; perhaps he escapes with a bruised foot which soon recovers, but he develops neurasthenia lasting many months. And it is not uncommon for some simple injury, say, of a finger, to be followed by hysterical paralysis of sensation and motion of the same arm. In these cases, although the original slight injury soon heals, compensation must be paid so long as the neurasthenia or hysteria persists.

Finally, I would say that although after trauma the neurasthenia is due to a molecular nerve change similar to those of an ordinary acquired neurasthenia from business worry which recovers perfectly in weeks or months, yet I think that in cases of more severe injury due to falls from heights or injuries to head, and also if the accident has been a very terrifying experience (such as being whirled round a revolving shaft), it is possible for the nervous molecular changes to be so intense that recovery never occurs, in spite of full compensation having been paid. The man is "never the same as he was," and occasionally passes into melancholia and sometimes commits suicide.

REFERENCES.

[1] *Lancet*, October 23rd, 1920. [2] *Traité de l'Hystérie*, 1891, p. 123.

SOME APPLICATIONS OF PHYSIOLOGY TO MEDICINE.

III.—BLOOD PRESSURE AND HEART ACTION IN SLEEP AND DREAMS:

THEIR RELATION TO HAEMORRHAGES, ANGINA, AND SUDDEN DEATH.*

BY

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PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF ABERDEEN.

(From the Physiological Laboratory.)

THIS is an important, and in some of its aspects an almost unexplored, field of study, with an obvious bearing on many questions. Precise data on the subject are naturally somewhat difficult to obtain. The present paper contains some results of slowly accumulating observations carried on by the writer as opportunities presented themselves over a long series of years.

Changes in Normal Sleep.

The slowing of the pulse rate (noted by Galen) and the respiration during sleep has long been known to be accompanied by a lowering of bodily temperature, a great reduction in metabolic activity and heat production, depression of reflexes, diminished secretion, etc. There is general agreement as to a definite lowering of the systolic blood pressure, varying in different conditions and as recorded by different observers, but often amounting to 15 to 30 mm. Hg at the end of two hours' sleep; the pressure gradually rises in the later portion of the night's sleep. Greater reductions have been noted in persons with high pressures in the daytime. Thus some years ago Brooks and Carroll in 39 "hypertonic" subjects with an average systolic pressure of 204 mm. found a fall of 44 mm. after two hours' sleep; at the moment of waking it rose 22 mm. from the level present in sleep. More recently, in the last year or two, C. Müller in normal persons found the systolic pressure to be down to 94 mm. in men and 88 mm. in women during sleep, after a small dose of veronal. Blume, in men and women with moderate day pressures, recorded falls of 15 mm. and 21 mm. respectively, while in those with high day pressures the falls averaged 31 mm. and 39 mm. Much importance has been attached by some writers to this reduction of pressure; it has even been regarded, though on very insufficient grounds, as the determining cause of sleep.

It must be borne in mind that in the recumbent position a fall of aortic pressure would be necessary to prevent the pressure in the cerebral arteries from being higher in the horizontal than in the erect position—from the influence of gravity, the hydrostatic factor of the weight of the column of blood between the levels of the heart and the brain. Allowance for this factor in the recumbent posture cuts down the observed lowering of arterial pressure to a comparatively small amount, probably much too small to play the potent rôle that has been ascribed to it in the production of sleep. Further, the crude analogy of unconsciousness caused by an arrest or sudden great diminution in the blood supply to the brain cannot be regarded as valid when applied to the induction of the normal process of sleep.

Diminished vascularity of the brain substance during sleep has been described by various writers (Durham and others) on the ground of direct observations on exposed portions of the brain surface. A similar change has been inferred from the plethysmographic records obtained by Mosso and his followers, who found evidence of an increased volume of blood in the limbs (arm, etc.) during sleep, and assumed this to be attended by lessened vascularity of the brain, the converse conditions being present after awaking. But this hypothesis has to be revised in view of Leonard

*A communication on this subject was made to the International Physiological Congress at Edinburgh on July 25th, 1923. Part I of this series was published on January 13th, 1923 (p. 51), Part II on August 11th, 1923 (p. 215).

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

424. Precancerous Dermatitis of Bowen.

L. SAVATARD (*Brit. Journ. of Derm. and Syph.*, November, 1923, p. 405) reports a case which clinically and histologically was identical with cases of precancerous dermatitis described by Bowen. It is that of a woman who presented herself with a chronic dermatitis in the region of the right hip-joint involving an area of 6 inches by 3 inches. White scar tissue occupied the centre, round which were numerous red papular lesions, discrete and confluent, some slightly and others more distinctly raised above the skin surface. They were covered by adherent scales and crusts, were firm without being indurated, and did not appear to infiltrate the true skin; when removed a raw oozing surface was left. The patient had no subjective symptoms. The condition had commenced as a red spot on the outer aspect of the thigh thirteen years previously; this gradually increased until, five years later, it formed a red plaque about the size of a half-crown. At this time it was removed, but recurred at the periphery of the scar tissue, and suggested clinically a superficial gummatous infiltration, the Wassermann test, however, being negative. With the idea of a possible tuberculous origin in his mind the author thoroughly scraped the lesion, which then healed soundly, but again recurred at the periphery of the scar. Histological examination revealed a typical picture of Paget's disease—marked acanthosis of the rete cells with dyskeratosis, the upper part of the corium infiltrated by plasma cells and small round lymphocytes, and dilatation of the blood vessels. Clinically the condition was not typical of an extramammary Paget's disease; there was no vivid red colour and no ulcerated bleeding surface. Clinically and histologically, however, the identity with two cases of precancerous dermatitis previously reported by Bowen seemed undoubted. The author is not in agreement with other observers, who would differentiate Paget's disease from the dermatitis of Bowen, and suggests that the hyperkeratosis of Bowen and the difference in the clinical picture may be attributed to the difference in the situation. He submits that the precancerous dermatitis of Bowen is the extramammary precancerous dermatitis of Paget. Reviewing reported cases, he claims that the dyskeratosis on which some observers have placed their cases in the category of Bowen's dermatitis is not infrequently met with in basal and squamous celled carcinomas, and that, moreover, omitting the vegetating hyperkeratosic type of lesion, marked hyperkeratosis is not a feature of Bowen's cases.

425. The Treatment of Bronchiectasis by Artificial Pneumothorax.

J. TILLMAN (*Acta Med. Scand.*, October 4th, 1923, p. 515) records his experiences of artificial pneumothorax in 5 cases of bronchiectasis, and brings this number up to 65 by collecting cases published by other authors. His survey of this combined material shows that the disease was unilateral in 61 per cent., and in another 20 per cent. it was not stated whether the disease was unilateral or bilateral. Only in 3 cases was bilateral collapse of the lungs attempted, in none with success. In about two-thirds of all the cases definite improvement was effected as far as immediate results were concerned. But of the ultimate results—for example, the results more than a year after the institution of treatment—little is yet known. On the whole the author considers this treatment beneficial, but it is not yet possible to say which cases of bronchiectasis will do well under this treatment and which will not. In one of the author's cases the treatment had lasted for six years, the results being excellent. Though there was still a little purulent sputum it had ceased to be malodorous, and the patient was able to live a fairly active life. In another of his cases the sputum disappeared altogether and the patient felt perfectly well, although the lung was not completely collapsed.

426. Renal Function in Diabetes.

E. URECH (*Ann. de Med.*, September, 1923, p. 231) states that although the disturbance of carbohydrate metabolism plays an important part in the course of diabetes, renal lesions are not uncommon, though they have hitherto received little attention. Histological examination of diabetic kidneys often shows serious changes, even though nephritis has not been recognizable clinically. Polyuria sometimes provokes functional hypertrophy. In some cases there is coagulation necrosis of the epithelium of the convoluted tubules, or even glycogen infiltration of the epithelial cells, and some authors state that this may produce diabetic coma. It is therefore important to test the other renal functions in diabetes, in addition to estimating the quantity of sugar. Urech has estimated the excretion of urea, chlorides, and acetone, in addition to the measurement of the total excretion of urine and of sugar, and records his results in several diagrams and tables. He concludes that it is not the severity of the diabetes, the quantity of the blood sugar, nor the presence or absence of acetone which has the determining influence on the renal functions of diabetics, but the condition of their vessels (arterial or renal sclerosis), which causes disturbance of elimination. Three of the younger patients examined had severe diabetes, yet their renal functions were unimpaired. Among the older patients the disturbance of carbohydrate metabolism was sometimes slight, yet their renal functions were definitely impaired. This diabetic sclerosis does not affect uniformly the various organs, but it assumes certain distinctive characteristics which appear earlier and more definitely in the lower than in the upper limbs. This explains the persistence of ulcers, of gangrene, of cerebral haemorrhages, and of attacks of angina pectoris. Does diabetes predispose to sclerosis? Although Urech's investigations are not complete he thinks that further inquiry will show that sclerosis does not occur at an earlier age, nor is it more severe in diabetics than in other patients of equal age.

427. The Nervous Phenomena in Graves's Disease.

J. HOLST (*Acta Med. Scand.*, September 6th, 1923, p. 395) has investigated about 200 cases of Graves's disease, most of which were operated on in a hospital in Drammen. In none of the cases of definite Graves's disease did he fail to find nervous symptoms such as great restlessness, and he attempted to answer the question: Are the nervous symptoms the precursors of, or the sequels to, genuine Graves's disease? He inclines to the latter view, and he notes that in certain cases of insanity the Graves's disease had lasted a considerable time before any mental symptoms appeared. With regard to the popular view that psychic shock may give rise to Graves's disease, he has investigated the histories of 120 cases of primary Graves's disease, and only in 5 could he find an account of a shock, such as an abdominal operation, being regarded by the patient as the cause of the first symptoms of the disease. In these 5 cases there was a history of great sorrow in one case, of pregnancy in another, an abdominal operation in another, and infection in the remaining two cases. In all the other cases in which there was a history of a psychic trauma responsible for the Graves's disease, investigations showed that there had been definite signs of this disease previous to the shock, which may have led to the diagnosis of the disease, but could not have caused it. But though shock is not the common cause of Graves's disease which it is supposed to be, the course of this disease may undoubtedly be seriously influenced by psychic trauma.

428. Late Sequelae of Malaria.

LE DANTEC, M. LEGER, and HESNARD (*Gaz. Hebd. des Sciences Méd. de Bordeaux*, October 7th, 1923, p. 487) read papers on this subject at the seventeenth French Congress of Medicine. Le Dantec observed that the existence of malarial aortitis described by Lancereaux and Potain had been confirmed by skiagrams which showed definite dilatation of the aorta during a malarial attack, which was relieved by quinine, but in chronic cases a definite aortitis accompanied by dilatation supervened. The peripheral arteries are not infrequently attacked by endarteritis obliterans, leading to dry gangrene, especially in the extremities, face, or genitals. In Le Dantec's cases blood tests were negative to syphilis and bacterial invasions, but the blood contained many parasites—*P. falciparum* or *P. vivax*. In women chronic malaria induces sterility, or, in patients who become pregnant, abortion occurs frequently. Surviving infants are cachectic, and the mortality among the newborn is 75 per cent. Le Dantec recommends intramuscular injections of basic quinine formate in glucose solution, in acute cases, but he relies upon quinine sulphate (in cachets) by the mouth, with a glassful of lemonade, in chronic cases. M. Leger states that splenomegaly is usually due to infection by *P. vivax*. He describes the effects of chronic malaria on the liver—the formation of bile and of urea is gravely deranged. Many cases of pneumonia in tropical countries are due to malaria, and the plasmodia may be found in the sputum. These cases are

Hill's work establishing the practical accuracy of the old Monro-Kellie doctrine that the amount of blood within the skull is a constant quantity, whilst its distribution in arteries, capillaries, and veins respectively varies in different conditions. Weber's more recent work indicates that when there is less blood in the limbs there is more in the abdomen, not in the brain.

Plethysmographic observations have clearly shown responsiveness to stimuli during sleep, inducing alterations in the volume of a limb and showing certain changes in the distribution of the blood in the vascular system. But such observations give no information as to the state of the aortic blood pressure, upon which the pressure in the cerebral arteries depends.

Relations of the Period of Sleep to Some Diseased Conditions.

In accordance with the accepted view that the vital activities, as indicated by heart action, respiration, blood pressure, temperature, and general metabolism, reach their low-water mark in the early hours of the morning, it is easily intelligible that death from illnesses involving progressive exhaustion and a gradual running down of the machinery of life should often take place in that period. Statistics are available which bear this out. Thus Schneider (Berlin), in a total of nearly 58,000 deaths, found that deaths were most common between 4 and 7 a.m. Watson and Finlayson (Glasgow), dealing with records of nearly 14,000 deaths, fixed the highest mortality between 5 and 6 a.m.

Many phenomena of disease, aggravation of morbid conditions and symptoms in the night, can be brought into relation with the general lowering of vital activities during sleep—for example, some respiratory troubles which may in some cases be associated with the depression in respiration naturally occurring in that period, the reduced sensitiveness of the respiratory centre to the normal excitation by CO_2 with the consequent modification in the state of the blood, heightening of the grade of acidosis which may be present, development of Cheyne-Stokes respiration, etc., often associated with attacks of severe dyspnoea, etc.

Incidence of Haemorrhages, Anginal Attacks, and Sudden Death in the Night.

In contrast with the associations of depressed functions during sleep as affecting some of the manifestations of disease there is another class of phenomena for which a different interpretation is required, for they obviously do not lend themselves to explanation by the lowered vital activities of nightly rest and sleep.

In connexion with the subject of haemorrhages of various kinds and their times of occurrence and mechanism, questions arise. The time incidence of many vascular ruptures is naturally accounted for by the conditions prevailing at the moment of their occurrence—rise of blood pressure and increased stress on the walls of the vessels determining rupture at the weakest part—for example, muscular effort, the influence of gravity in certain postures, abdominal straining, etc.

But why should a weakened vessel give way during the period of nocturnal rest and sleep, since a lowered blood pressure is naturally protective against rupture? Why cerebral haemorrhage should frequently occur in the night and in sleep is a question that was asked long ago by Sir Samuel Wilks and apparently never answered. In view of the lowering of blood pressure and a diminished blood flow through the brain in sleep, why should a cerebral vessel burst at that time? A similar question has to be dealt with in the case of pulmonary haemorrhage, which, as is well known, is frequently nocturnal in its incidence. The same applies to gastro-intestinal haemorrhages.

It is, of course, a matter of familiar knowledge that true anginal pain occurring in the daytime is commonly associated with exertion or excitement involving raised blood pressure and an increased call upon the heart, the pain diminishing or passing off with cessation of the muscular effort or emotional disturbance, reduction of the blood pressure by amyl nitrite, etc. But it is also well known that anginal pain sometimes seizes the patient in the quiet of the night, awakening him from sleep. What is to be put down as determining the onset in these cases?

Again, we know that sudden death in the night is not rare, sometimes coming thus to persons who have shown little or no evidence of serious departure from the level of their ordinary health, or at least nothing to warrant the expectation of so sudden a termination. In a former paper considerations were advanced in support of the view that the usual mechanism of such deaths is to be found in fibrillation of the ventricles, occurring in a heart which has become specially susceptible as a result of defective coronary blood supply, degenerative changes, toxic influences, etc. But, granted such predisposition, what is the exciting cause that precipitates the sudden and unforeseen disaster in the night-time?

Recognition of Two Different Conditions in Sleep.

The results obtained in the present investigation lead to the conclusion that in considering the subject of sleep we have to deal with two distinct conditions, which have strikingly different associations as far as nervous, circulatory, respiratory, and other functions are concerned: (1) undisturbed or sound sleep, attended by lowering of blood pressure, heart and respiratory rates, etc., and (2) disturbed sleep, modified by reflex excitations, dreams, nightmare, etc., sometimes accompanied by extensive rise of blood pressure (hitherto not recognized), increased heart action, changes in respiration, and various reflex effects. The circulatory changes in disturbed sleep are sometimes so very pronounced that it is somewhat remarkable that they should so long have escaped observation. So far as the present writer knows, the occurrence of marked rise in blood pressure during sleep has not even been suggested—apart from the fact that no actual measurements have been recorded. No doubt paucity of opportunities and difficulties in observation have stood in the way. But the considerations as regards the occurrence of haemorrhages, etc., in the night (stated in the earlier part of this paper) give distinct indications of the probability of important blood pressure changes being present in some instances.

Disturbed Sleep.

In connexion with the circulatory and the other phenomena of disturbed sleep there are various categories with regard to the degree in which the subject is able to recall his dreams or is conscious of the disturbances after awaking.

1. There is no recollection of the disturbed sleep or dreaming condition, though the presence of such was clearly shown by observations on the sleeper—occurrence of muttering, talking, groaning, movements of the face, fingers, etc.; reflex disturbances were evidently active in pronounced degree.

2. On awaking there is a sense of the sleep having been uncomfortable and troubled, but there is no recollection of dreaming having occurred.

3. The fact of dreaming is remembered, but not the definite sequence of the dream.

4. Vivid dreams remembered in great detail.

In all the above categories cardio-vascular disturbances, etc., have been recognized in more or less marked degree. These disturbances disappear at various periods after awaking—often in a variable number of minutes.

Distribution of the Changes in Disturbed Sleep.

The incidence of the recorded disturbances upon the various systems varies widely in different instances.

The heart's action may be specially affected by the impinging of nervous impulses on the cardiac regulating centres in the medulla, etc. There may be much acceleration of the pulse with comparatively little elevation of arterial pressure; there may be a strong cardiac impulse with or without sensations of palpitation.* On the other

* In contrast with the slowed pulse rate which is normal in the small hours of the morning, there is sometimes an acceleration at this period apart from the development of abnormal rhythms, true tachycardia, etc., and without evidence of the more extensive disturbances of blood pressure, etc., described in this paper. Such acceleration is probably ascribable to reflex influences which have become operative during the preceding period of sleep in the earlier part of the night.

often followed by pulmonary fibrosis. In British Guiana autopsies on 926 old malarial patients showed that chronic nephritis was present in 40 per cent. The suprarenals may be disorganized by true "parasitic emboli," leading to symptoms resembling Addison's disease. Hesnard describes the various lesions of the central nervous system and states that peripheral neuritis is an important sequela. Mental complications include manic-depressive insanity and certain forms of dementia praecox. Sabrazès described four cases exhibiting meningo-encephalitic symptoms. Claude (Paris) cited cases of malaria followed by lesions of the central nervous system.

429. Febrile Infection in the Treatment of General Paralysis.

SANTANGELO (*Rif. Med.*, October 8th, 1923, p. 970) speaks very favourably of the treatment of dementia paralytica by the induction of fever. The usual method used by him is to inject into the veins of the patient some blood taken from a malarial subject during the febrile access. He also rubs some of the blood into the scarified skin. Down to May, 1921, 130 cases, recent and old, had been treated. Of these, 42 showed a complete remission, 58 more or less complete, and 30 unchanged. According to Weygendt and Kirschbaum, using the same treatment, they obtained 68 per cent. good remissions, 26 per cent. indifferent, and 12 per cent. negative. Lately the author has used a typhoid vaccine injection to produce fever in place of the malaria, with better results. Even allowing for the fact that spontaneous remissions in the course of dementia paralytica are well known, the author considers that his results were such as to encourage a further trial of the treatment.

Surgery.

430. Chronic Ulcerative Colitis in Childhood.

H. F. HELMHOLZ (*Amer. Journ. Dis. of Children*, November, 1923, p. 418) describes five cases of chronic ulcerative colitis in children, characterized by chronic recurring dysentery with watery and bloody stools, much emaciation, persistency in spite of treatment, and without any known etiological infection. From a study of the cases the ulceration appears to commence, and to be most marked, in the rectum and lower sigmoid until the entire colon, and, more rarely, the ileum also, become involved. The *x* rays show marked narrowing and absence of haustrations of the portions of the bowel affected. The stools, usually from five to ten a day, contain a large amount of muco-pus and blood, frequently in clots. Though large haemorrhages occur only occasionally in adults, in children they are more frequent, and the passing of clots unmingled with mucus is characteristic. Emaciation becomes extreme owing probably to the toxaemia and the rapidity of the passage of the food, but in the absence of complications there is usually no fever. Prognosis is bad because of the obstinate persistence of symptoms under medical treatment by saline irrigations and large doses of bismuth, though recently improvement as the result of massive doses of iodine by mouth has been reported. If the patient is no better after two months' treatment upon medical lines, ileostomy with the establishment of a complete faecal fistula, as recommended by Brown, is advisable, so that the colon may be irrigated through the lower loop. A considerable time should elapse before the ileostomy opening is closed. The operative mortality is 50 per cent., but without operation the condition is almost certainly fatal.

431. Acute "Non-gonorrhoeal" Urethritis.

E. BJÖRLING (*Acta Dermato-Venereologica*, vol. iv, fasc. 2, 1923, p. 277) discusses the etiology of those cases of acute urethritis in which no gonococci can be found in the discharge, and there is no evidence of chemical or mechanical injury. He has recently observed as many as eighteen such cases in the male, and in every case a careful investigation of the history, or an examination of the woman with whom the patient had been cohabiting, left little doubt in the author's mind that the urethritis was nothing but gonorrhoeal. With regard to the patient who states that he has never suffered from gonorrhoea, it may sometimes happen that he is speaking in perfect good faith, for, unless a posterior urethritis sets in, a gonorrhoeal anterior urethritis may occasionally—very seldom—run a perfectly symptomless course, the patient recovering from it temporarily without knowing that he has suffered from it. Bacteriologically negative cases are apt to be refractory to treatment, the reason for this being, in some cases, that the person with whom the patient is cohabiting is the source of infection and is not being treated. The evidence collected by the author constitutes a powerful argument against the facile assumption that when a man is treated for gonorrhoea and gonococci can no longer be found in the discharge he is cured although he still has a so-called "post-gonorrhoeal catarrh."

432. Whitehead's Operation for Haemorrhoids.

A. DZIALOSZYNSKI (*Zentralbl. f. Chir.*, November 3rd, 1923, p. 1630) states that recent inquiries have shown excellent results following this operation, in spite of the adverse reports published in American and English journals during the last three or four years. Gordon-Watson, Wilkie, Hirschmann, and others have stated that Whitehead's operation is frequently followed by stricture, prolapse of anal mucosa, and incontinence. The author holds that all these may be avoided by careful attention to technique. In the majority of his cases he obtained healing by primary union, but in other cases of secondary union the ultimate result was quite as good. In nine cases of annular excision he had no secondary stenosis. He claims that by careful suturing of the skin of the anal margin to the corresponding edge of the mucosa bleeding is arrested and primary union results in the majority of cases, there is no stenosis nor ectropion of mucosa, and any incontinence is transient. His results confirm those of Hadda, Völker, Träger, and O'Conor, and go to show that, while ligature of circumscribed haemorrhoids may suffice, Whitehead's operation is best for severe cases. The author has seen no cases of secondary haemorrhage, post-operative abscess, nor fistula following this operation.

433. Acute Perforations of the Stomach and Duodenum.

C. L. GIBSON (*Boston Med. and Surg. Journ.*, September 27th, 1923, p. 425) emphasizes the importance, in perforated ulcers, of prompt diagnosis, leading to early operation, with the possibility of cure. Time cannot be spared, and in order to save life by doing an early operation the surgeon must reconcile himself to an occasional mistake. The diagnostic points in this condition are a previous gastric history, the sudden onset with collapse and typical abdominal findings, referred pain, commonly seen in the left supraclavicular fossa—this comes on shortly after the original pain and usually does not last long—and the presence of free air in the abdominal cavity, shown by the *x*-ray picture. Patients operated upon within the first eighteen hours have a good chance of getting well; after twenty-four hours they stand little or no chance. Prior to administering the anaesthetic the patient is given a drink of water coloured with methylene blue, which helps to find the perforation quickly. Drainage after operation is rarely employed. Gastro-enterostomy may be justified in early cases; the author has only performed it once. The number of people who develop symptoms later and require a gastro-enterostomy for stenosis at or near the pylorus is surprisingly small, probably about 10 per cent. The routine use of gastro-enterostomy may result in an unnecessary death, or in certain complications, such as gastro-jejunal ulcer, which are inherent to the operation. The end-results in Gibson's series of 76 cases were most satisfactory; most of the patients reported themselves free from symptoms and in better health than before the operation.

434. Treatment of Empyema.

V. H. VON CSAKANYI (*Zentralbl. f. Chir.*, November 10th, 1923, p. 1672) states that from January 1st, 1914, to September 1st, 1921, 97 cases of empyema were operated on in the second university surgical clinic at Budapest, with a mortality of 13.5 per cent. The etiological classification of the cases was as follows: traumatic, 9 cases; metapneumonic, 33 cases; metastatic, 4 cases; following pulmonary gangrene, 3 cases; abdominal disease, 1 case; mixed infection with tuberculosis, 17 cases; and post-influenzal, 30 cases, among which the mortality was 7.6 per cent. In 9 cases of chronic empyema resection of the thorax was carried out according to Schede's method. Conservative methods were ineffective in the treatment of acute or chronic empyema. The best results were obtained by free opening of the thorax, resection of the ribs, and drainage. Early operation was most satisfactory, even in the case of influenza patients. Schede's operation always yielded good results in chronic empyema, and the patients stood the operation well.

435. Cerebral Puncture for Intracranial Pressure.

H. C. JACOBAEUS (*Acta Med. Scand.*, October 4th, 1923, p. 666) has made use of cerebral puncture for diagnostic and therapeutic purposes during the past few years at the Serafimer Hospital in Stockholm, and has had some cases which show that this procedure and Dandy's ventriculography may have an important future. One of his most instructive cases was that of a man, aged 56, suffering from haemorrhagic pachymeningitis, who showed all the signs of hemiplegia with greatly impaired mental faculties. There was a history

hand, the arterial tone may be mainly influenced, vasoconstriction being chiefly instrumental in causing a large rise of pressure, attended in some instances by moderate or slow heart rates; in accordance with Marey's law the high blood pressure acts by increasing the controlling influence of the vagus centre over the rate of beat. A strong cardiac impulse and a large pulse wave may be prominently in evidence. Again, both heart and arteries may be markedly influenced, giving a high blood pressure with strong and rapid cardiac beats, powerful cardiac impulse, etc.

The respiration is sometimes much altered in the way of augmentation or irregularity, but there is no constant association between these changes and the circulatory disturbances; there may be marked respiratory changes while there is little or no evidence of circulatory alteration. Long ago Hammond described notable respiratory disturbances in dreams while describing the pulse as being unaffected, except in regard to slight irregularity ascribable to the respiratory alterations. In addition to the circulation and respiration the disturbances of troubled sleep may extend, in varying degree, over other systems, somatic and visceral, as evidenced by sweating, tremors, vomiting after awaking, etc. It is obvious that such disturbances acting on various functions in different ways may be responsible for important effects in some conditions of disease.

A notable feature (remarked long ago by Hughlings Jackson) is the absence (apart from somnambulism) of large movements of the limbs, etc., even during dreams of vigorous exertion, while movements of fingers, lips, etc., may occur, contraction of distal muscles being practicable while proximal ones fail. It would seem that impulses from the cerebral cortex can sometimes reach the medullary centres (cardiac, respiratory, vasomotor, sweat, etc.) while failing to activate the large muscles of the limbs even during dreams with strong emotional content.

The Dreaming State in the Dog.

The phenomena observed in the human subject are evidently paralleled by what is recognizable in the healthy dog during dreams of hunting, etc., with the familiar movements of toes and paws, tail and ears, biting action, series of subdued barks, etc. The heart is often rapid and irregular with inhibitory pauses, bouts of acceleration, etc., while a violent cardiac impulse may be perceived; respiration is frequently hurried and irregular, with gasps, etc. The knee-jerk may be increased—as Lombard noted in man during a dream of active movement. It has not been found practicable to get actual measurements of blood pressure that are satisfactory, for disappearance of the changes present in the dreaming state is very quick when the animal awakes. But the finger on an artery has sometimes given unequivocal evidence of a rise of blood pressure.

Some Characters of the Nervous Disturbances.

The extent and intensity of the functional disturbances which may be set up during troubled sleep and the dreaming state are remarkable, though quite intelligible in view of the diminution or suspension of the control normally exercised in the waking state by higher neural mechanisms, which come to be more or less completely in abeyance during sleep; released from such control the lower mechanisms are apt to give exaggerated responses to stimuli which would have comparatively little effect in the daytime. Thus afferent impulses (somatic or visceral) which would have only slight and quite different effects in the waking state may call forth complex and pronounced reflex responses. The influence of afferent impulses in provoking and shaping the course of dreams need not be emphasized. Potent in this respect are impulses from the viscera which in the waking state would only be productive of slight sensations of discomfort—headache, nausea, etc.; in sleep elaborate responses may be set up, especially when unrestrained emotional processes are called into action with their resultant effects on both cerebro-spinal and autonomic innervation—excitation of sympathetic, etc. Such emotional excitation is apt to reach a high grade of intensity from lack of the balance and restraint normally exercised by the fully active mechanisms of ordinary consciousness, especially by those subserving the higher levels of mental function acquired through experience after the infantile stage of life.

The suddenness of development of the functional disturbances in blood pressure, heart action, etc., in the dreaming state is an important feature. As is well known, most dreams are of very brief duration as regards the actual time occupied, a number of seconds or a very few minutes often sufficing for a dream which is subjectively a long and complicated one—for example, an apparently long and varied dream has been recorded as running its course between the beginning and the ending of a clock striking midnight. The associated functional disturbances may thus be set up with unusual abruptness, as compared with the waking state—as, for instance, in ordinary muscular exercise. It follows that there is little or no time for the coming into play of the various adjustments and compensations in the circulatory and respiratory systems, etc., that are operative in muscular exercise; in the latter the rise of arterial pressure is checked by gradual dilatation of the vessels of the skin and the working muscles, while the heart accommodates itself with the aid of increased coronary blood supply, etc. Thus the blood pressure rise in certain dreams may be both large and steep in ascent. The call on the heart, through its nervous apparatus, etc., may also be a sudden one.

Influence of the Recumbent Posture.

So far as the rupture of a weakened cerebral artery is in question the hydrostatic factor in the recumbent position is an added consideration; the weight of the column of blood between the levels of the head and the heart, which reduces the cerebral artery pressure in the standing position, is now largely out of action; with a given aortic pressure the pressure in a cerebral artery is naturally higher by a very appreciable amount (varying according to the elevation of the head) in the recumbent than in the erect posture, and the danger of a cerebral haemorrhage during a rise of aortic pressure is necessarily increased.

Observations on Blood Pressure, etc.

The subjects examined were persons mostly between the ages of 30 and 65, all, so far as was known, without organic disease of the circulatory system. The observations were made quickly after the awakening of the subject, the apparatus having been kept in readiness for immediate use. Systolic blood pressure was measured by the auditory and tactile methods, diastolic pressure by the auditory method. On occasions when no measurements could be made convincing evidence of the occurrence of extensive changes was obtained by ordinary digital examination of arteries, palpation of the cardiac impulse, etc. The following are some of the examples of the sort of observations made and the nature of the results obtained.

Subject No. 1.

The effect of walking upstairs (twenty steps) was compared in this person with the disturbances occurring in sleep. The pulse rate was raised from 80 to 90-95, the systolic from 120 to 140, and the diastolic pressure from 80 to 90; the observations were made while the ascent was being continued, not after its cessation. Ordinary walking exercise on a fairly level road caused comparatively slight changes in the heart rate and the blood pressure. In the same subject some days previously atropine (1/50 grain hypodermically) raised the pulse rate from 81-82 to 130, with systolic and diastolic pressures of 135 and 75-80 respectively, as compared with 115 and 70 before atropine. Abdominal straining (expulsive efforts) raised the systolic blood pressure only a few millimetres.

It is evident that in this individual the stress on the circulatory system was vastly greater during such disturbed sleep as is described above, than under the conditions of ordinary easy life with avoidance of sudden violent effort, emotional excitement, etc. The actual height of pressure attained during the disturbed sleep was, no doubt, decidedly higher than as measured after awaking when it is declining with some rapidity.

of severe headaches during the previous fortnight. Cerebral puncture over the right frontal tuberosity at the root of the hair yielded, when the point of the needle was at the level of the dura mater, about 10 c.cm. of brown viscid fluid which coagulated at once. The patient felt much better after this operation, but the improvement was not maintained, and twelve days later cerebral puncture was repeated, 10 c.cm. of blood-stained fluid being withdrawn. Rapid improvement followed, and the patient was ultimately discharged as cured. This is, so far as the author knows, the first time that such an experiment has been made, and he suggests that if a pachymeningeal extracerebral haemorrhage may derive great benefit from puncture and aspiration the intracerebral haemorrhage of an ordinary hemiplegia may also benefit therefrom.

Radiology and Electrology.

436. The Action of X Rays in Cancer.

E. HASSENCAMP (*Zentralbl. f. Inn. Med.*, August 11th, 1923, p. 513) reviews the present position of this question, observing that the optimism so prevalent a few years ago has largely given way to an attitude of uncertainty. For successful irradiation of cancer the author observes that rays of sufficient hardness must be employed in order that it may be unnecessary to alter the proportion of the mixture of rays in their passage through the tissues; the rays will then be qualitatively homogeneous. These homogeneous rays must, as far as possible, be equally distributed throughout the irradiated area. These are the two rules of qualitative and quantitative homogeneity, first propounded by Dessauer, which régulate the present-day practice. The principles governing this are: (1) Production of very hard rays. A tension up to 250,000 volts is now used; higher voltages are technically possible but are unnecessary. (2) Filtration of the injurious soft rays by appropriate filters (zinc, aluminium, copper). (3) Increase of the distance of the tube from the body, when the increasing distance would lessen the difference of intensity of the rays in the deeper parts. (4) Irradiation of different areas from varying angles (cross-fire) in order to increase the penetration of the rays. In addition to the lessened penetration, due to absorption, it is known that some rays are deflected (this is proved by the softening of the outlines of bones and other deep structures in ordinary skiagrams). Formerly it was believed that in order to destroy cancer cells it was only necessary to produce a sufficient quantity of hard rays, and for this purpose more powerful apparatus was constructed. Now it is realized that the problem of the action of x rays on cancer has a biological as well as a physical side—that radio-activity depends on the degree of radio-sensibility found in various cell types. The lesser the degree of differentiation of a cell the greater is its reproductive power. Two antagonistic views are held by the German authorities: (1) that x rays destroy the nuclei of cancer cells; (2) that x rays stimulate the growth of connective tissue, which kills the cancer cells by compression. The author prefers to estimate the dose by its effects on the skin—that is, after the optimum dose, erythema appears in about eight days, followed by a bronzing of the skin (in about four weeks). At a discussion in Heidelberg last May none of the surgeons regarded irradiation as a substitute for operation. On the question of post-operative irradiation opinion was divided; one-half of the speakers considered that it induced more frequent recurrences, while the others stated that these had been lessened by subsequent irradiation. In some cases, especially those of rectal cancer, it was stated that irradiation had produced sufficient improvement to permit operation in cases previously considered inoperable. The gynaecologists were more optimistic and recommended post-operative irradiation in every case, although some failures were recorded. Hassencamp remarks that the anatomical relations of the uterus and the possibility of comparatively early diagnosis prevent comparison of these cases with carcinoma situated elsewhere. He emphasizes the point that x rays are not a specific cancer remedy.

437. Intratracheal Injection of Lipiodol in Radiography of the Lungs.

E. SERGENT and P. COTTENOT (*Journ. de Radiol. et d'Électrol.*, October, 1923, p. 441) refer to the great difficulty experienced hitherto in the interpretation of skiagrams of the lungs, due to the various structures and tissues, differing but little as regards translucency. The network of blood vessels and of bronchial tubes is so intricate that it is often difficult to distinguish one from another. Sicard and Forestier introduced the method of intratracheal injection of an oily solution of iodine, which is very opaque to x rays and is well tolerated. It may be injected through the glottis or through the crico-thyroid membrane; the authors prefer the latter route. After puncturing the crico-thyroid membrane with a curved needle, of a calibre equal to that used in lumbar puncture, the patient is told to blow; if the needle has entered the tracheal lumen mucus escapes through it. To obviate paroxysmal cough the interior of the trachea is anaesthetized with a 2 per cent. solution of cocaine and the lipiodol injected slowly, the patient being placed in such a position that the solution will gravitate to the portion of lung which it is desired to examine. The usual quantity of lipiodol required is 20 c.cm., but as much as 40 c.cm. has been injected without inconvenience in cases where a large cavity had to be filled with the opaque oil. The authors have had no serious accident following the filling of the trachea and bronchi with lipiodol, nor have others who have used this method recorded bad results. Elimination of the oil is usually rapid; in three or four days very little remains, although in some cases traces have been found three or four months after injection, and some patients exhibit transient symptoms of iodism. Sergent and Cottenot claim that this method has furnished valuable information about the normal anatomy of the respiratory tract, and that in pathological conditions it has demonstrated the following abnormalities: (1) deviations of the trachea and bronchi; (2) changes in permeability of a bronchial area; (3) dilatation of bronchi; (3) pulmonary cavities; (5) bronchial and pleural fistulae. Cases descriptive of these conditions are recorded, and some remarkable skiagrams, illustrating bronchiectasis, cavitation, pulmonary fibrosis, etc., are appended.

438. Observations on Radium Dermatitis.

M. S. THOMSON and C. P. G. WAKELEY (*Arch. Radiol. and Electrother.*, October, 1923, p. 153) find that radium and x-ray dermatitis are indistinguishable histologically and clinically but for the subungual hyperkeratosis found in the former. They also point out that the condition produced on the skin by prolonged exposure to the sun's rays is clinically identical with radium dermatitis, but that, curiously enough, the warts present in such cases are most rapidly influenced by exposure to 4/5 P.D. x rays. The similarity of radium and x-ray dermatitis is to be explained by the fact that the gamma rays of radium adjoin and overlap the x rays in the spectrum. The authors present in detail an account of a case of radium dermatitis. The patient had been exposed to the action of radium for nine years before he noticed a little roughness of his hands with a tingling sensation in the fingers. Continuance of exposure for a further three years produced discoloration of the hands with fissuring and extreme friability of the nails, and, four years later, warts appeared and have gradually increased in number. At the time of writing the skin of both hands was atrophic, thin, dry, and wrinkled; there were small scattered patches of brown pigmentation and numerous small hyperkeratoses but no ulceration. The nail-bed was much thickened at its free edge, this being characteristic of radium dermatitis; chronic periostitis of the phalanges was also present and was revealed by the x-ray picture. Histologically there was chronic inflammation with evidence of early but unmistakable carcinomatous infiltration of a squamous-celled type, and an important feature was the excessive destruction of elastic tissue, which in places was absent, and when present was seen only as short twisted fibrils.

Obstetrics and Gynaecology.

439. Oesophageal Stricture after Pregnancy.

P. P. VINSON (*Amer. Journ. Obstet. and Gynecol.*, September, 1923, p. 346) adds three to the six cases which he has recently recorded of stricture of the oesophagus following pregnancy. The first patient suffered from uncontrollable vomiting during the eighth and ninth months of gestation; four months after induction of labour gastrostomy had to be done on account of increasing dysphagia. The second patient, who had renal insufficiency and some toxaemia, vomited almost incessantly during the last week preceding and the three weeks following labour; dilatation by bougies sufficed to cure the oesophageal stricture, which was noted four months after delivery. There had been copious haematemesis. The third patient died, probably from oesophageal haemorrhage, four days after instrumental dilatation of a stricture noted six months after parturition; there had been much vomiting during pregnancy. The cause of the stenosis of the oesophagus is to be found, according to the author, in pernicious vomiting associated with pregnancy, and a digestion by regurgitated gastric juice of the lining of the lower portion of the oesophagus; in the history of the majority of cases vomiting of dark material containing blood and burning substernal or epigastric pain are recorded.

Hour of Observation.	Pulse Rate.	Systolic Pressure.	Diastolic Pressure.	Pulse Pressure.
1.0 a.m.	75			
7.0	62			
8.0	65	110	75	35
8.20 breakfast (in bed)				
8.50	75			
9.15	65–70	125	75	50
9.30	70	125	75	50
9.45	70	125	75	50
11.30	70	125	80	45
12 noon. Subject got up				
12.25 p.m. Sitting quietly	85			
12.55	81			
12 midnight. In bed after first sleep (somewhat disturbed)	70	140	80	60
Next morning—				
6.0. Subject awoke with feeling of disturbed sleep but no memory of definite dream. Arterial sounds (auditory method) very loud and the murmurish phase very pronounced.	62	132	105	77
Another reading two or three minutes later	—	165	95	70
6.15	60	145	90	55
6.0	58–60	115	70	45
8.0	60	130	80	50
10.20	76	120	70	50

During the day the pulse rate was generally 75 to 80.

Subject No. 2.

Subject in bed in afternoon. While asleep he had lain on the right side with the right arm pressed on by the head so that the right radial pulse was abolished. The left radial pulse was found to be very fast and the artery large and strikingly tense, immediately after awaking; these unmistakable evidences of an extensive rise of blood pressure speedily passed off. The sleeper reported having been under the influence of a pronounced nightmare, with the illusion of his lying prone near the door of a house while he heard a visitor approaching along the drive; he had vivid and distressing sensations of ineffectual efforts to rise. The nightmare was no doubt determined by the posture, the pressure on the arm, and the ischaemia caused. After awaking numbness and tingling were felt in the right hand, while the radial artery became very large and the skin flushed—evidently after-effects of the ischaemia.

Subject No. 3.

A subject, who had some symptoms of gastro-intestinal disturbance but was pursuing his usual avocations, had in the course of a night of broken sleep a dream in which he felt lively resentment at the irritating conduct of an official on a public occasion—a vivid dream but not distinctly a nightmare; there was no sense of fear, oppression, ineffectual effort, etc. On his awaking it was found that there was no sense of palpitation, no sweating, and no subjective alteration in respiratory sensations; no marked change in the respiratory movements was observed. But the cardiac impulse was greatly increased in force and felt over a larger area than usual in this person. The pulse was accelerated from a normal rate of 70-80 to 90-95. But the most notable change was a greatly raised blood pressure with an extensive pulse pressure, as shown by digital examination of the radials; the arteries were large and tense, obliteration difficult, and the range of the pressure variations at each beat palpably large. When examined fifteen minutes later these altered conditions were practically gone.

Some hours later another dream took place, the details of which were not clearly remembered. Similar phenomena, in somewhat less pronounced degree, were recognized; these virtually disappeared in a few minutes.

In one dream systolic pressure rose from 150 to over 200.

Emotion, Motor Effort, and Gastro-intestinal Disturbance.

While the most striking cardio-vascular effects are naturally present in dreams with a strong emotional content, it is to be noted that a vivid dream of active movement (cycling, for example) without sensations of nightmare, etc., may cause a pronounced rise of blood pressure. Thus in an instance of this kind the pulse tension was greatly increased and the pulse pressure was extensive while the heart rate remained at 72-75; the elevation of blood pressure was evidently brought about mainly by vaso-constriction.

It is noteworthy that the amount of disturbance (circulatory, respiratory, etc.) associated with vivid and alarming dreams varies greatly in different individuals and even in the same individual under different conditions; the effects are sometimes remarkably slight in the case of dreams that are at other times attended by very pronounced effects of the kinds described above. There is reason to believe that the presence of some gastro-intestinal disturbance at the time may sometimes play a part in facilitating the development of the more marked effects on circulation, respiration, etc.

Dangers of the Circulatory Disturbances.

These cardio-vascular changes, involving sudden demands on the heart's power with great alterations in its rate and force and a steep and sometimes very extensive rise in blood pressure, are quite harmless in the healthy individual. Vivid dreams, involving hurrying to catch trains, etc., with failure to do so, are common in many persons and sometimes persistently recurrent — with no injurious consequences apparently. But the case is obviously very much otherwise with a damaged vascular system, life going on under conditions which afford only a narrow margin of safety. There may be a myocardium abnormal in certain functional respects, whether or not these be attended by recognizable structural alterations with or without obvious coronary lesions, giving a susceptibility to ventricular fibrillation, or, on the other hand, a defective arterial tree with localized weakenings (by miliary aneurysms, etc.) in the brain vessels, tuberculous damage in the lungs, ulcerative conditions in the gastro-intestinal tract, etc., where haemorrhage may readily be determined. In a heart susceptible to fibrillation a sudden call on the heart during muscular exertion and excitement in the waking state is often fatal; in the disturbed conditions of sleep and dreaming a similar mechanism is sometimes brought suddenly and strongly into action—diminution of vagus control and, especially under emotional stress, stimulation of the cardiac sympathetic together with a high blood pressure—conditions which favour ventricular fibrillation.

A possible discharge of adrenaline into the circulation under emotional excitation also comes into question, though the importance of such discharge or its existence has been denied by Stewart and Rogoff, in opposition to the well known work of Cannon and de la Paz. The time incidence of attacks of anginal pain may obviously be determined by similar conditions.

CONCLUSIONS.

It is clear that the foregoing facts must be taken as profoundly modifying the simple conception of night as the time of rest, and sleep as a condition in which quiescence prevails and recuperative changes go on, restoring the bodily and mental capacities which have become more or less reduced at the end of the hours of work and wakefulness—a period of repose also attended by sedative and beneficial effects on many morbid conditions. This conception, while true as regards undisturbed or sound sleep, has to be qualified by the consideration that night and sleep are occasionally the season of acute reflex and emotional disturbances which, in the peculiar conditions present, induce very pronounced effects on the circulatory system, throwing a formidable strain upon its weak points, whether these be cardiac, with susceptibility to fibrillation or anginal pain, etc., or arterial, with risk of rupture.

In this way the individual may, during the nocturnal period of assumed repose, be subjected to suddenly developed stresses, as estimated by the rise of blood pressure (even as measured after awaking when it is falling) and the evidences of increased heart action, far beyond what is involved in ordinary muscular exercise gradually initiated—for example, walking, cycling, slow ascent of stairs, straining, or mental excitement in certain degrees. Thus haemorrhages, the

440. Tubal Pregnancy.

F. VOZZA (*Annali di Ostetricia e Ginecologia*, September, 1923, p. 470) publishes from the Milan Clinica Ostetrico-Ginecologica figures with regard to the etiology of tubal gestation. The cases of this condition treated from 1906 to 1922 numbered 606, or 1 per cent. of the total admissions; only 7 were aged less than 20, and only 14 more than 40. There were 114 nulliparae and 74 unmarried patients; 31 per cent. had had one or more abortions. With regard to antecedent pelvic inflammatory disease as an etiological factor, Vozza notes that there was a history of gonorrhoea or of infection following childbirth or abortion in 90 cases. Among the 437 patients who were operated on by the abdominal route, no fewer than 62 showed well marked inflammatory disease of the adnexa of the opposite side to that of the ectopic gestation. All but one of the 21 patients who had been previously treated in the clinic had received such treatment for intrapelvic inflammation of some description. About one-sixth of the patients had been curetted some time before the occurrence of tubal pregnancy. Morbid conditions of one or both ovaries, apart from the tubes, were encountered in 7 per cent. of laparotomies. Recurrence of ectopic pregnancy was noted in 15 patients, and in 2 there was a coexistent uterine gestation; in two instances both tubes contained a gestation sac. Pregnancy in the interstitial portion of the tube was noted once only; the [illegible] most common; the next in frequency b[illegible], which seemed to be associated often with early rupture and abundant internal haemorrhage.

441. Treatment of a Myoma during Pregnancy.

O. A. BOIJE (*Finska Läkaresallskapets Handlingar*, September–October, 1923, p. 530) finds that the problem whether a uterine myoma complicating pregnancy should be treated conservatively or by operation has often to be considered, for myoma of the uterus is common in the child-bearing age and is seldom the cause of sterility. It is seldom necessary to operate on a myoma during pregnancy, but there are three indications for surgical interference. (1) The myoma may prevent the normal progress of pregnancy; (2) it may threaten to be a mechanical obstacle to the completion of labour; and (3) it may cause unbearable pain, with or without signs of peritonitis, threatening severe complications. The author records four cases, in all of which he had to operate during pregnancy. In every case convalescence was uneventful, the pregnancy went to term, and labour and puerperium ran a normal course. In one case a myoma, weighing 1,450 grams, was attached by a thick pedicle to the fundus of a fifth-month pregnant uterus. In another case there was an intraligamentous cervical myoma, of the size of a fist, which had already displaced the uterus in the third month of pregnancy. In the third case a rudimentary uterine horn was studded with myomatous nodules; the uterus was deeply fixed in the pelvis by adhesions, and was in the third month of pregnancy. In the fourth case, also in the third month, there was a myoma, weighing 240 grams, in the anterior wall of the uterus, where it had given rise to pain and vesical tenesmus. The author's study of the literature of this subject has confirmed his own experiences; with the present highly developed operative technique it is seldom that the removal of a myoma from a pregnant uterus induces abortion or premature labour.

Pathology.

442. Rat Leprosy and its Transmission to Man.

MARCHOUX (*Paris médical*, October 27th, 1923, p. 313) is convinced that there is more than a simple analogy between human and rat leprosy. The rats in the sewers of Paris are heavily infected, the organism resembling *B. leprae* and having the same distribution and mode of spread. The lesions are tubercular; masses of the organisms are found in cutaneous nodules and in the lymphatic glands draining the area, later in the liver and spleen. The disease can be transmitted to laboratory rats and mice by direct contact. The case is recorded of a leper in the Pasteur Hospital with cutaneous patches from which a short acid-fast bacillus with fragmented protoplasm was obtained. *Post mortem*, masses of these bacilli were found in the lymphatic glands, liver, and spleen. Rabbits, guinea-pigs, and rats were inoculated with the splenic pulp. The two former animals were unaffected, but five rats out of six contracted a disease indistinguishable from rat leprosy, which has since been successfully transmitted to four generations of laboratory rats. The author holds that inoculation in the reverse direction, from rat to man, should be equally successful, and that the bacilli of human and of rat leprosy are types of the same organism, resembling in this respect human and bovine types of the tubercle bacillus.

443. Anomalies of Intestinal Rotation.

N. M. DOTT (*British Journ. of Surg.*, October, 1923, p. 251) points out that during development the alimentary canal may suffer a large variety of perversions. The three stages of normal embryonic intestinal rotation are described. In the second stage the essential disposition of the intestines is attained. Errors occur most commonly in the disposition of the midgut during the second stage, and the cause suggested is variation in size of the embryonic umbilical orifice. During the second stage of rotation the midgut loop is returned to the abdominal cavity through the narrow umbilical orifice. This reduction may be made more difficult or more easy by the size of the orifice leading to disorderly reduction, and it is suggested that on this depends the cause of failure or complete reduction. Abnormal disposition of the intestines leads to abnormal attachments or fixation. The former may lead to interference with motility, kinks, and compression; the latter predisposes to ptosis, torsion, or volvulus. The characteristic pathological consequence of anomalous rotation is failure of efficient fixation and secondary volvulus, and during the first few days of life volvulus may occur and is of a very extensive type. In later life volvulus of the ileo-caecal region is the typical lesion. Three cases are recorded which led to volvulus with acute intestinal obstruction as the result of anomalies of intestinal rotation. The diagnosis of anomalies of intestinal rotation is considered from the standpoint of abnormally situated appendicitis, from the point of recognizing the condition on the operating table, and in cases of secondary volvulus in the newborn. An operative treatment by reduction and fixation in extensive volvulus of the newborn is suggested.

444. The Relation of Deprivation of Vitamin B to Bacterial Infection.

EXPERIMENTS carried out by G. M. MARSHALL (*Journ. Path. and Bact.*, October, 1923, p. 485) show that one of the effects in pigeons of a dietary deficient in vitamin B is to render them more susceptible to bacterial infection. Ten pigeons which had been fed for from twenty-five to thirty-five days on a diet lacking in this food factor were inoculated intraperitoneally with 3,000 million pneumococci Type 2. All died within thirty-six hours, and *post mortem* the organism was recovered from the heart blood and the peritoneum. Ten control birds fed on oats, receiving the same dose, all recovered. An endeavour to explain the mechanism of this effect showed that in the experimental pigeons there was a considerable lowering of the body temperature; whereas the temperature of the control birds varied between 41.6° and 42.4° C., that of the pigeons fed on the vitamin-deficient diet was only 38.4° to 39.8° C. Following up this clue they found that it was only necessary to lower the body temperature by means of an antipyretic such as pyramidon to produce a similar diminution in resistance to the pneumococcus. Similar experiments repeated with the meningococcus, with *B. coli*, and with *B. enteritidis* gave the same results. The pigeons fed on the experimental diet had a lowered temperature and a low resistance to infection with these organisms. The authors conclude that the lowering of the body temperature appears to decrease the resistance by facilitating the growth of the invading organisms, by reducing the leucocytic response to the infection, and by diminishing the bactericidal power of the leucocytic exudate.

445. An Inoculable Virus in Post-encephalitis.

J. A. SICARD, J. PARAF, and L. LAPLANE (*Bull. et Mém. Soc. Méd. des Hôp. de Paris*, October 18th, 1923, p. 1338) report the presence of an inoculable virus in the cerebral nuclei four years after the initial symptom. The patient, a female, aged 55, had encephalitis, with stupor and diplopia, in March, 1919. She recovered in a month and, except for great weakness, kept well for six or seven months. Then symptoms of Parkinson's disease developed—rigidity, the characteristic mask, and later twitching of the fingers. In spite of treatment she got progressively worse, reached a state of coma and marasmus which necessitated artificial feeding, and died on July 13th, 1923. A portion of the grey matter of the mesencephalon was broken up in normal saline and inoculated into the brain of six rabbits, two of whom, further, had the material introduced into the anterior chamber of the eye. Four of the animals died in forty-eight hours of acute encephalitis, the other two on the thirteenth and fifteenth days with coma, emaciation, and paresis of the left hind limb. The toxicity of the virus was not impaired by continued passage through the brain of three more groups of rabbits, fatal results being obtained in every rabbit inoculated in periods ranging from eight to thirteen days. Histologically the grey nuclei showed perivascular lymphocytic infiltration and zones of neurone degeneration—the characteristic findings in experimental encephalitis.

onset of anginal attacks, and other disturbances in the night can be readily accounted for; also sudden death, probably due to ventricular fibrillation in most instances.

In the light of these observations it is easy to understand how in certain circumstances death may come like a thief in the night to a susceptible person living with circulatory conditions that approach the danger line, though these conditions may, in favourable circumstances and barring fresh developments, be compatible with many years of moderately active life.

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AN INVESTIGATION INTO THE EFFECTS OF THE ARSENOBENZOL TREATMENT OF SYPHILIS ON LIVER FUNCTION.

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ALTHOUGH salvarsan and its substitutes and modifications have now been in general use for a considerable number of years, syphilologists are not yet in complete agreement upon the method of using these remedies in the treatment of syphilis. Some, for example, rely entirely or principally upon salvarsan as a curative agent; others deem that it should be employed in conjunction with mercury or with the new bismuth preparations. There can be no doubt, however, as to the advantages of this drug; but it is not one to be used recklessly, and of late, since its more extensive use, and since its employment in larger doses and in a greater number of injections, certain untoward results have become familiar to those working with it. Modern methods have largely succeeded in abolishing, or at least diminishing, the immediate dangers or inconveniences, such as fever; but there still remain two important and serious consequences attributable to its administration—arsenical dermatitis and jaundice. Foulerton was among the first to call attention to the possible harmful effects of the arsenical compounds on the liver, regarding fatal cases of poisoning by the arsenobenzol compounds as essentially identical with poisoning by chloroform, ether, T.N.T., and phosphorus. In his experiments carried out with arsenical compounds in rabbits he found an interstitial hepatitis with injury to the parenchyma cells, and a nephritis in addition to the hepatitis. Many other workers have adverted to the possibility of serious toxic effects on the liver tissues, and indeed it would appear that these, with dermatitis, may now be regarded as being among the most common of the ill effects following the administration of the drug.

In considering the treatment of syphilis it has clearly to be kept in mind that cure may only be expected with any degree of confidence in the earlier stages of the disease; therefore in this early stage the powerful remedies available may be pushed to the degree of tolerance with justification. The problem presented to the dermatologist is twofold: first, he has to determine what amount of arsenical compound is required to give in the early or curable stage the best chance of cure; and, secondly, having decided this, he has further to consider whether this amount can be administered without risk of injury to the individual.

To the first part of the problem attention was paid by one of us and Kennaway in an earlier series of cases, and it was found that a series of ten injections of novarsenobenzol, amounting to 8.7 grams, satisfied the requirement in most cases—provided that treatment was subsequently continued with mercury. In view of the statements by competent observers as to the possible harm to the liver tissues from such a dosage, the present investigation was undertaken.

A series of 57 patients in different stages of disease, undergoing treatment with novarsenobenzol, was investigated, the liver functions being tested by methods to be described. The facts as ascertained by us are set out briefly in Table I. It will be noted that the examinations were carried out both during and at varying intervals after salvarsan administration. This was done in order that the harmful effects, if any, could be determined not only during the period when the arsenical compound was being administered, but also at varying periods afterwards, when delayed harmful effects might occur.

The investigator of hepatic function is confronted at the outset with certain physiological facts which make evident to him the difficulty of his task. Thus, the work of F. C. Mann has shown that four-fifths of liver substance can be removed from an animal without occasioning any apparent adverse symptoms, apart from some temporary shock inevitable where so extensive an operation has been performed. If, however, more than four-fifths of liver substance be removed, the animal develops convulsions, which may be prevented, at least for some time, by the intravenous administration of glucose solution. This fact is extremely important; it corroborates the common observation that even in cases of massive secondary carcinomatous deposit in the liver the only symptom of hepatic disturbance may be jaundice. There is evidently what may be termed an enormous "liver reserve," and this prevents any known test from being entirely satisfactory, because, unless a very large amount of liver tissue be put out of action, a single test may fail to give a positive reaction. We have attempted to overcome this difficulty by using a number of different tests.

Tests of Liver Function.

The tests that may be employed to determine liver function naturally fall into certain groups which are designed to investigate particular functions. Owing to the nature of the chemical reactions in some of the tests it is often extremely difficult to read the result accurately; we have therefore selected the following as being the most likely to give reliable results. They are those depending on biliary function and those depending on the lipase content of the blood.

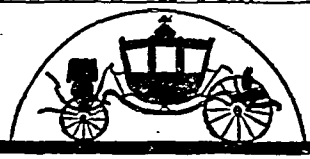
The first group is concerned with the investigation of bile pigments and their precursors, urobilin and urobilinogen. We may here briefly summarize the metabolism of these substances. As is well known, the liver secretes bilirubin and biliverdin into the intestines; there these pigments meet the intestinal bacteria and are by them converted into various substances, the most important, from the point of view of the tests employed, being urobilinogen. Some of this chromogen is absorbed into the blood stream, and is then picked out by the liver cells, converted into bile pigment, and re-excreted with the bile. A very little passes out into the urine. But if there be any damage to the liver cells this property of converting urobilinogen into bile pigment is lost, and therefore urobilin accumulates in the blood and is excreted in excess in the urine. Hence it follows that any excess of urobilin in the urine points to damage of the liver cells, and the demonstration of such an excess may be accepted as evidence of liver defect. This phenomenon precedes the appearance of bile pigments in both blood and urine. The details of the tests employed to detect this substance are given later.

The tests depending on the lipase content of the blood are based upon observations by Whipple, who showed that after chloroform poisoning the lipase concentration of the serum rose, and that this increase could be prevented if the liver was "cut out" of the circulation. He suggested the estimation of blood lipase as a test of hepatic function, and this method has been used in this country in especial by Mackenzie Wallis.

The technique employed in the different tests is as follows:

Tests for Urobilin and Urobilinogen.

Ehrlich's aldehyde reaction: To 5 c.cm. of urine two drops of a 3 per cent. solution of paradimethylaminoazobenzaldehyde in 50 per cent. HCl are added. If the test be positive, the resulting mixture becomes deep red. Occasionally it is necessary to warm the solution to bring about the reaction. This test.



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(Quoted from one of the most widely read Materia Medica.)

TABLE I.

Case No.	Sex.	Age.	Total N A.B. (Grams).	Interval between First Injection and Test.	E. A.	U.	H.	I.	Gm.	F.	L.	Condition.
163	F.	22	6.6	4 years 8 months	−	−	−	−	−	−	−	Secondary syphilis.
392	F.	25	12.45	4 years	−	−	−	−	−	−	−	Secondary syphilis.
529	M.	37	9.3	2 years 2 months	−	−	+	−	−	−	−	Eleven years' duration.
699	M.	26	6.3	2 years 8 months	−	−	−	−	−	−	−	Secondary syphilis.
723	M.	21	21.9	2 years 6 months	−	−	−	−	−	−	−	Secondary syphilis.
778	F	24	7.8	2 years 3 months	−	−	−	−	−	−		Jaundice previously.
859	F.	54	9.0	2 years 2 months	+	±	+	−	−	±	+	Syphilitic cirrhosis of liver.
935	F.	24	16.5	2 years	−	−	−	−	−	−	−	Late secondary syphilis.
911	M.	23	13.2	2 years	−	−	+	−	−	±		Secondary syphilis.
926	F.	17	11.65	2 years	−	−	−	−	−	−	−	Congenital syphilis.
1024	M.	24	6.0	1 year 9 months	−	−	−	−	−	−	−	Arsenical dermatitis after seventh injectio
1019	M.	25	12.9	1 year 8 months	−	−	−	−	−	−	−	Old-standing syphilis.
1089	F.	23	13.5	1 year 7 months	−	−	+	−	−	−		Old standing syphilis.
1148	M.	40	7.8	1 year 5 months	−	−	−	−	−	−	−	Erythema after ninth injection.
1171	F.	25	1.2	1 year 4 months	−	−	−	−	−	−	−	Slight erythema after second injection.
1183	F.	51	8.7	1 year 3 months	−	−	−	−	−	−	−	Old-standing syphilis.
1189	M.	21	12.3	1 year 3 months	−	−	−	−	−	−	−	Secondary syphilis.
1209	F.	30	3 6	1 year 2 months	−	−	−	+	−	−	−	Three years old syphilis.
1219	M.	46	6 15	1 year 2 months	−	−	−	−	−	−	−	Old-standing syphilis.
1252	M.	37	8.7	1 year	−	−	−	−	−	−	−	Tabes.
1236	M.	29	16.05	1 year						−		Secondary syphilis.
1239	F.	28	3.7	1 year	−	−	−	−	−	−	−	Secondary syphilis.
1251	M.	45	7 8	1 year	−	−	+	−		−		Jaundice 6 months before tests.
1284	F.	33	6.9	1 year	−	−	−	−	−	−	−	Old-standing syphilis.
1299	M.	53	12.9	11 months	−	−	−	−	−	−	−	Primary syphilis.
1316	M.	29	8.7	10 months	+	±	+	−		±	±	Slight jaundice.
1330	M.	26	11.1	10 months	−	−	+	−	−	−	−	Secondary syphilis.
1363	F.	55	0.45	8 months	−	−	−	−	−	−	−	Tertiary syphilis.
1391	M.	42	1.5	7 months	−	−	−	−	−	−	−	Slight dermatitis after second injection
1396	M.	24	7.05	6 months	−	−	+	−	−	−	−	Secondary syphilis.
1388	F.	30	7.8	6 months	−	−	−	−	−	−	−	Secondary syphilis
1401	F.	42	6.6	6 months	−	−	−	−	−	−	−	Secondary syphilis.
1408	F.	13	3.85	6 months	−	−	−	−	−	−	−	Congenita syphilis.
1417	F.	24	8.4	6 months	−	−	−	−	−	−	−	
1413	F.	23	6.0	6 months	−	−	−	−	−	−	−	Secondary syphilis.
1414	F.	31	7 2	6 months	−	−	+	−	−	−	−	Secondary syphilis.
1415	F.	23	7.5	6 months	−	−	+	−	−	−	−	Late secondary syphilis.
1418	M.	29	6 3	5 months	−	−	+	−	−	−	−	Syphilis of 4 years' standing.
1420	F.	22	7 8	5 months	−	−	−	−	−	−	−	Late secondary syphilis.
1430	F.	32	5.85	5 months	+	+	+	−	−	−	±	Pregnant. No jaundice.
1434	M.	35	5.7	4 months	−	−	−	−	−	−	−	Secondary syphilis.
1435	F.	20	8.4	4 months	−	−	−	−	−	−	−	Secondary syphilis.
1454	F	34	5 4	4 months	−	−	+	−	−	−	−	Tertiary syphilis.
1455	F.	34	5.85	4 months	−	−	−	−	−	−	−	Secondary syphilis.
1456	M.	23	4.5	3 months	−	−	−	−	−	−	−	Primary syphilis.
1457	M.	43	6.0	3 months	−	−	−	−	−	−	−	Tertiary syphilis.
1459	F.	22	6.0	3 months	+	±	+	−	−	−		Arsenical dermatitis.
1478	F.	18	5 45	3 months	−	+	+	+	+	+	+	No jaundice. Congenital syphilis.
1479	F.	28	4.75	3 months	−	−	−	−	−	−	−	Secondary syphilis.
1485	M.	49	0.6	2 months	−	−	−	−	−	−	−	General paralysis of the insane.
1487	M	53	6.95	2 months	−	−	−	−	−	−	−	Old-standing syphilis.
1490	M.	34	5.25	1 month	−	−	−	−	−	−	−	Tabes. Jaundice 6 months later.
1494	F.	32	4.8	2 months	−	−	−	−	−	−	−	Secondary syphilis.
1495	M.	41	1 05	1 month 2 weeks	−	−	−	−	−	−	−	Tertiary syphilis.
1497	M.	53	1.12	14 days	−	−	+	−	−	−	−	Old-standing syphilis.
1498	M.	42	0 6	14 days	−	−	−	−	−	−	−	Old-standing syphilis.
1508	M.	54	None	——	+	+	+	−	−	−	−	Old-standing syphilis.

Key to Tests Employed.—E.A.=Ehrlich's aldehyde; U=urobilin; H.=Hay; I.=iodine; Gm.=Gmelin; F.=Fouchet; L.=lipase.
+, Positive; −, negative; ±, doubtful.

when positive, demonstrates the presence of a pathological amount of urobilinogen.

Schlesinger's test for urobilin: 20 c.cm. of urine is acidulated with acetic acid and then the urobilin is extracted by inverting with 5 c.cm. of amyl alcohol. The amyl alcohol layer is pipetted off and a few drops of a 10 per cent. alcoholic solution of zinc chloride are added to it. If a green fluorescence develops the test is positive; in addition the characteristic spectrum can be observed. A positive reaction demonstrates an excess of urobilin.

For the detection of bile pigments and salts the familiar—but unreliable as regards our special purpose—Gmelin's, Hay's, and iodine tests were employed.

Tests for Bile Pigment in the Blood.

To demonstrate the presence of these substances we have employed Fouchet's test. This reaction is extremely delicate, but nevertheless very simple to perform. To three drops of serum three drops of the following solution are added: 5 grams trichloracetic acid, 20 c.cm. H_2O, 2 c.cm. $FeCl_3$ solution (10 per cent.). A white precipitate appears at once and if bile is present the precipitate so formed becomes greenish-blue, reaching its maximum degree in twenty minutes. It is claimed by the originator of this test that it is capable of giving a positive result in so high a dilution as 1 in 60,000. Our observations have confirmed its extreme delicacy and reliability.

Blood Lipase Estimation.

We employed the method of Lowenhart. Into four test tubes 1 c.cm. of serum is placed, together with 0.5 c.cm. of toluene to prevent decomposition; 3 c.cm. of water are then added to each tube, making the total volume 4 c.cm. To two of the tubes 0.26 c.cm. of ethyl butyrate is added, and all four tubes are incubated for eighteen to twenty-four hours in an incubator at 37° C. At the end of this time the tubes are removed, and a drop of azolitmin solution is added to each. The tubes containing serum alone are alkaline, and are titrated with N/10 acid. The other tubes, in which the lipase will have produced butyric acid, are acid in reaction, and are consequently titrated with N/10 alkali. The amount of lipolytic action is the sum of the mean amount of acid and alkali used. Normally, this is between 0.2 and 0.3 c.cm.

To be of value as evidence, any series of tests must satisfy two criteria: they must singly or in combination be capable of returning positive results when the defect they claim to demonstrate is present; at the same time they must be of such a nature that they do not give positive evidence where normal conditions exist.

Hay's, the iodine, and Gmelin's tests failed to satisfy the standard of accuracy aimed at. On the other hand, we believe that Ehrlich's aldehyde test, Schlesinger's test, Fouchet's test, and the lipase test are trustworthy, as shown by the following investigations undertaken to test their reliability.

Negative controls were made on a series of sixteen students, and also on sixteen patients who had been admitted to hospital for conditions which did not involve the liver, and in whom, therefore, the liver functions might be assumed to be normal. In every case the tests as applied to the urine and blood gave negative results. This series of 32 cases indicates that the tests are so far reliable in that they do not give positive results where the liver is functioning normally.

The group of positive controls demands fuller consideration; details are given below.

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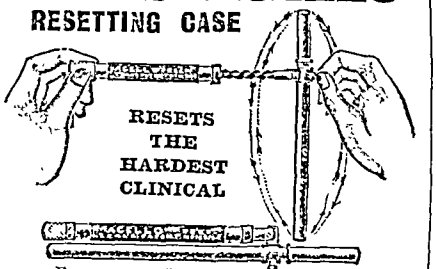

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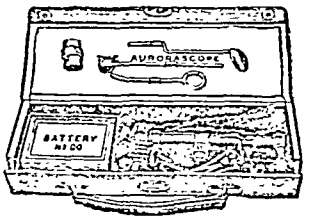

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CASE I.—C. A., female, aged 50 years, under the care of Dr. Essex Wynter. On admission the patient was jaundiced and presented a palpable mass in the left hypochondrium. All tests strongly positive. *Post-mortem* examination confirmed the diagnosis of a carcinoma of the gall bladder.

CASE II.—Mrs. S., aged 60 years, under the care of Dr. Wynter. On admission slight jaundice, with enlargement of the liver. A diagnosis of cirrhosis of the liver was made and verified *post mortem*. Here all the reactions were positive.

CASE III.—F. B. (under the care of Dr. Izod Bennett). The patient was a heavy drinker and presented the signs of alcoholic cirrhosis with enlarged liver. All reactions positive, except Gmelin and iodine tests. Lipase 0.6.

CASE IV.—H. R., aged 29 (under Dr. Cockayne). Enlarged liver; no jaundice. All reactions positive except Gmelin's and iodine tests. Lipase 0.5. Diagnosis, early cirrhosis.

CASE V.—H. N., aged 22 (under Dr. Cockayne). Jaundice started when 15 and has continued. No symptoms. Liver enlarged. Fragility of corpuscles increased. Clinical diagnosis, Hanot's cirrhosis. All reactions positive. Lipase 0.7.

CASE VI.—H. B., male, aged 8 (under Dr. Bennett). Three weeks before admission this child had acute catarrhal jaundice, but jaundice had practically disappeared when tests made; a slightly enlarged liver could be detected. All reactions positive. Lipase 0.5.

CASE VII.—E. H., female, aged 65 (under Mr. Sampson Handley). Jaundiced when admitted and distended gall bladder. At this stage all reactions were positive. After six weeks the jaundice and gall bladder distension had disappeared. All reactions were again positive at this stage except the iodine and Gmelin tests. Lipase 0.4.

CASE VIII.—Male, aged 14 (under Dr. Bennett). Patient had severe indigestion and "felt ill." All reactions positive except the iodine and Gmelin's reactions. A week later the patient developed acute catarrhal jaundice. Lipase 0.5.

These eight positive controls are summarized briefly in Table II.

TABLE II.—*Positive Controls.*

Case No.	Summary.	Blood.		Urine.				
		Fouchet.	Lipase.	Ehrlich Ardehyde.	Urobilin.	Iodine.	Hay.	Gmelin.
1	Carcinoma of gall bladder; jaundice	+	0.6	+	+	+	+	+
2	Cirrhosis; slight jaundice	+	0.5	+	+	+	+	+
3	Fatty infiltration; early cirrhosis (?); no jaundice	+	0.6	+	+	−	+	−
4	Early cirrhosis; no jaundice	+	0.5	+	+	−	+	−
5	Hanot's cirrhosis	+	0.7	+	+	+	+	+
6	Acute catarrhal jaundice	+	0.5	+	+	−	+	−
7	Biliary obstruction; jaundice	+	0.4	+	+	+	+	+
8	Acute catarrhal jaundice	+	0.5	+	+	−	+	−

We may now proceed to the examination of the series of 57 cases of syphilis where salvarsan had been administered and where the liver functions were investigated by the methods already detailed. Table I summarizes the type of case, the amount of arsenical compound administered, the interval after commencing treatment when the liver functions were investigated, and the results obtained from the investigation. Four different groups may be identified: those where dermatitis occurred; those where jaundice developed; those where chemical evidence of liver defect was shown by the tests (without clinical manifestations); and those where the liver functions appeared to be normal. The last group, as will be seen, includes the majority of cases.

Arsenical Dermatitis.

In this group are included five cases—1024, 1148, 1171, 1391, and 1459. Several observations may be made in respect of this group.

No. 1024 developed severe dermatitis after the seventh injection. The Wassermann reaction had become negative after the fourth injection, was again found negative, but became positive one year after the commencement of treatment and has remained positive up to the present date in spite of most vigorous treatment. One year and nine months after beginning treatment all the liver tests were negative. This patient made a complete recovery from his cutaneous disturbance.

No. 1148 developed dermatitis of moderate degree after the ninth injection, from which he completely recovered. The Wassermann reaction became negative after the fifth injection and remained negative for six months; it then became positive and has remained positive in spite of continued mercurial injections carried on for some months. In this case the liver functions were investigated one year and five months after treatment began and were all negative.

No. 1171—a female, aged 25 years, with congenital syphilis—received two injections of novarsenobenzol. She then developed an erythema. Treatment was continued with mercury. Here also the Wassermann reaction at first became negative but relapsed later to a positive phase. The liver functions were investigated one year and four months after the first arsenical injection and were then completely negative.

No. 1391 developed dermatitis after the second injection; there was complete recovery from this. The Wassermann reaction became negative seven months later. Seven months after commencement of treatment all reactions for liver function were negative. The subsequent history of this patient is not known.

No. 1459 developed severe dermatitis after the seventh injection of novarsenobenzol. She absented herself from the hospital for eighteen months. On returning the Wassermann reaction was found to be negative. In this case the liver function was investigated three months after the beginning of treatment and gave positive results.

These five cases present certain interesting features. It will be seen that in three out of the five the Wassermann reaction became ultimately positive—an observation contradicting the general statement that where dermatitis occurs a continued negative Wassermann reaction is the rule. In only one case was evidence of disturbed liver function obtained, and it is noteworthy that in this case the investigations were made at the shortest interval after the administration of the arsenic. It would seem, however, that even if a disturbance of the liver is associated with dermatitis, such a disturbance is of a temporary nature and is followed by complete recovery of function.

It will be noted that in these cases the total amount of arsenical compound (novarsenobenzol) varied considerably. The cases in which severe dermatitis developed (1024 and 1459) each received 6 grams. On the other hand, dermatitis of moderate severity followed doses of 7.8 and 1.5 grams (1148 and 1391). It would therefore appear that the degree of dermatitis does not entirely depend upon the amount of the drug administered; indeed, the dosage in these cases is less than that given to the average patient in the clinic, where the drug is readily tolerated. The occurrence of dermatitis in two sisters treated at different times indicates that some individual idiosyncrasy predisposes to this form of eruption.

Jaundice.

We have had the opportunity of testing the liver functions in five instances where jaundice followed the administration of novarsenobenzol. The tests were carried out at varying periods after the jaundice had manifested itself. The actual details may be summarized as follows:

No. 778, a female, aged 24 years, received 7.8 grams in ten injections with subsequent mercurial treatment. Twelve months after beginning treatment the patient developed a mild type of jaundice from which she made complete recovery. Three months later the liver functions were tested and were all completely negative. In this case cure of the syphilitic infection would appear to have been effected, for the Wassermann reaction was negative two years and three months after first coming under observation.

No. 1209, a female, aged 30 years, received 3.6 grams of novarsenobenzol in six weekly injections. Jaundice developed five months after the first injection. All the liver tests, except Hay's, were negative eight months later. The patient was probably cured, for the Wassermann reaction has remained negative, and a healthy child was born at the end of treatment.

No. 1251, a male, aged 45, suffering from tabes, received 7.8 grams of novarsenobenzol in ten weekly injections. He developed jaundice six months after the last injection. Here also all the liver tests were negative one year later—with the exception of Hay's test.

No. 1316, a male, aged 28 years, received 8.7 grams in ten weekly injections. Slight jaundice developed eight months after the first injection. In this case the liver tests were investigated while jaundice was still present and gave positive results (see Table I). It may be assumed that the syphilitic infection was cured in view of a series of negative Wassermann reactions obtained.

No. 1490, a male, aged 34 years, with tabes and a Charcot joint of the right ankle, received 5.85 grams of novarsenobenzol. He developed jaundice six months after the first injection. Here the liver tests were carried out after the third injection—that is, before the jaundice appeared—and were then completely negative. At this time, therefore, the liver functions were apparently normal. A complete recovery was made from the jaundice and an improvement also occurred in the tabes.

Jaundice is the most obvious and therefore the most frequently observed evidence of disorder of the liver following the administration of salvarsan compound. But apart from this very obvious indication of a derangement of the hepatic function, it is possible for a disturbance to occur

A British Medical Association Lecture

ON

HYSTERIA AND NEURASTHENIA.

DELIVERED BEFORE THE BLACKPOOL DIVISION, NOVEMBER 14TH, 1923,

BY

ERNEST S. REYNOLDS, D.L., M.D.LOND., F.R.C.P.,

EMERITUS PROFESSOR OF CLINICAL MEDICINE IN THE UNIVERSITY OF MANCHESTER; CONSULTING PHYSICIAN TO THE MANCHESTER ROYAL INFIRMARY.

ALTHOUGH the expression "functional nervous diseases" is a bad one (for do not all diseases during life declare themselves by alteration of function?), yet it is a well established term and is of use and should therefore not be lightly discarded; for it includes those affections in which we know of no pathological anatomic change and in which we assume that there is either some dynamic abnormality in a statically normal nervous system, or else that a lesion, if such exists, cannot be found owing to imperfect methods of examination.

Only a few years ago this group was a large one and included Landry's paralysis, myasthenia gravis, Graves's disease, chorea, paralysis agitans, epilepsy, tetanus, tetany, paramyoclonus, convulsive ties, spasmodic torticollis, habit spasm, writers' cramp, tic-douloureux, migraine, hysteria, neurasthenia, hypochondriasis, and so on. But in many of these affections definite organic changes are now recognized, and in others, even including neurasthenia, it is easy to conceive either that changes exist or that normal reflexes have become disorganized.

I wish here to deal especially with hysteria and neurasthenia. It is often assumed that the great war added enormously to our knowledge of these conditions. Certainly it led an increased proportion of medical men to take an interest in them and to study them for the first time; and this was an excellent thing. But I am not alone amongst neurologists in saying that the war revealed no manifestation of these affections in any way new to us, and no system of dealing with them which had not already been practised by those engaged in that branch of medicine. The war added very greatly to the already existing prodigious mass of literature on hysteria, neurasthenia, and the psychoses; but this is not an unmixed blessing, for it has enormously complicated a somewhat intricate subject, and, worst of all, has led to the introduction of a totally unnecessary new terminology, gradually becoming almost a foreign tongue, and often, to me at any rate, incomprehensible. Some authors, in fact, seem to have lost themselves in a forest of words. Yet in spite of this there is often an inability to distinguish between two entirely different affections—hysteria and neurasthenia—and worse still to mix up neurasthenia with the early manifestations of insanity, with which as a rule there is no connexion.

HYSTERIA.

I will define hysteria as a purely mental condition without pathological anatomic change in which diseased manifestations are imagined and assumed; and the basis of the condition is a morbid craving for sympathy or notoriety, or both. Note that it must be a morbid craving and that it must be some diseased manifestation which is assumed. Many have a craving for notoriety which they try to obtain by writing to newspapers, speaking on all kinds of subjects at every opportunity, or dressing in bizarre clothing, and in some this craving so greatly influences their conduct as to make it morbid. But this is not hysteria, as it is not a simulation of disease. So with a craving for sympathy. This may be a very real and legitimate desire, as in the case of the sick or overworked wife neglected by her husband, which exhibits itself by depression or weeping. This is not hysteria; but if as a result of such craving for sympathy some disease manifestation is assumed, then the craving is morbid and it is hysteria. In neuropathic subjects this craving for sympathy may occur without any reasonable cause for sympathy to be given, as when a servant has been rebuked ever so gently by a master, for some slight fault, and a hysterical convulsion has resulted.

It may be objected that such an assumption of a diseased condition is mere malingering. I admit that sometimes it may seem difficult to make a distinction, but it is really very wide, for I define malingering as the deliberate assumption of a diseased condition, the basis of the assumption not being a morbid craving for sympathy or notoriety, but a natural desire for personal and material gain. Malingering is most common amongst prisoners (including suspected persons awaiting trial), soldiers and sailors (especially on active service), and in persons claiming compensation for injuries. In my presidential address at the Neurological Section of the Royal Society of Medicine[1] I narrated several pairs of cases in which the manifestations were similar, one case of each pair, however, being hysteria, the parallel case malingering. Let me narrate two illustrative cases.

A nurse complained of intense pain in the spine, worse on movement, and pyrexia up to 102° F. was present. She was, of course, kept in bed, but repeated examinations revealed no cause for her trouble; the pain and irregular pyrexia continued for several weeks. I then became suspicious, took her temperature myself with two thermometers simultaneously, one in each axilla, and found the temperature normal. She recovered at once, knowing her deception had been found out. Now if this simulated illness was for the purpose of obtaining the sympathy of her attendants and fellow nurses she was a case of hysteria; but if merely to have a lazy and comfortable time in bed it was malingering.

A boy, aged 16, was brought to me suffering from total blindness which had come on rather suddenly while at a public school. No cause could be found for this in the eye itself. He had to be led about everywhere, and one of his schoolfellows had always to attend him. When he came to see me I at once noticed from his features that he was "taking stock" of me. I took him in another room away from his friends, spoke rather sharply to him, told him he could see perfectly well, and ordered him to return to the other room and walk freely about to show his friends he had recovered, and this he did. If this blindness was assumed to get off lessons, and especially if he had been found reading novels when alone, he was a malingerer; if to gain sympathy and notoriety amongst his fellows, it was hysteria.

Both in hysteria and malingering any disease may be imitated which the person has seen or heard of or read about, but never one of which the person has no previous knowledge; and the greater the knowledge of the disease the more close the resemblance will be, and the contrary. In both cases an audience is necessary, a hysterical person does not waste her substance "on the desert air." A hysterical person, and even a malingerer, will submit to all kinds of personal discomfort (even the amputation of a limb) to gain the object in view.

One fundamental difference between hysteria and neurasthenia is that the former is principally a matter of objective physical signs, the latter of subjective symptoms. The manifestations of hysteria, such as blindness, deafness, mutism, anaesthesia, loss of power, vomiting, raised temperature, and so on, can be observed and tested by others; those of neurasthenia all relate to altered feelings. But in hysteria and in malingering complaint is sometimes made of intense local pain, and it is impossible to test the truth.

As regards etiology, all persons are prone to hysteria, and it is sometimes seen in domesticated animals, such as horses and especially pet dogs craving for notice. Gilles de la Tourette[2] records several such cases. One was that of a terrier for whom his mistress got a bitch as a companion. The dog at once lost its gaiety and appetite, developed dysphagia, alteration of voice, and a progressive paraplegia without incontinence. It recovered as soon as the bitch was removed.

In neuropathic heredity this proneness is more likely to become manifest; in the well balanced person, in spite of all inducement, it will never occur. Almost no age is exempt; I have seen hysterical cerebellar reel in a boy of 7 years, and hysterical flatulence from deliberate air-swallowing in women over 60. It is, of course, commoner in women, but is also found in males (generally below the age of 20). The immediate causes of the condition manifesting itself are almost too numerous to mention: moral shocks, jealousy, insults, either real or imagined disappointments, frights, and injuries; sometimes it occurs as a complication of real disease. But in every case, if thoroughly investigated, the basis is a craving for sympathy or

without jaundice. Such a defect can only be determined by special tests—for example, those we have already described in detail. While the incidence of jaundice may be used to indicate the degree of hepatic derangement from the arsenical substances, we believe better evidence can be obtained by employing special chemical tests for liver efficiency. All the tests used, as has been pointed out, were submitted to careful preliminary investigations, and these controls showed that Ehrlich's aldehyde, the urobilin, Fouchet's, and the lipase content tests could be relied upon; therefore deductions may be based upon the results obtained from these tests.

CONCLUSIONS.

If the series of cases investigated be now examined, it will be seen that out of a total of 56* cases, where arsenical preparations had been given, in 52 the chemical reactions indicated that the liver tissues at the time the tests were made were functioning normally. Since the derangement of liver function, if any, may arise during the administration of salvarsan, or at varying periods afterwards, it is of importance that any series of tests be made at different times. This has been done, and it will be noted that the range extends from four years and eight months through gradually shortening intervals down to a period when the tests were made while the patient was actually under arsenical treatment. These investigations go to show that the salvarsan preparation used, given in the doses indicated, does not cause either immediate or late damage to hepatic tissue except in a small proportion of cases. It should not be inferred that the proportion of jaundice met with in the clinic is 5 out of 56. Examples of jaundice are rare, and we were fortunate in obtaining these while the investigations were being carried out.

There is now an extensive literature on the subject of what may be called arsenical jaundice. So striking and suggestive a phenomenon as jaundice could not escape notice, but it is open to question whether the arsenical preparations used should be held entirely or generally responsible for the condition observed. Jaundice, and even acute yellow atrophy, were noted in connexion with syphilis long before arsenic was employed in the treatment of this disease. This is very fully dealt with in the admirable report of the Salvarsan Committee of the Medical Research Council on the toxic effects following the arsenobenzol preparations. There will be found among other records that of Lasch (1894), who noted 49 cases of jaundice in early syphilis, including one where acute yellow atrophy supervened; that of Wickham Legge of 100 cases of acute yellow atrophy, 8 of which were known to be syphilitic; that of Parkes Weber (1909) recording acute yellow atrophy in a case of recent syphilis; and others similar. There is thus abundant evidence that every degree of jaundice, and even acute yellow atrophy, may occur in syphilis as an accident of this disease, and therefore may be in no way connected with the use of an arsenical preparation.

In view of these facts many hold that the jaundice observed in syphilis, whether following salvarsan administrations or otherwise, should be attributed to a special effect of syphilis on the liver. There are, however, two facts of general acceptance which appear to challenge the complete acceptance of such a hypothesis. The first is the well known observation that the administration of arsenic for various conditions in individuals free from any syphilitic taint may be followed by jaundice; the second is concerned with the occurrence of groups of cases of jaundice or acute yellow atrophy in seeming epidemic form among patients being treated for syphilis with arsenical compounds. In the latter case the suggestion has been made that some additional infection is present and that persons suffering from syphilis are especially liable to infection of this kind. But even allowing full value to these observations, it can nevertheless be maintained from the evidence we have given that the arsenical substances may be safely employed in full doses without any considerable chance of causing temporary or permanent damage to the liver tissues. In this connexion four cases may be cited.

The first, No. 1508 in our series, a male aged 54, with old-standing syphilis, gave positive evidence of liver defect (see Table I), and yet in his case no salvarsan had been given. It is easy to see that had this man been treated with arsenic the condition discovered would improperly have been attributed to the drug used. Further, if salvarsan is as harmful to liver tissue as is sometimes alleged, it might be expected that where hepatic disease is already present the administration of the drug would produce some pronounced harmful effect. The following cases contradict such an assumption. No. 859, a female, aged 54, came to the hospital in 1918 with an enlarged and irregular liver diagnosed as syphilitic. She gave a history of several attacks of jaundice, there were scars about the region of the knees, and the Wassermann reaction was positive. This woman received 9 grams of novarsenobenzol in ten injections, following which the liver ceased to be palpable, and she made progressive improvement. Chemical investigations of the hepatic functions two years and two months after treatment had been commenced gave positive results (see Table I), although the patient's general condition still remained good. No. 1315 is an example of a similar kind. This patient, a female, aged 33 years, was admitted to a medical ward with the diagnosis of syphilis of the liver; the Wassermann reaction was positive and the liver was considerably enlarged. She received 5.85 grams of novarsenobenzol, and six months after the first injection the liver could no longer be felt. The third case is an example of jaundice during the early secondary period. The patient, a female aged 20 years, presented herself with marked jaundice and secondary syphilis. In spite of this she was given a first injection of 0.3 gram of novarsenobenzol, following which the temperature rose to 102°, the febrile period lasting some days. The hepatic region was tender and the liver was noted to extend downwards some three or four inches below the costal margin. Ten days later the liver appeared to have regained its normal size and a second injection of 0.3 gram of novarsenobenzol was given. This produced further fever, but of lesser degree; the liver again became enlarged and tender. A fortnight later a further injection of 0.3 gram was given. The jaundice had by now almost entirely disappeared, and from this time the patient made satisfactory progress.

While admitting that jaundice may result from the injection of any form of arsenic and apart from syphilis, and also that there is some evidence of the occurrence of epidemic jaundice among patients being treated for syphilis—which may point to some additional unknown factor—we are nevertheless of the opinion that, in the type of jaundice met with in the clinic where our observations have been made, the condition should rather be attributed to the disease than to the remedy used. Thus we have been unable to confirm the findings of others that a disturbance of liver function is common after arsenical administration; indeed, our observations lead us to take a contrary view. Further, it has been noted by us that in a number of cases where jaundice supervened during treatment, although the result of treatment might appear entirely satisfactory, after an interval the Wassermann reaction, which may have been, and usually was, negative, again became positive, indicating that sterilization had not been complete. It may reasonably be supposed that in these cases certain spirochaetes had escaped and had assumed a special activity in the liver substance, first producing jaundice and later the positive Wassermann reaction. It would appear certain that the incidence of jaundice among those suffering from syphilis is now higher than formerly. This may, however, be explained on the assumption that in consequence of the rapid destruction of the infecting parasites by the specific remedy those natural processes of protection which would normally be called into being are not elaborated, and thus any escaping micro-organisms find the tissues they invade in an unprotected state. This would account for the phenomenon noted—that is, jaundice. It is interesting to recall that in the early days of the use of "606" the remedy was blamed for the lesions of cranial nerves then not infrequently observed, but that later it was shown that these effects were the result of the disease, not of the remedy employed to treat it.

These investigations were undertaken with an entirely open mind. The object was to determine whether the

* It will be observed that in one case where liver functions were investigated (No. 1503) no arsenic was given.

of the injury, and under the different mechanical itions obtaining respectively in the upper and lower s. An interesting account is given of the mode of lopment of the level bony surfaces destined to bear t pressure parallel to the axis of the shaft. The ner in which the bone is deposited and the definitive ture of the pressure surfaces are well described and rated. The influence of the several mechanical forces ssure, friction, and tension—in producing the compli- l structure of the transverse fibrous plate, with its laginous deposits, fragments of osseous tissue, collec- of calcareous débris, and variously directed fibrous a, are also fully discussed. The formation of the vial cavity has been variously explained by different ors as resulting from haemorrhage, or from softening he tissues consequent on hyaline degeneration and eration of the vessels. Mitterstiller ascribes it to ional movement between adjacent tissue strata, and evidence in support of this view. The paper is rated by a number of excellent microphotographs, contains a detailed account of the literature of the ect.

TERNATIONAL CONGRESS OF OPHTHALMOLOGY.

ad been proposed to hold an international congress of halmology in London in 1925, but it has been decided ostpone it. We are informed that the committee of ish ophthalmologists appointed to organize the congress with regret that it is unable to do so in accordance the conditions under which the British invitation was pted by the Washington Ophthalmological Congress in when it was decided that the next congress should be tly international and that German should be one of official languages. The committee has since been in- ed that the Société Française d'Ophtalmologie, the été d'Ophtalmologie de Paris, and the Société Belge hthalmologie have passed resolutions to the effect that feel themselves unable to participate in a congress if nans are invited. The committee is of opinion that to eed with the congress in these circumstances would to perpetuate a schism in the ranks of ophthalmology, militate permanently against the progress of the ce which all desire to promote. The committee has, efore, reluctantly decided to postpone the congress.

THE CENTENARY OF THE "LANCET."

dinner in celebration of the completion of the lredth year of the *Lancet* will be held in London on nesday, November 28th, 1923. Sir Donald MacAlister, ident of the General Medical Council, will take the r, supported by the President of the Royal Society, President of the Royal College of Physicians of London, President of the Royal College of Surgeons of England, Chief Medical Officer of the Ministry of Health, the ident of the Royal Society of Medicine, and the ident of the Medical Society of London. Dr. J. W. H. g and Mr. H. D. Gillies (7, Portland Place, London, are acting as honorary secretaries to the Dinner mittee.

THE PRICE OF INSULIN.

Ministry of Health announces through the secretary he Insulin Committee, Dr. G. F. McCleary, that the il price of insulin has been reduced. Until a weeks ago, the Ministry states, the American il price, formerly higher, was 2d. per unit, or per unit in an alternative strength. The corre- reduced to approximately 2d. per unit. Hospitals have, in fact, had the advantage of this reduction already during the present week. They are allowed a trade discount of 15 per cent. on the retail price, and will thus now pay about 1¾d. per unit. The main reason for the difference of price in the United States is that manufacture there began, under the guidance of the workers in Toronto University, some months earlier than was possible here. But as laboratory processes are progressively converted into large-scale manufacture the price goes down, and the decline in this country, in spite of certain handicaps, has been greater proportionately than in the United States. The British Drug Houses, Ltd., inform us that the reduced price became effective on July 12th, and that supplies are sufficient to meet all demands.

PRESERVATIVES AND DYES IN FOOD.

The Minister of Health has appointed a committee to inquire into the use of preservatives and colouring matters in food and to report (1) whether the use of such materials or any of them for the preservation and colouring of food is injurious to health, and, if so, in what quantities does their use become injurious; (2) whether it should be required that the presence of such materials and the quantities present in food offered or exposed for sale should be declared. The committee is constituted as follows: Sir H. G. Monro, K.C.B. (chairman), Professor W. E. Dixon, O.B.E., M.D., F.R.S., Sir A. D. Hall, K.C.B., LL.D., F.R.S., Dr. J. M. Hamill, O.B.E., M.D., D.Sc., Mr. O. Hehner, F.I.C., Professor F. G. Hopkins, F.R.C.P., F.R.S., Dr. G. R. Leighton, O.B.E., M.D., Dr. A. P. Luff, C.B.E., M.D., F.R.C.P., Dr. C. Porter, M.D., B.Sc., and Mr. G. Stubbs, C.B.E., F.I.C. The secretary of the committee is Mr. A. M. Legge, of the Ministry of Health, Whitehall, S.W., to whom all communications should be addressed.

Mr. Godfrey Locker-Lampson, Under Secretary for Home Affairs, Sir Arthur Stanley, Lieut.-Colonel Fremantle, Lord Dawson of Penn, Sir Thomas Horder, and Sir Edward Marshall-Hall, on behalf of the British Empire Cancer Campaign, met, at the House of Commons on July 10th, representatives of the Royal Society and the Medical Research Council. A discussion took place regarding the scientific side of the campaign, and it was decided to form an Advisory Committee to assist the carrying on of the campaign from a scientific standpoint, if the necessary agreement upon details could be reached.

Red Cross Societies have always esteemed it one of their duties to come to the assistance of the inhabitants of districts which have suffered from such disasters as earthquakes, floods, or great mine explosions. At the instance of Senator Ciraolo, president of the Italian Red Cross Society, and with the approval of the Society of Nations, the International Red Cross Committee has proposed to organize such work more thoroughly, and as a first step to prepare an atlas of catastrophes, according to a plan evolved by M. Raoul Montandon, president of the Geographical Society of Geneva. He has prepared a pamphlet on the subject, illustrated by sketch maps, and suggests that a chronological list of catastrophes should be drawn up, giving precise details as to their remoter causes, the regions affected, and the loss of human life and material destruction involved. The assistance of scientific institutions is invited in the preparation of local reports, upon which the International Red Cross Society will be able to found the proposed atlas. Communications should be addressed to the

NINETY-FIRST ANNUAL MEETING
of the
British Medical Association,
PORTSMOUTH, 1923.

OLD PORTSMOUTH AND PORTSEA.

(Concluded from page 1161, col. 1.)

AT the end of Highbury Street the old chapel of St. Mary of Close stood from 1320 to the time of Elizabeth. Later another chapel of ease to St. Thomas's was built here and opened in 1839. The church, closed at the beginning of this century, has been razed, and the ground is now laid out as an "open space."

Before the fortifications were demolished leading from St. Mary's Road was a narrow way across an iron bridge over part of the old Mill Pond to Portsea. There is now a good road; the visitor should proceed to Portsea before returning to High Street. The old Mill Pond was filled in with the earth from the old walls, and the ground levelled, now forming the Men's Recreation Ground. Just before passing under the railway arch is the entrance to the old Gun Wharf. The old part of the wharf dates from 1662. Here were parked all manner of stores for military and naval use, many old relics were stored, and the Armoury was decorated with designs similar to those seen in the Tower of London. The army stores are now at Hilsea, the naval stores at Gosport, and the armoury at Camberley. Passing under the railway arch, on the right St. George's Square and Church can be seen. At No. 3 in the square is the house in which Sir Walter Besant was born on August 14th, 1836. He was educated in the town, and was a regular visitor to his natal town after he ceased to reside therein. He describes the church in his novel, *By Celia's Arbour*, under the name of "St. Faith's," thus: "Externally it was a great barn of red brick set in a courtyard surrounded by a red brick wall with a roof of red tiles." The church was built in 1753. On the east side of the square is Britain Street. In a house in this street Isambard Brunel was born on April 9th, 1806.

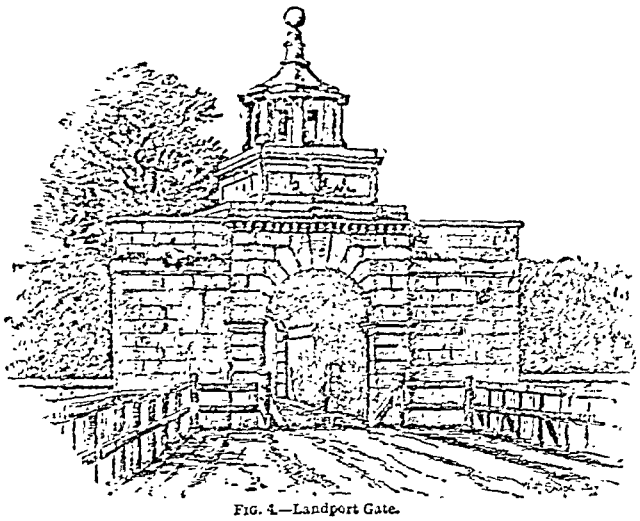

FIG. 4.—Landport Gate.

The way to the Dockyard is westwards along Common Hard, the landing place for civilian goods and not reserved for Admiralty stores. It was a wild spot till the shipwrights began to build houses for themselves near the yard in Queen Anne's reign. The governor of the dockyard at that time—Colonel John Gibson—objected to the building as he wanted a clear space all around for the better defence in case of attack. Prince George of Denmark supported the men's appeal, and in memory of his success the shipwrights called the first street Prince George Street, and by that name it has continued to be called.

The Hard is not a particularly beautiful place, and the railway to the Harbour Station for the Isle of Wight boats greatly interferes with the view of the harbour. Nor are the logs, the black mud, and the mudlarks things of joy. The Hard, too, is a curious study for those interested in the drink question. Within 200 yards one could count fifteen public houses; there are plenty now, and at one time there were more. The only establishment of any note amongst them is "Keppel's Head," an old naval house.

Facing us at the end of the Hard are the main gates of the Royal Dockyard. A tablet in the wall by their side tells us they were finished in 1709. Before their erection the entrance to the yard was at Bonfire Corner, about a quarter of a mile further along the road. Still further on, at the end of Unicorn Road, is the other entrance to the yard. Unicorn Gate, together with Lion Gate, were once part of the old Portsea fortifications. These gateways were erected in 1778, the Lion Gate at the eastern end of Queen Street, the Unicorn Gate at the end of North Street. After the dismantling of the fortifications the Unicorn Gate was re-erected to make a new entrance to the yard. The Lion Gate was turned through a right angle and used quite near its old situation as the entrance to Anglesey Barracks. These barracks, together with some old convict quarters, have been cleared away and the ground absorbed by the present Naval Barracks. The stonework of the old Lion Gate has been preserved, and it is hoped that the near future will see the gate re-erected in some prominent position in the borough.

At the Bonfire Corner end of Queen Street is Cross Street; at the end of Cross Street is Orange Street, and not far from here St. John's Church, formerly known as St. John's Chapel; it was built on Portsmouth Common in 1787 in the Venetian style, and, like St. George's, is a large red brick building. Orange Street has associations with Whitefield. He as well as both Wesleys visited Portsmouth several times. In Orange Street as a result of Whitefield's visits "The Tabernacle" was opened in 1754. A little later in Daniel Street, parallel to Cross Street, the first Methodist church in Portsmouth was established.

Leaving the dockyard for a visit on another occasion, we will return to where we left old Portsmouth and find our way to High Street.

In 1860 a Royal Commission came to the conclusion that fortifications like those of Portsmouth were obsolete. A few years later the ramparts were demolished, the Mill Pond filled in, and the present Recreation Grounds formed. Of the old Portsmouth gateways the Landport or Town Gate alone occupies its original position. It now forms the entrance to the Men's Recreation Ground. The old Landport roadway has been diverted; the new road is in a line with High Street. The stonework of the gateway dates from 1760. It was at this gate that the lieutenant-governor delivered the keys of the garrison to Royal visitors. An interesting description of the old spot is contained in Besant novel, *By Celia's Arbour*; it is also the scene of an episode in Meredith's *Evan Harrington*.

methods of treatment employed were liable to cause injury to the hepatic tissue. This we believe not to be the case, and the evidence upon which this belief is based is given above.

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INSULIN IN ALCOHOLIC SOLUTION BY THE MOUTH.

BY

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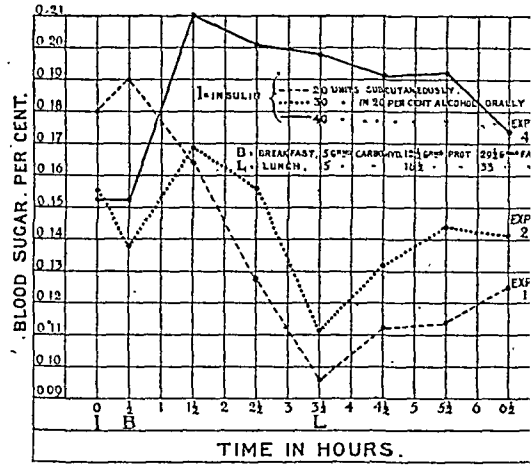
IN view of L. B. Winter's experiments on rabbits,[1] tests were made on a "pedigree" patient to see if it was a practicable therapeutic measure to administer insulin in alcoholic solution by mouth to man. Winter used very large doses of insulin. The present results in no way contradict Winter's findings—in fact, one experiment definitely supports his work; but they suggest that oral administration in alcohol would be so uncertain and so expensive as to be of little or no therapeutic value in diabetes mellitus in man.

The patient selected was a woman of 31 who has been treated with insulin and rigid dieting since April, 1923. Since September 26th her daily food intake has been 20 grams carbohydrate, 60 grams protein, and 120 grams fat, the carbohydrate being restricted to green vegetables. This amounted to 28 calories per kilo of body weight. With this diet she has taken 20 units insulin each morning and 15 units each evening.

The analyses are given in the table, and the single positive finding, one of the three negative experiments, and the control test with subcutaneous insulin in the chart. The same batch of insulin—namely, A.B. 239—was used throughout. For oral administration the insulin was removed from the phial by a sterilized syringe in the ordinary way and mixed with the requisite amount of alcohol and distilled water, the vessel being finally washed out with more of the diluted alcohol, which was also swallowed.

* Working on diabetes with a grant from the Medical Research Council.

Having shown in Experiment 1 that the particular of insulin (A.B. 239) was potent when given subcutan and that the dose of 20 units was causing the usual blood sugar for this particular patient, 30 units were by mouth on an empty stomach in 17½ c.cm. 20 pe alcohol (1½ c.cm. insulin solution, *plus* 6 c.cm. 25 pe alcohol, *plus* 10 c.cm. 20 per cent. alcohol). The resu decidedly hopeful (Experiment 2). Next day it was that 17½ c.cm. of 20 per cent. alcohol alone were v effect (Experiment 3), there being the typical d



rise in blood sugar lasting over three hours even a small a meal as 5 grams carbohydrate, 12½ grams p and 29½ grams fat. Three days later 40 units in 20 20 per cent. alcohol were given by mouth on an stomach (Experiment 4) without any apparent effect ever. It was thought that the alcoholic solution hac rapidly through the pylorus. In the next exper therefore, the 40 units were given after food—five m after a starch-free bran biscuit and half an ounce of b again with negative result (Experiment 5). Lastly effect of increasing the strength of the alcohol was (Experiment 6); 40 units in 20 c.cm. 40 per cent. a were given, again without effect on the blood sugar (after breakfast). To make sure again that the i used was potent, 20 units were given subcutaneous the same day immediately before lunch, with the fall in blood sugar.

From these tests it will be seen that, with one tion (Experiment 2), a dose of insulin by mouth that required subcutaneously is valueless. Even were possible to supply insulin in alcoholic soluti

	Experiment 1. Nov. 7, 1923.	Experiment 2. Nov. 8, 19.3.	Experiment 3. Nov. 9, 1923.	Experiment 4. Nov. 12, 1923	Experiment 5. Nov. 15, 1923.	Experimer Nov. 22, 1
Fasting blood sugar before insulin ...	0.180	0.155	0.145	0.153	0.212	0.190
Dose of insulin units	20, subcutaneously.	30, orally, taken fasting	Nil. (17½ c.cm. alcohol taken fasting)	40, orally, taken fasting	40, orally, after food	40, orally, in cent. alcohol fastin
Blood sugar 1/2 hour after insulin ...	0.190	0.133	0.143	0.152	0.220	0.188
Breakfast (1/2 hour after insulin) consisting of 5 grams carbohydrate, 12½ grams protein, and 29½ gram fat ...						
Blood sugar 1½ hours after insulin ...	0.161	0.169	0.177	0.210	0.240	0.203
Blood sugar 2½ hours after insulin ...	0.123	0.156	0.193	0.201	0.223	0.218
Blood sugar 3½ hours after insulin ...	0.036	0.111	0.163	0.198	0 199	0.185
Lunch (3½ hours after insulin) consisting of 5 grams carbohydrate, 16½ grams protein, and 33 grams fat			15 units insulin subcutaneously		15 units insulin subcutaneously	20 units in subcutanec
Blood sugar 4½ hours after insulin ..	0.112	0.132	—	0 191	—	0.193
Blood sugar 5½ hours after insulin ...	0.114	0.144	—	0.192	—	0.156
Blood sugar 6 hours after insulin ..	0.125	0.141	—	0.174	—	0.102
Glycosuria, after the meals	Nil	Nil	Trace	Trace	Marked	Marke
[illegible]	[illegible]	[illegible]	[illegible]	Marked	Trace	Trace

DEFORMITIES OF THE OS CALCIS.

BY

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THERE are seven deformities of the os calcis which I should like, with your permission, to place before this Section. They may be divided into groups—those resulting from:

Traumatism—
1. Oblique posterior fracture.
2. Compression fracture.
3. Comminuted fracture.

Congenital Defect—
4. Overgrowth of the great process.
5. Overgrowth of the outer wall.

Disease—
6. Spurs.
7. Overgrowth of the epiphysis, etc.

TRAUMATISM.

Oblique Posterior Fracture.

The posterior part of the os calcis may be split off by an oblique fracture running from behind the articular surface downwards and forwards to the under surface. It is important accurately to diagnose the exact line of this fracture, and to obtain exact apposition of the fragments, as otherwise the posterior end of the under surface of the anterior fragment is apt to form a projection into the sole, which will compress the plantar digital nerves, and render walking difficult. The posterior fragment of the os calcis is pulled upwards by the tendo Achillis. Unless the tendo Achillis is fully relaxed by bending the knee and putting the foot in the equinus position it is very difficult to replace the fragments and retain the posterior fragment in accurate position. If this is not done the line of union of the bone is weak and is liable to be painful when stretched and walked upon. Such a fracture, therefore, must be completely replaced with the fragments in exact apposition, by fully relaxing the tendo Achillis.

In every injury of the foot an *x*-ray photograph should be taken. It is impossible to make an exact diagnosis of a fracture of the os calcis without the *x* rays.

Compression Fracture.

A second typical deformity which results from trauma is one where, as the result of jumping from a height—ten, fifteen, or twenty feet—and alighting on the heels, the os calcis is crushed, so that the distance between the upper and lower surfaces is diminished. The os calcis may be simply cracked internally, and here again it will be impossible to ascertain the exact position of the fracture without an *x*-ray photograph. The crushing may be slight, but in many cases not only is the os calcis severely compressed from above downwards, but at the same time the bone is expanded laterally, so that its transverse diameter is increased. It is this lateral expansion of the bone which may give rise to permanent symptoms of pain and discomfort. There are, of course, in such a fracture, as in every fracture of the os calcis, the usual signs of severe injury—pain, swelling, inability to stand or walk, ecchymosis, venous discoloration of the skin, pain on movement, and a deformity which sometimes can be perceived by the finger or by measurement.

After some weeks the immediate effects of the injury may have passed off, and the patient may be able to walk, but where the bone has definitely undergone lateral expansion he cannot walk long distances. He experiences a severe pain situated in front of the external malleolus. This pain may prevent the patient walking any distance with comfort. This symptom may continue for years, and the patient, if a soldier, may be totally incapacitated from marching, and if a civilian he will be prevented from taking walking exercise.

In cases of severe flat-foot in children the tip of the external malleolus impinges upon the outer surface of the os calcis, and as the bone is still incompletely ossified it slowly changes its shape, and the apex of the lower end of the fibula will slowly become flattened obliquely from within downwards and outwards, as the result of the pressure by it upon the outer surface of the os calcis. In adult life, however, the bone is completely ossified, and this moulding of the bone does not readily take place. The impingement of the lower end of the fibula upon the outer surface of the expanded os calcis gives rise to very acute pain on walking. Until this projecting surface of the os calcis is chiselled away the pain and disability will continue, notwithstanding the use of walking instruments and special boots. The condition is, in fact, incurable except by operation. Removal of this projecting surface off the os calcis cures the patient at once. It is an operation which I have done fifteen or twenty times, with an absolute cure in every instance. Under modern aseptic precautions the operation is perfectly safe. It is, of course, advisable that after the operation the foot should be retained in an everted position in plaster-of-Paris for some few weeks.

Comminuted Fracture.

The third type of fracture, involving the os calcis and tarsus, is one where this region of the foot has been extensively comminuted—for example, as the result of a perforating bullet wound. The under surface of the os calcis will often in these circumstances present an irregular mass of bone, rendering the sole of the foot convex instead of concave. After the necrosed fragments have been removed, the sinuses have healed, and the inflammation has subsided, there may still remain an irregular mass of bone projecting into the sole of the foot, rendering progression impossible. So long as this mass of bone is allowed to remain it will compress the digital nerves at every step taken. So disabling is such a condition, and so hopeless the outlook, that I have had under my care several cases where amputation of the foot has been recommended. These cases have been perfectly cured by the following operation:

An equilateral triangular flap of skin and subcutaneous tissue, whose base is half an inch from the outer border of the foot, and whose apex is at the head of the astragalus, is elevated and turned outwards. The plantar fascia and intramuscular septa are exposed. The posterior attachment of the plantar fascia is divided at the os calcis, and is drawn inwards. The under surface of the os calcis is reached through the external intramuscular septum. The periosteum is elevated from the under surface of the os calcis by means of a rougine. The flexor accessorius and deep flexor tendons being pushed inwards, the irregular mass of new bone is thereby fully exposed. It is chiselled away, and the concavity of the under surface of the os calcis is restored. The periosteal flap is replaced, the plantar fascia is sutured in position, and the triangular skin flap is replaced and sutured. By this method of operating the whole of the under surface of the os calcis can be thoroughly explored, and any irregular mass of bone which projects into the sole of the foot can be removed without damage to any nerve, vessel, or tendon. The wound heals by first intention and no discomfort results afterwards. In fact, a perfect cure is effected of the previous disability, for which amputation seemed to be the only remedy.

CONGENITAL DEFECT.

Overgrowth of the Great Process of the Os Calcis.

This is present in every severe case of congenital equinovarus, and is the result of absence of pressure upon the outer portion of the articular surface (Wolff's law). The outer border of the foot will be convex when this deformity is present. The clinical effects of this bony hypertrophy are such that even after the plantar fascia and the abductor hallucis have been removed, the intramuscular septum has been carefully dissected out, the internal lateral ligament has been divided, and the foot has been wrenched outwards, the outer border of the foot will still remain convex, and cannot be made to approximate a straight line. In every such case where the outer border of the foot cannot be made straight or concave, the great process of the os calcis will be found hypertrophied, and must be removed. This is best performed by an incision over the dorsal surface of the calcaneo-cuboid joint, about three-quarters of an inch in length, and below the level of the peroneus brevis tendon and external cutaneous nerve. The joint is opened, the dorsal ligament and the origin of the extensor brevis digitorum are detached from the dorsal surface of the bone for an appropriate distance backwards, usually from half to three-quarters of an

half its present price it would still be more expensive to give it orally. But to my mind much more serious than expense is the uncertainty of the oral method of administration. The very fact that a single positive result was obtained shows the possible danger of the method. We have no control over the pyloric sphincter. Also it is conceivable that there might be danger for those with achlorhydria (and it is to be remembered that 4 per cent. of healthy individuals are estimated to have achlorhydria) in that pepsin would not be activated, and in that an oral dose, if calculated from a series of experiments on other patients as being a certain multiple of the subcutaneous dose, might be an overdose for the achlorhydric. Moreover, if the insulin were given with food it is possible that variations in the articles of diet (in spite of keeping the intake of carbohydrate, protein, and fat constant) might influence the proportion of insulin absorbed or destroyed by pepsin.

The experiments are admittedly few in number and confined to one patient. This patient is an expert at diet calculations, however, and has submitted to a large number of blood sugar curves for previous experimental work. She has for several weeks given herself 35 units of insulin daily, and her fasting blood sugar, tested frequently, has remained steady within narrow limits. She, of course, stayed in the laboratory for these special experiments, eating her food off the laboratory bench. The results are recorded in the hope that other workers who have done similar experiments will publish their findings, and so prevent the raising of false hopes in the minds of those suffering from diabetes mellitus.

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A CASE OF MALARIA ARISING IN THIS COUNTRY.

BY

NEVILLE M. GOODMAN, B.A., M.R.C.S., L.R.C.P.

ALTHOUGH nearly five hundred cases of locally contracted malaria have been discovered in England since 1917, the vast majority of them can be traced to infection from cases returned from abroad. Indeed, it is probable that malaria is no longer endemic anywhere in England save in the isles of Sheppey and Grain on the south bank of the Thames estuary. The chief interest of the following case is that it suggests the possibility of another endemic focus in the Essex marshes on the opposite bank.

K., a girl aged 12, was admitted to the London Hospital on September 10th, 1923, with the following history:

A fortnight previously she had returned to her home in the East End from a Girl Guides Camp at Pitsea, Essex. Ten days later (that is, five days before admission) she had had a "shivering attack" followed by headache and "stiff neck": the attack was repeated two days later. She felt quite well and said there was nothing wrong with her. Her bowels had been constipated since the onset and she had vomited once after the first attack. She had had no previous illness.

Her father, while at Gaza in September, 1917, was ill for three days with "sandfly fever"; he was cured by pills and did not leave the battery lines. In September, 1918, he had a similar attack in France, again he was cured by opium and quinine pills without going into hospital. He has had no attacks since and has been in perfect health. The mother is healthy and has had no shivering attacks; one other child, aged 9 years, is healthy.

The patient was a pale, intelligent child in no pain or distress. Temperature 105°, pulse 140, respirations 30. The tongue was furred: the heart and lungs were clear; spleen enlarged 2½ finger-breadths below the costal margin, uniform and rather hard.

First Day.—Rigor at 4 p.m.—four stages: (1) coldness of the feet spreading to the body; (2) trembling of shoulders and legs; (3) short sleep; (4) awoke feeling hot and sweating.

Second Day.—Rigor 5.30 p.m.

Third Day.—Rigor 2 p.m.; parasites (benign tertian) found in the blood.

Treatment by quinine was started. There were no more rigors, and the temperature remained normal. On discharge ten days later the spleen was not palpable.

The length of time (five years) since the father's last attack—if, indeed, he ever had malaria—and the absence of the anopheles mosquito from the East End district in which the patient lived eliminate the father as the source of infection. No history can be obtained of any lodger, relative, or neighbour ever having suffered from malaria, and everything points to the child's infection having been acquired while in camp. The children slept there in three barns situated in a lonely spot in the marshes south of Pitsea. The nearest habitation, the farm to which the barns belonged, was about half a mile away and was itself some three miles from Pitsea village. Inquiries revealed no recent cases of malaria and no returned soldiers were living in the neighbourhood. The farmer stated that in his youth "everyone" on the marsh had "ague," and he himself had had two attacks, one as a boy and one as a young man, some thirty years ago. He gave a vivid description of a typical attack of malaria. On examination his blood showed no parasites.

As late as October 30th mosquitos were plentiful in the neighbourhood and three were caught inside the barns where the children slept; they proved to be *Culex pipiens*. Pitsea, however, is given as a locality for *Anopheles maculipennis* by the authorities of the British Museum (Natural History).

I am indebted to Dr. Robert Hutchison for permission to publish this case.

LITERATURE.
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Map showing distribution of *Anopheles maculipennis*. British Museum (Nat. Hist.), 1913

SPONTANEOUS RUPTURE OF THE LOWER UTERINE SEGMENT.

BY

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SPONTANEOUS rupture of the lower uterine segment must be a very rare occurrence, and perhaps on this account the notes of the following case may be of interest.

I was asked to see a patient, aged 30 years, at 5.45 p.m., on account of abdominal pains which had commenced an hour earlier. She was then in the thirty-sixth or thirty-seventh week of her first pregnancy. The pains had the character of first-stage labour pains. External examination showed the child to be lying in the left occipito-anterior position. No vaginal examination was made as at the routine examination two or three weeks before no abnormality had been discovered. At 6 p.m. the pains became much more severe and I commenced the administration of chloroform through Junker's inhaler. At 6.15 the patient, although under the influence of chloroform, made a violent expulsive effort and the child was born. The infant weighed only 5 lb. and its head was very soft. Immediately following the birth of the child a large haemorrhage occurred. The patient was turned on to her back and the fundus of the uterus grasped: this was found to be well contracted. A hand was then passed into the vagina, and a laceration was found which admitted the whole hand and which extended through the cervix and lower uterine segment into the left broad ligament. The placenta was rapidly removed from the cavity of the uterus and the cervix drawn down to the vulval orifice. Two volsellae were then placed side by side at right angles to the cervical axis so as to take a broad grip of the walls of the tear and the cervix was then allowed to ascend to its normal position. The volsellae thus made a partial torsion of the line of laceration and controlled the bleeding. There was no damage to the vaginal walls or to the perineum. The usual methods to combat the shock were then adopted. Dr. Thomas Wilson saw the patient in consultation at 8.30 p.m., and it was decided to leave the volsellae *in situ* for forty-eight hours, and unless the haemorrhage recurred to carry out no further surgical procedure. The tear healed soundly and the patient made an uninterrupted recovery, but a certain amount of tenderness has persisted low down in the left iliac fossa ever since.

Seven months later the patient found herself pregnant again. No complications arose during the pregnancy, but during the thirty-fifth week it was found that the foetus was lying in the left sacro-anterior position. As spontaneous version did not occur, at the commencement of the thirty-ninth week external version was done under a general anaesthetic. The resulting position was right occipito-anterior. The child was born two days later; it weighed 7¼ lb. Except for a slight opening up of the cervical laceration the labour was without complications.

The cause of the extensive laceration at the first labour is obscure. No complications had arisen during the pregnancy, and as the urine had remained free from albumin it would appear that toxaemic causes need not be considered. The tear extended so far upwards that it was impossible to

inch, a chisel is inserted, and the projecting portion of the os calcis is divided, elevated, and removed. A tube is inserted, which is removed in two or three days; the stitches are removed in a week, and the foot put up in plaster-of-Paris for two months.

Even in severe cases of talipes equino-cavo-varus the foot can be completely rectified by removal of half an inch of the os calcis. If when this amount of bone has been removed the outer border of the foot should still not be straight, more of the os calcis should be removed, even up to one inch. Should the outer border of the foot still not be straight, a portion of the cuboid should be removed. It is never necessary, in my opinion, to remove the whole of the cuboid. I have never seen a case of talipes equino-cavo-varus, even in an adult, where the outer border of the foot could not be made straight and the deformity entirely remedied by removal of the whole of the great process of the os calcis, together with a portion only of the cuboid, provided that all the tight structures on the inner part of the foot had been previously divided.

Overgrowth of the Outer Wall of the Os Calcis.

This deformity results in an obliquity of the upper surface of the os calcis, and is due to an increase of the vertical measurement of the outer surface. This condition is in some cases associated with an ankylosis between the astragalus and the sustentaculum tali. It is only met with in the most severe cases of long-standing congenital equino-varus, and is the direct result of long continuance of the foot in the deformed position. In such cases the os calcis undergoes inward rotation on an antero-posterior axis, and to rectify this tilting it is necessary to open the astragalo-calcaneo joint, and to remove a portion of the upper and outer surface of the os calcis. It may be necessary to divide the ankylosis which may have taken place between the astragalus and the sustentaculum tali. When this ankylosis is divided, and an appropriate piece of the upper part of the outer surface has been removed, the os calcis can then be rotated outwards and placed in its normal vertical position.

DISEASE.

The Development of Spurs on the Inferior Surface.

This deformity, an overgrowth of the tubercles on the under surface of the os calcis, leads to considerable difficulty in walking. These tubercles give attachment to the abductor minimi digiti and flexor brevis digitorum muscles. They may be so enlarged as to project as sharp points half an inch long. They may cause so much pain and discomfort in walking that no amount of padding in the boots, or wearing of thick socks, will relieve the pain. In such cases x rays must be resorted to, and if the spikes are found, they should be removed by operation. An incision should be made on the outer aspect of the heel, one and half inches forward along the outer border of the foot, and extending backwards round the posterior part of the os calcis. By this incision the whole of the posterior half of the inferior surface of the os calcis can be exposed without damaging any vessel or any nerve. The tubercles can be verified, and can be chiselled away at their attachment. Unless these tubercles are thoroughly removed, and the bone left flat, recurrence of the disability is not prevented.

Overgrowth of the Epiphysis.

This deformity, overgrowth of the posterior part of the os calcis, is much more common than is usually thought. It is becoming increasingly frequent owing to the violent athletic exercises which are at present indulged in at an early age. It is usually due to hypertrophy of the epiphyseal cartilage. The tendo Achillis, it will be remembered, is inserted into this epiphyseal cartilage, and constant violent contraction of the tendo Achillis stimulates and causes an overgrowth of cartilaginous bone at this part.

The osteophytic outgrowth may be so prominent that not only is it difficult to make the patient's boots fit comfortably, but as the result of excessive pressure and friction a bursa may be developed, which is liable to become inflamed, enlarged, and tender after a spell of exercises, even when that exercise has been of short duration. In one case which I remember the patient was laid up for ten days with acute pain and inflammation in this bursa every time she took a long walk. Many patients are compelled to have every pair of boots specially made to fit them.

The superjacent bursa may suppurate, or the epiphysitis may be so intense that in a tuberculous subject it may not only suppurate but may actually give rise to necrosis of the posterior part of the os calcis. In mild cases the application of tincture of iodine will harden the bursa and the skin over it and may prevent it enlarging. In other cases fomentations must be applied, and rest is essential. In every case the boots should be specially made. Should the bursa suppurate, and a sinus or necrosis result, the foot should be put up in plaster-of-Paris, with a window round the heel, through which the sinus can be dressed. Unless the foot is thus put at rest the sinus may continue for years. Should the sinus persist and a projecting mass of bare bone be found at the bottom of the cavity, the projecting necrosed portion of the os calcis should be laid open and removed by chisel. These sinuses should not be scraped—scraping only removes and destroys periosteum.

When this epiphyseal enlargement causes such an amount of inconvenience as to materially interfere with the comfort of the patient or his ability to undertake ordinary walking exercise the osteophytic outgrowth should be removed. The incision should be semilunar in shape, almost vertical, and placed over the outer surface of the os calcis. This incision extends down to the bone, the periosteal flap is elevated and turned backwards, and the projecting mass of the os calcis is exposed and removed. The periosteum is then replaced, the wound is sutured, and a small tube inserted. The tube is removed on the second or third day, the stitches are removed on the ninth or tenth day, and the foot is put up in plaster-of-Paris for three weeks, after which the patient may be allowed to walk about.

Violent exercise in the young may cause a hypertrophy not only of the posterior part of the os calcis but also of the lower epiphysis of the tibia, and an expansion of the interior articular surface of the tibia, and a flattening and enlargement of the upper articular surface of the astragalus.

Mr. Openshaw showed two skiagrams: (1) a lateral view of an os calcis showing this osteophytic outgrowth; and (2) a lateral view of the normal os calcis, showing that the posterior part of the os calcis behind the articular process should be level.

TRANSVERSE (SUPRACONDYLAR) FRACTURE OF THE LOWER END OF THE HUMERUS.

(Abstract.)

BY

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THE author said that he chose this subject because a considerable number of these fractures were brought to him for treatment, because they all presented a clear clinical picture, and because in the textbooks they were wrongly described.

Statistics were presented to show that the fracture occurred almost entirely in children under the age of 14 years, and that it was the commonest fracture of the lower end of the humerus. Its usual causation by a quite trivial accident in the position of forced hyperextension was commented upon, and the statement made that it could be produced readily in the cadaver.

Having described shortly the symptoms and radiographic appearances, noting especially that the lower fragment was usually displaced backwards and outwards, the author showed by means of radiograms, diagrams, and quotations that this fracture was described and figured in nearly every textbook as a separation of the lower epiphysis of the humerus, which was a great rarity, of which only a very few examples were known. By describing a quite common injury as something else which was very rare much confusion of thought was caused.

Treatment.

The treatment should be directed towards getting a perfect functional result—that is, one in which movement in all directions was just as free and strong as in the case of the unaffected limb. By suitable measures this could be

·t of the uterus at least may not have been or full adult ·elopment. The juvenile form of cervix so often seen in ociation with acute anteflexion or primary retroversion small uteri is fairly common, and it may be that this ·ient had such a cervix. The lateral situation and longi-linal extension of the laceration appear to favour this ›lanation of its origin, and so does the fact that in the patient always had severe abdominal pain before the onse of each period and occasionally passed small clots. Sinc the birth of the first child pain has been practically absen and the loss has been much more profuse.

I am indebted to Dr. Thomas Wilson for much helpfu advice, both in the care of the patient and in the prepara tion of this note.

British Medical Association.

·ROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF ORTHOPAEDICS.

H. Openshaw, C.B., C.M.G., M.S., F.R.C.S., President.

DISCUSSION ON THE OPERATIVE TREATMENT OF OSTEO-ARTHRITIS.

OPENING PAPER

BY

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·THRITIS DEFORMANS is somewhat difficult of definition; undoubtedly embraces cases due to a variety of causes. ·Crae attempts to define it as a group of cases of ·hritis which have as prominent features a tendency chronicity and to the production of more or less ·manent changes in the joints or structures about the nts, those forms of arthritis with a definite known ology (for example, gonorrhoeal arthritis) being excluded. would make this difference—that it is perhaps better m the practical point of view to retain those cases ·luded in the latter part of this definition, if they are ·onic and deforming. When considering cases of arthritis m the surgical point of view, one is bound to found one's ws of treatment largely on the practical result that arthritis has produced and not entirely upon the etio-ical factors. McCrae says it is important to remember it arthritis is always secondary to a process elsewhere; joint condition is not primary. In this he has ·haps paid insufficient attention to the occurrence of ·hritis in a deformed joint—for example, the frequent ·urrence of arthritis in coxa vara and coxa plana, in nu valgum, and in joints which have been damaged by ra-articular fractures, or whose alignment has been erfered with by a fracture farther away from the nt.

It is difficult to determine how many diseases are really ·luded under arthritis deformans. It is quite certain it "in all chronic joint changes the same cause may ›duce varied results and the same results may come m different causes." There appear to be many causative ments, of which we may class as the most important:

1. Infection of the joint with a micro-organism of low virulence.
2. Toxaemia, possibly from a bacterial poison, possibly from a chemical poison.
3. Trauma, including not only direct damage to the joint structures by injury, but also the reaction to an abnormal strain and an interference with the proper fit of the joint surfaces, due to old-standing injury or deformity.

The physiology of joints is not yet very well understood. e secretion of synovial fluid is still somewhat of a ·stery; there are no glands for this secretion, and it is formed apparently by the cells lining the synovial mem brane, presumably through some form of proliferation an mucoid change. It is believed that the cartilage coverin the bone surfaces is in a constant state of cell growt towards the articular surface. The bone underlying i and around the margins of a joint we know to have poten tialities of growth and alteration throughout life. The whol of the interior structures of a joint must thus be looke upon as possessing potentiality for growth, which show itself in the reaction to any of the above-mentioned cause of arthritis.

Changes in the cartilage in the shape either of thickenin or of erosion and ulceration, changes in the synovial mem brane in the shape of proliferation or of fibrosis and thick ening, and changes in the bone in the shape of overgrowt at the joint margins, may all occur in a chronic arthriti due to any of the many different causes. In addition ther is a far greater potentiality for the formation of ne tissue in joint structures than is commonly realized. W know that cartilage may not only thicken, but may als extend over osteophytes around the joint margin, that ne masses of cartilage may develop in or under the synovia membrane, and that small portions of cartilage or synovia membrane flaked off and lying in the joint cavity ma undergo growth into cartilaginous loose bodies, and bon may develop in their interior. We must discount the actua nature of the pathological changes in every case when w try to estimate the causation. It is quite clear that thes many changes are of the nature of a reaction of the join structures to an injury, or to a bacterial or chemica poison, and are none of them specifically due to any one o these causes.

The classification into clinical types—that is, into thos mainly characterized by periarthritic changes, and other of the atrophic and hypertrophic types—is useful, bu is not of any special service from the surgical poin of view.

Operative treatment has a very definite place in the treatment of arthritis deformans, but in the main it con-cerns itself with the removal of mechanical causes an with the treatment of particular functional disabilities Operative treatment must always take a secondary plac to a careful medical investigation and treatment of an primary cause. The first steps in treatment should be:

1. The determination, as far as is possible, of the exist ence of any specific infection or toxaemia.
2. The determination of the existence of any mechanica cause.
3. The treatment of an infection or toxaemia, if it ha been found to exist.
4. The treatment of the more acute periods of inflamma tion by rest.

The operative procedures which may be useful in arthriti deformans may be classified under the following heads:

1. Operations to correct pre-existing deformities—fo example, osteotomy to secure abduction of the hip in cox vara, osteotomy of the femur for genu valgum, genu varum and genu recurvatum.
2. Operations to remove an intra-articular cause of th arthritis—for example, removal of a permanently displace internal semilunar cartilage or of a cartilage which is con stantly being displaced, and which by its mechanical effec is producing secondary arthritic changes in the knee-joint removal of a loose body or of a foreign body from th

length the treatment of an old case by operation. e reduction was not complete, or where no reduction een made at all, as in a case he described, movement isefulness might be severely impaired.

Remarks.

every case in which the author had operated there had a perfect functional result; yet a great many of the erated cases of other writers appeared to give poor s. He asked: Did not this indicate the need for more ent operation? Was not the cause of the poor results any cases the impossibility of reducing the fragments anipulation?

e commonest complication of this condition was ge to the median, ulnar, or musculo-spiral nerves. experience was that when a bony displacement was ed the nerves recovered. If there was paralysis, and examination the bones were found displaced, the nal treatment was to put back the bones first and ve if the paralysis recovered; if it did not, an operaon the nerve might be considered. Another compli n was Volkmann's ischaemic contracture; but did not only follow incorrect treatment—such as binding the ated forearm tightly to the upper arm with the use reat force and adhesive strapping, under gas anaes a, and keeping it there for twenty-four hours in of the patient's groans and cries?

e author's conclusions were that:

The fracture occurred almost entirely in children.

It was the commonest fracture affecting the lower end ie humerus.

It could be caused by a quite trivial accident.

It was usually described as a separation of the lower iysis of the humerus, but this was a great rarity, m seen.

Many of these cases could not be reduced by manipu n, and a poor functional result followed.

They could, however, be reduced accurately by opera and a perfect functional result obtained.

Operative treatment should therefore be employed more often than at present.

r. Roth showed radiograms of eight cases, taken before after operation.

HE TREATMENT OF CONGENITAL TALIPES EQUINO-VARUS.

BY

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PES EQUINO-VARUS is the most common of congenital rmities, and there is usually little difficulty in its early nosis. The whole foot is curled inwards, the heel is vn up, and there is definite resistance to the passive ction of these deformities. The only congenital rmity which may simulate this condition is metatarsus us. In this case the fore-part of the foot is adducted he mid-tarsal joint, but there is no inversion of the os is and the movements of the ankle are normal. I draw ntion to this, not because the differential diagnosis is cult, but because the treatment adopted is essentially rent.

propose to describe the methods I have found most effec in the treatment of congenital talipes equino-varus in infant. The importance of early, efficient, and proed treatment will be emphasized by a consideration also he results of delay in treatment, inefficient treatment, the deformities and disabilities which sometimes result i treatment.

treatment be commenced? It is usually taught that the mother or the nurse should be instructed in the frequent manipulative correction of the deformity from the first day. My belief is that any effective manipulation, unless followed by fixation in the corrected position, is harmful. Manipulation to be effective must be painful, as it involves stretching of tight structures on the inner side of the foot. This tearing or stretching of tight structures is followed by a physiological reaction, which results in more fibrous tissue formation and stronger contraction. I believe that correction of the deformity by manipulation will be more effective if delayed until the general condition of the child will allow of forcible correction of the deformity, and the skin will allow us to maintain the position of correction obtained. I say the skin, because I know of no effective method of maintaining fixation of the foot in the infant without the application of strapping to the child's skin. In my experience a good average age at which to commence corrective treatment of club-foot is 3 to 4 weeks.

Duration of Treatment.

Perhaps before discussing the line of treatment to adopt it would be well to emphasize that we are dealing with a deformity in the treatment of which time is an important factor. It must be clearly explained to the parents that treatment will certainly extend over a period of one year, and that supervision will be necessary for at least two or three years. In favourable cases during the second and third years supervision will be necessary to strike the mean between permanent over-correction of the deformity—flat-foot—and the tendency to a recurrence of the original deformity. Flat-foot is often looked upon as a good result of the treatment of congenital club-foot. It is perhaps a less serious deformity. A recurrence of the varus is certainly less likely when a fixed valgus has been established, but the goal at which we should aim is the normal foot. It is for this reason, as much as to guard against the possibility of relapse, that constant supervision is necessary for several years to ensure the best result.

TREATMENT.

The initial deformity consists of adduction of the fore-part of the foot, and inversion of the foot at the sub-astragaloid joint, with plantar flexion of the astragalus and os calcis as a result of shortening of the tendo Achillis, posterior ligaments, and the posterior tibial muscles. For the correction of these deformities a definite routine must be adopted, and very considerable force applied, even in an infant.

The routine consists of correction of the adduction, correction of the inversion, followed later by the correction of the equinus position of the foot. This routine is obvious and generally accepted. Failure results more often, I am sure, from a lack of appreciation of the severity of the manipulation which an infant's foot will stand and which is necessary to obtain complete over-correction of these deformities.

In the correction of adduction it is important that the foot should be abducted at the mid-tarsal joint, and that the correction of the inversion should take place mainly at the subastragaloid joint. If the corrective force be transmitted to the astragalus, it will result in a forcible rotation of this bone in its relation to the ankle-joint. An apparent correction where this has occurred is always followed by relapse, however long treatment is continued. I feel sure that lack of appreciation of this point has been responsible for many relapses in experienced hands.

In our correction it is therefore essential that the astragalus should be the fixed point. This is assured if direct pressure be maintained on the outer surface of the neck of the astragalus, equal to that used to correct the adduction and inversion deformities. Clinically we know that we have a true correction of the deformity if a hollow be present in front of the external malleolus. The depression in front of the external malleolus will be more apparent when the equinus deformity also has been

knee; or the removal of a ridge or irregularity left by a fracture.

3. Operations for an acute condition of arthritis—for example, by an incision of the joint, or by puncture of the joint and washing out of the cavity either with an antiseptic or with normal saline solution, or with ether.

4. Operations designed to improve the functional utility of the joint, or to enable the joint or limb to be used without pain, the pain being due to a mechanical cause and not to an actual inflammation. Operations coming under this heading will include (*a*) the removal of osteophytes, either because they are blocking the movement of the joint, or because their presence is producing pain on certain movements; (*b*) excision of the joint, or arthroplasty carried out with the intention of securing a functionally good mobile joint; (*c*) excision or arthrodesis, carried out with the intention of securing bony ankylosis of the joint in order to improve the functional use of the limb or to do away with pain occurring in a joint in which there is a small remaining range of movement; (*d*) operations carried out in order to alter the position of a fixed joint, so as to improve the functional utility of the limb.

1. *Operations to Correct Pre-existing Deformities.*

There is no doubt that the abnormal strain upon the joint in coxa vara, genu valgum, etc., is an important cause in the production of a localized arthritis deformans of the affected joint. It is in a sense too late to correct the deformity if the osteo-arthritis has arisen, nevertheless this procedure is often necessary, either simply in order to alter the strain upon the joint and so diminish the progress of the osteo-arthritic changes, or because an appliance is necessary which cannot be fitted in an adequate manner to the deformed joint. The operations required are the standard osteotomies of surgery, such as transtrochanteric osteotomy and Macewen's osteotomy of the femur. They require no further mention.

2. *Operation for the Removal of a Semilunar Cartilage.*

Removal of a semilunar cartilage or of a loose body, which is producing osteo-arthritic changes, would seem to be a common-sense procedure, nevertheless such removal of a mechanical cause is too often neglected. I have removed a semilunar cartilage from an osteo-arthritic knee in which the cartilage had been damaged over twenty years before and had been displaced at frequent intervals over this period of time. The operation stopped the progress of the osteo-arthritic changes and improved the function of the knee very greatly indeed.

3. *Operations for an Acute Condition of Arthritis.*

There is much doubt about the value of such procedures as incision and washing out of the joint. My personal experience of them is not great, and I have little faith in the utility of washing out a joint, except in occasional cases in which a chronic effusion of considerable size fails to diminish as the result of complete rest by splinting. The efficacy of this procedure must necessarily depend largely upon the nature of the cause. It can hardly be expected to be of any value in cases other than those of definite infection of the joint.

4. *Operations Designed to Improve the Functional Utility of the Joint.*

(*a*) *Removal of Osteophytes.*—This operation may be useful in any of the joints of the body, when an osteophyte has been ascertained to be blocking movement or producing pain. When carried out for such a purpose it is very essential to define exactly the position of the osteophyte: this is best done by means of stereoscopic *x*-ray photographs. The removal should then be carried out with as little exposure of the joint as possible. In some cases a wide exposure of the joint and a general removal of all osteophytes is a useful operation. It is most often applicable to the hip- and knee-joints. In the hip-joint I prefer to carry out such a proceeding through a posterior (Kocher) incision, lifting the muscles off the great trochanter and opening the capsule above and behind. The head of the femur can then be completely dislocated posteriorly and rotated in different directions whilst it is trimmed up round all its margins. If the cartilage remaining on the surface of the head and lying in contact with the acetabulum is intact, the femur can then be replaced in its socket and the capsule and muscles sutured. The limb should be kept on a heavy weight extension (20 or 25 lb.) for a period of six weeks, and movement then commenced. It is better to deal only with the femoral surface, unless some evident large osteophyte on the acetabular margin requires removal for mechanical reasons. The cut bone on the femoral neck may be rubbed with a fairly hard wax. This operation is only suitable for subjects up to the age of 45. There is no doubt that this procedure in suitable cases improves the function of the joint for a considerable period and diminishes the pain that is often felt on forced abduction. It is not so severe an operation as might be thought, and it is particularly suitable for those cases of osteo-arthritis of the hip with a large deformed femoral head, seen in young or middle-aged patients, which have probably resulted from a coxa plana arising in early life.

In the knee-joint a similar operation for the general removal of osteophytes is, in my experience, rather less successful. The joint must be approached either by splitting the patella vertically or by a curved longitudinal incision on the inner side, as advocated by Fisher. In the latter case the patella is displaced right over to the outer side of the joint. The margins of the femoral facets and of the patella require trimming up; the tibia is best left alone, except for the removal of any osteophytes which are causing mechanical trouble. If the semilunar cartilages are damaged or ossified, they must be removed at the same time. If the joint surface is found to be much eroded, the result of the operation is not likely to be good. The posterior part of the joint cannot be explored very thoroughly through this incision unless the crucial ligaments are divided, an undesirable proceeding. Fortunately it is seldom that osteophytes in this position require removal. When such are present, they must be approached by separate incisions on the inner or outer side at the back of the knee. Again an extension should be kept on the knee for a period of six weeks before recommencing movement.

(*b*) *Arthroplasty and Excision.*—Operations designed to reconstruct the joint and leave a mobile and useful joint are decidedly unsuccessful in cases of rheumatoid arthritis. Our first care must be that we leave a joint which is functionally more useful than the deformed joint and at least as useful as an ankylosed joint would be. The second consideration is that the new joint must be free from pain. As a general rule an attempt to make a new joint involves an operation that is more severe than arthrodesis, and where an ankylosed joint would give at least as good use as a mobile joint the latter operation is to be preferred. In the shoulder-joint excision or arthroplasty has so far failed to give useful functional movement. This joint seldom calls for operative interference in arthritis deformans; when it does, it is on account of pain, and an ankylosis of the joint must be considered as the most satisfactory proceeding. Of all the joints the elbow gives the best results by arthroplasty; it is seldom, however, that arthritis deformans affects the function of the elbow to such an extent as to necessitate this operation. Practically, the operation is only indicated in cases in which the elbow is stiffened in a bad position—that is, where the range of movement does not include the right-angled position. Arthroplasty in which the olecranon is left and a flap of fascia inserted is preferable to the old-fashioned excision, which leaves a more mobile, but much weaker joint. In the wrist-joint arthroplasty is not called for. If the radio-ulnar joint has been affected and pronation and supination seriously interfered with, Gallie's operation for removal of a small section of the lower end of the shaft of the ulna is the simplest procedure.

Arthroplasty in the lower limb, more particularly in the hip and knee, has been a far less successful operation than it is in the elbow, the reason being that stability in these joints is essential, and it is therefore necessary to limit the amount of bone excised in order to avoid a flail joint.

corrected. This allows the body of the astragalus to assume its normal relation with the ankle-joint.

The calcaneo-cuboid joint is the main fulcrum in the correction of pure adduction. In correction of the inversion it is essential that counter-pressure should be applied to the outer surface of the neck of the astragalus. It is of the very greatest importance that no strain should be put on the knee-joint during these manipulations.

In practice manipulation may usually be commenced in an infant 3 or 4 weeks old without an anaesthetic. It will be necessary to maintain the position of correction obtained, and to repeat the manipulations once a week until full over-correction is present. The position of correction obtained must be maintained in the intervals between the manipulations. The method of fixation we adopt is that of strapping and internal splintage:

One layer of lint is placed over the dorsum and lateral borders of the fore-part of the foot. A strip of zinc oxide adhesive strapping 1½ inches wide and 16 inches long encircles the fore-part of the foot. The lint protects the lateral borders of the foot from pressure, and traction on the strapping upwards and backwards maintains the position of correction obtained. The foot is held in the corrected position while the adhesive strapping is applied to the outer surface of the upper third of the leg, and maintained there by another strip of adhesive strapping which encircles the limb at this level. A malleable metal splint padded with lint is then applied to the inner surface of the foot and leg, and its position maintained by strapping. This is an aid in maintaining the position of correction until the next manipulation is undertaken.

In a moderately severe case weekly manipulation for eight to twelve weeks will be necessary before the adduction and inversion are completely corrected. Reasons will sometimes arise where weekly manipulations are not practicable. It is then advisable to give the child an anaesthetic. Two or three manipulations under anaesthesia will usually suffice to produce a complete over-correction of the adduction and inversion, an interval of three weeks intervening between the manipulations.

When the child reaches the age of 3 or 4 months, my experience is that although the correction of the adduction and inversion is complete, the equinus deformity has failed to yield to manipulation. Further efforts to stretch the tendo Achillis and posterior structures should not be persisted in, as these tend to produce an apparent correction of the equinus rather than a true stretching of the tendo Achillis. The strain of manipulation bears after a certain point more on the mid-tarsal joint than on the tendo Achillis. *The calcaneo-cuboid joint resents weight-bearing*, so that persistent force should not be applied to correct equinus deformity where simple division or elongation of the tendo Achillis would allow true correction of the original deformity by manipulation. In my experience elongation or division of the tendo Achillis is necessary in the majority of cases.

It may be argued that stretching is ideal, and that elongation of the tendo Achillis leads to a retraction and diminished excursion of the calf muscle. On these theoretical points I agree, but practically I find that after a certain point is reached further simple manipulative efforts produce a convexity of the sole rather than a true descent of the heel. At the age of 4 to 6 months we therefore usually find it advisable to practise elongation of the tendo Achillis, and if necessary divide the resisting posterior ligaments.

The child will usually begin to walk at the end of one year. Walking when a position of over-correction has been obtained is an ally in preventing recurrence of deformity. The question of treatment during the second six months of life is important. When complete over-correction of the deformity has been maintained for two months, relaxation under observation may be allowed for a time. If there be any tendency to relapse, the over-corrected position should be maintained until walking is established. If there be no tendency to relapse, a normal weight-bearing position of the foot is maintained by plaster-of-Paris, and weight-bearing encouraged. Experience alone will teach us which patient should walk in the over-corrected position, and which in the normal weight-bearing position. Relapse will seldom occur if the over-corrected position is maintained. But if the child with freedom maintains the voluntary power of dorsiflexion and eversion of the foot, the normal weight-bearing position of the foot should be encouraged.

When the child has walked for three months in plaster freedom may again be allowed under observation. Full dorsiflexion and eversion should be maintained during the night by a specially moulded splint. This may be made of plaster-of-Paris or celluloid. The important point is that its application should only be possible if the normal degree of eversion and dorsiflexion of the foot is present.

If there be a tendency to relapse, further fixation in plaster-of-Paris in the over-corrected position will be necessary for several months. The case which has shown a tendency to relapse may, on discontinuing over-correction by plaster-of-Paris, be fitted with a special cork insole. This is so moulded to the foot that it maintains the necessary degree of over-correction whilst allowing movement at the ankle-joint and exercise of the muscles controlling eversion and dorsiflexion of this joint. When the muscles controlling eversion and dorsiflexion of the foot are strongly developed, and the depression in front of the external malleolus is present, this insole may be discarded. Subsequent treatment will then be conducted on general lines.

Relapsed and Untreated Cases.

Relapse to the original deformity is a more difficult problem than the untreated case. Usually the same lines of treatment will be effective: an anaesthetic is necessary, and the use of the Thomas wrench allows us to impart the requisite force to our manipulations. This procedure will be repeated more than once if necessary. The resulting position of correction is maintained by a closely applied plaster splint. In most cases we must at first utilize the flexed knee to maintain the abduction and true eversion of the foot at the mid-tarsal and subastragaloid joints. It will be necessary to maintain this position of full correction for four to six months, when a short walking plaster may be allowed. When this plaster has to allow of walking with the foot in the position of dorsiflexion and eversion the fore and outer part of the sole should be thickened so as to give the child a flat surface on which it can walk. Sometimes it is found that the child walks in the short plaster with the toes pointed inwards, even though the true position of correction seemed to have been obtained.

There has been much discussion about the cause of this. Many hold that it is due to an internal rotation of the tibia and fibula below the knee, and that an osteotomy of these bones is sometimes necessary to correct this very troublesome deformity. My own belief is that this in-toeing is due mainly, I might almost say entirely, to a failure to obtain a true correction of the deformity. I think that the main cause is that the corrective force has not been entirely exerted on the mid-tarsal and subastragaloid joints, and that this force has been responsible for a rotation outwards of the body of the astragalus in the ankle-joint.

In early cases, where care is taken to maintain a pressure on the outer side of neck of the astragalus equal to the corrective force, this is practically an unknown complication. If it be present, the operation of osteotomy of the tibia and fibula, with the necessary outward rotation of the lower fragments, will correct it. The following operations are practised in selected cases to guard against relapse.

Transplantation of the Tibialis Anticus.—The natural action of this muscle is to dorsiflex and invert the foot. By its transplantation to an insertion on the outer border of the foot it will not only cease to be a factor in producing recurrence of the deformity, but will act strongly by its new insertion as a dorsiflexor and everter of the foot. Where a true correction of the deformity has not been obtained, this transplantation of the tibialis anticus will be helpful in preventing or delaying a recurrence of deformity. Where a true correction of the original deformity has been obtained it is unnecessary and will tend to cause a fixed eversion of the foot.

Bankart's Operation.—By this operation the position of over-correction of the foot is maintained by the *insertion of a strong* silk ligament passing from the outer border of the foot to the tibia. I was very much impressed with the clinical results which Mr. Bankart presented at a recent meeting of the British Orthopaedic Association. It is an operation which obviates the necessity of prolonged plaster fixation to prevent relapse. This gives it a definite place in the treatment of club-foot, when prolonged treatment and observation are not possible.

I have purposely included relapsed and untreated cases amongst those which should respond to treatment on general lines. In many of the cases generally looked upon as relapses the deformity recurs because a true correction has

throplasty of the hip-, knee-, or ankle-joint in any case osteo-arthritis. In my opinion, in all these joints a etter functional result is obtained by the operation of throdesis. Arthroplasty is essentially the operation for iteo-arthritis of the great toe-joint (hallux rigidus); the rocedure of a limited excision of the head, trimming up nd filing of the surface, and the insertion, where possible, a flap of fascia, is so well known that it needs no escription. It is important to bear in mind that this peration is not a trivial one and must be carefully erformed, and that it should be followed up by after-reatment lasting for at least two months, the toe-joint nd the transverse arch of the foot being supported by rapping.

(c) *Arthrodesis.*—This is the most generally useful of all perations for joints affected by arthritis deformans which emain chronically painful in spite of other treatment, and or those in which function is seriously interfered with by progressive deformity. It is most often applied to the ip- and knee-joints. In the hip-joint it is commonly con-dered a very severe operation involving much shock. If he joint be immobilized in plaster-of-Paris at the time of he operation the shock involved is much less than is com-nonly believed, and there is no reason why the procedure hould not be applied to people up to the age of 55 or 60, their general condition is good. There are several ethods of arthrodesing the joint. That which I per-onally prefer is to approach the joint by a Kocher's ncision, turn the head right out of the acetabulum and rim it up, removing all cartilage and osteophytes until a pherical surface of bare bone is produced. A correspond-ng raw cup is then prepared in the acetabulum with hallet and gouges and finally cleaned up with a rotating urr of the shape and size of the femoral head. The head s then replaced in its socket, the wound sutured with rainage, and the limb fixed in plaster-of-Paris at about 5 degrees flexion and slight abduction. The patient must emain in bed in the plaster for six weeks. A short plaster s then applied in which the patient should walk for the ext four months. In cases in which I have started to emove osteophytes from the head of the femur and found hat the articular cartilage is eroded, I have completed an rthrodesis by the above method straight away.

In the knee-joint arthrodesis is suitable more articularly for unilateral cases in which the movement emains much limited and painful, especially if the knee as become flexed. In some cases such flexion deformity an be reduced by extension and splinting; in others, how-ver, it will be found that the joint changes are such as to eave a mechanical blocking of extension. In these an ex-loration of the knee-joint must be carried out, and if the rticular surfaces are much eroded an ankylosed joint will ive the best functional result; a limited excision of the lassical type without removing the entire synovial mem-rane is the best and simplest procedure. Much bone must ot, however, be removed, as there is a far greater risk of on-union than exists in an excision carried out for tuber-ulosis in young subjects.

Arthrodesis of the shoulder is justifiable in occasional ases in which pain persists in spite of all other forms of at ment.

roduce *Operations to Alter the Position of a Fixed Joint.*—om difficulte require little comment. Those most often necessary ements, steotomy for a badly adducted hip, an osteotomy d knee, and the removal of a wedge from the part of the carpus to correct a fixed, flexed wrist. n some of these, when the patient is under the anaesthetic t is found that a little mobility remains in the joint; it nay then be questioned whether an arthrodesis should not e substituted for the other operation. In flexion of the nee, operations for division of the hamstring tendons, he attachments of the gastrocnemii and the posterior part of the capsule are sometimes required in order to straighten a knee in which sufficient movement remains to be functionally useful.

Orthopaedic Surgeon to the Bush and Pensions Hospital, Shepherd's Orthopa Hospital; Chief Assistant, Bartholomew's Hospital.

I WISHED to open the discussion in order to explain th as secretary of the Section, in order to obtain the maximu benefit from the limited time at our disposal, I had ask speakers to confine their remarks each to a comparativ limited portion of the field, with the exception of M Elmslie, whom I asked to cover the whole ground as a le to others, and whom I should like to congratulate on t lucid and compact manner in which he has done this.

By agreement, I shall confine my few remarks to the su ject of the less drastic operative procedures which may carried out for this disease.

Irrespective of the pathology, the treatment can divided into two definite parts—that of the causat disease, and that of the local condition. The pendulum swung from inefficient recognition and treatment of former to efficient treatment of this and neglect of latter. When once we are satisfied that the causat disease is adequately treated, the remainder of the probl is purely orthopaedic. It is, in fact, traumatic. Like a other piece of mechanism, a joint, if forced to work unc unsound mechanical conditions, tends to become increasin disorganized owing to abnormal stresses and inaccurac of surface. The trauma may be one of three kinds: origi external violence, causing localization of the disease in certain joint from diminished resistance; due to m position and consequent abnormal strain; or internal current trauma from structural defects within the joint.

As growth and nutrition are dependent on function, p vided that the supply of toxin be cut off and the joint s faces not very severely damaged, if our skill were sufficie to reproduce by operative means a joint so perfectly shap as to be mechanically sound, and ensure that that joi be exposed to no abnormal stress, the disease would ce to progress.

In the knee-joint the presence of loose bodies, ragg semilunar cartilages, lipomata arborescentia, and ost phytic outgrowths provides just that adverse weight in t balance which prevents natural function from exercisi its restorative power, as these structures render the jo unsound, and also the nipping of loose structures betw the joint surfaces and the continual impingement of ost phytes on the lateral expansions of the vasti give pain a limit free function.

I would plead, therefore, that as soon as the toxic elem is checked, early operative measures should be consider especially where the skiagram or some special clinical feat indicates the presence of the conditions mentioned abo Like others, in selected cases, I have had good results fr extensive "spring cleanings" of joints through large cisions, but I feel that we should forestall the necess of these by operating earlier.

It will be argued that patients will not readily sub to operative measures while their disease is in its ea stages, and also that the age of those patients commo afflicted with this disease makes surgeons loath to oper Against this I would argue that the risk of sepsis in jo operations is now negligible; there is little shock in th less drastic operations and convalescence is rapid; finally, that we are attempting to discover ideal meth of treatment, trusting that when we can advise th methods whole-heartedly, our patients, being but hum will be more inclined to be guided by us.

The methods I employ do not differ materially from th described by Mr. Elmslie. In the knee lateral incisions suffice in the early stages and a split-patella operat is rarely needed, but should be employed without hesitat when required. Mr. Elmslie speaks of six weeks' extens as after-treatment, and this is certainly advisable afte drastic operation, but when an early operation is perfor it is my practice to treat, say, the knee in exactly the s way as I should a simple removal of a semilunar cartil and to pay the same attention to restoration of mu power as I should in that case.

must be adopted to complete the correction or relapse is certain.

In the case which comes under treatment early, failure to obtain a true correction should be very rare. When it does occur this is usually because the scaphoid has not been displaced from its abnormal position—that is, its relation to the inner surface of the head of the astragalus. The astragalo-scaphoid ligament may be so thickened and strong that no manipulation will restore the normal relation of the scaphoid to the astragalus. It is then necessary in the infant to free the attachments of the scaphoid so as to allow of its easy normal replacement. The head of the astragalus will assume its normal position on the inner border of the foot, and a true correction of the deformity is obtained. An alternative procedure is to remove the scaphoid entirely; this in infants may allow easy manipulative correction of the deformity. The after-treatment, whichever procedure is adopted, is to maintain over-correction until muscular balance has been restored.

In older children and in all adult cases resistant to milder measures, a satisfactory permanent result can be obtained by an operation which ensures arthrodesis of the mid-tarsal and subastragaloid joints in a good weight-bearing position. This operation has had a wider application in the treatment of paralytic deformities, but I have also utilized it in certain resistant cases of club-foot in children, where it seemed to me to be the operation of choice, and in many cases of adult deformity. The essential steps are: resection of the mid-tarsal and subastragaloid joints; division of the foot into three parts—(1) the astragalus and ankle-joint, (2) the os calcis, and (3) the fore-part of the foot; elongation of the tendo Achillis; removal of bone until easy complete correction of adduction and inversion of the foot is obtained. Fixation of the foot in the best weight-bearing position is maintained by plaster for six months. Walking in plaster may be allowed at the end of one month.

Deformities Resulting from Treatment.

Flat-foot.—This is usually due to a failure to appreciate the time which fixation in the position of full dorsiflexion and eversion may be relaxed. Experience and constant supervision are necessary to avoid this.

Claw-foot.—Claw-foot may occur as a result of division of the tibialis anticus. The loss of this muscle may lead to a dropping of the fore-part of the foot and hyperextension of the toes due to loss of control of dorsiflexion of the foot resulting from division of the tibialis anticus and the effort of the extensors of the toes to replace this muscle. It may be overcome by correction of the cavus deformity by wrenching and the repair of the tibialis anticus or transplantation of the extensor proprius hallucis to the head of the first metatarsal bone. In older cases the best and quickest result will probably be obtained by a complete resection of the mid-tarsus.

Calcaneo-cavus deformity may very occasionally follow division of the tendo Achillis and prolonged dorsiflexion of the foot; it is a serious and progressive disability. If recognized early, repair or reinforcement of the tendo Achillis will prevent further deformity. In cases of well established deformity it may be necessary to resect bone to obtain a true correction. It will also be advisable to repair or reinforce the tendo Achillis in order to ensure the maximum restoration of function.

CONCLUSIONS.

1. Treatment of congenital equino-varus should be commenced at the third or fourth week.

2. Repeated severe manipulation of the foot will be necessary to overcome the inversion and adduction of the foot.

3. Correction of the deformity should be followed by fixation in the position of correction obtained.

4. When the adduction and inversion of the foot have been corrected it will usually be necessary to elongate the tendo Achillis to complete the correction of the equinus deformity.

5. Other surgical measures must be adopted unless full true correction of the deformity has been obtained by manipulation and elongation of the tendo Achillis.

6. Division of the tibialis anticus is not necessary and may lead to subsequent cavus deformity of the foot.

7. We should insist on descent of the os calcis by division or elongation of the tendo Achillis if necessary, but we

8. In cases where simpler measures fail, a g result may be obtained by a resection of the subastragaloid joints.

Memoranda:

MEDICAL, SURGICAL, OBSTI

RUPTURE OF THE KIDNE

DELAYED SYMPTOMS: OPERATION: RE

THE case of injury to the spleen with delay reported by Drs. C. R. and C. J. Gordon Ta 24th, p. 962) leads me to publish the follo case of ruptured kidney, on which I operate ago, as it bears some points of resemblance a little out of the ordinary.

C. C., a boy aged 15, was admitted to the Blackhill, Durham, having been crushed between a motor delivery van and a lamppost. On admiss of pain in the left loin, the pulse was 126, and the normal; there was severe bruising over the lower that side, coupled with marked rigidity. I suspe a ruptured kidney, but thought it possible that h be accounted for by the shock and bruising; the every half-hour; the first specimen of urine, whi after admission, contained a little blood; there quently. He improved rapidly, pulse and temp to normal within twenty-four hours, and he st perfectly well; he remained in bed for four days, day after admission I examined him without d abnormal. Being by this time under the erro that he was well, I allowed him to go home on a distance of nearly two miles, which he walked.

I heard nothing of him for ten days, when I was him by his family practitioner. I can best descri by saying that his abdomen looked as if it cont uterus at full term, which had been split in h extremely cheerful, said that he felt in perfect and temperature were normal, and he walked dow A few hours after admission he got up and d night nurse was in another ward, and escaped through a lavatory window; his parents brought following morning. He then told me that his a menced to swell about three days after he had and that the increase in size had been gradual no inconvenience. On examination it was obvious was due to a tightly encapsuled collection of flui the diaphragm to the pelvis.

On the following day, under an anaesthetic, lumbar incision for exposing the kidney; about fo coloured serum and at t cavity I found le and blo divided at about e upper a I performed nephrectomy and left in a rubb Convalescence was uneventful.

I am still uncertain whether the collectio I released was the remains of a haemorrha was in the nature of an effusion due to the acting as an irritant. The boy never felt a ness, except as an immediate result of the was not until ten days after the accident any alteration in the contour of his abdom he had been leading a comparatively active and so continued until his readmission to h days after the original accident.

NOEL KE

Medical Officer in Charge
Blackhill, co.

MELAENA NEONATORUM TREATED OF PATERNAL BLOOD: REC

IT is not a little curious that I should rea for November 17th (p. 928) a description all dissimilar to one I saw just eight days second I have had in a fairly extensive of over forty years. This last case was of healthy appearance, and weighing a The labour was normal and easy; neithe forceps was necessary. The child had bee breast only twice when, thirty-six hour copious discharge of blood was evacuate This was repeated three hours afterwards

One other point: Mr. Elmslie speaks of incision and lavage of joints as being suitable to acute conditions only, and has little faith in such treatment in chronic cases. I agree; but there is a certain type of arthritic joint which is definitely benefited by this. Chronic arthritis of the proliferative type with chronic effusion, where the causative disease is intestinal (typhoid, dysentery, or *Bacillus coli*), responds well to this treatment. I cannot explain this, but have found it true. At first I opened the joint and washed it out with saline, but after reading in 1920 of the employment by Rocher of Bordeaux of ether to wash out joints through a puncture with trocar and cannula, I employed ether lavage through an open incision. Cases other than intestinal were disappointing, but the intestinal cases were all improved. The treatment is empirical, and whether the effect is due to induced hyperaemia, sterilization, or some other factor, it is hard to say. I am inclined to believe that the free admission of air to the joint is of value. Be that as it may, I can confidently recommend this treatment, in this type of case.

II.—HARRY PLATT, M.D., M.S., F.R.C.S.,

Senior Surgeon, Ancoats Hospital, Manchester; Consulting Surgeon, Grangethorpe Hospital (Ministry of Pensions), and Ethel Hedley Hospital for Crippled Children.

IN accordance with the suggestion of the officers of this Section my contribution will be limited to a consideration of the operative treatment of osteo-arthritis of the *hip-joint*. Although in the majority of cases this is a monarticular affection, it is not uncommon to find evidence of early arthritic changes on the so-called healthy side. It is important to examine the patient very carefully with this in mind, as the choice of the appropriate operative procedure and its scope will be influenced to some extent by the possible existence of a bilateral lesion. It should hardly be necessary at this date to dwell on the now well known fact that the term *morbus coxae senilis*, so often applied to the affection under consideration, is a misnomer. We may encounter the typical picture of osteo-arthritis of the hip at all periods of adult life—the arthritis deformans juvenilis, the common osteo-arthritis of middle age, and the classical osteo-arthritis of old people.

An increasing familiarity with the living pathology of this condition in its various phases, acquired as a result of a considerable number of operative exposures of the deformed joint, gives one a clear appreciation of the real mechanical significance of some of the outstanding pathological changes. Thus there is a tendency to regard the marginal osteophytic deposits as the essential cause of the limitation of mobility and pain. This conception, to my mind, is erroneous. In the florid arthritis deformans of the hip the dense infiltration of the capsule, which becomes shortened and adherent to the femoral neck, together with the expansion and mushrooming of the femoral head, constitute the main obstacles to free mobility. Later on, with the development of an adduction contracture, and the more advanced degenerative changes in the articular surfaces, the reason for the mechanical block is obvious. The severe pain is dependent on the friction and crowding together of the two eburnated bony surfaces from which every trace of cartilage has usually been lost at an early date. From such considerations it will be seen that the operation of simple *cheilotomy* is founded on an illogical basis. But the removal of the osteophytic rim of the acetabulum as part of a free excision of the infiltrated capsule is a conservative procedure of undoubted value in the early stages. I have done this on a few occasions where the amount of deformation of the joint did not seem to warrant the more radical operations of excision of the head of the femur, or arthrodesis. It is fair to recognize, however, that there is one type of case, admittedly rare, where simple exsection of the osteophytes alone is exceedingly effective. These are the hip-joints which show large isolated bony outgrowths of the stalactite variety, growing from the acetabular floor or from the margin of the femoral head. Such bizarre changes are atypical, and are not usually associated with advanced deformation of the femoral head or extensive loss of articular cartilage.

In actual surgical practice we are generally called upon to deal with osteo-arthritis of the hip in the matured stage in a patient who has passed through some years of ineffective treatment for so-called "sciatica," and who is becoming progressively crippled. The clinical picture varies considerably; many individuals look upon the limitation of mobility as a minor affair, but find the constant pain with its repeated severe exacerbations absolutely intolerable; in a smaller number (I am quoting my own experience) pain is a less conspicuous symptom, but the increasing stiffness is much resented. It is thus very necessary for the surgeon to appreciate the disability from the patient's own point of view.

Our collective experience of the late results of the major operative procedures employed for this condition has taught us that the majority of patients are well satisfied with a painless bony ankylosis of the hip. Thus as a fundamental consideration the operation of *arthrodesis* is to be regarded —in theory at least—as an ideal procedure. I feel, however, that there are certain objections to this operation in the case of older patients. In order to ensure adequate bony fusion of the femur to the acetabulum it is essential to remove in their entirety the layers of dense sclerosed bone which now represent the articular surfaces. This is accomplished without much difficulty after the femoral head has been fully dislocated. The operation, however, tends to be a lengthy one, and the duration of the anaesthesia is increased by some twenty minutes at least if a plaster-of-Paris spica be applied at its conclusion—a step which one feels is desirable, as Mr. Elmslie suggests. For these reasons arthrodesis, in my opinion, is applicable only for the younger or more robust patients. It is in those older patients for whom we consider arthrodesis a serious risk that the operation of *excision of the femoral head* finds a definite place. I have practised it now in some twenty cases with a clear appreciation of its limitations, but with the firm belief that in picked cases it is well worth while.

The details of the technique I follow have already been described in this JOURNAL (April 29th, 1922). The essential features are: (1) excision of the mushroomed femoral head; (2) abduction of the femur so as to bring the stump of the neck (previously rounded off) into the acetabulum; and (3) fixation of the great trochanter (which has been detached as part of the anatomical exposure of the joint) to the femoral shaft at a lower level, thus acquiring a position of mechanical advantage. The operation can be carried out rapidly, and I believe that it is much less provocative of shock than an efficiently performed arthrodesis. Its outstanding virtue is the relief of pain which follows; in addition the malposition of the joint is corrected, and a certain range of mobility is retained. In my earlier cases I was content with a relatively conservative removal of the femoral head, but now I advise and practise a much more generous resection. This is especially necessary where the opposite hip is the seat of a very early arthritic process.

Although as part of this discussion one has dealt with major operative procedures in some detail, it is desirable to emphasize the fact that, taking osteo-arthritis of the hip as a whole, it is only in a small proportion of cases that, after mature deliberation, we carry out such operations.

III.—D. McCRAE AITKEN, F.R.C.S.,

Surgeon, Ministry of Pensions Hospital, Shepherd's Bush, and Shropshire Orthopaedic Hospital.

MR. ELMSLIE, in opening this discussion, very properly laid emphasis on the septic or toxic factor in the production of the numerous varieties of osteo- and chondro-arthritis which can be quite fairly included in the vague term "arthritis deformans." Although Aphrodite may have risen complete and perfect from the sea foam, that is not the usual biological procedure; we expect to find an ovum at the beginning of life, and in the same way we may expect to find very small beginnings which are quite different in appearance from the fully formed picture of the disease found at an autopsy. Sir Arthur Keith, in his account of Hugh Owen Thomas,[1] points out that he started a new school of bio-pathology, as distinct from the Hunterian school of necro-pathology; he studied the gradual

able to visit. The treatment I adopted was a hypodermic injection of 4 minims of adrenaline solution; I had the child wrapped up in warm Gamgee tissue. When I saw him six hours later there had been another discharge from the bowel and a lesser one from the stomach; the child was blanched and the extremities cold. After again injecting 4 minims of adrenaline I followed it up with an injection into the abdominal wall (half on either side) of 10 c.cm. of warm blood which I drew off from his father's median basilic vein. There was no further haemorrhage, and although for a day or two he looked rather sickly he is in every respect well to-day.

Glasgow. JAMES HAMILTON.

A PRIMIPARA had been in labour for nearly forty-eight hours before forceps were applied. The child was born at 5.30 a.m. on November 11th; it weighed nearly 8 lb. At midnight on the following day I was informed by telephone that the child was passing blood from the bowel; there had been, I was told, slight bleeding at 10 p.m., but at midnight it was sufficiently profuse to saturate the clothing and cot. I asked that the father be sent for and proceeded to the maternity home. While awaiting the father there was more haemorrhage, and several ounces of blood were vomited.

At 1 a.m. on November 13th I gave the baby an injection consisting of 8 c.cm. of paternal whole blood with 2 c.cm. of hot saline into the buttock. There was slight bleeding at 2 a.m., and at 4 p.m. several large clots were passed by the rectum; therefore at 7 p.m. I gave another similar injection in the scapular region. There was no further haemorrhage. Small quantities of sterile water were substituted for breast-feeding for forty-eight hours, during which period the child lost 2 lb. in weight. On November 20th the child was having full feeds, gaining weight, and the bowels were acting normally.

I was extremely fortunate in having this case in the local Corporation Maternity Home, where nursing assistance of the highest order is available. I am indebted to Dr. Bailey for permission to record this.

Stockport. F. J. KITT.

Reports of Societies.

CHRONIC ABDOMINAL PAIN IN NERVOUS WOMEN.

A SPECIAL discussion on chronic abdominal pain in nervous women was held at the Royal Society of Medicine on Monday, December 17th; SIR WILLIAM HALE-WHITE, the President of the Society, occupied the chair.

Dr. ROBERT HUTCHISON said that there had been some difficulty in choosing a title to indicate the type of case they had in view. He had suggested "chronic abdomen," but the term had acquired a somewhat special significance; a more descriptive label, "those painful women," had been applied in America. Every medical man, however, would recognize the class in question. The typical patient commonly referred her abdominal pain to the right iliac fossa; with this were usually associated pains in other parts of the body, headache, constipation, menstrual disturbances, and various superadded mental states; she was introspective, not infrequently peevish, and craved for sympathy. On examination she was found to be ill nourished and of bad colour; visceroptosis, the "kinks" described by Sir Arbuthnot Lane, and gastric atony were generally associated. In his (Dr. Hutchison's) experience they were usually members of the upper classes and had few absorbing interests in life. Certain definite lines of inquiry were presented. It was necessary to decide to what extent the condition was due to organic causes, and what measure of relief might be expected from surgical treatment; on the whole a surgical cure was often impossible and rarely hopeful. It was not unlikely that some of these women had a lower threshold for pain; or the pain might be entirely imaginary or of an hysterical nature—it was commonly exhibited as a means of obtaining sympathy. The relation of the physical to the mental element was important; the primary source was not always obvious. Other possible factors were the effects of an artificial menopause or of repeated abdominal operations, and the influence of environment in the widest sense of the term. There was little doubt as to the general lines of treatment. Endocrine therapy was of questionable value, and surgery rarely effected permanent cures. Piecemeal operations were definitely productive of harm, and the various "pexies" had not generally met with striking success. Psychotherapy was likely to be an accessory of considerable account. On the whole, their solution of a very real problem had not been very satisfactory.

Dr. J. S. FAIRBAIRN said that many of these cases were presented to the gynaecologist. In addition to the pains described by Dr. Hutchison, they commonly complained of pain in the back and of a left-sided subumbilical pain, which was attributable to a congested ovary or to inflammation of that organ. Laxity of the pelvic floor was frequently associated. Many of the women were obviously suffering from over-doctoring; they could be regarded from as many points of view as there were healers of different parts of the body and the mind. There was a quite definite gynaecologist's type; but this was represented rather by the poor and overburdened mother of a large family than by the childless unoccupied woman of the upper classes to whom reference had been made. In the former, the "tired mother," the fatigue factor undoubtedly played a large part; but the symptoms were not markedly different. Another type was the woman with one child who had "never been the same woman since baby was born"; in this class of case there was a feeling of lack of pelvic and abdominal support, although the confinement had been perfectly normal. He generally advised these women to have another baby, but they rarely appreciated his advice—at any rate they never came to see him again. Undue importance had been attached to displacements of the womb; its position as such meant very little, and attempts to treat a complex condition by concentrating attention on that organ were futile. A radical change in environment was of the greatest importance in treatment; during the war he saw very few of these cases; since the war there had possibly been more than before. It was essential to restore the patient's confidence in her own body; this explained the apparently good effects of surgical treatment; if the operator and operatee were of suitable psychology the operation had a good effect on both! Frequent reassurance and restoration of the patient's physical condition, particularly her muscular tone, were invaluable; but there was no royal road to success.

Dr. JAMES COLLIER recognized four types of case. The first or hysterical type was quite distinct and often permanently curable. He described interesting cases of this class. The second type presented insane delusions and was uncommon. The third and fourth types were not infrequently associated. The one was characterized by a state of vigilant apprehension with undue tension and fear; although often a valetudinarian, her desire for health was constantly marked by anxiety. The symptoms were easily, though temporarily, removed by a dominant personality. The fourth and commonest type had physical cause for her sufferings; but that physical cause was almost invariably insufficient to account for the sum total of her symptoms. Consciousness of well-being was derived largely from sensations arising in the area of the splanchnic viscera. There was much truth in the ancient theories. In the majority of cases abdominal disorder was productive of almost ceaseless unrest. The source of trouble was probably a metabolic dyscrasia rather than a local abdominal lesion.

Dr. CRICHTON MILLER said that the vagueness of our knowledge of the etiology of these conditions was reflected by the palliative treatment only too commonly applied. The physically maladjusted were represented by three different groups. The amyotonic group was characterized by visceroptosis, etc., and tended to relapse; since all the abdominal organs were concerned, the only justifiable "pexy" was "panpexy." It was possible that the atonicity depended on calcium deficiency. The second or vagotonic group complained of chronic nausea with other associated symptoms, and suggested adrenal treatment. The

growth of crippling conditions in the living and devoted his life to the prevention of the development of crippling diseases.

In pursuit of this idea, I maintain that we as orthopaedic surgeons discussing this large subject must look for the beginnings of the trouble, and, while we cannot omit the aid of the physician and the expert in the production of vaccines, our own particular *métier* is dealing with the traumatic element. My firm personal belief is that trauma is the actual cause of deformity in every case of arthritis deformans. The toxic or septic agent causes inflammation with its attendant hyperaemia and congestion in and about the joints. In 1863 Hilton published his lectures on *Rest and Pain*; at the same time Hugh Owen Thomas was devising splints to put joints at rest without necessarily having to put the patient to bed. The marrow of the whole matter is to be found in correlating the teachings of Hilton and of Thomas. The Liverpool school will keep the teaching of Thomas green for years to come. Is Hilton honoured in his own school as he should be?

Following Thomas's method of attacking the subject, I would divide the procedures of the surgeon into two groups —the first, bloodless methods; and the second, methods by open operation.

1. *Bloodless Procedures.*

I recognize four types of procedure, which I shall take in order of severity:

(*a*) Prevention of mechanical injury to pads of fat and to congested synovial membranes by suitable splint. One case suffices to illustrate this. We are all familiar with the patient who complains of pain in the middle of the front of the knee after walking, and especially of trouble in negotiating stairs. On examination it is found that full extension by the surgeon causes pain and that the patient will not voluntarily extend through the last few degrees, but the *x* rays show little or no osseous change. All the mechanical help he requires is a knee-cage adjusted to prevent full extension which nips the congested structures in the front of the joint. The patient then finds that he can walk with less pain or none at all, and in the meantime the physician gets a fair field for his therapeutic measures.

(*b*) Cases in which the *x* rays still show very little osseous change but there is a definite deformity, due largely to shortening of muscles, usually flexor muscles, the result of long retention of the joint in wrong position. Probably the source of infective trouble has been already dealt with by the physician, but the orthopaedic consideration of the case has been omitted. This type requires correction of the deformity under an anaesthetic, followed by strict fixation in the corrected position, until adaptive changes have occurred and the correction is thus established.

In both these types re-education of the weaker groups of muscles is an essential part of the treatment.

(*c*) Cases in which the *x* rays show hypertrophic changes round the margins of the joint, but the actual weight-bearing surfaces seem clearly defined. For example, at the hip-joint the patient complains of pain after walking almost more than when walking. On examination there is a limited range of movement free from pain; but an attempt to force the movement beyond this causes pain. In many of these cases the pain is caused by stretching adhesions which have formed about the joint and not by grinding of inflamed joint surfaces. If the surgeon is satisfied on this point and is also satisfied that the source of infection is cured or under control, then the adhesions may be broken down without fear of lighting up fresh inflammation, and this in many cases increases the range of movement and so relieves the pain, which is due to tension on adhesions.

(*d*) Cases in which obstructions within the joint are occasionally amenable to treatment by manipulation. For example, cases of osteo-arthritis of the knee with bony and cartilaginous masses within the joint so situated that the patient cannot bear weight on the knee can sometimes be relieved by a manipulative treatment to get the masses moved to some part of the knee in which they cause no trouble.

I have been privileged to see and assist Sir Robert Jones manipulate several such cases. Many of the cases have been very satisfactory to the patients and most surprising to me. I do not suggest this as a routine procedure, for it requires more judgement in the selection of cases than I feel I have yet acquired, and it requires some courage to face the situation if the procedure is not successful.

2. *Open Operations.*

These, I think, fall into the following categories:

(*a*) Operations involving removal of soft parts which have become thickened by repeated injury *plus* the congestion caused by toxic influences and have become mechanical obstructions to movement. Such operations are commonly performed at the knee, less often at the ankle, about the head of the radius, more rarely at the wrist-joint. The procedure is in every way comparable to removal of a crumpled semilunar cartilage at the knee.

(*b*) Operations for the removal of limited portions of bone or articular cartilage which are hypertrophied and causing obstruction and pain. These cases fall into two subdivisions:

(i) Those cases in which overhanging lipped edges of joint surfaces obstruct the free movement of tendons or aponeurosis, causing snapping of the joint with pain and considerable disability. A common example of this is found along the margin of the articular surfaces of the condyles where outgrowths of bone obstruct the free movement of the aponeurosis of the vastus muscle. Mr. Verrall removes these, leaving a raw surface of bone which he treats with wax. My procedure is, wherever possible, to leave the articular cartilage, but to cut away subjacent bone and then press down the cartilage so that the edge of the articular cartilage meets periosteum; thus I try to leave no bare or exposed bone within the joint. Of course, all masses of congested fat and synovia are removed.

(ii) The second class is where the outgrowth of bone and cartilage impinge on the opposite bone. The most common example of the type is to be found at the anterior lip of the articular surface of the tibia. In the skiagram [exhibited] the bone as well as the cartilage may be seen heaped up in a ridge or crest. On opening the joint the cartilage is seen to be red and hyperaemic and a similar hyperaemic line is found opposite it on the condyle. Behind this crest there is usually a pocket of hyperaemic soft parts and, perhaps, remnants of a semilunar cartilage. These should be removed as a matter of routine. But here again I cut away a wedge of bone under the redundant edge and depress it. The fact that the patient allows full extension of the knee immediately after the operation and gets up and walks with comfort eight or ten days later is to me a satisfactory proof that the operation clears away the cause of his trouble, and I think the avoidance of bare bone within the joint diminishes the risk of subsequent adhesions.

I understand others will deal more fully with the questions of arthroplasty and arthrodesis, so I may close with only one more remark. The treatment of the source of infection must not be omitted and should precede treatment by open operation, but may run concurrently with treatment by rest in splints.

REFERENCE.

[1] *Orthopaedic Surgery of Injuries.* Edited by Sir Robert Jones, vol. i, p. 1.

IV.—C. MAX PAGE, D.S.O., F.R.C.S.,

Surgeon to Out-patients, St. Thomas's Hospital.

I PROPOSE to limit my remarks to the practice and results of arthrodesis of the large joints of the lower extremity.

The operation of arthrodesis is certainly the most radical and final method of dealing with the condition under discussion. It cannot be regarded as ideal, in as far as the function of the joint is completely eliminated. Moreover, though the production of a complete ankylosis removes all pain in the joint affected, it exposes neighbouring joints to unusual strain and may be productive of secondary changes and pain in them.

One cannot but feel that in order to size up the relative value of the various operations for osteo-arthritis at present under trial we have need of the careful record of a series of cases over a prolonged period. I confess that I am sceptical as to the number of radical cures which can be looked for from what may be termed the minor operations.

In regard to the operation of arthrodesis, I have practised it in some 30 cases involving the knee and in 27 involving the hip-joint. These operations have been carried out too recently to make it possible to assess their final value.

The operation of excision of the knee to produce bony ankylosis is a straightforward one and need not be further discussed. Its immediate results are certainly most satisfactory, and from general experience the fixation does not appear to involve severe stress on neighbouring joints.

In the case of the hip an arthrodesis is not so easily

real to the subject and demanded treatment of some kind. There was a large class of case in which pain represented a defence mechanism. Analytical psychology provided a field of investigation of the utmost importance.

Dr. E. I. Spriggs confessed his outlook to be material. This was the result of his experience in dealing with a number of these cases at Duff House and Ruthin Castle. If pain were persistent and consistent, some physical cause was almost invariably found sooner or later on careful examination. The diagnosis of neurasthenia was usually wrong and invariably dangerous. The symptoms of definite lesions had also been wrongly attributed to auto-intoxication in many instances. Lesions of the biliary tract, calculi, etc., were frequently overlooked in this connexion. Adhesions were sometimes very painful, and there was always a possibility of relief by surgical operation. Where loss of tone, visceroptosis, and constipation were associated, the former was the primary factor. It was most important to devote plenty of time to treatment; this often meant a saving in the long run. In every case it was essential to investigate thoroughly and not to stress the nervous element. Surgical treatment, if indicated, should not be postponed. It was wrong to operate for visceroptosis as such.

Dr. M. Culpin outlined his views as a psycho-pathologist. He first referred to the effects of continued emotional states in producing motor and secretory changes—the emotional dyspepsias. Motor and secretory disturbances also resulted from states of anxiety. The stance of the nervous child, described by Dr. H. C. Cameron, was also familiar in the nervous adult, in whom it was accompanied by visceroptosis. With respect to the craving for sympathy, it was difficult to imagine that intelligent people should have this particular end in view. It was important to remember that patients suffering from concealed obsessions frequently took refuge in expressed physical symptoms; the object of treatment was then to refer back the symptoms to their original plane. One of the dangers of "team" investigations by a series of specialists was the direction of the patient's attention to the various organs in the body, with possible transference of symptoms. The patient might not be conscious of the actual anxiety; at the same time she might recognize the cause of anxiety on the one hand and the secondary abdominal symptoms on the other, without associating the two. Generally speaking, there were two classes of case: the neuroses, in which continued emotional states had resulted in physical effects; and the psychoses, in which a purposive element arose.

Dr. J. A. Hadfield regarded the physical basis as inadequate, although the conditions had nearly always originated in some form of organic disease at one time or another. Sensation might persist as an image; all pain was mental whatever its source. The majority of these hysterical conditions were due to disturbances in the sexual functions—not only to suppression, but also to such indirect causes as the fear of cancer, etc. Marriage was a common remedy, but by no means an invariable cure. Sex desires were not necessarily accepted as such. The craving for sympathy might be unrecognized and unconscious. Other hidden causes were jealousy; early sex traumata; sadism, the symptoms providing the patient with a means of tyrannizing over the household; and masochism, the symptoms resulting from an unconscious desire for pain.

Dr. T. Stacey Wilson considered that symptoms frequently arose from a hypertonic condition of the colon.

Dr. Robert Hutchison, replying to the discussion, said that two schools of thought had been represented. The psycho-neurologists had emphasized the fact that pain might be perpetuated for psychic purposes, whatever its original source; and it was certainly essential to recognize the mental side of the question. He regretted that no surgeon had given them an account of the results of colopexy and other operations.

Dr. Fairbairn, in a brief reply, said that although colopexy had possibly not had a fair trial, it would probably disappear in course of time, as nephropexy had already

A joint meeting of the Medico-Chirurgi burgh and the Tuberculosis Society of S Edinburgh in the Hall of the Royal C on November 29th, Sir Robert Philli College, occupying the chair. An add by Professor Theobald Smith of the R on "Some aspects of the tuberculosis experimental and comparative stand ducing the speaker the Chairman m fessor Smith had practically grown up w of bacteriology, to which he had contrib researches involving great technical s a pupil of Pasteur and Koch, and maint with a philosophical outlook in all h bacteriological work.

Professor Smith reminded his audie last forty years three lines of attack developed—namely, (1) prevention, bacterial approach; (2) immunization, resistance by means of an antigen; (3) the lines used against syphilis, etc. C the development of our present know out, such as Villemin's experiments i covery of the bacillus in 1882, the di claims made for, tuberculin in 1890, th channels of infection, the results obtai experiments in differentiating the bovi organism in 1898, and finally Koch's s to the difference between bovine and Professor Smith then dealt with ce comparative pathology which shed s problems of the pathology of human tu had the opportunity of studying 500 p tions in cattle, and in this way had series of pictures extending from th stages of the disease. In most of th the thoracic lymph nodes were affected, to trace in this way the path of absor tissue. The posterior lobes, analogous lobes, were found to be the most co The frequency of apical disease mig the poor physiological position of t compared with the lower lobes, where disease probably occurred. Infection p through the digestive tract at the sam were also present to show that seco not occur. Bovo-vaccination experim at Boston with human bacilli, and munity resulted. Control experiments bacilli, introduced subcutaneously or duced miliary tuberculosis, but simila vaccinated cattle only produced, after a chronic bronchopneumonic tubercul tissue destruction. Another series of that although human tubercle bacill definite disease in cattle, yet they ma for years, and such prophylactic va therefore impossible. Finally, he refe results obtained by public health a mass infection by bacilli. We becom early life, and develop our natural resist further infections. Three gr may be distinguished—namely, those resistance, those with good natural between these two extremes (the ma tion). In the first group vaccination is unnecessary, but in the third vacci scale by bringing about increased pow

TUBAL PATENCY IN ST

At a meeting of the Section of Obs Academy of Medicine in Ireland held with the President, Dr. Louis Cassi Bethel Solomons showed some mod apparatus for demonstrating patency of sterility. He had been interested

effected by operation. After the trial of several methods, I have come to the conclusion that it is best to approach the joint by means of the Smith-Peterson incision. The head of the femur is completely dislocated forwards after incising the capsule of the joint; the head of the bone is then denuded of all cartilage and the compact bone cut away with the broad gouge until cancellous bone is exposed; the acetabular cavity is then treated in the same way. The clearance of the acetabulum is not always easy in a stout patient, but is certainly simpler when the above described incision is employed than when the posterior or external route is adopted. At the completion of the operation, the head having been replaced in the acetabulum, the limb is fixed in a position of abduction and slight flexion in a plaster-of-Paris spica. In all cases in which there is much spasm of the adductors I tenotomize them freely in order to facilitate the maintenance of position. I have adopted the same after-treatment as is advocated by Mr. Elmslie.

I have carried out this operation in patients whose ages range from 30 to 70. My impression is that in young men it is the operation of choice. In older patients a certain proportion develop pain in the sacro-iliac joints and lumbar spine. I think that for these other cases the procedure advocated by Mr. Platt is a more satisfactory one.

It is often stated that operations of this nature are associated with serious shock; I have not experienced this complication in any instance either during operation or in the twenty-four hours following it.

V.—W. ROWLEY BRISTOW, F.R.C.S.,

Orthopaedic Surgeon, St. Thomas's Hospital.

I WOULD express myself in agreement with most of what Mr. Elmslie has said in his opening remarks.

With regard to the surgical treatment of osteo-arthritis of the hip-joint, I would emphasize the fact that it is absolutely necessary to assess accurately the patient's disability before deciding to perform a major operation on the hip. The question to be answered is: will such operation satisfy not the surgeon, but the patient? If the degree of disability is great, and above all if the pain is very severe and remains unrelieved by simple treatment, undoubtedly operation is both justifiable and indicated, and I would suggest that the amount of pain complained of should in most cases be the deciding factor. It must be recognized that the result either of excision of the hip or arthrodesis is not a perfect limb. Some speakers favour fixation, some excision. In my opinion, in younger patients fixation (arthrodesis) is the operation of choice, because the loss of hip-joint movement is to some extent compensated by movements of the lumbar spine In old subjects I think excision gives the better result. The fixation of the hip in these patients, in some instances at least, gives rise later to pain in the lumbar spine and neighbourhood of the sacro-iliac joints, which pain may be as bad as that for which the operation was originally undertaken. I would agree that forcible mobilization under an anaesthetic and a weight-relieving calliper or walking appliance are methods which have great use, and for the application of which there is a large field.

With regard to osteo-arthritis of the knee, we are, I think, all agreed that arthrodesis of the knee-joint is a most satisfactory operation, and should invariably yield a good result. The pain is cured and the patient is enabled to get about with comfort. But in the case of marked changes in both knee-joints with fixed flexion deformity, is it justifiable to fix both knee-joints? My impression is that a patient so treated is better off than one with a deformed and painful knee, recognizing at once that the ultimate disability must be severe. I would like to hear an expression of opinion on this point.

With regard to the more tentative operations which have been mentioned it is difficult to be certain that any beneficial result is due to the operation. Naturally, a loose body or torn cartilage should be removed even in the presence of some degree of arthritis. But the mere opening up of a joint and washing it out should, I think, only be resorted to in rare instances.

VI.—SIR ROBERT JONES, K.B.E., C.B., F.R.C.S.

THERE are only a few points which I should like to emphasize in connexion with the treatment of osteo-arthritis. The first is the paramount importance of resting a painful joint. Incalculable harm is done by the advice which is sometimes given to move the joint for fear it should get stiff. In the earliest stage of trouble in the knee, in which the patient finds that he cannot fully extend the joint without pain, but that flexion is painless, the simple device of fitting a knee-cage which prevents full extension eliminates that part of the movement which is harmful, so securing the required rest without laying the patient up.

In later stages, for example in the hip-joint, cases are found with great deformity and but little pain, and vice versa. These require careful discrimination. In some cases there may be comparatively free mobility in certain directions with marked limitation of movement in another. This limitation of movement is often due to periarticular adhesions which cause pain when they are stretched. Hutton used to manipulate these cases, breaking down the adhesions, with great advantage to his patients. The condition is particularly common in hunting men, who often complain of the limitation of abduction. Manipulation to break down adhesions and increase abduction often enables these patients to sit a horse without pain.

In cases of arthritis of the hip of the hypertrophic type, with much pain which persists in spite of rest, open operation may become necessary. My experience of dislocating the hip in order to reshape the head of the femur is that it is provocative of much shock, which is a serious consideration, for these patients are usually elderly people. Therefore I would advocate an operation which can be performed rapidly without much shock.

In unilateral cases with free movement of the other hip a firm painless ankylosis is often the result to be found. Approaching the hip-joint by the Smith-Peterson incision, a large part of the head and acetabulum can be stripped of cartilage without dislocating the joint, and then, as firm arthrodesis is often difficult to obtain, I usually detach pieces from the ilium round the acetabulum to fill the gap between the head and the acetabulum.

In cases where both hips are affected with stiffness and pain it is desirable to have one movable hip, and also desirable to have as little shock as possible. If a rapid excision is required the same approach may be used as in that for arthrodesis: the neck of the femur is divided, the enlarged head removed, and the stump of the neck placed into the acetabulum. The limb is then placed in abduction. On some occasions I have produced a pseudo-arthrosis of one hip by removing about 1½ in. of the femur just below the great trochanter and placing a little muscle between.

In old people with very painful hips it would be sufficient to perform an operation in which the head of the femur need not be removed, and this would consist of a separation of the trochanter, a removal of a portion of the neck, and a fixation of the trochanter, with muscle attached, to the portion of the neck contiguous to the head which is not removed from the acetabulum.

With regard to ankylosis of both knees, my experience is that the disability is not so terrible as might be expected. In cases where both knees are stiff and painful I prefer to straighten one knee and ankylose the other in a slightly flexed position.

Mr. ELMSLIE (in reply) said that the term "arthritis deformans" had been originally used in the suggested topic for discussion. It was conveniently wide. Treatment by rest and manipulation was left out of discussion by definition, but he employed these methods much. He had no anxiety over shock, which was avoidable by a good anaesthetic and immediate relief of pain after operation. After excision of the knee, plaster should be applied from foot to pelvis. Double ankylosis of the knee was not so terrible as people thought, especially in a child. Physicians should be educated to believe that patients would stand shock, that operations were simple and safe, and that excessive temporizing with mechanical defects was unsatisfactory.

some time and had used at first the flow volumeter which von Graefe favoured and which Dr. Theobald had lent to him. Two of his students, W. H. Ashmore and W. P. Murphy, had made the apparatus which he now demonstrated. The cases in which it was used were those of sterility in which it was impossible to ascertain definitely by bimanual examination whether the tubes were patent; he had also used it as a check on cases of resection of the tubes. There was no necessity for x rays, the manometer gave reliable knowledge as to the state of the tubes, and auscultation over the tubes determined the diagnosis. Adventitious sounds from the pubic hair and intestines might cause fallacies and the manometer must be chiefly relied on. Great care must be taken to exclude pus tubes, and it was unwise to dilate the cervix before inflating, for clots might block the tubes. He followed Rubin's teaching, and the rate of flow was a rise of 100 millimetres in fifteen seconds. In cases of patency the rise varied between 20 and 100, and in cases of blockage he never allowed the gauge to register more than 160. In only one case out of forty-nine done was it impossible to pass the sound because of extreme stenosis of the cervix. He had not met with any difficulty from escape of oxygen in the case of lacerated cervix when dealing with one-child sterility, neither had he found the tests fallacious in the pre-menstrual stage. Great care must be exercised in cleaning the sound.

The PRESIDENT said that he would like to know on what Dr. Solomons based this manometer figure of 100, and if he had used the apparatus in control cases of pregnant women. Regarding pus tubes, the settling time of serum in the body was an excellent way of determining whether pus was there or not. He considered this apparatus a good one.

Dr. GIBBON FITZGIBBON thought this apparatus might be particularly useful in cases which would be operated on for sterility, and in cases in which there was doubt about the state of the tubes, since by means of it it would be possible to see whether the tubes were patent or not; if the tube was thickened it was pretty certain to be blocked. If the manometer went up above 100, it generally rose to 200, but as a rule it kept between 70 and 90. He had found that if patients were given too much oxygen they suffered a certain amount of epigastric discomfort when they got back into the upright position, and therefore overinflation of the tubes must be avoided.

Dr. J. S. ASHE asked Dr. Solomons if, when using the apparatus, he had found much difference between CO_2 and oxygen.

Dr. G. W. THEOBALD showed a copy of the original apparatus, which he had brought from Vienna, and which was now being used in the Rotunda Hospital. In all cases in which they had opened the abdomen the instrument had proved correct. The cases in which it would be most advantageous were those in which the tubes were normal but the fimbriated ends were closed.

Dr. D. J. CANNON thought this instrument would be useful in case of acutely anteflexed uterus and in cases of erosion of the cervix; it was also a good method of dealing with stenosis of the Fallopian tubes as the result of infection. The instrument should not be used in the pre-menstrual stage.

Dr. R. J. ROWLETTE asked if this instrument was meant to be used for diagnostic purposes or for treatment. The one possible danger was that of conveying infection from the uterus to the tubes, and in many cases it must be very difficult to know whether there was infection in the uterus or not. He would like to know if there was any danger of bursting the tube, by bringing the pressure to bear on it too suddenly.

Mr. W. H. ASHMORE (who made one of the instruments shown by Dr. Solomons) said that the instrument was made bulky so as to enable it to hold one pint of water before the oxygen was put into it. There were two objectives served by this instrument: (1) to find out the patency of the tubes, and (2) to get a view of the peritoneum, so that afterwards pictures could be taken of it.

Dr. SOLOMONS, in reply, said that he regarded Rubin's work as a great advance in gynaecology; the apparatus shown was a valuable asset in gynaecological diagnosis. There was no need to determine the settling time of serum if care was exercised in excluding acute gonorrhoea and pus tubes. Transmigration of an ovum from one ovary to the opposite tube was possible though unlikely. In spite of what Dr. Cannon had said he intended to use it in the pre-menstrual stage until he found it misleading, but he would not employ it in any case of peritonitis. The instrument was used first for diagnosis and secondly for dilating the patent tube.

The PRESIDENT read a paper on "The education of the female child," and in the ensuing discussion the following took part: Dr. BETHEL SOLOMONS, Dr. ELLA WEBB, Dr. BRIAN CRICHTON, Dr. J. S. QUINN, Dr. R. J. ROWLETTE, Dr. G. W. THEOBALD, and Dr. D. J. CANNON.

The main points raised were coeducation of the sexes, the avoidance of constipation, the treatment of the menstrual periods, and instruction in matters of health.

A PATHOGENIC ANAEROBE IN TUBERCULOSIS.

THE second pathological meeting of the Liverpool Medical Institution was held on December 6th.

A note was read by Professor E. GLYNN, in association with Professor J. HILL ABRAM, on a case of acute miliary tuberculosis chiefly of the mesenteric glands, in which an anaerobic infection was also found. The patient had suffered from "influenza" twice during the past year, and also from pleurisy. Weakness had been increasing for six weeks before admission. He died three days later, the temperature having ranged between 103° and 105°. The lymph glands and spleen were enlarged, but there were no other localizing signs, except a systolic murmur at the apex. Blood cultures yielded *Staphylococcus albus* consistently. Red blood cells were 3,000,000, with a few normoblasts and megaloblasts. The white cells were 12,000 per c.mm., with a preponderance of lymphocytes. At the *post-mortem* examination eleven hours after death the ileocaecal glands were found to form a mass the size of a hen's egg; they were haemorrhagic and contained large numbers of tubercle bacilli. *Staphylococcus albus* was also recovered from cultures. All other lymph glands somewhat enlarged. There were gas bubbles in the portal system and large numbers of Gram-positive bacilli in the liver, which proved to be of the *B. aerogenes capsulatus* type. The liver contained also typical caseating tuberculous nodules and haemosiderin. In the lungs was a patch of grey hepatization, in which great masses of organisms resembling pneumococci were present. A similar case of miliary tuberculosis affecting mainly the mesenteric glands, but without the *B. aerogenes capsulatus* infection, was described. The patient had not the anaemia of the pernicious type found in the first case. Of the four organisms detected at death the anaerobe was the most likely to have been the cause of this anaemia. Other cases were quoted in confirmation of the opinion that in this particular patient the anaerobe was present in the blood during life.

Professor HILL ABRAM and Mr. MORRISON thought the infection was probably a terminal one; the latter mentioned that the typical blood picture seen in *B. aerogenes capsulatus* infections was not present. Professor BEATTIE thought that the multiplicity of organisms present might explain the rapid multiplication of tubercle bacilli.

A note was read by Mr. JOHN T. MORRISON on the differentiation of human and bovine tubercle bacilli. Alluding to the need for a reasoned consensus of opinion on this subject, he proceeded to sketch the differences recognized between the two types and showed illustrative specimens of cultures and animal inoculations. Attention was drawn to the variations in results even in animal inoculations. Dean and Todd and others had shown the inaccuracy of Koch's original statement that animals could not be infected with human bacilli. In the rabbit the results of inoculation were usually conclusive, but variations here also suggested that the number of organisms injected might materially influence the decision. The findings of the Royal Commission with regard to the question of the stability of types were quoted, and the importance of exceptional cases pointed out, where by passage through animals or by culture methods definite changes type had been produced. These observations supported the view of Besson and others that the two organisms were

ACUTE RICKETS IN LATE CHILDHOOD AND ADOLESCENCE.

BY

E. LAMING EVANS, C.B.E., F.R.C.S.

THE experimental work on the etiology of rickets in animals, leading up to that of Mellanby in 1918, and carried on since that date by a large number of investigators, together with the truly scientific methods for the prevention and treatment of rickets in infants afforded by Professor Pirquet to Dr. Chick and her colleagues in Vienna, has added fresh interest, not only to the question of rickets in infancy, but also to the sporadic cases of rickets occurring in late childhood and adolescence. In addition, the great war has afforded us increased material of late rickets, and has tended to elucidate the problem of the connexion between that disease and hunger osteomalacia.

The question arises: Have recent experimental and clinical observations brought us nearer to the solution of the problems whether late rickets can arise *de novo*, or is merely a recrudescence of an earlier rachitic state, and whether the etiology of late rickets is identical with the infantile form?

I have used the word "acute" in the title of this communication so as to include a general metabolic change and to exclude the ordinary adolescent deformities such as scoliosis, genu valgum, coxa vara, etc. In this sense it is synonymous with the term "florid" used in infantile rickets. I do not use the term as implying haemorrhages which are due to a scorbutic element coexisting with the rachitis.

The question whether acute rickets occurring in adolescence is a recrudescence of a former rachitic metabolic vice or is a new metabolic change has occupied the minds of former reporters. To differentiate the two conditions reliance has been placed upon the permanent stigmata of rickets as evidence of a former rachitic state. Briefly, such stigmata consist of stunted growth, shape of the cranium, rachitic deformities, especially of the long bones. No reliance can be placed upon family history, for we all know the parental surprise when the true nature of florid rickets is first communicated either to the careful or careless mother. But the milder forms of infantile rickets are common and so readily curable with advancing age, ing no permanent stigmata, that it is an impossible to exclude a mild degree of early rachitic metabolic ge at the time of life when late rickets is prone to cur. I should suggest that the real importance is to differentiate between the infantile form which has continued into late childhood uncured and in which the stigmata are so well marked as to be with difficulty unrecognized, and those cases of florid rickets which are unassociated with evidence of former rickets.

Definition.

The essential feature of rickets is a disturbance in the metabolism of the growing organism in which the calcium and phosphorus in the circulating fluid are unbalanced, in consequence of which calcium is no longer deposited in bone. The blood changes consist of a diminution in the organic calcium or phosphorus, or both. Normally, serum contains 10 mg. of calcium and 5 mg. of phosphorus per 100 c.cm. One or other may be diminished in rickets. Thus two forms of disturbance in salt equilibrium may be present: (1) Calcium may be low and inorganic phosphorus may be about the normal; (2) phosphorus may be low whilst calcium is about the normal. In the low calcium form of rickets the symptom complex of tetany is prone to occur.

The first detectable sign of rickets is probably the diminution of the inorganic phosphorus or calcium of the blood. A more systematic examination in the future may reveal that childhood is not infrequently the seat of a low calcium and phosphorus blood state, a pre-rachitic condition which only exceptionally proceeds to a state recognizable by *x*-ray or clinical examination of the bones as rickets. Hess[1] has pointed to a seasonal variation in the calcium and phosphorus contents of the blood, corresponding to the seasonal variations in the occurrence of rickets. Further observations are required on this point.

The subjective character of the changes in the soft tissues exclude their adoption as criteria of the disease, which is admirably demonstrated by the *x*-ray appearances of the ends of the long bones. The changes at the ends of the long bones are so characteristic and so easy of demonstration that they are now universally used as the criterion of rickets.

The *x*-ray appearances in the long bones in florid rickets depend upon the decrease of calcium salts and the increase in osteoid tissue. The shaft presents: (*a*) thickening of periosteum; (*b*) enlargement of medullary cavity; (*c*) abnormal curves, corresponding to mechanical causes. The epiphysis shows, in place of a definite well defined shadow, a cloudy area containing one or more ill defined centres of ossification. The diaphyseal end is ragged at its attached surface and is broadened, overlapping the epiphysis, especially upon its weight-bearing side. The cartilage of conjugation may show a linear ossification bisecting the cartilage into two thinner discs. It is an early sign of recovery, and is known as the line test.

As our present knowledge of the causation, prevention, and cure of rickets is based upon experimental work on animals and clinical observations on man, objection may be raised as to the identity of experimentally produced rickets in animals and that occurring in the human body. The evidence is overwhelming that the conditions are the same. The skeletal lesions are identical macroscopically and microscopically; the blood changes are the same; tetany may accompany both forms; the same remedies are effective in both.

Age Incidence in Rickets.

The age incidence of rickets is important in explaining the infrequency of cases of late rickets. The premature child is peculiarly susceptible to rickets, even when well breast-fed; the earlier premature child is more liable than the later premature child, and the explanation has been offered that the rate of subsequent growth is inversely proportionate to the age of the individual. In early infancy the same rule applies, and so on in childhood. Rickets only occurs during growth. The calcium and phosphorus blood contents become more constant and tend to smaller variations from the normal with increasing years.

Seasonal Variation in Rickets.

There is a well marked seasonal variation in the onset of rickets. Children born in the autumn are more liable to rickets than children born in the spring. Likewise rickets tends to a spontaneous cure during the summer months.

Geographical and Racial Distribution.

Certain facts are well established. The negro child in Africa does not develop rickets, yet the negro and Italian children in American cities are especially susceptible. Chinese and Japanese children rarely develop rickets. Esquimaux children are free, though they live in dark huts, and, for half the year, in Arctic twilight.

Our Present Conception of the Metabolic Change in Rickets.

The problem presents enormous difficulties for its solution. Two factors appear to be effective in regulating the salt absorption by bone tissue:

(*a*) A factor X, which is generally present in association with fat-soluble A and which has hitherto been generally known as fat-soluble vitamin A. The reasons that the antirachitic X and fat-soluble A are not identical have been shown by Hopkins,[2] who oxidized cod-liver oil for four hours at 120° C., destroying the A but not X. Cod-liver oil contains A and X abundantly. Butter contains A but very little X.

(*b*) A radiant energy, which is present in the solar spectrum and emanations from mercury-vapour quartz lamp. Thus, the addition of X to the diet, or of radiant energy to the environment, invariably cures rickets if established, or prevents its development without change of diet or conditions of life.

The human organism appears peculiarly dependent on the presence of this radiant energy or its equivalent in

source of the infecting bacillus, and on such conclusions they were justified in basing public policy in the campaign against tuberculosis.

ENLARGED TONSILS AND ADENOIDS.

SIR JAMES DUNDAS-GRANT opened a discussion at the West London Medico-Chirurgical Society on December 7th, on vexed questions concerning enlarged tonsils and adenoids. He reviewed the various opinions that had been expressed as to their functions, and considered their protective effect when healthy, especially in the earlier years of life, and also their injurious influence when diseased. He raised the questions as to whether the presence of enlarged tonsils and adenoids predisposed to infection, and whether their removal afforded greater immunity. He had been able to have these matters tested in a London school of 1,000 children, with the following result: During 1923, 43 of the children had suffered from scarlet fever; 99 in the school had been noted by the school doctor as having enlarged tonsils and adenoids; of the remaining 901, 33 caught scarlet fever, or only 1 in 28; of the 99, 10 caught scarlet fever, or 1 in 10; of the 99 with tonsils and adenoids, 9 had had them removed and not one of these caught the disease. One little girl, aged 12, was persuaded with difficulty to have the operation in March, 1923. She escaped scarlet fever, although the other members of her family (two brothers) attending school had had scarlet fever since that date.

The results would seem to show that attention to enlarged tonsils and adenoids would diminish the incidence of scarlet fever, and since scarlet fever was one of the chief causes of acute rheumatism, with its attendant heart diseases, and chorea, it would lessen the incidence also of these scourges.

He considered that enucleation by dissection was the ideal operation, especially in cases of local or general infection, or when an insufficient operation had been previously performed; he found Norval Pierce's enucleator the most useful. He stated the case for preferring guillotine enucleation, especially if carried out in the upright position with a good reflected light, with the short anaesthesia (ethyl chloride), good view of the parts, slightness of haemorrhage, and rapid recovery. In cases where operation had been impracticable, he had found that iodine 6 grains, acetic ether 2 drachms, and glycerin 6 drachms, well shaken up, formed a pleasant and effective application. He had found also, by testing with starch, that the iodine penetrated the tonsils, probably owing to the presence of the ether. He advised great caution in the use of breathing exercises by children with obstructed noses in view of Muller's classical experiment, in which the pulse disappeared, owing to dilatation of the thoracic organs, when a strong inspiration was made with stopped mouth and nose.

The following took part in the discussion: Mr. H. TYRRELL GRAY, Dr. F. J. POYNTON, Dr. A. SAUNDERS, and Dr. F. G. LLOYD.

AT a meeting of the Aberdeen Medico-Chirurgical Society held on December 6th, with the President, Dr. G. M. DUNCAN, in the chair, Mr. ANDREW FOWLER read a short paper, illustrated by diagrams, on an unusual case of strangulated hernia with reduction *en masse*, rupture of the sac, and gangrene of a loop of small intestine about ten inches long. Operative treatment, including resection of the gangrenous gut and an end-to-end anastomosis, was completely successful. Mr. G. GORDON BRUCE gave a clinical demonstration and a very full account of a case of cleido-cranio-dysostosis in a female of 25 years, and Dr. ALEXANDER LOW dealt with the morphology of the above condition.

A MEETING of the Bath Clinical Society was held at the Royal United Hospital on December 7th, with the President, Dr. W. P. KENNEDY, in the chair. Cases were exhibited illustrating the following conditions: osteitis deformans and

eyeball by a pedicle flap. Dr. PRESTON KING re national health, dealing with the defects of the and pleading for the necessity of a still close between the medical profession and the State of preventive medicine.

AT a meeting of the Yorkshire Tuberculosis S Leeds on November 24th, with the President, I the chair, Dr. J. L. STEWART, Tuberculosis Offic County Council, spoke on *x-ray work* as perform culosis dispensary. He laid down certain *general* (1) *x*-ray methods were not infallible—small les missed; (2) on the other hand changes could occ chest without clinical evidence of the same; (3) a *interpret* the skiagrams. Pictures were then sl tubercle, or tuberculosis of bronchial glands, from *tuberculosis* and from a series of contacts with tive or absent; also of lesions masked by chro and lesions in diabetics. By means of the *x* rays from treatment was demonstrated; complicatio taneous pneumothorax and unsuspected *pyo-pneu* shown up; and non-tuberculous diseases such valvular disease of the heart, cancer, and Per *could be excluded.*

Reviews.

MUSIC, HEALTH, AND CHARACT

DR. AGNES SAVILL has written a book on *M and Character*,[1] in which she narrates her a the cultivation of her dormant musical sense that she may stimulate others to follow her e find, as she has, in the art of music an unexpe tive alike for body and mind. The book is for those who are advanced in the techniqu it is not, indeed, so much an essay on musi tribution to individual and social psycholo philosophic works William James was always in the individual lives usually far within his lim possesses powers of various sorts which he hab to use; and, as he expressed it, he energize maximum and behaves below his optimum, permeate this volume; Dr. Savill is acutely co modern life fails to provide for a great man adequate outlet for their original and per A realization of this determines her whole p or perhaps more accurately her philosophical, o thought in her mind she expresses as follows:

> "The majority of us pass through life in a cond torpor, with a vast reserve of talent which is never required by the small happenings of the daily routin through life without once realizing the existence of t dormant within themselves."

The main problem of individual and social p to discover how to set free and to utilize the powers of the average man. Obviously the soci of modern life cannot be altered in order to spiring work for the ordinary wage-earner. source of inspiration is necessary which will independent to some extent of his circumstance will give a new joy and meaning to life as a the purpose of this book to show that music, philosophy, or devotion to some great cause, arousing the sleeping faculties of an individual, him conscious of the existence of the spiritual which he draws his moral strength.

Dr. Savill aims to show that music, rightly employed to improve the health, to increase capacity, to provide companionship, to stre character, and enrich the mind. Her suggestio therapeutic value of music in neurasthenia and where the normal sources of energy are less r sible to the demands of the will, or there is emotional driving force within the self, are of

[1] ... Character. By Agnes Savill, M.D.

the food; for rickets may develop when the organism is deprived of them even though the diet be what is commonly considered well constituted. Thus rickets is a deficiency disease in the sense that radiant energy or a factor X is deficient.

Applications of these Principles in the Study of Late Rickets.

The number of cases of late rickets recorded before the war were relatively few. Thus Looser[3] collected some 60 in 1908, of which two-thirds occurred in females and one-third in males. No etiological explanation has been forthcoming, though valuable pathological material was demonstrated. The reasons suggested for the infrequency are as follows. Diet is more varied and exposure to sun more certain. In this connexion it is interesting to note that the experimental production of rickets in older animals is attended with greater difficulty, and that animals in the wild state never develop rickets. The records of Higier,[4] and of Hutchison and Shah,[5] are therefore extremely instructive in this connexion.

Higier observed 8 cases of late rickets during the last years of the war in Poland. The ages ranged from 8 to 13: no signs of previous rickets were present. During the same period he observed many severe relapsed cases of infantile rickets and over 70 cases of hunger osteomalacia, at ages ranging from 19 to 56. One case, the youngest of the osteomalacia cases, aged 19, presented signs of late rickets in addition. He says:

"Nothing can be determined as etiological in the cases of late rickets except hunger and under-nourishment, and nothing helped so much as change and increase of the rations, together with cod-liver oil and phosphorus emulsion."

Discussing the relation of late rickets and osteomalacia he says:

"It is fairly probable, in view of the endemicity of both, of the similarity of their clinical pictures, and of their coincidence in time and place, that the late rickets and the early osteomalacia are pathogenetically closely related the one to the other, perhaps even identical."

Hutchison and Shah reported the following features from observations of cases of late rickets in the Nasik district of India:

(1) It occurs in the well-to-do and not in the poorer classes; the former obtain a much larger supply of fat-soluble vitamin.

(2) It occurs where the purdah or semi-purdah life is adopted.

(3) It occurs in females only.

(4) It occurs soon after the purdah life is adopted, without change of diet.

(5) It does not occur in the poorer classes, whose diet is inferior but who do not adopt purdah.

(6) In six cases, without change of diet or medicine, treatment on open-air lines relieved the symptoms.

According to our present conception of rickets the curative factors in the vicious metabolism were, in the Polish cases factor X, and in the Indian cases radiant energy.

I will now describe shortly two cases of late rickets, for the second of which I am indebted to Mr. W. R. Bristow.

The following case is under my care at the Royal National Orthopaedic Hospital.

Gerald P., aged 7½ years, was first seen in January, 1923. The history is that, in October, 1921, he had an acute gastro-intestinal illness, with which he was in bed for a fortnight. Three months later a swaying gait and weakness of the legs were noticed by the mother. He was an eight months child. As a baby he was not fed by the breast, but by cow's milk and lime water. He had had no previous illnesses.

Family History.—The height of the various members of the family is as follows: Father, 5 ft. 7½ in.; mother 5 ft. 2½ in.; sister Queen, aged 15, 5 ft. 1 in.; brother Derrick, aged 14, 5 ft. 6 in.; sister Rosemary, aged 11, 4 ft. 11 in.; Gerald (the patient) 3 ft. 5¾ in.; sister Mosa, aged 6, 3 ft. 8½ in. A photograph of these brothers and sisters shows no deformity, but normally developed children. Gerald is thus the shortest member of the family but can scarcely be considered as stunted by earlier rickets.

Gerald's Present Condition.—Head: Some flattening of the vertex; no undue prominence of frontal or parietal eminences. Teeth: First dentition said to have appeared normally, but teeth decayed early; at present permanent central incisors, upper and lower, are about half-way erupted. Thorax: Well marked rickety rosary. Spine, clavicles, and shoulders normal. Elbows: No carrying angle present; arm and forearm are in same axis in flexion and extension. Wrists: Marked enlargement of the lower epiphysis and adjoining diaphysis of radius and ulna. Hips: No physical sign of deformity. Knees: Epiphyseal and diaphyseal regions of femur and tibia enlarged. Genu valgum, 1½ in., and outward curvature of the tibiae, 2½ in., are present. The Wassermann reaction was negative.

This child has been treated for six months by cod-liver oil and a good general hygiene. In that time he has grown 3/8 in., and his improvement is shown by the series of skiagrams taken in January, April, and July. In these the lower end of the radius and ulna, the lower end of the femur, and the upper and lower ends of the tibia show changes typical of florid rickets. The shafts show normal curves only, which is strong evidence that if any rachitic process occurred in infancy it was slight and spontaneously cured. The condition of the upper tibial metaphysis is interesting—for one inch it shows an osteoporosis and a thinned cortical shadow. This portion would correspond fairly accurately with the growth of bone subsequent to his attack of intestinal disturbance in October, 1921. The centres for the great trochanters are diffused and ill defined. In the cartilage of conjugation between the femoral head and neck an intracartilaginous line of ossification is clearly visible on both sides and points to the commencement of a spontaneous cure by January, 1923, when I first saw him.

The second case is one under the care of Mr. Bristow, who has kindly permitted me to record it in conjunction with the above case.

J. G., aged 14½, came under observation in May, 1922. She suffered from infantile paralysis in infancy, affecting the right lower limb, and was in St. Chad's Home for seven years previous to May 1922. Upon admission she showed distinct enlargement of the epiphysial regions of the wrists and ankles. There were no other definite signs of old rickets in head, chest, or back. She was treated with heliotherapy and antirachitic diet.

X-ray Report.

June 3rd, 1922. Wrists: Splaying of diaphysis and cupping with granular outline, active rickets. Ankles: Active rickets.

September 12th, 1922. Wrists much improved; still some activity.

December 12th, 1922. Wrists recovered.

CONCLUSIONS.

No definite etiological factor can be brought forward to explain either of these two cases. An acute gastro-intestinal illness appears to have determined the commencement of one, whilst the other began after seven years in St. Chad's Home. This may have been due to dietetic monotony, though no other cases are known to have occurred. Yet we must remember that, in infancy, an apparently well proportioned diet may produce rickets in one child and not in another under similar conditions of exposure to radiant energy. It is possible that the crippling effect of a paralytic leg may have rendered her exposure to radiant energy insufficient. Her attack was noticed during the winter months, when both the food contents of X and radiant energy are low; and it is worth while noting that such ultra-violet rays as supply radiant energy fail to penetrate ordinary window-pane glass. Esquimaux who live without radiant energy for half the year do not develop rickets because there is an abundance of X in their food. Negroes and dark-skinned Italians in cities are peculiarly prone to rickets, because the pigment of their skin insulates them from radiant energy in a somewhat similar manner to window glass. Cod-liver oil, rich in X, has a marked curative effect in these cases.

Higier's cases may almost certainly be ascribed to a monotonous low ration deficient in X, and perhaps accentuated by a deficient exposure to radiant energy caused by weakness. Rickets in Poland is rare. In Hutchison's cases X was abundant and absence of radiant energy was the sole cause. Removal from purdah and exposure to open air without change of diet cured the condition.

Whilst further facts must be collected before a definite cause of late rickets can be stated, there are reasonable grounds for suggesting that late rickets is produced by the same agents as infantile rickets—namely, an insufficiency of factor X or radiant energy, or both; that it is, in fact, a deficiency disease; and that it can be cured either by the addition of factor X to the diet or of radiant energy to the environment.

I am indebted to my clinical assistant Mr. Lambrinudi, F.R.C.S., for extensive bibliographical help, and to Dr. W. H. Coldwell for the radiographic investigations.

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physician; and, as she points out, there are to be found brief but emphatic references to the healing agency of music throughout history. Of the several powerful influences capable of bringing about a stilling of inner strife, and strengthening a mind bewildered by chaotic thoughts and harmonizing the personality, she regards music as one of the most potent. More subtly, more rapidly, and more completely than any other agent which produces intense or high emotion, can music, Dr. Savill feels, bring about a change in the mental attitude. Her views call to mind the delightful biblical story of Saul and David: "And it came to pass, when the evil spirit from God was upon Saul, that David took an harp, and played with his hand; so Saul was refreshed, and was well, and the evil spirit departed from him" (1 Samuel xvi, 23). We may not have increased in wisdom since the days of old, but we have in knowledge, and Dr. Savill is able, in an interesting chapter, to enforce her arguments by references to the physiology of the emotions. Here she contrasts the effects of depressive or contractile emotions, such as anxiety and fear, which, when unduly prolonged, not only narrow the sphere of life but make for lowered vitality and disease, with those of the expansive emotions of joy and courage, which make for health, activity, and usefulness. She is of the opinion that music, with its power to replace the contractile emotions by those belonging to a different category, plays an important part for the assistance of suffering humanity. The physical effects on the organism of rhythm, expression, and harmony are fully considered in this connexion.

The views expressed in this volume have a special quality because they are based on the personal experience of its author. The story of her musical conversion is of great interest. Up to the age of thirty she was not merely indifferent to music: it aroused sensations of boredom and fatigue, and her attitude was one of active dislike. She came at length to realize that something was lacking in her, that some unknown sense required development, and experimented with much pertinacity to acquire an appreciation of the beauties of sound. The moment came when life was given to the notes which had hitherto seemed dead, and Dr. Savill felt that she had been given the key to a new language. After this she made steady progress, and by persistent study found out for herself what is really great and of permanent value in music. Dr. Savill has the gift of being able to depict in words those intangible and elusive emotions and feelings aroused by music. The charm of her narrative does not depend, however, only on her descriptive ability, but also on her obvious sincerity and lack of affectation. She describes what she actually does feel and think; she is completely true to herself, admits when she is bored, and endeavours by careful analysis and reflection to discover the cause of her discontent.

One general criticism of Dr. Savill's views may perhaps be permitted—namely, that she scarcely appears to take sufficiently into account the problem of individual differences. It is improbable that the mass of the people could be brought to her own level of musical culture, or even if they were that music would have the same spiritual significance for them. The meaning conveyed by music must be largely dependent on purely personal factors. Music, rather than a particular sort of music, is health-giving, and the simplest music—such as folk songs, popular airs, hymns, dances—may be as profoundly energizing and beneficial to simple (in a musical sense) people as the best classical music. We may perhaps even say that many great comedians have by mirth and song given a new outlook to life to many thousands of people and sent them to their daily task encouraged and refreshed. Whether music is used for the individual from the therapeutic point of view or whether it is considered from the social point of view it must be of such a character as to meet the needs of the person or persons for whom it is intended. What we think they ought to need or like must not be too much in the foreground.

We can unreservedly recommend this book. It does not contain a single dull page, and it may be described as an

GRAPHIC RECORDS IN HEART DISEASE.

DR. S. CALVIN SMITH's book on *Heart Records, their Interpretation and Preparation*[2] is described as an elementary guide for those who would investigate the most recent methods of heart examination. By far the larger part of the book deals with electro-cardiography, and the subject is treated in a most systematic manner. The student is taken over the various steps in the analysis of the curves in great detail and with the help of a lavish display of very clear graphs the reader ought to be able to follow the instructions with ease. Much information which will be of use to the beginner is offered in a very practical manner and should help him to avoid many pitfalls in the carrying out of the ordinary technique. Thus many useful hints are given regarding the management of the patient, the developing and printing of the records, while the author explains his method of filing and keeping them. The instrument described is an American model and much of the information regarding its care and operation, though general and applicable to any instrument of the kind, is of more value to one using the special apparatus described. There is no doubt that the book will be of considerable value in the author's country, where the public are more likely to demand cardiographic records with the idea that they are thus getting the last word in diagnosis. We have the feeling that a smaller book on the same lines would have been welcomed by many in this country when making their first attempts along this line of investigation.

A smaller section of the book treats of polygraphy, but it could well have been omitted as it detracts from the value of the book as a whole. The illustrative tracings are not good, the waves are not marked, and we feel that the beginner would be rather confused than helped by a study of this part. This is unfortunate, as the polygraph is the more convenient instrument for clinical work in private, and if graphic methods are going to help the general practitioner it will be to it rather than to the electro-cardiograph that he will have to turn. The book has otherwise been prepared with care and with an appreciation of the beginner's difficulties. It is well produced and profusely illustrated. To one already acquainted with this class of work it will be of little value; to anyone about to take up this branch it will provide many useful hints.

CATARACT EXTRACTION.

THE technique of cataract operation is a subject of perennial interest to ophthalmic surgeons, for the margin of success and failure is so narrow that any possibility of improvement in methods is worthy of attention. Practitioners in India have overwhelming advantages in this respect, for the number of the cases they have to treat is beyond comparison with the relatively small number in countries of temperate climates.

Colonel NEWMAN, I.M.S., has written a little book, *Irrigation in Cataract Extraction*,[3] which, however, covers much more than the title would suggest. It is in fact a miniature monograph on the whole field of the operation.

Irrigation in cataract operations is generally known as McKeown's operation, for McKeown of Belfast was a strenuous advocate of it, and his demonstration of cases will be remembered by those who attended the Belfast meeting of the Association some fourteen years ago. Others had tried the procedure, but he brought it into real prominence and demonstrated its value. The procedure has been in fashion and out of fashion more than once; the instrument makers' catalogues show some half a dozen patterns of nozzles employed by different surgeons, and Colonel Newman adds another to the number. His experience confirms that of other surgeons, which is that irrigation is of real value in many cataract extractions: first, in those where the operation has to be done for a senile nuclear cataract with unripe

[2] *Heart Records, their Interpretation and Preparation.* By S. Calvin Smith, M.S., M.D., Philadelphia. Philadelphia: F. A. Davis Company. 1923. (Med. 8vo, pp. xiii + 313; 128 figures. 7 dollars.)

[3] *Irrigation in Cataract Extraction.* By E. A. R. Newman, C.I.E., M.D.,

FIG. 5.—The George Hotel, High Street.

At the top of High Street on the left are situated the Cambridge Barracks, first erected as stores during the Napoleonic wars. An enlargement of the barracks in 1856 necessitated the demolition of the old Portsmouth Theatre. This old building had many histrionic associations. Stephen Kemble was at one time its manager. Edmund Kean and Charles Kean were frequent visitors, and Dickens, in *Nicholas Nickleby*, makes it the home of Mr. Vincent Crummles's remarkable successes.

During the management of Stephen Kemble on one of the nights when there was no performance, a sailor off to India the next day asked to have the house opened that he might see a play before he sailed. An agreement was made and a tragedy was to be represented at a cost of five guineas, and no one to be admitted to the house except the sailor. *Richard the Third* was chosen for the presentation, and Kemble himself played Richard. The sailor thoroughly enjoyed the play, was perfectly satisfied, and cordially thanked the manager.

The house next the barracks, No. 10, High Street, was built on a demolished wing of No. 11, now called Buckingham House. The site of the old theatre was in the rear of these premises. The first house, where 10 and 11 now stand, was called "The Grehonde," and was occupied by the builder of Southsea Castle. When it was demolished, the next erected house was called the "Spotted Dog." In 1627 William Brooke had a licence for it as a "Comon Inne." Later it was occupied by John Mason.

Mason had been Governor of Newfoundland and in 1624 returned to England, but went abroad again in 1631, when he founded New Hampshire in America. On his return to England from this trip he was appointed Captain of Southsea Castle. When the Garrison Church was restored in 1874 the people of New Hampshire presented the gas standards, and a brass to Mason's memory was placed in the chancel. In 1628 the Duke of Buckingham was preparing his third expedition for the relief of Rochelle, and was a guest at Mason's house. He was unpopular in the country and with his own men. A certain Lieutenant John Felton, infected with the general dissatisfaction of the period and obsessed by a personal grievance at being refused promotion, bought a dagger on Tower Hill, and rode to Portsmouth, tethering his horse outside the town walls. The original entrance to Mason's house was under the round arch; a dark passage led to the central hall. In the passage Felton secreted himself on the morning of August 23rd, 1628. Buckingham breakfasted in a room off the dark passage, where he at the same time received a deputation from Rochelle. Breakfast finished, he was about to proceed to his carriage, but stopped for a moment to speak to Colonel Sir Thomas Fryer near the door of the breakfast room, when he was stabbed in the left breast by Felton. In a document found on the assassin he described himself "the heaven-sent avenger of his country's wrongs." He was tried, condemned to death, and executed at Tyburn, and his remains were gibbeted on Southsea beach, at a spot now marked by the boundary obelisk near Clarence Pier. The dagger used by Felton is in the possession of the Earl of Denbigh. The incidents of the murder have been dramatically used by Dumas in his novel *Les Trois Mousquetaires*.

On the opposite side of the road is High Street Chapel, a very old Nonconformist place of worship in Portsmouth. It was built in 1718, and has played a large part in the struggles for religious and civil liberty in the borough. Many noted men have been connected with it. In the graveyard attached to the chapel are the remains of the noble John Pounds; here also is buried Sir John Carter, nine times mayor of Portsmouth. Among the early ministers to the chapel was John Hicks, who was prosecuted several times for contravening the Conventicle Acts, and was finally executed for supporting Monmouth. Hicks, having escaped from Sedgemoor, was sheltered for one night by Lady Alice Lisle, at Moyles Court. She, although 71 years of age, was for this act the first victim of Jeffreys's assize.

A little further down High Street on the same side is a large house recently used as the headquarters of the Southern Command. It was prior to that the Governor's house, and its last occupant in that capacity was Prince Edward of Saxe-Weimar (1878-84).

Opposite is the famous George Hotel, whose history goes back to the time of James I. In those days it was a small thatched house with a water trough in front, and was known as the "Wagon and Lamb." At the end of the eighteenth century it reached the height of its glory, and was frequented by naval heroes, distinguished soldiers, statesmen, authors, poets, and even princes. The Duke of Wellington stayed here in 1814, but the "George" will ever be memorable as the house in which Nelson stayed for the last time in England. Mr. Saunders, in *The Annals of Portsmouth*, thus describes the occasion:

"Nelson arrived at 'The George Hotel' at six o'clock in the morning of the 14th September, 1805, rested and breakfasted; then observing that a great crowd was assembled in the High Street, stole secretly out of the back door in Penny Street. His retreat was soon discovered and the crowd rushed away, eager to see the face of the hero they venerated. They caught him upon Southsea Common, crowded round him, and struggled with each other to shake him by the hand. 'I wish I had two hands,' said he, 'and then I could accommodate more of you.' And the people cried, 'God bless you, Nelson.' There on Southsea beach, near the spot where the old *Victory's* anchor rests, Nelson embarked. As the boat pushed off from the shore the people ran into the water, once more to grasp that one hand of his and to wish him godspeed . . . Thus that one eyed, one armed, pale, shrunken, invalid officer passed away from us never to return."

Our next object of interest is the Museum. It contains some interesting relics, models, drawings, and old engravings illustrating the history and antiquities of Portsmouth. The building itself has some architectural interest.

was in course of erection in the year of Queen Victoria's ession, and was opened on her coronation day. It was n the new Guildhall, and replaced one that stood for years in the middle of the street lower down. In his ery in 1543 Leland records that "Carpenter a rich man de of late time in the middle of the High Street a n House." Thomas Carpenter was mayor in 1531 and in in 1537. In 1736 the old Guild Hall and Market s in a state of decay. It was demolished and a new one lt on the old site, and opened in 1739. This, like its decessor, was an obstruction to the traffic, but it stood a hundred years. It was then demolished and the new erected on the east side of High Street, with a market e beneath the council chamber like its old prototype. n this was found too small for the requirements of the idly growing borough. In October, 1886, the foundation ne of the present Town Hall was laid, and the building opened on August 9th, 1890, by King Edward VII, n Prince of Wales.

St. Thomas's Church, the oldest building in Portsmouth, een from the High Street through a gap in the houses

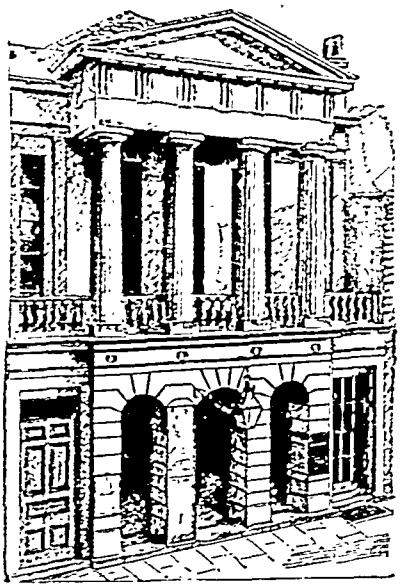

FIG. 6.—The Old Guild Hall.

sed by the demolition in 1891 of a gable-fronted hotel, "Three Tuns." It was in this house that the Spithead tineers had their headquarters. A conference was held e in a back room, and the mutineers were so long dis- sing the terms of peace that Lord Howe and his officers to rest by sitting on the stairs.

Time and space will not now permit a description of Thomas's Church, nor of the Garrison Church behind Grand Parade. Just before turning into the Grand rade we pass the Soldiers' Institute. This building, ore it came into the possession of Miss Robinson, was "Fountain Inn." Another inn—the "King's Arms" as also incorporated in the present establishment. s house was much frequented by the tradesmen of the n. On certain commemorations it was the custom for of the guests to give a dinner party, or as it was called hrow a brick at the King's Head." The host marked event by having his initials, with the date, cut in one the bricks forming the corner of the building. Edmund an, who visited this house during his engagements at the atre, was, on the authority of Mr. Saunders, one of se who "threw a brick at the King's Head."

f we leave High Street by Pembroke Road we shall s the house in which John Balsir Chatterton, the pist, was born; also at the corner of Penny Street the se in which George Cole, the artist, lived, and in which son, Vicat Cole, was born. Behind Pembroke Gardens we can inspect the small remaining portions of the old walls and fortifications, and so take leave of old Portsmouth and begin our survey of modern Southsea, which "sweetly recommends itself to our gentle senses."

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Vaccination.

IN reply to Dr. Chapple, on July 4th, Mr. Chamberlain said it was not possible to state definitely the proportion of children of the age of 10 years and under now living who had been vaccinated. The available statistics showed the number of children born in each year who were vaccinated within a period expiring at the end of the year following the year of birth. These statistics suggested that the proportion of 10 years and under who had been vaccinated was not more than 50 per cent. Statistics for each of the years 1912 to 1921 showed that the proportion of vaccinations to births had fallen from 50.1 per cent. in 1912 to 38.3 per cent. in 1921. The Ministry of Health had recently circularized local authorities as to the steps which should be taken on the occurrence of small-pox and all possible assistance was rendered by departmental medical officers to the authorities in those districts in which an outbreak occurred.

In answer to Mr. T. Thomson, Mr. Chamberlain gave the following percentages of vaccination to total births:

Year.	Percentage.
1872–1881	85.
1882–1891	82.2
1892–1901	68.0
1902–1911	67.9
1912–1921	43.4

The total number of cases of small-pox in England and Wales were not available for any year prior to 1911. The number of cases per 1,000 of the population for the period 1912–21 was 0.004. Mr. Thomson asked whether Mr. Chamberlain had any information which showed that the percentage of cases of small-pox had increased relatively to the decrease in the number of vaccinations. Mr. Chamberlain replied "Yes, undoubtedly." He added he thought that the fall in the vaccination figures was due to agitation in various parts of the country.

Lord Eustace Percy has provided a table showing the percentages of deaths to cases of small-pox in the last five years, dividing the deaths of vaccinated persons into age-groups and contrasting them with the death rate for the unvaccinated.

Year.	Vaccinated.			Unvaccinated.
	10 years and under.	Over 10 and under 40.	40 and over.	
1918	—	3.4	3.4	Nil.
1919	—	0.6	3.2	20.8
1920	—	1.5	8.3	13.3
1921	—	—	1.0	1.5
1922	—	0.4	4.1	1.6

He said also that it was not considered desirable to issue a statement instructing parents and others how incipient small-pox might be distinguished from chicken-pox. It was the function of the medical practitioner to distinguish these cases, and the services of the medical officer of health were at his disposal in assisting diagnosis.

—Mr. Chamberlain gave, on July 2nd figures as to benefits and costs of ealth insurance during the past three years:

	1920.	1921.	1922.
	£	£	£
Amounts paid in benefits—			
In England	17,570,000	20,093,000	20,513,000
In Scotland	2,371,000	2,832,000	2,794,000
In Wales	1,239,000	1,453,000	1,479,000
Cost of administration—			
In England	4,178,000	4,472,000	4,012,000
In Scotland	543,000	587,000	547,000
In Wales	325,000	360,000	322,000

Health Insurance and Voluntary Hospitals.—Sir E. Stockton asked the Minister of Health, on July 4th, whether in view of the amount of disposable surpluses of approved societies under health insurance he would consider the desirability of introducing legislation to allocate funds therefrom for the hospital maintenance of insured patients. Mr. Chamberlain said it was open to any approved society with disposable surplus to devote the whole or part to payments to hospitals or convalescent homes, towards securing therein the maintenance and treatment of members. Out of the surpluses on the first valuation a sum of £979,000 was set aside for this purpose by certain societies in England in

peripheral layers, and again where fragments of lens are detached from the main cataract mass. In both types of cases washing out, under the strictest precautions of asepsis and gentleness of handling, shortens convalescence and reduces the density of after-cataract that may require needling.

Some have asserted that the procedure adds to the risks of the whole operation, especially from loss of vitreous. Newman gives his figures for 1,000 operations. Vitreous was lost on 38 occasions; 18 were primary—that is, before irrigation was attempted—and were caused by high intra-ocular tension, lid spasm, and dislocated lenses; twice it occurred without any apparent reason. Of the others, 10 followed the use of capsule forceps, and 9 the use of the irrigator; one was accidental.

The author's account of his own experiences of cataract operations in general is of much interest and distinctly stimulating.

VITAMINS.

Vitamins: A Critical Survey of the Theory of Accessory Food Factors[1] is a translation by EDEN and CEDAR PAUL of a volume written by Dr. Ragnar Berg, director of the laboratory of physiological chemistry at Weisse Hirsch. Our knowledge of vitamins is so recent and is expanding so rapidly that any large book on this subject must inevitably be partly out of date by the time it is completed. In the volume before us this disadvantage is aggravated by the extra delay due to the process of translation. In consequence it only gives an account of the work done to the beginning of 1922. The translators' preface of eight pages contains a rather unrestrained eulogy of the book. They claim that it marks the close of an epoch in that the author has summarized all the enormous mass of original literature dealing with vitamins within the compass of a single volume, and has provided a platform for the work of future investigators. It is true that anyone who endeavours to cope with the flood of vitamin literature deserves sympathy and praise, but to write of such a compilation as marking an epoch is to misapply that overworked phrase. The list of references it contains is fairly complete down to the end of 1921, but there are only half a dozen or so for 1922. Altogether there are 1,500 entries arranged in chronological order, but, unfortunately, the references for each year are not given alphabetically, and the case with which the list can be consulted is thus greatly diminished.

The author himself states that the main aim of his book is to stimulate the study of the science of nutrition by Germans, and he will have done a great service to his countrymen if he succeeds in directing their attention to recent advances; their acquaintance with this field of knowledge has, he says, been handicapped by difficulties in obtaining access to foreign literature during and after the war. In his introduction he raises several objections to the word "vitamin" as a general term to cover the unknown accessory food factors, and suggests and uses the term "complettin" instead of vitamin. Fortunately there is little fear of his example being generally followed; any such change in terminology at this stage could only lead to unnecessary confusion.

The book deals with the following main problems: the biological value of the various proteins; the importance of inorganic substances in nutrition; the various vitamins; and the deficiency diseases beri-beri, scurvy, malnutritional oedema, and pellagra. There is a chapter on the conditions of growth, and another on the importance of inorganic substances in nutrition, in which some interesting points are made concerning the absorption of calcium. We are unable to understand the statement, however, that potassium salts have a stimulating action on nerves and muscle (p. 81); it is true that they cause plain muscle to contract, but it is certain that they paralyse both nerves and cardiac muscle. There are good summaries of the knowledge of vitamins and deficiency diseases down to the date at which the book was written, and the chapter on malnutritional oedema is of particular interest. The discussion on rickets is unsatisfactory since the importance of light in its prevention is not recognized. The reason for the omission is, of course, that the new facts were published during the past eighteen months. The discussion on the causation of pellagra is confused, as may be judged from the concluding statement (p. 322):

> "Perhaps a lack of bases in general, and a deficiency of calcium and potassium in particular, in conjunction with an excess of acids and a lack of organically combined sulphur, might in course of time induce the nerve degenerations characteristic of pellagra, especially if the before-mentioned faults in the diet were supplemented by the inadequacy of the protein it contained, by deficiency in respect of A, B, and D, and maybe at times also by deficiency in respect of C."

This passage raises a further point: in its original state the text was doubtless excellent German, but in the process of translation it has ceased to be German and has scarcely become English. This criticism unfortunately applies to other passages in the book.

The author concludes by a plea for State aid in the study of the newer aspects of nutrition since large laboratories, extensive zoological gardens, and a large staff of analytical, biological, and anatomical experts are needed, and these conditions are difficult to attain in universities in Europe. He pleads for some organization to ensure that the general public is made aware of the facts.

> "In addition to institutes for the biochemical study of nutrition there must be institutes of nutritive hygiene, whose task it will be to ensure the practical application of the theoretical acquisitions of biochemistry, to ensure that the data of the new science of nutrition shall be realized in daily life. The consciousness of the masses must be permeated with a practical knowledge of the new science of dietetics."

This plea is undoubtedly sound, for there is every reason to believe that the effects of partial vitamin deficiency prolonged over several generations may very seriously affect the health of modern urban communities.

In conclusion it may be said that Dr. Berg has written an interesting general account of deficiency diseases, which, however, for the reasons we have suggested, is not completely up to date, but he expresses some ideas of his own on the subject of inorganic metabolism which are interesting, although in some instances they have not met with general acceptance.

SURGERY OF THE HEAD AND NECK.

THE book on the surgery of the head and neck by LENORMAND and BROCQ[5] is one of a series prepared by the Prosectors of the Faculty of Medicine in Paris, and intended for students preparing for examinations and for practitioners who, while they may be unable to obtain access to the larger works on surgery, are anxious to keep up to date. The volume under review is excellent. There is, as far as we know, nothing exactly like it in English. The size is convenient, the type large and clear, and the illustrations numerous and good.

In spite of its rather wider title, the volume is actually limited to operative procedures, but with this qualification we cannot speak too highly of the text. Each section is introduced by a clear description of the topographical and the deep anatomy of the part under consideration. After this, the indications which demand operative interference are discussed. As a rule only one method of operating is described, and we presume it is that which is followed in the practice of the authors; each stage of the operation is illustrated by helpful line drawings. The after-treatment also is fully considered. Certain operations have been included which would seem unnecessary, such, for example, as hemilaryngectomy and resection of the cervical sympathetics.

One criticism of the illustration work is demanded. In indicating the lines of excision of malignant tissue the incisions are shown dangerously close to the tumour. No doubt such an error would never arise in the authors' practice; but, if the volume is to be put into the hands of

[1] *Vitamins: A Critical Survey of the Theory of Accessory Food Factors.* By Ragnar Berg. Translated from the German by Eden and Cedar Paul. London: George Allen and Unwin, Ltd. 1923. (Demy 8vo, pp. 415. 18s. net.)

[5] *Chirurgie de la Tête et du Cou.* By Ch. Lenormand and Pierre Brocq. Sixth edition. Paris: Masson et Cie. 1923. (Double cr. 16mo, pp. 338; 245 figures. Paper, fr. 10; bound, fr. 12.)

patient made derogatory of another doctor. Professor Gulland impressed upon the young practitioner the necessity for being business-like in all he did. He owed this both to his patients and to his own dependants. It would be an admirable thing, if it were possible, for everyone before he began the study of medicine to spend a year in a commercial office, and learn, even if he did nothing else, the necessity for answering letters, for this omission was a special failing of doctors. With regard to women graduates he thought the best career open to them was in as many instances as possible to marry the male graduates. (Laughter.)

Some remarks on the present state of the Indian Medical Service were thereafter made by Sir Norman Walker, K.B.E., who introduced Lieut-Colonel McKendrick. The latter described some of his experiences in that Service. At a later stage in the meeting, Dr. J. R. Drever, Scottish Secretary of the British Medical Association, outlined some of the problems which faced the medical profession in the immediate future, and urged the desirability of every medical man being a member of this Association so that it might be completely representative of the profession. An excellent musical programme had been arranged by Dr. E. H. Cameron, and in the course of the afternoon Dr. Williams contributed piano solos, Mr. Walter Schlapp played the violin, and Mr. Purser sang. The reception, together with one held before the summer graduation last July, is a new phase of the British Medical Association's activity, intended to accord a welcome to the newly qualified practitioners at the outset of their professional life. It has already proved highly successful and much appreciated by the graduands.

Ireland.

Insulin.

The question of providing insulin for the treatment of poor persons suffering from diabetes has been under consideration by the Joint Committee of the British Red Cross Society and the Order of St. John of Jerusalem (Leinster, Munster, and Connaught). It was ascertained that the Government could not see its way to contribute towards the expense, although the Minister of Local Government expressed his sympathy. It was estimated that about £1,000 would purchase a sufficient supply of insulin to meet the needs of urgent cases for the present. After consultation with members of the medical profession the Joint Committee resolved to allocate a sum of £500 for the establishment of an insulin fund. Communications were opened with the Connaught antitoxin laboratories of the University of Toronto, Canada, and it is hoped to obtain a considerable reduction in the cost price for poor patients, and that a phial, sufficient for four or five days' treatment, which in the ordinary way costs 17s. 6d., will be supplied at 7s. 6d. An appeal is made to the public to contribute to the insulin fund, and Sir John Lumsden, Vice-chairman of the Joint Committee, announces that donations may be sent to the Honorary Treasurer, Red Cross Insulin Fund, 40, Merrion Square, Dublin.

British Medical Association: Ulster Branch.

The annual meeting of the Ulster Branch of the British Medical Association was held in the Medical Institute, Belfast, on November 29th. Professor Fullerton introduced the President for the ensuing year, Dr. H. W. Cunningham, Londonderry, who gave an address on nerve exhaustion. The war, he said, had interrupted the intercourse between Belfast and the outlying Divisions, but he trusted that closer relations were being gradually renewed. The strain of the period the province had passed through had affected the moral and mentality of the community, and signs of nerve exhaustion

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the great importance of the
surroundings of the child, espec
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case of many children holidays
and with them it was the pace
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full knowledge and experience.

Professor Lindsay proposed, a
a hearty vote of thanks to the
which was passed by acc
acknowledged.

Medical Certification under

The Irish Medical Committee
certifiers under the Insurance A
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Further, the giving of a certificate o
of prolonged illness does *not* obviate t
ordinary certificates (Form M.C./1), wh
issued while the insured person remain

*The ordinary certificate need not, ho
of a week in which a certificate on For*

Payment for each certificate given o
made at double the rate for an ordi

The Committee have been informed t
arose about the issuing of certificates o
considerable correspondence between Ce
Commissioners, and it will be obvious
interests of all concerned, the correct pr
should be noted and followed in future.

5. Other points which were discussed
which are mentioned in the Circular a

(*a*) The necessity of Certifiers car
cates with them on their rounds for
(*b*) Certification in cases where ill
or industrial disease.
(*c*) Procedure when a certificate is
(*d*) Issue of *final* certificates.

While the Committee feel that the o
the Certifiers discharge their duties pro
been undoubtedly certain instances in

students and practitioners, a harmful impression may be conveyed. Apart from these criticisms the volume has impressed us as being a most valuable contribution to the "teaching" class of operative surgery literature.

NOTES ON BOOKS.

IT was fortunate that when the aged tortoise at the Zoo was in a retrospective frame of mind his confidences were received by two such capable historians as Mr. KENNETH WALKER, F.R.C.S., and Mr. GEOFFREY BOUMPHREY, who have thus been able to give to the world a true and faithful account, with many spirited pictures, of the behaviour of the animals in the ark during the distressing days of the Flood. Through the courtesy of the aged tortoise they were directed to a cave in Armenia where long-forgotten records were concealed and where pictures were discovered which have been reproduced to illustrate *The Log of the Ark*.[6] It appears that life was very pleasant in the ark when the weather was fine, but the discomforts and anxieties were considerable during the period of heavy rain. Moreover, the happy harmony which it has always been assumed existed between all the voyagers in this remarkable vessel was, as the authors have shown, more apparent than real, for the wicked machinations of the scub introduced an atmosphere of distrust which added greatly to Noah's difficulties and almost resulted in disaster. This is a book for all children between the ages of five and ninety-five. Opponents of the higher criticism of the Book of Genesis could say nothing more censorious than that the *Log of the Ark* represents fiction founded on fact. It is an amusing and captivating tale, written in an original vein, and such as we all enjoy at this season of the year.

The British Journal Photographic Almanac[7] for 1924, the sixty-third issue, is again edited by Mr. GEORGE E. BROWN, and is on similar lines to those immediately preceding it. All things photographic are dealt with in this yearly publication, and the extensive advertisements cover practically everything which is used by photographers, either amateurs or professionals. These advertisements use up some 458 pages out of the 811 of the book, and the illustrations are numerous and excellent. An article on using a hand-camera by the editor should be of especial value to that numerous band of amateurs who confine themselves to snapshot photography, who for the most part do not trouble to make themselves acquainted with even the rudiments of the art, and have practically no knowledge of the limitations of this form of photography. There is an enormous amount of information upon such subjects as colour photography, printing processes, negative processes, photographic formulae, and so on; the result is that as a reference book it is invaluable.

A short but instructive book on the *Principles of Home Nursing*,[8] by EMMA L. MOHS, describes in simple language and accurate scientific detail how nearly a home nurse can approximate to the efficiency of a modern hospital nurse. Part I is devoted to sick-room nursing and gives information on home substitutes, chart keeping, and diets. Part II deals with emergencies and first aid. Part III has a well written chapter on reproduction and describes maternity nursing and the care of the infant. A short list of reference books on sex, heredity, and eugenics is included. Part IV explains bacteriology and immunization. There is a bibliography and a glossary.

[6] *The Log of the Ark*. London: Constable and Co. 1923. Price 7s. 6d.
[7] *The British Journal Photographic Almanac*. Edited by George E. Brown, F.I.C. Sixty-third issue. London: Henry Greenwood and Co., Ltd. 1924. (Cr. 8vo. pp. 812; illustrated. Paper, 2s. net; cloth, 3s. net.)
[8] *Principles of Home Nursing*. By Emma Louise Mohs, R.N., A.B. Philadelphia and London: W. B. Saunders Company. 1923. (Post 8vo. pp. 327; 123 figures. 10s. net.)

MEDICINAL AND DIETETIC PREPARATIONS.

A Dietetic Toast Biscuit.

THE preparation of articles of diet, perhaps the oldest of domestic sciences, has its settled rules. They have a certain affinity with those governing pharmaceutical operations, but pharmacy has not usually been applied to dietetics except in the production of medicated foods. These have seldom attained any degree of popularity; there is a natural aversion from medicine at a feast; but there is no reason why the preparation of ordinary food with pharmaceutical acumen and understanding, should not succeed both in the excellence of the product and a gain of public favour. Messrs. Macfarlane Lang and Co. have introduced a "Dinner Toast" biscuit manufactured in this sense for the use of persons with whom ordinary bread disagrees. A sample has been submitted to our analyst, who reports that it contains no medicament and no unusual baking constituent. The analytical examination agrees with the manufacturers' statement that the biscuits are made only from the finest wheaten flour with pure butter, malt, and milk. They were found highly palatable.

THE IMPERIAL CANCER RESEARCH FUND.

SCIENTIFIC REPORT.

THE eighth Scientific Report of the Imperial Cancer Research Fund which has just been issued[1] maintains the high standard of excellence that we are accustomed to look for in the publications of that institute. Some of the articles included in it have already appeared in journals during the two years that have elapsed since the last report: the majority of the papers are now published for the first time. As usual, the researches have been pursued along various lines with commendable thoroughness.

Carbohydrate Metabolism of Normal and Cancerous Tissues.

The first two papers are devoted to a consideration of the carbohydrate metabolism of surviving normal tissues and of tumours. This work of Dr. B. R. G. Russell, which is a continuation of previous studies on the metabolic exchanges of tissues, is of very great importance, for it is only by such means that we can hope to lay the foundations for a rational chemotherapy. In the first of the two papers certain normal mouse tissues were contrasted with different strains of transplantable tumours with regard to their powers of oxidizing glucose and other common carbohydrates supplied to them directly; no striking differences could be detected between the two classes, although tumours growing at different rates manifested variations in their carbohydrate metabolism. In the second paper, however, Dr. Russell relates how he succeeded in demonstrating distinct differences between normal and malignant tissues in their metabolism of pentoses. It was found that mouse tumour tissue had the power of consuming rhamnose, xylose, and arabinose, a property not possessed by any of the normal tissues investigated with the single exception of liver tissue, which could attack arabinose. To one unfamiliar with the technique employed it may seem that the magnitude of the changes recorded is small, and, as Dr. Russell himself suggests, it may not be safe to argue from phenomena observed in surviving tissues to what might occur in tissues in full activity; but still we have here for the first time an indication of a difference in metabolic properties which we may trust the author and his colleagues to explore thoroughly with the knowledge that everyone interested will wish them success.

Vitamins and Cancer.

Dr. W. Cramer's paper on dietary deficiencies and the growth of cancer is a thoughtful and original contribution to our knowledge of vitamins. His experiments with vitamin-deficient diets support the findings of Drummond and, being carried further, prove practically beyond a doubt that the growth of malignant tumours does not depend on the presence of the accessory food factors. It has hitherto been accepted, almost without question, that vitamins are essential for the growth of normal cells. If this were true it would denote a fundamental biological difference between the factors controlling the growth of normal cells and of cancerous cells, seeing that tumours grow just as well in animals deprived of vitamins as in the normal controls. But Dr. Cramer's investigations have led him to reject the popularly accepted opinion. He points out that there is a considerable gap between the observed facts and the generalization that every cell requires vitamins for its life and growth, and he shows that the atrophy resulting from a vitamin-deficient diet affects very specifically certain tissues or groups of cells, and further that deficiency in one vitamin affects one specific tissue, whilst deficiency in another affects an entirely different group of cells. Thus, absence of vitamin B leads to an atrophy of lymphoid tissue with consequent lymphopenia, and absence of vitamin A is followed by an atrophy of the intestinal mucosa, the other tissues showing no corresponding primary change, some of them indeed—for instance, the adrenal—actually undergoing hypertrophy. He compares this with analogous results following a diet deficient in tryptophane, in which case also transplanted tumours will go on growing. His conclusion seems reasonable, that the absence of vitamins affects certain tissues without which the whole animal cannot live.

[1] London: Taylor and Francis. Pp. 145; plates xlii. 15s.

Correspondence.

THE REHOUSING OF SLUM DWELLERS.

t,—The account published last week (p. 1176) of Mr. Clarke's British Association paper on the rehousing um dwellers offers an entertaining exhibition of the of the Socialist. Like Lenin, Mr. Clarke recognizes Socialism involves forced labour, but unlike Lenin, he believes in the use of money. Hence his proposal to his conscripts trade union wages. Lenin, in his early would have commandeered the labour without ent, thereby showing himself much more logical Mr. Clarke.

using, however, is a serious matter and the ques- is whether the problem it presents can be solved by te initiative, or whether it is going to follow the e of many other problems and be settled by the list method of nationalization. This method has dy been applied to education and to medical treat- ; if it be true, as Mr. Clarke says, that it is ssible to build houses for the working classes which be let at an economic rent, then some future Govern- may be compelled to take a further step in nalization, and to add another to the State's unpront- ventures in trading. And this notwithstanding Sir d Mond's statement that the matter is one for local orities.

ere can be no doubt that the garden cities of Port ght and Bournville are more pleasant to look upon the horrible rows of miners' cottages which line a h colliery valley. Is it possible in any way to en- ige more firms, or possibly combinations of firms, to do Lever Brothers, and Cadburys, and many more have ? Again, Mr. Clarke, in a spasm of anti-Socialist itance, suggests that tenants should be urged to buy houses. In this way he would limit the State's loss e actual loss in building the houses. For the moment system of selling to such tenants as are willing or to purchase would postpone complete nationalization. Mr. Clarke omits to note that, whether the State or whether it remains landlord as well as builder, the will probably come when the houses will no longer nsidered up to date, and will require reconstruction. has happened already in the cases of cottages and ings which, some forty to fifty years ago, were de- ed as "model"; it will continue to happen until ords have been educated up to establishing a reserve to meet the day when reconstruction becomes neces- The absence of such a reserve fund in the case of ords of the less wealthy type probably accounts for ontinued existence of many of the slums.

nally, is it permissible to suggest that too many orts, which our forefathers regarded as luxuries, are regarded as necessities? Is it true that every house ives a bathroom? Or is it not possible that those who ot really afford this can be just as clean with a bath? Or if modern baths are considered essential, the cost of erecting a cheap bathing place—not an nsive Public Bath—for the use of an area, been com- d with the cost of building a separate bathroom for of several hundred houses? It seems to me possible the standard of comfort has perhaps outrun our city to pay for it; and that we should aim at structures h, while passably efficient, shall be cheap and not too nanent.

confess that I cannot contemplate with pleasure the when the State will erect houses for all and sundry. y of the Addison houses are not unpleasing in design, they were extravagant. A Government short of cash produce something worse than the worst of the miners' ages.—I am, etc.,

don, W., Dec. 17th. CHAS. BUTTAR.

THE STANDARD OF FAT IN COW'S MILK.

R,—In your leading article which appeared on ember 1st (p. 1054) on the above subject, you attribute Mr. Wilfred Buckley, C.B.E., the following statement— ely, "That the percentage of butter fat in the mixed of shorthorn cows may be less than 3 per cent. in the morning, but in all probability not less than 3 per cent. in the evening, and that it will exceed 3 per cent. over a period of twenty-four hours." Surely, Sir, that statement requires qualifying as to the intervals between the milkings, which regulate the yield of fat; it is common knowledge that a herd of cows will yield less than 3 per cent. when the interval exceeds twelve hours, and the longer the interval the less the fat; for instance, the fat would probably be over 1 per cent. after fourteen and a half hours' interval, less than that after nine and a half hours. Another cause for a low percentage of butter fat is careless or incomplete milking, allowing a part or the whole of the strippings to remain; the amount of fat in the fore, middle, and strippings often varies from 2 to 8 per cent., so that any neglect in that direction would upset all calculations; on the other hand, if a herd of 65 healthy shorthorn cows is kept under normal conditions, and thoroughly milked and stripped at intervals not exceeding twelve hours, it is practically impossible to obtain less than 3 per cent of fat. It will be well to postpone judgement pending further light on the subject, which might be forthcoming from Mr. Buckley. In the meantime judges and magistrates need not hesitate to inflict penalties on those who trust to Mr. Buckley's conclusions as evidence of their honesty: my experience is that the milk supplied at our doors varies with the honesty of the purveyor.—I am, etc.,

T. D. HARRIES, F.R.C.S., M.R.C.P.

Aberystwyth, Dec. 18th.

POSTURE DURING DELIVERY.

SIR,—In his letter (October 27th, p. 785) Dr. Joy refers to Dr. Fairbairn's statement that the natural position of negroes during confinement is a squatting one. The Santals, too, have their confinements in a sitting posture. Their day of confinement is spoken of as their "sitting day." When I came here twenty-five years ago I thought it was probable that the women did have trouble during their confinements, but that this was not known owing to the fact that there was no woman doctor here for them to call in. I asked those living near our bungalow to let me know when labour began. Many of them did so. Though I arrived as a rule soon after getting the message I almost invariably found the mother sitting on the floor with the baby and the placenta beside her. On one occasion I arrived about an hour after the confinement was over and found that the mother had cleaned out her house after the birth of her baby.

The women here lead a healthy open-air life and keep their muscles in good condition by field work. For the Hindu women in the villages round about who are attended by "dais," confinement is a much more serious affair. Santal women are left entirely to Nature, and the results are excellent.—I am, etc.,

Bamdah, Santalia, Nov. 21st. J. R. MACPHAIL.

DIFFICULT MIDWIFERY IN GENERAL PRACTICE.

SIR,—Surely it is high time for lecturers and professors to appreciate the fact that the general practitioner has not been doing midwifery all these years without learning something. Chloroform has altered the whole orientation of the art of obstetrics. Nothing is exactly where it was. The textbooks are out of date. It is an anachronism, for instance, to write or speak of an unreduced occipito-posterior position. One does not think of it, far less tolerate it. And, speaking so, I imply reduction of the condition by neither the manual exercises described in lectures and books nor the "efforts . . . by means of abdominal pads" which appeal to one of your correspondents. Every device of that type provokes the conundrum of the profession, "It's pretty and scientific, but does it work?" and "the Devil . . . behind the leaves" is amused at us.

Only one method of reduction is worth the attention of practical men: application of forceps, rotation of the foetal head by these, and, without displacement of the blades, delivery. Objections raised against the method (that one may twist the infant's neck, that the forceps will slip,

There is no reason to believe that an abundant supply of vitamins in the food may be harmful to patients suffering from cancer, or, on the other hand, that the withholding of these could retard the progress of the growth. There are several other interesting considerations in this communication which will repay study: suffice it to say that the whole paper is a brilliant piece of constructive criticism.

Cultivation of Tissues.

Dr. A. H. Drew contributes two valuable papers on the cultivation of tissues *in vitro*, the first dealing with the conditions essential for the continued growth and differentiation of normal and tumour cells, and the second with an analysis of the growth-promoting factors. These substances have been found in much greater abundance in embryonic than in normal adult tissues and they are capable of passing through a Berkefeld filter. Autolysed extracts of normal adult tissues contain a similar growth-activating substance, while ice-cold extracts of tumours, not autolysed, yield it readily. It would appear that malignant tumour cells continuously form this substance. The observations are of prime importance and their significance will be readily appreciated.

Tar Tumours.

Dr. A. M. Begg, in a histological study of 140 tar tumours in mice, gives an interesting account of the modes of dissemination of these epitheliomatous growths. Several showed definite invasion of lymphatics and blood vessels, and no less than 18.5 per cent. gave evidence of spread along the perineurium of nerves. Doubtless this number would have been higher had serial sections been examined from each case. This mode of extension by nerves is rare, though not unknown in human cancer. Dr. Begg brings out the curious fact that in the mouse there is apparently a strongly specific tendency for malignant squamous epithelial cells to travel in this way, even in the case of transplants from the original cutaneous tumour. Other growths, such as adeno-carcinoma of the mamma, do not show this peculiarity.

Hitherto all attempts have failed to induce tumour growths of the skin of rats by tar or any of the other means that have proved successful in mice and rabbits. Dr. Russell has, however, been able to produce sarcoma in rats by weekly subcutaneous injections of tar over a long period. In one instance it took eleven months before there was any sign of growth, and in another case eighteen months, the injections in the latter case having been suspended at the end of a year. But once the tumour has started the development of the sarcoma is rapid. Dr. Russell holds that the neoplastic reaction is quite suddenly declared, as nothing in the way of any special preparatory phenomena can be detected histologically before the development of frank sarcoma. Although in the case of tar epitheliomata in mice a stage of simple wart formation is generally seen, there are some grounds there also for believing that the transition to malignancy is abrupt.

Resistance to Cancer.

The Director, Dr. J. A. Murray, discusses the questions of primary and secondary resistance to the induction of cancer. No adequate summary of his authoritative paper can be given here, as it is already so condensed. Refraining as much as possible from speculation, he brings into relationship the observations made on the experimental production of cancer by irritants and the observations of Drew already mentioned. "A certain amount of activating substance is probably produced by any kind of cell damage, and when by constant repetition this production has become automatic, proliferation will continue after the removal of the initial cause of protoplasmic disintegration. Temporary hypertrophies would, in this conception, correspond to the purely reactive production of activator, ceasing when the irritant is removed, benign growth to an autonomous production in small amount, and malignant growth to a more abundant production." According to this view the irritant does not produce its result by gradually breaking down the resistance of the economy to the unrestricted powers of growth of its constituent cells, but the cell acquires new properties or exaggerations of its normal activities which act disastrously to the rest of the organism. Dr. Murray develops further his thesis that the formation of one malignant tumour protects the individual permanently, or at any rate for a long time, against the development of a second primary tumour. The importance of these experiments lies in the indication they give "of a systemic constitutional change in the organism in which cancer has developed, a change which, if it could be recognized with certainty and rapidity, would enable us to recognize cancer in its earliest stages, and could we produce it without initiating new growth, would place in our hands a rational means of prevention." The reviewer, although impressed by the facts on which this conclusion is based, cannot wholly subscribe to the inferences so persuasively drawn; but, however that be, the experimental facts conclusively show that there is no constitutional liability to the development of cancer.

Paraffin Dermatoses.

The report ends with a detailed account of the occupation dermatoses of the paraffin workers of the Scottish shale industry by Dr. Alexander Scott of Broxburn. It may be remembered that Dr. Scott contributed briefly his observations on these precancerous and epitheliomatous lesions at the Annual Meeting of the British Medical Association at Glasgow in 1922,[2] and we expressed a hope that he might give a more exhaustive communication than is possible in the pages of a medical journal. We are therefore glad to see that the Executive Committee of the Imperial Cancer Research Fund has afforded him the opportunity of recording "the results of an unintentional experiment on a large scale in the human subject, carefully observed and recorded over a long period. As the same favourable conjunction of material and observer is unlikely to recur, it was deemed advisable to make an adequate permanent record of it widely available." This is a merited compliment to both parties.

It would be idle to pretend that organized cancer research in this country has escaped adverse criticism at the hands of some publicists who apparently have neither watched its development attentively nor perceived the gradual unfolding of its objectives; to all such and to the impatient this report should be an effective reply.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee thirty cases were considered and £350 voted to twenty-two applicants. The following is a summary of some of the cases relieved:

Daughter, aged 77, of M.R.C.S. who died in 1878. She had been given a home and an allowance of £26 a year for some years by a cousin who died last May. Voted £26 in twelve instalments.

Daughter, aged 39, of M.R.C.S. who died in 1902; has supported herself as a governess. Her expenses during six months' unemployment were about £52, and her total income about £70. She asked for temporary assistance. Voted £10.

M.R.C.S., aged 60, who had to give up practice in 1892. Down to 1921 applicant's board, lodging, and attendance were paid out of his annuity, supplemented by friends' gifts and help from a brother who is now unable to continue it. The Committee voted £26 in twelve instalments for the third time.

Daughter, aged 70, of M.R.C.S. who died in 1870. Owing to chronic ill health applicant is unable to support herself. She lives with an old nurse and pays 3s. 6d. a week rent. Her only income is £20 from the Home for Incurables and the Old Age Pension. Voted £10 in two instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., C.B., M.S., at 11, Chandos Street, Cavendish Square, London, W.1. The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.

[2] BRITISH MEDICAL JOURNAL, August 26th, 1922, p. 381.

THE third number of the *Bibliography of Industrial Hygiene*, published by the International Labour Bureau at Geneva last September, contains a list of cinematograph films, of which a collection is being made. They will be classified under six headings: general conditions of life and work, agriculture, industry, commerce, emigration, and films for school use. In the present issue only some parts of the first heading are dealt with. The number also includes a list of 468 publications dealing with industrial hygiene which appeared during the preceding twelve months.

materialize in practice. You anaesthetize your patient; slip the blades on in the recognized way, with the usual precautions and the usual endeavour to adjust them accurately to the sides of the head; then you lock the instrument and—*do not pull but push*—gently push the head back towards the uterus. Once it is free, you as gently turn the handles (just as you would rotate a key) through the half-turn or less necessary to carry the occiput forward. And then you act exactly as you would in any ordinary instrumental delivery: nothing more; nothing less. To loosen or withdraw the forceps with a view to an academical adjustment of their curve is unnecessary—you gain nothing in efficiency of control, and you risk what you have won.

After close on thirty years of professional experience, I know no manœuvre which, so simply, can confer an equal sense of quiet satisfaction. To have evaded the desperate pull, and dodged destiny, and got there all the same, is better than a bloody victory over circumstances—better even than a craniotomy!—I am, etc.,

Belfast, Dec. 9th. ROBERT WATSON.

HYPOGLYCAEMIA AND EPILEPSY.

SIR,—The possibility which has suggested itself to Dr. Mackay, in his letter which appeared in the JOURNAL of December 15th (p. 1184)—that it is the reduction of the blood sugar below a certain percentage that produces the epileptiform seizure—has, no doubt, occurred to many. The matter is being investigated in the Research Laboratories of the Cardiff Mental Hospital.

We are in a position to answer Dr. Mackay's first question, as far as it can be answered on the basis of the repeated examination of sixteen cases of genuine epilepsy. These patients, after tea—consisting of tea, bread, and margarine—on the evening before the blood was taken, received nothing further until 6.15 a.m. of the day upon which it was taken, when they were given an egg, two slices (about 6 oz.) of bread-and-butter, and water to drink. The blood was examined from three and a half to four hours after the above meal. There was no hypoglycaemia in the inter-fit periods; the blood sugar was within normal limits. In two of these cases the blood was withdrawn a few minutes before the fit.—I am, etc.,

Cardiff City Mental Hospital, Dec. 18th. EDWIN GOODALL.

SEROLOGICAL TESTS IN DIAGNOSIS.

SIR,—I have just read, with the greatest interest, Professor H. R. Dean's most able and learned paper in the BRITISH MEDICAL JOURNAL, December 1st (p. 1033), on the value of serological tests in diagnosis; it is only the extreme interest which I take in this subject that emboldens me to address you, and to ask for his advice and guidance regarding certain aspects which puzzle me.

In the first place, I gather that it is at least Professor Dean's own conviction that specific opsonin in tuberculous serums and the antibody which is responsible for a positive complement fixation reaction are of one and the same kind. Is not clinical experience rather opposed to this idea? Is not the opsonic index rather a measure of the host's defensive mechanism, and the complement fixation reaction quantitatively a measure of the host's susceptibility; in other words, both in tuberculosis and in syphilis, is not deviation of the complement possibly an anaphylactic phenomenon?

Excluding an occasional and individual exception, does not a lowering of the opsonic index curve travel *pari passu* with the patient's downward clinical progress; and does not this same downward clinical progress correspond in general with a gradual elevation in the number of minimal haemolytic doses deviated by the patient's serum?

Viewed from this angle, is it unreasonable to consider the substance responsible for the deviation of the complement to be, not an "antibody" at all, but a "pro-body," a sensibilizer? If so, the apparent paradox that the same serum should predicate infection, by a surplus in the one

[illegible] let something arise to disturb th
and the result will be either complete cur
serological) or a recrudescence of clinical dis
to me that this hypothesis might explain h
enjoy for years perfect health with a st
Wassermann reaction—even to the end of
even beget healthy children, and may yet
neural syphilis or a gumma at any moment.

Chelsfield Station, Kent, Dec. 3rd. J. GRAHAM

Obituary.

JAMES GRANT ANDREW, M.B., C.
F.R.F.P.S.G.,

Consulting Surgeon, Victoria Infirmary, (

THE death of Mr. Grant Andrew took pla
suddenness on December 6th. He was prese
dinner in Bournemouth on that evening, an
ing a recitation he resumed his seat and
immediately. Though his immediate relati
of the existence of a cardiac disability for
advice only recently, his death, and the man
as a great shock.

He was a son of the manse, and was born
Glasgow, in 1868, where his father, the
Andrew, D.D., was at that time minister.
was obtained at Hutcheson's Grammar S
from which he entered on the study of medi
University. He was a steady worker, and
distinctions, being during his last year m
senior class of surgery. He graduated M.B
and obtained the post of resident assistant
Infirmary, where he remained for a year, be
to Dublin, London, and Paris for further
his return to Glasgow he was demonstrator
the Anderson College for a time, and later
professor of surgery. In 1892 he returned to
Victoria Infirmary as surgeon to out-pati
became assistant surgeon, and in 1905 he w
be surgeon in charge of wards. He held this
charged its duties with much acceptance a
about two years ago, when, though he had
age limit, he retired. To use his own words,
would like to pass the remainder of his allot
more congenial skies, and he chose Bourn
then he had practised there as a consulting s
a member of the Medical Pensions Board a
and served on the Council of the Scottish
Medical Schools Club of Hampshire and Dors
Glasgow he was appointed honorary consult
the Victoria Infirmary.

During his surgical career in Glasgow Mr.
time to undertake a good deal of extra work
would we mention his excellent record in
the affairs of the British Medical Associati
member of its Central Council from 1908 to 1
that period did admirable work on various
mittees—the Medico-political, Medical Inspec
ment of School Children, and the Scottish.
member of the Glasgow Branch Council, an
of the Glasgow Central Division from 1917
work and activities in Association matters
source of real pleasure, as he had its best int
of his profession at heart.

He was for many years a member of
Board, and later of the Education Authority
lent work particularly in connexion with m
to the medical inspection of school children,
lishment of treatment centres in various pa
He was a regular attendant at meetings of m
and frequently contributed to their proce
Southern Medical Society of Glasgow he se
every office, and was its honorary president
session. Indeed, he only delivered his address
on October 4th last; this paper, on "M
[illegible] in the Glasgow M

British Medical Journal.

SATURDAY, DECEMBER 22ND, 1923.

SLEEP.

"Happy is the man that findeth wisdom; his sleep shall be sweet."

THE immortals never slept. This we have on the authority of Mr. Bernard Shaw, and we are left to infer that a periodical retirement for recuperative purposes is the diseased product of a physical civilization. It would appear, therefore, that Methuselah and his kin had by one grand elevation of intellect—not unassociated, we suspect, with the discipline of a vegetarian dietary—divorced themselves from all affinities with the larger animal world. It may be that our inimitable dramatist is here making witting exposition of the physiological inability to fatigue nerve tissue, but more probably we are expected to concede that conceptions of the flesh are beside the point in a psychological dissection of the superman.

However this may be, the picture of an unsleeping immortality is not such as to commend itself to the aspirations of the human kind. The philosophy of every age has evinced a lively preoccupation with "Sleep, the lesser mysteries of Death." Whilst in the pagan mind is found all the child's terror of the mysteries of the night—

"The children twain of dusky night,
The dread gods Sleep and Death"

—religions have found in sleep that rest and peace which is to be the guerdon of the faithful. The Oriental, seeking a perpetual sleep in Nirvana, makes common purpose with the Greek idea, which conceived the highest development of intelligence to be a negation of consciousness. From the nation which sought a final rest on the bosom of Abraham arose the faith which assured that "He giveth His beloved sleep." For all his terror of the unknown, man has found no greater serenity than to yield to the seductive wooing of "queenly sleep," and has known no heavier punishment than that which Nature wields when she withholds sleep from the uneasy conscience or the uneasy body. As with Lady Macbeth, so with Brutus—"Since Cassius once did whet me against Caesar, I have not slept." Neither philosopher nor poet would seek to steal from us our bed.

"Not of the Mortals sleep, nor of the Immortals,
But blended of the twain."

Physiology has had little to add to the understanding of either the balm or the terror of sleep. We are at pains to prescribe the minimum requirement for child or for adult, while we cannot yet say wherein sleep is the "dear mother of fresh thoughts and joyous health." Medicine, whose chief handmaid is sleep, stands helpless by whilst the greater mystery snatches the life even from the arms of sleep. Professor MacWilliam, in a contribution printed at page 1196, brings to this problem criticism and suggestions which will seriously engage attention. He is disposed to question the comfortable view that sleep is a convenient degree of cerebral anaemia. The frequent occurrence of haemorrhage—cerebral, pulmonary, and gastro-intestinal—at night argues against a general reduction in blood pressure in these cases. Professor MacWilliam has previously suggested that sudden death by night may be due frequently to fibrillation of the ventricles of a debilitated heart, and now questions why this should occur and why anginal attacks should be common under the leisurely circulatory conditions reputed to obtain in sleep.

While it must be generally conceded that in deep undisturbed sleep there is a reduced blood pressure, a modified vascularity of the brain, and a depression of metabolism, respiration, and reflexes, it is suggested that in the uneasy sleep associated with dreams and nightmares a very different complex may be presented. The author discusses the evidence that such disturbed sleep may be associated with an elevated blood pressure, with pulmonary irregularity, with an augmented cardiac impulse, or with exaggeration of the lower reflexes. If such be of general occurrence it is not difficult to associate drastic lesions of the heart or vessels with their onset. It is suggested, indeed, that measurements of these circulatory disturbances which were made at the moment of waking from restless sleep pointed to a condition of stress exceeding that which was found in the same subject after indulgence in a short bout of moderate exercise. In Burton's *Anatomy of Melancholy* we find Lemnius quoted that uneasy sleep "causes dryness of the brain, frenzy, dotage, and makes the body dry, lean, and ugly to behold. The temperature of the brain is interrupted by it, the humours adust, choler increased, and the whole body inflamed." The great Galen himself writes that some sleep "overthrows the natural heat, causes crudities, hurts concoctions." Can we yet explain these observations?

While Professor MacWilliam leaves untouched the larger question of the cause of sleep, he is evidently inclined to suggest that the reduced blood pressure is an effect rather than a cause of sleep, or rather that the effect of sleep upon the circulation depends on the depth and the nature of the sleep. Although the crude analogy with anaesthesia cannot be upheld, it is significant that exaggeration or depression of the response of the lower centres follows the depth of anaesthesia.

Some readers may have had the privilege of hearing the address delivered to the International Congress of Physiology by Professor Pavlov last July. It is unfortunate that the remarkable studies of the Russian school on the physiology of the cortex are not yet available in any but the Russian tongue, and till this may be rectified the conception of conditioned reflexes and all that this implies will hardly achieve general recognition. In the address referred to[1] Professor Pavlov afforded some indication of the extension of these studies to the physiology of sleep, which gives the subject an entirely new orientation. Readers familiar with this school of thought need not be reminded that the cortex is held to be the seat of two contending activities—excitation and inhibition. A single "voluntary" action—the whole behaviour of the individual, indeed—is the expression of a balance between these two contending activities. The Anglo-Saxon differs from the Latin in the relative predominance of his inhibitory functions, and it may be a matter of some satisfaction to the northerner, therefore, that this does not imply a relative mental passivity, since inhibition is to be regarded as a process as positive as is excitation. Sleep, on this basis, becomes a spontaneous irradiation of inhibition over the cortex. The spreading may be to a greater or

[1] A report was published in this JOURNAL, August 11th, 1923, p. 257.

en the Territorial Army was formed in 1908 Mr Grant ew was attached to the 4th Scottish General Hospital the rank of major *à la suite*. On the outbreak of war 14 he was mobilized with his unit and served at Stobhill g the war years, except for a period of six months in e he did good work as divisional surgeon with the 58th al Hospital in France. After demobilization he was nted surgeon to the Bellahouston War Hospital under Ministry of Pensions.

om time to time he made many contributions to surgical ture, but in particular we may cite two publications – *vestigation into the Treatment of Tubercular Disease r Hip-joint—a Critical Examination of Seventy Cases* 01, and *The Age Incidence of Disease* in 1909.

was a cheerful and genial personality. He always l on the bright side of things, and his optimistic out- carried him over many difficulties, and gained for him friends in Glasgow, who mourn his loss. He is sur- by his widow—a daughter of the late Mr. Corrar rt of Yorkhill, Glasgow—one son, and two daughters.

NEY STEPHENSON, M.B., C.M., F.R.C.S.EDIN., sulting Ophthalmic Surgeon, Queen's Hospital for Children.

regret to announce the death of Mr. Sydney enson, which took place on December 15th after a period of ill health and bodily weakness. He was an almic surgeon of world-wide repute, particularly as er and editor of the *Ophthalmoscope*, a monthly which he established in 1903. At that time there in existence two reviews which had been published me years, and the advent of a new review was looked as more than an uncertain speculation. But Mr. enson had a real flair for journalism, so that his speedily made its mark as a progressive and valuable . He made a specialty of combined reviews upon subject of topical interest, securing good contribu- from many writers on these subjects, together with ct reports of papers by writers in foreign reviews. he accomplished in this way for other workers in ield of ophthalmology was of real service to the lty and will not be forgotten. By 1913 the review ted had become by far the most important periodical of h ophthalmology, and at that date, through a move- initiated and carried through by the energy of the Ir. Walter Jessop, the three British periodicals—the *almoscope*, the *Ophthalmic Review*, and the *Royal on Ophthalmic Hospital Reports*—were combined into eriodical, the *Journal of British Ophthalmology*. The re was secured financially by a small limited company, he editorship of the new journal remained in the tent hands of Mr. Stephenson, an office which he ued, despite his severe physical disabilities, until his ted death. The combination proved a real success, urnal adding to the dignity of British medicine in all measure; and by good management the company een a success also.

re was much else besides journalistic work in which tephenson made his mark. He was at one time the almic surgeon of Queen Charlotte's Hospital, and gh that office gained much insight into the conditions hthalmia neonatorum. When in 1908 the British al Association appointed a special committee to er the causes and means of prevention of this fell e he was chosen chairman of the committee; its , which was largely the work of Mr. Stephenson, e a classic on the subject, and a basis for much of the ganda which has so materially reduced the incidence disease in recent years. Associated with this work s success as Middlemore Prize essayist of the British al Association in 1907; his essay, published in a book d *Ophthalmia Neonatorum*, was a veritable encyclo- of knowledge, leaving little else for anyone to add t time.

a time Mr. Stephenson was a medical officer of the Law ophthalmia schools at Hounslow and did valu- ork in that capacity, presenting a parliamentary on the "Ophthalmic State of the Poor Law Children Metropolis." His interest in the study of disease in children led him in association with the late Dr. Carpenter to found a society for that special study. The effort attained an immediate success, and when the amalgamation of many societies resulted in the formation of the Royal Society of Medicine the society became, and still is, *one of the constituent sections*. He was a great friend of the late Mr. R. Doyne, who had a close connexion with Oxford. Between them they founded the Oxford Ophthalmological Congress, which meets yearly in Oxford. From the beginning its pleasant air of good fellowship gave it a strong appeal, particularly to provincial members of the specialty, so that it was to be expected that on the death of the first Master of the Congress, Mr. Doyne, he should be succeeded by Mr. Stephenson. There will be many members of that Congress who will regret the loss of its second Master. The papers and books published by Mr. Stephenson are too numerous to name, but there are few of them which have been without some influence upon his compeers and the generation which succeeds them.

He went to school at Epsom College, was a graduate in medicine of Edinburgh University, and a Fellow of the Royal College of Surgeons of Edinburgh. He leaves a wife and one daughter, to whom we offer our sympathy.

Dr. EDOUARD MEYER, dean of the Nancy Faculty of Medicine, has recently died at the age of 65.

The Services.

VOLUNTARY AID DETACHMENTS.

New Organization.

THE Army Council has approved a scheme under which, in the event of war or other national emergency, the medical services of the Navy, the Army, and the Air Force will be supplemented by the personnel of voluntary aid detachments. These detachments will furnish the recruits for motor ambulance convoys and ambulance trains, hospitals and hospital ships, rest stations, convalescent homes, and other requirements for the sick and wounded. Detachments must be registered at the War Office through the Joint Voluntary Aid Detachment Council. Existing detachments need not be re-registered, but all members of such detachments will be re-enrolled. Detachments will be recruited and organized on a county basis, and will be administered by county controllers appointed by the Territorial Associations.

The personnel of detachments will comprise a mobile and immobile class. The mobile members of men's detachments will be between the ages of 19 and 40, and of women's detachments between 21 and 40. They must be prepared to undertake service on mobilization either at home or abroad, while immobile members, both men and women, who must not be under 18 years of age, will serve within reach of their homes. Men of military age, enrolled in any of the detachments, will not be held to be exempt from military service in accordance with any Military Service Act that may be in force. Candidates for appointment in the men's detachments, unless qualified as pharmacists or by previous experience in the medical services, must be in possession of a first aid certificate, and similarly women, with the exception of trained nurses, pharmacists, qualified dispensers, and hospital cooks, must have taken the certificates in first aid and home nursing.

The Territorial Army Associations will be responsible for the enrolment and efficiency of the various detachments, acting in close co-operation with joint county committees, and those who will train the personnel in their respective areas. A Central Joint Voluntary Aid Detachment Council—consisting of representatives of the Admiralty, War Office, the Air Ministry, Territorial Army Association, the Order of St. John, the British Red Cross Society, and the St. Andrew's Ambulance Association—will have full administrative and executive powers within the limits of the scheme. Lieutenant-Colonel W. H. A. De la Pryme has been appointed secretary of the Council, and the offices of the Council will be in 80, Pall Mall, London, S.W.1.

The fourth annual dinner of the 4th Northern General Hospital was held in Lincoln on December 13th, 1923, with Lieutenant-Colonel Lambert in the chair. It was decided that in future the dinner should be held annually in the spring and that invitations should be extended to all medical officers who had served in the Navy, Army, and Air Force, and who lived in the vicinity of Lincoln, as well as to the quartermasters and chaplains who had served in the 4th Northern General Hospital. Hospitality will be provided for any officers who attend the dinner, and who live out of Lincoln. The next dinner will be held in April, 1925, under the presidency of Colonel A. M. Connell, A.M.S., T.D.

The annual dinner of the 14th Stationary Hospital was held at the Trocadero Restaurant, London, on December 14th, under the presidency of Lieutenant-Colonel J. R. Harper. The next dinner will be held on the second Friday in December, 1924.

lesser extent complete, corresponding to a varying quiescence of the higher centres. Associated with incomplete irradiation of inhibition must be found areas of excitability, and these by inductance are regarded as being hyperexcitable. Under such conditions it does not seem difficult to believe that minor sensory or other stimuli falling on the active areas may give rise to exaggerated responses and by invasion of the inhibited territory may arouse the whole cortex to excitability and awaken the individual. This much seems established. On the other hand, one conceives that minor stimuli may fail to waken the sleeper, but, falling on excitable areas, may be transmitted to the lower centres to give just those extravagant responses which are to be found in disturbed sleep as described by Professor MacWilliam.

The outlook is fascinating in the extreme. To be able to look upon sleep as a positive active process is a real advance. The circulatory and other changes associated with the sleeping condition then become clearly effects rather than predetermining causes. Why do we "go" to sleep? What determines the initial irradiation of inhibition? This question remains to be answered. Is it itself a time-conditioned reflex? For all our conjecture he is still a fortunate man who can exclaim with Sancho Panza: "Only I know that whilst I am sleeping I neither fear nor hope, have neither pain nor pleasure; and well fare the man that invented sleep."

THE VIRUS OF THE COMMON COLD.

THE infective diseases of unsolved etiology are a field in which new knowledge is being sought actively to-day on every side and in many countries. To judge by the daily press, the general public takes almost as much interest in this branch of progress as the medical profession. We like to think that this popular interest is the outcome, not of mere curiosity, but of a wide appreciation of the fact that each new piece of knowledge, even when it has no immediate practical application, promises to bring us a step nearer to the time when the control and treatment of these diseases shall be far more efficient than is at present possible.

An endemic disorder of this category, of minor significance it is true, but for all that a prominent pest of modern town life, is the common infectious cold. Although for obvious reasons excluded from the list of notifiable infections, this malady from time to time during the winter months makes its appearance, and, by spreading through the town apparently unchecked until it has exhausted the susceptible material, acquires the proportions of a minor pathological scandal. Excluding the part it often plays as the precursor of respiratory maladies of graver import, the common cold must cause annually in the aggregate a vast amount of inconvenience, depression, irritability, and loss of working efficacy, none the less real because this disease has not yet acquired the dignity of official recognition. A further feature of the common cold is the comparative brevity of the acquired immunity that follows on an attack. Thus many people suffer regularly once a year, while some have two or more attacks, and those unfortunate individuals when they are enjoying a temporary respite and come by chance in contact with a person in the acute explosive stage of a cold know by repeated experience that their chance of escape is but small.

It would seem that the pathogenic agent responsible for the common cold has not yet been established beyond dispute. Thus while a number of well known bacteria, generally designated "catarrh organisms," occur in the respiratory discharges in catarrhal conditions of all sorts, and undoubtedly play an important part in the later stages of the common cold, it has been suspected for some time past that this malady is due primarily to some more elusive pathogenic agent; in short to some special principle *sui generis*. In favour of this view is the circumstance emphasized by Foster that during the earliest stage of the attack of a common cold the nasal secretion is clear and remarkably free from bacteria of any kind when examined by the usual methods.

Since the common infectious cold is especially a disease of the human subject it was always probable that its etiology would be solved in the end by human experiment. The earliest observations on these lines appear to have been made in 1914 by Kruse,[1] who succeeded in transmitting colds by instilling into the nares of volunteers the diluted nasal secretion of an acute case after filtering it free of ordinary bacteria. In 1917 Colonel George Foster[2] of the United States Medical Corps repeated and confirmed Kruse's observation in some carefully controlled experiments on volunteers from an isolated garrison of soldiers, and succeeded in transmitting the disease, not only with filtered nasal secretion, but also with a culture in Noguchi medium obtained by inoculation with this filtered secretion. Foster, moreover, found some very minute "globoid bodies" in his cultures which he looked upon as probably the infective agent.

The latest contribution comes from the Rockefeller Institute, where Olitsky and McCartney[3] have carried out some experiments on volunteers with the filtered naso-pharyngeal washings in a number of cases in the acute stage of the common cold. In six separate instances where the secretion was taken before the eighteenth hour from the onset, transmission of the disease was effected by gently rubbing a swab charged with the filtrate on the nasal mucosa. Control experiments with the same material heated to 60° C. gave negative results. The incubation period varied from eight to forty-eight hours. In two further cases in which filtered naso-pharyngeal secretion taken after the eighteenth hour from the onset was inoculated, the results were negative. Cultures of the filtered naso-pharyngeal secretion in Noguchi medium, and also in anaerobic blood-agar plates, failed to yield either the globoid bodies seen by Foster or the minute organism *Bacterium pneumosintes* found by Olitsky and Gates in similar cultures in cases of influenza. While several minute anaerobic organisms were cultivated, no organism was found that could be especially identified with the common cold. Experiments on rabbits with the naso-pharyngeal secretion from these cases of colds failed to produce the results obtained with similar material taken from cases of influenza.

These experiments, therefore, suggest that the active principle of the common cold belongs to the group of filter-passing viruses, and that the precise nature of the pathogenic agent here involved has still to be determined.

SIR CHARLES SHERRINGTON, Waynflete Professor of Physiology in the University of Oxford, and President of the Royal Society, has been elected a corresponding member of the Section of Medicine and Surgery of the Académie des Sciences, Paris, in succession to the late Sir Patrick Manson.

[1] Kruse: *Muench. med. Woch.*, 1914, lxi, 1517.
[2] Foster: *Journ. Infect. Dis.*, 1917, xxi, 451.
[3] *Journ. Exper. Med.*, xxxviii, 427, October, 1923.

UNIVERSITY OF OXFORD.

THE following candidates passed the Final Examination for the degrees of B.M., B.Ch. in the subjects named:

Forensic Medicine and Public Health: G. R. P. Aldred-Brown, W. H. Bradley, R. E. D. Cargill, A. D. Dyson, C. L. Elgood, D. R. Gawler, C. A. H. Green, L. N. Jackson, W. J. E. Lupton, H. A. Robertson, V. P. Robinson, B. G. Scholefield, I. M. Sidley, B. E. Thompson, G. I. Wilson, A. E. B. Harding. *Medicine, Surgery, Midwifery:* O. D. Ballinger, D. T. Barnes, A. M. Cooke, R. S. Creed, L. N. Jackson, J. A. Macfadyen, G. F. L. Mitcheson, H. A. Robertson, B. G. Scholefield, E. B. Strauss, T. S. Townsend, H. F. Turney, A. E. B. Harding, J. Orr-Ewing. *Materia Medica and Pharmacology:* C. P. Blacker, W. H. Bradley, H. A. Byworth, J. N. C. Ford, A. T. Fripp, A. H. Gale, C. L. Harding, G. G. Hill, H. O. Hopkins, T. C. Hunt, J. S. Jerome, M. J. W. Minshull, J. S. Rake, C. E. Roberts, J. de la Mare Savage, J. G. S. Thomas, O. R. Tisdall, A. L. Wilkinson, K. G. Norton, J. M. Vaughan. *Pathology:* L. J. Barford, C. P. Blacker, R. B. Bourdillon, W. H. Bradley, C. S. Broadbent, R. V. Facey, L. N. Jackson, T. L. Ormerod, R. A. Walsh, O. B. Buckley, E. J. Cockram.

In a congregation held on December 15th the following degrees were conferred:

D.M.—M. E. Shaw.

B.M., B.CH.—O. D. Ballinger, D. T. Barnes, A. M. Cooke, R. S. Creed, Alice E. Harding, L. N. Jackson, J. A. Macfadyen, G. F. L. Mitcheson, T. L. Ormerod, T. S. Townsend, H. F. Turney.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

Scholarships 1924.

SIX scholarships and exhibitions are available for students of the Faculty of Medical Sciences entering the College in October, 1924. The value of these scholarships and exhibitions is not less than £40 a year each, tenable in some cases for three years and, in the case of the Bucknill Scholarship, for the whole period of medical education. The value of any of these scholarships or exhibitions *may be increased by the grant of a supplementary* bursary if the circumstances of the scholar or exhibitioner make such a grant necessary.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved in the examinations indicated:

M.D.—J. Flanagan, Annie A. Muir.

FINAL M.B., CH.B.—*B. Ordman. *Part III:* R. L. Blair, I. Casdan, M. Cohen, N. B. Cooke, J. C. Drummond, Kathleen Edgecombe, C. K. D. Edwards, D. Glenley E. J. Foley, S. C. Goldstone, A. B. Griffiths, R. C. Gubbins, A. J. Hawe, C. W. Healey, F. H. Jones, W. F. Jones, A. Kefalas, T. S. King, Ruth Lunt, G. H. Mann, J. I. Noble, D. U. Owen, Eleanor M. P. Pearson, R. A. Roberts, G. Sanders, J. R. A. Tallack, Elizabeth M. Theron, J. G. Thomas, R. W. Thomas, H. Walker, A. E. Wall. *Part I:* †A. T. Ashcroft, †C. A. Birch, J. M. Brodrick, N. Cresswell, H. L. Cullen, P. V. Dillon, L. Earlam, Sybil O. Edwards, W. Emdin, C. J. S. Garton, I. Gordon, A. J. Goss, Frances M. Greenhalgh, Catherine E. I. Greenshields, Gwyneth Griffith, C. A. Harris, Beryl M. Hawthorn, J. C. Heal, R. E. Horsfall, F. Hughes, Elvy I. Johnstone, S. M. Katz, B. D. Knoblauch, B. Krikler, Sarah Leigh, L. J. A. Loewenthal, T. R. E. Lougton, †G. McNichol, E. Martinez, K. N. Mawson, J. Morrissey, Winifred A. Nichol-on, G. W. Paton, H. Peaston, J. W. Reid, Kathleen M. Roberts n-Dunn, †Miriam Roskin J. C. Ross, F. B. Shevlin, Ruth Simpson, Margaret E. Thomas, R. S. Turner, C. E. Unsworth, J. Unsworth, Rosalind Vacher, F. W. Yates. *Part II:* C. P. Allen, A. Ashworth, C. Baxter, T. Bellis, D. Cohen, H. A. Cole, E. Cook, J. D. Craig, O. Dawood, H. Duff, J. H. Gilchrist, L. F. Henry, T. S. L. Jones, Rebecca Katz, A. L. Kerr, B. D. Knoblauch, B. Krikler, E. Martinez, J. R. Mitchell, R. S. Turner.

D.T.M.—B. Abelman, Winifred M. Edghill, N. D. Fraser, R. Lee, E. R. Peirce, C. B. B. Reid, A. E. Richmond, J. B. Steven.

* With second-class honours and distinction in Surgery.
† *Distinction in Pathology.*

UNIVERSITY OF BIRMINGHAM.

AT the congregation held on December 14th the following degrees were conferred:

CH.M.—H. P. Pickerill (*in absentia*).

M.B., CH.B.—A. Beauchamp, W. E. Bardie-Adshead, W. L. Blakemore, O. Bresner, Annie Bryce, M. Cohen, Vera Cullwick, G. Dudley, C. C. W. Maguire, W. H. Marston, C. J. Murphy, May I. Wallace, E. G. Wilkinson, R. C. Williams.

UNIVERSITY OF SHEFFIELD.

THE following appointments have been made: *Lecturer in Radiology:* R. A. Morrell, M.R.C.S. *Lecturer in the History of Medicine:* G. Wilkinson, M.B., F.R.C.S. *Lecturer on Operative Dental Surgery:* Mr. J. H. Skerritt. *Assistant Lecturer in Medicine:* D. C. Barron, M.D.

UNIVERSITY OF EDINBURGH.

AT the graduation ceremonial held in the M'Ewan Hall on December 14th the following degrees were conferred:

M.D.—*R. C. Begg, R. M'D. Cairns, Ethel Cassie (*née Wiseman*), †A. Dower, F. E. Gunter, D.S.O. (Lieut.-Colonel R.A.M.C.), W. T. Hall, A. Joe, I. H. Lipetz, A. M'Farlane, *D. A. Miller, D. H. Russell, *C. W. Stump.

DOCTOR OF PHILOSOPHY (*in the Faculty of Medicine*).—H. Dryerre.

[illegible] Doeg, L. G. Drury, R. H. Dunlop, L. M. C. Du[illegible] Margaret G. Falla, W. Foote, W. M. Ford-[illegible] Forster, W. C. Fothergill, D. A. Fraser, J. F. Frase[illegible] L. S. Frost, M. Gelb, G. M'K. Gibson, S. Gill, Giblies, D. Go'd, Margaret H. Gordon, A. D. Goul[illegible] Yooll, L. P. Greson, A. B. Guild, W. F. Hamilt[illegible] Fox, L. E. Henderson, C. V. Hendry, H. Hoffm[illegible] L. Jaffit, E. W. C. Jobson, W. Jones, M. Kahn, Isa[illegible] C. King, W. H. Kluge, Annie G. Learmonth, J[illegible] Leishman, R. V. Liddell, Elizabeth M. Lindsay[illegible] Louw, D. B. Low, R. I. M'Alley, W. N. M'Ar[illegible] G. H. M'Cafferty, S. J. M'Cafferty, A. W. M'Ca[illegible] D. Macdonald, J. D. Macdonald, R. Macfiggans, [illegible] Janet M'L. Mackay, ‡D. T. Mackie, J. B. Ma[illegible] Maclaren, I. H. Maclean, S. R. Macmillan, D. A. [illegible] Marr, E. B. Mercer, H. Miller, J. Milne, G. W. Mc[illegible] A. S. Nicol, J. T. B. Nicoll, B. R. Nisbet, G. Ormia[illegible] J. R. H. Pasqual, D. G. Paterson, W. D. Paterso[illegible] M. Pretovitch, W. J. R. Pickles, R. K. Porteo[illegible] P. V. Pritchard, W. H. B. Ramsay, W. Ramsa[illegible] R. E. B. Rees, J. J. Robb, G. Robson, A. Rosen[illegible] Margaret G. Ross, H. L. Rubin, C. G. A. Salvosen, [illegible] A. Scott, M.C., Jocelyn M. S. Scovell, J. A. Shaw, [illegible] Simpson, Ann F. G. Smith, C. R. Smuts, N. [illegible] Sprunt, J. P. Stewart, F. M. Stuart, T. B. M. M. [illegible] Terry, F. F. du Toit, T. S. Torrance, F. Towers, [illegible] E. D. M. Wallace, H. K. Watson, J. H. Watson, [illegible] Williamson, Winifred Wood, G. W. Yule.

The Ellis Prize in *Physiology* has been awarded [illegible] Walker.

* Awarded gold medal for thesis.
† Commended for thesis.
‡ Passed with second class honours

UNIVERSITY OF DUBLIN.

SCHOOL OF PHYSIC, TRINITY COLL[illegible]

THE following candidates have been approved [illegible] tions indicated:

FINAL EXAMINATIONS, PART II.—*Medicine:* *W. A. [illegible] J. E. Bliason, J. M. Mounsey, H. Isaacson, I. M[illegible] E. R. Hafner, J. A. Levitt, J. S. Glasgow, W. [illegible] Fausset, W. F. Whaley, D. L. Hemmingway, [illegible] Kathleen E. Hill, A. J. Beckett, J. M'Clellan[illegible] Crawford, C. W. J. Ingham, W. D. Speedy, D. [illegible] Williams, P. C. du Plessis, A. B. Monks, A. [illegible] O'Neil. *Surgery:* P. K. Dizon, G. F. T. Saunde[illegible] M. Cohen, N. E. H. P. Williams, W. L. W. S[illegible] J. J. Laing, J. E. Deale, C. J. M'Quillin, J. M[illegible] Dale, L. Harris, Martha Reid, R. Schaffer, C. [illegible] O'Grady, F. G. Brown, J. M. Gordon, Isobel G. [illegible] P. P. van der Merwe, Kathleen E. Hill, J. [illegible] Isaacson, H. J. Hugo, Isabel a H. Speedy, Eilee[illegible] Toit. *Midwifery:* *D. K. Lyons, *J. K. S. Thom[illegible] *G. A. Cowan, *J. R. Bradshaw, *G. Robinson, [illegible] Armstrong, S. Wigoder, L. E. J. Werner, J. A. [illegible] Atkinson, J. H. Bowyer, W. H. Anderson, R. E. [illegible] Booth, F. J. Swanepoel, J. W. Wallace, L. [illegible] Loubser, K. F. Mackenzie, L. M. Whitfitt, J. L. [illegible] J. L. F. Steele, J. Horwich, W. A. Dickson, C. J. [illegible] Garde, R. Warnock, J. D. Watson, W. A. [illegible] Brangan, Noah M. Gilcriest, P. N. H. Labu[illegible] Proctor, I. Strasburg, H. Birney, A. L. Dobl[illegible] Berthe H. Lawler, P. D. Pi-l, H. W. Strong, [illegible] Dorothy I. Henry, H. St. G. McKenny, R. G. [illegible] Rankin, R. A. Webner, R. W. Harte, L. P. S[illegible] Crawford.

* Passed on high marks.

ROYAL COLLEGE OF SURGEONS OF

AN ordinary meeting of the Council was held [illegible] when Sir John Bland-Sutton, President, was [illegible] deaths of Sir Frederick Treves and Mr. Willia[illegible] were reported, and votes of condolence with [illegible] passed. Diplomas of Fellowship were grante[illegible] twenty-five candidates:

Hugh Braund Kent, Granville Douglas Robertso[illegible] Brown, Hugh James McCurrich, Thomas Colly[illegible] John Battersham, Salomon Kadinsky, John Mil[illegible] August Marras Petersen, Harold Currie Brays[illegible] Doherty, William George Rose, Reginald Wal[illegible] Clement Price Thomas, Thomas Stanley No[illegible] Fifield, William Collins Faull, William E[illegible] Calvert Mitchell Carruthers, William David H[illegible] Hurley, John Robert Lee, Saurendra Mohar[illegible] Bradlaugh Walker, Owen Herbert Williams.

Licences in Dental Surgery were granted [illegible] King's College Hospital Dental Department w[illegible] of dental schools recognized for the course of s[illegible] in Dental Surgery.

Mr. V. Warren-Low was re-elected a Mem[illegible] Examiners. Mr. W. G. Spencer was re-electe[illegible] Central Council for District Nursing in Lon[illegible] Moynihan was re-elected a Member of the Co[illegible] of Birmingham.

ROYAL COLLEGE OF PHYSICIANS OF

AT the annual meeting of the Royal Colle[illegible] Edinburgh held on December 6th the followin[illegible] elected for the ensuing year:—*President:* Dr. [illegible] C.M.G. *Vice-President:* Dr. J. C. Dunlop. *Tr[illegible]* Walker. *Honorary Librarian:* Dr. Robert T[illegible] *Research Laboratory:* Sir Robert Philip. *S[illegible]* Fowler. *Members of Council:* Sir Robert Phil[illegible] [illegible] Fleming, Dr. Robert Thin, Dr. I[illegible]

ROCKEFELLER GIFT TO EDINBURGH UNIVERSITY.

THE University of Edinburgh has received from the trustees of the Rockefeller Foundation an offer of a capital sum of £50,000 for the erection of a clinical laboratory in conjunction with the Royal Infirmary, and for the completion of the endowment of the professorship of surgery on a full-time basis. The trustees have offered also an annual grant of £1,750 for five years, from which certain salary charges in clinical medicine and clinical surgery could be met. The offer was formally received by the University Court on December 17th, and negotiations will no doubt at once be opened with the managers of the Royal Infirmary. It will, we understand, be necessary for them to obtain more ground: they are already committed to a new x-ray department and other extensions of the infirmary, for which they hope to get ground in the neighbourhood. The erection of a clinical laboratory such as the Rockefeller trustees contemplate will, it seems obvious, make it necessary to obtain still more ground. There is also the question of a site for the new maternity hospital, which some desire should be in the immediate neighbourhood of the infirmary. We have no doubt that the difficulties will be overcome, for Edinburgh will not lightly lose such an addition to the teaching facilities of its medical faculty as is now made possible. This is the third great gift made by the Rockefeller Foundation for the advancement of medical education and research in Great Britain; the other two are the gift for the erection of the Imperial School of Hygiene in London and the grants made to University College, London, for the erection of the Institute of Anatomy, for additions to the staff of that department and certain others, and to University College Hospital and University College Hospital Medical School for the extension and perfecting of the facilities they afford for medical education, so that they may become an ideal medical school in London, equipped in all departments on the most modern lines. It was only last week that the Rockefeller trustees announced that they had granted one million dollars (£200,000) as an endowment for the maintenance of the medical faculty of Toronto University. For the last three years the University has enjoyed the income derived from this amount; the capital sum is now definitely handed over to it. The gift is made in recognition of the research work done by the medical faculty, culminating in the discovery of insulin.

SIR WILLIAM MACEWEN IN AUSTRALASIA.

THE boat on which Sir William Macewen sailed from San Francisco to Sydney on his way to the Australasian Medical Congress of the British Medical Association at Melbourne touched at Wellington, New Zealand, on October 10th, when Sir William, who was accompanied by his son, Dr. William Macewen, was welcomed by members of the New Zealand Branch. The boat arrived on October 15th at Sydney, where he was to have been entertained by Sir Walter Davidson, Governor of New South Wales, but that distinguished public servant had died on September 16th. On October 19th the students of the Sydney University Medical Society offered Sir William Macewen an official welcome in the great hall of the University; addresses were given by Dr. R. A. Money, president of the society, Professor A. E. Mills, dean of the faculty of medicine, and Professor F. P. Sandes, professor of surgery. After Sir William had replied the first verse of the 'varsity anthem was sung, and the meeting, which was attended by some 300 persons, resolved itself into a conversazione. On October 22nd he was entertained at dinner by the Glasgow University medical graduates. On October 25th, at a special meeting of the senate of the University of Sydney, the degree of M.D. (*ad eundem gradum*) was conferred upon him; the Chancellor, Sir William Cullen, K.C.M.G., presided, and there was a large attendance of members of the senate, of the professorial board, and of the profession. In introducing Sir William Macewen to the Chancellor Professor Mills, who is a member of the Council of the New South Wales Branch, sketched the eminent career of the new graduand and described the value of his contributions to science. Afterwards he was entertained at lunch in the Fisher Refectory of the University by the Warden and Registrar, Mr. H. E. Barff, M.A., C.M.G. On the same evening the New South Wales Branch gave a dinner in his honour, which was attended by some 101 members and by a number of guests, including the Premier of New South Wales, Sir George Fuller, K.C.M.G. On the following evening (October 26th) Sir William attended a meeting of the New South Wales Branch in the Anatomy Department of the University, when an address on a new operative procedure in the treatment of spastic paralysis and its experimental basis was given by Dr. N. D. Royle; it was illustrated by demonstrations on experimental animals and on the living man, and by moving pictures and lantern slides. Professor J. I. Hunter also gave an address, on the tonic influence of the sympathetic nervous system. Dr. C H. E. Lawes, President of the Branch, both at the dinner and at the meeting expressed the satisfaction of the members in having among them Sir William Macewen, with whose name and work they were so familiar, and the gratification felt in the honour done to them by the Association in arranging that so distinguished a member of the profession should represent the Association at the Australasian Medical Congress in Melbourne, the first to be held under the auspices of the Branches in Australia. The State Government invited Sir William to make a tour as its guest, but time only permitted him to visit the wonderful and beautiful Jenolan Caves; to reach them he travelled by a car placed at his disposal by the Government through the Blue Mountains, a two days' trip there and back. As he was due at Melbourne on November 12th he was unable to accept an invitation from the Queensland Branch to visit Brisbane. The Congress was to begin in Melbourne on November 12th under the presidency of Dr. G. A. Syme, and we have made arrangements to publish an account of its proceedings as soon as it reaches this country.

CONGRESS OF THE BELGIAN CANCER LEAGUE.

A CONGRESS was held in Brussels from November 18th to 21st, under the presidency of Professor Depage, with the object of instituting the Ligue Nationale Belge contre le Cancer. It is apparent from the many lectures and demonstrations that the Ligue considers the most promising line of treatment to be by irradiation. With this belief, a great number of demonstrations of the exact technique for the use of radium and x rays had been arranged, and a considerable number of patients who had been treated by this method were collected. Of particular interest was the technique employed in the gynaecological cases, and it is specially to be noted that the gynaecologists associated with this work have given up entirely the use of Wertheim's hysterectomy for carcinoma of the cervix. Their present method of treating this condition is, briefly, as follows. First radium is applied in the vagina, by means of needles and tubes, for at least six days; a month later radium is placed in the pelvis through an abdominal incision, and left for at least six days; another month later the patient is treated by means of deep x-ray therapy. The Radium Institute in Brussels has only recently been founded, and therefore it is too early to say anything about final results, but it is possible to observe that those at the end of one year are truly remarkable. It is interesting to contrast the treatment carried out at this institute with that of the Radium Institute of Paris, where surgical procedures for

DON SCHOOL OF TROPICAL MEDICINE.

g candidates have passed the examination of this termination of the seventy-third session (September 1923):

ht (Malaya Medical Service), *N. D. Dunscombe, *H. B. African Medical Service), *P. S. Mills (I.M.S.), *G. R. (I.M.S.), M. J. Graham, T. S. Tirumurti, Y. A. Barrada, S. Watters, D. G. Garnett, M. G. Bhandari (I.M.S.), A. A. C. L. Wilmoth, W. L. Paterson, W. K. Dunscombe, T. thy, R. M. Khareat (I.M.S.), L. Anizstein, J. H. Neill, ass (I.M.S.), J. J. Moriarty, J. Findlay (I.M.S.), D. R. r, J. S. Bellas, H. C. Van Dort, W. L. McCulloch, F. H. lies J. V. Dhurandhar, J. (S), K. Lindberg, B. P. (I.M.S.), C. H. Philips, T. Sheed, Lieut.-Colonel

ith distinction. † Awarded the Duncan Medal.

Medical News.

has become patron of the Royal Society of edicine and Hygiene, which has been a royal e his command in 1920. The society was founded unite and facilitate intercourse and propagate among medical men and scientific investigators in the tropical world. The society has had a dis- ist of presidents: Sir Patrick Manson, Sir Ronald illiam Leishman, Sir Havelock Charles, Dr. F. M. Sir David Bruce, Sir William Simpson, Sir James l Sir Percy Bassett-Smith (who now holds office).

IFIC conversazione, which was honoured by the the Prince of Wales and a distinguished company more than a thousand, was held at the Middlesex d its medical school on the evening of Decem- The operating theatres and the electrical depart- open to the visitors, as was the radiological , which comprises three rooms—one devoted to osis and the others to superficial and deep x-ray There was also a radium exhibition, and demon- ultra-violet rays were given. Many demonstra- also given in the bacteriological, physiological, and departments, and in other rooms the method of asulin was illustrated.

rstand that Sir Frederick Mott will continue to ourse of lectures for the Diploma in Psychological t the Maudsley Hospital, and that the seventh commence on Monday, January 21st, 1924, when n the delivery of a course of eight lectures on the f the nervous system. The physiology of the stem will be treated by Dr. F. Golla in a like series, n January 25th. The lectures on psychology will y Dr. Henry Devine, the first on January 24th. ulars of the course can be obtained from the the Pathological Laboratory, Maudsley Hospital, ill, S.E.5.

t course of lectures and practical instruction for a in psychological medicine granted by the various s will be held at Bethlem Royal Hospital, S.E.1, ence on Monday, January 14th, 1924. It will last months and consist of two parts: (A) anatomy, nd physiology of the nervous system, also general ; (B) neurology and psychological medicine. The whole course is 15 guineas, and the fee for Part A separately is 10 guineas. The time table of the be obtained from the physician superintendent at l. Clinical instruction in psychological medicine Bethlem Royal Hospital every morning (except s) at 11. The fee for post-graduates is 5 guineas months' attendance, but a reduction is made to attend the course for the diploma in psychological

al series of post-graduate courses, covering prac- he departments of medicine, will be given during uarter of 1924 in Vienna. A special refresher ll begin on February 24th. Particulars can be rom Dr. Kronfeld, Porzellangasse 22, Vienna IX. he programmes can be obtained by members in the the British Medical Association.

IBUTION meeting of the President (H.R.H. the Wales) and Council of King Edward's Hospital London was held on December 18th, when grants ount of £235,000 were made to hospitals and con- homes. Owing to pressure upon our space the the meeting is held over until our next issue.

ty-second annual dinner of the Old Epsomian Club at the Trocadero Restaurant, London, on Decem- with the president, Mr. W. Æneas Mackay, in the proposing "Floreat Epsomia" Mr. Mackay said ect which had been in his mind for some time was the setting up of a hostel in London for old boys of the school, where they could live while studying for medicine and other professions; it would serve also as headquarters for the club. He coupled with the toast the name of Mr. A. C. Powell, headmaster of Epsom, whom he welcomed as the first man of science to hold that office. At the end of his speech the school song, *Canticum Epsomiense*, was sung with enthusiasm. Mr. Powell gave an account of the past year's successes in work and play, and in so doing remarked that the real function of a first-grade public school was to turn out men worthy of the British Empire, not merely members of one specialized calling. He was able to announce that the work of building the school chapel, which is to form the Epsomian War Memorial, was progressing steadily. The honorary secretary of the club, Mr. S. Maynard Smith, C.B., F.R.C.S., briefly reported the receipt of messages of regretful absence from old Epsomians in many parts of the world—"from Birmingham to Burma." The health of the visitors was proposed in a witty speech by Dr. P. Montague Smith, whose thumbnail biographies of the principal guests were greatly relished. In responding, Mr. E. W. Garrett, for many years a metropolitan police magistrate, expressed the appreciation of his fellow residents for the new headmaster's friendly attitude towards the town of Epsom. A pleasant evening concluded with the toast of "The Chairman," proposed by Sir Thomas Wilson, Clerk of the Peace for Glasgow.

THE Ministry of Health has issued a table (Memo. 87/T) showing under various headings the weekly cost per patient in the year ending March 31st, 1923, at a large number of residential institutions for the treatment of tuberculosis, under the control of county councils and various local or private authorities. These headings include drugs, food, fuel and light, and staff expenses. Money may be saved by purchase through a central contract department. The inclusion in one contract of several institutions in the same locality is suggested. Economies in heating and lighting are often possible, and devices for making use of exhaust steam and a lower grade of fuel or ensuring a more complete degree of combustion may be adopted by the engineer in charge if he is supplied with information enabling him to judge the cost and efficiency of his department and encourage him to put forward better and more economical methods. It is hoped to publish the table in future years at an earlier date than December, if the returns from the various institutions are sent in more promptly.

LADY GEORGE NEVILL on December 13th opened the new orthopaedic and x-ray department which has been added to the Royal Sussex County Hospital, Brighton, as the result of a combined effort by the Joint War Committee of the Order of St. John of Jerusalem and the British Red Cross Society, the Shoreham United Services Funds, the Whellock and Blandford memorial funds, and private generosity. Lady Nevill's interest in the hospital has been demonstrated in the past by her gift of the greater part of the equipment of the massage department, and it was further announced during the ceremony that a cardiograph department, in memory of the late Lord George Nevill, would be presented and endowed out of money belonging to the Lady George Nevill Hospital in Hove, which was now closed. The new departments and the wards in connexion with them are most conveniently arranged, and the apparatus and equipment generally are of the most modern type.

MRS. HORBOROW, widow of Dr. A. E. R. Horborow, who lost his life at Weston-super-Mare in endeavouring to rescue two schoolgirls from drowning in a rough sea, has received from the Carnegie Hero Trust Fund a framed memorial certificate bearing the following inscription: "In recognition of the heroism of Albert E. R. Horborow, M.B., F.R.C.S., who died on 18th August, 1923, as the result of an effort to save life."

THE Lord Mayor, in presiding at the sixty-first annual meeting of the Royal Surgical Aid Society on December 12th, said since its existence the society had supplied 1,149,229 surgical appliances amongst 748,211 patients. It was almost impossible to realize the degree of comfort, independence, and relief which such figures indicated. In the past year 30,420 appliances had been supplied, in addition to the temporary loan of air and water beds, invalid chairs, crutches, etc. There were, he said, eighteen branches of the society in the provinces, and the work was auxiliary and supplementary to that of the hospitals, whose treatment frequently needed to be followed by the use of artificial limbs and other appliances. The society, which was under the patronage of the King and Queen, Queen Alexandra, the Prince of Wales, and other members of the Royal Family, was worthy of the heartiest support of the public.

MR. JOCELYN PATTERSON, M.Sc., Ph.D., of the University of St. Andrews, has been appointed biochemist to the Charing Cross Hospital Institute of Pathology.

the application of radium are avoided as much as possible. The institutes have, however, one point in common—the workers at both believe that a moderate dose given over a long time, such as a week, is of greater value than a large dose given for a short time, say twenty-four hours. Other demonstrations included the treatment of carcinoma of the rectum by needles buried in the tissue around the growth, and of malignant disease in many other parts of the body, such as the tongue and breast. A somewhat novel technique for x-ray therapy of the breast is being employed by Dr. Sluys, who is burying a number of gold needles in the form of a gridiron in and around the growth while irradiating the tumour. The needles, of course, give off a number of secondary irradiations, which it is claimed intensify to a very marked degree the action of the rays. During the congress the evenings were occupied by gatherings of a social character.

PARASITOLOGY IN EGYPT.

IN keeping with recent diplomatic pronouncements, there is taking place in Egypt a gradual replacement of European officials by those of Egyptian nationality. The ultimate success or failure of this policy will profoundly affect the well-being of the country, and in no department to a greater degree than in that of the public health. For several years past the Egyptian Educational Mission has pursued the enlightened policy of sending the most promising of the senior students of the law and medical schools to Europe for several years of post-graduate study, and has thus provided a personnel, trained at least from the academic side, from which appointments can be made. We are glad to learn that the Minister of Education has recently taken a step which, looking to the future needs of Egypt, is one which reveals a far-seeing statesmanship. Dr. Mohammed Khalil has been appointed subdirector of investigations in ankylostomiasis and bilharziasis in the Public Health Department. In order that the duties of conducting researches on the important endemic parasitic diseases may be adequately carried out in relation to the practical problems in the field, facilities as to material and for clinical observation have been assured by the allocation of six beds, which will be under the charge of the subdirector, in the large Kasr-el-Aini Hospital in Cairo. Another important step in this co-ordination of parasitological work is the appointment of the subdirector as lecturer on parasitology at the Cairo Medical School. It is to be hoped that the Veterinary and Agricultural Schools will be brought ultimately into the scheme, for the interrelation of the helminth parasites which affect man, the domesticated animals, and plants is very intimate, and any systematic attempt to study the one cannot omit to deal with the others. Dr. Khalil is to be congratulated on the well deserved recognition which the Egyptian Government has thus given to his contributions to helminthological research. An historic mantle falls upon his shoulders, for the land of Egypt is the home of helminthology, and has already been the happy hunting ground of Bilharz, Sonsino, Looss, and Leiper. As an undergraduate in medicine Dr. Khalil was a student of Professor Looss, and for some years after graduating he was a member of the group of research workers associated with Professor Leiper at the London School of Tropical Medicine, and during that period visited British Guiana as a member of the Filariasis Commission.

PARENTS' RESPONSIBILITY FOR MEDICAL TREATMENT.

THE conviction at the Old Bailey on December 14th of Henry Norman Purkiss and Louisa Purkiss, members of a religious sect called the "Peculiar People," of the manslaughter of their son, aged 3 years and 3 months, by neglecting to call in medical aid when the child was suffering from diphtheria, serves as a reminder of a question dealing with the mental element in crime which remained unsettled until statute came to the aid of the common law. In such cases of parental neglect to seek medical aid a conviction was not always obtained, as was shown by the case R. *v.* Wagstaffe (1868), 10 Cox, 530, chiefly because of the application of the old common law maxim, "Actus non facit reum nisi mens sit rea"—that there cannot be a criminal act without a criminal mind. This maxim applied with especial appropriateness to the members of the sect of "Peculiar People," of whom there are 2,000, chiefly confined to Essex, whose faith forbade the seeking of medical aid on the ground of the text: "Is any sick among you? let him call for the elders of the church; and let them pray over him, anointing him with oil in the name of the Lord: and the prayer of faith shall save the sick, and the Lord shall raise him up; and if he have committed sins, they shall be forgiven him" (Jas. v, 14, 15). A short time after the decision in R. *v.* Wagstaffe the Legislature included a provision in the Poor Law Amendment Act, 1868, designed to meet such cases—"When any parent shall wilfully neglect to provide . . . medical aid"; and it was upon this express statement of the law that a conviction was secured in R. *v.* Downes (1875), 1 Q.B.D., 25. The Prevention of Cruelty to Children Act, 1894, omitted to restate this provision regarding medical aid, merely saying, "wilfully neglects such child," and in R. *v.* Senior (1898), 1 Q.B.D., 283, defending counsel argued that these words were not satisfied by proof of mere omission to provide medical aid. Lord Russell of Killowen, C.J., however, observed: "It would be an odd result if we were obliged to come to the conclusion that in dealing with such a subject as the protection of children the legislature had meant to take what may be described as a retrograde step; for the course of legislation and the provisions of the Act of 1894 show an increasing anxiety on the part of the legislature to provide for the protection of infants." The conviction was thereupon affirmed, but in 1908 Parliament thought it desirable to strengthen the law on the matter, and passed the Children's Act, 1908, Section 12 providing that "a parent or other person legally liable to maintain a child . . . shall be deemed to have neglected him in a manner likely to cause injury to his health if he fails to provide adequate food, clothing, medical aid, or lodging for the child." In R. *v.* Senior, too, the question was raised as to whether lack of means with which to obtain medical aid would be a good defence to a charge of manslaughter, but this is also provided for in the same section, which requires the parent to procure medical aid under the Poor Law Acts.

A MODEL MATERNITY AND CHILD WELFARE CENTRE.

ABOUT six years ago the Carnegie United Kingdom Trust, which exists to administer the philanthropic bequests of the late Mr. Andrew Carnegie, decided to select six thickly populated areas in the United Kingdom—three in England, and the others in Scotland, Wales, and Ireland—as places in which to build and equip model maternity and child welfare centres on the condition that the local authority in each place would provide the site and the cost of maintenance. Of these projected centres one at Birmingham and another at Motherwell in Scotland have been at work for some months, and on December 15th the centres at Liverpool and at Shoreditch in London were opened, the latter by Princess Mary, Viscountess Lascelles. Lord Elgin, in handing over the Shoreditch centre to the borough council on behalf of the Carnegie Trust, stated that the trustees were induced to select Shoreditch for the London centre not only because of its crowded population,

... the new session will be given on January 18th, 1924, by Professor H. E. Armstrong, F.R.S., who will discuss the scientific work of Sir James Dewar. On January 25th Sir Aston Webb, President of the Royal Academy, will speak on the future development of London, and on February 22nd a discourse will be given by Professor G. Elliot Smith, F.R.S., on the human brain. On Tuesdays, January 15th and 22nd, Dr. W. E. Dixon, F.R.S., of Cambridge, will give two lectures on drug addictions, and in February and March Mr. Joseph Barcroft, F.R.S., the new Fullerian Professor of Physiology, will give a course of four lectures on the respiratory pigments in animal life and their significance.

A SCIENTIFIC Novelties Exhibition, under the auspices of King Edward's Hospital Fund for London, will be held at King's College, Strand, daily from December 29th to January 9th, 1924. There will be demonstrations and experiments from 2 to 5 and 6 to 9 p.m.

A JAPANESE merchant, Yasukichi Miyagawa, was charged at the Central Criminal Court, on December 12th, with procuring 500 lb. of morphine hydrochloride to be sent to Japan, and also with possessing a quantity of the drug. The Recorder, in sentencing the prisoner to three years' penal servitude, said he would be recommended for deportation and would have to pay all the expenses of the prosecution.

THE *Paris médical* of December 15th reports that Dr. Soret, director of the Radiographical Section of the Pasteur Hospital in Havre for the last thirty years, has been obliged to have his right hand amputated in consequence of *x*-ray dermatitis. His forefinger was removed last March, but without bringing the disease to an end.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

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1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*: telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"S. W. T." asks whether it would be prudent to allow a small infant now a month old, weighing about 5 lb. (probably *premature*) to be taken out in an ordinary perambulator. The infant takes the breast freely and is doing well.

BUNGALOW HOSPITAL.

"H. R. G." asks whether any hospital has been built recently on the bungalow system—that is, with the wards all on the ground floor after the style of the hospitals erected during the war.

INCOME TAX.

Cash Basis—"Specific Cause" Claim.

"W. S. W." is a partner in a firm assessed to income tax on a cash basis of the three previous years. A new partner was recently admitted, and the new firm has lodged a claim to reduce the assessment to the amount of the cash profit of the first year, on the ground that the profits have fallen short owing to a specific cause following on the succession to the old firm. The inspector of taxes refuses to accept the cash basis for such a purpose.

*** The point raised is of some importance. There is no *legal* claim to the cash basis, which is accepted by the authorities on the ground that in the long run cash profits must approximate to true profits and are much more easily calculated. It will be ... considerations call for a computation of the ... purpose. Against this may be urged that du... the special reliefs then in force—reductions ... the actual profit were dealt with on the "ca... they were put forward. In the circumstanc... our correspondent to press for a cash basis ... will no doubt bear in mind the fact that even ... calculation of the particular year's profit he ... a properly calculated allowance for bad debts.

LETTERS, NOTES, ETC.

MENTAL AFTER-CARE.

The Mental After-Care Association for poor pe... or recovered from institutions for the insane is ... funds to carry on its work of preventing relap... the convalescence of some of the 7,000 pati... charged each year from mental hospitals ... arranges for medical advice, finds suitable emp... necessary outfits, and helps also in various oth... would otherwise have to face the world with... resources. Last year more than 900 cases we... majority of whom have done exceedingly we... will be gratefully received by the secretar... Church House, Dean's Yard, Westminster, S.W.

MIGRAINE AND CALCIUM LACTAT...

"J. B. S." writes: Dr. A. Douglas Bigland's ... (December 15th, p. 1133) on the treatment ... calcium lactate brought back to my memory a ... experience I had with this drug. For some ... I have been the subject of repeated attacks ... consider migraine, although the symptoms d... exactly with textbooks. In my case I have on... ache and sickness. Now about two years ago ... lactate, not for the migraine, but as a "bloo... 10 grains three times a day; and one day, wh... and conscientiously finishing my second bottl... a severe attack of migraine, starting with vi... (zigzag lines and balls of light before the left ey... up with dizziness and a diabolical headache on ... This attack was the first I had had with e... I attribute the severity to the calcium lactate ... since then attempted to take the drug with ... although not quite so marked, results.

DIET TABLES AND FOOD VALUES.

THE aim of Dr. E. P. Poulton in his *Diet Tables ... Diabetics* (London: J. and A. Churchill. 1923. ... place in a short and compact form some facts ... useful to patients suffering from diabetes when t... out their own treatment under the supervision ... advisers. The publication is opportune, since t... of "insulin" treatment has rendered precision i... ments far more imperative than ever before. ... them most useful, and they help the patien... instructions with ease and accuracy. Once t... fat, protein, and carbohydrate content of a diet ... mined for an individual patient, these tables will ... choose and vary his daily meals with safety and e...

We have also received a pamphlet containing ... *Values* compiled by Drs. Smith and Miller of Har... R. R. Browne and Co. 1923. 1s.). The table ... weight in grams of carbohydrate, protein, and f... one ounce of the article of diet, together with th... A very large range of foodstuffs is included, so th... practice an intelligent patient can arrange meals ... varied and attractive.

Yet as we look through food tables arranged for I... we reflect how much they add to the pain and ... illness by attempting to weigh diets in ounces ... They might be better advised to buy a set of gra... thus add to the length and ease of the years tha... them.

A CORRECTION CORRECTED.

SIR JAMES YOXALL (General Secretary of the Nati... Teachers) writes: I read in your issue for Dece... Sir Robert Armstrong-Jones has been caused "muc... by a statement made in the report of a lecture del... "before the National Union of Teachers." Th... delivered before students belonging to the Peopl... Health, and not before the National Union of Te... Union places a room at the disposal of that Leagu... of lectures each winter, but the proceedings and ... the proceedings are not under the control of the U... to correct a misapprehension, and not in the least ... work which the People's League of Health is doing.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, med... and of vacant resident and other appointments ... will be found at pages 29, 31, 32, and 33 of our a... columns, and advertisements as to partnerships, as...

but because of the enthusiasm for this work which the borough had already shown. The first plans submitted to the Trust by the borough council would have entailed an expenditure of £100,000, and were thought to be too ambitious, and the borough council eventually submitted new plans to cost £25,000. This sum the Trust had paid for the building and equipment of the centre; the borough council had purchased the site (in Kingsland Road) for £6,000, and had agreed to maintain the institution in full efficiency. The building is quite a noble one in its architecture and decoration, in striking contrast to the poor, adapted buildings which so often serve this purpose. In the main hall, which is to be used principally for lectures and classes, dinners are to be provided daily for a number of nursing and expectant mothers. As an annexe to this hall there is a pleasant nursery where the children of these mothers will be minded. Along the side of the hall several small rooms open out, and these are to be used for antenatal and infant welfare consultations, while a dental clinic for mothers and for children under 5 years of age is to be opened shortly. On an upper floor there is a hospital ward for six infants suffering from disorders of digestion, and two small wards for mothers and infants to be used in special cases where the establishment of breast-feeding requires supervision. In the kitchen and laundry the work is done by electricity, and every contrivance there and elsewhere is of the most modern and approved pattern, including the ventilating arrangements and the "Eco" dry cabinets. At the opening ceremony a brief account was given by the Mayor of Shoreditch (Mr. A. T. Parry) of the progress of this movement in the borough, which formerly had an unenviable notoriety for its high infant death rate. The first health visitor was appointed in 1909, a second in 1912, and in the following year the Shoreditch "school for mothers"—a voluntary institution—was opened. At the present time there are six maternity centres in the borough, with five medical men and seven health visitors. A centre in Kingsland Road, a few paces away from the new building, was opened in 1915, but the premises soon proved inadequate, and the Carnegie Trust has now made it possible to erect in its place an institute of great dignity as well as utility, and one which should be visited by those interested in maternity and child welfare work.

INFLUENZA AND PNEUMONIA.

It appears from the weekly returns of the Registrar-General that the notifications of pneumonia and the number of deaths ascribed to influenza have recently been appreciably greater than in the corresponding period for 1922. The increase in the number of deaths from influenza is relatively heavy both in London and in the 105 great towns. In some of the large cities of Lancashire there is a small but definite increase in the number of deaths from influenza and a large increase of notified pneumonia. The age distribution of deaths is unlike that of the great pandemic of 1918-19, and resembles more recent experience and that obtained before 1918—that is, the deaths at ages over 45 form a large majority of the total. There is no sign of the sharp change of type, leading to excessive mortality in young adult ages, observed in the great pandemic. The number of cases of pneumonia notified has shown a tendency to increase for some weeks; in the first week of December there was a large increase in the north-western area; Yorkshire, which is usually affected early by respiratory epidemics, has now reported many cases. The notification rate this year, however, does not greatly differ from that of the corresponding weeks of 1922. It is unsafe to prophesy when influenza is in question, but there are at present no indications of anything more than a minor recrudescence of the interpandemic type. We hear of a considerable number of gastro-intestinal attacks occurring in London or among people who have recently visited London. The attacks are characterized by vomiting and diarrhoea, accompanied sometimes by great depression, which may persist for several days, or even as long as a week or ten days. The idea that there is a gastric form of influenza has been discredited, but Peacock in his classical description had little doubt about it. "Cases of this kind," he wrote, "may fairly be regarded as constituting a special form of the disease." The attacks he had seen, however, must have been of a more serious kind than have been observed recently, for he says that they were often complicated by jaundice, and by pains in the head, back, loins, and extremities, which might be severe. He went on to say that the headache was generally intermittent, and was accompanied by restlessness, agitation, loss of sleep, and some delirium. He mentions also epistaxis and profuse sweating.

A DEEP X-RAY THERAPY DEPARTMENT.

Our advertisement pages this week contain an announcement inviting applications for the post of whole-time radiologist to carry on work in the newly established deep x-ray therapy department at St. Bartholomew's Hospital. We understand that the deep x-ray therapy apparatus is being set up for the sole purpose of the treatment and study of malignant diseases, from which it is evident that the medical man chosen to take charge of it should be well acquainted with physics and have some experience of research. The appointment will be for a period of from two to five years, and it is proposed that the successful applicant shall spend the first three months of his term of office in visiting similar departments at home and abroad. As will be seen from the advertisement, the amount of salary depends on the qualifications and experience of the person appointed. We learn that a corresponding appointment has lately been filled at Guy's Hospital, which has been fortunate enough to secure a radiologist both able and willing to provide his own apparatus, and to undertake all the necessary work himself. Applications for the post at St. Bartholomew's Hospital must reach the clerk to the governors by February 29th, 1924.

TUBERCULIN AND THE TUBERCULIN DISPENSARY.

In our issue of December 8th (p. 1107) we published a leading article in relation to a recent essay by Dr. Camac Wilkinson on the tuberculin dispensary for the poor. The essay itself was a reply to a report made on his work by the Tuberculin Committee of the Medical Research Council. This report was stated in the preface of his book to be of a confidential nature, and at the time of writing we were unfortunate enough to overlook the fact that it had recently been handed to the *Lancet* for open publication, and was published in our contemporary's issue of November 3rd, 1923 (p. 984). For this oversight we tender an apology to our readers. In self-justification, however, we must say that even if we had had the benefit of reading this report it would have made no difference to the criticisms which we offered on Dr. Camac Wilkinson's work. We felt strongly that the evidence put forward by him was insufficient to support the conclusions which he reached, and after reading the report to the Medical Research Council we feel even more strongly that this evidence is defective. The case records do not appear to have been kept in such a manner as to allow of an accurate analysis being made, and until this is possible we must remain sceptical of any premature conclusions which may be drawn from them.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

Xanthoma Diabeticorum treated with Insulin.

NGMAN and R. S. WEISS (*Arch. Derm. and Syph.*, r, 1923, p. 625) report the case of a male patient, ears, suffering from xanthoma diabeticorum which rapidly to treatment by insulin. A papular eruption le its appearance six weeks before the case came servation, first on the arms, then on the legs and t without the presence of any subjective symptoms. ssion to hospital the patient was comatose and ly moribund; the lesions were profuse and consisted -coloured nodules of oval or circular shape, the tops of which were covered by thin adherent crusts. d sugar was 0.305. Sugar in the urine varied from rams a day. The authors particularly note the great in this case of the total blood fat and cholesterin, hich was from three to six times the normal. The t consisted of insulin daily in large doses, 8 per cent. icarbonate solution intravenously, and the usual easures. The patient became conscious and rational after insulin was instituted, and rapidly gained By the seventh day the skin lesions were undergoing volution; the process was peculiar in that the surface re shrivelled and dropped off, leaving a ring about ize of the original lesion, which was slowly absorbed. became sugar-free on the eleventh day, and blood s maintained at normal, after discontinuing insulin, of protein 50 grams, fat 175 grams, and carbohydrate . The course of insulin extended over twenty-five pping gradually from a dose of 110 Lilly units at the dministration to 20 at the last. Six weeks after the n of the course the patient was sugar-free and all noma had involuted, leaving brown pigmented spots.

Ultra-violet Ray Treatment of Rickets.

RR, L. E. HOLT, L. WILKINS, and F. H. BOONE *urn. Dis. of Children*, October, 1923, p. 362) report ts of a series of experiments undertaken with a view ining the calcium and phosphorus metabolism in nd, in particular, the effect of radiotherapy. They that the work of previous observers has established that defective calcification of the bones in rickets is d with diminished concentration of the inorganic us or calcium of the serum, and that the develop- he condition is not to be attributed to a deficiency elements in the diet, but to a diminished capacity testine to absorb them. It has been found that oil has a cumulative effect and will promote absorption from the bowel. Moreover, exposure tra-violet ray has proved remarkably effective in ickets and the type produced experimentally in The cases selected for observation were male hose clinical signs of rickets were confirmed by the al picture and chemical examination of the serum. d stools were carefully collected and examined it the whole period of observation, and a constant f calcium and phosphorus was maintained in the st the calcium and phosphorus intake and output ertained for four days. The patients were then urse of ultra-violet rays for five to twenty minutes a period of eight to twelve days. Next followed al of four days, at the end of which time it d that the calcium and phosphorus concentra- e serum had risen above that of active rickets, grams revealed deposition of calcium at the . Furthermore, much smaller amounts of calcium phorus were recovered from the stools after the than before, and in the healing stage there was an of phosphorus in the urine, where, previously, it diminished. The authors consider that the findings experiments justify the conclusion that ultra-violet by causing an increased absorption of calcium and is from the intestine, and that it is likely that any bsorbed in excess of what can be utilized is in the urine. Although they admit the possibility ys acting by decreasing excretion from the bowel , in this case, that in active rickets calcium and s are absorbed from the gut and re-excreted into it, radiation prevents the abnormal re-excretion, they that calcium injected subcutaneously into a child excreted by the bowel, and that phosphorus, similarly injected, does not produce a corresponding increase of phosphorus in the faeces, most of it appearing in the urine —an observation which would seem to negative this explanation of the action of the ultra-violet rays. In the opinion of the authors the healing properties of cod-liver oil as well as of ultra-violet rays are due to their power of promoting absorption from the intestine. They are able to give no definite explanation of the mechanism by which the rays work; direct action on the bowel seems to be out of the question, for rays of between 4.0 and 100 millimicrons penetrate the skin only to a depth of not more than 1 mm. It is suggested, however, that the action of the rays on the skin, or on the capillaries of the skin, produces some chemical or physical alteration in the blood as a result of which increased absorption of calcium and phosphorus from the intestine is produced.

448. Carbon Tetrachloride in Ankylostomiasis.

R. N. CHOPRA and J. BORLAND MCVAIL (*Indian Med. Gazette*, October, 1923, p. 453) report on the pharmacology and therapeutics of this drug, a pungent, volatile liquid only slightly soluble in water, but freely soluble in alcohol. It has an irritant action on gastric and intestinal mucous membrane, stimulating reflex peristaltic movements. Its direct action on voluntary and involuntary muscle tissue is depressant. A very small amount of the drug is absorbed from the stomach and intestines. Most of it appears to pass out in the faeces unchanged. The liver retains a large proportion of the quantity absorbed into the circulation and by its detoxicating power protects other organs. No toxic effects were produced in dogs until eight times the therapeutic dose of 0.13 c.cm. per kilo of body weight was given. Inhalation induces anaesthesia with feeble pulse and respiration and low blood pressure, rapidly passing into collapse. The collapse is immediate if the liquid comes in contact with the respiratory mucous membrane, and is attributed to irritation of the sensory nerves of the larynx and trachea, particularly the vagi. *In vitro* the American hookworm is killed in dilutions up to 1 in 4,000 in normal saline. Little or no effect is produced on tapeworms or roundworms. Clinically the best results have been obtained with a dose of 4 c.cm. for an adult, given on two successive days, in water with 1 oz. of a concentrated solution of magnesium sulphate. The drug is administered two and a half hours after food, and the patient fasts for another three hours. By this method 98.8 per cent. of necators and 87.8 per cent. of ankylostomes are removed. There is also a powerful effect on *Oxyuris vermicularis*. The administration of the drug may be followed, in about one case in six, by nausea, vomiting, giddiness, and drowsiness. If no purge is given these sequelae occur in about one case in three. The main contraindication is impairment of the liver function; another is severe roundworm infection, two deaths having been reported by Lambert in such cases. In a struggling child the risk of the liquid coming in contact with the respiratory mucous membrane must be kept in mind.

449. Tuberculosis of the Urinary Organs.

A. HÜBNER (*Münch. med. Woch.*, November 9th, 1923, p. 1361) considers the frequency of tuberculosis of the kidney and bladder to have been underestimated. Early diagnosis of tuberculous disease of the kidney is of great importance in view of surgical treatment. The palpation of the thickened ureter through the abdominal wall, rectum, or vagina as a firm cord on the affected side is of diagnostic value. Secondary tuberculosis of the bladder occurs early; it is present in 90 per cent. of the cases, and the symptoms lead the patient to seek medical advice. Cystitis of long duration, not improved by washing out the bladder, should always rouse suspicions of tuberculous disease. The most important early indication of tuberculosis of the kidney is diminished bladder capacity with frequent micturition. Urine which is acid, slightly turbid, but sterile, which undergoes decomposition very slowly on standing, and which contains pus of undetermined origin, is an indication of the possibility of tuberculous disease. The detection of tubercle bacilli in the urine is an important diagnostic sign, and the author considers that examination with the cystoscope gives evidence of the greatest value. Early diagnosis and early operation are of great importance, since nephrectomy is followed in the majority of cases (85 to 90 per cent., Kümmell) by complete recovery. After removal of the primary tuberculous focus (in the kidney) the tuberculosis of the bladder subsides and heals.

FOOD POLLUTION.

IN their passage from the source of production to the consumer many articles of food are exposed to preventable contamination. It is difficult to understand why such contamination is allowed to continue, for it is not confined to dark, insanitary kitchens, bakehouses, and the like, only to be discovered by the vigilant health officer, but it is daily and hourly brought to the notice of the general public in shops, market stalls, street stalls, costermongers' wagons, and on railway stations. The consumer cannot claim ignorance of the conditions under which much of his food is supplied to him, and it really rests with him to demand an alteration in those conditions. The jeweller, the draper, the bookseller, the chemist, and even the ironmonger take the most scrupulous care against the soiling of his merchandise, all of which can be readily cleansed; but the baker, the butcher, the fruiterer, the fishmonger, and the grocer expose their wares to the dust and dirt of the street. On more than one occasion Dr. Charles E. Goddard, M.O.H. Harrow, has drawn attention to the many opportunities there are for a loaf of bread to become polluted between the bakehouse and the table. In a paper[1] to the Congress of the Royal Institute of Public Health in May last he returned once more to this subject, and pointed out that the obvious remedy was to place each loaf in a separate wrapper as soon as it is removed from the oven. A machine has been devised for this purpose which is coming more and more into use in large bakeries in this country, and especially in the northern counties. The only objection raised to it on the part of the bakers is that it adds to the cost of production, and that the consumer is not willing to pay his share of that cost. To this Dr. Goddard replies that if waxed paper is used evaporation is lessened, and there need be no stale loaves, while incidentally no night baking will be necessary because the condition of a loaf a day old is indistinguishable from new bread, and deliveries need not be so frequent. If Dr. Goddard's contention is correct—and there ought to be no great difficulty in proving or disproving it—there is no valid reason why the delivery of bread in wrappers should not become the universal custom.

THE R.A.M.C. BADGE.

THE rank and file of the Royal Army Medical Corps have been wearing on their uniform, since the date of its formation in 1898, two badges. One was the familiar small red cross within a circle on the upper arm of the sleeve of the tunic and great-coat of the corps, and the other the badge with the rod of Aesculapius within a laurel wreath over the motto "In Arduis Fidelis," which was registered as the corps badge on its reorganization in 1898. The old badge of the Geneva Cross previous to that time was the distinctive badge of the Army Hospital Corps and Medical Staff Corps; it continued to be part of the uniform after the R.A.M.C. was formed. The Army Council has now decided to abolish the old badge as a distinctive mark on the uniform of the R.A.M.C., and to retain only the badge authorized as the R.A.M.C. badge in 1898. In time of war, however, the Red Cross brassard will be worn by all ranks, attached to the left sleeve, in accordance with the Geneva Convention of 1906. This brassard must be stamped and issued by competent military authority on the outbreak of war only, and will be worn by members of authorized voluntary aid organizations as well as by the officers and other ranks of the R.A.M.C.

THE *London Gazette* of December 18th announces that the King has appointed Sir Robert William Philip, M.D., to be one of the Honorary Physicians to His Majesty in Scotland, in succession to Dr. David W. Finlay, deceased.

[1] *Journal of State Medicine*, December, 1923, p. 585.

THE PRICE AND UNIT VALUE OF INSULIN.

ANNOUNCEMENT BY THE MEDICAL RESEARCH COUNCIL.

THE Medical Research Council announce that the retail price of insulin in this country is to be reduced by the manufacturers, after December 31st, to 12s. 6d. per bottle of 100 units. The price since July has been 17s. 6d., and before that the price was 25s. A reduction of 50 per cent. has accordingly been made since insulin first came on the market nine months ago. This is to be attributed to the increased efficiency of manufacture and to the larger scale of production following the growing demand.

It is of interest to compare the progressive reduction in price here with the corresponding fall in America. It must be remembered, however, that the American manufacture began some months before the British, that the demand and consequently the scale of production is larger there, and that advantages in respect of large slaughtering centres and lower cost of alcohol exist in America which are not enjoyed by the British firms. In April last the retail price in America, formerly higher, was 2d. per unit, or 2¼d. in an alternative dilution: the price here was 3d. per unit. The American price was then reduced to just over 1½d. per unit, and in July the British price fell to approximately 2d. per unit. A more recent reduction in America brought the price there to just under 1¼d. per unit, and the new British price is 1½d. per unit.

Some further reduction in price may be found possible by the manufacturers in the course of time as the scale and therefore the economy of production increases. It is not, however, to be expected—apart from the possibility of new sources or methods being discovered—that the price can ever be brought to a low level. The manufacture of insulin on a commercial sale involves the collection of large quantities of pancreas in very fresh condition, the use of large amounts of alcohol, elaborate and delicate chemical operations requiring skilled supervision, and careful physiological testing at different stages. The cost of such items must remain high in a process which gives a small yield of the final product.

The manufacturers of the American insulin announce an increase of 40 per cent. in the value of the unit of activity, and quite properly give a scale of dosage for their product revised in accordance with this increase. This announcement makes it advisable to explain the relation of the American unit to that adopted in this country. The Medical Research Council were made aware in August of this year of the discovery of a divergence between the unit adopted in Canada and that adopted by the manufacturers in the United States. They gathered that a proposal was under discussion to remove this difference by raising the value of the American unit by about 40 per cent. At that time American insulin had for a period not been in use in this country, and investigation showed that, during the interval, the value assigned to the British unit had been rising gradually, until it had become so nearly equivalent to the Toronto unit that a very small further adjustment was needed in order to make it correspond to the higher value which, in due course, came into force for the American continent. The value of the unit employed for British insulin is, therefore, already the same as that of the newer and stronger American issue; the only difference between the two countries, in this direction, has been that the value of the American unit has been suddenly raised, so that revision of dosage is needed, whereas that of the British unit has been allowed to rise by small stages, so that dosage has, in practice, adjusted itself. Henceforward all the insulin available in this country will, as originally planned, be standardized to the same unit.

The reduction of price mentioned above has been made in spite of this enhancement in the strength of the unit, so that the total effective reduction in cost to the patient is much larger than appears from the figures of price revision.

VAN GEHUCHTEN (*Le Scalpel*, October 20th, 1923, p. 1162) refers to the polymorphism of epidemic encephalitis, and to the occurrence of obscure cases of other forms of cerebral disease simulating encephalitis. He describes the case of a single woman, aged 24, who, after a severe shock, suffered from persistent violent headache; drowsiness, anorexia, and constipation developed gradually, with paresis of the limbs on the right side. Three weeks after the onset there was persistent somnolence, flaccid paresis of the right arm and leg, and involvement of the right facial, hypoglossal, and oculo-motor nerves. The tendon reflexes were exaggerated and there was transient fever. The visual acuity was apparently good, there was no optic neuritis nor nystagmus, and the pupil reactions were normal. Lumbar puncture gave transient relief. Six weeks after the onset the left side became paretic. The patient died six weeks after the onset of the first symptoms. *Post mortem*, the meninges and cerebral cortex were found to be normal; there was no lesion of the basal ganglia, but the pons was markedly enlarged, especially on the left side. An incision through its centre showed a tumour invading the whole left side and impinging on the right side, which extended downwards to the central part of the bulb and upwards to the cerebral peduncles. This explained the compression of the pyramidal tracts, especially of the left tract above the decussation, and also of the oculo-motor nerves. Histologically the tumour proved to be a glio-sarcoma.

451. Clinical Importance of Determining Sensitiveness to Adrenaline.

K. CSÉPAI, B. FORNET, and K. TÓTH (*Wien. Arch. f. inn. Med.*, July, 1923) record their observations on the action of adrenaline on the system (adrenaline sensibility) in a number of diseases. As indications of the adrenaline sensibility, glycosuria and hyperglycaemia, or the changes in the pulse and blood pressure, have been chiefly employed, but the authors consider the most constant and the simplest indication is the increase of blood pressure. After injection (preferably intravenous) of 0.01 mg. of adrenaline the blood pressure rises normally to over 10 cm. but not over 30 cm. (Recklinghausen's apparatus), and within two minutes it falls to its original level, the maximum duration of the rise of blood pressure being usually between thirty and forty-five seconds. In numerous cases of Graves's disease the adrenaline injections caused a much greater increase of blood pressure than this (increased adrenaline sensibility), and the authors consider this reaction of diagnostic and prognostic value. Increased adrenaline sensibility was not found in simple goitre. After x-ray treatment in Graves's disease, when improvement had occurred, the authors found that the previously increased adrenaline sensibility had disappeared. In other conditions than Graves's disease increased adrenaline sensibility was found, but not so constantly. In two cases of Addison's disease, and in three cases of diabetes insipidus, the adrenaline sensibility was actually less than normal.

Surgery.

452. Cancer of the Tongue.

P. E. TRUESDALE (*Annals of Surgery*, October, 1923, p. 461), reviewing the literature, finds that cancer of the tongue is on the increase and stands fifth in order of frequency as compared with other regions of the body. Butlin showed that cancer of the tongue may first appear as a hard plaque, or start in a patch of leucoplakia, in a simple ulcer, or as a warty growth. The initial stage then passes into the mid-period of the disease, and it is during this period that the growth passes from the operable to the inoperable and hopeless stage. The cardinal symptoms at this period are ulceration, haemorrhage, pain, salivation, anaemia, and loss of weight. In the initial stages the disease must be a local process, but lymphatic infection occurs in many cases before the diagnosis has been established. Prognosis is not hopeful in patients under 40 years of age, except in the initial stages. In the absence of operative treatment the average duration of life is two years. The operative mortality is now not more than 5 per cent., and the proportion of cures persisting after three years is at least 30 per cent. The treatment is surgical in the operable stages; x rays and radium are found to be disappointing. The author advocates the use of the cautery for the purpose of dissection; the loss of blood is slight by this method, and the time employed in tying vessels in the course of the knife operation is saved. A few days are devoted to oral hygiene before the operation. Ether is

a hemiglossectomy carried out. A comm
with the neck is to be avoided if possible
follows otherwise. Four cases are recorded
of the tongue at the end of six months wit
ment in mastication.

453. Stabilization of Paralysed Fe

E. W. RYERSON (*Journ. o' Bone and Joint Su*
p. 453) discusses the methods for stabilizat
feet, a subject which has attracted a great d
from orthopaedic surgeons during recent
transplantation in infantile paralysis has
excellent results, but in feet with much late
has not been possible to prevent the progres
of a varus or valgus deformity. Mid-ta
coupled with subastragaloid arthrodesis enab
to obtain a foot stabilized in the lateral
possessed of the simple up and down m
ankle-joint proper. Such power as remains c
to its best advantage by tendon transplan
certainty that disabling lateral deformity
Many methods of performing such an arthro
described during recent years, and the name
Hoke in America and Dunn in England are
the operation. The author prefers a doubl
the inner and outer sides of the foot. H
astragalectomy is the best operation for calca
and that simple equinus can be best treated b
tenodesis after the method of Gallie. The
a fact well known to orthopaedic surgeons th
desing operations, while they may be done a
are more likely to be successful when perfor
over 12 years of age.

454. Haemophilia and Haematuri

J. D. BARNEY (*Boston Med. and Surg. Journ.*
1923, p. 486), as a result of an investigati
admitted to the Massachusetts General H
diagnosis of haemophilia, found that of these
history of, or had had, symptoms referable
tract. In each of these haematuria had b
some period or other during the course of t
this symptom, though apt to recur, he found a
spontaneously. In 2 of the cases retroperit
rhages had occurred in addition; there had b
of traumatism in these. A study of the lit
author showed a similar infrequency of urol
the disease in question, and he found th
characterized by the presence of spontaneo
haematuria which came to the operation table
room showed no lesion of the urinary tract to
bleeding. A few cases of perirenal haemato
reported, the development of which may be c
the sudden onset of severe pain in the r
uncommonly associated with vomiting and
later development of a tumour in the loin, s
and rapid pulse, giving rise to a clinical pic
that produced by perirenal suppuration.
record more or less mild and chronic case
lasting for weeks or months and someti
spontaneously. Although haematuria has b
being very seldom associated with such a p
toma the author records a case, peculiar in
conditions were associated. For the treatm
philia transfusion of blood is advocated. Lo
the application of heat or cold, and aspira
tried with little success. Operative interv
author's opinion, is probably seldom nece
though in the case of clot retention with urin
a suprapubic cystotomy may become necessar

455. Ligature of the External Carotid A

R. BAUDET (*Bull. et Mém. Soc. Chir. de Pari*
1923, p. 1162) points out that in the usual oper
the external carotid artery one frequently find
artery several large veins which constitute the
in the operation, and that two or three enla
glands may obscure the field. Instead of a
artery from in front of the jugular vein, it is
a better method is to draw the vein forwards a
side of the artery, which is freed thus from
veins and glands which cover it. The approach
incision rather posterior to the usual one alon
border of the sterno-mastoid. The jugular ve
drawn forwards with its tributaries, and the c
with its two branches is now well exposed, whi
and its branches are clearly seen. Th

England and Wales.

MEMORIAL TO PROFESSOR DELÉPINE.

A MEMORIAL to the late Professor Sheridan Delépine was unveiled by Sir George Newman, the chief medical officer to the Ministry of Health, on Wednesday, December 12th, at the Public Health Laboratory, Manchester.

The memorial, which takes the form of a bronze bust and is the work of Millard, has been placed on the main staircase. The ashes of Delépine have all along lain in the building he founded, and the present memorial has been presented by his former pupils and colleagues. The bust bears the following inscription:

> Auguste Sheridan Delépine. Born January 1, 1855. Died November 13, 1921. Founder and first director of the Public Health Laboratory. Professor of Pathology 1891-1904. Professor of Public Health and Bacteriology 1904-21.

The ceremony was attended by Mrs. Delépine and her daughter, and a large and distinguished gathering of members of the medical profession.

Sir George Newman, in unveiling the bust, said:

It is fitting and appropriate that a memorial should be placed here to Auguste Sheridan Delépine to keep alive for generations to come the memory of his great public service to this University, this City of Manchester, and to the public health of the nation. Delépine was born in 1855, the son of a French father and a Swiss mother. He was educated in Paris and graduated in the University of Geneva as B.Sc. in 1872. His medical education was obtained in the University of Edinburgh, where he graduated with first-class honours in 1882. In 1891 he was appointed Proctor Professor of Pathology and Morbid Anatomy in the University of Manchester. The arrangements for the new pathological department at Manchester associated with the bacteriological laboratory were carried out under Delépine's instructions, and when later the connexion between the University Medical School and the Royal Infirmary became the close one it now is, he became the official pathologist. In 1901 he relinquished the post of professor of pathology and was appointed director of the new public health laboratories, thus becoming a pioneer in assisting a University with the training and work of the medical officer of health. In Dr. Niven, who came to Manchester in 1894, Delépine found a congenial and worthy colleague, and these two laboured together in a partnership of scientific and public work which has been of inestimable value to Manchester and the whole country.

As examples of Delépine's wider work may be quoted his investigations in connexion with the remarkable epidemic of poisoning from arsenic in beer in 1900; his studies in the bacteriology of milk; and his investigations for the means of disinfection of wool for anthrax.

Delépine was an indefatigable workman and laboriously conscientious, reluctant to publish his results until he was satisfied that his conclusions were valid and invulnerable. Taking him altogether, he seems to have compounded in himself some of the fundamental requirements of the new model of public health officer, to the consideration of which we may confidently invite the students of to-day and to-morrow. We cannot place Delépine alongside his incomparable fellow countryman, Louis Pasteur, yet it is not extravagant to say that he belonged to the same race and had in no small degree two of Pasteur's chief characteristics—love of truth and love of humanity.

It is a great and splendid thing for a university and city to have such a man as Delépine, and we do well to-day to enshrine his memory that generations of students may follow in his footsteps and climb up after him, and that every workman may work the better for his labours.

On the conclusion of the unveiling ceremony, the Vice-Chancellor, Sir Henry Miers, accepted the bust on behalf of the University as "a cherished memorial to one of our greatest teachers and investigators."

BRISTOL MEDICAL SCHOOL.

At the recent annual dinner of the Bristol University Medical School, held at the Grand Hotel under the presidency of Professor Walter Swayne, the guest of the evening was Sir Ewen J. Maclean, professor of gynaecology and obstetrics in the Welsh National School of Medicine. Dr. J. A. Nixon, dean of the Bristol Medical School, in proposing the health of the principal guest, congratulated the Cardiff Medical School on having now completed its organization, and referred to their guest's previous connexion with the Bristol Children's Hospital. Sir Ewen Maclean, in reply, read a message of greeting from the Cardiff medical students, and mentioned that when he was practising in former days at Bristol he came into touch with Dr. W. G. Grace, who often visited patients in the same street. He then proposed the toast of the Bristol Medical School, and the President's health was proposed by Mr. R. G. P. Lansdown, consulting surgeon to the Bristol General Hospital.

POST-GRADUATE COURSES IN LONDON.

The following arrangements have been made by the Fellowship of Medicine and Post-Graduate Medical Association:

Infants' Hospital, Vincent Square, S.W.—A further course in children's diseases, from January 7th to 19th, specially adapted to the needs of medical officers of welfare centres, and including clinical lectures, demonstrations, and visits to places of interest in connexion with infant welfare work.

St. Peter's Hospital, Covent Garden.—An intensive course in urology, from January 7th to February 2nd inclusive, consisting of clinical work and lecture demonstrations.

West End Hospital for Nervous Diseases.—A course of lectures on four afternoons in each week on the diagnosis and treatment of common diseases of the nervous system, from January 7th to February 11th, in the out-patient department, 73, Welbeck Street; there will also be clinical demonstrations.

North-Eastern Fever Hospital, Tottenham.—A series of eight demonstrations of the diagnosis and treatment of the acute infectious fevers, by Dr. F. Thompson, on Wednesday and Saturday mornings at 11 o'clock, from January 9th to 26th.

Copies of the syllabus of each of the above courses can be obtained from the Secretary to the Fellowship of Medicine, 1, Wimpole Street, W.1.

Scotland.

BRITISH MEDICAL ASSOCIATION'S RECEPTION FOR THE NEWLY QUALIFIED AT EDINBURGH.

THE Edinburgh and Leith Division of the British Medical Association on December 11th held a reception in the Hall of the University Union for those who were to graduate on December 14th. About 120 of the graduands were present, and were received by Dr. John Stevens, Chairman of the Division, and some 50 members accompanied by ladies. A copy of the *Handbook for Recently Qualified Medical Practitioners*, which has been prepared by the Association, was handed to each of the graduands. After tea, the Chairman, on behalf of the Association, made an expression of welcome into the ranks of the profession, and an address was delivered by Professor G. Lovell Gulland, C.M.G., the newly elected President of the Royal College of Physicians of Edinburgh, who referred to the special necessity under the changing conditions of the present time for union and co-operation between medical men. The organization which was capable of voicing the collective needs and wishes of the medical profession, and of obtaining attention to these, was the British Medical Association, and he advised them all to lose no time in joining it. With regard to the choice of a career, one of the first lines of life to which attention naturally turned was the public services, and among these he considered that the R.A.M.C. at the present time occupied a high place. He hoped that some of them would decide to adopt this service as a career. In all public services it was possible to lead an easy life, but promotion in the Services, as in all callings, came to the man who worked hardest. It must not be forgotten that the greatest of all public services was general practice, and this should be regarded as the highest and most interesting department of the medical profession. The general practitioner held a position of great honour in the community, for he was not only consulted in matters of illness, but he became the general guide and confidant of his patients in all affairs of life. The attitude of practitioners towards one another had changed greatly in recent times. In the past, social factions in small towns had often centered round the different doctors, who might not be on speaking terms with one another. Now, that had altogether changed, and doctors co-operated with one another in their cases, in doing holiday duty, and the like. It was a good rule never to listen to any remarks that a

nt requiring caution is the freeing of the jugular vein. he great advantage of giving a good exposure of the retid vessels and so enabling the operator to be sure ituring the right vessel. It has been practised on the l the living subject with satisfactory results.

Treatment of Cranial Injuries.

OWER (*Annals of Surgery*, October 1923, p. 435) con- nat the local examination of patients with suspected nial injury usually plays only a small part in deter- whether or not immediate operation is indicated. riters consider that it is a dangerous procedure to do r puncture in the presence of increased intracranial e. The author finds there is little risk and uses it as r of routine; when carefully carried out it may be thout losing more than a few drops of cerebro spinal The presence of blood in the fluid and a pressure of of mercury in the lateral prone position should be red abnormal. If later readings show increased e, fluid may be withdrawn to reduce this. In certain peration may be avoided by this means, and in ine cases it is a means of determining early the least of intracranial tension. Blood pressure readings may sist, but this pressure is not always increased with racranial pressure. Observations of the respiration lse rate are also of great importance. The major on for operative interference in all cases of head is increased intracranial pressure. A non-pulsating could be opened if there is other evidence of increased al pressure, but if the lesion only involves the scalp ne, or if an extradural haemorrhage is present, the could not be opened as a rule; the risk of meningitis s when the dura is incised. A period of at least three should elapse between the first and second operation t is necessary to reoperate for a defect of the skull. eration is performed under combined local and ether esia. A single graft, made from the pericranium, is t can be sutured in place at the edges, and there is ar of it becoming displaced. The indications for this on are vertigo, cephalalgia, pulsation, and Jacksonian ions. The paper concludes with the report of a series s.

Treatment of Tumours of the Bladder.

OUNG and W. W. SCOTT (*New York Med. Journ. and Record*, September 5th, 1923, p. 262), on the basis of a of 380 cases, discuss the results obtained by various s of treating tumours of the bladder. Their observa- ow that about 80 per cent. of bladder tumours occur n the ages of 40 and 69. Both papillomata and mata are much more frequent in the regions of the , ureteral orifices, adjacent lateral walls of the , and the internal urinary meatus. Involvement of erior wall is less frequent, while that of the apex and ro-terior wall is still more rare. They state that on, together with a wide margin of bladder wall, gives nt results in cases of malignant growth situated at the nterior, upper lateral, and posterior walls, and that sults may follow this procedure in the base of the and region of the ureters, but that in the case of ment of the internal urinary meatus and prostate uterization is more effective. For benign papillomata tion is the method of choice, but with large tumours is of great value in causing a rapid disappearance of owth. For malignant papillomata and some cases llary carcinomata the authors advise the combined fulguration and radium, and where the tumour is ve and infiltrating such treatment should be applied the suprapubic route in cases in which complete on is out of the question. The authors consider that, a broad view, the prognosis of bladder tumours is han it was, for they think that now about 95 per cent. gn and 75 per cent. of malignant papillomata, about ent. of papillary carcinomata, and almost 25 per cent. rating carcinomata, can be cured by one or more of thods mentioned.

Gastric Myoma.

BER (*Zentralbl. f. Chir.*, October 20th, 1923, p. 1558), cords a case in a man aged 20 states that myoma of mach is a very rare condition, which was first described . Virchow divided gastric myomata into two groups ly, an internal or submucous and an external or sub- They may reach a considerable size, weighing as s 6 kg. According to Piett, about a quarter undergo nt degeneration. The symptoms vary according to osition, size, and shape. Those situated near the are the first to become noticeable by causing sym- of stenosis, whereas those projecting into the lumen stomach or the abdominal cavity may attain a considerable size before they produce any symptoms. A third variety, in which the tumour is pedunculated, may give rise to attacks of gastric pain and vomiting, followed by extreme emaciation, so that the suspicion of carcinoma is aroused. Tumours with a long pedicle may be forced into the duodenum as the result of peristalsis and kept there by pyloric spasm. Most gastric myomata produce no symptoms at first, and their earliest and most frequent manifestation is haematemesis. The cause of the ulceration of the gastric mucous membrane is not so much the action of the digestive ferments as the necrotic process within the myoma. The only treatment is operation. Endogastric tumours can be removed by operation. In pedunculated tumours resection of the gastric wall is required. In conclusion Weber emphasizes the necessity of thinking of the possibility of gastric myoma when haemorrhage from the gastro-intestinal canal occurs in the midst of health, although a certain diagnosis, especially from gastric ulcer, is impossible in many cases. In his own case, in which repeated haemorrhage had produced severe anaemia, a diagnosis of gastric ulcer was made after clinical and x-ray examination. On laparotomy, however, a subserous myoma was found in the gastro-hepatic ligament on the lesser curvature projecting into the gastric lumen, and was removed by transverse resection of the stomach. Complete recovery took place.

Obstetrics and Gynaecology.

459. Short Umbilical Cord and Detachment of Placenta.

J. VAN DOUGEN (*Nederl. Tijdschr. v. Geneesk.*, November 3rd, 1923, p. 1857), who records an illustrative case, says that the significance of shortness of the cord depends on the site of the attachment of the placenta to the uterine wall and on the site of insertion of the umbilical cord into the placenta. In normal attachments of the placenta the cord is too short when its length does not exceed 30 cm., and in low attachments of the placenta when the length is only 20 cm. Sarchy estimated the frequency of a short umbilical cord at 0.66 per cent. of all births, and Peu found that the cord was sufficiently short to give rise to difficulties in four out of 4,000 labours. Sarchy observed cords measuring 20 to 40 cm. in 8.3 per cent. of a large number of deliveries, and Turni cords of 25 to 40 cm. in 101 out of 793 births. Baisch in his textbook of midwifery states that of children with a cord 17 to 20 cm. long 59 per cent. were premature and 36 per cent. were born dead, and of children with a cord 25 to 35 cm. long 52 per cent. were premature and 14 per cent. were born dead. The labour pains in cases with short umbilical cords are very severe owing to traction on the placenta at the site of insertion without the pain being localized at any definite spot. A short umbilical cord, however, does not necessarily imply that delivery cannot take place spontaneously or without difficulty, as cases have been described in which healthy living children have been born spontaneously with cords measuring 12 to 15 cm. Van Dougen's case was in a primipara, aged 38, who had had a sterile marriage for thirteen years. Labour set in one month too soon, and was very protracted, although the pains were very severe. The placenta, which was expelled immediately after the birth of the child, was inserted into the normal site in the uterine wall, and the insertion of the umbilical cord, which measured 25 cm., was also normal. The subsequent course was uneventful for both mother and child.

460. Excessive Uterine Bleeding due to Syphilis.

G. PLINIO (*Rivista di Ostet. e Ginecol. Pratica*, October, 1923, p. 461) remarks that some cases of menorrhagia and metrorrhagia in the absence of neoplasms are to be ascribed to morbid conditions of the ovarian cyclical changes with diminished development of function of the corpora lutea. In many cases the underlying cause is not local but constitutional. As an example is cited the menorrhagia of puberty, which is sometimes associated with diminution in the number of platelets and, as reported by Halban, yields only to splenectomy; in other cases it is due to inherited syphilis. This in the author's opinion is the cause of excessive uterine bleeding at puberty more often than is usually suspected. Three illustrative cases are recorded, including one of a girl, aged 14, whose Wassermann reaction was positive; born two months after the return of her father from abroad she was the fifth child of a mother whose next three pregnancies terminated in the premature delivery of dead foetuses. Mercurial injections, together with iodine and arsenic, led to temporary improvement; a relapse was followed by salvarsan treatments and by definite cure. Acquired syphilis affecting the uterus and adnexa is also described as being characterized clinically in the majority of cases by increased uterine haemorrhage.

respect of the period from July, 1921, to June, 1926. The selection of additional benefits to be provided by a society rested with the members, and he did not think it desirable to introduce legislation to compel allocation for a particular object. Mr. Gerald Hurst mentioned that the Manchester Royal Infirmary spent about £70,000 a year maintaining nearly 5,000 persons insured under the Act without drawing any substantial contributions from approved societies.

Eyesight and Workman's Compensation.—Mr. D. G. Somerville asked, on July 4th, whether in view of the request for the inclusion of eyesight failure in the Workmen's Compensation Act the Labour Department possessed any reliable record showing how the several senses were affected by particular industries; and whether steps were taken to differentiate at any stage between failure due to advancing years and to conditions of work. Mr. G. Locker-Lampson replied that the Home Office possessed a great deal of information as to diseases and affections caused by particular industries and processes, but so far as regarded failure of eyesight it would not be possible to differentiate between the effect of the conditions of work, advancing years, and other possible causes. Asked as to railwaymen, Mr. Locker-Lampson said that certain affections of the eyes were already included under the Act of 1906 and the number was being added to.

School Dental Service.—Mr. Wood, the Minister of Education, on July 5th said that the Board of Education fully recognized the value of the school dental service, and proposals for its extension would receive sympathetic consideration. The number of authorities who had approved schemes for dental treatments had nearly doubled since 1914, but 25 per cent. of the county educational authorities had not provided school dental services. The percentage of county boroughs not providing services was 15, of boroughs 26, and of urban districts 23.

India and Opium.—During the debate, on July 5th, on the India Office Vote, Mr. Ponsonby said that the attitude of the Indian Government to the opium question was putting an obstacle in the way of reform. The United States Government had formulated a project for restricting the production of opium and the matter had come before a committee under the auspices of the League of Nations last month, but the representative of the Indian Government had entered a reservation that entirely blocked the way. The contention was that the use of raw opium in India according to established practice and its production for such use was not illegitimate under the Opium Convention. He appealed to Lord Winterton, Under Secretary for India, to state the precise reason for India's refusing to join with the other powers, and declared that the world used 125 tons of opium annually for medicinal and scientific purposes while 1,350 tons were "scattered broadcast." In reply Lord Winterton said that India had carried out to the letter the Hague Convention on opium, and had reduced the poppy cultivation from 613,000 acres in 1905–6 to 117,000 acres in 1921–22. He denied that India had taken up an outrageous attitude at the recent convention in Geneva, and said that when the resolution before the convention was eventually passed the American delegates accepted the reservation made by the Indian representatives.

The Adjustment of Taxation.—On the Third Reading of the Finance Bill, on July 4th, Sir Sydney Russell-Wells referred to numerous criticisms made against the Government for having reduced the duty on beer and not that on sugar, and also for maintaining the duty on tea at the present rate. Tea, he said, was undoubtedly an article of inestimable benefit to men and women, and the argument was used that it should never be taxed, because it was a food. On the other hand, beer was said not to be a food. The real facts were that tea was a pure drug without any food value, but beer, while it contained alcohol, contained food, and the amount or nutriment in a glass of beer was very considerable. It was not in the alcohol, but in other substances present in beer. Sugar was not a necessary; for many centuries no sugar was eaten in this country at all. Sugar was undoubtedly nourishing, but the number of calories in a gram of sugar was not as great as the number in a gram of starch. Money spent on buying sugar, even at the old price of 2¾d. a lb., did not produce so much nutriment as would be obtained if the money were spent on wheat. Sugar was a luxury which all classes of the community consumed. After speaking generally in support of the Budget, Sir Sydney referred to the burdens of the income tax payers. The struggling professional man constituted a large proportion of the community, and to say that he was not as deserving of some assistance as the unemployed was not true. Those who had contributed the bulk of the taxation and borne the bulk of the burden should have relief if it were given in fair proportion.

Midwifery Fees.—In answer to Dr. Fremantle, on July 4th, Mr. Chamberlain said that the Order of 1847 as to fees had not been revised, but in a number of cases special arrangements between the guardians and their medical officers as regards midwifery fees had already been approved. He would consider the question of a revision of this part of the Order.

Royal Army Medical Corps.—Mr. Becker asked, on July 10th, if all officers in the Royal Army Medical Corps eligible for selection to the higher ranks were personally interviewed by the Selection Board, and whether assurance would be given that none would be passed over who was not so interviewed. Colonel Guinness replied that a system of inviting officers to attend and make out a case for their own promotion would not be at all satisfactory, even if all the officers concerned were always available for such attendance, which they were not. It rarely happened, however, that an officer was not known personally to the majority of the selectors.

Answers in Brief.

Mr. Chamberlain has stated that draft regulations as to the labelling of skimmed dried milks had been prepared and were being circulated for preliminary discussion, and that it was expressly provided in the Milk (Special Designations) Order, 1923, that milk sold as "pasteurized" milk should not be heated more than once.

Mr. Chamberlain said that the Government could not undertake to introduce legislation as to "patent" medicine during the present session.

The Under Secretary for Health, Scotland (Captain Elliot), has stated that the number of deaths in Scotland from tuberculosis was 5,737 in 1921 and 5,818 in 1922.

The Minister of Education is unable at present to reconsider the existing arrangements as to the absence of children from elementary schools to receive sanatorium, hospital, or other medical treatment when ordered by the school medical officer. Such absences do not count as attendances under the code.

The Ministry of Pensions is issuing new regulations to have x-ray examinations made in doubtful cases to try to avoid such errors as in a case to which Colonel Ward called attention where a man had applied for a pension on the ground of neurasthenia and was found subsequently to have a jagged piece of shrapnel near the heart.

Major Tryon said that at the cost of the Pensions Ministry approximately 76,500 officers and men were receiving treatment, of whom about 41,600 were prevented by the treatment from following their occupations. Of these 18 were in military hospitals and 3,650 in general hospitals. These figures did not include men receiving treatment, without allowances, from their panel practitioners, of whom the Ministry had no record.

The average cost per day of pensions patients at hospitals under the direct control of the Ministry of Pensions was 8s. 2½d. each.

England and Wales.

UNIVERSITY COLLEGE, LONDON.

A RECEPTION given at University College on July 7th was attended by head masters and head mistresses of schools, by many diplomats and official guests, and by a large number of old students. The object was to afford the visitors, who numbered some 3,000 persons, an opportunity of seeing some of the recent extensions of the College buildings, and in particular the new building for anatomy and the extension of the physiology and pharmacology buildings, made possible by the Rockefeller benefaction. A statement presented on the occasion showed the gradual progress which has provided the great series of buildings now at the disposal of the College, of which in future the British Medical Association will be a near neighbour. The main block, erected in 1827 from the designs of Mr. William Wilkins, now contains the libraries and the Flaxman Gallery. The Birkbeck buildings, erected in 1847, now houses part of the department of applied mathematics and mechanics, while the Brundrett block, erected in 1894, includes the general laboratory of physics. The south wing, erected between 1869 and 1874, provides most of the classrooms of the Faculty of Arts. The north wing, built between 1871 and 1881, includes the Slade School of Fine Art and the department of botany and zoology. The engineering wing, begun in 1894, has been completed this year by extensions recently opened. The chemistry laboratories, lying on the north side of the main College buildings, were completed in 1913, the Bartlett School of Architecture in 1913, and the department of eugenics in 1914. To the south of the main College buildings lies the medical sciences block, of which the Physiology Institute was erected in 1909, the Pharmacology Institute in 1912, and the anatomy building in 1923. To the east of the main block lies the Great Hall, formerly All Saints' Church, Gordon Street, which will be converted into a war memorial hall. In all departments the visitors were shown objects of interest. In the Flaxman Gallery was the panel by the Slade Professor (Henry Tonks) representing four of the founders, Jeremy Bentham, Thomas Campbell, Henry Brougham, and Henry Crabb Robinson. In the general library the librarian, Mr. L. Newcombe, had on exhibition a number of manuscripts, a collection of English chronicles, and a number of early printed books, as well as bindings from the fourteenth century onwards. Demonstrations were given in the department of physiology and in the new anatomy building; in the department of electrical engineering wireless telephony transmitters and receivers and a

number of other interesting apparatus and experiments were shown. The departments of architecture and town planning, of applied statistics and eugenics, of astronomy, physics, chemistry, and botany, as well as others, were all open for inspection. The last demonstration was by Miss Ida Ward on the use of phonetics in curing speech defects. University College Hospital and its medical school were also open to inspection.

QUEEN'S COLLEGE, BIRMINGHAM.

After being closed for some years, Queen's College, founded by Birmingham medical men in 1828, will resume its activities in October. As the old buildings in the heart of the city proved unsuitable the Council has purchased and converted into a residential college Bishop's Croft, the residence of the Bishops of Birmingham. Here a medical student can obtain all the advantages of college life and the full course of the medical school and the university and hospitals for £140 per annum inclusive. In view of the increased costs at Oxford and Cambridge and elsewhere, many will be glad to know that the endowments of this nearly century-old foundation are once more available for the furtherance of medical education. The College has some exhibitions, of which the principal will gladly send particulars.

LIVERPOOL COURSE FOR PRACTITIONERS.

The hospitals comprising the Liverpool Clinical School have arranged to hold lecture demonstrations for practitioners during the University terms. The programme is so arranged that on any one day a demonstration will be given by one hospital only. Thus in each week, except the third week in the month, a demonstration will be given at the Royal Liverpool Children's Hospital on Monday, at the Royal Southern Hospital on Tuesday, the David Lewis Northern Hospital on Wednesday, the Stanley Hospital on Thursday, and the Royal Infirmary on Friday. In the third week in each month there will be a demonstration at the Hospital for Women, Shaw Street, on Monday, at the Liverpool Maternity Hospital on Tuesday, St. Paul's Eye Hospital on Wednesday, St. George's Hospital for Skin Diseases on Thursday, and Eye and Ear Infirmary on Friday. The lecture demonstrations, which will begin at 3.30 p.m. on each day, will be largely clinical in character. No fee will be charged. Further information can be obtained from the Secretary of the Clinical School of the University of Liverpool, 61, Rodney Street.

THE HISTORY OF THE ROYAL SOUTHERN HOSPITAL, LIVERPOOL.

A jubilee commemoration history of the Royal Southern Hospital, Liverpool, compiled by Dr. Charles J. Macalister, has been issued with an appeal for funds. The hospital was founded in 1838, as the Southern and Toxteth Hospital through the efforts of medical men and a provisional committee of "parties favourable to the formation of the institution"; the first building was opened for the reception of patients in 1842. In 1849 the committee, looking for ways and means, secured the services of Mme. Jenny Lind, with such good effect that £1,300 was obtained. Thus, as the report states, "the requirements of taste and fashion came in aid of the calls of humanity." In memory of her kindness a ward in the present hospital bears her name. In 1857, the number of beds at first only 30, had increased to 100, and it is noteworthy that a special children's ward, the first of the kind provided in a general hospital, was opened. The name of the hospital was now changed to the Southern Hospital, and as there were now two physicians on the staff, the hospital was recognized by the Royal College of Surgeons and the Society of Apothecaries as an institution where students could be trained for the qualifying examination. Eleven years after the completion of the building, which received additions as funds accumulated, the sanitary conditions of the hospital left much to be desired. In 1861 it had to be closed for three months owing to an outbreak of fever apparently introduced by sailors suffering from dysentery and typhus. In spite of laudable attempts at remedying the hygienic conditions, the committee decided, in 1864, that an entirely new building would be essential if the hospital were to serve its main object, and in 1867 a fresh piece of land was obtained and the foundation stone of the present hospital was laid by the Earl of Derby. In May, 1872, the new building was opened by Prince Arthur, the present Duke of Connaught, and the prefix Royal was added to the name. In September, 1872, it was used for the reception of patients. During the last fifty years notable additions have been made. In 1891 a detached nurses' home secured rest for the nursing sisters, who, up to that time, had bed-sitting rooms attached to the wards. In 1910, a new out-patient department was opened and called "the William Adamson Out-patient Department" in recognition of the signal services rendered as a member of the committee and president of the hospital by the late Mr. W. Adamson for close upon fifty years. Of the other activities of the hospital, mention should be made of the x-ray department established in 1896, and the opening of a ward for tropical diseases by Lord Lister in 1889, where clinical work was carried on until 1911. With the opening of the new laboratory for tropical diseases adjoining the university, the clinical work was transferred to the Royal Infirmary. The present appeal in commemoration of the jubilee is for money to complete the electro-therapeutic and massage department, and for the raising of an endowment fund for after-care work. In the surgical experience of the hospital Dr. Macalister has given an epitome of the advances due to antiseptic and aseptic methods. The late Dr. William Alexander, Mr. Frank T. Paul, and Sir Robert Jones were makers of the surgery in the Royal Southern Hospital. On the medical side the name of Dr. John Cameron, the second in order of the physicians attached to the institution, stands out pre-eminently. He was appointed in 1848, and only retired from active work after sixty years' service. Dr. Macalister, in the section dealing with "personal recollections" of past members of the staff, not only has revealed the good work they did but has placed it in a light that shows what manner of men they were. Dr. William Carter, who was appointed in 1870 as physician and retired in 1907, did much to promote the reputation of the hospital, and so highly valued were his services that a new rule was framed to retain them. As professor of materia medica and therapeutics in the university, Dr. Carter was keenly interested in the action of drugs. Experiments on himself are mentioned by Dr. Macalister in an entertaining way. Changes in type of patients are discussed in the concluding section of this history, and the great improvement socially, and especially in sobriety, described.

A list of the medical and surgical staffs and resident medical officers from 1842 down to 1922 is given. An appendix contains a short sketch of the achievements of Dr. John Nottingham, Sir Ronald Ross, who was physician to the tropical ward, Dr. William Williams, etc.

Quite apart from the cause that prompted Dr. Macalister to write this interesting history, there must be many medical men who were former resident medical officers to whom this record of an institution with which their first years of professional life were associated will be particularly attractive.

CENTRAL MIDWIVES BOARD.

The monthly meeting of the Central Midwives Board for England and Wales was held on June 21st, Sir Francis Champneys presiding. A letter had been received from the Ministry of Health approving the present rules for a further period of six months from July 1st, 1923. It was decided to inform the registrar of the Joint Nursing and Midwives Council of Northern Ireland, in reply to a letter received from him, that (*a*) the Board has for a long time represented that the words "habitually and for gain" ought to be deleted from Section 1 (2) of the Midwives Act, 1902, and hopes that in the near future legislation will effect what is desired; (*b*) that the Board thinks that the suggestion of adding to the end of Subsection 2 the words "Nothing in this Subsection shall exempt from the duty of certification a woman habitually acting as a maternity nurse under the direction of a registered medical practitioner" is impracticable; (*c*) that whilst appreciating the desirability of ensuring that practising midwives notify their intention to

461. Results of Publotomy.

C. THÉLIN (*Gynécol. et Obstét.*, 1923, viii, 3, p. 313) describes the experience of the Lausanne Maternité from 1907 to 1922 with regard to pubiotomy: the operation was done subcutaneously with a Gigli saw, and subsequently it was the rule to *await spontaneous delivery*. The cases numbered 26 in all—21 of vertex presentation with pelvic contraction, the true conjugate being not less than 8 cm.; 4 of face or brow presentation in slightly flattened pelvis; and one of presentation of an abnormally large head in a pelvis of normal dimensions. The operation was not done until (1) a test of labour lasting from eleven to forty-eight hours, in the mean thirty-five hours, had proved that natural delivery was not to be expected; (2) the os was sufficiently dilated to permit of labour being, if necessary, terminated rapidly after pubiotomy. Spontaneous delivery followed in 18 cases. In the 26 cases there were 4 foetal and 2 maternal deaths. The subsequent complications in non-lethal cases were numerous and serious, including 4 cases of vesico-vaginal fistula, 3 of thrombo-phlebitis, and one of parametritis. Twelve patients did not leave the clinic until after the thirtieth day; at that time none had difficulty in walking.

462. Menstruation and Pregnancy in Hodgkin's Disease.

A. A. GEMMELL (*Journ. Obstet. and Gyn. Brit. Empire*, Autumn, 1923, p. 373) notes that the majority (53 per cent.) of cases of Hodgkin's disease in the female occur between the ages of 20 and 40. Menstruation is usually affected, the disease giving rise to oligomenorrhoea in the large majority of cases, and in some even to amenorrhoea. In the case of ten married women, six dated the origin of the disease from a pregnancy. Labour is usually normal, but post-partum haemorrhage may be of more frequent occurrence than usual owing to the general liability of haemorrhage during the disease. It would seem that the disease progresses during *pregnancy, and thus early therapeutic abortion is advised.* The author suggests that ovarian hypofunction may be associated in some way with Hodgkin's disease, and, that being so, he advises the addition of ovarian extract to the other usual therapeutic measures of arsenic and radiotherapy.

463. Threatened Abortion.

J. A. VAN DOUGEN (*Nederl. Tijdschr. v. Geneesk.*, November 10th, 1923, p. 1927) during the last seven years has treated 190 cases of threatened abortion in the Wilhelmina Hospital at Amsterdam and in private practice, with the following results. In 72 patients, or nearly 38 per cent., the pregnancy ended successfully, with the birth of a full-term child or with a premature but viable child, while in 118 cases abortion took place. Some of the 118 cases had been under treatment for only a short time before abortion took place, while others had had slight or severe haemorrhages for weeks or months, or had been discharged from hospital because the haemorrhage had ceased, but subsequently aborted. The prognosis in threatened abortion depends upon the time when medical aid is summoned, the cause of the threatened abortion, and the subsequent behaviour of the patient after discharge from hospital. Van Dougen's treatment is as follows: A careful vaginal examination is first made to determine the existence of intrauterine pregnancy, the size of the uterus, the permeability of the os, and the possibility of any other source of haemorrhage than the uterine cavity. Uterine contractions are prevented by keeping the patient in bed not only during the haemorrhage but for four or five days after it has completely ceased, and powdered opium is given four times a day in doses of 4 mg. Laxatives by the mouth are avoided, and the bowels are emptied by enemata every two or three days.

Pathology.

464. Amoebic Bronchitis.

M. PETZETAKIS (*Bull. et Mém. Soc. méd. des Hôp. de Paris*, November 8th, 1923, p. 1431) describes eight cases of a new disease which he has encountered in Alexandria. The condition is one of bronchitis, sometimes complicated with bronchopneumonic patches, which appears to be due to an amoeba closely allied to, if not identical with, the *Amoeba histolytica*. The disease often begins with definite constitutional disturbance and febrile manifestations, but the most striking point is the *character of the sputum*, which is of a glairy, viscous, and frequently sanguineous nature. Blood is generally, though not always, present, and may either be seen in the form of streaks or intimately mixed with the sputum. Examination of the fresh sputum reveals the presence of actively motile amoebae, of an average diameter of 20 to 35 μ, differentiated into a granular endoplasm and a refractile ectoplasm, and often containing red blood cells. Clinically the course of the disease is very favourably influenced by the administration of emetine—particularly by intravenous injection—though it may be some time before the amoebae finally disappear from the sputum. It is to be noted that this amoebic bronchitis has nothing to do with pulmonary abscess formation, which very rarely occurs in connexion with dysentery. There is no evidence of suppuration, either clinically, pathologically, or radiographically. The history does not always include an attack of dysentery, and it is therefore doubtful how the infection of the bronchial tract takes place in these cases. It is possible that the amoebae gain access to the respiratory system by infected dust.

465. Distribution of Diphtheria Bacilli in the Body.

M. CHRISTIANSEN (*Ugeskrift for Laeger*, August 16th, 1923, p. 581) has carried out a series of investigations at a fever hospital with a view to ascertaining the frequency with which diphtheria bacilli occur in different parts of the body during and after an attack of diphtheria. In a series of 100 cases about to be discharged from the fever hospital to some other institution, he found 40 in which, even after three negative examinations of the nose and throat, *diphtheria* bacilli could still be found in other sites. Among 200 cases of diphtheria of the fauces there were 51 in which diphtheria bacilli could also be found in the nose. In 29 of these cases there was a nasal discharge; in the remaining 22 cases there were no nasal symptoms. There were also 28 cases of scarlatinal otitis in which diphtheria bacilli were found in the discharge from the ear; in 17 of these cases diphtheria bacilli could not be found in the nose or throat. Among several thousand cases of diphtheria the author has not once seen the membranous diphtheria of the vulva described in the textbooks, but he considers as comparatively common the milder forms of diphtheria of the vulva. Bacteriological examinations of the urine during the acute stage of diphtheria *showed that in only one out of seven cases could diphtheria* bacilli be found, and it is probable that the urine plays an insignificant part in the dissemination of the disease. Examinations for diphtheria bacilli in the nose and throat of 274 apparently healthy school children revealed diphtheria bacilli in 9. The upshot of the author's investigations is that in densely populated communities the occurrence of diphtheria bacilli after convalescence and among carriers is so frequent that there is *little prospect of stamping out the* disease by isolation. *If every patient who had suffered from diphtheria were kept in a fever hospital till complete freedom* from infection could be guaranteed, the cost of running such a hospital would be enormous.

466. Infectivity of Scarlet Fever.

SINDONI (*La Pediatria*, August 15th, 1923, p. 857) has carried out some experiments on the infectivity of the scales in the peeling of scarlet fever. He made an emulsion of the scales in sterile physiological solution and placed it in an incubator at 37° C. for about twelve hours. In this preparation he found the scarlet fever organism described by Cristina and Caronia. Cultures could be made from this which presented typical characters, and positive serological results followed. Seeing that the tendency of late years has been to look upon the desquamating stage of scarlet fever as less infectious, these experiments, showing that a possibly specific germ may be isolated from the desquamating scales, are of some importance.

467. The Action of Ultra-violet Rays on a Strain of Bacteriophage.

IN endeavouring to solve the problem as to the animate or inanimate nature of the bacteriophage C. ZOELLER (*C. R. Soc. de Biologie*, October 27th, 1923, p. 860) made an experiment in which he submitted a bacteriophage for Shiga's bacillus of medium virulence to exposure to ultra-violet rays. If the principle were destroyed one might be led to conclude that it was of living nature, whereas if, on the other hand, it remained unaltered one might conclude that the reverse was the case. He therefore made the following experiment. A culture of Shiga bacilli suspended in saline was submitted to the action of the rays for a quarter of an hour; cultures taken at intervals showed that it was sterilized in ten minutes. A dilution of the bacteriophage similarly exposed was found to have become completely inactive. Can one, then, conclude that it was alive and had been killed by the destroying action of the rays? No; the author was careful enough to try the effect of ultra-violet light on a principle of known inanimate nature. He took a paratyphoid B agglutinating serum of a titre of 1 in 2,500 and exposed it for fifteen minutes to the rays. He was surprised to find that the titre after exposure had dropped to 1 in 100. If, then, such a principle as the agglutinin in a serum is destroyed by the rays, it is clear that no conclusion as to the living nature of the bacteriophage can be drawn from finding that it also is destroyed.

be treated by surgical means, but most of whom, with our present knowledge, should have been cured by the physician long before surgical interference became necessary. (Cases 12, 13, 14, 15.)

When Sahli published his book on tuberculous treatment by means of very minute and slowly increasing doses of Béraneck's tuberculin without reactions, I at once made use of it as it seemed to be somewhat safer and more reliable. (I shall call this Béraneck's (T.Bk.) treatment (Appendix B).) As I anticipated, it proved to be so. Although the injections were painful for a few minutes the absence of big reactions alone made up for this slight inconvenience. In the early stages of tuberculosis of the lungs and in tuberculosis of the other organs of the body the results were far superior to Koch's treatment (Case 14). The improvement in these cases was steady and devoid of any sudden disappointments and relapses.

Case 9.—January, 1910. Mrs. G., aged 34 years, weight 45 kg. Right apex, third stage. Tubercle bacilli in sputum. Ill some time. Diagnosis: Tuberculosis pulmonalis. After six months' treatment with P.T. the disease apparently arrested. Sputum contained no tubercle bacilli. Relapse 1915. Twelve months' treatment with T.Bk. Quite well and strong to-day; weight 63.5 kg.

Case 10.—January, 1914. Mr. G. W., aged 20 years. Haematuria; urine contained pus and tubercle bacilli. Ill a few months. Diagnosis: Tuberculosis of the bladder. T.Bk. treatment. Well in 1914, when he went to the war and stayed at the front in France till the end. No relapse. Picture of health at present.

Case 11.—February, 1917. M., aged 31 years, weight 68 kg. Right apex, second stage. Larynx slightly affected. Sputum contained tubercle bacilli (Gaffky X) and streptococci. Four months' treatment with T.Bk. Apparently well; sputum free from tubercle bacilli. Went to the islands. Weight 83 kg. This patient took, apart from other meals, about two dozen raw eggs each day, which may account for big increase in weight.

Case 12.—1913. D. T., aged 15, suffering from tuberculous hygroma of right knee. Complete cure after six months' treatment with T.Bk.

Case 13.—1913. E. T., aged 19, sister of Case 12, suffering from tuberculosis of right hip-joint. Had been operated on a few months before. When first seen by me there were many suppurating sinuses and a temperature of 38.3° C. During the first two months of T.Bk. treatment the temperature rarely dropped below 37.8° C. Treatment lasted twelve months, with the result that the temperature gradually became normal, the sinuses healed up, and the patient could walk about with the aid of a walking-stick. When last heard of about twelve months ago she was employed as a domestic servant.

Case 14.—1917. Miss F., aged 16 years. A remarkable case showing the superiority of T.Bk. over Koch's treatment. Some years ago she had pleurisy and peritonitis (tuberculous). Six months ago she developed tuberculosis of the left ankle and right knee joints, for which she was being treated by a specialist with tuberculin injections with very severe reactions. Another physician, visiting another patient at the same boarding-house in which my patient was living, told her mother that in his opinion her daughter could only live another week or two. When called in I found the patient in a deplorable condition: as thin almost as a skeleton, her left ankle had a large unopened abscess, her right knee the size of a small football fixed at an angle of 90 degrees. After having the abscess opened, and without using any splints, I started at once T.Bk. treatment, with the result that in eight months' time the right knee was normal, while the left ankle was stiff but quite movable after an operation under anaesthesia for breaking down some adhesions. Six months after her return from the country she came to see me quite well.

Case 15.—One of my first cases treated with T.Bk. at the Anti-tuberculosis Dispensary is worthy of notice. I cannot get the history chart of this patient—a boy about 18 years old, who had had two amputations already, the first an amputation at the ankle-joint for tuberculosis of the bones of the foot, and the second at the junction of the lower third and upper two-thirds of the leg for tuberculous bone trouble. When seen by me he had several tuberculous sinuses, and had been advised to have the leg amputated at the knee. About twelve T.Bk. injections healed every sinus up.

Case 16.—1917. Mrs. G., aged 33 years, weight 51 kg. Ill twelve months. Sputum contained tubercle bacilli (Gaffky IV). Right apex affected to sixth rib. Diagnosis: Tuberculosis pulmonalis. Quite well after one course of T.Bk. injections with disappearance of tubercle bacilli. Two years later came to Sydney from her country residence, caught "a cold." During a severe coughing fit expectorated pieces of "marble" and a fair amount of blood. The sputum examination two days later contained many tubercle bacilli. Two months' T.Bk. treatment resulted in the disappearance of the organisms, and patient left for her home a couple of months later. Splendid health since. Weight 73 kg.

Here is a patient in the best of health suddenly having a relapse with sputum containing many tubercle bacilli,

cases.

Even these few histories will show how remedy Béraneck's treatment is, and I would s it if it had not been for the fact that th presently to be described can not only bring a equal to Koch's or T.Bk. treatment, but can s where either of these treatments may have faile

It is sometimes very difficult to convince s tioners that there may be faults in their tre anything goes wrong they are quite satisfied th *hoc*, never *propter hoc*. The worst is that the lutely sincere in their belief. The Koch enth never admit that if a patient does not improve their own fault, and the same applies to tho T.Bk. treatment. All the same, either meth pitfalls. Is there any explanation?

We are under a great debt of gratitude to S Wright for the elucidation of many obscure vaccine treatment. He has demonstrated a cert sequence of changes in the opsonic action after tion of vaccines. Following such an injectio induced a phase in which the protective substa blood (opsonins, agglutinins, etc.) are diminish called negative phase. This is followed after a longer period of time, according to the size of the by a rise in the amount of protective substanc called positive phase. A dose, even if quite cor wise, given during the negative phase will d patient still more, while too large a dose given positive phase may sometimes undo all the goo from the first dose. A right dose at the wrong wrong dose at the right time may have equally results—with this difference as regards T.Bk. treatment, that in the former case (the dose bein smaller and the increases much more gradual) it several doses before we become aware that we a wrong tack; while in the latter there is seldom m about it. It is merely a matter of degree. treatment of tuberculous glands, for instance, t are mostly extremely gratifying, but sometimes happen that instead of improving the glands may larger. We know then that the doses were either or given at the wrong time, and it may take ma of treatment to rectify our mistake provided it is late. In Koch's treatment, especially after a well reaction, we can usually tell if the dose was correc The patient's statements, "Feel so splendid," felt better in my life," tell their own tale. But next dose, even if chosen with scrupulous care, th may tell you, "Doctor, I think I have caught cold." You examine him and find his lung worse. Has the dose had nothing to do with takes of this kind are difficult to guard again experience will enable us to avoid these blunder the time, but not always.

A treatment which may be harmful in even out of fifty is, to say the least, to be handled fully. I would like to say here a few words abo tuberculin test. In giving it we are working abs the dark. In giving these large, rapidly increas of O.T. it would be surprising after what I ha it did not do any harm occasionally; I can remember one or two patients in whom it seeme greatly lessened their chances of recovery. With other diagnostic means at our disposal it shou necessary. After all, this test is only absolut worthy if it is negative. Some years ago, I intended using the O.T. test I applied a von test a few days before the actual O.T. test inject comparing the two results I can now get the from a von Pirquet test as I did formerly from test, and without any risk to the patient. The this paper will not allow me to explain this furt

T.Bk. treatment has proved itself in my experi effective in the early stages of pulmonary tuberc

An Address
ON
THE PRESENT POSITION OF MEDICAL BACTERIOLOGY.

INAUGURAL ADDRESS DELIVERED AT EDINBURGH UNIVERSITY ON OCTOBER 11TH, 1923,

BY

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INTRODUCTION.

THE chair of bacteriology is still young in the history of the University of Edinburgh, and, lacking the historical traditions of older foundations, owes its present prestige not only to its origin and associations, but also in large measure to its first occupant, the late Professor James Ritchie; and on this occasion I may be permitted to pay a humble tribute to the distinguished memory of my predecessor by recalling the eminent place he had earned for himself as one of our leaders in pathology and bacteriology through his scientific achievements, his teaching and writings, and his constructive work in the interests of these sciences. He was aptly described as one of the moving forces in pathological work in this country, and his death deprived British medicine of one of its best influences.

The justification for the subject I have selected for this customary inaugural lecture is, I think, an ample one. At all times there is need for critical revision in every domain of learning, for sorting out and arranging accumulated data so that each achievement may be apportioned its due place in the general structure. Only in this way can we ensure a sound basis for further progress. In recent years knowledge has advanced with truly remarkable rapidity, and in all the sciences such often bewildering masses of detailed information have been accumulating that the present times demand the most accurate and proportioned survey of scientific knowledge—if only for its direct application to human needs. This is particularly true for bacteriology, which, no one will deny, has conferred on mankind some of the great advantages enjoyed in these modern times.

This science has long passed out of that phase in its history when it presented to the world those dramatic discoveries that established the germ theory of infective disease and defined the causal agents of many human and animal scourges; but even to-day the scope for discovery of unknown morbific germs is by no means exhausted. Of recent years a vast amount of non-spectacular work has been accomplished by laborious and patient research, all directed to increasing the knowledge of our microbe enemies, their method of attack, and our means of defence against them. The information obtained has elucidated many a problem, but new data have often served only to exhibit the complexity of the subject; and in this, as in other sciences, there are many tangles that still require unravelling.

It is, of course, impossible to review the whole subject as it is studied at the present time without introducing a mass of technical detail that would be out of place in an address of this nature, but I shall attempt to indicate in the simplest fashion certain aspects which seem specially significant to me as a teacher of bacteriology. While I shall confine my remarks mainly to bacteriology in its medical applications, it is impossible to sound the depths of the subject by limiting oneself to any one division; and at the present time our conception of bacteriology must be based on its position first and foremost as a biological science with intimate relations to human and veterinary pathology and hygiene, and also with important economic applications in agriculture and in various industries. To instance a comparatively recent industrial application arising out of war needs, we have the production of acetone on a commercial scale—as a solvent of nitrocellulose—by the bacterial fermentation of starch. The part played by saprophytic bacteria in resolving dead organic matter in the soil into simple chemical substances available for plant nutrition is one of the great natural processes at the very foundation of life on this planet, and even apart from agricultural considerations must be studied as a biological phenomenon of primary importance. Microbic disease itself is simply a biological process which constitutes one phase in the general struggle for existence that goes on in nature and represents the predatory aggression of minute forms of life towards larger organisms.

PURELY BIOLOGICAL CONSIDERATIONS.

Our first approach, therefore, to the study of even medical bacteriology must be along the avenue of general biology.

The scope of bacteriology in these days, when lines of demarcation between previously well defined spheres of knowledge are becoming less marked, requires the first consideration. The name of the science is suggestive, but the conventional name of a subject—often a product of usage and convenience—may fail to express its scope. Bacteriology, of course, takes its name from the bacteria, which were the first pathogenic or disease-producing microbes to be systematically studied. The early biological studies of these organisms led to their classification as the most primitive forms of plant life, and they have been generally designated "schizomycetes." This has no doubt satisfied the systematic biologists, but the relationships of the bacteria and many other unicellular organisms are by no means a matter of certainty, and competent systematists (Zopf and others) have regarded the bacteria not as low primordial organisms but developed by reduction of higher forms.

For many years now, following the lead of Pasteur, the great pioneer of the science, bacteriology has included in its scope all micro-organisms that can be studied by the same general methods and technique. In its widest range it might be more appropriately designated "microbiology," and this name could well be substituted for the older traditional one. The elements then of bacteriology would embrace the biological study of all micro-organisms—popularly known as microbes or germs—and from this fundamental basis the various divisions and applications ramify in diverse directions. In medicine we are concerned primarily with certain pathogenic and commensal microbe species which represent not only the bacteria but also the true fungi, the protozoa, and a group—probably a heterogeneous one—of still undefined organisms, the so-called filtrable viruses, which are so minute or so plastic that they can pass through a porcelain filter. The medical applications have extended to detailed studies of infection, microbic toxins, immunity, the germicidal chemicals, and the bacteriology of water and foods.

At the present time in bacteriology we are confronted with the problem of biological classification. Of the various microbic groups some have been assigned to the plant kingdom, some to the animal kingdom; but among the unicellular organisms it is difficult to draw a sharp line of demarcation between the two great kingdoms of life, and we may well follow Haeckel, who first classified together and designated as "protista" all those primitive organisms which he, as it were, at the point of fusion between the two kingdoms. If we consider, for example, the order of spiral flexuous micro-organisms, the so-called spirochaetes, which are responsible for certain important diseases of man and animals, we find that at one time they have been placed in the plant kingdom, at another time in the animal kingdom—that is, among the bacteria and protozoa respectively. According to contemporary systematists, they are now to be regarded as an order of the schizomycetes or bacteria (Dobell and others), in spite of recent tendencies to classify them as animal forms. There is much to be said, however, for recognizing them as intermediate between the true bacteria and protozoa. As regards the filtrable viruses we must confess that there is quite insufficient knowledge of their biology to justify systematic classification.

Bacteriology, as I have defined it, and the science of parasitology as a branch of zoology, meet and may overlap, therefore, in the study of certain types of minute organisms; but this is no disadvantage to either subject, and protozoology as a special study merits the most serious

tuberculin would be sufficient to set the immunization cess going; on the other hand, in advanced phthisis *monalis*, where the whole system is, so to speak, already ırated with toxin, a small dose of tuberculin would be y like a drop in the ocean. It is in these latter patients t Koch's treatment with large doses of tuberculin often es such marvellous results, provided always the reactions owing on an injection are favourable and create suffi- ıt antibacterial substances to lessen the vitality of and lly destroy the germs.

'uberculin treatment, especially Koch's, is a double-edged ıpon which should only be handled by men with expe- ıce. Such a treatment, in which so much depends on the ctive powers of the patient, and which, if used carelessly, y sometimes have most deplorable results (Case 14), or ch, even if used with the greatest care, may occasionally to effect improvement, or which (especially if very ge doses are used) may greatly lessen the chances of overy, is one not lightly to be undertaken.

shall pass over treatment by tuberculin insufflation and nction (provided the tuberculin becomes absorbed *ough the skin) as unscientific, because it would be im-* sible to regulate the doses, and the risk to the patient y be even greater still.

SODIUM MORRHUATE.

n the issue of the BRITISH MEDICAL JOURNAL of February ., 1919, Sir Leonard Rogers published a short article the treatment of tuberculosis by subcutaneous intra- scular, or intravenous injections of the sodium salts of unsaturated fatty acids of cod-liver oil after extraction ether, which he called sodium morrhuate.

Ve all know the value of cod-liver oil by mouth patients suffering from tuberculosis. What at once ealed to me most in connexion with this new discovery the fact that, if successful, the effect of it would not e to depend so much on the reactive powers of a patient, that it would act directly (as Sir Leonard Rogers ggests) by dissolving the coating of these acid-fast illi and thus laying them open to destruction.

Having started this new treatment from the middle of .9, and having used it since almost exclusively, I am so ch impressed with the results obtained, superior in every y to the other methods (Cases 18, 19, 27) used by me in past, that I would not even withhold it from an almost ing patient.

'ase 17.—November, 1920. Mrs. C., aged 41 years, weight kg. Ill nine years. Almost bedridden during the last nine nths, with night-sweats, temperature up to 38.3° to 39.9° C. ost every day, and frequent haemorrhages. When first seen her perature was 38.3° C. Large amount of purulent expectoration taining tubercle bacilli (Gaffky VI). Left lung extensively cted with a cavity. Systolic blood pressure 110 (very faint). gnosis Tuberculosis pulmonalis. During the first two months Sodium morrhuate treatment the temperature gradually came n, and in July, 1921, was normal. Treatment lasted about lve months, at the end of which time cough very slight, tum free from tubercle bacilli, and systolic pressure 140. She n left for the country. At the time I started the sodium rrhuate treatment I had several patients who, though improved ler T.Bk. treatment, did not progress beyond a certain stage. th sodium morrhuate the change for the better was almost rtling. Besides, in two patients, after sodium morrhuate had ught about an arrest of the disease, another very small dose T.Bk.—about 0.001 mg. (given with the view of further immuniza- n)—brought on an immediate relapse, which on resuming the ium morrhuate injections was again easily arrested.

'ase 18.—July, 1916. Mrs. H., aged 33 years, weight 50 kg. (so she told me) twenty-two years. Had tuberculin treatment America, with only slight improvement. Arrived in Australia 1914 much worse. Here she had two years' tuberculin treatment a hospital. No better. Seen first by me in 1916. Her condition ked almost hopeless. Right apex, active disease affecting the ole of the upper lobe with cavity formation. Frequent high nperatures and haemorrhages. Sputum contained tubercle bacilli affky X). Diagnosis: Tuberculosis pulmonalis. As she was so I did not like to use Koch's treatment; I therefore gave her Bk. injections, with slight improvement only until 1919, when sputum still contained many tubercle bacilli. In July, 1919, I rted combined T.Bk. and sodium morrhuate treatment by giving ernate doses of each. Still further improvement. Next course, tober, 1920, sodium morrhuate. Result: Within six months dis- pearance of all active symptoms and absence of tubercle bacilli m sputum. I then gave a small dose of T.Bk. for the reason ove stated; this was followed immediately by a relapse. After ree more months of sodium morrhuate treatment the patient was charged with the disease arrested; no sputum; weight 65.5 kg. I have seen this patient on several occasions since, the last time about a week ago, and she still seems to be in perfect health. During all this time the patient lived in Sydney doing her own housework.

Case 19.—A very similar case to the last one is that of Mrs. C., who came to me suffering from tuberculosis pulmonalis a few years ago. While T.Bk. treatment brought about only a slight improvement, treatment by sodium morrhuate was followed by a complete arrest of the disease. This patient, like the last, relapsed after receiving a small dose of T.Bk. She is quite well now. Her two boys, suffering from tuberculous adenitis, are also in good health after treatment by sodium morrhuate.

The next two histories will show how sodium morrhuate treatment can bring about an arrest of tuberculous disease even after sanatorium treatment has failed.

Case 20.—November, 1921. Mr. S. M., aged 37 years, weight 75 kg. (height 6 ft. 1 in.). Ill six months. Had three months' sanatorium treatment without any improvement. Then went to the New England district (well known for its dry and bracing climate) for some months. Slight increase in weight, but as the weakness, cough, and frequent haemorrhages did not improve, he came to Sydney for further advice. Right apex, second to third stage. Sputum contained tubercle bacilli (Gaffky V). Started sodium morrhuate treatment in May, 1922. In August, 1922, haemorrhages had practically ceased and sputum became clear of tubercle bacilli; weight 82.3 kg. I may mention that two to three weeks after commencing treatment he resumed his work as a commercial traveller, and has continued it without a break up to date. Feels and looks well.

Case 21.—April, 1921. Mr. A. C., aged 33 years, weight 63 kg. Ill twelve months. After three months' sanatorium treatment with no improvement came to me complaining of almost daily haemorrhages, cough, expectoration, weakness, etc. Right apex, third stage. Sputum contained tubercle bacilli (Gaffky X) and streptococci. Diagnosis: Tuberculosis pulmonalis. After eight months' treatment with sodium morrhuate the sputum was free from tubercle bacilli, no more haemorrhages; weight 71.5 kg. July, 1922, no cough, feels splendid. No relapse since. This patient got better under the worst possible conditions. During the treatment he lived in a very unhygienic suburb with his wife and four children in very poor circumstances.

Case 22.—May, 1920. Bro. C., aged 42 years, weight 62.6 kg. Suffered from frequent attacks of "sore throat" for the last fourteen years much worse the last six months with absolute loss of voice. Right apex, second stage. Cavity. Larynx, both vocal cords infiltrated with tubercle formation. Both arrepiglottic folds swollen and ulcerated. Sputum swarming with tubercle bacilli (I do not remember a worse specimen). Diagnosis: Pulmonary and laryngeal tuberculosis. After two months' sodium morrhuate treatment (in Sydney) sputum free from tubercle bacilli. Two subsequent sputum examinations gave the same result. After four months' treatment weight 70.5 kg., well; lung fibrosed and larynx healed up. As both vocal cords had been practically destroyed his voice will always be affected.

Case 23.—April, 1922. M. M., aged 11½ years, weight 34 kg.; aboriginal girl from one of the Pacific islands. Very bad family history. Ill twelve months. Right apex, third stage. Large gland (size of a large pigeon egg) in front of right sterno-mastoid. Sputum contained tubercle bacilli (Gaffky VI) and streptococci. Diagnosis: Tuberculosis pulmonalis. Sodium morrhuate treatment. To-day gland disappeared; no lung symptoms except some dullness and tubular breathing at former site of disease. As expectoration has ceased, cannot examine sputum. No cough; weight 43.5 kg. I give this history as there were two special drawbacks: (1) Coloured people if infected with the germs of tuberculosis are the worst patients for treatment, (2) it is most difficult to improve children if they once develop tuberculosis of the lungs. In spite of this, this little patient got better. If improvement will be permanent I cannot say.

Case 24.—August, 1920. R. W., aged 23 years, weight 75.5 kg. (height 6 ft. 2 in.). Good health up to three years ago, when he became incapacitated at the front in France. Right apex, second stage. Sputum contained tubercle bacilli (Gaffky II). Had two courses of sodium morrhuate treatment. To-day feels fine; weight 80 kg.

Case 25.—May, 1911. E. R., aged 25 years. O.T. test positive. Diagnosis: Tuberculosis pulmonalis. After a course of Koch's treatment, well in December, 1911. O.T. test still negative in October, 1912. Went to the war. Came to me in July, 1920, with right lung second stage. After five months' sodium morrhuate treatment, well.

Case 26.—November, 1920. Mrs. K., aged 60 years, weight 45.3 kg. Systolic blood pressure 160. Several extremely large cervical glands at the root of the neck (both sides). Ill some time. Had been told that she had cancer, and advised to have it removed by operation. Von Pirquet test strongly positive. Diagnosis: Tuberculous adenitis. Seven months' sodium morrhuate treatment brought about complete disappearance of these glands. Weight (July, 1921, 53 kg., (July, 1922) 60.7 kg. September, 1922, small gland left side. Advised further treatment.

Case 27.—July, 1922. D. D., aged 45 years. Short time before coming to me had several tuberculous glands removed from the right axilla. Large swelling of right wrist and carpal bones. After about fifteen tuberculin injections at a hospital, much worse. Diagnosis: Tuberculosis of wrist-joint and carpal bones of right hand. After three months of treatment by sodium morrhuate he was

consideration in view of its obvious importance in relation to various tropical diseases in man and certain widespread diseases of animals.

Apart from the systematic position of the different main divisions of micro-organisms, the classification of the bacteria into families, genera, and species is one of the most confusing of our immediate problems. As in other departments of biology, the determination of species is a fundamental difficulty. While the botanist and zoologist relies on morphology as his ultimate criterion, in bacteriology physiological functions, biochemical reactions, and disease-producing properties may serve to differentiate and identify important species. In addition, the specific reaction of the serum of an immunized animal to the homologous bacterium—a criterion not employed thus in other branches of biology—constitutes one of our most delicate tests of identity. On the other hand, this finesse in identification has often complicated our classification to such an extent that we hardly dare speak of "species" in bacteriology—if such a fixed entity really exists—and in certain bacterial genera biochemical and serological criteria yield the most amazing multiplicity of types. A broad system of classification is urgently required, however, and the most serious attempt in this direction is that of the Society of American bacteriologists, which has recently proposed a new classification of the bacteria. While this system is undoubtedly sound and seems to possess a convenient elasticity, it involves a revolution in nomenclature—a disadvantage to older students of the subject.

Among the bacteria it has been found possible to follow closely the process of spontaneous variation, and in this way the evolution and origin of new types can be studied. The great diversity and multiplicity of types among certain bacterial groups can thus be explained to some extent on the basis of rapid mutation.

From the purely biological standpoint the question of a bacterial life-cycle deserves some comment. It has been generally accepted that bacteria, as contrasted with the protozoa, exhibit no real life-cycle, and that their morphology is of the simplest and most uniform type. On the other hand, it has to be remembered that our knowledge of the structure of such exceedingly minute organisms must necessarily be somewhat limited. There is already a considerable amount of literature dealing with the supposed life-cycle of bacteria, and this conception has been daringly used to elucidate certain unexplained epidemiological peculiarities (for example, waves of epidemic prevalence, etc.). A further development of this idea is to presuppose changes in toxicity and virulence associated with different phases in life-history. Moreover, the question of an exceedingly minute or filtrable phase in certain recognized pathogenic micro-organisms has also been raised, and might be considered in relation to the whole problem of the filtrable viruses. Though the interpretation of many of the data in this subject justifies frank scepticism, they at least point to an interesting field for further investigation.

Within the last few years a remarkable biological phenomenon among the bacteria has been observed and studied, the so-called Twort-d'Herelle phenomenon—that is, the lysis of bacteria by some active principle transmissible from generation to generation of a bacterial culture. D'Herelle has elaborated the somewhat startling idea that the lytic effect is due to an ultramicroscopic parasite of bacteria, or "bacteriophage," which actually reproduces itself within the bacterial cell. It would thus fulfil the old postulate versified by Swift that even a small parasite has its own lesser parasites. The biochemical explanation that the active principle is an autolytic enzyme of bacteria, and that its apparent transmissibility and reproduction are not necessarily due to a separate living organism, is perhaps the more acceptable theory.

There is no lack of scope, therefore, for the purely biological investigation of the bacteria, and at the present time it might appear that the study of the fundamental biology of these micro-organisms has perhaps been sacrificed in the past to the more attractive investigation of their direct relation to disease and the everyday affairs of mankind.

ETIOLOGICAL CONSIDERATIONS.

Bacteriology, though primarily a purely biological science, owes most of its actual development to the modern study of pathology, for its importance in medicine must always depend on the essential fact that it deals with the genesis of a large number of diseases. The majority of deaths among our own species are attributable to microbic infection, and certain prevalent diseases of still unknown etiology may yet be shown to be due to micro-organisms or their toxins.

I have referred to the great discoveries of the latter part of the nineteenth century which brought to light the causal agents of many prevalent diseases—the discovery of the typhoid bacillus, the cholera vibrio, the diphtheria bacillus, the tubercle bacillus, and many other pathogenic micro-organisms in rapid succession. The etiology of various diseases was thus explained in what seemed at first to be a relatively simple manner; but the identification of the causal agent has not always elucidated every problem in the particular condition.

Disease is a complex process dependent on several factors, and in even a well defined infection the invading micro-organism, though the specific and essential cause, is not the only factor that determines the process. It is futile to study a parasite apart from its interaction with the host and without regard to the passivity or antagonism of the latter, and also the external influences that affect both.

While the achievements of bacteriology in elucidating disease have been of almost unequalled value in medicine, serious obstacles still confront us in the fuller application of our science. Granted that all infective diseases are of microbic origin, there are still many obvious infections whose causal agent remains undetermined; but we have to remember that it is not so many years ago in this present century since the *Spironema pallidum*, the organism of syphilis, was observed for the first time, and it is only within the last few years that the leptospiras of infectious jaundice and yellow fever, and other previously unknown pathogenic micro-organisms, have been described. Bacteriology was alluded to in 1918 by one of the leaders of our profession (Sir Clifford Allbutt) in pointing to possible new conquests in other branches of medical science, as a "territory—largely won," but I can assure you we have only passed the frontiers, and there is still great scope for conquest in this department of science. Consider, for example, the bacteriological problem in leprosy: the leprosy bacillus was first described about fifty years ago by Hansen, and to anyone approaching the study of leprosy for the first time the problem might seem one of the easiest to solve; but in spite of repeated studies of this organism little is yet known of its biology and experimental pathogenesis. Without this knowledge definite information cannot be obtained as to the transmission of the disease and immunity to the infection—important practical questions in countries where leprosy is prevalent. In fact, the bacteriological difficulty in this infection is almost unparalleled; no other obvious bacterium occurring in such enormous numbers in the lesions of the disease has proved so resistant to artificial cultivation. The majority of attempts to obtain cultures for experimental study have been unsuccessful, and where success has been claimed the results are still open to doubt. When a fundamental problem still remains unsolved with regard to a micro-organism so easily demonstrable as the leprosy bacillus, it is not difficult to appreciate the obstacles still to be overcome in demonstrating less obvious microbic agents and in proving their pathogenicity beyond a shadow of doubt.

The pioneer work in bacteriology brought into rapid subjection certain groups of micro-organisms which now yield many of their biological secrets to our ordinary technique, and diseases due to such organisms have been investigated bacteriologically with most valuable results as regards diagnosis, prevention, and even cure. There still remain a large number of prevalent infections in which a microparasite has proved less easy of demonstration—where the customary technique has been quite ineffective. The *Spironema pallidum* long remained refractory to microscopic observation until special methods had been

value of sodium morrhuate treatment in these (so-called) surgical cases, even after tuberculin treatment had failed (Case 28).

Case 28.—January, 1920. Sister M. G., aged 37 years, weight 56 kg. Ill eight months after pneumonic influenza. Whole lower lobe of left lung still dull; crepitations, etc. Sputum contained tubercle bacilli (Gaffky II). After eight months' treatment with sodium morrhuate all the physical signs had disappeared. Feeling well; weight 58 kg.

There were numerous patients in the earlier stages of the disease who recovered without much trouble under sodium morrhuate treatment. I have specially selected these case histories with a view of showing—

1. How valuable a remedy sodium morrhuate treatment is, even in very advanced stages of all kinds of tuberculous trouble.
2. That sodium morrhuate treatment not only gives results equal to those achieved by tuberculin treatments, but it can arrest tuberculous diseases even where previous tuberculin or sanatorium treatments have failed.
3. That given in correct doses without reactions it neither inconveniences a patient, as is often the case with Koch's treatment, nor are the injections as painful as in T.Bk. treatment. It is therefore the best method in ambulatory cases.
4. That it is the only reliable remedy in haemorrhagic or feverish patients.
5. That it is a safe remedy if used correctly, and free from those surprises sometimes following a tuberculin injection.

One strange effect as regards sodium morrhuate injections happened so frequently that I cannot consider it as a mere coincidence. We all know that tuberculin injections, given even in fairly large doses to patients either free from active tuberculosis or in the last stages of the disease, often do not cause any local reaction. (The O.T. test is based on this fact.) The same almost invariably occurs in sodium morrhuate treatment. On several occasions when patients urged me to give them a second course of sodium morrhuate treatment after an interval of about six months, when all previous clinical as well as physical symptoms had disappeared, sodium morrhuate could be given in steadily increasing doses up to 1 c.cm. or more without any local reactions. The same happened in several patients with advanced tuberculosis. By local reactions following sodium morrhuate injections I mean a local redness of the skin around the site of the injection up to the size of half a crown; different from a severe local reaction following an O.T. injection, which sometimes resembles a severe attack of erysipelas. On the other hand, even in the earliest stage of active disease, it is sometimes very difficult to work up to a 1 c.cm. injection of sodium morrhuate without reactions (thus resembling the high sensitiveness of tuberculous patients to small doses of tuberculin). Mr. M. is a case in point.

Case 29.—Mr. M., aged 37, weight 65.5 kg., came to me on account of his bad family history just after I had commenced sodium morrhuate treatment. He felt fairly strong in spite of having to do rather strenuous work. Slight cough, no physical or other clinical symptoms. X-ray negative. Von Pirquet test positive. Diagnosis of active tuberculosis doubtful. As he urged me to give him a course of injections as a precaution, I did so. During four months' treatment I could not give him a single injection of sodium morrhuate without a more or less severe reaction, and only succeeded in increasing the dose to 0.5 c.cm. As he felt well I discontinued the treatment; weight the same. A month ago he came back to me, looking pale, rather weak, slight cough and some catarrh. Some faint crepitations at right apex. Von Pirquet test strongly positive, making the diagnosis of pulmonary tuberculosis almost certain. I have just started sodium morrhuate treatment again and am going to work up to a bigger dose this time if possible.

This and other cases I could quote tend to show that local reactions following sodium morrhuate injections are almost specific.

After using sodium morrhuate treatment now for about

(1) If the diagnosis has been right. W
how syphilis, for instance, can closely imi
culosis of the lungs.

(2) If the patient has followed my instruct
patient used to celebrate each injection b
indulgence in alcohol.

(3) If there are any complications—pneu
streptococcal infections, syphilis, etc. One p
began to improve after expelling the largest
I have ever seen.

(4) If the sodium morrhuate was up to sta

Case 30.—Mrs. B., aged 41 years, weight 50.5 kg. Su
advanced pulmonary and laryngeal tuberculosis. Tub
present (Gaffky X). Improved steadily under sodium
treatment until about six months ago, when my fresl
sodium morrhuate ran out. While giving slightly clou
of sodium morrhuate she went steadily back. On res
tions which were perfect she at once improved again,
on a fair road to recovery. Weight now 64 kg.

It used to puzzle me why this treatment had
extensively used before. Apart from the slight
making up the solutions and sterilizing them in
clave, my greatest difficulty has been that I coul
cure the sodium morrhuate powder absolutely f
time. Instead of a light yellow dry powder it
arrived slightly moist only, or as a sticky brow
The powder probably deteriorated in transit.
culty has now been overcome. Unless the sod
rhuate is in a good condition and the solution
with it perfectly clear, it should be discarded.
drug is perfect the results of this treatment are
I feel inclined to think that this is the reason for
results obtained by others (see Appendix C).

In conclusion I can only say that after using th
tuberculins, serum (Marmorek's), different collo
parations, sugar injections, etc., sodium morrhu
has given me the most uniformly successful results
be used with confidence and without fear of any u
results.

I sincerely hope that this short review ma
medical practitioners to give this treatment a mo
sive trial, and I feel sure that they—and what
important, their patients—will not be disappoint
medical profession should be grateful to Sir Leonar
for placing such a valuable remedy at its disposal.

Appendix A.

Koch's Treatment.—Tuberculins used were T.O.A., O.T
P.T., T.B.E., P.B.E., and T.R. Solutions were made w
distilled water to which 0.5 per cent. carbolic acid had b
and prepared on a decimal system and labelled A (pure t
to E, 1 c.cm. of which contains 0.0001 gram (pure t
Smallest starting dose usually 0.00001 to 0.0001 gram, and
increased according to reactions to 1 c.cm. of the pure t
and to 3-4 c.cm. of the pure emulsions—the latter only
cases.

Increases on a logarithmic scale. For instance,
0.1 c.cm. of solution D, then 0.15 c.cm., 0.22 c.cm.,
0.46 c.cm., 0.68 c.cm., 1 c.cm., followed by 0.15 c.cm. of
etc.

Intervals between doses were regulated by reaction
general condition of the patient. If there was no reacti
patient was improving, doses were given every three to
If reactions, intervals were lengthened to a week, two w
times three weeks, when the same dose or a slightly s
was repeated.

Appendix B.

Béraneck's Treatment.—At first Béraneck's tuberculin
according to Sahli's method, by making each solutio
strong as the preceding one. Later the decimal system
was adopted.

From solution A (=pure tuberculin) to G, 1 c.cm. of
tains 0.001 mg. of pure tuberculin. Starting doses
usually 0.1 c.cm. of G. In grown-up people usually 0.1
and slowly increased till solution E or D was employed
remember ever using solutions B and C.

Increases of doses: 0.1 c.cm., 0.13 c.cm., 0.18 c.cm.,
0.32 c.cm., 0.42 c.cm., 0.56 c.cm., 0.75 c.cm., 1 c.cm.
were, if possible, avoided, injections were usually given
of about three to four days.

elaborated for the purpose, but at the present time this organism yields easily to a specialized technique; and so it may be with certain other pathogens.

For a good many years now active studies have been steadily proceeding, which first raised the question of an "ultramicroscopic" type of organism minute enough to pass through the pores of a porcelain filter, and therefore designated "filtrable virus." Proof that these viruses represent living organisms was established by experiment, and many prevalent human and animal diseases were shown to be due to such agents—for example, rabies, epidemic poliomyelitis, rinderpest, etc. More recently, attempts to cultivate them artificially have in certain instances proved successful, with the result that some information is now directly obtainable regarding their biology. It seems unlikely, however, that all the viruses of this nature represent a homogeneous biological class.

It is interesting to recall how, a number of years ago, the virus of yellow fever present in the blood of infected persons was found to be filtrable and it was classified as ultramicroscopic. In 1919, however, Noguchi described as the causal organism of the same disease a leptospira whose etiological relationship to yellow fever is now generally accepted. The filterability of the virus was also confirmed by Noguchi, and the possibility of a granular phase of the leptospira such as that described in the case of other spironemata was suggested. All these facts are of the greatest significance in relation to the whole question of the biology of the filtrable viruses, but hasty generalizations and speculations are to be avoided.

The influenza problem also exemplifies the intricate difficulty of determining the exact causal agent of an obvious infective disease. Since the pandemic of 1918 bacteriologists have been divided in opinion as to whether the classical *B. influenzae* of Pfeiffer or a filter-passing virus is the primary causal agent in the disease. Without treading already well worn ground in this controversy, attention may be drawn to the successful isolation of an exceedingly minute bacilloid filter-passing organism from this disease by independent workers in different countries—the *Bacterium pneumosintes* of Olitsky and Gates. Having had the opportunity of studying the biological characters of this organism (isolated by Sir Spencer Lister), I have little doubt of its close relation to the true bacteria; its size is not constant and in a certain environment it may attain the dimensions of one of the recognized bacteria. These facts are also highly significant in any biological speculations regarding the filter-passing organisms. The "Rickettsia bodies" of typhus fever and the "globoid bodies" of epidemic poliomyelitis provide further examples of exceedingly minute structures of doubtful biological nature that have to be reckoned with in the new bacteriology.

The whole subject of the filtrable viruses is a field of study in which a vast amount of careful investigation is required and it holds many pitfalls for the unwary observer; but here we must look for some of the conquests of the future.

The present position, then, in the etiology of infective disease is that a large number of infections are due to, as it were, tangible micro-organisms, but in a considerable proportion of prevalent diseases admittedly infective, the causal microbe is either quite unknown, or doubtful, or still undefined in the biological sense. I need only quote, to exemplify this, such human diseases as small-pox, measles, scarlet fever, and rheumatic fever, though we have a large volume of highly suggestive observations bearing on their causation.

While in medical bacteriology a single specific organism is the usual objective, we cannot disregard the fact that the sum-total result in an infective disease is not always the product of one parasitic species; micro-organisms may and do attack the tissues in team fashion. In certain of those processes due to saprophytic bacteria that go on in nature, it is generally agreed that the changes cannot be interpreted as a function of one species acting alone but of two or more flourishing together in symbiosis. This must not be overlooked when investigating the causation of microbic disease. Studies of dysentery have shown that a specific dysentery bacillus may only be the starter of the process and that special concomitant bacteria may aid and abet the other (*Mackie*). The same is true for other conditions. An interesting example of a concomitant organism is seen in actinomycosis, long recognized as due to one of the higher bacteria, the actinomyces; in most of the cases that have been fully investigated the actinomyces is found to be associated with another organism of apparently different order which can be grown quite independently (*B. actinomycetum comitans*). The full significance of such concomitant infections is somewhat obscure and requires further elucidation.

The selective affinity that different bacteria possess for particular animal tissues is also an important etiological factor, and it has been shown that within the same species there may be separate types differing in their tissue selections. This is of the greatest significance in the pathology of certain infections: for example, dermotrope and neurotrope types respectively of the syphilis virus have been recognized, the latter being the responsible agent in syphilitic disease of the central nervous system. On the other hand, as shown by animal experiment, the virus of herpes may also produce encephalitis—thus two diverse types of lesions in different tissues may be due to the same agent (Levaditi, Kling).

Apart from exogenous infection due to micro-organisms that have usually no place in the body of the healthy animal, those commensal microbes which normally inhabit the surface of the body and certain body cavities represent a constant menace to the tissues. Exogenous pathogens, however, may gain access to the body and for a time assume a commensal rôle without tissue invasion and pathological effects.

These facts all indicate the extreme complexity of the etiological problem.

IMMUNOLOGICAL CONSIDERATIONS.

The study of immunity (immunology) is inseparably bound up with bacteriology and pathology, though at the present time it has practically attained the position of an independent science. Well defined principles have been established which have stood us in good stead from the practical standpoint, but the general tendency of recent research has been to demonstrate the complexity of the underlying biological processes, and now we are being confronted with new principles and new theories often subversive of the older ideas. The original work on immunity, however, elicited facts and phenomena which are still incontrovertible, and the artificial production of immunity for prophylaxis and treatment will ever be one of the greatest achievements in the history of medicine. The early scientific work on artificial immunity almost seemed to herald a glorious future in which infective disease could be easily overcome; the antitoxin treatment of diphtheria revolutionized the therapeutics of this disease; Pasteur's hydrophobia vaccine minimized the terrors of rabid dog bites: typhoid vaccination has reduced the great prevalence of typhoid among armies in the field; tetanus antitoxin used as a prophylactic has obviated many a death from this fatal disease; small-pox vaccination has contributed to the removal of that epidemic scourge of past times, and it is to be hoped that the lessons of the past will not yet be entirely forgotten. But many natural obstacles have barred the universal application of this means of prophylaxis and treatment. Unfortunately immunological therapy has not always been employed in a rational or scientific manner, and certain measures of this type, not fully justified by the general value of the results obtained, have been exploited to such an extent that the whole system has often been in danger of discredit.

Attention has been drawn quite recently to a possible obstacle in artificial immunization against certain types of bacteria—for example, the tubercle bacillus: that these organisms possess fatty envelopes which prevent their proteins from coming into contact with the tissue cells and so stimulating an immunity response when injected in vaccine form (Dreyer). If the removal of this obstacle is ultimately proved beyond doubt to allow of effective immunization against such bacteria, medicine will owe a great debt to this immunological achievement.

One of the great principles of antibacterial immunity has

APPENDIX C.

Sodium Morrhuate Treatment.—Three per cent. solutions, to which 5 per cent. carbolic acid had been added, were used after sterilization in an autoclave. Solutions, which should be clear or become clear on reheating, were made up fresh once or twice a week. In few children doses were diluted by one-half.

Starting doses for subcutaneous or intramuscular injections were 0.1 c.cm. to 0.2 c.cm., and increased by 0.1 c.cm. (provided no reaction followed, when the dose was either repeated or lessened), to 1 c.cm. or a little more. At intervals of three to five days. The larger dose was usually repeated at intervals of six to seven days.

Intravenous injections up to 3 and 4 c.cm. in a few cases did not seem to give any better results than the repetition of 1 c.cm. doses.

NOTE ON DR. BOELKE'S METHOD OF USING SODIUM MORRHUATE IN TUBERCULOSIS.

BY

SIR LEONARD ROGERS, M.D., F.R.C.P., F.R.S., I.M.S. (RET.).

I AM indebted to Dr. P. W. R. Boelke for kindly sending me a copy of her paper, and regard both the method of administration and the results obtained as of great importance for the following reasons. The first trials of sodium morrhuate reported by me in 1919[1] established its specific action on tuberculous disease, as shown by febrile reactions with swelling of tuberculous glands, increased discharge from tuberculous sinuses, and occasionally haemoptysis in lung cases: all effects that may be followed by improvement. Recently I discussed the probable mode of action of the drug.[2] Dr. Boelke's interesting observation of local reactions at the site of subcutaneous injections of the drug in tuberculous cases confirms its specific action on this disease. General reactions may, however, be excessive, for during the past year cases of spread of the disease in the lung, of fresh patches of tuberculous dermatitis, and in one case of apparent generalized tubercle, have followed the use of intravenous doses; so the drug, like tuberculin, is capable of doing harm, and this necessitates great caution in its use, although the very fact that it exerts such definite influence on tuberculous tissues indicates that it may have a beneficial action, if this can only be kept within safe limits.

It is precisely in this direction that promise is afforded by Dr. Boelke's plan of giving small subcutaneous doses of freshly prepared solutions—a point I believe to be of great importance—such doses as do not produce local reactions at the site of injection, which appears in her hands to have eliminated the dangerous general reactions sometimes following the larger intravenous doses formerly advised by me on the basis of their effectiveness against the much less toxic acid-fast bacillus of leprosy. The new method of administration, if confirmed by trials now being carried out by experts in this and other countries, may furnish a safe, simple, and exceedingly cheap method of treating at least a fair proportion of tuberculous cases, although prolonged observations will be necessary before the precise indications for its use can be worked out.

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A NOTE ON THE TREATMENT OF LEPROSY.

BY

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THE treatment of leprosy by colloidal antimony has been advocated and oscol stibium (Oppenheimer) has been given a trial in the Isolation Hospital at Baghdad. Our experience may be interesting to others. The trial extended over a period of nine months, but patients were usually treated with this preparation for about three months, and the results are compared with those from the intravenous injection of a mixture of chaulmoogra oil and ether in the same patients. Fifteen cases were treated, in all of whom the diagnosis was confirmed bacteriologically. All the cases were severe and were unable to work. The types were nodular, macular, and anaesthetic, in combination in varying proportions, with tissue destruction in varying stages. In a few cases leprotic fever was present.

The treatment was by weekly intramuscular injection, starting with 1 c.cm. and increasing in the absence of severe reaction to 5 c.cm., which was the maximum dose used. The total amounts injected varied from 9 c.cm. to 146 c.cm., the average being 51 c.cm. The observations ceased on April 17th, 1923, as for economy these cases had to be discharged from hospital.

The treatment could not be persisted with in cases of leprotic fever owing to severe reaction (fever and focal inflammation). In all other cases no contraindication was found. The usual reaction was 1° or 2° of fever during the twenty-four hours following the injection and slight malaise; in some cases the reaction was more severe, and in these one or two injections were omitted and the treatment continued with lower doses. In most cases focal reaction occurred as inflammation of the nodular masses and itching of the affected skin.

In most cases following the reaction a feeling of increased well-being immediately supervened, so that the injections were popular. The general results were: distinct improvement, sensations returning to anaesthetic patches, hair returning where it had fallen out, thickening of the skin and wrinkling reduced. The nodular masses, however, did not disappear in the majority of cases, and leprosy bacilli did not usually disappear from the nasal mucus. The effect of more prolonged treatment is unknown.

After about three months the cases seemed to come to a standstill, and then treatment by chaulmoogra oil and ether was tried. The mixture used was chaulmoogra oil 75 parts, ether 24 parts, and carbolic acid 1 part. Of this weekly intravenous injections were given, starting with 5 c.cm. and increasing up to 30 c.cm. The immediate reaction is severe, particularly if the larynx is affected. A feeling of suffocation occurs, which, however, passes off quickly. This effect is caused by the ether in the injection. Similar focal reactions and beneficial effects followed this treatment to those with oscol stibium. The intramuscular injection of the latter with its delayed reaction is, however, more suited to out-patient treatment. Also the leprous infiltration of the skin makes intravenous injections difficult in some cases. The amounts of chaulmoogra mixture injected varied from 60 to 630 minims, and averaged 278 minims in 11 cases treated for an average period of two and a half months. After a period of about three months these cases also came to a standstill. Some interesting observations were made. In some cases the return of sensation by treatment was only temporary. One case while under treatment developed a fresh heavy crop of nodules on hands and arms. In another case the disease was apparently aggravated by the antimony injections as fresh eruptions and leprotic fever followed a few injections of only 1 c.cm. weekly, and the drug had to be stopped. Occasional cases, however, do very well, such as the following:

Admitted on June 9th, 1922, with granulomata on various parts of the skin of the chest and scrotum; tongue and pharynx ulcerated. Loss of hair; ulnar nerves thickened; loss of sensation complete in arms and near rash on chest. Smears from nodules and from nasal mucus showed leprosy bacilli present in large numbers. Injections of oscol stibium commenced on July 13th, 1922. On July 16th, nodules still positive to leprosy bacilli, but nose negative. No change in nodules and in hair, but sensation returning and patient feeling stronger and more cheerful. On October 4th, after 61½ c.cm. of oscol stibium, the treatment was changed to chaulmoogra oil, and from November 8th, 1922, to February 3rd, 1923, 630 minims were given. The nodules now began to disappear and hair began to return on eyebrows. From February 3rd to April 17th oscol stibium was resumed, and 65 c.cm. given. On April 17th he was discharged from the wards but engaged in the hospital as a sweeper as he was physically fit for such work. He is continuing oscol stibium treatment as an out-patient. Already the diminution of the nodosities and of the infiltration of the skin is very marked. This was our best case.

It is obvious that in advanced cases with these medicaments prolonged treatment will be necessary to effect great benefit. We have still to search for a more specific treatment. For the treatment of leprosy we must now look

been that the immune state is due to specific serum antibodies which have an adverse influence on the particular organism or neutralize its toxin, and passive immunization by the injection of the serum of an immune animal, which has undoubtedly proved of the greatest value in certain conditions, is based on this. The study of these antibodies is one of the most fascinating in the whole field of scientific medicine and its range now extends far beyond strictly bacteriological limits. In short, antibody development constitutes an important demonstrable reaction of the tissues to the introduction of any alien protein, and the specificity of antibodies for the particular type of alien substance (antigen) is one of the most remarkable of biological phenomena. It is more than doubtful, however, if these reactions constitute the complete immunity mechanism of the body. The tendency may have been to attribute immunity to phenomena observable by known laboratory methods, but present knowledge is now revealing the existence of still unknown factors. Immunity may exist in the absence of "immunity reactions," and it is open to question whether certain antibody effects signify an immune state. It has been shown that particular tissues may be locally immunized to certain bacteria without any general reaction (Besredka). Moreover, we now know that the resistance of the tissues may be influenced in a non-specific fashion by the parenteral injection of alien protein, and it is difficult sometimes to disentangle in our interpretation of results the specific from the non-specific effects when an alien protein substance is injected into the body for immunization purposes—for example, an immune serum or a vaccine consisting of killed bacteria. The possibility that one infection may influence the resistance of the tissues to another is already supported by experimental and clinical experience. We find also that an endocrine secretion, adrenaline, may play a part in the immunity mechanism and render innocuous certain bacterial toxins—for example, that of the diphtheria bacillus (Marie). Finally, it must be borne in mind that while the interaction of antigen and antibody may under one set of conditions lead to immunity, under another set the very opposite effect — anaphylaxis, or hypersensitiveness — is produced.

Thus the scope of immunology has been gradually widening, and the solution of many of our problems must ultimately depend to a large extent on a fuller knowledge of the underlying chemical changes in the tissues on which immunity depends and of the chemistry of the reacting elements and the chemical and physical nature of the reactions. In laboratory immunological work we observe and utilize reactions in which we still know comparatively little about the fundamental chemical and physical phenomena. The reacting substances are apparently colloids—the "dynamical state of matter" (Graham)—and the reactions may only be elucidated by further reference to colloid chemistry.

I have referred to the high degree of specificity of serum antibodies; in virtue of this certain antibody reactions play an important part in the diagnosis of infections. The classical example is the Widal reaction, which depends on the *in vitro* clumping or agglutination of the typhoid bacillus by certain antibodies (agglutinins) in the serum of an infected person. Similar tests have been employed in other bacterial infections, but at the present time their limitations must be emphasized as well as their value. Antibody development in infection is inconstant both in degree and time, and such variations must be reckoned with in this method of clinical diagnosis. Moreover, the serum of a normal person is not always without agglutinating properties, especially for certain bacteria, and the quantitative limits of normal effects will determine what is a significant diagnostic result. This has been particularly true in the serum diagnosis of Malta fever.

One of the most unexpected developments of recent years in this field is the so-called Weil-Felix reaction, which depends on the agglutination of a certain type of *B. proteus* by the serum in typhus fever. In this disease antibodies are developed that are specific for an antigen which, as far as we know, has no etiological relationship to the particular disease. These so-called "heterogenetic" antibodies present further interesting complexities to the student of immunity. The Wassermann serum reaction, which was discovered in almost a fortuitous manner, is probably to be regarded also among these obscure heterogenetic phenomena. Even the apparent anomalies in immunity have, therefore, rendered service in practical medicine.

Antibodies are specific for the biological species, and antibody reactions have therefore become criteria of species; but this specificity may be more restricted and has often revealed profound differences in the immunological characters of different strains of the same species. This knowledge has had an important bearing on artificial immunization. Among the pneumococci, for example, a number of different immunological types can be recognized. Immunization against one would not confer immunity to another, and for prophylactic vaccination against epidemic pneumonia all types must be represented in the vaccine used. This system has yielded most valuable results in combating pneumonia among the native labourers in the gold mines of South Africa (Lister); at one time this epidemic disease seriously threatened the gold mining industry in that country.

The recognition of different immunological types among certain pathogenic bacteria has influenced immunological measures both for prophylaxis and treatment and has overcome to some extent one of the obstacles in the way of applied immunity.

THE MECHANISM OF MICROBIC ATTACK ON THE TISSUES.

For many years we have spoken of bacterial toxins, we have prepared toxic substances artificially from bacteria, we have utilized them for immunization, studied their experimental effects, classified them and so on, but this work has generally aimed at demonstrating some specific poison in artificial culture of bacteria. In some cases it has been apparently successful and substances have appeared in culture which, apart from the bacteria themselves, can reproduce the particular disease in animals. In other cases no specific poison can be prepared. These so-called toxins, however, have never been isolated as pure substances. By reference to the biochemistry of the saprophytic bacteria the most elaborate chemical changes produced by these organisms in nature are interpreted in terms of enzyme action. In explaining the mechanism of disease production by microparasites, according to Pasteur's original conception, the ultimate interpretation of the tissue changes, which are fundamentally chemical, must be on similar lines; but in addition to the microbic ferments acting on the tissues, there is the reciprocal effect of the tissue enzymes to be reckoned with. Even the specific toxins show a close though not exact analogy with the ferments.

In this study new lines of thought and experiment have been indicated by Vaughan, who conceives the whole chemistry of infective disease in terms of protein decomposition by ferment action and the liberation of a protein poison or poisonous atom group of the protein molecule which is active in virtue of its intense chemism. The toxic principles in infective disease are not necessarily direct products of the parasite in the same way as poisonous chemicals are directly elaborated by plants.

New ideas regarding the mechanism of infection must be reflected in our conceptions of immunity, and at the present time there is the most urgent need for marshalling all the valid data with a view to their co-ordination. Otherwise our knowledge is in danger of becoming simply a chaos.

REGARDING CHEMICAL AND PHYSICAL INFLUENCES ON MICRO-ORGANISMS.

The adverse chemical and physical influences that can be artificially brought to bear on micro-organisms have proved an attractive study, and the results have provided important practical applications not only in general disinfection but also in the therapeutic elimination of organisms from the tissues. Certain therapeutic substances of the present day are the direct product of this study (salvarsan in the treatment of syphilis) and there is great scope for chemotherapeutic investigation. The primary aim in this work is to identify chemical compounds with the maximum germicidal power for particular micro-organisms and the minimum toxicity for the tissues—a combination not easy of fulfilment.

es of the cases.

E DOSE OF ANTIMONY TARTRATE SOMIASIS (BILHARZIA DISEASE).

BY

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ly from Africa the account of a series of *istosoma haematobium*, including one of ated by intravenous injections of antimony s questions of general interest and presents ng comment, therefore I venture to write the treatment.

aponicum quoted was a man of 39 who had for thirteen years. He was apparently f 20½ grains of antimony tartrate adminis- e days; as it was impossible to keep him , no definite conclusion regarding the per- re for *S. japonicum* could be drawn. (Two ame investigator had another case of tainly cured by injections of antimony an was seen later in England and the ated.)

g 102 cases, 5 were of 10 years and under; s; 27 of 16 to 20 years; 40 over 20 years. 'failed to cure"—in other words, living the urine after the injections.

ilure to cure" the question which imme- me is, How much antimony tartrate was the 23 cases of "failure" in the series grains. One had only three-quarters of totals of 1½, 2, and 2½ grains only. Three under 11 years of age; they had 8½, 3/4, espectively. The "failures" of over our)—had a total of only 10¾, 7, 12½, and ly. A cure could hardly be expected in s because none had a complete course.

s arises, What is a full or complete course te for schistosomiasis in adults? In dis- two things should be remembered:

s a multiple infection—as many as, or even worms are sometimes present in the portal ent. These worms, although they are the s reinfection has taken place), have different resistances. Some die every year; those he greatest longevity live longest. Some are doses of antimony tartrate, whilst others ng and require larger doses. The "cura- ny case of bilharzia is therefore the amount the most resisting worm present.

shortly after a course we have no means whether all the worms are dead. If live , in urine or faeces, at least one worm is e, in cases where live ova are found after ength of the interval between treatment and is immaterial, because if the worms are not eatment they are unlikely to die afterwards. a, or only dead ova, are found in the case t is important to state after what interval is made, because the effect of the antimony utomatic movement of deposited ova, pre- a appearing in the urine. Ova granular does not necessarily mean that the *worms* activities may be temporarily suspended by n recovering they will become active again, three months, nine months, etc. It is not definitely that a permanent cure has been r has elapsed, but it is impossible in Africa cases after a year. A good idea may be ree or six months, but it is not conclusive. t fixation test and eosinophilia are of no

treatment of bilharzia disease. By experience we know that some adult cases are cured permanently by a total of 20 grains given during a period of twenty-eight days; a greater proportion are cured by a total of 25 grains; and only a very few cases are not cured after a course of 30 grains. Therefore 30 grains administered over twenty-eight to thirty days remains the curative (adult) dose. I have seen one case of long standing which required a modified second course after 30 grains, but I believe such cases to be rare, especially in recently infected cases in Africa.

There was, no doubt, a good reason why the full course was not given in any of the 23 "failures" in the list. African patients frequently will not attend for treatment after they themselves think they are cured—that is, when the urine becomes clear and the pain has disappeared. Occasionally a course of treatment must be discontinued owing to "bad arm," or, less often, owing to toxic manifestations. A few patients cannot take antimony owing to idiosyncrasy;* others cannot take a full single dose (2½ grains), and some cannot take a full course of 30 grains, but these are exceptional and more commonly met with in England than among African natives. A total dose of 30 grains of antimony tartrate (adult dose) may be considered large, and a month or six weeks a long time for a cure. In time no doubt a remedy will be produced which will act by smaller dose in a shorter period; but in the meanwhile it must not be forgotten that many patients who come for treatment have had the disease for some years; without treatment it would last for five, fifteen, twenty, or more years, with the risk of serious complications always present.

Notwithstanding the exceptions mentioned, however, it does not seem fair to classify as "failure to cure" cases which have in no sense received a full course of treatment and in which live ova continue to be present. The class "failure to cure" should be reserved to failure after a complete course, and not used in cases where, for some exceptional reason, the complete course has not been given; only failure attributable to the drug itself should be classified "failure to cure."

THE SIGNIFICANCE OF THE DIFFERENTIAL COUNT.

Eosinophilia.

In tropical medicine eosinophilia is regarded as a sign of helminth infection; it must not be forgotten that it is not exclusively so. In England, where examination of faeces is not yet regarded as of so great importance as in tropical countries, eosinophilia would probably suggest asthma, a chronic skin disease such as psoriasis, or maybe spring catarrh. The difficulty in Africa, however, lies chiefly in the fact that a patient may have several different helminths, including bilharzia, each causing an eosinophilia; so until other helminth infections are excluded eosinophilia in bilharzia disease is unreliable, for they as well as bilharzia may be causing it.

The helminths do not themselves directly produce eosinophilia. When it *is* present it is a sign that the body tissues are responding (against the toxins of the helminths). Recent cases of bilharzia disease as a rule show a higher eosinophilia than cases of long standing, but heavy infections of bilharzia are not always accompanied by eosinophilia, and slight infections are sometimes accompanied by a large eosinophilia. Eosinophilia means tissue response.

Some chronic cases of bilharzia in British pensioners who had had the disease for twenty years we found had only a scanty infection and a heavy eosinophilia, while some of the heavy chronic infections had none. Some patients who had none before acquired eosinophilia during treatment, no doubt owing to the tonic effect of the antimony, the body responding to the treatment. One case, infected in 1901, had in 1921 eosinophilia 18 per cent.; during treatment with antimony tartrate 42 per cent.; after treatment eosinophila dropped down to 3 per cent.†

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* Patients who cannot take antimony at all may be given emetine. Emetine is more toxic than antimony tartrate in the large doses necessary in bilharzia disease, and its after-effects are certainly more serious. Cardiac weakness and peripheral neuritis are fairly common after-effects.

† Cases infected in 1900, 1901, and 1903 gave in 1921 18 per cent., 15 per cent., 15 per cent., and 12 per cent. eosinophilia; while several war cases gave no eosinophilia when counted in 1921, although ova were present in the urine. During treatment eosinophilia appeared in some of the latter cases and increased as the course proceeded. One man infected in 1902 had no symptoms or ova in the urine in 1921, but he gave a 14 per cent. eosinophilia; he had no other helminth infection.

The bactericidal action of light is one of the most remarkable of natural phenomena. It has been generally agreed that it is due to the ultra-violet region of the spectrum, but recent investigations have shown that certain parts of the visible spectrum, particularly the red region, are powerfully inhibitory and even lethal to various bacteria (Van der Lingen and Mackie; unpublished observations).

THE INFLUENCE OF THE WAR ON BACTERIOLOGICAL SCIENCE.

The war both emphasized problems and necessitated their expeditious solution. War conditions also, with the inevitable prevalence of infection among armies in the field, provided large collected masses of material for the study of individual diseases. The concentration of troops in various tropical and subtropical parts of the world with the occurrence of infective diseases characteristic of these regions greatly widened the range of study, and British bacteriologists were enabled to investigate etiological, diagnostic, and immunological subjects that normal conditions in Great Britain would never have provided. The result has been a significant gain to pathology and bacteriology, and out of the welter of war has come a further justification of scientific medicine.

The value of antityphoid vaccination was one of the earliest results to be noted, though in the Near Eastern campaign a by no means negligible loss was due to the initial overlooking of paratyphoid fever as a prevalent infection in the East. This omission was rectified by the use of the combined typhoid-paratyphoid vaccine, and after 1916 the incidence of the enteric fevers became practically minimal.

The great war also proved beyond doubt the prophylactic value of tetanus antitoxin, and this immunological application alone contributed something to alleviating the horrors of war.

Dysentery, both amoebic and bacillary, was studied in a truly exhaustive fashion: in fact few individual infective diseases have ever been so extensively investigated. New types of causal organisms were observed, methods of laboratory diagnosis were perfected, and certain systems of treatment were carefully evaluated. On a smaller scale choleraic disease attracted a certain amount of attention among army bacteriologists in the East, and the occurrence of paracholera was established—that is, choleraic illnesses due to vibrios specifically different from the classical cholera organism and of different epidemiological significance (Mackie).

The war also brought to light a previously unknown disease, designated by the historic and significant name of "trench fever." The infective nature of this condition was clearly proved, and later work which showed it to be louse-borne indicated means of prevention. The question of the microbic agent, however, provides a further instance of the difficulty of demonstrating and defining the infecting organism in certain diseases. The presence of the organism in the blood was proved indirectly by experiment, but it cannot be said that microscopic examination ever clearly revealed a definite parasite, and the virus was not of the filtrable type. It was shown that the excreta of lice which had fed on the blood of persons suffering from the disease were infective and contained certain minute bodies with recognizable characters but smaller than the ordinary bacteria—the so-called "Rickettsia bodies"—and though there is strong evidence that these represent the causative microbe, the final proof is still awanting and their biological nature remains uncertain.

Many other important data of outstanding practical importance were obtained during the war period. These have contributed much to our present knowledge of bacteriology and are now reflected in laboratory and clinical methods. They are well exemplified by the work done on epidemic cerebro-spinal meningitis, infectious jaundice, malaria, the venereal diseases, gas gangrene, etc. The period of the great war will always be a memorable one in the history of medicine, and bacteriology may justifiably claim a signal share in the medical and surgical triumphs of that epoch.

THE STUDY OF BACTERIOLOGY IN THE UNIVERSITIES AND MEDICAL SCHOOLS.

The observations I have made, scanty though they be, all go to show the need for a continued and even more vigorous attack on disease by microbiological methods. In equipping the necessary personnel for this offensive and in the ordinary medical training, the question of bacteriological teaching in the medical schools merits some consideration.

During these times of reconstruction most careful attention has been given to the subject of medical education, and existing systems have been revised in the greatest detail. The trend of development in medicine towards scientific application demands that the student should obtain as complete a scientific education as possible; but the possible scope of science teaching in medicine is an exceedingly wide subject, and in any case it is obvious that no undergraduate education could compass a full training in all the medical sciences. Whatever education the undergraduate receives can only be an introduction to a wider experience and a fuller knowledge.

Among the medical sciences bacteriology offers an attractive and educative field of study as a biological and applied science, though it is only one branch among many of medical training and research. In the past the training in this subject given to the undergraduate in this country has been for the most part a product of pathological teaching, and at the present time the correlation of pathology and bacteriology in the curriculum is still ideal and essential in the interests of both subjects; but bacteriology now provides so many methods of direct application in clinical diagnosis and treatment and in preventive medicine that an adequate though elementary course must now hold an essential place in any curriculum. The Education Committee of the General Medical Council in a recent attempt to systematize medical teaching recognized this, and in its draft curriculum placed this course as a preliminary to the regular clinical training of the student as a clinical clerk and surgical dresser. In short, some fundamental knowledge of microbiology is an absolute essential now to the practitioner of medicine, for he is constantly called on to approach the bacteriological problem in the causation, diagnosis, and treatment of disease. He need not carry out the investigation to a conclusion—that will usually be delegated to laboratory specialists—but on the practitioner will always fall the responsibility for initiating these procedures, and he must be in a position to appreciate the significance of results reported to him. The undergraduate course, therefore, may not convey any elaborate training, but it must impart a sound knowledge of fundamental facts and principles and a reasonable understanding of methods and procedures, with, in addition, a practical knowledge of those methods which are within the scope of the general medical worker. With only a microscope and a few simple implements and materials a vast amount of valuable diagnostic work can be done, and this is particularly true for certain parts of the world—and I can speak from personal observation—where various microbic diseases are very prevalent and where the practitioner is thrown back on his own resources without the immediate aid of laboratories.

Our aim, therefore, in bacteriological teaching, as far as the undergraduate is concerned, is to convey the theoretical and practical knowledge that will assist him to a better understanding of disease and may be necessary for the purposes of ordinary medical practice. Special or advanced knowledge of the subject and its technique can only be acquired by more intensive practical courses such as those prescribed for certain post-graduate qualifications in public health, tropical medicine, psychiatry, and for the training of special workers in this branch of experimental medicine.

Apart from human and veterinary medicine and agriculture, little provision has hitherto been made in the universities for a training in bacteriology as a purely biological science. Its increased importance at the present time makes its inclusion among the various subjects for a science degree eminently desirable, and it is gratifying to find that this has already been recognized in our University. The recent institution in an English university of a post-graduate course and diploma in bacteriology marks a further development in bacteriological teaching, and the course of training prescribed aims at providing a thorough general knowledge of the subject and also a special acquaintance with certain of its practical applications.

Similarly large mononuclear increase in malaria means tissue response to the malaria parasite. Absence of a large mononuclear increase is not a sign that malaria is not present; it is simply a sign that the patient is not reacting

Both large mononuclear increase in malaria and eosinophilia in bilharzia are indications of the response of the tissues—both are signs of good omen, but neither is a specific sign. Absence is in neither case a reliable sign that either malaria in the one case or bilharzia in the other is absent.

The Complement Fixation Test.

The complement fixation test for bilharzia is diagnostic of bilharzia disease—it is not always present. It cannot be used as a test for the presence of live bilharzia during treatment—(1) because it is difficult to obtain antigen in many places; (2) like eosinophilia the test remains positive for some time after the elimination of the worms. In short, there is no method of deciding when the worms are all dead during the treatment with antimony tartrate. The worms* probably die during all stages of treatment, a small total number of grains killing the less resisting and a larger total amount the more resisting.

The curative dose is the amount which will kill the most resisting worm (this is approximately 30 grains, given in about twenty-eight days). Adult patients should therefore be given this dose, and the few who require more than this should have another modified course later, when the remaining worms become active again, as indicated by live ova in urine or faeces. The fact that the symptoms have cleared up and no ova (or no live ova) are found in the urine is in itself no indication to suspend injections until the full dose has been given.

Antimony tartrate commences to stop the ova appearing in the urine at about 5 grains. At 10 grains some of the ova which appear in the urine are dead. The antimony tartrate acts on the ovum (the motor mechanism) first, and also affects the worm so as to suspend its egg-producing activities; but the worm is not killed till later—if too little antimony is given it recovers and recommences egg laying, and hence a relapse takes place after an apparent cure.

Cases are sometimes reported in the medical periodicals (and these are more frequent now owing to more complete examinations of patients) of vesical bilharzia where there is also rectal bilharzia with papillomata, both due to *Schistosoma haematobium*, or it may be to *S. haematobium* and *S. mansoni* in the same patient. It would be interesting for those who have the opportunity to make examinations and take specimens of the rectal papillomata at intervals to watch the local effect of the injections of antimony tartrate.

KANGRI-BURN CANCER.†

BY

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SINCE the year 1881 operations for epithelioma performed in the Kashmir Mission Hospital have numbered 2,491; of these approximately 2,000, or 84 per cent., were for kangri cancer. The kangri is an earthenware bowl five or six inches in diameter, surrounded by basket-work and surmounted by a wicker handle. It is heated by means of wood-charcoal, and is worn, by the poorer class of Kashmiris, against the skin, under a single loose garment not unlike a smock-frock. The primary factor in the causation of kangri cancer is, doubtless, heat, but it is possible that the volatile substances resulting from the combustion of the wood play a secondary part. The seats of election of the growths are the inner sides of the thighs and the anterior surface of the abdomen above or below the umbilicus. The disease is considerably commoner in men than in women, probably owing to the less continuous use of the kangri by the latter in their mostly domestic occupations. The average age for the onset of the cancer is 55; in a few cases it occurred before the age of 40, and in 7 per cent. of the cases over the age of 70. Many elderly Kashmiris show a great tendency to localized superficial overgrowth of the epithelium; small, slightly scaly, pigmented patches or papules may be found scattered over the entire surface of the body. Owing to the constant application of heat the skin of the thighs and abdomen often appears dry and horny, the course of the superficial veins is marked out by a brown discoloration, and every degree of chronic dermatitis may be met with, from a mere redness, with or without desquamation, to thickened patches, warty projections, or horny outgrowths from the surface. Scars, resulting from previous kangri burns, are frequent, and are apt to undergo a malignant change.

Kangri-burn cancer is never found on the back or on the extensor surface of the limbs. It may be single or multiple, and the skin around it usually shows scarring. In the early stages ulceration is absent, and the growth consists of a mere horny or warty thickening, beneath which an epithelial infiltration is demonstrable microscopically. The cancer is met with in three forms, the commonest of which consists of a circular or oval ulcer about an inch and a half in diameter, with deep crater-like centre and raised edges. In some cases part of the tumour is fungating and the rest deeply excavated. In a somewhat less common form the growth consists of a cauliflower excrescence, which may project one or two inches from the surface and measure three or four inches across. A less usual form, which occurs generally in the aged, consists of an excavation with very little evident sign of overgrowth. It presents small or large ulcerated areas with irregular steep edges, in places undermined, and a rugged floor rendered uneven by deep recesses.

These cancers are always very foul and the skin around is sodden with septic discharge, which dries and becomes adherent at the margin of the growth and to some extent on the surface. The glands are usually involved in cases in which the ulceration is advanced. In cancer of the thigh they are affected generally in the following order: those along the internal saphenous vein, deep in Scarpa's triangle, near the spine of the pubis, transversely below Poupart's ligament, and, in advanced cases, the deep femoral and external iliac glands. In cancer of the abdominal wall the inguinal and then the external iliac glands become involved if the growth is below the umbilicus, the anterior axillary glands if it is above that level. In more advanced cases the deep glands beside the axillary vessels may become infected. The subscapular glands are rarely involved, but occasionally small glands are found across the side of the chest from the epigastrium to the axilla. The glands frequently attain the size of a pigeon's egg and often soften early. When they break down diffuse infiltration results. The overlying skin becomes red and brawny, and finally gives way from suppuration. A secondary deposit in this condition presents an appearance similar to that of the primary growth, except that the ulcer is deeper and the subcutaneous tissues are infiltrated. There is an abundant foul discharge, and after months of suffering the patient dies of exhaustion, septic intoxication, or haemorrhage. In the case of such deposits in the groin or axilla, the femoral or axillary artery may be perforated by ulceration comparatively early in the course of the disease.

The average duration of life in kangri-burn cancer is about fifteen months; in about 10 per cent. of the cases, from one to five years; and, as an exceptional event, as long as twenty years. The malignancy varies. As a rule a small growth, if superficial, is slow to grow and still slower in infecting the glands. There are, however, striking exceptions, and at times a slowly growing tumour will suddenly show a rapid increase. More than 50 per cent. of the cases show secondary infection of the glands when first seen.

In operating on cases of kangri-burn cancer the glands should be dealt with in the first place, because the primary tumour is always septic. The glands also are likely to be septic and require careful handling during removal in order to avoid rupture. Small glands are apt to escape notice, especially the external pubic group and those in the axilla in cases of epigastric growths. In order to avoid

* The fact that some cases of bilharzia disease are cured by quite a small dose of antimony tartrate, whilst others require a total of 20 to 30 grains, is explained by the fact that the power to resist antimony tartrate varies in different worms. This may be also the explanation of the varying opinions about the curative dose.

† In order to secure the publication of Dr. Neve's clinical notes on this

CONCLUSION: A PLEA FOR BACTERIOLOGICAL STUDY AND RESEARCH.

In putting before you certain aspects of the present position of this branch of science, my aim has been to indicate that bacteriological knowledge, though already advanced to a prominent place in the forefront of human progress, still presents so many crucial problems that its further advancement must be continuously maintained. Effective teaching is vital to the progress of a science, and the student must be taught in the research atmosphere if he is to gain any real inspiration from his studies. In these respects the universities, as apart from the purely research institutes, present the ideal conditions for the advancement of science, and therefore, in inaugurating my work in this historic seat of learning which has contributed an important share to the world's stock of knowledge, I would venture to make an earnest plea for the fullest possible encouragement of bacteriological teaching and research, both in the immediate interests of medicine and in the greater and wider interests of human welfare.

SANITARY ADVANTAGES OF SOCIAL AMENITIES.

AN ADDRESS DELIVERED BEFORE THE METROPOLITAN COUNTIES BRANCH,

BY

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THE County Borough of West Ham, which I have the honour to serve, is situate on the River Thames, but I doubt whether most of the members of the Branch, if given a drawing of its sinuous curves between Richmond Lock and Tilbury Fort, could place the borough in its correct position on the river bank, or could accurately describe its chief characteristics. Unkind folk have alleged that West Ham is readily recognized—witness the patronizer of the Belle steamers, plying in the summer between Fresh Wharf and Margate, who said he knew when he passed Silvertown by the row of chimneys belching forth black smoke; and there is a fairly authentic legend of an elegant young lady who, when the train came to a standstill in a thick fog and her mother said, "I wonder where we are," replied, "Oh, we are at Stratford; I can smell Pa's factory."

It will be my endeavour to enlist interest in the past history of the district—which, thanks to the patient labours of Katherine Fry, who with her eminent sister Elizabeth Fry lived there for many years, has been studied and placed on record—and to consider what bearing, if any, the changes that have occurred may or may not have had on the present-day problems of the inhabitants.

The River Lea, which separates the counties of Herts and Middlesex from Essex, and the River Roding some four and a half miles to the east, which enters the Thames near the ancient town of Barking, enclose, with the River Thames and the southern border of Epping Forest land, a quadrilateral area now occupied by the county boroughs of West Ham and East Ham, but formerly covered by the great Essex forest with some arable pasture and extensive marshes bordering the royal river. It is not surprising that Roman remains have been discovered, as the vicinal way passed through or a little to the north of the area, and Boadicea, Queen of the Iceni, who laid London in ashes A.D. 61, probably brought her forces through the same route.

One of the earliest references to the district occurs in connexion with the burial of St. Erkenwald, Bishop of London, who died at Barking Abbey in 685 while on a visit to his sister St. Ethelburga, the first Abbess. Visitors to Epping Forest even now in the height of summer can occasionally find themselves in a morass unexpectedly, and extensive floods from the swollen rivers before mentioned are still a burden to the district, and it would appear that an exceptional storm interrupted the passage of the Bishop's corpse on its journey from Barking to St. Paul's. A later writer, gifted with greater love of the miraculous than of scientific investigation, records how

"All the people kneeled down and prayed devoutly and as they were in prayer they sawe the water divided lyke as it did to Moyses in the Red Sea and to the children of Israel goynge through into the deserte. In lyke wyse God gave a dryo path to the people of London for to convey this holy body through the water to the Cytee and anon they took up the body with great honour and reverence and by one assent they huried through the path, the water standyng up on every syde and so they came to Stratforde and set down the bere in a fair mede full of floures."

Every schoolboy knows how King Alfred in 895 stranded the ships of the Danes at Ware by cutting channels so as to divert the course of the River Lea, but few who cross them know that there are four streams passing through Stratford from a bend in the Lea which are traditionally the enlargement of Alfred's original undertaking. On this point it would be waste of time to argue with a Stratford man.

By the Domesday Book we learn that the quadrilateral area mentioned was labelled Hamme, and was, prior to 1066, in the ownership of two Saxon freemen, Alesxan and Leured, but soon after that fated year passed into the possession of two Norman Barons, Ralph Peverell and Robert Gernon. Little is known of the after-history of these worthies, but during the next two centuries the chief family connected with the district was that of Montfichet, which possessed extensive lands in Essex, including several manors in Hamme. Originally from the neighbourhood of Cerisy in Normandy, a Sire de Montfichet accompanied and aided William the Conqueror at the battle of Hastings. According to Stow he appears to have built "Montifiquet's Castle" a little to the west of Baynard's castle at Blackfriars, and to have been among the hunters in the New Forest when William Rufus was shot. Either he or his son came into possession by marriage, for in 1134 William de Montfichet II was a capital lord of Hamme, where he established the Abbey of Stratford Langthorne, endowing it with his demesne and two mills near Stratford Causeway. The most redoubtable member of this family was the last of his line, Richard de Montfichet II, who was a minor when his father died in 1202, but is named by Stow along with Robert Fitzwalter and Robert FitzRoger as "three most forcible and valiable Knights of England." He was one of the twenty-five Barons chosen to enforce the observance by King John of Magna Charta, was Sheriff and Forester of Essex, Governor of Hertford Castle, and assisted Henry III against Louis VII of France, and on more than one occasion against the turbulent Welsh. He died childless in 1267 and was buried in St. Paul's Cathedral, his extensive possessions ultimately being divided among the descendants of his three sisters, and what remained was subsequently acquired by smaller landowners, because by this time the greater part of West Ham had become the property of the monks of the Abbey of Stratford Langthorne.

In the meantime Queen Maude, wife of Henry I and daughter of Malcolm Canmore, King of Scotland (an additional title inserted for the benefit of Scottish members of the Branch), had suffered while crossing the Lea at Old Ford a similar disaster to that which befell the cortège of St. Erkenwald, and to avoid a repetition she constructed what is reputed to be the first bridge built with a stone arch in England at Bow, a second bridge over the Channelsea stream, and a causeway between the two. These bridges and causeway not only proved a great benefit to Hamme but also to London, which derived much of its food supplies, garden produce, potatoes, and especially flour from the several mills at Stratford, but they became a source of much contention and litigation from the time of Henry II to Queen Victoria. Queen Maude placed the maintenance and repair of the bridges and causeway in the hands of the Abbess of Barking, endowing them with certain lands and a mill. The Abbess transferred her trust, at his request, to the Abbot of Stratford Abbey on its foundation. Subsequent Abbots constantly neglected their responsibilities until forced by the courts to comply, and after the dissolution of the Abbey on March 18th, 1538, subsequent owners of what had been Abbey lands endeavoured to avoid their liability for the necessary repairs or for paying the Abbey land rate. The upkeep was finally taken over by the local board in 1876 (for a consideration), so that visitors who now motor to

glandular infection has become extra-
s impossible to gauge the extent of the
the presence of the ill defined and more
iration. Cases such as these, if operated
responsible for the mortality, due to
or early haemorrhage from some large
ds show sixteen deaths from operation,
rom haemorrhage; this, however, is far
the total mortality. Recurrence took
about 20 per cent. of the operated cases.

NT OF GENERAL PARALYSIS OF E BY MALARIAL INFECTION.

(Preliminary Note.)

BY

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observation that had been made from 1816[1]—namely, that cases of dementia ative encephalitis or general paralysis of ntly showed prolonged remissions and following a febrile illness or protracted ner-Jauregg,[2] in 1909, began a series of e treatment of certain degenerative current infections. After preliminary lin and various vaccines, in 1917, he ign tertian malaria nine cases of general nsane (six early and three advanced results were reported in the early cases, ng still at work four years after the ner-Jauregg then treated further cases, ent to have eight to twelve malarial by a course of six neo-salvarsan injec- appears that definite cures are claimed. by Templeton[3]) states that of 296 cases om it was possible to make complete ions of varying degree occurred in 202, mplete remission with the disappearance nces and a return to former business emission occurred in 68 per cent. and in 38 per cent. of cases treated), that, of fifty cases treated, remissions 38 per cent. and good remissions in

were these reports of the results of ia that early this year (1923) we began general paralysis of the insane at the l for Nervous Diseases by the same om those reported by Wagner-Jauregg Vienna, the only cases in which the to have been tried (for example, those Grant[6] and W. McAlister[7]) are those n-patients in mental hospitals—that is, bly have reached a stage sufficiently der them certifiable under the Lunacy dered, therefore, that if improvement cases, even more might be achieved in he out-patient clinic of a hospital for neral paralysis of the insane is fre- its earliest stage, and if cures result as the originators of the method claim, expect such early cases to show the

iting fourteen cases have been treated: re in a relatively early stage of the from congenital syphilis, and 2 cases, [illegible] were advanced. Apart

in the cerebro-spinal fluid, as well as a positive Wassermann reaction in the blood serum. In only one case (of undoubted general paralysis of the insane) was the colloidal gold curve "leutic" in type. Those cases tested have also shown the characteristic speech inscription described by E. W. Scripture.[8]

Through the courtesy of Dr. G. C. Low and Dr. Gregg of the Hospital for Tropical Diseases, Endsleigh Gardens, the first sample of malarial blood was obtained from a man suffering from benign tertian malaria who had not been treated with quinine: 2 c.cm. of the malarial blood were injected into the subcutaneous tissue of the interscapular region of the first case. Subsequent inoculations were made from case to case of general paralysis of the insane as each developed malaria. Wagner-Jauregg recommends that the blood be removed from the malarial patient during the febrile stage, but we find that this is not really necessary as the inoculated subject becomes just as efficiently infected if the blood is taken at any stage (pyrexial or apyrexial) of the period over which the attacks are permitted—that is, before the administration of any quinine. All cases were easily infected, only one injection of malarial blood being necessary. The incubation period varied from nine to twenty-four days in different cases (average period fourteen days). In four cases after about the fourth attack, the tertian ague was replaced by one of quotidian type, a phenomenon also observed in some of Wagner-Jauregg's patients. As a rule twelve attacks of malaria were permitted, the infection then being terminated by one or two intramuscular injections of quinine bihydrochloride (gr. xv) followed by the oral administration of quinine sulphate (gr. v daily) for a week. This treatment has proved quite efficacious as regards the malaria, no relapses having occurred. In each case the earlier malarial manifestations were pronounced, the temperature rising to 103°-105° F. during the febrile stage; the last four or five attacks were usually not so severe, the maximum temperature becoming progressively lower. Although the malarial infection had passed through fourteen cases it was just as potent for the purpose of transmission after the fourteenth case as at first. Following the termination of the malarial period, novarsenobillon was given intravenously in full doses (0.9 gram) at weekly intervals for six weeks.

Of the twelve early cases of general paralysis of the insane treated, all but one exhibit varying degrees of improvement; in two cases the improvement has been remarkable, and both have returned to work. Another case only recently treated continues at work that he was unable to do for some weeks prior to treatment. Brief details of these cases are as follows:

CASE I.

F. B., aged 38; general paralysis of the insane, early. In March, 1921, the patient first began to have difficulty with regard to speech. When first seen (August 25th, 1922) he complained of headache and insomnia and difficulty in articulating certain words. Mentally, he was easily agitated, talkative, laughed inanely without adequate cause, and had a high opinion of his accomplishments, in spite of the fact that he was unable satisfactorily to carry out his duties as a school caretaker.

Physical Signs.—Pupils: right excentric and sluggish to light; left normal. Lingual and labial tremors. Knee-jerks and ankle-jerks brisk; plantars flexor. Wassermann reaction: blood positive; cerebro-spinal fluid, 21 cells per cubic millimetre. Globulin and Wassermann reactions positive. Colloidal gold test positive; paretic curve.

Present Condition (five months after malarial treatment).—His remarkable improvement is a matter of general comment in his locality. He has lost his exaltation, answers all questions rationally, and is able to carry out his work satisfactorily.

CASE II.

R. C., aged 30; tabo-paresis. All the patient's symptoms were said to date from the time he was wounded while serving with the army in 1918. He complained of headache and "fits" (which occurred every few weeks). Later, his memory began to fail and speech become difficult. Early in July, just prior to treatment, he was found "wandering" by the police and taken to the infirmary with a view to certification. Mentally he was somewhat exalted, excitable at times, alternating with fits of depression. He was also self-satisfied, suspicious, and occasionally experienced aural hallucinations. His speech was slurred and his

Brentwood or Southend need not concern themselves with doubts as to the substantial character of the causeway between the Lea and the Channelsea, but they might profitably remember the virtues of good Queen Maude.

In Queen Elizabeth's reign our population grouped itself into three villages—a central one between the parish church and the site of the Abbey, a straggling hamlet round Stratford Green in the main Essex road, and a pleasant pastoral colony named Plaistow near the southern marshlands. The monks during their four hundred years' residence had established a trade with Italy in wool, while Stratford from its favourable situation and the numerous mills on the water-courses had long been famous for its bread-making, a trade largely carried on by the fair sex, for we read, I regret to say, of many bakeresses being fined for giving short weight, while, according to Stow, John of Stratforde in the fourth year of Edward II, for making bread less than the assize, was with a fool's hood on his head and loaves of bread about his neck drawn on a hurdle through the streets of the city. The Earl of Leicester fixed upon Stratford as a suitable lodging for the Virgin Queen at the time of the Armada, but Her Majesty preferred to visit her troops at Tilbury by river trip. She possibly remembered a previous visit to the district when, as Miss Strickland tells us, in the youthful charms of her twentieth year she accompanied her step-sister, who was nearly double her age, from Wanstead to London on the occasion of Queen Mary's accession—a prelude soon to be followed by Elizabeth's incarceration in the Tower.

Under the Stuarts and the Hanoverians the district was largely devoted to sheep-farming and market gardening, being specially noted for its potato crops; while at the same time it grew in favour with the wealthy citizens of the metropolis as fashion prescribed a country residence, so that many handsome mansions, surrounded by gardens and coverts, were dotted throughout its area. Unfortunately the proximity of the Forest offered exceptional opportunities for highway robbery, and West Ham afforded domicile during some period of their depredations both to Henry Cook, who doubled the characters of highwayman and shoemaker at Stratford and was hanged in 1741, and to the more famous Dick Turpin, who was apprenticed to a butcher in Plaistow, was hunted from his fastness in Epping Forest, and ended his career on the gallows at York in 1739. Possibly both these evil-doers on occasion consulted Dr. Samuel Jebb of Stratford, the father of Sir Richard Jebb, Physician in Ordinary to George III. Opinions will differ as to whether it is a mere coincidence or a natural consequence that the locality which once harboured Dick Turpin now contains many firm believers in the Capital Levy. As a set-off we lay claim to distinguished past residents in the persons of the Duke of Somerset, Protector during the minority of Edward VI; of Edmund Burke, who lived some time in Balaam Street, Plaistow; and we are still the proud possessors of Upton House, in which Lord Lister was born (1827).

When Queen Victoria came to the throne the population had not reached 12,000, but in 1847 the Eastern Counties Railway established their works in the northern part at Stratford, and in 1866 the Victoria Dock was constructed in the south; there followed rapid increase in factory building, congeries of streets and swarms of people, changing in fifty years a rural aready into a busy manufacturing town, the growing areas extending from north and south as from two epiphyses, to join with what was originally the main central village.

It would be interesting to know the sanitary conditions affecting the population during the various phases of the past, but the indications afforded by the scanty records that remain lead one to conclude that, despite its reputation for sylvan amenities, the district did not escape epidemic disease. During the great plague West Ham, like other country districts, was considered a haven of refuge, and the City Fathers had their exchange at a local hostelry called the Spotted Dog, still flourishing, especially on football afternoons; probably the building was chosen because many merchants resided in the vicinity. The entries of burials in the parish registers show a fair proportion of deaths from plague. Small-pox, too, is no respecter of localities or of unvaccinated persons, and in our parish church is a fine monument recording the deaths in 1709 of Amherst Buckeridge, aged 28, and of his sister Eleonore. The inscription states:

"Amherst and Eleonore lived to be remarkable for their great dutifulness to their parents, for their most affectionate kindness for one another, and for their being inoffensive and obliging to everybody. These both died of Small-pox in 15 days' time, one after the other, and whether the grief of Eleonore for the loss of her brother or the small-pox contributed most to her death is uncertain."

Sir Thomas Browne informs us that "some think there were few consumptives in the old world when men lived much upon milk and that the ancient inhabitants of this island were less troubled with coughs when they went naked and slept in caves and woods than men now in chambers and feather beds." Perhaps that is why Richard Mead, two centuries ago, adopted the open-air treatment by sending his consumptive patients to live on Plaistow marshes. At present we send our consumptives to live somewhere else, not because the marshes were unsuitable, but owing to their disappearance, for our present temporary sanatorium is erected in a district of a similar character.

Civilization and communal comfort have advanced apace since Edwin Chadwick, Southwood Smith, John Simon, and their associates forced on public attention the dangers arising from the grosser examples of insanitation, accompanied by annual death rates of 30 or more per 1,000 of the population in urban areas—impure water, decaying hovels, foul streets, want of sewage disposal—all of which reduced to a common denominator meant filth, and we are enjoying the benefit of the fulfilment of their prophetic vision.

Each succeeding age rests upon the shoulders of its predecessor, and we are able to recognize a series of sanitary strata in the life of the nation, as the archaeologists point to layers of towns on the site of Troy—periods of time remarkable for various developments in the direction of public health amenity. Individual sanitarians, specializing on one or more factors of a harmful character, have so focused the interest of their fellows upon their own pet hobby as to secure legislation affecting groups of diseases or classes of the community, with the result that one period stands out as an apostolic age firm in the faith of vaccination against small-pox, another period as pioneer in the isolation of infectious diseases, a third fascinated by the need for factory legislation, and a fourth devoted to the eradication of tuberculosis. The fact that earlier prophecies with regard to the disappearance of tuberculosis still await fulfilment—owing, partly to the war and partly to exuberant optimism—need not damp our ardour, especially since Professor Dreyer's research into defatted antigens; nor need we cease our duty to secure proselytes because a later generation has lost some of its faith in vaccination. Rather let us rejoice that, acting on the advice of Shakespeare, "Wise men ne'er sit and wail their woes, but presently prevent the ways of wail," the pamphlet on *Small-pox and Vaccination* issued by the British Medical Association is evidence that we intend to keep the flag flying.

The increasing knowledge of the causes of disease, the extension of bacteriological investigation, and the romance attending the part played by insects in the conveyance of maladies in tropical and temperate climes, have led the present generation one stage higher by the recognition that all medicine is ultimately preventive and that the claim of the community to protection from sickness overrides the claim of the individual to personal liberty, with the necessary corollary that mass sanitation and group hygiene must be supplemented by organized inspection and treatment of their several units—a policy finding a partial practical consummation in the joint action of central and local authorities in connexion with tuberculosis, venereal diseases, and schemes for maternity and child welfare, and the medical treatment of school children.

Sir George Newman has championed the modern policy with no uncertain voice in his public statements, and with forceful language in his illuminating reports, and few will cavil at his recent insistence upon the essential need for levelling up the individual medical practitioner, and, I humbly admit, especially some individual medical officers

Physical Signs.—Pupils: right greater than left; left shows no reaction to light, right sluggish. Lingual and labial tremors. Knee-jerks and ankle-jerks absent; Romberg-ism present. Wassermann reaction: blood positive; cerebro-spinal fluid, 10 cells per cubic millimetre. Globulin and Wassermann reactions positive. Colloidal gold test positive; paretic curve.

Present Condition (three months after malarial treatment).—Mental condition shows a remarkable improvement. No seizures have occurred. Speech is practically normal, and there is no evidence of hallucinations. Has now started light mechanical work at a garage.

CASE III.

J. G., aged 50; general paralysis of the insane. Had syphilis in 1914 and was inadequately treated. In October, 1922, he "lost his speech" momentarily; this recurred every month or so until a few weeks ago, when he became speechless for twenty-four hours and also suffered from transient hemiplegia. For the past few weeks he has been quite unable to carry on his work as "decorative artist." Mentally he was somewhat elated, unduly inquisitive, and slow in replying to questions. His wife stated that he frequently talked "nonsense."

Physical Signs.—Pupils: right greater than left; Argyll Robertson; slight lingual tremors. Knee-jerks present, right greater than left. Ankle-jerks present. Wassermann reaction: blood positive; cerebro-spinal fluid, 18 cells per cubic millimetre. Globulin and Wassermann reactions positive. Colloidal gold test positive. paretic curve.

Present Condition (six weeks after treatment).—Mentally brighter and answers questions rationally and intelligently: he is carrying on his work quite satisfactorily. No further attacks of speechlessness. His wife states that he no longer talks nonsense.

In four other cases the improvement is very definite, while four may be said to have improved slightly. Of the two advanced cases treated, one was a profound dement in poor physical condition and had no conversation beyond a grunt. At the conclusion of the malarial attacks he was able to give some details of his naval service, but relapsed after a few weeks into his former mental state, his physical condition, however, is greatly improved and there is no evidence that his mental condition is becoming worse. The second advanced case showed no very definite change beyond a slightly increased degree of intelligence.

It is recognized that a considerable period from the time of treatment must elapse before results can be accurately gauged and the method of treatment assessed at its true value, especially as the full effect of treatment is said not to be manifest immediately after the termination of the malarial attacks but to appear gradually. Thus far, however, the results in early cases are distinctly encouraging.

In conclusion, we desire to express our thanks to Dr. G. C. Low and Dr. Gregg for enabling us to obtain malarial blood, and to Dr. A. Y. Cochrane, casualty physician at the West End Hospital for Nervous Diseases, for much valuable assistance.

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THE SERUM-ALDEHYDE TEST APPLIED TO TRYPANOSOMIASIS:

OBSERVATIONS ON CAMELS.

BY

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IN August, 1921, a brief note was published in the BRITISH MEDICAL JOURNAL[1] of a new reaction for kala-azar discovered whilst investigating the behaviour of the serums of various diseases to commercial formalin in the light of the Gaté and Papacostas reaction for syphilis. The reaction in kala-azar, which differs from the now discredited reaction in syphilis in that the serum becomes first opalescent and then opaque as well as firmly solid in the presence of formalin, was independently discovered by Mackie and Fox[2] working together, and was carefully investigated by L. E. Napier[3] of the Kala-azar Research Department of the Calcutta School of Tropical Medicine, who put it on such an assured

In my original notice I suggested that the reaction should be tried in trypanosomiasis, and might prove positive in that disease in view of the close relation of the Leishman-Donovan body to the trypanosome, but I have not been able to find out whether any work has been done on this line in countries where human trypanosomiasis is seen.

Recently I have been able to test the reaction in surra, a trypanosome disease of camels, which causes much sickness and mortality in camel corps, as it is not easily diagnosed except at uncertain periods when the trypanosomes appear in the blood in large or small numbers. The disease is easily cured by tartar emetic provided that no trypanosomes are found in the blood at the time of injection; frequently even small doses are rapidly fatal in the presence of circulating trypanosomes.

The reaction is performed by adding a large drop of commercial formalin (which must smell strongly of formalin) to about 1 c.cm. of the serum in a test tube. The result is read in twelve hours, but is even more definite in twenty-four or forty-eight hours. As in the same test for kala-azar, strictly sterile serum is desirable, but not essential—an important point where one may have to depend on semi-skilled assistance for much of the field routine work involved.

RESULTS OF SERUM-ALDEHYDE TEST IN SURRA.

Camel.	Blood for Trypanosomes.	Days under Treatment.	Amount of T.E. given.	Result of Serum Test.
1	++	nil	nil	Opalescent and gelatinous; tube can be inverted.
2	++	nil	nil	Ditto
3	+−	nil	nil	Ditto
4	+	10	0.2 gm.	Opalescent and firmly gelatinous; tube can be inverted.
5	−	27	11.45 gm.	Opalescent and gelatinous; tube can be inverted.
6	−	50	30.0 gm.	Faintly opalescent, liquid, slightly viscous.
7	−	—	—	Clear and liquid.
8	−	—	—	Clear and liquid.

Camels 7 and 8 were healthy animals used as controls.

The value of the reaction is that it does not depend on the presence of trypanosomes circulating in the blood in demonstrable numbers, and would remain positive in undiagnosed chronic or carrier cases which might appear healthy and whose blood would be negative to trypanosomes except after a daily film examination extending perhaps over weeks, which is not practicable as it would involve careful search of every camel's blood every day in every camel corps. Surra is the only haematozoic disease of camels known, so that the reaction would not be given in any other camel disease.

Moreover, as pointed out to me by an army veterinary officer, all camels bought by Government could be tested for surra, active or latent, before being accepted.

In most cured cases of kala-azar the reaction is entirely lost by the blood serum a few months after completion of treatment, and it would appear that the same may be true in surra, in which disease the reaction is now being worked out on a large scale. It would be of great interest to try the reaction on "cured" cases of human trypanosomiasis as well as on active cases, as it might well prove of value in indicating a definite cure; but as this disease does not occur in India it cannot be worked out here.

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THE *Boston Medical and Surgical Journal* for November 15th, 1923, includes the text of the speeches delivered at the opening of the Thorndike Memorial Laboratory. This building, which is in connexion with the Boston (U.S.A.) City Hospital, contains a spacious and modern *x*-ray department, and also laboratories for research. This, it is said, is the first organization of its kind in the United States, and constitutes a definite recognition of the value of medical research to a municipal hospital. A ward for about twenty patients is provided, and is divided into small rooms, each holding two or three to six beds. The building has been erected in

of health, in order to ensure the healthiest life for each individual man and woman; and even for each foetus to be given an equality of opportunity—so far as that is possible.

So far I have dealt with general principles, but what are the particular amenities of my own district? Like the generality of mundane conditions they are a mixture of good and bad, sunshine and shadow, homely joys, and destiny obscure. Our comparative youth gives us freedom to some extent from some of the worst evils of slumdom; but our rapid growth during the early building boom, when many houses may be said to have been stuck in the mud, has accentuated the universal difficulties of dealing with the present housing problem. The limitation of most of our dwellings to two stories affords the lion's share of sunlight, but this advantage is discounted by the incense which we and our neighbours offer up to the heavens in the form of black smoke; as the greater part of the area is below Trinity high-water mark it may well be supposed that our respiratory functions are subjected to and affected by a denser atmosphere than pertains in more elevated districts, though doubtless rigid research would be required to demonstrate deleterious effects.

Our chief characteristic, however, remains that we are one of the largest and possibly poorest of industrial towns which, taken as a group, compare very unfavourably in respect of their mortality with the country as a whole or with other groups of towns, and *prima facie* West Ham should exhibit an exceptionally heavy death rate. But such is not the case. I will not weary you with statistics—they are recorded by the Registrar-General—but merely make the assertion. The administrative county of London, our immediate neighbour and rich relation, is acknowledged to be one of the healthiest cities in the world, and was rightly claimed by my predecessor to be the triumph of medicine; but while allowing London to be *facile princeps* I claim that West Ham is *proxime accessit*. For a long series of years the annual death rate of the borough has compared not unfavourably with that of the administrative county; the few exceptions have been not more than one or two units per 1,000 of the population, and in some instances merely a decimal point higher. Incidentally you may be assured that the attention of the borough council has been directed to those rare occasions when the death rate was below that of Brighton. Similarly with regard to the deaths among infants, in respect of which a heavy death roll is generally exacted from industrial towns, the decline in infant mortality which has been a distinguishing feature throughout the country during recent years has been equally marked in West Ham, where it has sunk to a figure which at the beginning of the century would have been considered phenomenal.

Without doubt the practical application of the increasing knowledge supplied by scientific workers towards combating all forms of sickness, and especially what Osler called the four killing diseases, has operated as one factor in reducing the death rate by the postponement of death; but just as the four elements—earth, air, fire (in the form of sunshine), and water—are still as potent factors in the economy of Nature as in the days of Hippocrates, so are there still several widely diffused deleterious influences which tend to communal shipwreck and to which it has been my object to direct your attention, as they are not only germane to my subject but appear to offer some answer to my proposition.

Since I prepared these notes Sir Arthur Newsholme, in an address on things that matter in public health, has insisted again upon the direful effects of these influences, and urged that to reach the goal of civic salvation we must sweep away the obstructions of poverty, intemperance, ignorance, and vice. In a few words let me try to show that the various authorities in West Ham are and have been working on these lines according to their ability.

With regard to vice in general, while willing to admit that we are no better than we ought to be in Stratford, we boldly maintain that we are not so bad as some of our neighbours. As for the specific vice of venereal disease we have not only organized, in association with the National Council for Combating Venereal Diseases, special propaganda campaigns, but before the appointment of Lord Trevethin's committee the county borough council passed a resolution in favour of allowing pharmaceutical chemists to sell drugs for self-disinfection. That a legal decision prevented the chemists from adopting the decision does not detract from the good intention of the council, which, judging from the said committee's report, was merely a little premature.

Ignorance implies want of either general or special education, both of which are only of social value if they beneficially influence conduct. West Ham has to educate not only the children of its own workers, but also those of many of the workers in London, and is notoriously one of the most necessitous areas in the matter of levying an education rate. During the year 1920-21, while the cost per child for elementary education in 82 county boroughs averaged £213, the cost per child in West Ham amounted to £282, which amount was only exceeded by Bradford and Halifax. I am not aware that any complaint has been lodged that we are extravagant, and may therefore place my town among the wranglers in any list of education authorities claiming to be stalwart fighters of ignorance. The introduction of hygiene into the syllabus of the schools has greatly increased the power of the teachers to aid social amelioration, while with regard to conduct one must not forget the devoted bodies of religious and social workers, the value of whose services resemble the silent forces of Nature—frequently unobserved but none the less incalculable.

There is no need in an assembly such as this to stress the evils of intemperance, nor do I wish to discuss the question of total abstinence. Suffice it to say that while some of us may not be prepared to accompany our abstaining colleagues all the way into the arid confines of prohibition, we may all agree that if the means to do ill deeds make ill deeds done the reasonable reduction of facilities for alcoholic abuse will diminish its evil effects, and in this respect our industrial town is somewhat exceptional. In 1887, when the administration of the licensing laws was transferred to the justices, the population was 186,000; in 1922 it was 300,905. In 1887 the number of licences was 366, in 1922 it was 295; so that while the population increased by 114,905 the licences decreased by 71. Again, last year (1922), in the fifteen largest county boroughs in England the average population to each on-licence was 604; in West Ham the average population was 1,583, or two and a half times as great. The convictions for drunk and disorderly conduct sank from 2,261 in 1911 to 602 in 1921, and he would be a particularly uninformed or prejudiced medical practitioner who would deny even without examining the returns that during the same period the Pale horse of the Apocalypse met a diminishing number of sufferers from alcoholic diseases to pass behind him to Hades.

The poor we have always with us, and in a factory and dock district even in flourishing times casual labour and poverty go hand in hand. Boswell records a dictum of Dr. Johnson thus:

> "A decent provision for the poor is the true test of civilization. Gentlemen of education were pretty much the same in all countries; the condition of the lower orders, the poor especially, was the true mark of national discrimination."

Now to test the discrimination of our local board of guardians in respect of outdoor (that is, domiciliary) relief it may be proper to deal with a normal period rather than with a time of exceptional distress, as exists at present from super-unemployment, in which an average weekly cheque of £6,000 for relief has on occasion risen to £22,000. Taking, therefore, the last normal year—that ending March 31st, 1920—the average weekly cost of domiciliary relief per person in receipt of relief was nearly 5s. 7d. for England and Wales, as compared with 6s. 2d. in West Ham. Sixpence a week may appear a trivial sum, but to a widow with three or four dependent children the 2s. or 2s. 6d. weekly it means to her represents an appreciable amount of her total income available for the sustenance of her self and family. To-day in such a case the scale of relief has risen to 5s. weekly for each child and 10s. or 15s. for the mother, with a rent allowance according to circumstances. This may

CTION OF OPHTHALMOLOGY.

H. PARSONS, C.B.E., D.Sc., F.R.S., F.R.C.S., President.

DISCUSSION ON NICAL SIGNIFICANCE OF SCOTOMETRY.

H. SINCLAIR (Ophthalmic Surgeon, Royal Infir- burgh), in opening the discussion, briefly out- eat advances that had been made in recent years of clinical investigation. The work of Bjerrum ed great changes in their methods. They had delicate test due to the general adoption of small Sinclair showed a large number of charts of the l field, with its variations due to diminution of the test object, the conformation of the blind blyopic zone about it, and its extensions due to on produced by the trunks of blood vessels. In conditions all these features were subject to There were areas of depression in the general nblyopic areas were extended, and near areas or scotomata appeared in these latter areas. e variations of these conditions in various contrasted those found in toxic states such as yopia, depressions such as severe anaemias, d direct affections of the optic nerve by local and growths. He insisted that, invaluable ical significance of fields of vision and of their y must be always related to other clinical ch was complementary to the other.

HOLMES (London) emphasized the numerous ich accurate results in scotometry depended. ace the patient must understand fully what f him, and during the subsequent tests as few ossible be asked. In the next place the test ld be adjusted to the intelligence of the o more be demanded of him than he was e patient's attention must not be tired by an examination, nor be distracted by ques- ary movements, or extraneous sounds. In t many self-recording and other complicated ed or proved unsatisfactory for accurate e noise made by their mechanisms might on from the fixation point, or the percep- object might be irregular, since attention t one moment excited, at the next dormant, mechanism was noisy or silent. Further, as alteration in the rate of movement of the a stronger stimulus to extracentral vision, especially in mapping out partial scoto- rate of movement be regular and uniform. t more accurate results could be obtained ect was simply moved by the hand than cated apparatus was employed. More, ed on the observer than on the ordinary e was essential, and he should, at the le to obtain the friendship of the patient ation and interest in the examination. erver must be careful to avoid suggesting e patient by varying the rate of move- object, by an expression, by an attitude, . In the scotometer which Sir William d employed during the war, and in that Mr. Bishop Harman, the observer was actual results, and he could repeat his by previous records, and he was there- o obtain true and objective results than f each previous test was exposed to him. n determining the actual chart obtained repeated observations to be made without tiring the patient or interrupting the examination.

Mr. MALCOLM L. HEPBURN (London) confined his remarks to the significance of scotometry in affections of the choroid. Assuming that pigmentary degeneration of the retina was a choroidal affection, there were three types of field associated with diseases of the choroid: (1) the fields met with in pigmentary degeneration of the retina, and (2) the fields associated with choroidal scars—(*a*) multiple scars, (*b*) isolated deep scars. These fields indicated certain points in regard to pathology, prognosis, and treatment. The first point in connexion with the first-named fields was the isolated and separate character of the scotomatous areas, which occurred in a regular and definite order until the whole of the retina became eventually involved. The ring scotoma, at first incomplete, was quite a separate and distinct defect, the extreme peripheral and central areas being free; this was followed by defects in various peripheral areas which could be traced in their various stages, and lastly the macula region became involved.

With regard to the pathology, one of the earliest theories was the watershed theory of Nettleship, which accounted for the ring scotomata by suggesting that the communication between the anterior and the posterior choroidal vascular systems formed a weak anastomosis. He thought that this anastomosis occurred too far forward to explain the ring scotoma, and that there was a considerable amount of evidence to show that the posterior ciliary vessels were alone concerned in the nutrition of the visual parts of the retina. A circulatory origin is a more probable hypothesis, by reason of the isolated character of the scotoma; it was noticed also in certain specimens that parts of the choriocapillaris were destroyed, which was a little difficult of explanation by the generally accepted view that the choroidal circulation is a freely anastomotic system. Opponents of the vascular theory of pigmentary degeneration said that in many cases no affection of the capillaries was anywhere noticeable, and that therefore the cause could not be attributed to a defect of the choroidal circulation; hence one of the latest theories (Collins) was that the affection was a primary degeneration of the neuro-epithelial layer; against this it was difficult to explain the presence of the typical pigmentary disturbances which were characteristic of the majority of cases. Also in Raynaud's disease, which was essentially a capillary and small arterial circulatory affection, there were many clinical types suggestive of anything between spasm of the vessels and definite disease of the vessel walls. If, on the other hand, the posterior ciliary circulation was regarded as an end artery system, for which there was a considerable amount of anatomical proof, the scotomata could be easily explained. The fields suggested that the posterior ciliary vessels branched into two main divisions, one supplying the mid-peripheral region and one the extreme periphery; when the mid-peripheral vascular system was affected the ring scotoma was formed, and when the extreme peripheral system was affected scotomata involving the outer part of the visual field resulted. A separate and distinct blood supply to the macula region, of a healthier and fuller type (for which again there was some anatomical support), accounted for the resistance offered by this particular part to the invasion of degenerative processes. In support of the contention that the posterior ciliary circulation was an end artery system, it was noteworthy that Usher, in his genealogical researches (Royal London Ophthalmic Hospital Reports), found Raynaud's disease and pigmentary degeneration of the retina in different members of the same family; Mr. Hepburn had suggested once before that a good name for pigmentary degeneration would be Raynaud's disease of the choroid.

With regard to prognosis, since the degenerative processes progressed in a definite order, the macula region being the last to go, and the lower temporal field immediately prior to this, we might definitely assure our patients that so long as this latter part of the visual field could be

appear to err on the liberal side, but the guardians, rightly or wrongly, hold the view that relief should be adequate to the needs of the applicant, and particularly in the case of children, who, well fed rather than half-starved, are much less likely later on to fall victims to sickness and be thrown again on local rates. This surely is an enlightened policy which is followed by the borough council in supplying dried milk free under a liberal wage scale to nursing mothers and young children, as well as by generous provision of convalescent treatment for ailing youth. Carping critics allege that relief schemes foster indifference and mendicancy. It may be so in isolated cases, and occasionally one meets with what at first sight appears to justify the criticism. For instance, my chief clerk, crossing the hall corridor, met a little vulgar boy. "Well, my little man, what do you want?" said he. "Please, sir, mother says will you put on a piece of paper what's given away?" His mother's request was not granted, but I fancy assistance followed investigation, and those who practically deal with relief know that the black sheep in every flock are few.

The Autocrat of the Breakfast Table said that no fresh truth ever got into a book, and I have merely been telling you what you know. With much you must agree; from some you may differ—a happy result if it lead to a stimulating discussion, for the man who proudly boasted that he had not had a disagreement with his wife for twenty-five years was promptly told by a sensible woman present that he had led a milk and water existence. In any case, whether I be charged with endeavouring to kill the slain or with setting up West Ham in rivalry with Epidauros and Cos, I care not; my good intention (not a paving stone, I trust, in this case) has been, in legal phraseology, to obtain a writ certiorari that while it is given to the few to achieve greatness and associate their names with some definite hygienic advance, each one of us, whether medical or lay, official, burgess, or representative (if we only have power to live up to our ideal), by lending our aid to wisely directed efforts to eradicate the social evils I have referred to, can definitely improve the public health of the community among whom we dwell and help on the world in its slow but sure journey to ultimate goodness.

In the stirring language of a recent writer to the *Times*, "The ideal is the only real and lasting fact of life, and a man's worth is conditioned by the effort he makes to attain it. He who has given up belief in the certitude of our manhood's perfection must sink back to the indignities of the man with the muck-rake, with eyes bent to earth, forfeiting the true wealth of reality for the glitter of things which leave their possessors in final beggary."

THE TREATMENT OF TUBERCULOUS DISEASES:

THE EFFICACY OF SODIUM MORRHUATE INJECTIONS COMPARED WITH OTHER TREATMENTS.

BY

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OF all the treatments used for the arrest or cure of tuberculous diseases, apart from or in conjunction with sanatorium treatment, that by means of injections of tuberculins or other chemical preparations has probably been most widely and often most successfully employed. Having had a fairly large experience, extending over nearly twenty years, of these methods, and finding that as time went on I was able steadily to improve upon my procedure, is my excuse for writing this paper.

TUBERCULINS.

Many will remember the time when, in 1890, Professor Robert Koch, somewhat against his own wish and before he had completed all his investigations and experiments, was forced by the Government to publish the outline of his new treatment by injections of a "lymph" which he called tuberculin, and which is still known and used under the name of O.T. or old tuberculin.

I have before me a pamphlet, published by the late Professor Anderson Stuart of the Sydney University in 1901, entitled *A Report to the Governments of New South Wales, South Australia, and New Zealand on the Koch Method of Treating Tuberculosis.* The report is interesting but disappointing as regards some of the results. We thought that at last a remedy had been found to exterminate this dread disease. People afflicted with it flocked to Germany from all parts of the world, full of hope, a few to return with their disease arrested, many never to return at all. A treatment which with all its failures could in some cases bring about such startling recoveries was so remarkable that it would have been surprising if it had been altogether shelved. Far from it. It is the foundation stone on which the whole structure of our modern tuberculin treatments has been built.

Some of the first books published on this subject by Camac Wilkinson (1903), Bandelier and Roepke (1911), Riviere and Morland (1912), and others, were all based on Koch's original discoveries. All these authors recommended treatment by Koch's method in a more or less modified form, by subcutaneous injections of various tuberculins in gradually increasing doses at intervals regulated by the resulting reactions (see Appendix A). Of patients treated by me by this method from 1905 onwards there are still a good many alive and well. In contrast to the milder treatment recommended by Sahli I shall call this Koch's treatment.

A few histories of patients with rather advanced disease will suffice.

Case 1.—1905. Mrs. G., aged 30 years, weight 41 kg.; ill five years; pronounced tuberculous family history. Both apices affected. Right lung, first stage (Turban's); left lung, second stage; frequent haemorrhages and severe asthma. Sputum contained tubercle bacilli (Gaffky X). Disease arrested after two courses of tuberculin injections. Relapses in 1909 and 1920 easily remedied, the first by tuberculin, the last by sodium morrhuate injections. Weight 79 kg. All this time this patient lived in Sydney, which, on account of its warm and moist north-east winds in summer, is rather inimical to patients suffering from tuberculosis. Practically all the other patients whose history is given were treated under the same climatic conditions.

Case 2.—1909. Bro. J. M. Left apex, third stage. Tubercle bacilli in sputum (Gaffky X). Treatments with O.T., P.T.O., and P.T. Quite well to-day and sputum free from tubercle bacilli.

Case 3.—1909. Mr. L. L., aged 23 years. Urine contains pus and tubercle bacilli. Diagnosis: Tuberculosis of right kidney. One course of treatment with P.T.O., P.T., and T.B.E. injections. Apparently well. Urine quite clear. Relapse 1914. Treated with P.T.O. and P.T. injections. Quite well at present date. Looks picture of health.

Case 4.—Mrs. L. L., wife of last patient, was treated in 1910 for tuberculosis pulmonalis. Has had no recurrence since.

Case 5.—October, 1909. Mr. J. H., aged 36 years, weight 63.5 kg. Right apex, second stage. O.T. test positive. Ill twelve months. Diagnosis: Tuberculosis pulmonalis. Six months' treatment with T.B.E. and P.T. Well in May, 1910. Weight 75.5 kg. February, 1911, O.T. test negative. Quite well to-day.

Case 6.—February, 1912. Mrs. J. H., wife of previous patient. Aged 25 years; weight 52 kg. Right apex, second stage. O.T. test positive. Ill two months. Diagnosis: Tuberculosis pulmonalis. Eight months' treatment with T.B.E. Weight 53 kg. Well to-day.

Case 7.—February, 1912. A. H., daughter of the two previous patients, aged 10 years; weight 29 kg. Right apex, first stage. Von Pirquet test strongly positive. Ill six months. Three months' treatment with T.B.E. Well; weight 32 kg. August, 1916: O.T. test negative; weight 52.5 kg. Strong and well to-day.

Case 8.—February, 1916. Mr. J. J. S., aged 32 years, weight 57 kg. Right apex, third stage; left apex, first to second stage. Sputum contained tubercle bacilli (Gaffky X). Sent out from England as incurable. Seemed almost hopeless case. Diagnosis: Tuberculosis pulmonalis. After twelve months' treatment with P.T.O. and P.T. quite well; weight 62 kg. Has just returned from a trip to England well.

I could quote many other histories of patients treated many years ago who are still in good health. All I want to show is that by means of Koch's treatment it is possible to bring about more or less lasting arrest of advanced tuberculous disease. Still, in spite of all these successful results I was never quite satisfied, as in some cases, however small in number, Koch's treatment seemed to fail. Some patients did not improve at all, while others after an initial improvement seemed to relapse. Besides, it did not seem a suitable treatment for ambulatory cases, as patients sometimes during a severe reaction had to lay up for a day or two. On the whole patients afflicted with tuberculosis pulmonalis in all stages seemed to do better than so-called "surgical" cases—a term which I only use because up till

discovered, in however small a degree, the central vision would not be affected.

Treatment.—The importance of settling definitely the cause of the scotoma was emphasized when the question of treatment arose. Unless the scotoma was due to an affection of the nerve elements it was utterly useless to prescribe strychnine and nerve tonics, which was the usual practice; whereas if the fault lay in the capillary circulation it was obvious that treatment must be directed towards keeping the capillaries full of blood and in as healthy a condition as possible prior to the formation of degenerative changes in the vessel walls. He was in the habit, as far as possible, of advising his patients never to winter in England or in any cold climate.

The two types of field met with in choroidal scars were the insular type and the sector-shaped defects extending in a wedge-shaped form into the extreme periphery. With regard to the former, pathological investigation showed that at the point where the scar occurred the retinal elements, including the nerve fibre layer, were entirely lost in a mass of fibrous tissue which bound the retina to the choroid, while on each side of this scar the retina was perfectly healthy in all its layers, and accordingly the fields of vision showed that the surrounding parts still retained their function. The wedge-shaped scotoma, when first observed, was associated with scars near the disc, and thus received the name of choroiditis juxta papillaris (Edmund Jensen). There was no justification for this special classification, since the condition was by no means a special clinical entity. He had found the sector-shaped defects in choroidal scars at other places than near the disc, and a point to be observed was that the sector scotoma remained of a fairly uniform size in whatever position the scar was situated. This scotoma existed as a permanency, and did not vary in size or extend to the neighbouring parts as time went on. It had been suggested that this scotoma was caused by the nerve fibre layer being affected at one part, so that the branches which passed towards the periphery were cut off much in the same way as the terminal branches of any sensory nerve were involved when the main trunk was severed or pressed upon. Against this was the fact that the insular scotomata were obviously caused by the cicatrization of the retinal tissue, including the nerve fibre layer, and yet remained circumscribed without involving the neighbouring retina; and also, owing to the anatomical distribution of the nerve fibres, the sector-shaped defect would be considerably larger the nearer the disc the scar was situated. Although it was true that the scotoma was rather larger when the choroidal scar was situated near the disc, yet in his opinion there was not so much difference in size as would be expected if the scar involved the nerve fibres in a position where possibly more than one-third of all the nerve fibres met as they converged towards the optic nerve. This idea received support from Dr. Sinclair's charts. In these last two types of cases the question of prognosis and treatment did not arise, as the scotomata were permanent, and no treatment was of any avail; besides which they were practically unnoticed by the patient.

It seemed, therefore, that there was considerable evidence that the scotomata found in connexion with diseases of the choroid pointed very strongly towards the theory that the circulation derived from the posterior ciliary vessels was of the nature of a terminal vascular system, and subject to the weaknesses common to such systems in other parts of the body.

Mr. H. NEAME (London) discussed the variation in size of paracentral scotoma in a case of pituitary enlargement. He showed charts illustrating this variation in a case of pituitary enlargement in a woman. In the first chart, made on April 18th, 1923, the scotoma in the left field extended through 18 degrees vertically by 8 degrees horizontally. On April 28th the scotoma extended through 30 degrees by 12 degrees. On June 20th, although a smaller object was used, the scotoma was not larger, but was actually smaller than on either of the previous occasions—15 degrees by 8 degrees. Other evidence of pituitary enlargement in this case were: diminution of left temporal field to 20 mm. white square; left temporal hemianopsia to 20 mm. red square. There was also definite x-ray evidence of expansion of the sella turcica.

Mr. N. BISHOP HARMAN (London) said that he found amongst post-graduate students much confusion of thought arising from the diversity of methods employed in the work of perimetry. They could not understand why some workers employed huge screens at a long distance whilst others worked at a convenient distance. He thought and believed it was true that distance, size of test object, and luminosity of the object, which included to some extent colour, were all relative terms. If this were so, then they were bound to use the test which was easiest for the patient. There could be no doubt about the brilliance of the work of Bjerrum, but his large and long-distance screen needed great patience on the part of the doctor and more than ordinary concentration by the patient, whilst the time taken resulted in exhaustion or even a species of hypnotism. In his experience this meant unreliable results, and he pleaded for the use of simpler methods such as he had suggested. Again, much depended upon whether the test object passed from the blind area to the sighted, or the reverse. He thought that the results obtained by passing from the sighted to the blind area were defective, and that all should agree to work from a known blind area to the sighted; then the findings would be more comfortable to a standard. Finally, he found that in general toxic conditions where there was a central defect there was almost always a peripheral defect, provided care was taken in the manipulation of the lighting.

Dr. RICHARD KERRY (Montreal) had had a case of superior quadrantic hemianopsia apparently following cerebral haemorrhage, in which the blind area on one side came down about 30 degrees below the horizontal. He would like to ask whether the tendency was to regard this condition as due to the segregation of the nerve fibres from the different sides in bundles or whether it could be regarded as being due to a peripheral effect which had persisted longer on one side than on the other.

Major R. E. WRIGHT, I.M.S. (Madras), agreed that Dr. Sinclair had well shown that amblyopic areas around the blind spot were common to many conditions. Such amblyopic zones projected on the screen had been shown as relative areas of blindness or depressions of the field. The speaker had affirmed that such zones had not any great or peculiar value in glaucoma. Did he also include what was commonly termed enlargement of the blind spot? The term "enlargement of the blind spot" in glaucoma usually implied an absolute defect continuous with the blind spot which was determined by comparison with the opposite side.

Sir JOHN PARSONS (London) was glad to hear the remarks of Dr. Gordon Holmes and Mr. Bishop Harman, drawing attention to the difficulties of scotometry and the interpretation of its results. It was not generally recognized by ophthalmologists that the amblyopic area round the blind spot was a normal phenomenon, characterized by definite peculiarities—for example, of colour vision. He could not agree with Mr. Harman that variations in the size of the test objects and variations of the intensity of the light produced identical responses. The evidence of Piper and others was that, although there was a definite mathematical relationship between the intensity of stimulus and the size of area stimulated in the macular area, there was no such simple relationship for stimuli affecting the periphery of the retina. There was need for more precise investigation of normal visual responses by the periphery, and a wider appreciation by ophthalmologists of the facts already elucidated.

Mr. RANSOM PICKARD (Exeter) dealt with the following conditions: (1) Cases of glaucoma in which the fields were decreased concentrically and the blind spot showed little or no enlargement. (2) The concentric limitations of the fields in functional cases, especially those in which the limitation for 1/1000 reached between 10 and 15 degrees from the fixation spot and so passed through or near the blind spot. (3) The fields in cases in which pressure was not high but variable. (4) The influence of sepsis on the 1/1000 field. He

practise, the Board is of opinion that the question of charging midwives an annual fee is one which requires very careful consideration, as in practice it might produce many complications and difficulties.

Scotland.

PUBLIC HEALTH AUTHORITIES.

A WHITE PAPER has been issued by the Scottish Board of Health containing two reports by its consultative councils on a reformed local authority for health and public assistance. The first report deals with local health administration and general health questions; the second with the application of similar principles to special conditions of the Highlands and Islands. The reports deal with the local administration of the health and public assistance services by county councils, district committees, town councils, parish councils, education authorities, insurance committees, and other local authorities; and contain recommendations which affect the status and constitution of these authorities, with the object of co-ordinating the local administration of health and public assistance. The price of the White Paper is 1s., and it can be obtained from the Stationery Office (Edinburgh, 120, George Street). We propose to refer to these reports more at length in an early issue.

PUBLIC HEALTH OF EDINBURGH.

The Medical Officer of Health for Edinburgh, Dr. William Robertson, in presenting the annual report of the Public Health Department for 1922, observes that in the past local authorities have performed their full share of treatment. In the possession of splendidly equipped institutions ready to cope with epidemics and the provision of admirable places for dealing with tuberculosis in all its forms, there is a suggestion that local authorities may have tended to step beyond their sphere. The report urges that they should now concentrate upon methods and means that will reduce the demands upon these institutions; much that is spent upon institutional treatment could be saved if the breeding places of disease were removed. Tangible reductions in the cost of sanatorium treatment and in child welfare schemes could be confidently expected as soon as it was possible to offer improved housing facilities for those most in need of better habitations. Houses could neither be demolished nor closed on a wholesale scale until there was better and more attractive accommodation to offer to the dispossessed. The search for a way to reduction of infantile mortality directed attention to better housing accommodation and improved social habits.

The total number of deaths registered in Edinburgh during 1922 was 7,012, in a population estimated for the middle of the year at 423,155. This gave a corrected death rate of 15.2 per 1,000, as compared with a rate of 14.4 in 1921. The increase might be attributed to an outbreak of influenza in the early part of 1922. Nevertheless, Edinburgh occupied a favourable position as compared with other large centres of population in Scotland; of the larger burghs only two—Clydebank, and Motherwell and Wishaw—showed lower death rates than Edinburgh. In the various wards of the Edinburgh area the greater death rates were found in the more crowded parts; thus St. Giles Ward was highest with a death rate of 19.8 per 1,000. The infantile mortality rate was also highest in this ward, being 141 per 1,000 births as compared with 91 per 1,000 for the city generally. Suburban wards showed much lower figures —namely, Colinton a general death rate of 8.7 and infantile rate of 20, Liberton rates of 11.2 and 76 respectively, and Corstorphine 12.6 and 23 respectively. As showing the severity and suddenness of the influenza epidemic, the following figures are quoted in the week ending January 14th: the deaths from influenza numbered 15 and the death rate from all causes was 18.7; by January 21st the figures were 71 and 34.3 respectively; by January 28th 118 and 45.3 respectively; by February 4th, 99 and 39.7; afterwards they fell off till on March 4th they were 8 and 17.0 respectively.

The statistics of tuberculosis and cancer are of considerable interest. The deaths from tuberculous disease numbered 532, equal to a mortality rate of 1.26 per 1,000 of population. The death rate for respiratory tuberculosis was 0.9 per 1,000, the same as recorded for the year 1921, and the lowest recorded for this city. This would appear to indicate that the disease is gradually yielding to the efforts which are being made to combat it. On the other hand, the number of deaths from cancer, in all 657 (giving a death rate of 1.5 per 1,000 of population, or nearly one death in every ten deaths), showed an increase of 32 over the previous year. As regards the age of death, 61 were persons under 45 years, 313 were between 45 and 65 years, and 283 were over 65 years.

The total number of notifications of infectious diseases received by the department during the year was 4,888 as compared with 5,952 in 1921. This large fall is in the main to be explained by a reduction of 461 notifications of scarlet fever, and by the fact that chicken-pox ceased to be notifiable in September, 1921, while for nine months in 1921 there had been 505 intimations of this disease. No cases of small-pox were notified during the year. Enteric fever continued to be infrequent; only 16 cases were reported, of which three occurred in one family; there were only four deaths from this disease, of which 2 unfortunately occurred in hospital nurses. The notifications of diphtheria numbered 800 as compared with 991 in 1921, the case rate being 189 per 100,000 of population as against a case rate of 236 per 100,000 for 1921. The mortality from diphtheria was 7.1 per cent. of the cases notified, and it is interesting that this percentage has been lower only on four occasions since the year 1880. The cases of scarlet fever treated in hospital were also of a mild variety.

With regard to venereal diseases, the work has been carried out in association with the Royal Infirmary, the Edinburgh Hospital for Women and Children, and the Royal Maternity Hospital, and out-patient treatment for females had been arranged at several dispensaries. The number of new cases treated in the year was 3,250, and the total attendances numbered 95,383. This shows a slight diminution (159) as compared with the number of new cases in 1921, but a considerable rise in the number of visits.

RESEARCH DEFENCE SOCIETY MEETING.

THE Edinburgh Branch of the Research Defence Society held a meeting on July 2nd in the Physiology Department of the University, Sir Edward Sharpey Schafer occupying the chair. Office-bearers and council for the ensuing year were elected, and the report by the honorary treasurer showed a balance of £43 3s. 6d., from which it was resolved to forward a contribution of £30 to the funds of the parent society in London. A lecture was afterwards delivered by Dr. John Comrie, lecturer on the History of Medicine in Edinburgh University, dealing with "Edward Jenner and Vaccination." The lecturer sketched the early life of Jenner, dealing especially with his friendship for John Hunter and the long-continued correspondence between the two men, Jenner's early reputation as an expert naturalist, his researches upon the habits of the cuckoo, which had been confirmed in the last few years by cinema-photography, and his great popularity as a practitioner. Jenner's labouring efforts to elucidate the problems of cow-pox and small-pox were next dealt with, and finally a number of slides were shown illustrating the great decrease that had taken place in the incidence and mortality of small-pox in association with vaccination and re-vaccination.

VISIT OF DR. W. MAYO TO EDINBURGH.

A lecture was delivered last week to the students attending the class of clinical surgery by Dr. William Mayo, Rochester, U.S.A. The address was delivered in the M'Ewan Hall of Edinburgh University, the chair being taken by Sir Harold Stiles. The subject was "Some of the allied sciences in relation to surgery," and a considerable part of it was taken up with a discussion of physics in relation to surgery. The lecturer believed that the recent great advance in medicine came by way of biophysics and biochemistry, between which the borderline had disappeared. A hearty vote of thanks was proposed to the lecturer by Professor Lorrain Smith, dean of the Faculty of Medicine.

Ireland.

FREE STATE INTERNMENT CAMPS.

THE report of the International Committee of the Red Cross was placed before a recent sitting of the Dail by General R. Mulcahy, Minister of Defence. In the course of the report it was stated that: "As a result of the numerous representations made to it on the subject of the

of prisoners in Ireland, the International Com- the Red Cross appointed MM. Schlemer and go to Dublin to obtain authority from the Irish it to institute an inquiry of a purely non-political eal nature into the position of the prisoners."
gates of the International Committee of the Red received by Mr. Desmond Fitzgerald, Minister l Affairs; Mr. Walshe, Secretary, and General irector of Army Medical Services. Considering haracter of the International Committee of the confers on it the right and duty to intervene ppeal is made to it, and when the principles of which should be recognized by the belligerents luring wars as following them, are publicly in- onsidering also that the nature of the Inter- Committee of the Red Cross and the experience it offer every guarantee of the impartiality of es, and of the manner in which all leanings to- but purely humanitarian considerations should d, the Irish Government decided to grant the requested by the International Committee of the , and to accord to the delegates every facility ng the prisons and internment camps of the nd of making a report on the treatment of those in them. M. Haccius was delegated to visit camps from the point of view of their organiza- accommodation, and of the sanitary conditions of ees. The following are extracts from the report by the delegates:

l number of prisoners and internees is about 11,500 50 women. Our delegate visited the principal camps, a total of 7,369 prisoners. The treatment of these s devoid of all hostile spirit, and the general principles the 10th International Conference of the Red Cross ed. The Government refuses the status of "prisoners to the prisoners, but in reality treats them as such. te particularly draws the attention of the committee to at nowhere did he find a wounded or sick person left edical treatment. On the contrary, he found every- refully organized medical service. The serious accusa- on this subject appear to him unfounded.
gate was not able to visit the prison at Kilmainham, women are detained, but he has no reason to believe eatment there is different to that adopted at Mountjoy. f these prisoners had been on hunger strike since the eir arrest to obtain their release or immediate trial, a protest against the prison régime. This fact is veri- eir written statements. The delegate did not consider to insist on getting into touch with these prisoners, at his intervention, misinterpreted, would only en- em to persist in their attitude, and give rise to a new uring his sojourn three of these prisoners were released. ings of the old North Dublin Union are in the course on for the reception of those detained in Kilmainham. ildings, with the surrounding garden, will fulfil all hygienic conditions.
tructions given by the International Committee of the to the delegate exclude certain representations and uiries bearing on individual complaints. It is a fact hes have taken place in various private hospitals, but ing of these hospitals has not been interfered with. grounds for the complaints of overcrowding in Mount- The complaints regarding the prohibition of corre- with prisoners' families, sanitary conditions, and food in are unfounded.

eference to the internment camp at Tintown, it as follows:

men in the infirmary, 25 men in the surgical hospital. 6 wooden barracks used as an infirmary; these buildings d condition and well heated. The sanitary staff is com- three medical doctors and army nurses. A medical , which anyone wishing to see the doctor can attend. no epidemics. A certain number of men who arrived affected with scurvy, and have been isolated from the being treated. The sterilizers are installed in a stone- lding and function permanently. The wounded, who tted to surgical treatment, are nursed outside the camp ion isolated from the barracks hospital. The rooms are h every comfort and contain from 4 to 5 beds. The eemed to be very grateful to the doctors for their devoted attention. The prisoners themselves organize the in- vice of the camps, kitchen, fatigue duty, etc., and are e for material which is not replaced in case of wilful n. I have not had any complaints to register concerning medical care, or treatment, not having been authorized on the prisoners. The men are not obliged to do any y work, and are at liberty to walk about the enclosure mp. I was present at a football match.
of inspection to the camp made a favourable impression The conditions correspond with the normal treatment of prisoners of war, in conformity with the principles which inspires the Convention of Geneva.

With reference to the conditions at Newbridge the following observations are contained in the report:

Patients—30 men in the infirmary. The former recreation hall has been converted into an infirmary. A special apartment is set aside for the treatment of those suffering from the itch. The medical staff consists of two army doctors and several army nurses. There is a daily medical visit. No epidemics. Two disinfecting rooms are in working order. Organization and complaints—the same as Tintown. Correspondence—reception and dispatch—one letter each week. Parcels are distributed regularly but must be opened under supervision.

Correspondence.

EARLIER NOTIFICATION OF TUBERCULOSIS.

SIR,—The letter of the Deputy Clerk of the London County Council (published in the BRITISH MEDICAL JOURNAL last week, p. 43) is well timed. There is no doubt as to the importance of the issue he has raised. The whole subject of notification of tuberculosis merits consideration on the part of administrative authorities, central and local, no less than on the part of medical practitioners, collectively and individually. Because of that the subject has been selected for discussion at the Annual Conference of the National Association for the Prevention of Tuberculosis to be held at Birmingham this week. It may be expected that many points of interest will emerge and conclusions of practical moment be arrived at.

I would not wish to forestall the discussion. But, as the meeting will be over before this letter can appear in print, you will perhaps permit me to draw attention to the proceedings of the meeting which will in due course be reported. Meanwhile, as one who comes much in contact both with doctors and with administrators concerned with the matter, and likewise with students in training for the profession, I would voice the view that failures in respect of notification in part occur per incuriam. The hard-working doctor, not trained in business habits, is a little prone to slackness in respect of what may appear to him a formality. To this may be added that the attention of many practitioners, especially in the past, has not been very forcibly drawn to the point. Apart from the trifling fee attaching thereto, there is an absence of the more urgent motive which is present to his mind in connexion with acute fevers.

In some parts of the country the evident benefit accruing to the patient from notification—in the way of facilities for treatment and prevention and economic assistance—is so slight as to offer little stimulus to the medical attendant. Indeed, to some extra-conscientious doctors it may seem that the disadvantages possibly accruing to the patient from notification, especially in some areas, outweigh the advantages, while, perhaps, some more timid individuals may be fearful of the results attaching to a reputation for over-zeal in obeying the statutory demand. It may be that in this respect an easy-going, casual attendant is even preferred to the other.

However produced, the neglect to notify, and particularly the failure to notify at an early stage, is finally fraught with disadvantage to all concerned, and plays a considerable part in neutralizing the efforts of preventive medicine. A good deal, it seems to me, might be done by the health authority, local and central, to increase the doctor's interest in the procedure. A telling statement from headquarters, or a sensible conversation, would win his confidence and co-operation, while a suggestion of threat might have the opposite result.

Emphasis should certainly be laid on the facilities for diagnosis and for treatment which exist widely throughout the country, and on the value of notification in the direction of increasing and improving such when they are inadequate. From the published health reports it is evident that quite a number of medical officers of health have the subject well in mind and, in a number of instances, have adopted measures likely to be helpful within their area. A comparison of different areas in respect of the

exhibited charts of fields taken under similar conditions with the same apparatus, and the patients were reliable—that is, the fields were comparable with each other. A normal field was shown for comparison. In all the cases central vision was 6/5 partly, except in the cases of acute and subacute glaucoma, in both of which it was 6/9 partly. The tensions were taken with the Schiotz tonometer, the weight used bringing the pointer between 2 and 4 degrees on the scale, except where the reading with the 5.5 gm. weight was greater than 4 degrees. Once he had taken a field two days before a severe acute glaucoma, and once two days before a subacute attack; in both there had been slight preliminary signs. In the first the limitation was concentric, in the other nearly so; in both there was hardly any enlargement of the blind spot.

First Group.—In this group three fields of essentially chronic glaucoma with the same features were shown. In two the 1/1000 fields had contracted within the angle which would have intersected the blind spot. For a concentric limitation to be maintained, it was necessary that the blind spot should not be much enlarged; for if enlargement occurred the field would conform to the ordinary glaucoma field. One case having a tension of 60 mm. was very interesting, for the cup was a tiny, shallow dimple. In an observation made six months later a concentric field was maintained, but the 1/1000 field was just internal to the blind spot, the tension being 55 mm. These cases showed no relationship between the size of the optic cup and the alterations in the field outline. One of them had a fairly large cup (65 per cent.), but this had had no effect upon the blind spot. The last case, with a tension of 32, a full field for 3/1000, and a diminution only in the 1/1000 field could not be considered normal because the other eye had advanced glaucoma with a tension of 100 mm. These three chronic cases formed a series of decreasing tensions, yet not differing greatly in their fields. It might seem that a generalization could be made, and be supported by other cases, that these cases progressed slowly and were very amenable to eserine; but the rapid increase to acute and subacute glaucoma in the two previous cases effectually disposed of this assumption. Nevertheless, he felt that in this type of case the outlook was better than in those showing marked enlargement of the blind spot.

Second Group.—In contrast with the above cases, three fields showing functional limitation were shown. The first was shown as a typical concentric field in asthenopia occurring in a case of pulmonary tuberculosis. The remaining three charts, each from a different patient, showed respectively the 1/1000 field outline approaching the blind spot, the latter opening out upwards, and the outline internal to the blind spot. The resemblance of the outline in the middle case to that of an early glaucoma outline was apparent. The tension in this case (19 mm.) was so well within normal limits that there would be little danger of confusing it with glaucoma; but were its tension higher, doubt might easily arise. The tension of 25 mm. in the last case, when compared with cases in the following group of variable tensions, might easily give rise to suspicion; but other circumstances led to there being little doubt as to its functional nature.

Thus a consideration of these two groups showed that (*a*) the glaucoma field might be concentric and thus resemble the typical functional limitation; (*b*) the field for 1/1000 in some functional cases resembled that for 1/1000 in some typical glaucoma cases; (*c*) serious difficulty might arise in distinguishing between these two groups in cases where the tension was near the higher normal limit.

Third Group.—The group with tension not high but variable was illustrated by four charts. In one of them (27.44-B) the outline for 3/1000 was full, in the others a little concentrically contracted. The 1/1000 outlines were much more variable, two being fairly typical of glaucoma (A and B), the others rather of the concentric type. The variability of the tension was:

	Maximum.	Minimum.	Difference.
A	30	15	15
B	27	13	14
C	28	23	5
D	32	23	9

It was obvious that the maxima were near or above the normal limit, the minima below it; most of the cups were above the average size. Consideration of all the signs justified the diagnosis of early glaucoma. It was well known that the tension in the same healthy eye might vary at different times; but he thought that much variation with a persistent alteration in the field justified the conclusion that the intermittently high pressure had produced the alteration in the field. An increased tension which altered vision was glaucoma.

Fourth Group.—Only one chart was presented showing a limitation of the 1/1000 probably due to dental sepsis. It was not marked and was accompanied by a slight enlargement of the blind spot. It might be regarded by some as a slight retrobulbar neuritis.

Two cases (B and C) in the third group had *B. coli* in the urine, and showed an improvement in their general health as well as the field when a combined treatment by a vaccine and eserine drops was carried out. In a good proportion of glaucoma cases this bacilluria occurred, and was, he believed, a distinct factor in the causation of glaucoma.

He showed these charts as illustrations of difficulties all had to contend with; he had no royal road out of them. In doubtful border-line cases the use of eserine and a study of the subsequent alterations in the field and tension was the obvious method to employ, notwithstanding the difficulties in connecting any treatment with subsequent alterations in cases. The suggestion effect of treatment, particularly in neurotic people, was well known; if a field contraction was functional, an improvement after eserine might be due to suggestion. Yet neurotic people might have real ailments; no alteration must be called functional until any possibility of actual lesion had been excluded. There were few more difficult tasks than to detect the earliest onset of a disease in a neurotic patient when an important symptom such as an alteration in the field of vision might be similar in the two conditions.

Opener's Reply.

Dr. A. H. H. SINCLAIR, in reply, remarked that the value of the findings depended on the way in which the work had been done, and on the nature of the case. He thought that the method was of the first importance, as was also the proper understanding of the method—of what could, and what could not, be expected from it. The question of fatigue was very important, and in this connexion it was necessary that the examiner should be able to carry through the examination in as short a time as possible, not delaying over doubtful areas but rather giving the patient a short rest and testing them a second time. He agreed that unintentional interruption was bad, and that the test object should be moved freely on the end of a suitable carrier held in the hand. The size of the white or coloured test object should be changed according to the necessity of the case; this was an essential of the quantitative method. He regarded it as important that the patient should understand so far as was reasonably possible what he was desired to do—for example, keep his eye on the fixation point, etc. Intellectual honesty was an absolute essential which should be most carefully and scrupulously practised. The instruments preferred by him were a modified Priestley Smith's perimeter and the screen of Bjerrum. Mr. Neame had stated that he had not used the same size of test object at the different examinations. It was sometimes necessary to alter the size of the test at different examinations, but this should not be done except for good and necessary reasons, which were no doubt present in Mr. Neame's case. The scotoma of pituitary tumour did vary from time to time. In reply to Mr. Bishop Harman he agreed that in the employment of Bjerrum's method, or the quantitative principle, there were difficulties incidental to the method and also to the type of relative defect which this method was intended to investigate. So long as they were concerned with the diagnostic value of relative defects in the field of vision, which were recognized as being of practical clinical importance, difficulties of several kinds could not be avoided. He thought Bjerrum's method had already proved of great clinical value. With regard to the movement of the test object, it should be moved from the area of reduced to the area of best preserved vision and also in the other direction, and the intermediate position be taken as the margin of the scotoma. A colour test was of great practical value as colour, apart from the degree of illumination. In reply to Major Wright, he stated that in the early diagnosis of glaucoma absolute defects connected with the blind spot as demonstrated by Seidel were usually preceded by a wider relative failure, but this sign did occur. It was good practice to relate a scotoma to the size of the test object with which its presence had been demonstrated. This was better than using the terms "absolute" and "relative." In reply to Sir John Parsons, he agreed that conditions under which examinations of the field of vision were made were not sufficiently uniform, yet valuable facts could be demonstrated for clinical purposes under considerable range of variation in the conditions. The amblyopic zone round the blind spot was, as Sir John Parsons said, normally present, and care must be taken not to confuse the normal extensions of this zone with abnormal change. The question of the intensity of stimulus from a scientific point of view had not been under consideration; his own approach had been entirely from a clinical point of view. Mr. Pickard had shown examples of fields in glaucoma in which concentric contraction was the principal feature. He himself had seen such, but using the quantitative method they were, in Dr. Sinclair's experience, very rare.

THE EFFECTS OF *X* RAYS ON TISSUES.

THAT some cancers, especially epitheliomata, have favourably responded to *x*-ray or radium treatment, often diminishing in size and sometimes disappearing, has given rise to the belief that malignant cells are more susceptible than normal tissue to radiation, but this has never been satisfactorily demonstrated, and, indeed, the weight of experimental and histological evidence may be said to be against it. It is true that transplantable tumour material from rats and mice can be killed by exposure to *x* rays, but the lethal dose necessary is seldom within the limits of a therapeutic dose for the human subject. It is essential to understand wherein lies the beneficial action of the rays if radiotherapy is to be put on a rational basis.

Murphy, Maisin, and Sturm[1] have recently published the results of some very interesting experiments which may shed light on the subject. Having previously found that the application of an erythema dose to the skin of an animal rendered the area resistant to subsequent inoculation with a transplantable tumour, they sought for a means of reproducing more closely the conditions of the disease in man, and to that end they collected 49 mice with spontaneous tumours, which were removed and portions regrafted in the same animal at another site which had been *x*-rayed. This preliminary treatment had the effect of preventing the take or retarding the growth of these autografts. The inference was that the environment of the introduced cells had been altered. They now removed spontaneous tumours from a series of 50 mice; each tumour was divided into two, one portion being *x*-rayed and a graft from it made in the right flank of the animal which provided the tumour; a portion of the other half was inoculated into the left flank without any treatment. Both grew equally well, the direct radiation of the cells having no repressive, far less any lethal, effect. Ten days after the inoculations those tumours resulting from the untreated material were given *in situ* exactly the same dose of *x* rays as had previously been given to the cells on the other side of the body. The result was that 76 per cent. of them totally disappeared, and the growth of the rest was greatly retarded. This shows fairly clearly that a therapeutic dose of *x* rays has no appreciable direct effect on the cancer cells, though the same dose given to a growing cancer together with the surrounding normal tissue produces healing in the majority of cases. There is the possibility, however, that tumours *x*-rayed *in situ* are more sensitive than those exposed *in vitro*. This was ruled out by the following experiment. Spontaneous tumours were removed and fragments replanted into each flank of the animals that furnished them. When the resultant tumours were growing satisfactorily, one of the pairs was exposed *in situ* to the action of *x* rays, and then removed and reinoculated into an unrayed area of the same animal. As many as 47 mice with spontaneous tumours were thus dealt with, and the *x*-rayed nodules grew well in the new situation.

It seems evident from these experiments that as far as mouse cancer is concerned the beneficial result from *x*-ray therapy is due to some reaction in the normal tissues induced by the rays, and not to any direct effect on the cancer cells. This experimental

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PUBLIC HEALTH IN PA

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ERYTHROMELALGIA TREATED WITH COLLOIDAL CALCIUM.

IN view of Dr. McCormick Mitchell's account[1] of the results of the treatment of urticaria with collosol manganese, I should like to record the following case.

I have had under my care for the last three years a patient presenting that rare condition first described by Weir Mitchell under the term "erythromelalgia." A woman, 55 years of age, suffers, particularly during the warmer months of the year, from great pain, redness, and swelling of the feet. The swelling is much aggravated by the fact that her household includes five wage-earners, and she is "cumbered about much serving." By the end of the day the swelling of the feet is extreme, although pitting is but slight, and the congestion is almost cyanotic. Treatment of these cases is disappointing, and I had achieved no success whatever throughout two summers when this year I decided to try the effect of colloidal calcium. Beginning with 0.25 c.cm. of "collosol" calcium subcutaneously, I gave at weekly intervals six other injections each of 0.5 c.cm. It was difficult at first to estimate the degree of improvement as the patient's symptoms had previously varied a good deal from day to day, but any doubt as to the benefit of the treatment was dispelled after the fourth injection, which coincided with the advent of some extremely hot weather at the beginning of July. Ordinarily the patient would have been moving about her house with great difficulty, the pain in the feet being of an intense burning character, and the swelling over the dorsum bulging enormously. Instead of that she was able to walk with comfort in a pair of slippers of normal size and shape. This improvement has been maintained up till now.

I do not say that the condition is cured, but that the treatment has been of the greatest value cannot be denied. Further treatment just now would be inconclusive as there is in her case a spontaneous alleviation of the symptoms as the weather cools. In the event of a recurrence next year I would be inclined to repeat the course with the dosage doubled. I had never tried calcium in the form of lactate in this patient, but in view of the fact that salt is found to be of benefit in certain cases of Raynaud's disease and of angio-neurotic oedema (as it is in urticaria) it would be of interest to know the effect of a colloidal preparation in these conditions.

The etiology and pathology of the angio-neuroses are shrouded in obscurity, and it may be that time will elapse before they emerge from the slough of our ignorance, but perhaps it is of more than passing interest to note that on one occasion shortly after the patient came under my care I gave her a mixture of potassium iodide. After a 15-grain dose she passed a very restless night and I was sent for the following morning to find her with the shoulders, buttocks, and front of the thighs covered with large wheals, some of them already bullous and containing a clear exudate. The mucous membrane of the mouth was much swollen, and she had had a sensation of choking which was passing off when I saw her. I stopped the iodide, and have never given it since, but would be tempted to risk investigating this idiosyncrasy again after a further course of calcium.

Dundee. JAMES M. STALKER, M.B., Ch.B.St. And.

ALCOHOLIC CIRRHOSIS.

THE two following cases of cirrhosis of the liver appear to me to be of sufficient interest to place on record:

Case 1.—Male, aged 45, a beer drinker; atrophic form. When first seen he showed ascites and oedema of legs and scrotum. He was tapped fifteen times at intervals of ten to fourteen days; one and a half to two gallons of straw-coloured fluid were removed at each tapping. At that time the patient abstained from beer and indulged only in small tots of whisky. After the fifteenth tapping the ascites and oedema did not return for eighteen months. He then returned to his beer, and almost immediately the same train of symptoms reappeared. A further series of thirteen similar tappings completed this attack, the beer being stopped meantime. He remained free for two years, then his wife's sudden death led him to begin drinking beer heavily again, and the same train of symptoms recurred. As I was away on active service he refused to see a doctor. He was therefore not tapped again, gradually sank, and died. In all, from the commencement of the first attack, this patient lived five years.

Case 2.—Female, aged 53, a spirit drinker; hypertrophic type. When first seen she had ascites but no oedema of the legs. She was tapped twelve times at intervals of three to five weeks; at each tapping one to one and a half gallons of straw-coloured fluid were removed. After the twelfth tapping the fluid did not reappear. The patient did not altogether give up alcohol, but diminished the quantity. She is still alive and enjoys fair health. The period from the commencement of illness to the present time is five and a half years.

In neither of these cases did the site of puncture give any trouble, although on several occasions there was rather severe haemorrhage owing to puncture of superficial vessels, but pressure easily controlled this. Medicinal treatment was of no avail: potassium iodide and blue pill were tried but could not be tolerated.

Sanderstead. JOHN FINNEGAN, *M.C.*, M.D.

[1] BRITISH MEDICAL JOURNAL, September 29th, 1923, p. 563.

Reports of Societies.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of the Edinburgh Medico-Chirurgical Society was held in the Royal Infirmary on November 21st, with Sir DAVID WALLACE, President, in the chair. The following clinical cases were shown.

Mr. J. M. GRAHAM showed a case of haemophilia in a boy aged 8, illustrating the value of blood transfusion as a means of arresting the haemorrhage.

There was no family history of haemophilia and this condition was not suspected till circumcision was performed when he was 15 months old, and bleeding persisted for several days. Since the age of 2 he had seldom been without some haemophilic sign or symptom. In August, 1923, he cut his foot and the usual methods of attempting to arrest the bleeding completely failed. Signs of collapse developed, a donor was obtained and 500 c.cm. of citrated blood was transfused. During the operation the wound was exposed and clotting took place after 200 c.cm. of blood had been transfused. He made an excellent recovery, but haemophilic symptoms had recurred since then.

It was therefore obvious that although transfusion of blood might have an excellent temporary effect it would not prevent recurrences at a later date. The suggestion was made that possible donors for haemophilics should have their blood tested before the emergencies arose.

MISS GERTRUDE HERZFELD showed examples of two rare acute abdominal conditions in children.

The first case was that of acute cholecystitis in a girl aged 6½ years. Four days before admission vomiting and acute abdominal symptoms began and persisted: her mother thought she looked a little yellow. Definite resistance was made out in the right hypochondrium and immediate operation was decided on as she had an obvious infection. A right rectus incision was made, and an enormously distended gall bladder appeared, from the fluid of which paratyphoid organisms were isolated. She made an uninterrupted recovery.

The second case was that of a Meckel's diverticulum with perforation in a boy of 3 years. He was admitted to hospital with a two days' history of melaena, but under chloroform no abnormal abdominal swelling could be made out. He was treated medically, and ten days later he developed suddenly an "acute abdomen." Immediate operation revealed a diverticulum 2½ feet from the ileo-caecal valve with a small perforation at its junction to the small intestine. Four inches of ileum was resected and an end-to-end anastomosis performed. Dr. James Dawson cut sections of the ulcer, which showed mucous membrane with acid-secreting cells resembling that of the stomach.

Sir HAROLD STILES showed two cases:

A male, aged 50, who had suffered from tic-douloureux, the symptoms commencing suddenly eight years ago. Attacks at first were preceded by a tingling sensation in the region of the right molar tooth. The condition became gradually more intense and in 1919 a portion of the inferior dental nerve was resected: complete relief resulted for about a year. The pain then recurred, involving the second and third divisions of the nerve and rendering life almost unbearable. Division of the root proximal to the ganglion, the "physiological operation," was carried out, which operation was first performed by Frazier of Philadelphia after physiological experiments made by Spiller. The patient has been free from pain since the operation. There is complete anaesthesia in the distribution of the fifth nerve, but he is able to chew equally well on both sides.

A male, aged 62, who had the anterior half of the tongue excised for epithelioma in April, 1921; six weeks later the glands in the digastric and carotid triangles were removed. These glands under the microscope showed no evidence of malignancy. A few weeks ago, however, hard glands were detected in the lower carotid region and were removed together with the lower part of the sterno-mastoid, a portion of the external jugular vein, and part of the vagus, since they were fixed and adherent.

Mr. J. W. STRUTHERS showed two cases:

A man of 53 years, suffering from osteitis fibrosa in a relatively mild form, who had been admitted to hospital with a compound fracture of the right forearm, the result of an accident. X-ray examination showed the right radius thickened and curved in its

'sits of the medical officer of health. In spite of the arious difficulties, however, there is a gratifying improvement in the general health throughout the area of British lministration.

THE VALUE OF MENTAL AND SCHOLASTIC TESTS.

the course of some investigations among physically fective children it was found that not only in scholastic tainments were they much below the average, but also at, contrary to accepted views, their so-called "mental" tainments were equally low. Terman says that the lack schooling does not prevent a subject from earning an erage or superior score by the tests employed, but yril Burt inclined to the view that "barren is the growth eprived of opportunity." In order to ascertain which of ese pronouncements was the nearer the truth, Mr. Hugh ordon, one of His Majesty's Inspectors of Schools, made investigation during the course of his official work, and s report has been published by the Board of Education.[1] deals with physically defective, canal boat and gipsy ildren, and backward children in ordinary elementary hools, but the scope of the paper is better indicated by the bttle, "An inquiry into the effects of schooling on the arious tests." The tests employed were those of Terman, odified in small points to meet local necessities. Among ildren in physically defective schools there was found low average "mental" and "educational" ratio. The estion was whether this was due to social environment, redity, lack of schooling, or to the physical defect. cial condition was ruled out, since the employment of e parents did not differ materially from that of parents children in the ordinary schools, but the physically fective children made only an average percentage attendnce of 48 per cent., as against 83 per cent. for the ordinary ildren. Heart disease, infantile paralysis, and tuberlous troubles were by far the most prevalent physical fects, and differences of response were found according the defect. Heart cases gave the best response, but eir attendance was best; *infantile paralysis* gave the orst; cases of hemiplegia gave bad responses even though eir attendance percentage was high. The conclusions em justified that the physical defect in the majority of ses had a marked influence in reducing the amount of hool attendance, that through this reduction of schooling also had a corresponding effect on both the "educaonal" and "mental" ratios, and that to a certain gree the intelligence tests are tests of school attainents. The second set of children investigated were canal at children. They are clean and well fed, life on board e boats is almost patriarchal, morality is good, discipline icient, but the schooling is minimal. It is calculated that canal boat child gets something like 4 to 5 per cent. tendances a year against 88 per cent. attendances of the dinary child. The "intelligence" test response was low, d there was a decided decrease of "intelligence" with increase of age. The conclusion arrived at was that thout education or schooling children are very much ndicapped when tested by the "intelligence" tests, and arly to the same extent as when tested by purely holastic tests. Gipsy children live a nomadic life, but ey have plenty of social intercourse. Their health and anliness is equal to that of the agricultural population. hool attendance is irregular (35 per cent.). The mental sts used *did not measure native ability apart from* hooling except in the case of very young children. Mr. ordon suggests that there is need for a further investigaon to discover by means of specially devised environmental tests whether in such children as gipsies' and canal boat children there has been any further mental development in other directions; he is inclined to think that there are such developments amongst gipsies but not in canal boat children. When backwardness in children is due to natural dullness, schooling does not bring any all-round development; although they can accomplish certain scholastic tests in matters they have been taught in school, they are unable to do equally well in those matters upon which they have not been instructed and which require some thought. In other words, the more these children attend school the greater their scholastic ability but the less their "intelligence," at least with children naturally dull and attending such classes as those investigated. Whether totally different methods of instruction would produce similar results is a most interesting problem. The general conclusion of the investigation—which is related in much detail, so that the methods of working can be tested by other observers—is put thus: "It is quite evident that, although the mental tests used do undoubtedly test some kind of ability or abilities, such abilities are not developed without schooling or its equivalent, and as a consequence the tests do not evaluate them apart from schooling, except perhaps in the case of children under 6 or 7 years of age." This is a very direct challenge to the value of the tests, and one that will doubtless stimulate much heart-searching among school psychologists.

[1] Board of Education, Educational Pamphlets, No. 44. Mental and olastic tests among retarded children, physically defective, canal boat l gipsy children, and backward children in ordinary elementary schools. inquiry into the effects of schooling on the various tests. London: M. Stationery Office. 1923. (Pp. 82. Price 1s. 3d. net.)

MODE OF ACTION OF DISINFECTANTS.

THE fifth report of the British Association Committee on Colloid Chemistry,[1] issued recently by the Department of Scientific and Industrial Research, deals for the most part with industrial problems, but contains one article on colloid phenomena in bacteriology which is of considerable medical interest. It is by Dr. E. K. Rideal, who makes an ingenious attempt to explain the specific disinfectant action of drugs in terms of modern physical chemistry. Ehrlich's explanation of the specific action of drugs and toxins was a purely chemical conception; drugs were supposed to contain haptophore groups which possessed a specific chemical affinity for special groups in bacteria; the usual metaphor used was that of the lock and the key, and the action of the drug (the key) depended on it fitting the lock (the bacteria). More accurate analysis of the mode of action of disinfectants, aided by the recent advances in physical chemistry, showed that the action of disinfectants depended very largely upon physico-chemical forces, and that adsorption in particular played a very important part. Langmuir and others have shown that organic substances tend to be concentrated in a monomolecular layer on the surface of a watery solution, and that the molecules are orientated in a particular manner. For example, in the case of a fatty acid the COOH or polar group is attracted to the water, whilst the rest of the molecule tends to resist immersion in the water and to pass into any lipoid material. In the case of most organic disinfectants this phenomenon of surface adsorption will explain how a considerable concentration of disinfectant can be produced on the surface of bacteria when they are *immersed in a very dilute solution*. If the organic disinfectant consists of a complex nucleus with various polar or reacting groups such as NH_2 or OH, then Dr. Rideal argues that this nucleus, which is soluble in lipoid, will tend to carry the disinfectant into the lipoid-containing surface membrane of the bacteria, and the reacting groups will then react with the protoplasm of the bacteria and produce the germicidal action. On this hypothesis the germicidal action depends on two properties of the disinfectant—the possession of a lipoid soluble nucleus and

[1] H.M. Stationery Office. 1923. 8vo, pp. 130. Price 2s. 6d.

distal half with irregular calcification and a cyst-like appearance at the distal end. The right tibia was curved forwards and considerably thickened with irregular calcification, which was also present in the head and upper part of the right humerus. The Wassermann reaction was negative, and he had no symptoms arising out of the bony lesion.

A case of severe haemorrhage following gastro-enterostomy with clamps. The operation was simple, but on return to bed symptoms of severe internal haemorrhage developed and when the abdomen was reopened bleeding vessels were found on the posterior line of suture.

Sir ROBERT PHILIP showed three cases of extensive multiple tuberculous lesions illustrative of two points in treatment: the length of time necessary to get good results, and the importance of employing a suitable antigen (tuberculin) constantly while under treatment. One patient had had tuberculous disease of the tibia with a chronic discharging sinus and much evidence of toxaemia: the local process was now healed and she had put on nearly 2 st. in weight. The second patient was a "mass of sores," who had been treated for twenty months. The sinuses had all healed and she had gained 3 st. in weight. The third patient had twenty-three discharging sinuses with severe toxaemia: she had been under treatment for twenty-six months. The sores with one exception were now healed, and she had gained nearly 2 st. in weight.

Professor LOVELL GULLAND showed two cases:

A case of bronzed diabetes, or haemochromatosis, in a female. The diabetes was not of a severe type, but the point of interest was the distribution of the pigment, which was very definite over the front of the abdomen and thorax, but did not show nearly so much on the exposed parts.

A patient with Addison's disease who was sent to hospital as an undiagnosed gastric case. In the course of the routine examination marked pigmentation of the Addison type was detected on the inside of mouth, cheeks, hard and soft palate, and gums; this had increased since admission, and the blood pressure had become lower. The liver was enlarged and hard, and the question arose whether this was only an incident or whether the condition was one of neoplastic involvement of the suprarenals secondary to the liver. There was no other evidence of tuberculosis.

Dr. R. A. FLEMING showed a case of hemiparesis, astereognosis, and homonymous hemianopia in a man aged 56 whose Wassermann reaction was negative. He suggested that the lesion was one of thrombosis in the right occipital region involving the sensory, and also possibly the motor, part of the posterior half of the internal capsule. The patient had improved considerably under potassium iodide.

Mr. HENRY WADE showed a case illustrating the operative treatment of chronic pleural empyema by a two-, or possibly three-, stage operation.

Stage one is carried out by making a horseshoe flap, exposing three ribs at the most dependent part, and resecting and establishing very free drainage.

Stage two is carried out about three months later; the ends of the horseshoe-shaped incision are extended, and this flap of skin and muscle is dissected up. The chest wall over the cavity is excised. The subscapularis and infraspinatus muscles are detached and the lower portion of the scapula beneath the spine is removed. The separated muscle tissue is used as a graft to fill the upper part of the cavity. The horseshoe flap is replaced.

If a third stage is required it consists of the replacement of the flap.

In all cases operated on by Mr. Wade healing had been rapid and the ultimate result most satisfactory.

Dr. MURRAY LYON showed a case of acute nephritis which failed to react to ordinary medical measures. After three months' medical treatment Sir David Wallace "decorticated" the right kidney, the result being a temporary improvement in the urinary excretion for two weeks. Six weeks later the left kidney was "decorticated" and general improvement occurred, both as regards the urine and the general oedema.

Mr. JOHN FRASER showed a patient with developmental tumour of the hypophyseal stalk, who was admitted to hospital complaining of adiposity, squint, headache, and deterioration of vision. X rays revealed the tumour, which was partly cystic, calcified, and probably epithelial in structure. Some ten similar cases were on record, with successful operative removal in one instance. Extensive decompression of the right side of the skull was carried out with considerable improvement.

Dr. NORMAN CARMICHAEL showed a case of congenital pyloric hypertrophy in a male infant of 2 months, treated successfully by operation; also a cretin boy with characteristic features.

Dr. L. S. P. DAVIDSON exhibited a case of lead poisoning in a man who worked as an oxy-acetylene blower in a shipbreaker's yard, and showed the typical blue line below the few teeth he possessed, weakness of arms, anaemia, and punctate basophilia. The interest of the case lay in the fact that lead poisoning could occur at this work. He had to cut bolts or rivets with intense heat; he showed no symptoms while working in the open, but when working in the "tunnel shaft" symptoms appeared. The rivets were fixed in position with a collar and thread saturated in red lead. The intense heat of the blow-lamp broke up the red lead into fine particles, which he inhaled.

Dr. W. T. RITCHIE showed a woman, aged 58, suffering from chronic mitral incompetence who developed auricular fibrillation. She was treated with [illegible] and after the signs of cardiac failure h[illegible]dine sulphate was given. Normal rhythm was restored after 0.8 gram had been given, and it had been maintained for a month with 0.2 gram twice daily. Mr. GORDON BELL showed a case of ulnar paralysis following a supracondylar fracture of the humerus. At an operation performed to relieve the pressure it was found that the nerve still functioned normally, although the muscles of the hand were much wasted.

Mr. PIRIE WATSON showed: (1) Two cases of compound dislocation of the lower end of the ulna associated with fracture of the radius in its lower third. One was caused by a chauffeur "cranking up" his car with the thumb round the starting handle, and the other occurred in a female patient aged 74, who fell heavily when rising from bed in the dark. Both exhibited good functional results following treatment. (2) A transverse fracture of the patella which was sutured with chronic catgut five months ago. A radiogram taken recently, two days after he had slipped on an icy pavement, severely straining his knee, showed the fragments in close apposition and apparently united.

Mr. J. J. M. SHAW showed: (1) A case of loss of one eye with shrinkage and distortion of the socket following fracture of the orbital plate. In nine cases out of ten the socket could be reshaped, but in a few this was not possible. In this particular case the ciliary margins, lacrymal gland, and conjunctiva were removed, the lid edges sutured, and a shade worn. (2) A case of chronic varicose ulcer of twenty-two years' duration where an abdominal pedicle was in the stage of transfer to the leg. At present the lateral end of the pedicle is implanted in the upper third of the thigh. In the next stage the end of the pedicle will be implanted near the ulcer; later the pedicle will be fully opened up and used to cover the whole area of the ulcer.

Mr. J. N. J. HARTLEY showed: (1) A case of cirsoid aneurysm in the left frontal region, which was first observed in infancy; it attained the size of a walnut and caused annoyance by a bruit which was most marked when the patient was in bed; Krogius's operation, combined with injections of alcohol, yielded good results. (2) A case showing reconstruction by a two-stage operation of a thumb mutilated by a mine explosion; the first operation was designed to preserve tissue, the second to restore function. (3) A case of a compound tuberculous former ganglion which had resisted conservative treatment; complete removal was considered advisable.

INDUCTION OF LABOUR BY QUININE AND PITUITRIN.

AT a meeting of the Edinburgh Obstetrical Society held on Wednesday, December 12th, with the President, Professor B. P. WATSON, in the chair, a communication was read by Dr. F. J. BROWNE on the induction of labour by quinine and pituitrin. The speaker referred to the researches of Oliver, Schafer, Dale, and Blair Bell in connexion with the discovery of quinine and of its effect in producing uterine contractions, and to the investigations of Fries, Haugh and Meyer, Stein and Dover, and Cron, and of B. P. Watson on its employment in the induction of labour. In 1922 Watson had published the results obtained in a series of 195 cases, in 90 per cent. of which labour was successfully induced with no maternal mortality and a foetal death rate of 6 per cent.; none of these deaths could fairly

phore groups. Dr. Rideal further attempts to explain the specific action of disinfectants by considering what will happen when a disinfectant drug contains numerous reacting groups. These must be arranged on the molecule in a specific manner, and we must also assume that the acceptor groups in the protoplasm of the bacteria are also arranged in a specific manner which differs for each bacterial species. In some cases the arrangement of the reacting groups will fit the arrangement of the acceptor groups, and multipolar contact will be established and a specific germicidal action will result. When the two sets of groups do not fit the action will be much feebler or non-specific. This conception differs in important details from Ehrlich's theory of haptophore groups, and appears to be a real advance, since it is based on the modern physico-chemical views of solution and adsorption.

"CANCER."

We have been favoured with a copy of the first number of a new periodical published in the United States of America and called *Cancer*.[1] We are so accustomed to speak of diseases as enemies against which we fight or conduct campaigns that we experience somewhat of a shock when we read the legend under the title, "a practical quarterly journal devoted to the best interests of cancer." It is true that Robert Burns, with his broad humanity, had a kindly word to speak of the devil, but we cannot imagine that any body of mortals should exist to protect cancer against the onslaughts of medicine. We discover gradually, however, that such is not the real intention of the promoters, though, to be candid, it may have that effect. A whole page is given up to a quotation from Cicero: "Brevity, indeed, upon some occasions is real excellence"; and we confess we did not perceive the jest until we had read a few of the eighty unnecessary pages that follow. In almost as lonely beauty is a second quotation, attributed to "a Greek philosopher, 1,000 years ago," to the effect that hard work is the price set by the immortal gods upon all achievements. We are told in the preface, or "foreword," that this new journal will be devoted to the study of "carcinosis as a systemic or constitutional disease," and that phrase, repeated again and again throughout the rambling contributions which follow, gives the clue to the sort of ideas entertained by the editors and collaborators in this production. From the first article we gather that they are smarting under some sense of injustice at the hands of their kinsmen; apparently all great pioneers in science are despised and rejected of men during their lifetime. One of them, Professor Otto Lerch of the Tulane University of Louisiana, tells us that "cancer is the result of violating the laws of Nature"; and in order "to overcome the cancerous habit we must come as near as we can to the simple and normal life of nature, for wild animals, and even those partially domesticated, as the horse, ox, and sheep, do not have cancer." Even if this statement were true, and it is not, few civilized people would care to exchange their present state, even with its contingent worries, for the very short and disagreeable existence of these animals. "Diet, of course, is the first item of importance," says this prophet of the simple and animal life. We know that Nebuchadnezzar (the first vegetarian?) took to a strict diet of grass, but it was

[1] *Cancer*. A practical quarterly journal devoted to the best interests of cancer. Vol. I, No. 1, October, 1923. Pp. 80. Edited by L. Duncan Bulkley, M.D. Published by F. A. Davis Company, Philadelphia, Pa.

certain régime which, he promises, will give re results. But it must be religiously carried out f years. The unfortunate thing is that some pati persist in dying before they have given it a thorou The great secret consists in keeping the diet f animal proteins, the bowels must act three time and, in the intervals, the life should be simp moderate exercise, sufficient sleep, and no worry, urine should be frequently examined. The editor Dr. L. Duncan Bulkley, writes several of the thoughts that are scattered through the pages. tunately his literary style and his knowledge of th tary rules of grammar do not captivate us. The piece of advice which we can commend to those c vestigators who in their blindness fail to perceive of the new hope: "The childhood of a futur subject might prove a fertile field for investi Now they know. Dr. Bulkley recounts some re cures he has effected on cases of cancer of th which had been given up by less gifted prac All of these had cauliflower "excresences," e sometimes down to the "urethal" orifice, some had been "curretted," but they were all cured if th vered long enough. In one case the patient was s her red blood corpuscles numbered 4,500 even a months of treatment, but she recovered, and sev afterwards she "was in the woods trout-fishing how is the miracle performed? By "being p complete dietetic, hygienic, and medicinal measure vaginal douche." The latter consists of one pin water with a teaspoonful of strong carbolic and borax, some thromboplastin, and a teaspoonful or adrenaline. The journal has also reviews and excer current literature. The first book chosen for rev published in London twenty-five years ago, and th (long since dead) is upbraided for not being famil a contribution made about ten years later or effects of radium treatment. Another book (published twenty-one years ago) is by Dr. Creighton, whom the reviewer hails as "perhaps pathologist that England has ever known." T been a persistent rumour in America that Rip van woke up. But for real gems one should rea purports to be current literature. Few of the authors would recognize their mangled progeny.

ANNUAL REPORTS OF MEDICAL OFFICER OF HEALTH.

Since the earliest appointments of medical off health their statutory duties have been varied fr to time as occasion demanded, but the duty of ma annual report has always remained constant. As as 1853, in a minute of the General Board of H is laid down that this report shall deal with "the transactions of the year and with whatever in changes have been wrought in the physical state district and with the sickness, mortality, and atm conditions of the period." With slightly altered logy the present-day medical officer of health is in by the Minister of Health as to the contents of his report, but he must also render such information from time to time be required by the Ministe requirements of the latter for 1923 are contai Circular 451, which was issued on December 15th do not differ materially from those of the past tw A separate table is for the first time required rela the cases and deaths from tuberculosis, and there

be attributed to the use of pituitrin. The present communication was based on a series of forty-four cases; most of these had suffered from purulent vaginal discharges and were therefore unsuitable for induction by the ordinary mechanical methods. The technique followed in the majority of cases was that advised by Watson—namely, castor oil one ounce at 6 p.m., quinine hydrochloride gr. x at 7 p.m., enema at 8 p.m., quinine hydrochloride gr. x at 9 p.m., quinine hydrochloride gr. x at 12 midnight. If effective labour pains had not started twelve hours after the first dose of quinine—namely, by 7 a.m.—intramuscular injections of pituitrin were started, with a dose of 1/2 c.cm., and repeating this every half-hour until labour commenced, or 3 c.cm.—that is, six injections—had been given. That was one full course. If labour pains did not start the treatment was repeated again after twenty-four hours. The quinine hydrochloride was given dissolved in ♏ x of dilute hydrochloric acid. The indications for its use included disproportion, primiparity at term, post-maturity, toxaemia, and hydramnios. Twenty-seven of the patients were primigravidae, the others multiparae. Twenty-three of the patients were at term, three were post-mature according to the estimated dates, and eighteen were premature. Out of the forty-four cases, forty were successful—that is, a little over 90 per cent. All the failures occurred in cases where premature induction had been attempted. With regard to the time taken to start and complete labour, counting from the first dose of quinine, the time taken till the onset of labour averaged twenty-nine hours; the average duration of labour was sixteen hours. In premature cases the average time taken till the onset of labour was thirty-nine hours, the average duration of labour being nine hours. In spite of the numerous objections that had been urged against the use of pituitrin, the only unpleasant incidents the speaker had experienced were two cases of tetanic contraction of the uterus, in both cases the spasm was effectively controlled by chloroform, but in one case the child was stillborn. While twenty-six of the patients had suffered from purulent vaginal discharges, only three showed a rise of temperature in the puerperium, and in no case was this prolonged into a second day. In four cases the child had been stillborn; in only one case, however, a case of tetanic uterine contraction, could this be attributed to the pituitrin.

Dr. WILLIAM FORDYCE read a communication on rupture of the uterus following the administration of pituitrin for the induction of labour. The patient, a multipara, was admitted to the Edinburgh Maternity Hospital at term; the cervix was completely taken up, the os slightly open. Several of the previous labours had been difficult, forceps delivery being required. The pelvic measurements were normal. It was decided to induce labour at once, and after three preliminary doses of quinine gr. x three intramuscular injections of pituitrin 0.5 c.cm. were given at half-hourly intervals. After the third injection labour pains commenced; with the first pain the membranes ruptured. Following the occurrence of a long and severe pain, a quarter of an hour after the onset of labour, the patient complained of general abdominal discomfort and dyspnoea and appeared collapsed. Her symptoms were attributed by the house-surgeon to some cardiac weakness and she was treated accordingly, with temporary benefit. When Dr. Fordyce saw her two hours after the onset of labour the clinical features suggested a concealed accidental haemorrhage, more especially as on vaginal examination a considerable quantity of dark-coloured blood escaped, but on passing the fingers through the os, which was by now almost fully dilated, a large tear was found in the postero-lateral wall of the uterus. Immediate laparotomy was performed. On opening the abdomen the placenta and membranes were entirely extruded from the uterus and were found high up under the diaphragm. The foetus, which weighed 9 lb. 11 oz., was lying free in the abdominal cavity with the exception of the head, which still occupied the lower part of the uterus. The rent in the uterus extended upwards from the right utero-sacral ligament towards the fundus. A rapid subtotal hysterectomy was performed, the patient making an excellent recovery. Owing to the number of points of interest raised in the subsequent discussion it was decided to continue this at the next meeting of the Society.

ELECTROMYOGRAPHIC STUDIES OF VOLUNTARY MOVEMENT.

DR. F. L. GOLLA brought before the Neurological Section of the Royal Society of Medicine on December 13th a number of electrical records of contracting muscles in the human subject. His special technique for this purpose involved the use of electrodes which would not suffer displacement with movement and which permitted the exclusive recording of the electrical changes in a selected superficial muscle. An electrode, in the shape of an ebonite disc, was devised to fasten on to the skin by suction, and a needle was plunged down through the skin into the substance of the muscle to be investigated. The current from each muscle studied was led off by a pair of these electrodes inserted one above and one below the nervous equator of the muscle, and recorded by means of a galvanometer. A modification of this arrangement permitted the recording of muscle sounds; the place of the needle and of a cork which held it in position in the ebonite disc electrode was replaced by a length of tubing communicating with a microphone, and the microphone current was led through a telephone receiver and by an ingenious device the induced currents were led off to the galvanometer so that the muscle sounds of a pair of muscles could be recorded. The method admitted of the investigation only of superficial muscles, and of only two of these at a time, but by combining the results obtained from various pairs it was possible to obtain some knowledge of the time relations of the activity of all the superficial muscles involved in the specific movement.

He showed a number of records appertaining to the voluntary movements of the ankle-joint, the knee, and the arm, all of which movements involved synergic contraction of anatomically antagonistic muscles. An attempt was made to differentiate between the electromyograms of the two heads of the triceps. It was found that during the early part of the movement of extension the short head of the biceps alone contracted, and not until the forearm was at an angle of about 120 degrees with the upper arm did the long head of the triceps begin to contract vigorously. It was found also that the brachialis anticus began to contract in the movement of flexion after the biceps contraction, and ceased when the forearm was at an angle of 60 degrees with the upper arm. The synergism between the extensor longus pollicis and the flexor carpi ulnaris appeared to be complete, the muscles contracting simultaneously when the thumb was voluntarily extended. Similarly the contraction of the biceps and the supinator longus occurred simultaneously in the movement of supination. Contraction of the two sterno-mastoids in flexion of the head was simultaneous, but on rotation of the head the sterno-mastoid on the side from which the head was rotated preceded by about one-hundredth of a second the moderating contraction of the one on the other side. A very slow movement of rotation of the head appeared, however, not to be accompanied by a moderating contraction of the antagonistic sterno-mastoid. A simultaneous contraction of the deltoid and contralateral erector spinae occurred on voluntary adduction of the arm. The only case that Dr. Golla had been able to study of an apparent antagonism between the two muscles was in the relation between the activity of the biceps and the pronator radii teres in the movements of supination and pronation. That this antagonism was not absolute was, however, shown by the fact that when the wrist was firmly grasped by the observer, if an attempt were made to supinate or pronate against resistance, synergic contraction of both biceps and pronator occurred, the prime mover showing a greater amplitude of oscillation in the electromyogram of each movement.

Dr. Golla went on to discuss the relation of synergic contraction in voluntary movement to the tonic reflexes which had been studied in decerebrate animals, a relation which he found to be not at all clear. His records left it an open question whether anything corresponding to the inhibition of antagonists in the spastic reflex animal took place during voluntary movement. They showed that so far as cortical innervation was concerned synergism was

included among the new cases not only the primary notifications but also any other new cases coming to the notice of the medical officer of health. This would appear to refer to deaths from tuberculosis which had not been notified during life. Information this year is asked for where there is any excessive incidence of or mortality from tuberculosis in any particular occupation. Under the heading of notifiable diseases information is sought as to the influence of domestic overcrowding upon the incidence of notified diseases, especially scarlet fever, diphtheria, and, where notifiable, of measles, differentiating between cases removed to an isolation hospital and those nursed at home. As in former years, the Registrar-General will furnish medical officers of health with certain statistical information by about the end of February, 1924, and emphasis is laid on the importance of an early issue of the annual report, which it is considered should be completed by the middle of April. A few years ago, after conferring with the Society of Medical Officers of Health, the Minister of Health decided that once in about every five years there should be issued an extended "survey report," and that in the intervening years the document should be styled an "ordinary report." That for 1923 comes under the latter category.

COURT OF INQUIRY INTO THE INSURANCE CAPITATION FEE.

THE Court of Inquiry set up by the Minister of Health in connexion with the terms of remuneration for the insurance medical service after January 1st, 1924, will hold its first session for the taking of evidence on Friday, January 4th, at 10.30 a.m., at the Ministry of Health. A memorandum, with appendices, drawn up on behalf of insurance medical practitioners by a special subcommittee of the Insurance Acts Committee, has been completed, and it will, we expect, be possible to publish this in the SUPPLEMENT to the next issue of the JOURNAL; it is also hoped that memorandums by the Ministry of Health and the General Council of Approved Societies will be available for publication in the same issue. The subcommittee of the Insurance Acts Committee, which has prepared the case on behalf of insurance practitioners, consists of Drs. Brackenbury, Bone, Cardale, Dain, and Williams-Freeman, together with the Medical Secretary and Deputy Medical Secretary, and the memorandum has been revised by the subcommittee with the assistance of legal advisers and of Dr. A. L. Bowley, Professor of Statistics in the University of London. In these circumstances a SUPPLEMENT is not published with this issue of the JOURNAL.

THE NEW REGULATIONS FOR THE D.P.H.

THE new regulations of the General Medical Council for the Diploma in Public Health will apply after January 1st next. Under the old rules candidates for the diploma might enter upon the stated curriculum at any time after obtaining a registrable qualification in medicine and surgery. It was required that the curriculum should last not less than nine calendar months, and should include four months' stay in a laboratory, six months' practical study of the duties involved by public health administration, and attendance at least twice weekly for three months on the practice of a hospital for infectious diseases. The new rules require that a period of not less than two years should elapse after obtaining a registrable qualification before admission to the final examination for a public health diploma. The curriculum must extend over not less than twelve calendar months; at least five months must be given to practical laboratory instruction in bacteriology and parasitology, in chemistry and physics in relation to public health, and in meteorology and climatology. The regulations as to attendance at a hospital for infectious diseases are made somewhat more stringent. Further, the candidate must have six months' practical training under a medical officer of health, and the time cannot be reduced by attendance on lectures, as under the old regulations. The practical training must include maternity and child welfare, the services relating to school life, venereal disease and tuberculosis, industrial hygiene, and food, meat, and milk inspection. The examination will consist of two parts. The first will cover bacteriology and parasitology (with medical entomology), chemistry, physics, meteorology, and climatology. The second part includes hygiene and sanitation, epidemiology and infectious diseases, sanitary laws and vital statistics, and public health administration. There will be practical examinations in infectious diseases, food inspection, and inspection of premises. Neither part of the examination can be entered on until the relative courses of instruction (after registration in medicine) have been completed, and Part I must be passed before admission to Part II.

THE PARLIAMENTARY TRIANGLE.

THE new Parliament is to assemble on Tuesday, January 8th. The first duty of the House of Commons will be the election of Speaker. This has to be made afresh by each Parliament; but there is no reason to doubt that Mr. Whitley will again be called to the chair. After that members will be sworn in, and the State opening by the King will not take place until Tuesday, January 15th. This ceremony will, in the ordinary course, include a King's Speech, which usually forecasts the business of the session. In the present instance the situation is peculiar, inasmuch as it is understood to be the intention of the Labour party, upon the motion for an Address in reply to the Speech, to move a vote of no confidence in the Government. Mr. Asquith's declaration at a meeting of his party indicated that the Liberals would be asked by him to support such a vote. Assuming that Mr. Baldwin's ministry is defeated there will be an interval of a few days for the formation of a new ministry by, as is anticipated, Mr. Ramsay Macdonald as the head of the party (the Labour party) next largest to that of the Conservatives. As no purpose would be served by any lengthy general debate on the Address, the expectation is that the discussion on the vote of no confidence will be taken promptly, that the division will take place on Thursday, January 17th, and that the new ministry would be in office in the following week. As the Conservatives and the Liberals in opposition would, if on any occasion they voted together, be in a majority, it is impossible to forecast the probable course of events.

A DISCUSSION on the use of vaccine therapy will take place at a joint meeting of the Sections of Medicine, Pathology, and Therapeutics and Pharmacology of the Royal Society of Medicine at 4.30 p.m. on Tuesday, January 8th. It will be opened by Sir Almroth Wright, and it is expected that Sir Thomas Horder and Professor Dreyer of Oxford will take part in it. The next sessional meeting of the Royal Society of Medicine will be held on Wednesday evening, January 16th, when the Fellows, Associates, and their friends will be received by the President and Lady Hale-White at 8.30. Dr. Arnold Chaplin will give a brief discourse on famous medical men of the eighteenth century, with lantern illustrations of portraits, at 9 o'clock.

of some of these contra
cles made it probable that the cortex made
sting spinal patterns. The cortex in effect
to set going a motor discharge which was
finite intrinsic variations according to the
sistance encountered and the velocity with
vement was executed.

MPARATIVE NASAL ANATOMY.

g of the Brighton and Sussex Medico-Chirurgical
l on December 13th, with Dr. ELIOT CURWEN
in the chair, Mr. D. A. CROW read a paper on
ative anatomy of the nose as a guide to its
l surgical treatment. In this the development of
y and respiratory portions was traced throughout
s groups of animals, commencing with fishes,
was exclusively olfactory, reference then being
o Dipnoi, where for the first time the respiratory
as combined with the olfactory. In the reptilida
two functions were still associated, the olfactory
in the upper compartment of the nose and the
y being more definitely associated with the lower.
whose olfactory sense was not unusually highly
, the same general arrangement persisted. Note
made of the deficient olfactory sense in such species
uckbill platypus and the cetacea, contrasting this
very high olfactory development in creatures of
l habit such as Echidna, dog, and cat. The organ
oson was demonstrated in the sheep and the theory
ssociation with herd sense discussed. The various
tions of the respiratory part of the nose as distinct
e olfactory were illustrated by diagrams of the human
kangaroo and walrus. The morphology of the human
s then dealt with, and, attention having been drawn
very limited area devoted to olfaction, the respiratory
as defined, emphasis being laid on the intermediate
including the accessory sinuses, which was an area of
rminate function, and like all residual organs, became
rable to disease, especially when an acquired non-
ioning due to nasal obstruction was superadded to the
unctioning of congenital origin. The pathology of
rh was briefly dealt with, and a diagram presented to
ate the sequence of pathological events which resolved
selves, not into a vicious circle merely, but into a
cious figure of eight." Emphasis was laid on the futility
perating on the nose, except as a palliative measure,
r destruction of ciliated epithelium, if the expectation
to cure the patient's catarrh; for ciliated epithelium
never regenerated, and on it depended the whole ques-
of the hygiene of the nose. But whilst a protest was
ered against too frequent and too extensive nasal opera-
ns in the later stage, an appeal was made for more readily
moving the causes of catarrh during the first half-turn of
e vicious "figure of eight."

The paper concluded with reference to reflex nasal effects
nd a brief note on olfaction; it was discussed and criticized
y the PRESIDENT, Mr. A. J. HUTCHISON, Drs. C. H. BRYANT,
. A. PARRY, and DONALD HALL.

Dr. NEVILLE COX showed a case of hereditary deforming
chondrodysplasia in a girl aged 13. Deformity and dis-
ability in the use of one forearm began about the age of 9
and had been increasing. Recently similar changes in the
other forearm began to appear. There was difficulty in fully
extending the elbow and in supination of the hand. The
x rays showed bowing of both bones of the forearm with
displacement of the upper end of the radius, and irregular
bone formation and bony projections from the lower end of
the shafts of both bones adjoining the epiphysis. There
were also bony outgrowths on the inner side of the head of
both tibiae. The child was knock-kneed, and had slight
lateral spinal curvature, but otherwise was in good health.
None of her three brothers and sisters were affected, but
d similar bony outgrowths on the tibiae.
the case, and Dr. NEVILLE COX

and Dr. GALT replied.

SUN TREATMENT OF TUBERCULOSIS.

AT a meeting of the London Association of the Federation of Medical Women, held on December 11th at the Elizabeth Garrett Anderson Hospital, Dr. AGNES SAVILL read a paper on the sun treatment of tuberculosis at Leysin. She had visited the world-famous clinic of Dr. Rollier, and attended the summer course of lectures and demonstrations. She gave a vivid description of the clinics (Les Frênes, and the chalets), their spacious balconies, clear and artistic rooms, filled with the morning sun, the happy patients, the brown and laughing children playing naked in the snow, and emphasized the prevailing spirit of comradeship and cheerful helpfulness. She then dealt with the more scientific aspects of the treatment, and briefly discussed the bactericidal and chemical properties of light. It was pointed out that the ultra-violet rays, though apparently of low penetrating power, yet seemed to be of great therapeutic importance, and it was suggested that their wave-length might be modified by passage through the pigment-containing basal layers of the epidermis. That the good results were due largely to the sunlight itself rather than to the pure air and good conditions was indicated by the fact that the results seemed to be distinctly poorer in cloudy weather; very severe reactionary effects could be produced by improper or careless dosage. Light, like any other therapeutic agent, required careful regulation, the dose being estimated for the individual and based on the measurement of definite reactions—namely, rise o temperature, dermatitis, exhaustion, etc. It was worth of note that the muscular system was maintained in goo condition by the action of the light alone, the patien being kept at rest without massage. Dr. Savill also dea with the various artificial substitutes for sunlight, whic could be used in this country, including the carbon a lamp, which was giving good results at the London Hospit at the present time, the mercury vapour lamp, and t tungsten arc; this last one gave the greatest proportion ultra-violet rays and required, therefore, short exposur In conclusion, she emphasized the need of accurate dos of sunlight, pure air, and lengthy treatment, if a success result was to be obtained.

Dr. KATE PLATT read some notes sent by Dr. FLORE STONEY on several cases she had treated at Bournemo with good results. Dr. CHARLOTTE BROWN said that experiences at Leysin confirmed those of Dr. Savill, dealt with the sun treatment in England, supplemente arc lamp treatment in the winter.

Dr. HELEN MACKAY dealt with the experimental si the action of light, and described her experiences i investigation and treatment of rickets, both in V and London. Miss IDA C. MANN discussed the resu the treatment at the Royal Sea Bathing Hospital, Ma

The question of impure air as a cause of tuber cervical adenitis, the advisability of improving the of the school child in this respect, and also the pr side of treatment and prophylaxis in England, inc the type of patient most likely to be benefited by ment, were discussed by Dr. LUCY NASH, Mrs. H. READ, Drs. OCTAVIA LEWIN, M. L. DOBIE, POTTE C. A. S. FITTER.

AT the November meeting of the Nottingham Chirurgical Society, held at the Society's rooms, S Street, Mr. ALEXANDER FLEMING, F.R.C.S., of the I Department, St. Mary's Hospital, London, gave a l antiseptics. He detailed the tests for antiseptic po conditions similar to those found in an infected wo comparative uselessness of known antiseptics and th cence in the body were strikingly illustrated. Th demonstrated experiments which showed the mechanism of the body, and the adverse influenc septics on these defences against bacterial invasion.

England and Wales.

The Welsh National Medical School.

The trustees of the Rockefeller Foundation quickly followed their gifts to the University of Edinburgh for the extension of the facilities for the teaching of surgery by giving £14,000 to the Welsh National Medical School at Cardiff for the development of its medical unit. The money is to be used for the building of laboratories, the provision of part of the initial equipment, and the improvement of the clinical facilities for the medical unit at the Cardiff Royal Infirmary. It is stated that in making this gift the trustees have been influenced by the fact that the school is a national institution; it was felt that conclusive evidence of the national character of the school was afforded by the fact that local authorities all over Wales have agreed to contribute the product of one-eighth of a penny rate to the recent appeal on behalf of the medical school. The trustees were influenced also by the further fact that the authorities of the Cardiff Royal Infirmary have now been able to allocate the minimum number of beds needed for a professor of medicine. The gift is generous, but it will be noted that it is ear-marked for certain special purposes, and should, therefore, not be allowed to diminish the force of the special appeal launched some time ago. The school is in need of a very considerable sum of money for capital purposes; it requires more endowments and a larger income to cover the cost of maintenance. As the *Western Mail* says in announcing the gift, "The school has a substantial claim and a growing claim to the benevolence of the wealthy and of local authorities in Wales."

Post-Graduate Courses in London.

In association with the Fellowship of Medicine, the North-East London Post-Graduate College is holding an intensive course at the Prince of Wales's Hospital, Tottenham, N.15, from February 4th to 16th. It will include demonstrations of clinical methods and cases, lecture demonstrations, and work in the general and special departments; also afternoon lectures at 4.30. These lectures will be free to general practitioners who are members of the College or of the Fellowship; the complete syllabus will be available shortly. The fee for the course is £3 3s., or £2 2s. for either week.

As already announced, various courses in special subjects have been arranged for next month, including an intensive course in cardiology at the National Hospital for Diseases of the Heart, from January 14th to 25th; a course in children's diseases at the Infants' Hospital, Vincent Square, from January 7th to 19th; and a four weeks' course in urology at St. Peter's Hospital for Stone from January 7th to February 2nd. Lectures on the treatment of common diseases of the nervous system will be given at the West End Hospital for Nervous Diseases in the out-patient department, 73, Welbeck Street, from January 7th to February 11th; also eight demonstrations in the diagnosis and treatment of acute infectious fevers at the North-Eastern Fever Hospital (St. Ann's Road, Tottenham) from January 9th to 26th. A syllabus of any of these courses, with full particulars, can be had from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

Artificial Pneumothorax in Pulmonary Tuberculosis.

The Tuberculosis Section of the Clinical Report for 1922 of the Medical Officer of Health for the City and County of Newcastle-on-Tyne contains an interesting reference to the use of artificial pneumothorax in the treatment of pulmonary tuberculosis. This procedure has been limited to cases of mainly one-sided disease, or to those in which though the disease is widely spread the symptoms are only slight. The results of the treatment have been good, and a more detailed statement is promised in the next annual report. On the other hand, treatment by tuberculin has been almost abandoned in the sanatorium. The tuberculosis medical officer has been continuing his research into

Scotlan

West of Scotland Foreign S

This club, which consists of memb
sion resident in the West of Scotl
service during the war, held its fi
Grosvenor Restaurant, Glasgow,
the President, Colonel A. D. Mo
were present as guests of the ev
C.B., president of the East of S
Medical Club, Dr. W. T. Gardine
and Professor Archibald Main, D
Glasgow. Dr. Dewar, in proposi
said that it was an honour bot
Foreign Service Club of the East
this opportunity of expressing th
club should flourish and prosper.
the war had passed, as it were,
for him only those episodes whi
pleasant memories had been salv
bitterness had passed into oblivio
practitioner in earlier life, later
a civil servant, he had had an
his colleagues in various circums
that the profession had in all th
its devotion, courage, and self-sac
hope that the club which had so
that evening should sustain its v
comradeship which had been fo
war. The President, in his repl
earlier Territorial experience, his
on active service, and the valu
formed, which he hoped would rip
coming years. An attractive an
tainment followed.

The Voluntary Hosp

The fifth annual meeting of th
to the Royal Infirmary of Edi
Synod Hall, Edinburgh, on Dece
Eunson presided over a large
Paton, Organizing Secretary of th
the annual report, stated that
pression in industry had been re
contributions from the employees
falling away had been more than
wider adoption of the League s
the past year it had gathered
subscribers, comprising industrial
in commercial establishments, and
government offices, the sum of £20,
of individuals now subscribing un
than one penny weekly was 72,00
and 22,000 in country districts.
9,000 subscribers over last year.
scribed had been rising steadily
having been £4,435 in 1919, £13,
1921, £18,333 in 1922, and £20,
with this, the contributions raised
miners amounted now to £15,000
other workers in the provinces to
total of £38,000 from working-c
long way ahead of the £8,000 deri
years ago, and had brought the E
burgh abreast of any other larg
the support derived from masse
Crole, K.C., one of the Managers
said that the patients treated i
15,043 during the past year, as
during the previous year; and the
patients, showing an increase of 4
economies perfectly consistent
had been made and the cost per
£133 11s. 4d., a decrease of £3 2s.

Reviews.

PROGNOSIS AND TREATMENT.

THE *Index of Prognosis* is a companion to the *Index of Treatment* and *Index of Differential Diagnosis* produced by the same publishers, and that it has fulfilled a useful purpose is apparent from the fact that it is now in its third edition.[1]

To obtain accurate information regarding end-results is among the most unsatisfactory of medical pursuits. The more difficult the type of case, and therefore, one would imagine, the more urgent the necessity for accurate knowledge of prognosis and the results of treatment, the more elusive is the attempt to obtain reliable information. It is perhaps natural that there should be this difficulty. Few are disposed to go out of their way deliberately to publish bad results, for the reason that most likely adverse criticism will be aroused and so the reputation of the reporter will suffer. It is with unusual interest, therefore, that we have observed the method of dealing with the question attempted by the writers of this publication.

The diseases which come under discussion are arranged in alphabetical order, and facility of reference is thereby afforded; the compilation of morbid conditions is wonderfully complete, and we have been unable to discover the omission of any common and important disease.

The title of the work is not an exact indication of its contents; the volume is more than an index of prognosis and end-results of treatment, for it includes considerations of interest and value in connexion with treatment, pathology, and etiology. It is better that it should be so, and those authors who have presented their subject from the broad point of view are the most interesting of the various contributors.

In certain of the contributions there has been a tendency to limit the source from which the end-results of treatment have been obtained. A considerable proportion of the results have been derived from individual experience and the records of two large London hospitals, and these sources are somewhat too narrow to supply the information for a work of this description, for, if it is to be of value to the specialist, it must be a compilation of the widest possible collections of home and foreign literature. We realize how immense would be the task were this idea carried to fulfilment, but where certain sections of the book are concerned the sources of information have been unwisely confined.

The matter actually presented is excellent, and, taken as a whole, a very fair solution of the problem of prognosis is presented. We are less satisfied with the information which is afforded regarding end-results of treatment, but, as we have attempted to explain, this must always remain a difficult and somewhat delicate line of investigation.

That section of the volume which deals with goitre is disappointing. The classification adopted is an unusual one, and it is difficult to understand the pathological standards upon which it has been based. It is surely incorrect to classify "adenomatous and cystic goitre" under a common heading, and the term "papilliferous goitre" seems to us unhappy. The statistics dealing with the operative treatment of exophthalmic goitre have not been brought up to date, and we would have been glad of more information as to when operation is indicated and as to the dangers of interference during periods of toxicity.

After perusal of the volume the reader naturally asks himself the question, Does this book fulfil the object for which it presumably has been written—namely, to supply in accessible and necessarily condensed form reliable information upon questions of prognosis and results of treatment? We think the answer must be that the value will depend upon the purpose of the inquirer: the volume is not of much help to the specialist, the subject-matter being too condensed for his purpose and the sources of information somewhat limited, and also in certain instances out of date. On the other hand, the practitioner will find that the volume is a compilation of reliable and interesting information such as would be inaccessible to him except by long and detailed search through the literature. In this last respect, therefore, we consider that the volume is a useful contribution to medical literature.

[1] *Index of Prognosis and End-results of Treatment.* By various writers. Edited by A. Rendle Short, M.D., B.S., B.Sc.Lond., F.R.C.S.Eng. Third edition. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. (Roy. 8vo, pp. xi + 583. 42s. net.)

LIGHT AND COLOUR.

FEW advances in modern science are more absorbing or more far-reaching in their possibilities than those connected with the visible and invisible spectrum. The full significance of this is well exposed in *Light and Colour*[2] by Dr. R. A. HOUSTON, lecturer on physical optics in the University of Glasgow. The subject is exciting much popular interest at present, and the book has been written primarily for amateurs and in answer to questions addressed to the author by photographers, medical students, and members of the public generally. At the same time, as is stated in the preface, its contents are of interest and value to the serious student; and there is much in it that has not hitherto appeared in other works on the subject.

The opening chapter contains an account of the spectrum and its discovery by Isaac Newton in 1666. From this the subject is developed in various directions historically. About five hundred years before the Christian era Pythagoras discovered the octave on vibrating strings, which fixed the musical scale. Some two thousand years later Newton applied the musical scale to the spectrum, influenced, as Dr. Houston surmises, by Kepler's work on the *Harmonices Mundi*, or the Harmonies of the Universe, and the famous doctrine of the music of the spheres. The mediaeval tradition of harmonical progression survived for a long time in the textbooks of algebra, and the opening chapter has much to say on its influence on astronomers from the earliest time and the complicated reasonings to which the doctrine of the music of the spheres gave rise.

All this comes as an introduction to the theory of light as evolved after the discovery of the spectrum. Newton believed that the colours of the spectrum consisted of particles of different size, the red rays being the largest and violet rays the smallest. This theory was challenged by Thomas Young, who held that they consisted of waves of different lengths, and these two explanations of the spectrum are discussed by the author in a chapter on the nature of light, in which he leads the reader on to Einstein and relativity and to the quantum. Dr. Houston's attitude towards these modern developments, as affecting the science of physical optics, is non-committal. He remarks that—

> "it is a depressing experience to study the utterances of philosophers on Einstein or to read a popular discussion on the subject in one of the literary journals. The participants have as much hope of getting near the gist of the matter as the proverbial blind man in a dark cellar looking for a needle that is not there."

With regard to the quantum, which keeps cropping up in different fields of investigation, always in association with light or radiation of appropriate wave-length, he notes that the precise connexion between them is not known, and that opinions vary from the radical view that there is something seriously wrong with the present theory of light to the conservative view that the wave theory is all right and that the quantum is the amount of energy liberated or absorbed in some internal change in the atom. Newton's corpuscular theory thus appears again as a working hypothesis to those who hold that the process of radiation as a whole depends in part on the movement of electrons. A stream of electrons, for example, becomes a corpuscular radiation in the x-ray bulb.

There is an illuminating chapter on the use of invisible rays in war and secret signalling, on x rays and the rays emitted by radium, and on wireless telegraphy, which depends on electro-magnetic waves of the same nature as light waves, differing only in being longer and varying in size from 0.16 cm. to hundreds of kilometres in length. The original spectrum of Newton has thus in modern science grown enormously from the wireless waves beyond the infra-red to the radium rays beyond the ultra-violet. The visible

[2] *Light and Colour.* By R. A. Houston, M.A., Ph.D., D.Sc. London: Longmans, Green and Co. 1923. (Demy 8vo, pp. 175; 71 figures, 8 plates and frontispiece. 7s. 6d. net.)

had now become possible to undertake some extensions. small wards were to be added at once to the ear, , and throat department at a cost of £12,000. A new y department would be built at a cost of about ,000. When it was built and equipped it would be finest x-ray and electrical department in Great Britain. upkeep would be a heavy charge and a whole-time ctor would be required, but it was hoped that this ition would be completed in the course of next year. n they must face extension of the Infirmary, and they ed to get ground for this in the neighbourhood. The stion of a new maternity hospital must be tackled at e, and it would be wise to consider whether it would be more economical and more efficient to have the ernity hospital a part of the Royal Infirmary.

NEW WING FOR VICTORIA INFIRMARY, GLASGOW.

he annual meeting of the Victoria Infirmary of Glasgow held on December 6th. Lord Provost Montgomery, who sided, stated that it was proposed to erect a new pavilion patients, together with additional accommodation for ses, at a cost of £100,000. Mr. William Gray, chairman the Board of Governors, said that the erection of the pavilion would be commenced early in 1924, and when shed would provide 105 new beds. Their maintenance ld involve an additional £10,000 yearly.

India.

HONORARY STAFF IN CIVIL HOSPITALS.

e Surgeon-General, addressing a delegation of the d Medical Union, at Karachi, on November 14th, ex- ssed himself as being strongly in favour of appointing honorary staff in civil hospitals wherever possible. The ocess would have to be gradual to avoid dislocation of pital routine and might conveniently start with the pointment of specialists—for example, in ophthalmology. also hoped to see an extension of post-graduate hospital rk, including residential hospital appointments for the wly qualified.

CO-ORDINATION OF MEDICAL RESEARCH.

A recent conference of medical men from almost all parts India was held in Calcutta, with a view to devising a stem of communication between research workers in ferent provinces. It is felt that there is a great need at all those who are engaged in the investigation of the uses of disease, or of curative and preventive methods, ould be in far closer communication than is at present e case, so as to avoid overlapping of effort and waste of bour.

LADY READING HOSPITAL.

The building of the Lady Reading Hospital for Women d Children, which is to replace the present Lady Dufferin ospital, now inadequate for the work, is making good ogress and should be ready for occupation by next May. e Lady Dufferin Hospital will then become an infant elfare centre, but will retain its present out-patient partment for use in connexion with the wards of the w hospital, of which eight will be private and self- ntained, and used for paying patients. The whole hos- tal will be equipped and staffed on the most modern lines, d will be under the superintendence of Dr. Houlton of e Women's Medical Service, who is at present in charge the Dufferin Hospital. A special feature of the work ill be the systematic training of Indian ladies as qualified urses. The well known interest of the Countess of Read- g in this work is further exemplified by her offer of edals for competition in Delhi, and in each Indian State, uring the baby week of 1924, the condition being made at the mothers must have been attending child welfare entres.

THE KALA-AZAR MENACE.

The Bengal Government has issued a statement dealing ith kala-azar in Bengal. Three hundred medical men ment of this disease, and it is recommended that a model kala-azar centre should be opened with the co-operation of private practitioners at each district headquarters as the centre of a preventive campaign. There appears to have been a steady increase in the incidence of this disease: in 1911 only 1,541 cases were treated, in 1919 the number had risen to 4,290, in 1920 to 7,382, in 1921 to 11,231, and in 1922 to 18,506, which was equivalent to 397 cases per 10,000 of the population. It is feared, moreover, that there is a far greater prevalence of the disease than the official figures indicate, and that if active preventive measures are not quickly taken there is said to be a distinct risk of 60 to 80 per cent. of the population of Calcutta being infected within six or seven years.

ANTIVENEREAL CAMPAIGN.

The fifth annual report of the Bombay League for combating venereal diseases contains a carefully compiled statistical record of the work of the League during the twelve months ending January 1st, 1923. There was a considerable increase in the number of patients treated in the dispensary, the average daily attendances of new and old cases being between seventy and eighty. The source of infection is traced whenever possible, and the whole of the work is conducted in close co-operation with medical practitioners and various institutions. The pathological investigations are carried out at the Grant Medical College Bacteriological Laboratory, and the Wassermann tests are continued for two years after the cessation of treatment. Post-graduate teaching is provided and the general public is supplied with literature.

KRISHNARAJENDRA HOSPITAL, MYSORE.

The report for 1922 of the Krishnarajendra Hospital, Mysore, contains evidence of the excellent work that is being carried out there. A total of 53,157 patients were treated during the year, of whom 2,227 were in-patients; it is worthy of special comment that fifty were suffering from malignant growths. There is a prevalent idea that malignant disease is extremely rare in India, but it would seem that all parts of the country are not equally immune. In the course of the year 1,069 major operations and 1,240 minor operations were performed. The work comprised the treatment of eye diseases (7,004 cases), digestive troubles (5,886 cases), malaria (4,787 cases), ear diseases (4,172 cases), respiratory diseases (3,962 cases), injuries (2,157 cases), and rheumatism (2,047 cases). There were 1,188 cases of venereal disease, 995 of liver disease, 823 of dysentery, and 196 of all forms of tuberculosis. Dr. Mahomed Usman, the superintendent of the hospital, is to be congratulated on the valuable services rendered by this institution.

Correspondence.

RECURRENT OR HABITUAL DISLOCATION OF THE SHOULDER-JOINT.

SIR,—To your issue of December 15th (p. 1132) Mr. A. S. B. Bankart contributes an interesting article upon recurrent or habitual dislocation of the shoulder-joint, and puts forward certain suggestions as to causation and treatment of this condition. In November, 1919, I read a paper on this subject at the meeting of the British Orthopaedic Association, and in May, 1920, the *Journal of Orthopaedic Surgery* published an article embodying this paper.

I then reported that I had performed a deltoid flap operation upon a number of patients whose joints had been dislocated from twelve to twenty-nine times and that I was convinced of its value. Between that date and July, 1922, I had an opportunity of performing the operation on three other cases—two in my own hospital clinic and one at Manchester Royal Infirmary by the kind invitation of Professor Telford. These patients had each suffered more than eleven dislocations, and one of them had been dislocated six times since a capsulectomy. There has only been one case of redislocation in these seven cases since the deltoid flap operations were done, and in this case the violence causing the dislocation was very severe.

spectrum in fact forms only a small portion of the complete spectrum. In this chapter on invisible rays the author also describes the optical telephone, speaking films, and the optophone for enabling the blind to read by means of the sounds emitted in passing five little spots of light arranged in a row, known as the scala, along a line of printed type.

The constitution of the atom and the stars, the infinitely small and the infinitely great in the physics of the universe, and the way in which the most important recent work on light and the spectrum is applied to our knowledge of these, form the subject of another chapter. It is followed by a chapter on the primary colours and their combinations, which together with a chapter on colour photography and stereoscopy is of special interest in connexion with painting, photography, and colour printing. A chapter on colour blindness describes in clear language the scientific and practical aspects of this important subject.

In another chapter the author indulges in many interesting speculations on the light of the future and the relative commercial values of the glow lamp, the incandescent mantle, the arc lamp, and the half-watt lamp. The light of the future, he says, is a field in which "we require research and more research and more research still." For, taking it at its lowest, he informs us that "when a householder wishes 2s. worth of electric light he has to take £2 18s. worth of useless dark heat along with it." Consequently "the discovery of a perfect light, the light that is all light and is unaccompanied by useless dark heat, is one of the most pressing problems of applied science." In Nature the firefly emits such a light—that is to say, the energy radiated all lies in the middle of the visible spectrum; and from this fact is deduced a hope that the perfect light may eventually be discovered.

Other chapters of the book deal with photochemistry and allied effects, and with phototherapy. In the first of these a good account is given of the bactericidal action of light and its restriction to the ultra-violet radiations, and of the photosynthetic action of chlorophyll. Phototherapy, radiotherapy, and heliotherapy are discussed clearly and scientifically. The value of sunshine in the treatment of rickets is recognized and explained tentatively as probably due to inflammatory or subinflammatory processes in the skin, which produce the fat-soluble vitamin A by a photochemical reaction set up by sunlight and ultra-violet light. The author, however, is unable to explain the value of sunshine in the treatment of tuberculous affections as carried out at Leysin in the Swiss Alps; for he remarks that, if it is a case of selective action on the bacilli, the group of radiations which penetrate the skin are not bactericidal, while on the other hand the bactericidal group are neither present in sunshine nor do they penetrate the skin. Incidentally it may be mentioned that Dr. Rollier and his clinical assistants, although they recognize the difficulty raised by these facts, hold that sunshine has a bactericidal action, when prolonged over long periods and at maximum intensities. In any case they regard sunshine as a powerful adjuvant to the natural defences of the human body, and capable of evoking changes within it, which increase its bactericidal properties. They have had remarkable results, especially in cases of tuberculous disease of the knee and foot and other structures near the surface of the skin or exposed by open sores. Patients suffering only from pulmonary tuberculosis are not admitted to Dr. Rollier's clinics. The Leysin theories are explained in a physical and biological study of light, by Dr. Rosselet, which appeared in the *Revue Suisse de Médecine* in February and March last year.

Dr. Houston's final chapter on the psychology of colour will be read with interest as it suggests to the brain worker and others possibilities of effects of colour environment on the work they produce, although the theory that different colours excite different emotions or mental states led nowhere when put to the test of experiment. The highly scientific character of the volume is relieved by much philosophical and speculative thought. The amateur will find little difficulty in grasping from its perusal the trend of modern science in the domain of physical optics; but, unless he is already equipped with some knowledge of applied mathematics and physical chemistry, he may not find it easy to follow the details of some of the chapters. Taken as a whole, however, it is an intensely stimulating book and well up to date, admirably and clearly illustrated and printed. The medical practitioner will find in it much food for thought. In these days of radiotherapy he cannot afford to neglect the study of light and colour in their scientific aspects, and for this purpose Dr. Houston's volume will prove a valuable addition to his library table.

ENDOCRINE THERAPEUTICS.

THE textbook of diseases of the endocrine glands[3] Dr. HERMANN ZONDEK, professor in the University of Berlin, has written for students and practitioners is an excellent summary of our present knowledge of this difficult subject. The outlook is mainly clinical and the book gives a general account of the causation, nature, and treatment of the chief diseases which it is recognized are caused by deficiency or overaction of the endocrine organs. The book contains 173 illustrations, most of which are reproductions of photographs of typical cases of the diseases described.

After a general discussion of the laws governing endocrine secretion, the bulk of the book is devoted to the description of the individual diseases, the chief being exophthalmic goitre, myxoedema and cretinism, tetany, obesity, diabetes insipidus, acromegaly, gigantism, dwarfism, osteomalacia, Addison's disease, status lymphaticus, and disorders of the genital functions. The omission of any mention of the pancreas in relation to diabetes mellitus seems inexplicable.

The author confines himself to the clinical aspect of the problems dealt with, and avoids all discussion of purely physiological questions; this restraint has made it possible to keep the size of the book within reasonable dimensions; the bibliography is restricted to a useful list of thirteen pages of selected and recent references. In a discussion of the relation between endocrine secretion and the autonomic nervous system an account is given of the theories of Eppinger and Hess regarding vagotonia and sympathetico-tonia, and the tests for showing the existence of each of these conditions are described. The author does not, however, accept these theories unconditionally, but points out that the relation between the endocrine and autonomic nervous systems is extremely complex. He does not look on the hormonal system as the uncontrolled dictator of the bodily functions, but considers that its functions are probably equal to those of the autonomic nervous system and that either system can profoundly modify the activities of the other. In particular he points out that in actual practice it is very difficult to find cases that can be regarded as typically vagotonic or sympatheticotonic.

In the portion devoted to the discussion of the different types of endocrine diseases a full description of the etiology, symptomatology, prognosis, and therapy of each is given. The symptomatology is dealt with very fully and the excellent illustrations are an outstanding feature of the book. The portions dealing with endocrine therapy are of very particular interest. The bulk of the literature on this subject is, of course, very uncritical and, to say the least, highly optimistic. In writing a summary of such literature the temptation is great to yield to the pervading facile optimism and to describe series after series of remarkable cures. Fortunately Professor Zondek has done a considerable amount of original work on endocrine therapy, and has tested the action of numerous endocrine products by delicate metabolism experiments. Consequently he treats the whole subject with a healthy scepticism and distinguishes clearly between subjective and objective evidence. His general attitude is thus defined (p. 38): "Unfortunately the therapeutic results obtained in diseases which do not depend on thyroid insufficiency cannot in any way be compared with those obtained in hypothyroidism. This must be strongly emphasized." He goes on to point out the innumerable difficulties attending the extraction from a gland of its specific hormone, and suggests that in many cases the trade preparations do not really contain the specific gland products.

The account of the history of the treatment of

[3] *Die Krankheiten der endokrinen Drüsen.* A Manual for Students and Practitioners. By Dr. Hermann Zondek, Professor in the University of Berlin. Berlin: Julius Springer. 1923. (Sup. roy. 8vo, pp. vii + 316; 173 figures. Unbound, 3.85 dollars; bound, 4.20 dollars.)

hose cases in which the primary dislocation is caused by ll on the elbow or shoulder producing a thrust forwards. he cases which I have seen the dislocations were produced he usual manner with the arm outstretched, and they e all reduced in the casualty room in the routine method. m hardly think that footballers, playing under either e, usually fall "with their arms close to their sides." of my patients was a well known professional Northern on three-quarter who first had his shoulder dislocated n fall forwards when travelling at full speed. He was ded low down and fell with outstretched arms. This is only patient upon whom I have done a capsulectomy 8), and, as he soon recurred, I did a deltoid flap (1919). subsequently played a season and a half in the Northern on, once playing for England, and in the last match of season he came down again in precisely the same way e did on his first injury.

he joint was again dislocated and I do not believe that joint would have remained stable under such a strain. of my patients was an epileptic, but his redislocations e not caused by violence directed to the elbow or shoulder by irregular muscular contractions. His attacks always irred in bed, and he threw his arms about with conrable violence, sooner or later producing a redislocation, n he came to the hospital and had the usual Kocher hod applied. Mr. Bankart thinks that a deltoid flap only prevent redislocation by reason of its preventing a range of joint movement. I have not yet seen a case in ch the range of movement has been interfered with, and m see no reason why the operation should limit movet. As to whether or no the flap contracts with the rest he deltoid I am not convinced, but I am inclined to think it soon loses its contractility and simply remains as a ive fibrous obstruction to further dislocation, forming a k fibrous band surrounding the lower half of the joint. whatever happens to it, I have only seen one of my n cases redislocate after a deltoid flap operation, and in case, as I have said, I think that the violence would e sufficed to dislocate a previously normal joint.—n, etc.,

nchester, Dec. 17th. ROBERT OLLERENSHAW.

SANITATION IN INDIA.

R,—Would you permit me to endorse what was stated by nel W. G. King, C.I.E., I.M.S., in the first part of his er published in your issue of December 15th, 1923, rding the teaching of sanitation in schools in India? the last forty years sanitarians in that country have n keenly alive to the part that instruction in public and onal hygiene should take in schools. As far back as I wrote a small book entitled *Rudiments of Sanitation Indian Schools*. It went through several editions in ten s, and was translated into three of the Indian vernacu. It was used as a textbook in a large number of schools Southern India, the Deccan, and in some Native es, and pupils going up for middle class (pre-matricon) certificates were examined in it. Schoolmasters piled catechisms on the book. Please forgive this onal reference; it shows that theoretical instruction public and domestic hygiene has not been altogether ected in Indian schools. There has, however, been little in the shape of practical tuition and demonstration. book mentioned did not reach the villages of agricul-l districts and therefore failed in one of its objects.

e education of the peasant and poorer classes of India anitation will take a long time, but it will take longer to remove their prejudices and cause them to appre-e the advantages such education confers. We hear it n glibly stated that "it is only necessary to teach the le of India the first principles of general and personal ene." The carrying out of this advice is extremely cult in the vast continent of India; the people have r own ideas of hygiene, some of which are associated with gious ritual and spiritual authority. I am convinced, The Indian Administration should not be discouraged slow progress; the full awakening of the sanitary conscic of the people of the British Isles took well over hal century.

Western sanitation, modified to meet the requirement India, is an importation not much more than sixty y old, and I believe it would lapse into decay, and poss complete dissolution, in a single generation or so, if animated and fostered by Western impulse—it has not been grafted into the daily life of the people. As he officer of a large municipality in a Native State for years I was constantly reminded by the municipal council that my recommendations for sanitary improvements far too advanced for local application or adoption; remark was often hurled at me when even elemen improvements were suggested. The apathy of dist boards and town municipalities in sanitary matter a dead weight which the health officer in India ha accustom himself to carry in the race of sanitary impr ment. The Municipal Acts of all provinces give prehensive powers, but most of them are dead letters bec of the indifference of the majority of municipal missioners; many are not educated to a right understan of public and domestic health problems. I do not incl the capitals and the larger towns of the provinces this remark; in such urban areas there is a refreshing s tary activity and highly praiseworthy public health is now being done.

In connexion with sanitary education it may be rema that some local governments, especially those of Bengal, United Provinces, and Madras, have started hygienic licity campaigns under assistant directors of public hea and a number of specially selected subassistant surgeon charge of travelling dispensaries, after special training, being deputed to give lantern lectures and demonstrat on sanitation in rural areas. This move has in it po tialities for much good.—I am, etc.,

P. HEHIR,
Westward Ho, Dec. 16th. Major-General I.M.S.(Ret.

DIFFICULT MIDWIFERY IN GENERAL PRACTIC

SIR,—Definite differences of opinion on matters of p ciple are illustrated by Dr. Luker's statement, "If the h does not descend with gentle traction, perforation of foetal head should be performed" (BRITISH MED JOURNAL, November 17th), and by that of Dr. Ru Andrews, "When a prolonged pull with the forceps failed to deliver and the child is dead, it is undoubt better to perforate . . ." (BRITISH MEDICAL JOUR December 8th).

The fundamental differences between specialist general practices have been referred to. The ignorance obstinacy of the patient, the surroundings unsuitable procedures so liable to be followed by morbid infection, the likelihood of the general practitioner being hur (perhaps to attend his fixed panel consulting hours), or, often, in a state of chronic tiredness, all make his posit the harder.

I therefore submit that the remedy for his occasional fortunes—for, after all, they are only very occasional o and even specialists have their failures at times—does merely rest with his education, but rather with his circu stances. When the demands of ante-natal treatment considered it is quite certain that in most practices m wifery cannot be practised to the doctor's own satisfact because there are only twenty-four hours in the day, nea half of which must go in sleeping, eating, etc.

If a given practice is not paying well enough to just the employment of an assistant, would it not be practica for two, or even three, neighbouring independent practi jointly to engage an assistant for midwifery—and possi diseases of infants? Such an assistant would have to reasonably experienced and adequately remunerated. O obvious objection is that patients like their own doct

exophthalmic goitre is excellent evidence of the uncertainty of some of the positive results claimed for endocrine products. Preparations of the ovaries, the pancreas, the suprarenals, the posterior lobe of the pituitary, and of the thymus have all been recommended, but all these measures possess to-day only an historic interest since in no case has it been shown that they can produce any objective measurable influence upon the disease. The author favours the use of potassium iodide in doses of a few milligrams a day, and produces evidence that this treatment can reduce the basal metabolism in exophthalmic goitre by 30 per cent.

In the discussion of the treatment of myxoedema and obesity Professor Zondek gives an account of some interesting experiments he has performed to estimate the relative value of thyroid preparations. He made metabolic measurements in a series of cases of hypothyroidism before and after treatment with a series of proprietary preparations of thyroid. He concluded that thyreoglandol and thyreoideaopton were devoid of any action on metabolism, and that the activity of the other preparations showed considerable variations. This plan of obtaining a quantitative estimate of the activity of thyroid preparations appears to have great possibilities, for obviously a method of standardization that is based on human metabolism measurements is in many ways much more satisfactory than the usual method of measuring the action of preparations on the metamorphosis of tadpoles. He describes similar tests made with ovarian extracts in cases of deficient ovarian secretion. In castrated women ovarian grafting produced a well marked increase in oxygen consumption, but he found that none of the preparations of ovarian extracts produced any demonstrable effect on metabolism in similar cases.

An interesting account is given of the results of rejuvenation by Steinach's operation (ligature of the vas deferens), and in this case also the author has applied the definite scientific test of metabolism measurements. He finds that the Steinach operation produces a definite rise in the rate of metabolism, but that this passes off after a month or so, and he concludes that the beneficial effects are in the nature of a transitory stimulus. Professor Zondek's general conclusions (p. 276) regarding the therapy of sex gland deficiency are that "the treatment of conditions of sex gland insufficiency is on the whole a thankless task. The hope that treatment with specific substitution products would produce in this case results at all comparable with those achieved in hypothyroidism has, broadly speaking, been disappointed." He holds that the effects of suggestion constitute a very serious source of error in considering the effects of endocrine therapy in sexual deficiency, and he quotes cases where temporary positive results have followed the injection of sterile saline.

All interested in endocrine disease should study Professor Zondek's work, for it contains a full and well illustrated description of the chief types of endocrine disease, and in addition gives a reasoned and critical account of the results obtained with endocrine therapy in these diseases. Unfortunately, this last feature is sufficiently rare to be remarkable amongst the clinical literature dealing with endocrine diseases. If the author's method of treating this subject were only more general the subject of organotherapy would show more resemblance to a progressive branch of therapeutics and less resemblance to sympathetic magic.

CALMETTE ON TUBERCULOSIS.

THE success, both in France and elsewhere, of CALMETTE's great book on tubercle was so immediate that the first edition became exhausted within a few weeks of publication, and a second edition followed within a commendably short time.[4] The principal addition consists in an important chapter dealing with various laboratory researches into the drug treatment of tuberculosis. This chapter, entitled "Attempts at Chemotherapy in Tuberculosis," is a comprehensive survey of recent efforts to discover some bactericide which could destroy the bacillus *in vivo* as arsenical compounds do spirilla and trypanosomes.

The majority of these attempts have proved failures; nevertheless Calmette is of opinion that certain suggestions are valuable and worth further study. Although he concludes with the observation that "despite the great number of attempts made to discover among chemical agents a substance capable of arresting the development of experimental tuberculosis in the guinea-pig and the rabbit, these efforts have been in vain"; yet this, he says, is not a reason for discouragement. Some of the drugs that have been tried (notably those with iodized compounds) even if they do not appear full of promise give definitely favourable results. The practice of injecting at random certain chemicals into patients with the vague hope of discovering a specific activity should be condemned. "Experimentation alone, methodically conducted upon animals sensitive to tuberculosis, will enable us to explore with profit the immense perspectives that chemotherapy offers."

Our quotations are from the authorized English translation[5] by SOPER and SMITH, who, realizing the need of bringing this work before the English-reading public, have earned our gratitude by the way they have accomplished their task. Two apparently minor points will illustrate the care which has been devoted to this translation; all the references have been verified and set out in a manner that is a distinct improvement on the French editions, whilst the index enables the reader to turn to particular subjects in the text far more readily than in the original. The colour-plates fall scarcely at all below those of Masson, the publishers of the French edition.

Calmette's style is singularly clear and direct, and his translators have taken his sentences and turned them almost word for word into English. He is one of the few French authors with whom this is possible without producing a confusion of idioms, and, though the result is not elegant, the meaning is seldom in doubt. On page 354, describing the conditions under which the sale of tuberculous pork is permitted, the translators have added after the phrase "Assistance Publique" "(Department of Charities of Paris)." In the original, however, there is no mention of Paris, and the paragraph appears to refer to the abattoirs of Buenos Aires.

Lapse of time has not diminished our appreciation of this remarkable book, and we congratulate the publishers and translators of the English version on having rendered it accessible to a large and eagerly expectant public.

MONTAIGNE AND MEDICINE.

THE medical profession has always numbered many admirers of that most ingenious and ingenuous philosopher, Michel Seigneur de Montaigne, whose delightful *Essais* are best known to English readers through the translations of Florio and Charles Cotton. Dr. J. S. TAYLOR has reprinted, in an attractive little volume entitled *Montaigne and Medicine*,[6] a serial article which appeared last year in three successive numbers of the *Annals of Medical History*. He presents us with a full account of the medical aspects of Montaigne's life and works, illustrated by copious extracts from the essays and the travel diary.

Montaigne, as every reader of Osler's textbook of medicine knows, was a sufferer from gout and renal colic, of which he has left a classical description, and it was in order to seek relief from his symptoms, as much as to enlarge his mind, that he made an extensive tour through Europe, visiting the spas of France, Germany, Italy, and Switzerland. Though keenly alive to the foibles of the doctors of his day, and the absurdities of the contemporary pharmacopoeia, Montaigne readily submitted himself to the ministrations of physicians whom he regarded as learned and eminent, and in Dr. Taylor's opinion he must have

[4] *L'Infection Bacillaire et la Tuberculose chez l'Homme et chez les animaux.* By A. Calmette. Second edition. Paris: Masson et Cie. (Roy. 8vo, pp. vi + 644; 31 figures, 25 plates. Fr. 50 net.)

[5] *Tubercle Bacillus Infection and Tuberculosis in Man and Animals.* By A. Calmette. Authorized English translation by Willard B. Soper, M.D., and George H. Smith, Ph.D. Baltimore, U.S.A.: Williams and Wilkins Co. 1923. (Roy. 8vo, pp. xxii + 623; 31 figures, 25 plates. Price: United States, Canada, Mexico, and Cuba, 8 dollars; other countries, 8.50 dollars.)

[6] *Montaigne and Medicine. Being the Essayist's Comments on Contemporary Physic and Physicians, his thoughts on many natural matters relating to life and death: an account of his bodily ailments and peculiarities, and of his travels in search of health.* By James Spottiswoode Taylor, M.D., F.A.C.S. London: Humphrey Milford, Oxford University Press. (Post 8vo, pp. xix + 244; 32 plates. 12s. net.)

' prospects " for the assistant, for a constantly changing onnel would hamper the scheme enormously. To this ould reply that there are at least some men and women would be content to work almost indefinitely under such litions as I have outlined, if free from financial worry. such a scheme be feasible, ante-natal work can be ried out in a way to gladden the heart of any teacher sultant. The general public would not be slow to appre- e increases in the amount of time spent on their behalf, would respond by co-operating. Fees would be raised. identally, encouragement would be given to midwives to modicum of ante-natal supervision, and to be paid less lequate fees. The scheme would thus as a whole tend erially towards that improvement all round in the mid- ry service of the nation advocated by Dr. Fairbairn. he men and women who acted as assistants under these umstances would be sufficiently keen on their specialty follow up their cases so as to be able to present definite lence, for example, as to the predestination of a woman vered by forceps to a life of prolapse and misery.—n, etc.,

R. KELSON FORD.

ithsa, Dec. 15th.

IR,—I have watched with interest the recent corre- ndence on the subjects of "use and abuse of forceps" and ifficult midwifery in general practice." Dr. Fairbairn tes: " The experience of officers of maternity hospitals gynaecological departments is required," etc. This is reason for writing. I have just completed four years sole charge of a maternity hospital with ante-natal gynaecological departments, in which upwards of two usand confinements have taken place under my super- on. There were two maternal deaths, one from pul- nary embolus in 1920, and one in 1921 from advanced ral valve disease in a woman who had just joined the rict and had not been to the ante-natal clinic. This pares favourably with the national death rate of one her for every two hundred and seventy-five births. he confinements included all sorts of complications, tly recognized ante-natally and therefore to a great ent deprived of their risks—cases of contracted pelvis uiring Caesarean section, placenta praevia, tumours of cervix, valvular disease of heart, toxaemias, etc., and 24 lb. baby. Not a single case of eclampsia occurred ing the past two years, although many cases with pre- mptic signs and symptoms were treated and cured, and sed through labour safely. External version was done y-four times for breech presentations in the ante-natal artment without anaesthesia. I failed to turn in five es, in three of which the child's legs were extended; in the cord was twice round the neck; and in one case ound no reason for failure. Forceps were used in 7 per t. of the cases, mostly primiparae.

There must be something wrong," says Dr. Russell lrews, " or we should not see patients maimed or dying n the treatment of conditions in which ante-natal mination and appropriate treatment would have resulted oth mother and child surviving undamaged." Dr. Fair- rn says, " Why is it not prevented?" I think the answer hat the maternal death rate will not show any improve- it so long as women are not examined ante-natally by tors with experience in this branch of work and are con- d in their own homes. Until ante-natal clinics and ernity hospitals are available throughout the country re will be no great change in the death rate. The largest oyer in the State—namely, the army—has organized a em of women's hospitals, ante-natal clinics, and welfare tres with the above childbed death rate. The women seldom demand to have their confinements in their es or quarters; they were quick to understand the safety eing seen before their labours commenced and of clean turition in hospitals. If a relative or friend is not avail- to look after their other children, they can send them crèche. Their husbands live at home but feed for the e at a mess or canteen. If one department of the State organize this work, why not others? Improvement will ow if ante-natal clinics are established in every town, learn the advantage. Dr. Fairbairn asks for constructive ideas: in my own opinion this is the first and only possible step towards improvement.—I am, etc.,

EDWARD L. MOSS,
Major R.A.M.C.

Louise Margaret Hospital for Women,
Aldershot, Dec. 15th.

HERPES ZOSTER AND VARICELLA.

SIR,—May I, as the originator of the shingles-chicken-pox correspondence in English journals,[1] suggest that when a case of either eruption crops up particular attention should be given to this vexed question. The position as I take it at present is this:

(1) Overwhelming evidence from private practitioners points to a close connexion between the two eruptions, usually in the direction of chicken-pox following shingles, either in the same individual or in contacts after a certain incubation period.

(2) Letters now and then appear from physicians attached to skin hospitals asserting that they have never noticed this connexion; a plausible explanation being that it is the first case of an epidemic that so starts and it is in private practice that first cases are most easily traced to their origin.

(3) All the evidence adduced during the last ten years goes to show that such a disease as "generalized herpes zoster" does not exist and the name should be expunged from the textbooks. In every way the eruption hitherto known by that name differs in no respect from an ordinary chicken-pox rash, either as regards its incubation stage, the appearance and distribution of its vesicles, or its liability to spread infection in susceptible contacts.

The experience of Dr. Sedgwick[2] in respect to the prophecy of chicken-pox following a case of shingles has on several occasions been mine to the extent of photographing a mother's shingles with a view to photographing fourteen days later the rash of chicken-pox on her children.[3]

In the direction of research, I can only tentatively suggest inoculation experiments on the lines of modern cancer research. Being in possession of evidence, as we undoubtedly are, that a course of arsenic may induce an attack of shingles,[4] and that the latter may be followed by chicken-pox, one cannot but admit that we have here all the elements necessary for an artificially induced epidemic of an infectious disease. Should not this fact alone stimulate research in the direction indicated?—I am, etc.,

W. P. LE FEUVRE,
M.O.H. Knysna, South Africa.

November 19th.

THE SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.

SIR,—In the sympathetic obituary notice of my friend, the late Mr. Sydney Stephenson, in your issue of to-day's date, there is one point to which I should like to allude. Referring to the foundation of this Society we read that " His [Mr. Stephenson's] interest in the study of disease in children led him in association with the late Dr. Carpenter to found a society for that special study." I think that this does not fully represent what occurred, and, as all the facts have not been in print previously, I take an opportunity to record them now.

What may be called the initial and "official" steps towards its foundation were taken by Mr. Stephenson and myself at my house, where we conjointly drew up a circular letter and signed it. We addressed it to all the members of the staffs of the children's hospitals in the United Kingdom and to those medical men who were known to be specially interested in the welfare of children. We invited them to attend a meeting at the rooms of one of the established societies, and sought their co-operation. Some thirty to forty responded, and it was decided by a large majority that there was room for such a society, with every prospect of its doing good work. As you say, with every prospect of its immediate success." It will, " the effort attained an immediate success." It will, therefore, I think, be conceded that Mr. Stephenson and

[1] *Guy's Hosp. Gaz.*, April 28th, 1923.
[2] BRITISH MEDICAL JOURNAL, October 6th, 1923.

made an ideal patient. Moreover, he was so keen an observer and recorder of all natural phenomena, including those of disease, that his biographer thinks he would also have been eminently fitted to practise medicine. Remembering his motto "Que sais-je?" we may perhaps agree. Apart from the account of his own illness, several passages in his works show Montaigne's intelligent interest in medicine, such as his description of the spas at Plombières, Lucca, and Viterbo, the miraculous cures at Loreto, and his allusions to contemporary physicians such as Sylvius, Paracelsus, and Felix Platter.

The volume is pleasantly illustrated with portraits of Montaigne and facsimiles of his handwriting; also with photographs of places, mainly in Italy, visited by him on his travels, and views of his family castle in Périgord, to which he retired at the close of the foreign tour, in order to devote himself to the study of philosophy.

MEDICINAL AND DIETETIC PREPARATIONS.

Sulphuretted Hydrogen Soloids.

CHEMICAL reagents in the form of prepared charges have been found exceedingly useful, both for work at home as well as for use in travelling. They were designed originally for particular applications, but from time to time ingenuity has been exercised to produce them in a form more adaptable to general use. In this direction Messrs. Burroughs, Wellcome and Co. have played a leading part. Their series of "Soloid" reagents includes one for the generation of sulphuretted hydrogen. The soloids for this reagent consisted formerly of a pair, containing respectively zinc sulphide and oxalic acid. They have effected an improvement on this combination, and the sulphuretted hydrogen reagent is now contained in a single soloid of aluminium sulphide. This substance generates sulphuretted hydrogen under the action of water alone, the by-product being aluminium hydroxide, the presence of which is seldom disadvantageous for the purpose of the test. We have examined a sample of the soloids and found them to react well. Each soloid will saturate ten cubic centimetres of water with sulphuretted hydrogen.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

A DISTRIBUTION meeting of the President and General Council of King Edward's Hospital Fund for London, for the purpose of awarding grants to the hospitals and convalescent homes for the present year, was held on December 18th, with the Prince of Wales in the chair.

Lord REVELSTOKE (honorary treasurer), in reporting the amount received for general purposes, said that this time last year he had expressed the hope that the income to be derived from the munificent legacies of Lord Mount Stephen and Sir Thomas Sutherland would form the nucleus of a permanent increase in the distribution. The Fund had already received a large part of this increased income. The total income from all investments reached £145,000 this year, as against £114,000 in 1922. On the other hand, ordinary legacies had decreased, although for the past twelve months they still reached the substantial figure of £47,000. The net result was that the Fund was able to distribute £235,000. Taking all the sources of income into consideration, there was every hope that this large sum would be provided very nearly, if not quite, out of the current income of the year.

Sir WILLIAM COLLINS, in making the annual statement on behalf of the League of Mercy, said that so far as they could tell from the subscriptions at present received, £14,000 would be handed over to the King's Fund before the end of the year. This would make a total sum of £353,000 handed over to the Fund since the foundation of the League. Adding the grants made to hospitals outside London, the total came to £407,682.

Mr. LEONARD COHEN presented the report of the Hospital Economy Committee on recovery branches of London hospitals, advocating the wider adoption of these as a valuable form of hospital extension.

Grants to Hospitals and Convalescent Homes.

Sir COOPER PERRY presented the report of the Distribution Committee. The sum allocated this year was £233,000, and the need of maintenance grants had been the first consideration. Only in exceptional cases were they prepared to assist in new schemes of improvement or extension, and the amount so expended this year was £30,100. The total grants to maintenance had amounted to £202,900.

Lord SOMERLEYTON (honorary secretary) presented the schedule containing the detailed list of awards to hospitals (including recovery and convalescent branches).

The larger sums awarded include £14,000 to the London Hospital, £11,500 to Guy's Hospital, £10,000 to St. Bartholomew's Hospital, £9,500 to St. Thomas's Hospital, £9,000 to the Royal Northern Hospital, £8,000 to King's College Hospital, £7,500 each to the Middlesex Hospital and Westminster Hospital, £7,000 to University College Hospital, £6,900 to St. George's Hospital, £6,050 to the Prince of Wales's General Hospital, £6,000 each to St. Mary's Hospital and the Royal Free Hospital, £5,700 to Queen Mary's Hospital for the East End, £5,000 each to the Hospital for Sick Children and the West London Hospital, £4,750 to the Queen's Hospital for Children, £4,500 each to Charing Cross Hospital and the Royal National Orthopaedic Hospital, £3,700 to the National Hospital for the Paralysed and Epileptic, £3,600 to the Miller Hospital, £3,550 each to the City of London Hospital, Victoria Park, and the Dreadnought Hospital, and £3,500 to the Metropolitan Hospital.

Sir COOPER PERRY then presented the report of the Distribution Committee with reference to convalescent homes not attached to particular hospitals. This showed that £2,000 had been distributed during the year. Major WERNHER (honorary secretary) presented the schedule of awards.

Growth of the King's Fund.

The PRINCE OF WALES said that the King's Fund was to-day taking another stride forward, the distribution being increased by £15,000. The increase in income, which had more than balanced a fall in legacies, was chiefly due to the dividends from the bequests of Lord Mount Stephen and Sir Thomas Sutherland, together with an anonymous donation of £6,500. Gifts to the King's Fund benefited nearly 150 institutions in proportion to their respective claims, as judged by the Distribution Committee, which had acquired a great amount of knowledge and experience. The novel feature in the report of the Distribution Committee was the new method of dealing with the recovery and convalescent branches of hospitals by amalgamating the grants to the branches with the hospital grants. The question of recovery branches had come up for decision this year because of the inquiry by the Hospital Economy Committee, whose report was before the Council. The Committee had made a thorough inquiry and considered that recovery branches were good, but that the hospitals and also the King's Fund must first count the cost, as in the case of any other form of hospital extension. There had been an interesting development of the work of the Revenue Committee. One subcommittee, under the chairmanship of Lord Burnham, had been appointed to assist, partly by general propaganda in aid of the work of the King's Fund and the hospitals; partly by enlisting the help of members of the professions of science, art, literature, law, etc.; and partly by continuing from time to time some of the activities of the Educational Auxiliary which had done such good work for the Combined Appeal. Another subcommittee would assist both the King's Fund and the hospitals to increase their revenue in any other ways not already covered by some existing agency. Lord Burnham's Committee was at present organizing another scientific novelties exhibition at King's College, and another set of lectures and counter-lectures at the London School of Economics in the spring. On the side of definite propaganda it had already issued a leaflet about the present financial position of the hospitals of London, and it would arrange for lectures in schools and elsewhere so as to inculcate in the mind of the public generally a greater sense of responsibility for the regular and systematic support of the hospitals.

Lord ULLSWATER, in moving a hearty vote of thanks to the Prince of Wales for presiding, alluded to the great care which His Royal Highness took to inform himself upon all the business of the Fund. The motion was carried with acclamation.

I were the founders of the society. I may add that this is the view he always held and referred to from time to time in conversation.

It is true that the project had the cordial support of the late Dr. George Carpenter from the beginning, but he did not assume the responsibility of taking the first public steps. He rendered yeoman service, and was editor of the excellent reports. He held at one time, like Mr. Stephenson and I, the office of Chairman of the Council, the highest the society could bestow, as the rules did not provide for a president.

I trust your readers will pardon the intrusion of the personal note, but, as the survivor of the three who are referred to, I feel sure that they who have left us would wish all the facts to be known.—I am, etc.,

London, W., Dec. 22nd. A. H. TUBBY.

Obituary.

SIR J. WALTON BROWNE, M.D., LL.D.,

Consulting Surgeon, Royal Victoria Hospital, Belfast.

IT was with very deep and widespread regret that the intimation of the death of Sir J. Walton Browne was received by the profession in Ulster, and by a very large portion of the community. He had been in good health till some six weeks ago, when signs of heart failure manifested themselves, and he died quietly in his sleep on the morning of December 18th.

John Walton Browne was born in 1845, and was the son of Dr. Samuel Browne, R.N., J.P., who, when he left the navy, practised as an ophthalmic surgeon in Belfast, and became mayor of the town in 1870. His son Walton became a student of the old Queen's College, Belfast, and obtained the B.C. degree, and subsequently the M.D. He studied in Dublin, London, and Vienna, and when he returned to Belfast was soon appointed surgeon to the old Royal Hospital (now the Royal Victoria Hospital), and also to the Ophthalmic Hospital; the former post he held for thirty-seven years, and was appointed consulting surgeon a little over ten years ago; the latter he still held at his death. He was a member of many societies, and was president of the Ulster Branch of the British Medical Association, of the Ophthalmic Section of the Association in 1907, when it visited Belfast, and of the Ulster Medical Society. Sir Walton had been a senator in the old Royal University of Ireland, and on its dissolution he received the honorary degree of LL.D., and became a senator in the Queen's University of Belfast.

Few equalled him in his capacity for friendship; he was exceedingly popular, and his name became a household word throughout the North of Ireland. Although an active man devoted to hospital and surgical practice, he had a retentive memory and a wonderful knack of recalling articles in various medical journals dealing with any obscure point under discussion. His experience was wide, and he would quote case after case in support of the position he assumed in debate. All rejoiced when he was appointed deputy-lieutenant for the city with which he had been connected all his life; and there was a chorus of satisfaction on his receiving the dignity of knighthood from His Majesty when he opened the Parliament of Northern Ireland.

Sir Walton was twice married: he survived both his wives and also his son, but he is survived by his daughter, married to Colonel Young, R.A.M.C. A brother, Dr. Samuel Browne, and a sister, live in England. Much sympathy is felt for these relatives.

SIR LAMBERT HEPENSTAL ORMSBY, M.D., F.R.C.S.I.,

Senior Surgeon, Meath Hospital, Dublin.

WE regret to announce that Sir Lambert Ormsby died at his residence in Dublin on December 21st. He had been in failing health for some time, but, notwithstanding this, had been out of doors as recently as a week before his death.

Lambert Hepenstal Ormsby was born at Onehunga Lodge, Auckland, New Zealand, in 1849, the only son of Mr. George Owen Ormsby, C.E.; his mother was a daughter of the Rev. Lambert Hepenstal, of Altadon, Delgany, co. Wicklow. In his boyhood it was his ambition to enter the Royal Navy. Indeed, after an early education at the Commercial School, Auckland, the Lyceum, and the Grammar School, he left Auckland for London in 1864 with that end in view, but instead he went to the Royal School, Dungannon. He studied medicine, was apprenticed to Mr. George Porter, later Sir George Porter, Bt., and at the age of 19 was a surgeon and physician. He had put in three years as a student at the Royal College and the Meath Hospital, where he was resident surgical pupil. He began to read for the Army Medical Service in 1869, but at this stage an accident determined his career. In a casual conversation with the late Dr. John Morgan, professor of anatomy in the Royal College of Surgeons, he was offered the position of anatomical demonstrator at that institution, and, accepting it, in two years became a skilled practical teacher. In 1872 he became surgeon to the Meath Hospital.

He entered Trinity College, Dublin, and graduated in arts in 1875; in the same year he became a Fellow of the Royal College of Surgeons, and in 1879 took the degree of M.D. Specially interested from an early period of his career in orthopaedic surgery and in the diseases of children requiring surgical treatment, he published two important volumes, the result of much study and practical experience, on *Deformities of the Human Body* and on the *Diseases Peculiar to Children*. In 1876 he founded the National Orthopaedic and Children's Hospital (now the National Children's Hospital), a humane and much needed enterprise, with the energetic promotion of which his memory will always be associated. This was by no means the only philanthropic movement which Surgeon Ormsby instituted and in which he took a lifelong interest. He acted as chairman of the Association for the Housing of the Very Poor in Dublin, and the occasions were many upon which his broad-minded sympathies found practical expression.

From the year 1880 until his death Sir Lambert Ormsby devoted himself exclusively to surgical practice. He founded in 1885 the Dublin Red Cross Nursing Sisters' Home and Training School for Nurses, and watched over its development with assiduous care. He acted as senior surgeon to the National Children's Hospital, consulting surgeon to the Drummond Military School, Chapelizod, and honorary consulting surgeon to the Dublin branch of the Institute of Journalists. He was besides a member of the Board of Superintendence of Dublin Hospitals and governor of the Lock Government Hospital. He was a Fellow of the Royal Academy of Medicine, Ireland, and a Fellow of the Royal Medico-Chirurgical Society of London. From 1902 to 1904 he was President of the Royal College of Surgeons, Ireland, and it was during that term—in 1903—that the honour of knighthood was conferred upon him.

Sir Lambert Ormsby was twice married, and had four children (two sons and two daughters) by his first wife. His second wife was Geraldine Matthews, R.R.C., O.B.E., whom he married in 1921.

G. P. CHAPPEL, M.D.CANTAB.,

Physician, Altrincham General Hospital; late Physician, Prince of Wales's Hospital, Tottenham.

WE regret to record the death at Altrincham, Cheshire, on December 15th, from pneumonia, of Dr. G. P. Chappel, who during the past five years had held the appointments of physician to the Altrincham General Hospital and medical officer of health for Bowdon.

George Pester Chappel was born in 1868 at Camborne, Cornwall, of which his father, the late Canon Chappel, was rector. From Marlborough he went to Caius College, Cambridge, and thence to the London Hospital. He graduated M.B., B.Ch.Cantab. in 1892, and proceeded M.D. in 1896. At the London Hospital he served as house-physician, and afterwards as house-surgeon to the late Sir Frederick Treves; his next post was that of resident medical officer to the City of London Hospital for Diseases of the Chest, Victoria Park. Thenceforward, and until the war, he was engaged in general and consulting practice at Tottenham,

British Medical Journal.

SATURDAY, DECEMBER 29TH, 1923.

THE DEFINITION OF DRUNKENNESS.

THE problem of how best to deal with a drunken man has been with us ever since Noah's unfortunate lapse, but the development of motor transport has raised special difficulties which directly affect medical men Everyone agrees that the drunken motor driver constitutes an unnecessary danger which calls for drastic suppression, and magistrates are tending to deal with such cases more and more severely. But the severer the punishment becomes for being drunk while in charge of a car, the more necessary is it to have a clear definition of what constitutes drunkenness, and the civil law expects medical men to be ready to give an opinion in such cases. Unfortunately there can never be any clear scientific definition of drunkenness. It is easy to say whether or not a man is under the influence of alcohol, and it is even possible by means of skilful tests for an experienced observer to define fairly clearly several stages of alcoholic intoxication; but the crucial question as to whether a man's brain is so clouded that he is unfit to be in charge of a car is one which must be decided by common sense, and scientific tests can give very little help.

The popular idea seems to be that a person taking alcohol retains his normal senses up to a certain point and then suddenly becomes drunk. This is, of course, erroneous, for even small doses of alcohol can be shown by accurate psychological tests to produce a distinct depression of the finer powers of judgement, although the subject in this stage appears to a casual observer to be completely normal. The popular opinion is, however, so far justified that sudden changes in behaviour are frequently seen in intoxicated persons, due to the fact that the inhibitory centres, which have been holding the disordered brain to a more or less normal course of action, lose control, and when this happens the effects of the gradual process of intoxication suddenly become apparent.

Alcohol intoxication, it is true, produces a descending paralysis of the brain, depressing first the higher and later the lower centres, but the grading of the different stages of intoxication is a matter of extreme difficulty, because the different functions of the brain are attacked in different order in different individuals, and even in the same individual the apparent effects of drunkenness vary greatly according to the surroundings. A man who will in convivial surroundings become hilariously drunk may, with the same dose of alcohol in quiet surroundings, merely go to sleep. Moreover, the rate at which skilled movements are affected by alcohol depends very largely upon the degree of practice the subject has in these movements, and also upon how accustomed he is to perform them when under the influence of alcohol. For example, a skilled musician who is also a chronic drunkard may be able to play with considerable skill when he is too drunk to stand. Consequently it is very difficult to devise a fair test for drunkenness based on the performance of skilled movements, because the test depends so largely on the degree of practice the individual has in the subject of the test. For example, a writing test is much more severe for a manual worker than for a clerk.

The problem has reached an acute stage in Denmark, for under the Danish law a man may be permanently deprived of a licence to drive on a single conviction of being drunk while in charge of a car. Hence a uniform standard for tests for drunkenness has become an urgent necessity. At the request of the Chief of the Police the Danish Medico-Legal Council, in consultation with a pharmacologist and an alienist, worked out a scheme for clinical examination to be followed by all medical practitioners examining cases of drunkenness. This scheme, of which a brief account was given in the BRITISH MEDICAL JOURNAL of September 15th, 1923 (p. 487), is on the usual lines. It requires the practitioner to observe the general condition of the subject, the presence or absence of smell of alcohol, and the condition of speech, gait, handwriting, and pulse; it prescribes also a simple memory test. A medical expert was appointed whose services were immediately available in Copenhagen by day or by night to examine motor drivers accused of drunkenness. This expert has made a report on the results of the examination of fifty cases. Perhaps the most significant point is that he spent on an average forty-five minutes in the examination of each case, and considered that such a length of examination is essential to arrive at a just conclusion in doubtful cases. He found that the pulse rate gave little help, and that pronunciation and handwriting tests were of little value on account of the low standard of education of most of the persons examined. Memory tests were, however, of great value, and one of the most useful was to demand from the subject a short coherent account of some recent event.

The expert's notes are of interest, since they suggest that the time required for examination for drunkenness is considerably longer than is usually thought necessary, and also that the tests in general use in this country might be considerably improved. While an expert regularly engaged in examining cases of suspected drunkenness may become able to fix a fairly uniform standard of what constitutes drunkenness, the problem still remains as to how he can transmit this knowledge to others. In principle there is an analogy between the position of the medical witness in these cases and that in which he is placed in the High Court when the issue is whether the accused is to be held responsible for the crime with which he is charged. The High Court has all the facts before it. In charges of drunkenness against a motor driver the police know all the circumstances and may be aware that in a particular instance a trained driver has driven in a grossly incompetent way. The police call in the doctor to confirm their impressions and conclusions, and while in extreme cases he may have little difficulty, there are, as we have shown, many intermediate stages where a definite decision may be extremely difficult. It seems doubtful whether a fixed schedule for clinical examination will be of any great practical value. The appointment of an expert to examine all cases in an area certainly seems a step towards obtaining uniformity in administration of the law, and if such experts occasionally worked in couples it would be possible to ensure that a fairly uniform standard was maintained.

Any steps in this direction would probably be welcomed by the medical profession, for the giving of evidence in cases of drunkenness is a difficult and unsatisfactory task for medical men who have not any special experience in the examination of such cases.

becoming physician to the Prince of Wales's General Hospital and a member of the teaching staff of the North-East London Post-Graduate College. In those days Chappel was an enthusiastic member of R.A.M.C.(T.F.), and subsequently, on relinquishing his commission after the war, he was awarded the Territorial Decoration. He was mobilized in August, 1914, and served continuously in Egypt and France with the rank of major, and later as officer commanding a military hospital in London. Soon after his return to civilian life in 1919 he resigned his post at the Prince of Wales's Hospital, and, leaving London, went to practise at Altrincham, a district with which he already had associations through his wife, a daughter of the late Mr. H. T. Gaddum of Bowdon. There his abilities and his character quickly made him one of the leading practitioners of the district, and his death after a very brief illness is mourned by a large circle of patients and professional colleagues. He will long be remembered in many quarters as a sound physician, an upright gentleman, and a kind and sympathetic friend.

Dr. Chappel had been a member of the British Medical Association for nearly thirty years, and at the time of his death was a member of the Executive Committee of the Mid-Cheshire Division.

THE LATE MR. SYDNEY STEPHENSON.

Mr. A. H. TUBBY, C.B., C.M.G., M.S., writes: As one of Mr. Sydney Stephenson's colleagues for many years, and as one of his intimate friends, I would like to refer to some of the prominent traits in his character. First, his loyalty, loyalty not only to his colleagues, but also to his ideals, for he was severely critical of himself, whilst tolerant and broad-minded to others. He loved friends and valued friendships. He sought them with all his might and treasured them lastingly. There was no trace of capriciousness in him. Next to the joys of his happy home life, friends and friendship were his well tried resources against life's buffets. One great point about him was that he was little troubled as to what people thought of him. He possessed "character" in the sense which has been so finely expressed in the words "Reputation is what men and women think of us: Character is what God and the angels know of us." There was in him, too, a well-spring of human kindness and sympathy, and few men had so many friends. Very many frequently visited him in his long illness, and he always received them with that fine attentive courtesy so characteristic of him. He has passed to his rest, and in the noble words of Robert Browning we remember him as:

> "One who never turned his back, but marched breast forward
>
> Held, we fall to rise, are baffled to fight better,
> Sleep to wake."

Dr. ALFRED MILLER, medical superintendent of the County Mental Hospital, Hatton, Warwick, died on December 4th. He was educated at Trinity College, Dublin, and graduated M.B., B.Ch.Dub. in 1881. He had been connected with the asylum for about forty years, first as assistant medical officer and for thirty-four years as medical superintendent. He was also medical adviser of the County Mental Deficiency Act Committee, registrar of the Medico-Psychological Association of Great Britain and Ireland, and a member of the committee of management and house committee of the Warneford Hospital, Leamington. He was a keen sportsman, and in his early life was an Irish international Rugby footballer. He is survived by his widow and two daughters.

We regret to record the death of Dr. WILLIAM THOMAS MADDISON, which occurred very suddenly in the early morning of December 9th at Stapleton Road, Bristol, where he had carried on a large practice for over twenty years. He was educated at King's College, London, of which he was a senior scholar and afterwards an Associate. Having obtained the M.R.C.S. diploma in 1881 he became house-physician to King's College Hospital and graduated M.B. (with honours) in the following year, proceeding M.D. in 1886. After a period as assistant medical officer to the Metropolitan District Asylum at Darenth, Dr. Maddison went to Bristol and was appointed surgeon to the Bristol Dispensary. His skill, great abilities, untiring devotion to work, and kindly, cheerful disposition, endeared him to all with whom he came in contact, professionally or otherwise. He had been a member of the British Medical Association for thirty-three years.

By the untimely death, in his 49th year, of Dr. ROBERT WALMSLEY FISHER, Director of the Belgaum Vaccine Institute, the Public Health Department of Bombay has lost one of its most devoted workers. Dr. Fisher was born at Ballymena, County Antrim, Ireland, on November 10th, 1874, and graduated M.B., B.Ch. in 1901 at the Royal University of Ireland. After holding the appointments of resident medical officer of fever and small-pox hospitals at Belfast, and a short experience of general practice, he undertook plague work in the Punjab for about four years from 1902 to 1903 and again from 1904 to 1908. After his return to Ireland he took the D.P.H. (R.U.I.) in 1909. His plague work in the Punjab had attracted such favourable attention that it was felt that the services of such an enthusiastic worker should be permanently secured. In 1911 the Secretary of State sanctioned the creation of an appointment of Director of Vaccine Institute, Belgaum, and on the recommendation of the Government of India offered it to Dr. Fisher, who took charge of the Vaccine Institute, Belgaum, in August, 1911. The vaccine lymph manufactured at Belgaum was successfully used throughout the year in Sind—the hottest part of India—and during the great war he supplied the Bombay army and several oversea forces with a reliable vaccine lymph. In addition to his duties he acted also as civil surgeon, Belgaum, and as deputy sanitary commissioner, S.R.D., for a short time. In 1921 he graduated M.D. (R.U.I.), and his thesis, which had as its subject the history and work of the Vaccine Institute, Belgaum, was deemed worthy of a gold medal; this thesis was published in the *Indian Journal of Medical Research* (vol. 8, No. 2, October, 1920). In 1923 he was awarded the Kaisar-i-Hind medal in recognition of his multifarious services and fine work in connexion with the Vaccine Institute, Belgaum. He was genuinely admired both for his ability and for his generous disposition; he was ever ready to spend himself in the interests of others. The funeral took place on October 26th at the Belgaum cemetery in the presence of a large number of friends. Dr. Fisher leaves a widow, two sons, and a daughter; the elder son has just entered as a medical student at the Royal University of Ireland.

Dr. FREDERICK COLIN BENTZ, who died on October 18th, was educated at Victoria University, Manchester, where he took the degree of M.B., Ch.B. in 1913. He held the rank of captain in the Royal Army Medical Corps, Territorial Force, and saw active service abroad both in France and Gallipoli. He had filled the appointments of district medical officer and public vaccinator in Manchester, assistant medical officer at Baguley Sanatorium, house-physician and house-surgeon at the Manchester Royal Infirmary, and medical officer in charge of the New Bridge Street Hospital in Manchester. Captain F. Arnot Bearn, R.A.M.C.(T.), writes: "I was at the Grammar School with him twenty years ago, and he showed the same quick, sensitive nature and versatility which he developed to a greater degree later in life. I well remember the caricatures he drew, and the parodies he wrote during the election of 1906. He was an omnivorous reader, had a fine taste for English literature, and an undoubted flair for the classics. He was in my year at Manchester University, and we were on 'the house" together. He was the life and soul of any party; no 'last night' was complete unless he gave one of his inimitable burlesques, either of a colleague or one of the staff; and it was characteristic of him that no one enjoyed his burlesques better than the man who was the original of them. When war broke out he was one of the first to volunteer, and I was not surprised to hear of his struggling back to the trenches in France before his terrible wounds had really healed." A brother officer in the 42nd Division Field Ambulance bears witness to the unfailing and exuberant high spirits and power of extracting humour from the grimmest and most unpromising

number of notifications and the number of deaths from pulmonary tuberculosis is of interest as indicating the variations which exist in this matter. From many talks with doctors and students I am satisfied that the sound line of approach is by the way of awakened interest, *esprit de corps*, and, if you will, patriotism.—I am, etc.,

University of Edinburgh, July 8th. R. W. PHILIP.

SIR,—In the BRITISH MEDICAL JOURNAL of July 7th (p. 43) there is published an interesting letter from the Deputy Clerk to the London County Council headed "Earlier notification of tuberculosis."

I do not think many of those who have to do specially with tuberculosis would declare it as their belief that the failure on the part of medical practitioners to notify cases earlier is due to "wilful neglect or refusal to carry out the Tuberculosis Regulations" of the Public Health Act. It would have been, indeed, surprising if the conference between the Public Health Committee of the London County Council and representatives of the metropolitan borough councils had come to the conclusion "that prosecutions would be the most hopeful means for increasing the proportion of early notifications."

The earlier notification of tuberculosis is dependent on earlier diagnosis, which again is dependent on the skill of the medical practitioner. A practitioner cannot yet be prosecuted for lack of skill in diagnosis, or which of us would escape prosecution at some time or other in the course of our professional careers?

The real clue to the problem—how to obtain earlier diagnosis and therefore earlier notification—is mainly to be found in the final clause of the Deputy Clerk's letter, which appears as a sort of "addendum" or afterthought. He was instructed—he tells us—to invite the London Panel Committee and the British Medical Association "to direct the attention of their members to the fact that the services of the tuberculosis officers are available for consultation, etc."

In the county area in which I myself work as tuberculosis officer it is unquestionably the fact that a majority of patients, by the time they come under official notice, are already in an advanced—or, at least, not an early—stage of the disease. This, of course, does not necessarily imply that the medical practitioner has failed to diagnose the case earlier. It may simply be that the patient has put off going to his doctor month after month, until, when at last he goes, the disease has become already firmly established. Still there are undoubtedly many cases where patients attend their doctor for several weeks or even months for vague symptoms of "bronchitis," "catarrh," "colds," etc., who eventually prove to be cases of pulmonary tuberculosis; and if only all such cases were referred at an early period to the tuberculosis officer for examination, or a consultation with the tuberculosis officer were invited, a distinct rise in the number of cases diagnosed "early" would result. As the Chief Medical Officer of the Ministry of Health says in his annual report (1920, p. 85):

"The medical practitioner should, therefore, not hesitate to refer for the advice of the tuberculosis officer not only those cases in which indubitable signs of tuberculosis are already present, but also those patients who show any symptoms which may suggest the slightest possibility of early tuberculosis. A practitioner fails in his duty to his patient if he continues to treat for long periods cases of debility or those suffering from bronchitis or recurring colds or pleurisies without having the most searching examination made to exclude tuberculosis."

Unfortunately not all Local Medical and Panel Committees view with favour the tuberculosis organization which is now general throughout the several counties and county boroughs. For instance, the Local Medical and Panel Committee for Cheshire has declared its opposition to the whole tuberculosis scheme, and would like to see tuberculosis dispensaries and tuberculosis officers abolished. In this case there is reason to doubt that the Committee really represents the attitude of the bulk of medical practitioners, but the spirit of hostility is none the less deplorable. The Departmental Committee on Tuberculosis stated at the very beginning of the consideration of anti-tuberculosis schemes, "It is of primary importance to the lasting success of any scheme dealing with tuberculosis that it should enlist the hearty co-operation and stimulate the interest of the general medical practitioners of the country." If this co-operation is lacking, the success of any anti-tuberculosis organization on public health lines can never be assured under present conditions of medical practice, and failure to secure early diagnosis of the disease will continue to be one of the stumbling-blocks in the way of dealing successfully with tuberculosis.—I am, etc.,

E. WEATHERHEAD,

June 8th. Tuberculosis Officer, North-East District, Cheshire

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"DIAPLYTE" VACCINES AND ANTIGENS.

SIR,—In view of the striking application by Professor Dreyer of the formaldehyde-acetone method of defatting or diaplyting the tubercle bacillus, it may be of interest to workers in this field to record the following observations in regard to the preparation of red blood cells for phagocytosis by human leucocytes.

If one drop of a suspension of the red blood cells of the sheep, thoroughly washed in normal saline, be incubated in a closed cell with two or three drops of human (C.J.B.) blood, an inhibitory or toxic influence is exercised by the washed sheep's red cells on the human leucocytes. Very few leucocytes emigrate from the clot or adhere to the slide, and the few cells which do emigrate show marked signs of cytolytic change. This effect is true of the red cells of individual sheep only, and after testing the red cells of over 100 sheep I find that about 70 per cent. are toxic and about 30 per cent. non-toxic to my own leucocytes. In the latter group free emigration of leucocytes takes place on incubation, many leucocytes show sheep's red cells adherent to them, and many contain ingested sheep's red cells.

If now the washed red cells from the blood of a sheep which is known to be toxic to human leucocytes be first treated with a 1 per cent. solution of formaldehyde in normal saline, centrifuged, washed, and then treated with a 5 per cent. solution of acetone in normal saline (to the verge of haemolysis) and again rewashed and incubated with human (C.J.B.) blood, the sheep's red cells, as the result of the treatment by formaldehyde and acetone, will have lost their toxicity. Free emigration and ingestion of the sheep's red cells by the human leucocytes will take place.

If, however, the rewashed red cells so treated be resuspended and reincubated in their native sheep's blood serum, then, on rewashing and reincubation they will be found to have regained their original toxicity.

Thus, whatever be the exact nature of the material which gives the sheep's red cell its toxic influence, it is probably derived in some way from the sheep's blood serum, which is in itself very toxic to human leucocytes.

But this detoxication of sheep's red cells (by formaldehyde and acetone) can also be obtained by treating the washed red cells by certain human blood serums. The red cells are immersed and preferably incubated for an hour or more in the blood serum of an individual previously known to exercise an opsonic effect on sheep's red cells. The suspension is then centrifuged, the cells are well washed in normal saline solution, and when incubated with the same (C.J.B.) blood are found to be non-toxic.

The fact suggests that the toxic coating on the sheep's red cells can be removed, or its toxic nature reversed, by immersion in human serum of an opsonic character. It is possible that the immunity of normal red cells to attack by their own leucocytes, while circulating in the blood, may depend on a delicate interaction between the red cells and the blood plasma in which they are suspended.

There is also some evidence that while the detoxicating effect exercised by an opsonic serum on toxic red cells is often associated with an agglutinating action on the same cells, yet the two effects are not entirely dependent the one on the other. Thus both agglutinating and non-agglutinating serums may opsonize the same red cells.

A further study of the detoxicating and opsonic effects of different chemical substances, and of different blood serums, on the red blood cells of the sheep and other animals, and also on the red cells of human individuals under different conditions, is bound to throw additional light on the means

by which, and the ways in which, bacilli and other organisms may be rendered more easily digestible by human leucocytes.

This letter is in the nature of a preliminary communication only. Other facts have come out in the course of the inquiry which I hope to publish later.—I am, etc.,

Leicester, July 5th. C. J. BOND.

BLOOD SUGAR ESTIMATIONS BY GENERAL PRACTITIONERS.

SIR,—In my belief, not only is it within the province but it is the duty of a general practitioner to carry out blood sugar estimations. I have done so for years. For the last two years I have used exclusively Maclean's test, which can easily and accurately be carried out in twenty minutes.

Diabetes mellitus does not seem to be understood by the average general practitioner, nor by many "specialists." Yet the modern treatment of diabetes is based on an enormous amount of accurate research, and its various chemical and dietetic problems are amongst the most fascinating in medicine. Does the "busy practitioner" care for none of these things?

I have been using insulin since it became available in this country, and I know of nothing in medicine or surgery comparable to it in its results. Thyroid therapy pales into insignificance.

We hear too much nowadays of the "busy practitioner." He seems to stand where his grandfathers stood, and makes no attempt to keep abreast of modern research. Modern medicine does not consist in rapidly seeing numbers of patients without any attempt to "bottom" cases; nor does it consist in prescribing stock mixtures. How can advances ever be made if the general practitioner is not to waken up?

I have been amazed at the apathy of the profession over insulin, at the reluctance of the profession to master the blood tests and so make the treatment available. "Without vision the people perish" is peculiarly true to-day. My partner and I not only do our own blood tests, but we do all our blood urea estimations, urea concentration tests, etc., and at the same time carry on a very large practice.—I am, etc.,

Hornsea, E. Yorks, July 3rd. ALEX. J. W. CALDER.

SIR,—Dr. Oxley's letter in the JOURNAL of June 30th (p. 1115) is timely. Undoubtedly there are some medical men in general practice who are quite capable of carrying out the blood sugar estimations as described by Professor Maclean; who have the time necessary, and will do the work with accuracy. But it is equally certain that this analysis is not suitable for the majority of men in general practice.

Professor Maclean's book is really excellent, and should be in the hands of all who have charge of diabetics, but I venture to suggest that the blood sugar estimations are not so simple as that book impresses upon the reader. The fifteen pieces of special apparatus mentioned by Dr. Oxley can be considerably reduced for the actual analysis, but the danger is the liability to error due to the variability of the solutions used in the analysis. The acid sodium sulphate solution is unstable, and it is difficult to obtain the correct degree of acidity with a small quantity. The sodium thiosulphate solution is most unstable, and must be titrated with iodine when first made and at frequent intervals. The standard solution of copper I have found to be very variable, and its exact strength must be carefully determined before it is used. It will be noticed that Professor Maclean uses the word "*about*" 11 c.cm. of N/400 sodium thiosulphate will be required for 2 c.cm. of standard copper solution. I have never found that exactly 11 c.cm. are required. The exact amount must be accurately determined and the necessary corrections made in arriving at the result. Without these facts being clearly understood, and the strength of the solutions of reagents being estimated before the blood is examined, the liability to error is very great.

The result required is the percentage of blood sugar in 0.2 c.cm. (about two large drops) of blood to two points of decimals, and the second decimal figure is generally the all-important one.

I know the conditions of life of a busy general practitioner; in the past I have spent many years in that capacity; I know the difficulties of accurate analytical work even in a well equipped laboratory, and I agree absolutely with Dr. Oxley that blood sugar estimations should be done in a laboratory, and that very few general practitioners can give the time required for this work.—I am, etc.,

Hastings, July 4th. A. H. HEADLEY HUCKLE, D.P.H.

POLYTHELIA.

SIR,—The subject of polythelia being now under discussion in your paper, the following notes may be of interest.

I have been observing this condition in London elementary school children during the past two years, and during this time about 20,000 children have been examined with this view, the number of boys and girls being approximately equal. Eighty-three cases of accessory nipple were found, giving a percentage of a little over 0.4 of all cases examined. Of these, 53 were in girls and 30 in boys. Fifty-five were on the left side, 35 of these being in girls and 20 in boys. Twenty-one were on the right side, 10 in girls and 11 in boys. In all these cases there was one accessory nipple only, but 7 children showed a bilateral polythelia—one extra nipple on each side: 6 of these were girls and only one a boy. In one of these girls the nipples were above and external to the normal nipples, but in every other case the accessory nipples were below and internal to the normal ones. All the accessory nipples were very small; an exceptionally large one reached a diameter of 3 millimetres; this was in a well developed girl of 12.

No nipples in abnormal positions were noted, but as the children are not completely stripped in the routine examination, this observation is of no value—I am, etc.,

London, July 3rd. EDITH M. GUEST, M.D.Lond.

ETHER *VERSUS* CHLOROFORM.

SIR,—I have given anaesthetics to a very large number of cases during thirty-two years of practice, following on two years of hospital resident work at the Metropolitan Hospital, E., and the Radcliffe Infirmary, Oxford. For over three years as an honorary anaesthetist to the King George (Military) Hospital, S.E., of 1,650 beds, I was generally giving anaesthetics for various surgeons (general surgery, nose and throat surgery, and eye surgery) two mornings a week, and not infrequently an afternoon as well.

I have usually given chloroform by preference (by the old, open, folded-lint method first taught me by Dr. Mills of Bart's). I have never had a death from anaesthetics. I had to give an anaesthetic in many cases of very severe operations (sometimes prolonged to two and a half or three hours) where the mere shock of the operation was possibly enough to cause death.

(1) As regards chloroform—I found that the most dangerous symptoms occurred generally during the first half-hour, after which all went well. This seems to me to confirm the dictum of my old teacher and friend the late Sir Lauder Brunton—that most so-called cases of death from anaesthetics were really deaths from shock—want of anaesthetics. I remember in this connexion the case of a very stout middle-aged lady on whom Sir Charters Symonds was performing inguinal colotomy. I was giving chloroform. She began to cough, and Sir Charters said "Don't let her cough"—I pushed the chloroform, coughing stopped, and the breathing became quiet, even, and normal. She made a good recovery.

(2) As regards ether—in many cases, and especially at the King George Hospital where I have had to administer to a man who (1) had been gassed (2) had had any shell shock, (3) had any tendency to bronchitis or even pharyngitis—I have had to discontinue ether, on account of cyanosis, continued coughing and expectoration of stringy mucus, and continue with chloroform—in all cases to a safe termination.

I may say that for a number of years I used always to give ether by preference, as I had been taught: so that I am quite as much at home with it as with chloroform.

May I in all humility venture to say that, apart from the purity of the drug, I think extra danger from chloro-

situations which made Captain Bentz a real inspiration during the months spent at Cape Helles: "He could always dispel the gloom of his brother officers by some whimsical imitation of a former teacher or an extravagantly witty burlesque, and his popularity amongst the rank and file was unbounded. When he received the severe chest wound which laid the foundation of prolonged ill health, and eight years later was the cause of his death, there were general expressions of grief and consternation, and the stimulus of his cheerfulness was deeply missed after his departure." His partner, Dr. Wolfendale, bears similar witness to Dr. Bentz's bright and cheerful disposition, which endeared him to the hearts of the people with whom he came in contact. Dr. Bentz married Miss Roberta Thompson, who, with an infant son, survives him.

Dr. ROBERT IRVINE GARDNER of Enfield died recently in a nursing home following an operation for an internal malady, aged 58. He was the son of Mr. James Gardner of Glasgow, and graduated M.B., C.M.Glas. in 1886. When he first went to Enfield he was assistant to the late Dr. Collyer, whom he succeeded in 1896 as medical officer of the Chase Farm schools. Dr. Gardner was also medical officer and public vaccinator for the Enfield district and workhouse of the Edmonton Union, and was a member of the North Middlesex Division of the British Medical Association. He is survived by his widow and young son.

Dr. THOMAS PATTERSON DEVLIN, of Balfour, British Columbia, died at Westminster, British Columbia, on October 30th. He was educated at Queen's College, Belfast, and took the L.R.C.P. and S.Edin. in 1882. Afterwards he went into practice at Great Yarmouth, and while resident there he joined the 1st Norfolk Volunteer Artillery, in which he held the rank of captain from November 22nd, 1899; later he held the same rank in the R.F.A.(T.F.). Five years before the war he went to Canada, where he took the diploma of L.C.P.S. British Columbia in 1909. He joined the army for the late war as a temporary lieutenant R.A.M.C. on February 10th, 1915, became captain after a year's service, and later was promoted to major. When demobilized in 1920 he returned to Canada.

Dr. DELCROIX DE COSTER, President of the Belgian Urological Society, has recently died.

Professor ALEXANDER ELLINGER, a well known German pharmacologist and dean of the medical faculty of Frankfort since its establishment in 1914, has recently died at the age of 53.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on December 19th the following medical degrees were conferred:

M.D.—A. W. Uloth, E. H. R. Altounyan, E. Wordley.
M.B., B.CH.—E. Tagoe.
M.B.—R. N. P. Wilson, G. H. Caiger, C. Dunscombe.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.CH.—*Part I*: E. V. Beale, F. M. Coll [illegible] Craib, G. J. V. Crosby, [illegible] J. H. Doggart, R. B. Fawkes, W. H. Gervis, R. A. Highmoor, J. W. Hope Simpson, R. Jackson, J. P. W. Jamie, W. A. Lister, H. R. Matthews, G. A. Metcalfe, H. D. N. Miller, S. M. Milner, E. G. Morris, J. Ness-Walker, C. E. Newman, G. G. Penman, A. D. Porter, E. A. B. Pritchard, R. H. T. Rea, R. L. Rhodes, W. L. Roberts, R. A. M. Scott, W. G. Scott Brown, F. A. H. Simmonds, L. V. Snowman, G. L. Thompson, G. K. Thornton, K. W. Thorp, F. C. O. Valentine, S. Vatcher, A. L. Walker, R. K. Wilson, F. R. Winton, H. Yates. *Part II—Principles and Practice of Physic, Pathology, and Pharmacology*: J. C. Ainsworth-Davis, L. J. Bendit, N. E. Chadwick, W. H. Craib, F. E. Graham-Bonnalie, G. T. Henderson, E. G. Holmes, J. W. Hope Simpson, R. Jackson, L. P. Lockhart, C. A. Lupton, R. J. Lythgoe, T. K. Maclachlan, F. H. Mather, G. A. Metcalfe, G. G. Millis, E. S. Page, R. J. V. Pulvertaft, B. E. Schlesinger, M. H. Webb Peploe, R. H. White, R. K. Wilson; also G. M. Brown Girton).

UNIVERSITY OF LONDON.

MISS ELEANOR M. SCARBOROUGH, M.B., B.S., B.Sc.Lond., has been appointed as from January 1st, 1924, to the recently instituted Readership in Pharmacology tenable at the London School of Medicine for Women.

Professor Hugh MacLean, D.Sc., M.D., Ch.B., has been awarded the William Julius Mickle Fellowship (of the value of £200) for 1924 in respect of the work which he has carried out during the past five years in experimental medicine. This Fellowship is awarded annually, under the terms of the Mickle Bequest, to the man or woman who, being resident in London and a graduate of the University, has done most to advance medical art or science within the preceding five years.

The following candidates have been approved at the examination indicated:

M. [illegible] J. V. C. Braithwaite, R. T. Lewis, M. [illegible]iddlemore, M. J. Panthaky. BRANCH III [illegible] Mary R. Barkas. BRANCH IV (*Midwifery* [illegible] Sybil G. Mocatta. BRANCH VI (*Tropical* [illegible]

M.[illegible] J. McCurrich, A. C. Perry.

* University Medal.

UNIVERSITY OF LEEDS.

THE following candidates have been approved at the examinations indicated:

M.D.—H. Caplan, R. E. Jowett, A. Sheard.

FINAL M.B., CH.B.—*Part I*: D. R. Allison, M. Backwell, Sara N. S. Barker, Rosie B. Becker, Kathleen Boddy, T. H. Carr, J. Cohen, R. Cohen, F. R. Curtis, J. S. Dinsdale, J. Duncan, J. Ewing, G. K. Fitton, W. S. Flowers, Elsie G. M. Ford, G. Gorstige, J. R. S. Greenwood, P. V. Hardwick, J. L. Hartley, A. Hemingway, W. R. Hill, W. O. S. Hornby, S. Leviten, G. M. D. Lobban, A. V. McLean, M. Masser, J. L. Moorhouse, W. Murphy, S. Nagley, J. H. O'Donnell, Edith V. Olver, R. S. Pyrah, M. Rabinovich, Rosamond E. Roper, J. W. Silversides, S. K. Sledge, Ann Sugden, G. W. Taylor, R. W. L. Ward, A. C. Welch, D. Zimmerman. *Part II*: C. H. Ackroyd, J. Cardis, G. Chambers, A. Franklin, G. D. Gordon, Muriel D. Graham, E. L. H. Jones, I. Kovelman, A. H. Morley, J. W. Pickard, Kathleen M. Potter, N. A. Scadding, K. A. Turner. *Part III*: *R. Chester, *F. N. Foster, *E. Holmes, *Gretta M. Wardle, Marjorie Baxter, D. Braham, R. E. Crockatt, J. Freeman, Marjorie M. Jackson, R. H. Lodge, R. Marinkovitch, H. M. Petty, H. Sheard, J. S. Walker, N. F. Winder.

D.P.H.—Effie G. Bolton, Mabel M. Maclean, M. J. O'Neill, Jessie Sheard.

The William Hey Medal for 1923 was awarded to G. F. Walker, who obtained the M.B., Ch.B. degree with first class honours in June, 1923.

The West Riding Panel Practitioners' Prize in Medicine was awarded to Myer Cohen, who obtained the M.B., Ch.B. degree with second class honours in June, 1923.

* With second class honours.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B. (*New Regulations*).—C. N. Aldred, W. Broadhurst, J. F. Bromley, Bessie E. Cook, *R. W. Fairbrother, Madge E. Heywood, Bertha Kahn, L. W. Kay, A. C. Kelly, V. F. Lambert, W. B. McKelvie, [illegible] Marjorie Robinson, Kate B. [illegible] Marjorie Thompson, Sarah [illegible] Yonatt. *Obstetrics and Surg* [illegible] W. C. V. Brothwood, T. A. [illegible] s, T. E. Davies, R. Ellis, L. Fay, C. R. Fielding, A. G. Forbes, Anne H. Glancy, J. W. Graham, P. Gregory, E. Holmes, Winifred L. Horton, J. N. Hudson, Phyllis Kaufmann, D. Kemp, Hilda M. Linford, F. R. Lockhart, S. Bope, L. J. Prosser, A. Riley, Eileen Sheehan, Dorothy Simmons, J. Sims, G. S. Smith, A. R. Somerford, J. Troup, H. M. Turner, C. Willcocks, G. Williamson. *Obstetrics*: J. H. Anderson, S. Bernstein, Madge E. Edwards, P. G. Johnson, Alice M. Orrell, R. F. Stubbs. *Forensic Medicine*: C. E. W. Bower, Gladys F. A. McLean. *Hygiene and Preventive Medicine*: C. E. W. Bower, C. Eccleston, Gladys F. A. McLean, W. M. Roberts, H. C. Smith, E. Whiteside.

* Awarded distinction in Obstetrics.

UNIVERSITY OF SHEFFIELD.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—G. R. Bailey, L. H. Copping, T. R. Forsythe, C. H. Greaves, C. Myers, J. E. Tannian.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE following are the successful candidates at the recent primary examination for the Fellowship of the Royal College of Surgeons of England; 144 candidates presented themselves, of whom 106 were rejected:

G. F. G. Batchelor, R. Broomhead, H. J. A. Colvin, E. H. Derrick, R. L. Dodds, P. Dooley, N. L. Edwards, W. S. D. Elder, D. C. M. Etches, C. W. Flemming, H. L. H. H. Green, W. J. Henry, A. Hobson, B. R. Hosford, F. J. Jauch, Erna H. Jebens, F. R. Law, A. E. Lee, Marjorie Low, C. H. G. Macafee, G. F. H. McCormick, J. Mintzman, E. D. Moir, W. M. Muirhead, A. L. to Water Naude, H. P. Nelson, Marion G. Palmer, R. T. Payne, H. R. Pomroy, S. M. Power, M. M. Riad, G. D. Robb, A. R. Rutnam, J. J. Savage, E. X. Scah, S. V. Unsworth, R. M. Walker, J. Whillis.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following candidates, having passed the requisite examinations, have been admitted Fellows:

Albert Clifford Abbott, Thomas George Doughty Bonar, Hendrik Johannes Petrus Bruwer, Gerrard Burnett, Thomas Lindsay Clark, Robert Malcolm Dannatt, Ernest Chalmers Fahmy, Griffith John Hughes, William Ibbetson, Hubert Sydney Jacobs, Thomas Porter McMurray, James Herbert Rawlinson, Cecilia Shepherd, Charles Hamblen Thomas, Henry Ellis Yeo White.

Sinnatamby Thambipillai has been admitted a Licentiate of the College.

There is one evil which seems likely to arise out of the rather vigorous campaign which some authorities, with the best of intentions, are waging against chloroform—that is, that there is a chance that the rising generation of practitioners may be so unfamiliar with chloroform that they will be unable to use it with confidence or safety.

With your indulgence I should now like to revert to some of these points with the object of discussing with you the difficulties which seem to offer most hope of solution.

The danger of syncope occurring during chloroform anaesthesia is now an established fact, and reports of cases leave no doubt that the chief contributory factors are (1) any interference with respiration, and (2) the use of too concentrated a vapour. The first of these may be very obvious and accompanied by cyanosis, as, for instance, when the obstruction to free entrance of air results from faulty position of the jaw or from muscular spasm. Fortunately this type of trouble is easily removed by introducing an airway or by traction on the jaw; but a much more insidious form of faintness may result from the accumulation of mucus or blood in the larynx, which is best got rid of by cough. This cause of faintness may easily be overlooked, and in not a few of the cases reported has ended fatally. In this connexion I am tempted to refer to what seems to me to be a misinterpretation of Goodman Levy's teaching concerning the safety of deep chloroform anaesthesia: in certain instances, when alarming symptoms have arisen, they have been considered an indication for deeper anaesthesia, with disastrous results; but it is certain that the indication is rather to get the airway clear before doing anything else.

We come across quite a number of instances where death has taken place shortly after the patient has been moved from one table to another, or from one position to another. With the excessive relaxation of profound anaesthesia any change of the patient's position may cause a fall in blood pressure, and, in light stages of narcosis, movement is apt to lead to vomiting with its usual faintness.

The concentration of vapour depends largely upon the extent to which the airway is kept free from obstruction.

I am sufficiently optimistic to believe that surgeons and anaesthetists, working together with the common object of trying to conserve as far as possible the blood pressure and muscular tone, will be able to lessen operation risks still further. That the importance of these two factors is now well appreciated in most quarters is shown by many of the letters I have received from anaesthetists personally interested in some of the cases recently reported.

For the sake of clearness I will avoid many words, and simply state what I believe to be the essential facts. When blood pressure falls seriously during manipulation, such as traction on the mesentery, it will generally return to normal, or nearly normal, when the manipulation stops, provided it has not been kept low for longer than fifteen or twenty minutes. It is of the utmost importance that the surgeon should help the anaesthetist as far as possible in this respect. The question of muscular relaxation is, to some extent, a matter of arrangement between surgeon and anaesthetist; too little is bad for the surgeon, but too much may be fatal for the patient. Relaxation of a group of muscles may conveniently be obtained by the injection of a local analgesic; this course enables the general tone to be maintained, which helps very materially to preserve the proper level of blood pressure.

I have come across six or seven instances in which deep anaesthesia was associated with a dangerous slowing of the pulse rate—to between 30 and 40 beats a minute—whereas, in the same patient, the pulse rate remained normal as long as the corneal reflex was not abolished. I feel that in such cases one is justified in refusing to deepen the anaesthesia, and thus probably save one's patient though perhaps losing one's surgeon.

When we come to consider the various causes of death after operations we find pneumonia and bronchitis too much in evidence. In conclusion, I would suggest that improvement in this direction would be enhanced if a large number of anaesthetists could be induced to send reports of any such cases they might meet with, during some definite period, to a committee appointed for the purpose. By this means valuable data should be obtainable from which to estimate the value of different techniques.

DISCUSSION.

Dr. McNamara said that the only criticism he would level against Dr. Flemming's paper was that an undue amount of time had been spent in discussing the miserable questions "who was to blame, and who was not to blame," for these terrible fatalities. The fact was that considering the prevalence of these fatalities where chloroform was used even in the hands of the best experts, and considering also that where ether was used even by non-experts, as in America, there was almost no mortality due to the administration of anaesthetics, those were to blame who used, or allowed to be used, chloroform on their patients.

Dr. Sington (London) drew attention to the question of oral sepsis and the necessity of dealing with this by suitable antiseptic measures being taken before operation. He also pointed out that atropine was usually used in too small doses.

Dr. C. H. Mott (Burslem) asked whether the tight bandaging referred to concerned the chest or the abdomen. Tight bandaging was especially employed after breast cases, and in these cases might do harm by restricting the breathing. He mentioned also that in the taking of blood pressures different readings could be obtained by taking them (1) with the hand at the side, and (2) with the hand raised. Thus readings could only be compared when they were taken with the hand on each occasion in the same position relative to the axis of the trunk. Referring to students not being taught to give chloroform if the other protagonists had their way, he thought that this might be an advantage except possibly in the case of the professional anaesthetist.

ANAESTHESIA BY THE GAS-OXYGEN-ETHANESAL AND THE GAS-OXYGEN-CHLOROFORM-ETHANESAL COMBINATIONS.

BY

H. EDMUND G. BOYLE, O.B.E., M.R.C.S., L.R.C.P.,

Anaesthetist and Lecturer on Anaesthetics to St. Bartholomew's Hospital.

The aim of all anaesthetists should be so to produce and maintain anaesthesia as to give satisfaction to the operator, safety and a minimum of discomfort to the patient, and reward, and mayhap praise, for the anaesthetist. With these aims in view I have been endeavouring during the last six or seven years to perfect a method which would as far as possible fulfil the necessary requirements, and in the gas-oxygen-ethanesal and gas-oxygen-chloroform-ethanesal combinations I think that we have methods which, when properly employed, will give better results than the majority of us were wont to obtain by other means.

Now, anaesthesia by these combinations entails a little more than the mere giving of the anaesthetic, for, to obtain really good results, attention must be paid to medication prior to the actual administration. Thus I advise a hypodermic injection half an hour before the operation, and the contents of this injection vary with the patient and with the operation—for example, for children I usually order 1/200 grain of atropine to be given thirty minutes before the operation; for the older children, say, from age 14 upwards, I give morphine 1/6 and atropine 1/150 grain, while for adults I prefer the "hyoscine compound A" of Burroughs and Wellcome, and for big strong men their "hyoscine compound B." I have tried a great many variations of these preliminary injections, and find that those I have mentioned give the best results.

In regard to the contents of the "ether" bottle, experience has shown me that to obtain the best results

The Services.

D.M.S. INDIA.

MAJOR-GENERAL O. L. ROBINSON, C.B., C.M.G., Army Medical Service, has taken up the post of Director of Medical Services of the Army in India in succession to Major-General Bowle-Evans, Indian Medical Service, who recently vacated the appointment, which he has held only since July last.

DEATHS IN THE SERVICES.

Colonel George Taylor Goggin, Army Medical Staff (retired), died at Folkestone on December 16th, aged 70. He was educated at Queen's College, Cork, and took the L.R.C.P. and S.Edin. in 1877. He entered the army as surgeon in 1880, attained the rank of colonel in 1907, and retired on January 14th, 1910. He served throughout the South African war, 1899 to 1902, and held the local and temporary rank of colonel. He took part in the relief of Ladysmith, including the actions at Colenso, Spion Kop, Vaal Krantz, Tugela Heights, and Pieter's Hill; operations in Natal, including the action at Laing's Nek; in the Transvaal, east of Pretoria; and in the Orange River Colony, where he was in charge of a general hospital. He was twice mentioned in dispatches, and received the Queen's medal with six clasps and the King's medal with two clasps. After his retirement he rejoined for service in the late war, when he was employed as D.D.M.S., Western Command, and later as A.D.M.S. at Devenport.

Lieut.-Colonel John Latchford, R.A.M.C. (retired), died at Falmouth on November 29th, aged 78. He was born on April 14th, 1845, and educated at Trinity College, Dublin, where he graduated A.B. in 1864 and M.B. in 1865. He entered the army as assistant surgeon on March 31st, 1868, served in the 1st Foot, the Royal Scots, under the old regimental system, became surgeon major on March 31st, 1880, and retired on March 27th, 1889. While on the retired list he was employed at Galway in 1896-1901, and in Dublin from 1902 to 1903.

Lieut.-Colonel Daniel Grove Marshall, Bengal Medical Service (retired), died in Edinburgh on December 16th. He was born on September 4th, 1860, the son of Robert Marshall of Shrewsbury, and educated at Edinburgh University, where he graduated M.B. and C.M. in 1885. After filling the post of house-surgeon of the clinical wards in the Edinburgh Royal Infirmary, he entered the I.M.S. as surgeon on March 31st, 1888, passing first both into and out of Netley, where he took the Herbert prize, the Parkes Memorial medal in hygiene, and the Montefiore prize and medal for surgery. He became major on March 31st, 1900, but was placed on temporary half-pay on account of ill health in 1904, and had to retire, for the same reason, in the following year. He settled in Edinburgh, where he became lecturer on tropical diseases in the Extramural Medical School in 1905 and in the University in 1909. He served in the Burmese war in 1889-92, receiving the medal with a clasp; on the North-West Frontier in the Isazai campaign of 1892, and in the Tochi in 1897-98 (medal with clasp); and in the China war of 1900, including the relief of Peking (medal with clasp). In October, 1918, he was appointed a temporary lieutenant-colonel in the R.A.M.C., and was consultant on malaria for the Scottish Command, and received an honorary step of promotion to lieutenant-colonel from October 15th, 1919.

Medical News.

NEGOTIATIONS have recently been conducted between the Danish Medical Association and the Danish Government with regard to the former's request that doctors' motor cars should show a distinctive sign indicative of certain privileges, such as the right to leave a car outside a patient's house, to use roads not intended for ordinary motor traffic, and to exceed the ordinary speed limit. The authorities have not granted all that was asked, but it has been intimated to the Danish Medical Association that the police will be given instructions to allow some at least of the latitude desired for the medical use of motor cars. This concession is the more welcome as it has long been felt to be a grievance that the doctor who leaves his car in a street to attend to a case of difficult labour has been as liable to prosecution as the lady who spends an hour receiving manicure attention while her car waits in the street.

A COURSE of free lectures on cancer will be given by members of the staff at the Cancer Hospital, Fulham Road, Kensington, to medical practitioners, on Wednesdays at 4.30 p.m., commencing January 2nd, 1924, and concluding on March 19th. The lectures will deal with every aspect of the subject, and an endeavour will be made to present the developments of research in etiology, diagnosis, and treatment.

THE fourth annual dinner and dance of the Panel Committee for the County of London will be held at the Wharncliffe Rooms, Hotel Great Central, Marylebone Road, Road, N.W.1, on Thursday, January 3rd, 1924, at 7 p.m. Reception, 6.30; dancing 9.30 p.m. to 2 a.m. The dinner is open to all practitioners and their friends. Tickets (gentlemen 21s., ladies 15s., exclusive of wines) may be obtained of any member of the committee, or of Dr. C. L. Batteson, dinner secretary, 228, Goldhawk Road, W.12, or of Dr. Robert J. Farman, Staple House, 51, Chancery Lane, W.C.2.

THE Prince of Wales opened, on December 12th, the new extensions at the Prince of Wales's General Hospital, Tottenham, consisting of three new wards holding seventy-two beds, a new theatre unit, and nurses' quarters, erected at a cost of £40,000.

A DINNER of the Queen's University Club, London, followed by a musical programme and dance, was held on the night of December 13th at the Criterion Restaurant, Piccadilly. The members and guests, of whom there were over a hundred present, were received by Dr. and Mrs. J. J. Redfern of Croydon. This reunion of Belfast University graduates and students was a great success. Membership, without nomination, was declared open to those eligible (all faculties) on payment of entrance fee and subscription, before March 1st, 1924, to the honorary treasurer, Mr. R. A. Kerr, 17, Wimpole Street, W. It is hoped that Queensmen and Queenswomen everywhere will join the club. Full particulars may be obtained from the honorary secretaries, Mr. W. McK. H. McCullagh, 152, Harley Street, W., and Dr. E. G. B. Calvert, 17, Wimpole Street, W.

A CHARITY ball, at which the Prince of Wales will be present, will be held under the auspices of the League of Mercy, at the Carlton Hotel, Pall Mall, W., on Wednesday, January 16th, 1924. Dancing will commence at 10 p.m. The price of single tickets, to include supper and light refreshments, is 30s.; they can be obtained from the Secretary, League of Mercy, 20, Cockspur Street, W.

AT a meeting held on behalf of the Walworth Women's Welfare Centre on December 13th, Lord Buckmaster presiding, it was moved by Dr. Elizabeth Sloan Chesser, seconded by Dr. Binnie Dunlop, and resolved without dissent, that "This meeting represent to the Ministry of Health that it is desirable that no official opposition should be raised to the giving of birth control advice at any welfare centre, the medical officers of which are willing to give such advice."

DURING the recent Pasteur festival the University of Strasbourg conferred honorary degrees on Flexner and Loeb of the Rockefeller Institute, New York, Ramon y Cajal of Madrid, Perroncito of Turin, Welch of Baltimore, Ehlers of Copenhagen, and Bordet of Brussels.

THE fourth all-Russian congress dealing with health resorts will be held next month at Moscow.

THE next Congress of the French society of dento-facial orthopaedics will be held at the Paris Faculty of Medicine from January 19th to 21st, 1924. Further information can be obtained from the general secretary, M. de Nevrezé, 20, Rue Mogador, Paris.

MESSRS. BURROUGHS, WELLCOME AND CO., and the BRITISH DRUG HOUSES, LIMITED, inform us that in accordance with the announcement by the Medical Research Council published last week (p. 1232) the price of insulin will be reduced on and after January 1st, 1924, to 12s. 6d. per phial containing 100 units (10 doses) in 5 c.cm.

DURING 1922 the number of free venereal clinics in Germany was increased from 174 to 188. Of the 106,763 persons examined, 17,156 were found not to have any venereal disease; of the 77,307 who had some form of venereal disease, 28 per cent. of the men and 26 per cent. of the women were married.

NUMEROUS cases of acute poliomyelitis are reported to have occurred lately in Berlin, not only among children, but also among adolescents.

OF the 1,500 medical practitioners in Tokyo 1,000 have lost their practice as the result of the earthquake.

WATSON AND SONS, Sunic House, issue an exposure table in card form for estimating the x-ray exposures when using Coolidge tubes with either plates or double-coated films. The convenient form should make this of use to many x-ray workers.

SOVIET Russia was declared free from cholera on October 3rd.

MR. J. W. WHEELER BENNETT, High Sheriff of Kent, has made a donation of £10,000 for the extension and improvement of the Kent County Ophthalmic Hospital, Maidstone.

DR. SPILLMANN, professor of dermatology and syphilis in the University of Nancy, has been nominated dean of the Faculty of Medicine in succession to the late Professor Meyer.

WE regret to hear of the death, on Christmas Day, of Sir Napier Burnett, K.B.E., M.D., Chief Executive Officer of the Joint Council of the British Red Cross Society and the Order of St. John of Jerusalem. He had been in ill health for some months. He was 51 years of age.

the contents of this bottle must be varied with the patient and the particular operation. I never use chloroform for children, and rely entirely on gas-oxygen-ethanesal, for I have used this last drug exclusively since its introduction by Drs. Wallis and Hewer, and am perfectly satisfied with it. I may remind you that this preparation consists of detoxicated ether with the addition of 5 per cent. mixed ketones. The research carried out by Dr. Wallis showed, amongst other things, that (1) the chief harmful impurity in ether was methyl mercaptan; (2) absolutely pure ether was not an anaesthetic; (3) ethylene or certain ketones added to pure ether provided a good anaesthetic, which on the average gave better results and less after-effects than ordinary ether. Most of the results obtained by Wallis have now been confirmed by other observers; in spite of some opposition, I consider that ethanesal is a distinct advance on ether.

For the young adults as well as the older people I use a mixture of ethanesal and chloroform in equal parts. I only use chloroform alone in the bottle when the diathermy or other cautery is being used in the mouth.

To those who are not familiar with this method the exceedingly small amount of ether or mixture that is used for a long case—for instance, a breast excision—will be something of a surprise, for it is quite an ordinary occurrence for from one to two drachms to be all that is necessary for the whole operation. It must, therefore, be obvious that an anaesthetic of this nature must entail less strain on patients than if they are given ether or chloroform or mixtures thereof, since we are giving the least possible quantity of toxic drugs. We know that nitrous oxide and oxygen are both non-toxic, and the amount of toxic drug in the mixture is so small as to be almost negligible.

Now for a moment let us turn to the actual administration of the anaesthetic. Having seen that the machine is in working order, that the main taps to the gas and oxygen cylinders are turned on, that the lamp is burning with a small flame against the boss of the reducing valve to the gas cylinder, that the water bottle is filled to the proper level with warm water, and that the "ether" bottle contains such mixture as one desires for the case in hand, the gas and oxygen are then turned on and allowed to bubble through the water and thence to the gas bag in the proportion of approximately 10 to 1. As soon as the bag is three parts full the facepiece is applied to the face and the valve is turned over so that rebreathing starts from the beginning.

In a very short time the breathing will become deep, regular, and almost automatic; as soon as this occurs, by manipulation of the taps on the "ether" bottle the gases are made to pass over the surface of the fluid in that bottle, thus picking up in transit a small proportion of either ethanesal or CE vapour. After a few moments there will be another slight change in the breathing, which will become slightly snoring in character, and now, if the operation is an abdominal or nose and throat one, it is advisable again to manipulate the taps on the "ether" bottle and allow the gases to pass through the mixture, thus picking up a larger dose. By this time the patient is ready for operation, and in the majority of cases after the incision has been made through the skin the taps on the "ether" bottle can be turned back and gas-oxygen alone administered. When anaesthesia has been obtained the proportion of gases is altered to, in general terms, about four of gas to one of oxygen. In this method, as with all others, the airway must be kept open, and I have found that the introduction of an artificial airway greatly assists in obtaining good and quiet breathing.

The anaesthetist must now carefully watch the patient and be on the look-out for any changes in colour and any signs of a too light anaesthesia, such as swallowing or movement of limbs. The colour must be kept pink throughout, and should the anaesthesia be too light the ether tap must be turned on again for a minute or so. The eye signs in this method of anaesthesia are not of very great value, for it is quite possible to have a perfectly still and quiet patient with a brisk corneal reflex. The only eye sign that I consider important is that should the pupil become widely dilated (due, I believe, either to too much gas, or too much mixture, or both), then the bag must be removed from the face, rapidly emptied, refilled with oxygen alone, and again applied to the face; after a few breaths the amount of oxygen can be reduced and gas added as before.

For a great number of operations it is quite unnecessary to give any more mixture, and the remainder of the operation is conducted under gas and oxygen. Given in this way the anaesthesia is excellent both for patient and operator, while the after-condition is extremely satisfactory. The patients readily regain consciousness, and in the majority of cases are not inconvenienced by nausea or vomiting. In addition to this they are rarely, if ever, conscious that they have had anything save gas and oxygen, for they do not, as a rule, have any taste or smell of ethanesal or chloroform. This lack of smell and taste is another point worth bearing in mind, for those working in the theatre—surgeons, anaesthetists, nurses, etc.—do not become impregnated with the smell and odour of ether or chloroform, an important point for their own comfort. I find nowadays that, in using this method, after a long afternoon in a theatre I can leave feeling quite fresh and well, and the atmosphere of the theatre never becomes charged and laden with the vapour of ether and chloroform, as it often did formerly.

Operations such as amputation of the breast, hernias, varicocles, and the like, are quite easily done under gas and oxygen and a very small quantity of either ethanesal or mixture; it is when one comes to the abdominal and nose and throat work that the difficulty begins.

For some time now many of us have been trying to get some combination to act as a really good relaxant for abdominal work. Gwathmey of New York uses a combination of ethyl chloride, ether, and chloroform, whilst McKesson of Toledo recommends a saturation in N_2O. It is hardly necessary to add that, in giving this combination for abdominal work, a certain amount of intelligent anticipation is necessary on the part of the anaesthetist, so that the surgeon may find the abdominal wall quite relaxed when the time for sewing up has arrived.

Let me make this a little clearer: assume that we are operating on a case of appendicitis. The anaesthesia is deepened at the beginning, so that the surgeon may easily find the appendix and bring it outside, but when once it is outside the anaesthesia need not be of a deep character, and so we only give gas and oxygen. Later on, when we see that in a few minutes the caecum will be returned to the abdominal cavity and the peritoneum sewn up, we again deepen the anaesthesia by turning on the mixture for a few minutes, and directly the peritoneum is stitched up we can again return to gas and oxygen alone. My experience of abdominal work done in the manner I have tried to explain is that the patient is infinitely better both during and after the operation when the combination of gas-oxygen-ethanesal-chloroform is given than after any other combination or single anaesthetic that I have so far encountered.

When I first began to use this method for nose and throat work I had nothing to guide me: so far as I knew my friend Gwathmey of New York was the only man who had tried to give gas and oxygen for throat work, and he had only begun, for the war cut his work short in New York and he came over to Europe. I will not weary you with an account of my earlier cases; many of them were failures, and it was only by sticking to it and having such a cordial co-worker in Mr. Harmer, our senior throat surgeon at St. Bartholomew's Hospital, that we have been able to evolve a method which I believe to be an excellent one for this type of operation, and one which is infinitely superior to anything that we have tried before.

Briefly, our technique is as follows: In regard to premedication, children have none, or at the most get 1/200 grain atropine; adolescents get morphine 1/6 grain and atropine 1/150 grain; adults get either Burroughs and Wellcome's "Hyoscine compound A" or "B," according to size. "Hyoscine compound A" contains hyoscine hydrobromide

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*: telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

LICENCE FOR MALE SERVANT.

"L. B. S." employs a man on various work in connexion with the house, garden, delivery of medicine, and cleaning (not driving) of car. He is of opinion that the greater part of his work is in connexion with the practice, including therein (*a*) the cleaning of professional equipment and (*b*) work necessitated by the employment of other servants for professional purposes. The Ministry of Labour requires payment of unemployment contributions, but has apparently done so on the assumption that he is a "chauffeur and handyman," which is not entirely correct. Can licence duty be imposed?

*** In our opinion the answer to the question turns on whether (*b*) above is work done arising out of "employment in a personal, domestic, or menial capacity." We are not aware of any binding decision which covers the facts. The difficulty from our correspondent's point of view is the disjunctive "or" in the defining phrase. *Prima facie* domestic or menial work—for example, the cleaning of the surgery-maid's boots—is work in a taxable capacity although the ultimate object to be served is professional. On the other hand, to apply that construction rigidly would clearly involve considerable inequity—as, for instance, where a man was wholly employed on such work in a private nursing home. We suggest that our correspondent might approach the Ministry of Labour again stating the facts once more—including the fact that the servant does not drive the car. In all the circumstances we cannot advise him to resist the "licence" claim at present.

THE INFANT ANUS.

"G. R." asks what should be the size of the anus in an infant aged about 6 months. He has to treat a case in which he considers there is some stenosis, and proposes to use Hegar's dilators. He wishes to know what size (that is, number) of dilator the anus should be dilated to.

*** The normal anus of a child of 6 months should admit the little finger comfortably; gradual dilatation to twice that size if possible may be advisable. If the nurse passed an index finger daily that would be sufficient to prevent further stenosis. A finger would be preferable to a Hegar's dilator. Developmentally the condition represents a stage of an imperforate anus, and it would be well to exclude a septum or any abnormal opening into urethra, vagina, or bladder.

CHRONIC URTICARIA.

"HIBERNIA" asks for advice in the treatment of a case of chronic urticaria which has lasted six weeks. Methods of treatment tried, without success, include calcium lactate 15 to 20 grains t.i.d., injections of adrenaline hydrochloride, intestinal antiseptics, tinct. belladonnae, and a lacto-vegetarian diet. The usual soothing external applications give, of course, only temporary relief.

TREATMENT OF ACTINOMYCOSIS.

DR. W. SCOVIL SODEN (Winchcombe, Glos.) asks for suggestions for further treatment of the following case: Male, aged 37, actinomycosis of soft tissues of right side of face following a sinus left from incomplete extraction of a septic tooth four years ago. The present disease was first diagnosed two years ago. Has had potassium iodide in doses up to 4½ drachms a day, autogenous vaccines, and *x* rays. Abscesses are always incised and evacuated as soon as softening takes place. The condition is apparently no nearer being cured now than at the end of the first two months of treatment. The patient has seen many surgeons and physicians, but no recognized line of treatment has done any permanent good.

INCOME TAX.

First Year of Practice.

"R. L." is not aware of his predecessor's profits, as properly calculated for income tax purposes, and has been assessed for his first year in the practice on the basis of the gross bookings less expenses of that year, the amount of the correct three years' average being unknown.

*** The amount assessed cannot be said to be correct; at best it is presumably put forward as a probable approximation. If "R. L." can adduce any specific causes why his profits (true, not cash profits) should be more than his predecessor's they should be taken into account and the current year's figures modified accordingly if they are to serve as an estimate of the probable average. Even if that adjustment cannot be claimed some allowance should be made for the probable loss by bad debts to be incurred on the debts outstanding; for this purpose a detailed examination should be made by "R. L." of the debts outstanding, and any probable loss thereon treated as an expense of 1922.

LETTERS, NOTES, ETC.

THE YEAR OF THE FIRST FOLIO.

MR. A. W. POLLARD has had the happy notion of sending to the *Times Literary Supplement* a list of the books published in London in 1623, the year of the appearance of the first folio edition of *Shakespeare*, which is, when all is said and done, the canon of his plays. The number of new works entered on the Stationers' Register in 1623 was 168. The list included ballads and news-letters or "Currants"; excluding these there were 145 entries of books; 88 of these (or 60 per cent.) dealt with religious subjects. There was only one book on law, but there were three medical entries, all of a popular kind. "They comprised," Mr. Pollard says, "(*i*) the second part of Toby Venner's *Via recta ad vitam longam*, (*ii*) *The Anatomie of Urines*, partly a translation, but containing 'a discourse of the lawlesse intrusions of parsons and vicars upon the profession of physicke' by the translator, James Hart, and (*iii*) 'a booke called *Panala, Ala Catholica, or a compound ale, which is a generall purge for most infirmities*.' To this last Master Hart may equally have objected, since it was written by 'Master Folkingham, gent.,' who presumably had no medical qualification."

CHOCOLATES.

THE Christmas parcel post has brought to this office a box containing an attractive assortment of chocolate and chocolate-coated sweetmeats, manufactured by Messrs. Cadbury Brothers, Ltd., in their hygienic workshops at Bournville. It is a fortunate thing that confectionery so popular nowadays among all classes can be had in so pure a form and at such moderate prices. Chocolate as a beverage was known to connoisseurs in the sixteenth century, but chocolate comfits were something of a rarity even in our grandparents' time, and the young people of to-day must often wonder how our ancestors contrived to exist before the great Quaker firms began to overspread the country with their delectable wares.

THE "Osteograph" supplied by Messrs. H. K. Lewis and Co., Ltd. (price 6s. 9d., post free), is a simple celluloid sheet by means of which the outlines of the bones can be rapidly and accurately drawn. The device is likely to be of use to students of anatomy and to any members of the medical profession who require such drawings for notes or demonstration purposes.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

MARRIAGE.

PLACE—TURNER.—On December 22nd, at St. Margaret's Church, Burnage, Thomas Byron Place, junr., L.D.S., eldest son of Thomas Byron Place, L.D.S., of Crewe, to Mary Turner, M.B., Ch.B., D.P.H., eldest daughter of the late Martin Turner and Amy Turner of Manchester.

DEATHS.

BISSET SMITH.—On December 5th, at his residence, 23, Willow Road, Hampstead, N.W.3, John Bisset Smith, M.A., M.B., Ch.B., aged 74 years.

GARDNER.—On October 9th, Robert Irvine Gardner, M.B., of London Road, Enfield, after an operation.

WORTS.—On December 23rd, at Fordham Lodge, Fordham, Charles James Worts, M.R.C.S., L.S.A., aged 80 years.

TRYPARSAMIDE.

SIR,—One can appreciate with Sir Frederick Mott[1] the importance of incontestably establishing the diagnosis of syphilis of the brain or spinal cord parenchyma, by finding the *Sp. pallidum* in the cerebro-spinal fluid, before cure following any particular treatment of this condition be claimed. It is a stipulation not very easy to fulfil, and most of us will be glad enough now to give tryparsamide a trial in cases where the diagnosis rests on clinical signs and changes in the cerebro-spinal fluid short of revealing the parasite.

We owe to Sir Frederick Mott the demonstration of the close similarity of histology in invasion of the brain parenchyma by the spironema of syphilis and the trypanosome of African sleeping sickness; and he has dwelt on the analogy existing between these infections. Therefore (as an aid to optimism) I venture to remind him of the paper[2] read by Dr. Clement Chesterman in January last, giving his experience of the effect of tryparsamide on cases of sleeping sickness in the Belgian Congo. I particularly direct attention to a certain six cases in his series of forty. None of the six had had any previous treatment; all of them showed well marked signs of involvement of the central nervous system, and in all trypanosomes were found in the cerebro-spinal fluid before beginning treatment. By Sir Frederick Mott's own criterion[3] these were cases of trypanosomiasis of the brain or spinal cord parenchyma.

Two were improved by treatment, but developed rather serious visual troubles; another was in apparent good health three months after treatment; the remaining three had normal cerebro-spinal fluid after cessation of treatment and were well and back at work eight, nine, and eleven months, respectively, later.—I am, etc.,

London, W., July 10th. H. M. HANSCHELL.

[1] BRITISH MEDICAL JOURNAL, July 7th.
[2] Transactions Royal Society of Tropical Medicine and Hygiene, vol. xvi, No. 7, January, 1923.
[3] Ibid.

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on June 20th.

The Academic Council reported that in view of urgency the Vice-Chancellor had appointed the following examiners:

For the M.D. examination, Branch III, July, 1923: Sir Frederick Mott and Dr. E. Farquhar Buzzard. *For the M.S. examination*, Branch III, July, 1923: Mr. H. L. Eason, Mr. J. H. Fisher, Mr. C. H. Fagge, Sir John Parsons, and Mr. C. B. Goulden.

It was resolved to institute a B.Sc. degree in pharmacy for external students.

Professor Frederick Wood Jones has been appointed to the University Chair of Anatomy tenable at St. Bartholomew's Hospital Medical School.

Dr. R. J. S. McDowall has been appointed to the University Chair of Physiology tenable at King's College.

The annual report of the Brown Animal Sanatory Institution showed that 5,205 animals had been brought to the institution during 1922. Five lectures on the nature of ultramicroscopic viruses had been delivered at the Royal College of Surgeons by the Superintendent in 1922 in conformity with the terms of the will of late Mr. Brown. The superintendent, Mr. F. W. Twort, who has been reappointed for one year from June 1st, 1923, has continued his work in the laboratories on the ultramicroscopic viruses and on the filter-passing bacterial lysins. A certain number of experiments have also been carried out on the lepra bacilli of man and rats.

The University Studentship in Physiology for 1923-24 has been awarded to Mr. H. M. O. Lester, who has passed the second examination for medical degrees as an internal student at St. Thomas's Hospital Medical School; he is doing research work on the development and function of the prostate gland.

The University Medal at the M.B., B.S. Examination for internal and external students, May, 1923, has been awarded to D. H. Patey of the Middlesex Hospital.

Applications for the William Julius Mickle Fellowship, of the value of at least £200, must be sent to the Principal Officer of the University by October 1st. It is awarded annually by the Senate to the man or woman, who, being resident in London and a graduate of the University, has, in the opinion of the Senate, done most to advance medical art or science within the preceding five years, and has therein shown conspicuous merit.

UNIVERSITY OF BRISTOL.

THE regulations for the degree and diploma in Dental Surgery and for the conjoined degrees of Bachelor of Medicine and Bachelor of Surgery have been amended in order to conform with the revised regulations of the General Medical Council.

UNIVERSITY OF LIVERPOOL.

THE following candidates have been approved at the examinations indicated:

M.D.—A. V. C[illegible]

FINAL M[illegible] Barlam, †T. J. Kirkpatrick, ‡J. Ro[illegible] *III.*—B. Abelman, A. R. D. Adams, J. [illegible] T. L. Bulmer, Hilda Cantrell, W. J. B. Childlow, R. G. Cooke, V. C. Cornwall, I. H. Davies, Hilda [illegible] P. Finn, N. D. Fraser, J. R. Griffiths, [illegible]nt, T. Knowles, W. J. Laird, D. A. [illegible] Lloyd, Mary M. McMillan, P. Malpas, [illegible] L. Niven, T. V. O'Brien, C. H. Owen, J. D. O'M. Poole, Gertrude E. Pugmire, E. L. Roberts, Dorothea W. Rogers, J. P. D. Shrewsbury, E. R. Smith, Helen Standring, Dorothy [illegible]nark, H. P. Widdup, A. G. [illegible]ns, Mary G. T. Williams, [illegible]roft, T. Hare, A. D. Harper, [illegible] Katz, W. A. McCurdy, J. [illegible], R. D. Owens, P. J. Rogers, [illegible] *Part II.*—B. E. Acland, M. M. P. Arthur, C. B. Bamford, P. D. Barling, E. C. Benn, R. V. Berrington, C. H. Bradley, R. S. Brock, Helen S. H. Brown, Alison M. Brummitt, J. W. Cohen, N. Cresswell, M. M. Datnow, Edwina M. Davies, Eileen N. Deane, W. T. Donovan, W. H. Ellam, W. Emlin, E. A. R. Evans, F. R. Faux, ¶H. W. Fell, H. R. Fisher, M. Fisher, C. G. Foxcroft, F. P. Fuller, G. A. Fulton, G. A. Garrett, J. Gaughan, H. Gobie, M. Godwin, J. Graham, T. A. Griffiths, Dorothy M. Hanson, T. Hare, A. D. Harper, F. C. S. Hinsbeck, Fannie S. Holt, S. Howard, J. E. Howie, G. P. Huws, Hertha H. Irvine, F. P. Irvine, Elvy I. Johnstone, C. P. Jones, ¶R. W. Jones, R. C. Jones, ¶R. Jones, D. Katz, Lishman, J. H. M. Little, G. Lowe, Margaret S. Macdonald, E. Miles, I. Moulden, A. Newton, J. R. R. Nich[illegible] F. C. O'Mara, A. Osetowitz, E. R. S. Owen, R. D. Owens, A. Pool, R. J. Prydlerch, Gwendolen H. R. Roberts, J. T. C. Roberts, E. Rowlands, E. Scott, J. A. Scott, P. Strelitz, G. V. L. Taylor, A. C. Terry-Thompson, H. H. Thompson, ¶J. J. du Toit, Marjorie A. Unsworth, ¶H. S. Welton, T. W. White, ¶Gwennie Williams.

* First Class Honours with Distinction in Obstetrics and Surgery.
† Second Class Honours with Distinction in Obstetrics.
‡ Second Class Honours with Distinction in Medicine.
§ Second Class Honours with Distinction in Surgery.
‖ Distinction in Public Health.
¶ Distinction in Forensic Medicine and Toxicology.
** Distinction in Pathology.

UNIVERSITY OF ABERDEEN.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B.—G. M. Anderson, Margaret J. Anderson, †A. G. Badenoch, J. B. Hill, Janet F. M. Burnett, C. W. M. Cameron, Catherine J. Clark, J. Clarke, P. G. Currie, R. Davidson, D. Dean, *A. W. Downie, *R. D. Downie, Elizabeth A. Dunbar, Mary Esslemont, E. C. Gordon, M. M'K. Gunn, W. H. Harris, Eleanor M. Henderson, Charlotte S. Hendry, J. S. Hutchison, A. [illegible] Ironside, E. J. Jolly, ‡L. W. Laing, *A. Lyall, B. W. Macdonald, F. Maclean, †Florence J. Malcolm, J. C. Milne, H. W. Mullins, R. G. Munro, F. R. Mutch, J. H. Peters, Margaret J. Rennet, E. R. Sorley, J. S. Taylor, Lily M. Watt, F. L. Webster, Mabel Wilson, Maude Wilson.

* With much Distinction. † With Distinction.

UNIVERSITY OF DUBLIN.

TRINITY COLLEGE.

THE following candidates have been approved at the examinations indicated:

FINAL M.B., PART I. [illegible] *Medical Jurisprudence and* [illegible] W. May, [illegible] Dick, W. *P. N. H. Labusch[illegible] Gallagher J. V. Morris, W. B. Roantree, E. T. S. Rudd, O. Chan[illegible], W. P. E. McIntyre, T. G. B. Crawford, W. A. Hopkins, J. R. Gregory, O'D. T. D. Browne.

PART II.—*Medicine:* *Marjorie F. Sibthorpe, *V. O. McCormick, P. J. Grobler, M. Cohen, B. W. D. Fayle, F. J. O'Meara, C. T. MacCarthy, W. T. Hogan, W. E. Hutchinson, M. Jaffe, J. E. Deal, F. T. Easby, R. A. D. Pope, W. L. Duncan, Isobel G. Smith, H. M. Martin, H. Ruben, H. Lewin, R. A. Deuch, R. C. L. Griffiths, Martha Reid, A. V. Foster, C. H. Keler, S. Narunsky, Bertha H. Lawler, J. J. O'Grady, F. G. Brown, H. W. L. Dale, Isabel a H. Speedy. *Surgery:* ¶R. T. Jackson, B. W. D. Fayle, F. J. O'Meara, J. E. Eliason, J. A. Gaynor, J. M. Mounsey, Marjorie F. Sibthorpe, R. A. D. Pope, H. S. Roseman, Maria E. Wagener, R. A. Deuch, W. S. Dixon, P. F. H. Wagner, B. Morris, W. E. Hutchinson, W. E. C. Wynne, A. Darlington, A. Asherson, W. F. Whaley, Gladys Weatherill, F. T. Easby, D. H. F. Milmo, Dorothy C. H. L. Feyman, Alice M. A. Downing, R. S. McElroy, R. C. L. Griffiths, H. L. Hanna, R. L. Hill, J. R. Wills, S. D. Gabbe, J. C. Byrne, E. C. Downer, W. J. Janse van Rensburg, C. T. MacCarthy, S. Narunsky, P. C. du Plessis, C. Gordon, A. V. Foster, T. Freedman, Dorothy L. Henry, H. Kohlberg, I. Marin, L. Phillips, C. B. Hillis, J. Kruger, J. A. Levitt, J. M. O'Connor. *Midwifery:* *J. J. Laing, *M. A. Gerrard, *H. Isaacson, J. E. Deale, W. F. Whaley, R. Schaffer, R. F. J. Henry, W. L. W. Smith, N. G. McAuliffe, T. G. Wilson, G. Purdy, G. A. Sloan, W. R. Aykroyd, Evaline E. Mooney, Lucy M. Joly, J. J. O'Grady, I. J. Isaacson, M. Jaffe, C. Gordon, Kathleen D. Murison, N. M. Greeves, P. P. van der Merwe, J. A. du Toit, Isabella H. Speedy, J. M. Gordon, J. J. FitzGerald, W. J. Janse van Rensburg, R. L. C. Fisher.

DIPLOMA IN PUBLIC HEALTH. PART I.—*Chemistry, Bacteriology, Physics, and Meteorology:* E. C. Smith, Elizabeth Killian.

PART II.—*Sanitary Engineering, Practical Sanitary Report, Hygiene and Epidemiology, Vital Statistics, and Public Health Law:* E. C. Smith, Dorothy K. M. Henry, Elizabeth Killian, Catherine A. Goggin.

* Passed on high marks.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

468. Underfeeding and Disease.

H. CURSCHMANN (*Muench. med. Woch.*, November 16th, 1923, p. 1579) describes the effects of the hunger period in Germany during and since the war on various forms of disease. The author considers that the endocrine glands and the vegetative nervous system suffer especially as the result of underfeeding. The thyroid gland is the one most affected, and during this period of underfeeding the author states that the number of cases of complete or incomplete hypothyroidism has considerably increased (mild cretinism, thyrohypoplasia congenita, mild hypothyroidism, and true myxoedema of the adult). The physiological menopause has not infrequently been followed by myxoedema. Atrophy of the thyroid gland, to a greater extent than atrophy of other organs, has been found *post mortem* in cases of hunger oedema, the most severe form of hunger disease, the oedema in which may be removed by giving vitamins, albumin, fat, and lime salts in larger quantities, or by giving thyreoidin. The usual forms of obesity (due to overfeeding, indolence, beer, etc.) improved greatly during this period of underfeeding, but cases of obesity of endocrine origin did not do so, and in some of these cases the underfeeding was followed by increase of the obesity. In contrast with the increase in the number and severity of the cases of myxoedema, there has been a diminution in these respects in the cases of Graves's disease. (Mönke's statistics, Hamburg, 1903–14: Cases of Graves's disease, 217; 1915–20, only 42.) Curschmann recommends, therefore, limitation of the flesh food in the diet, and warns against overfeeding in Graves's disease. In diabetes mellitus the underfeeding increased the tolerance for carbohydrates in large numbers of cases. The cases of hunger osteopathies were numerous (estimated by Römer and Fromme as 30,000 amongst adults in Germany in 1922). These osteopathies appeared in the young chiefly in the form of late rickets; in older persons, especially women, the symptoms were frequently those of osteomalacia. Rickets in children was more frequent and severe in the hunger period.

469. Meningeal Complications of Facial Erysipelas.

M. PINALIE (*Thèse de Paris*, 1923, No. 44), in a thesis containing the histories of 13 cases, of which two were observed by himself, remarks that although nervous symptoms, especially delirium and convulsions, are frequent in facial erysipelas, they can seldom be shown to be of meningeal origin. The rarity of meningeal complications in erysipelas as compared with other acute infections, especially pneumonia, is attributed to the following causes. First, a meningeal localization is favoured by the presence of septicaemia, which is rare in erysipelas owing to the streptococcus passing into the lymphatics and not into the blood. Secondly, lesions in the immediate neighbourhood, such as sinusitis, otitis, orbital suppuration, and naso-pharyngeal inflammation, which are apt to cause meningitis by spread of infection, are rare in facial erysipelas. Thirdly, a predilection for the meninges such as is shown by the meningococcus or pneumococcus is not exhibited by the streptococcus except in association with other organisms, especially the pneumococcus. The meningeal manifestations of erysipelas chiefly occur in the form of suppurative meningitis, as in 12 of the cases collected by Pinalie, the remaining case being one of serous meningitis. The symptoms, which as a rule develop during the acute stage of facial erysipelas, do not present anything to distinguish them from those of other forms of acute meningitis. With the exception of the case of serous meningitis, all Pinalie's cases proved fatal.

470. Bismuth in the Treatment of Syphilis.

L. K. MCCAFFERTY (*Arch. Derm. and Syph.*, October, 1923, p. 469) reports 25 cases of syphilis at different stages treated by bismuth, and the conclusions at which he has arrived as the result of his observations in this method of treatment. The preparation used was potassium and sodium tartrobismuthate; it was made up in ampoules of 2 c.cm. containing 20 cg. of bismuth in oil suspension, and from twelve to sixteen injections, given every four days, comprised a course. He found that bismuth in primary and secondary syphilis was as effective as arsenical preparations, though clinically and serologically it was less rapid in action. In three primary cases treated with bismuth the chancres cicatrized in five days, spirochaetes disappeared within ten days, and adenopathy within sixteen days, while the Wassermann reaction remained negative. The lesions and symptoms in the secondary cases treated rapidly improved, and while in three of them the Wassermann reaction was delayed, a negative reaction was obtained in the fourth case after only one course of injections. Only one gummatous case was treated, and here the gumma healed in three weeks, a negative Wassermann being present after two courses of bismuth. In five Wassermann positive asymptomatic tertiary cases the reaction was reduced in all except one—in three of them after the second course of injections. One case of tabes with tertiary lesions was of special interest in that the Wassermann reaction, negative before bismuth therapy, became positive after the second injection—possibly a provocative effect. Cases of tabes and others presenting incipient paralysis all showed improvement in subjective symptoms, which usually disappeared in the tabes cases after the first or second injection. The author hopes that the above two classes of patients will submit to spinal puncture in order that they may be followed up and a clearer estimate of the relative value of bismuth be obtained. He considers that there is a definite indication for bismuth in positive Wassermann cases and in those possessing an idiosyncrasy to arsenic. The pigmentation at the gingival borders and the ulcerative stomatitis frequently produced by bismuth are to be regarded as negligible, disappearing in from two weeks to a month after cessation of treatment. Monthly urine analysis is recommended. The author regards bismuth, separately or in combination with arsenic and mercury, as of considerable value in the treatment of syphilis.

471. Malarial Inoculation Treatment in General Paralysis.

W. WEYGANDT (*Klinische Wochenschrift*, November 19th, 1923, p. 2164) records his results in the treatment of general paralysis of the insane by inoculation with malarial parasites, according to the method of Wagner-Jauregg. The author has treated nearly 300 patients by this method, and gives his statistics. Two series of earlier statistics are combined with a third series of the more recent statistics in 170 patients inoculated over a year ago. The patients after inoculation can be classified in five groups. In one group are those in which death from the disease, or its complications, occurred in spite of treatment; in the second group are those in which no improvement occurred; in the three other groups more or less improvement was recorded. These results, though not conclusive, are certainly worthy of the careful consideration of all those who have to treat this grave disease, since the majority of the author's patients, after this inoculation treatment, were able to return to work. Short spontaneous remissions of symptoms in early general paralysis are well known, but the author considers they are not so marked nor of such long duration as those which follow malaria inoculation: 1 to 4 c.cm. of the blood of a patient suffering from tertian malaria is employed for the purpose of inoculation. Improvement in the symptoms of general paralysis is described: the rapid and the juvenile forms of the disease are not influenced, and in other mental affections, as also in disseminated sclerosis, no results were obtained by this treatment.

472. Congenital Mitral Stenosis with Patent Foramen Ovale.

A. CRAMER and ED. FROMMEL (*Arch. Mal. du Coeur, des Vaisseaux et du Sang*, August, 1923, p. 561) describe the case of a woman, aged 41, small but well proportioned, admitted to hospital six weeks before death. She had a severe paroxysmal cough, blood-stained sputum, violent thoracic pain, oedema of ankles, and oliguria, but at no stage of the illness was cyanosis observed. The area of cardiac dullness was greatly increased; it extended considerably beyond the right sternal border, while the apex beat was felt in the seventh left intercostal space in the anterior axillary line. A skiagram showed a greatly enlarged heart, while the thorax was so small that the heart was in contact with the vertebral column, producing definite dullness in the intrascapular region. There was a presystolic and systolic thrill and a short presystolic crescendo rumble followed by a systolic bruit conducted into the axilla. At the base the aortic sounds were feeble, while in the pulmonary area they were accentuated. There was epigastric pulsation and also marked arrhythmia. The liver extended 2 inches below the costal margin; it was firm, smooth, and non-pulsating. There was no history of rheumatism and no evidence of syphilis.

Dr. JOHN C. BEDWELL of Chesterfield, who died on June 4th, aged 50, was educated at the University of Edinburgh and the Middlesex Hospital. He graduated B.Sc.Lond., and took the diplomas of the Scottish Conjoint Board in 1916. He held the appointments of assistant school medical officer to the Derbyshire Education Committee and certifying physician under the Mental Deficiency Act, and was a member of the Chesterfield Division of the British Medical Association. He was formerly an assistant school medical officer in Sheffield. Dr. Bedwell was held in high esteem in Chesterfield as a hard-working, conscientious medical officer. He was very popular with all members of the school staffs and with the members of his own profession with whom he came in contact.

Medico-Legal.

LIBEL ON A MEDICAL REFEREE.

DR. SELBY WETHERELL PLUMMER, of Old Elvet, Durham, a medical referee under the Workmen's Compensation Act, had been the subject of criticism contained in a pamphlet signed by five officials of the Houghton Miners' Lodge, printed by a Durham firm of printers, and circulated to the members of the Houghton Lodge and also to the secretaries of other lodges of the Durham Miners' Association. Dr. Plummer referred this pamphlet to the Medical Defence Union, which decided to sue the signatories and the printers for libel. The case Plummer v. Gregory and Others was heard by Mr. Justice Greer and a jury at Durham Summer Assizes, and the proceedings terminated in a verdict for Dr. Plummer, who was awarded £100 damages.

The pamphlet was headed "Protest against a medical referee," and commenced:

"We wish to draw your attention again to medical referee's decisions on compensation cases (especially to Dr. S. Plummer, of Durham) . . . For a considerable time we took compensation cases to the county court ourselves until we were compelled to send them to Durham, and not one case was sent by the judge to a medical referee. Why? Because we were able to produce medical evidence and the judge examined all witnesses of the accident, and was therefore able to give a fair decision. We ask you to examine the reports of Dr. Plummer and judge for yourselves."

The pamphlet went on to instance four cases reported upon by Dr. Plummer, in the last of which Dr. Plummer said:

"There is, however, a permanent disability and he is not able to make full use of his left hand, and his condition is such that he is fit for employment as a pony-putter but he could not do heavier work which involves the full use of his left hand."

The pamphlet proceeded:

"It is evident that he thinks that 'putting' means 'putting lamps out,' and surely we ought to defend men who unfortunately happen to have accidents in the mine and whose future happiness, if any, and destiny, depends upon an Act of Parliament which allows a medical referee who, lacking practical experience, gives such ridiculous reports as stated above."

The judge held that the occasion was privileged—the pamphlet having been addressed only to members of the Durham Miners' Association—and that the comment so far was fair. But there followed a vital sentence which the judge considered should be left to the jury to ascertain whether the defendants were actuated by malice, in which case, of course, the privilege would be lost.

"We now strongly object to any further cases going before Dr. Plummer, and cases at our colliery are held up through our decision, and we respectfully ask your members to help us to turn this man off the medical referee's list, because if it had been *vice versa* he would have been struck off the list years ago."

The printers apologized, but, as the judge said, in the eyes of the law people who take part in printing or circulating a libel are responsible equally with its authors, and a jury cannot distinguish between the different defendants as to damages.

Dr. Plummer went into the witness box and dealt with the allegations contained in the pamphlet *seriatim*. The allegation that he was lacking in practical experience was refuted by his statement that he had lived in a mining district all his life, and that he had many times been down mines to see work that had been offered to workmen.

The defence was itself an exoneration of Dr. Plummer. It revealed the fact that the Houghton Lodge were so dissatisfied with the method of working the Workmen's Compensation Act that they not only issued the pamphlet complained of but also debated a resolution urging the abolition of medical referees altogether. Thus, in setting forth their objections to medical referees, the Houghton Lodge were betrayed into the use of strong language *seriously affecting* the reputation of an individual medical man. As Mr. Justice Greer aptly said, the jury must realize they were not dealing with the *editor* of a newspaper or a diplomatist, but with men who were accustomed to say in somewhat exaggerated but plain language, what they *meant*, and who did not always use the right word. Thus, in the last paragraph of the pamphlet, the defendants had got themselves into a state of mind where they were reckless and regardless of the effect of their words, and inserted a statement which they really did not need for the purpose of furthering the argument they were putting forward.

This case illustrates the difficult position in which a *medical* man may be put in his relations with any society of this kind. A society can circulate among its members any statement in which it may comment upon their doctor. The statement may do the doctor much harm, and yet the society responsible cannot be made liable if it has not abused their privilege—"privileged occasion," or "fair comment"—by being obviously actuated by malice. It was on the last paragraph that the defendants lost their case.

Medical News.

THE Fellowship of Medicine has arranged a course of lectures on medical and surgical diseases of children by the members of the staff at the Royal Waterloo Hospital from July 16th to August 3rd. Those taking part in the course will have an opportunity of attending the out-patient department, wards, and operations. A special course in dermatology will be given by the members of the staff at the Hospital for Diseases of the Skin, Blackfriars, from July 16th to 28th inclusive. Instruction will be given in the out-patient department every afternoon from 2.30 p.m., and a special demonstration on interesting selected cases will be held at 4 p.m. on Monday, July 16th, and Wednesday, July 25th. The course will also include a venereal clinic on Tuesday and Friday each week from 5.30 to 7 p.m. The fees for the courses are 3 guineas and 2 guineas respectively, and application for copies of the syllabus and tickets of admission should be made to the Secretary to the Fellowship of Medicine, 1, Wimpole Street, W.1.

THE British National Council for Mental Hygiene, which seeks to emulate the achievements of the American, Canadian, and French Councils in the promotion and preservation of the mental health of the community, is making an appeal for funds. The first essential is held to be the prevention and cure of those minor disorders which may develop into mental disability. It desires to co-operate with societies interested in industrial psychology, mental after-care, and mental deficiency and delinquency. It is anxious to facilitate the study of psychology and psychiatry on broad and temperate lines and to be put into a position to encourage scientific research. Donations should be sent to the honorary treasurer, Lord Southborough, at the offices of the National Council for Mental Hygiene, Room 55, Windsor House, Victoria Street, S.W.1.

THE Dental Board of the United Kingdom is arranging, for persons registered under the Dentists' Act, 1921, short intensive courses of lectures and demonstrations at Cardiff, Peterborough, and Dublin, and will make similar arrangements in Glasgow and Belfast if courses are not given at the dental schools there. Three lecturers will be appointed for each course and will receive a fee of 3 guineas for each lecture, with travelling and hotel expenses. Applications by lecturers should be received by the Dental Board (44, Hallam Street, London, W.1) not later than September 1st. Entrants for a course will be charged a fee of 1 guinea, but this will be returned at the end of the course to those who attend 75 per cent. of the lectures.

THE honorary secretary of the British Society of Dental Surgeons (11, Chandos Street, W.1) asks us to state that a meeting of holders of the L.D.S. diploma will be held on Friday, July 20th, at Steinway Hall, Wigmore Street, at 7.45 p.m., to consider the action of Liverpool University in offering a modified curriculum for the L.D.S. diploma to dentists (1921) and the possibility of such action by other educational authorities.

FOUNDER'S DAY will be celebrated at Epsom College on Monday, July 30th, when Lord Muir Mackenzie will give away the prizes.

Ars Medici is the title of a journal for general practitioners, founded in Vienna in 1911. Since the beginning of this year an English translation has been published monthly. It appears to be designed mainly for the use of the profession in America, the subscription (2 dollars) being payable to the American Express Company, 65, Broadway, New York.

At the *post-mortem* examination enormous hypertrophy of the right ventricle and auricle with hypoplasia of the left side of the heart were found. There was advanced mitral stenosis without incompetence, but the tricuspid orifice admitted four fingers easily. There was a large aperture in the interauricular septum measuring 3.5 by 2 cm. The dilated pulmonary artery measured 90 cm. in circumference, while the aorta measured only 36 cm. The authors consider that in this case the mitral stenosis was due to defective foetal development, as there was no evidence of endocarditis; this obstruction caused the blood from the left auricle to pass through the septum into the right side of the heart, thus preventing the closure of the septum after birth. They quote a number of similar cases recorded by other authors; two of these resembled the present case in that there was no cyanosis at any period. They find it difficult to explain this phenomenon.

Surgery.

473. Incarcerated Intersigmoidal Hernia.

W. SMITAL (*Zentralbl. f. Chir.*, September 29th, 1923, p. 1478 refers to Erkes's recently published case of this condition (*Zentralbl. f. Chir.*, No. 8, 1923), and records a similar case. A master smith, aged 60, had been in good health until a sudden attack of severe colicky pain occurred. When seen two days later he had passed neither faeces nor flatus, and complained of nausea; pronounced emphysema was present. The abdomen was distended and tympanitic, and there were three transverse cord-like swellings, which appeared to be distended coils of small intestine; there was no visible peristalsis. The whole abdomen was slightly tender on pressure; rectal exploration showed only tenderness in the recto-vesical pouch. As oil and soap enemata produced no result and the patient's condition was desperate, operation was decided upon, and a median infraumbilical laparotomy under local anaesthesia was performed. Distended coils of small intestine with numerous subperitoneal haemorrhages extending for over 2 feet were seen; on raising these coils the serous coat gave way in four places; these lacerations were sutured, one of the distended coils was incised, and a small rubber drainage tube inserted and secured with a purse-string suture. Through this a large quantity (3½ litres) of thin dark-coloured faeces was evacuated and the incision closed with three rows of sutures. It was then found that the coils of small intestine had passed through a ring-shaped opening in the mesosigmoid; this ring was incised and the incarcerated bowel was easily removed from a cavity as large as a man's fist and 60 cm. in depth; there were small haemorrhagic infarcts in the mesentery of the strangulated bowel. Irrigation with warm NaCl solution induced slight peristalsis. As the patient's condition precluded a resection of the bowel, the abdominal wound was closed in three layers under ether anaesthesia. In spite of stimulating intravenous and intrarectal injections the patient died ten hours after operation. At the *post-mortem* examination fibrinous peritonitis following recent incarceration of small intestine in the meso-sigmoid foramen (persistent intersigmoidal recess) was found; the small intestine was definitely distended, the peritoneal coat reddened and dull; the lowest part of the ileum measured 70 cm. in diameter. Smital says that this type of hernia may occur when the sigmoid is abnormally long and there is a large persistent intersigmoidal recess. A list of published cases is appended.

474. Visceral Injuries.

H. B. SCHOENBERG (*New York Med. Journ. and Med. Record*, October 17th, 1923, p. 500) states that these injuries, which follow heavy blows with a blunt instrument or compression as when a patient is run over by a vehicle, are frequent enough to merit serious consideration. Schmitt points out that, whereas the mortality following expectant treatment amounts to 97.5 per cent., early operation has greatly reduced the death rate. Temporizing measures for observation and more accurate diagnosis are inexcusable, as the mortality (reported by several eminent surgeons) is only 45 per cent. in all cases operated on within twenty-four hours of receipt of the injury. Schoenberg describes the symptoms and physical signs as follows: (1) Shock is not a prominent symptom, except in injuries of the upper abdomen, with severe haemorrhage. (2) Pain and tenderness are constant, deep-seated, diffuse, and radiating. (3) Initial vomiting almost always occurs, and is of no diagnostic value, unless persistent. (4) Rigidity; muscular spasm is a most valuable sign—it is present from the onset, is rather diffuse, and gradually increases. (5) Tympanites appears late, with disappearance of liver dullness and peritonitic effusion. (6) An increasing pulse rate indicates intra-abdominal mischief. (7) The temperature is of no special diagnostic value; it is at first subnormal, but rises with onset of peritonitis. (8) The respiration is usually rapid, shallow, and of definitely "thoracic" type. The author concludes that the degree of violence bears no constant ratio to the degree of injury; the greater the injury to the abdominal wall the less usually is that of subjacent parts.

475. Thyroid Tumours at the Base of the Tongue.

G. PORTMANN (*Arch. de med., cir. y esp.*, August 18th, 1923, p. 289) notes that until recently thyroid tumours at the base of the tongue were regarded as very rare, but of late an increasing number of cases have been published, so that Doré, in his recent Bordeaux thesis, was able to collect 102 cases, including the first, which was recorded by Hickman in the *Pathological Transactions* in 1879. The symptoms consist in the sensation of a foreign body at the base of the tongue, which usually produces a constant desire to swallow and excessive salivation. When the tumour has reached a certain size the patient suffers from a constant dry cough, which may be paroxysmal, and from difficulty in swallowing. Haemorrhage is said to be frequent, although Portmann has never observed it. In the early stage nothing is to be seen when the mouth is opened, but laryngoscopy shows a smooth tumour of varying size occupying one or other side of the base of the tongue. In some instances a swelling may be discovered on external examination of the submaxillary region, or beneath the angle of the jaw. The condition must be distinguished from lipoma, fibroma, angioma, gumma, dermoid cyst, and cyst of the thyro-glossal duct. The only treatment is surgical, and excision is all the more likely to be successful the earlier it is performed.

476. Spinal Anaesthesia with Stovaine-Caffeine.

T. JONNESCO (*Bull. et Mém. Soc. Chir. de Paris*, October 23rd, 1923, p. 1132) describes the results obtained by using a solution of stovaine and caffeine for spinal anaesthesia. He originally used a dose of 50 cg. of caffeine for low injections in the dorsi-lumbar regions, but retention of urine often resulted, so he reduced the dosage by half, with satisfactory results. For high injections in the cervico-dorsal region the full dose of caffeine gives excellent results. He uses a dose of 5 or 6 cg. of stovaine in operations on the head and neck without ill effects. The amount of stovaine used varies with the age, general condition of the patient, and length of the operation. Some writers are opposed to the use of the caffeine solution on the grounds that it produces a stage of excitement in the patient, is dangerous, and does not prevent bulbar complications. The author, however, finds this solution quite satisfactory, the only complication he has met with being retention of urine. Good results cannot be obtained with stovaine alone, or with stovaine and strychnine; further, the caffeine appears to increase the anaesthetic effect of the stovaine in long and difficult operations. He has successfully performed the operation of gastro-enterostomy with the aid of these solutions. Complete anaesthesia can be procured without the post-operation headache sometimes seen after the use of novocain. This method has been employed in 593 cases of spinal anaesthesia with success and without complication. He has used spinal anaesthesia in a total of 5,481 cases without a death or accident.

477. Sulphur Dioxide Treatment of Wounds and Ulcers.

ROTTSAHL (*Deut. med. Woch.*, September 21st, 1923, p. 1212) advocates a treatment which has hitherto been mainly confined to the sphere of the veterinary surgeon. It consists of applying an ointment or a liquid impregnated with sulphur dioxide to wounds and ulcers and to whitlows and carbuncles after they have been incised. The author's experience with this treatment covers a period of about a year, during which he has given it in about 60 cases. In no case was any harm done, and in several marked improvement resulted; sluggish varicose ulcers which had persisted for years responded within a fortnight in a remarkable manner. The first effect of an application of powder impregnated with sulphur dioxide is a tingling, stinging sensation, which is not, however, worse than that associated with the application of tincture of iodine to a raw surface. The tissues respond at first by an increased discharge and become less sodden and swollen; the discharge, at first dirty brown, becomes light yellow, the offensive smell and sloughs vanish, the surface of the wound becomes flatter, and there is a rapid growth of new epithelium. The sulphur dioxide is liberated as soon as the powder or liquid comes into contact with a wound or ulcer, and to prevent the gas escaping too soon the powder or liquid should be covered by a non-porous dressing such as some indifferent ointment. The author uses two strengths of sulphur dioxide powder and two strengths of sulphur dioxide liquid, the two preparations being sold under proprietary names by a firm of German chemists.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

24. Erythema Nodosum and Tuberculosis.

A. DUFOURT (*Journ. de Méd. de Lyon*, May 5th, 1923, p. 269) asserts that erythema nodosum is a syndrome, and as such may arise from various intoxications and infections; it is not, in his opinion, a morbid entity, but the cutaneous expression of a toxic infection, which, in approximately three-fifths of the cases, is of tuberculous origin. While admitting that erythema nodosum usually runs a singularly benign course, Dufourt observes that there may be more or less persistent fever with generalized pain and arthralgia. Visceral complications are exceptional, but pulmonary and cardiac lesions have occurred. Teissier and Schaeffer have observed bruits (usually transitory) in 12 out of 44 cases. Convalescence may be either rapid or prolonged and followed by persistent anaemia. It is sometimes interrupted by the occurrence of a tuberculous complication. Generally, when the temperature has been high and persistent, there is greater reason to fear the onset of tuberculosis. An apparent recovery may be deceptive, as after the lapse of some months, possibly after a year, tubercle bacilli may be found. Because the onset of tuberculosis is apparently delayed, some observers believe that its occurrence is only a coincidence, or that the debility following the erythema has prepared the soil for the advent of tubercle bacilli. Against this view the great frequency of post-erythematous tuberculosis is cited. Dufourt refers to nodules, similar to those of erythema nodosum, which have been produced by entozoa, various drugs, serums, and tuberculin, and suggests that the extreme rarity of cardiac lesions following erythema nodosum is a proof that this disease is not always a manifestation of rheumatism. Erythema nodosum may occur in measles, syphilis, leprosy, malaria, puerperal infections, after surgical operations, and in various forms of septicaemia, and Dufourt cites a large number of cases recorded by various authors, in which fatal tuberculosis has followed closely on an attack of erythema nodosum. Several observers, quoted by the author, found "giant cells" in sections taken from nodules, and Pollack and Bezançon have obtained 100 per cent. of positive reactions to tuberculin in cases of erythema nodosum.

25. Tests of the Cardiac Nervous System in the Normal Subject.

D. DANIÉLOPOLU and A. CARNIOL (*Arch. des mal. du coeur*, March, 1923, p. 161) state that the most useful test of the nervous system of the heart is with atropine, but that hitherto this has not been properly employed or interpreted. In the first place, subcutaneous injections have hitherto been given, whereas the intravenous method alone enables one to know the dose which affects the cardiac nervous system and to produce in almost all cases a complete paralysis of the vagus. Secondly, the marked acceleration of the heart following atropine has been regarded as a sign of vagotonus, whereas in reality the phenomenon indicates a state of sympatheticotonus. Thirdly, the atropine test has been regarded as a method to be used for the study of the vagus exclusively, whereas it is available for estimating the tonus of both the vagus and sympathetic. Fourthly, it is generally stated that the maximal tachycardia produced by atropine is about 120 in man, whereas it may range within much wider limits which depend upon the tonus of the sympathetic. It may remain below 100 in cases of sympathetic hypotonus, or exceed 150 in cases of sympathetic hypertonus. The test of the upright position (orthostatic test) in association with the atropine test enables an accurate and complete study of the cardiac nervous system to be made and is carried out in the following four stages: (1) Study of orthostatic tachycardia before atropine (vagus intact); (2) action of a small dose of atropine (1/2 mg.); (3) determination of the total dose injected intravenously required for complete paralysis of the vagus and of the maximal acceleration thus obtained; (4) study of orthostatic tachycardia after atropine. The two following methods can be used to determine if the paralysis is complete: (1) by injection of atropine in successive doses the total amount of the drug which produces maximum acceleration is determined; (2) when it is established that complete paralysis of the vagus by atropine has been obtained the pulse is counted in the recumbent position and then in the upright position. The subject is then made to lie down again and the pulse is counted again in this position for a few minutes. The upright position produces an immediate acceleration. When the patient lies down again, if the vagus has been completely paralysed the rhythm gradually returns to its previous rate in the recumbent position, whereas if the paralysis is incomplete the rhythm falls below this rate and shortly afterwards resumes its initial rate. The following information is obtained by the combined use of the atropine and orthostatic tests: (1) The tone of the sympathetic released from its antagonist is determined, being represented by the maximum acceleration obtained in the recumbent position—on the average 116 to 118 beats a minute. (2) The inhibitory power of the vagus is determined by deducting from the maximum rate the number of pulsations before the injection in the same position of dorsal decubitus—about 48 to 58. (3) The total quantity of atropine injected intravenously required for complete paralysis of the vagus—about 1½ mg. (4) The acceleration of the rhythm produced by the upright position while the vagus is intact—80 beats a minute on the average. (5) The acceleration of the rhythm produced by the upright position after complete paralysis of the vagus—about 130–140 beats. (6) The acceleration produced by a small dose of atropine (1/2 mg.) incapable of causing complete paralysis of the vagus—about 90 beats.

26. The Causes and Treatment of Cirrhosis of the Liver.

S. LAACHE (*Norsk Mag. f. Laegevidenskaben*, April, 1923, p. 273) has observed 44 cases (30 males and 14 females) of cirrhosis of the liver among 16,000 medical patients treated in hospital during the past thirty-two years. Among the 34 cases which came to necropsy there was a history of alcoholism only in 34.3 per cent., and not one of the female patients gave such a history. Indeed, among the 14 cases of cirrhosis of the liver in women there were only two in which its cause could be ascertained; it was syphilis in one case and gall stones in the other. The author points out that, considering how rare alcoholic cirrhosis of the liver is in comparison with the total number of cases of alcoholism, there must be a certain predisposition to alcoholic cirrhosis of the liver before alcohol can provoke it. The treatment he advocates is a salt-free, lacto-vegetarian diet supplemented by diuretics, among which calomel is particularly effective. Novasurol may also be of use, and paracentesis abdominis is a symptomatic remedy which in certain cases may give relief. It is, however, well to individualize, and paracentesis may actually do harm by provoking haematemesis—an accident which happened to one of the author's patients. The fact that 34 of his 44 patients came to necropsy shows that the prognosis for cirrhosis of the liver is certainly not bright, and in only one of the author's cases, in which cirrhosis of the liver was associated with ascites, did the patient live as long as thirty months after the detection of the ascites.

27. Duodenal Intubation in the Diagnosis of Chronic Jaundice.

P. CARNOT and H. GAEHLINGER (*Paris méd.*, May 19th, 1923, p. 451) state that in cases of jaundice duodenal intubation may yield information on the following points: (1) The amount of pigment and bile salts in the duodenal fluid. As a rule the fluid is colourless, containing neither pigment nor bile salts, but in a certain proportion of cases the fluid shows a slight yellow tinge and gives a reaction for pigment and bile salts. (2) The amount of pancreatic ferments in the duodenal fluid. (3) The presence of blood in the duodenal fluid. Intermittent haemorrhage indicates duodenal ulcer, and continuous haemorrhage cancer. Duodenal intubation enables one to determine the site of the haemorrhage and to eliminate gastric and intestinal haemorrhage. (4) The presence of certain cells in the fluid. In duodenal ulcer a considerable quantity of leucocytes may be found in the centrifugalized clot, while in cancer large neoplastic cells may be present. (5) The presence of micro-organisms in the fluid. The authors have employed duodenal intubation since 1914 for the diagnosis of typhoid infections and in cases of typhoid carriers. Their conclusions as to the diagnostic value of duodenal intubation are as follows: (1) If the duodenal fluid shows a simultaneous retention of bile and pancreatic fluid without the presence of blood, the obstruction involves the common bile duct and pancreatic duct, but does not affect the intestine. In most cases of this kind a new growth of the head of the pancreas is present. (2) If there is retention of bile and pancreatic juice together with blood, especially clots, in the duodenal fluid, the obstruction

Radiology and Electrology.

478. Opotherapy by Radiation.

C. SCHMITT (*Bull. Soc. de Thér.*, October 10th, 1923, p. 232) remarks that the effects of radio-activity differ according to the degree of sensitiveness of the cells on which they act and the quantity of the rays employed. In dealing with each variety of cells, whether healthy or diseased, there are favourable, indifferent, dangerous, or toxic doses. Large doses are employed for the treatment of fibroids and malignant growths and moderate doses for dulling the activity of a fatigued or overexcited organ, while very small doses have a stimulating action. Schmitt shows that these small doses, to which attention has only recently been directed, may exercise the same restorative action on the glands of internal secretion as is usually produced by drugs. Radiotherapy, however, possesses the advantage over drug treatment of not introducing any foreign substance into the body and thereby not causing any symptoms of intoxication. Schmitt records nine cases in which considerable improvement took place as the result of *x*-ray treatment of certain glands of internal secretion. The first case was that of a weakly rachitic infant aged 6 months who derived considerable benefit from three radiations at one month's interval of the thymus of three minutes' duration. In three cases of amenorrhœa the menses were restored within a period ranging from eight days to three months after irradiation of each ovary. Five cases were examples of an early menopause in women aged from 36 to 43, in whom the monthly periods were restored by the same method.

479. Elevation of the Diaphragm: Unilateral Phrenic Paralysis.

J. M. W. MORISON (*Arch. Radiol. and Electrother.*, September, 1923, p. 111) discusses the differential diagnosis of elevation of the diaphragm. A temporary elevation, he explains, is frequently caused by gaseous distension of the stomach, and is often seen in carcinoma of that organ. It differs from the permanent variety in that the movements of the affected leaflet are never reversed—that is to say, there is no paralysis. Permanent elevation may be congenital or acquired. Loss of movement of the chest wall at the base and apex of the lung suggests that there is congenital unilateral paralysis of the diaphragm, whereas increase of movement on one side suggests an acquired corresponding condition. That movements are not lost on the affected side in the acquired type is due to expansion of normal lung and to the use of extraordinary muscles of respiration. The causal condition may be injury or disease. The author points out that Petit's eventration and unilateral phrenic paralysis are indistinguishable apart from a definite lesion of the phrenic nerve. Permanent elevation of the diaphragm is to be differentiated from (*a*) herniae, (*b*) localized hydro- or pyo-pneumothorax, (*c*) subphrenic or subhepatic abscess. In herniae the *x* rays show an elevated irregular broken line extending across the hemithorax; underneath this line lung tissue may or may not be seen. The stomach contents may reach above the line of the cardia, palpation of the abdomen producing a rippling of the surface. In small herniae reversed movements during respiration are seen, but movements may be absent in large herniae. The author does not lay much diagnostic stress on the presence or absence of the colon in the picture: it may be present or absent in both herniae and eventration. Of the utmost importance is examination of the stomach by the bismuth meal, which should settle the diagnosis. Hydro- or pyo-pneumothorax and subphrenic or subhepatic abscess should cause little difficulty. In all of them the *x*-ray picture will easily reveal the condition present, the differential diagnosis from Petit's eventration resting on the presence in the latter of an unbroken bow line extending high into the thorax with reversed movements unless adhesions have formed. In eventration, also, the level of free fluid in the stomach is that of the cardia, and the bismuth meal will reveal the gastric deformities so frequently present in the condition.

480. Treatment of Prostatic Hypertrophy by X Rays.

M. DEVOIS (*Journ. de Radiol. et d'Électrol.*, September, 1923, p. 400) considers that although Gautier and others have had good results since 1901, *x*-ray treatment of prostatic hypertrophy has not received the attention it deserves. Prostatectomy is a serious operation, and the most recent statistics show a mortality of 10 per cent. Many patients suffer from renal, cardiac, or pulmonary diseases which increase the risk. Devois therefore urges that *x*-ray treatment should be tried in cases where these diseases, arterio-sclerosis, diabetes, or haemophilia are present. Moreover, many patients refuse operative treatment; others have subjective and functional symptoms, accompanied by few, if any, objective signs. Devois divides these cases into three classes: (1) Typical adenoma; (2) fibro-adenoma (the mixed type = glandular proliferation with hyperplasia of connective tissue); (3) true fibroma where the gland structure has been destroyed by fibrous hyperplasia. These three types may be recognized by rectal and urethral examination. The third class is unlikely to be improved by *x*-ray treatment, but cases of adenoma or of fibro-adenoma are often greatly relieved if not completely cured. Devois observes that if *x*-ray treatment fails it does not diminish the prospect of successful surgical treatment, and that in advanced cases with very indurated prostates, valuable time should not be lost by fruitless *x*-ray treatment. In less advanced cases *x*-ray treatment has a definite value; it is most suitable in commencing hypertrophy, and any good results obtained persist. Devois recommends perineal irradiation in either the "gynaecological" or the genupectoral position. In either position the testes should be carefully protected from the *x* rays.

481. Failure of Radiotherapy in Malignant Disease.

P. SIPPEL and G. JAECKEL (*Muench. med. Woch.*, September 21st, 1923, p. 1191) review the results of eleven years' practice of radiotherapy at the Berlin University gynaecological clinic. They find that the confident claims made by the pioneers of the treatment have not been realized, and the earlier enthusiasm has not been justified by results. They state that, in spite of improvements in technique and apparatus, recent results show little improvement. The authors tabulate their results, dividing them into two periods—that is, prior to May, 1918, and from that date until the present time. Before May, 1918, they treated exclusively with *x* rays 71 cases of primary carcinoma and 83 cases of recurrence after operation. Since that date they have carried out 144 "prophylactic irradiations" as a preliminary to operation. Their most favourable figures show 11 per cent. of cures in 9 cases of breast cancer and 15.78 per cent. of cures in 38 cases of recurrence of the same disease. The results of prophylactic irradiation before operation in cases of cancer of the cervix and of the ovary are much more satisfactory. The authors report cures in 53.7 per cent. of the former and 35 per cent. of the latter. Also in inoperable recurrences in breast cancer they have found some improvement in 15.7 per cent. They observe that the explanation of these frequent failures must be sought either in the overestimation of the power of *x* rays to penetrate deeply, with consequent errors in dosage, or that the sensitiveness of the cells of the more malignant tumours to *x* rays has been overestimated. They refer to the work of Dessauer and others who have endeavoured to discover physical data and formulae based on the penetrative power of the rays at different depths, but they admit that the results obtained hitherto are lacking in accuracy. They agree with the majority of German writers in their rejection of such methods of dosimetry as "Kienböck's strips" or Sabouraud's pastilles; they prefer to estimate the dosage by the degree of erythema of the skin. They have found that the same Coolidge tube may vary greatly at different periods in the amount of *x* rays which it gives out, and they recommend that this "output" should be frequently verified. Several tables and a formula for calculating the dosage of *x* rays are given.

Obstetrics and Gynaecology.

482. Axial Torsion of the Myomatous Uterus

ACCORDING to FLEURENT (*Bull. Soc. d'Obstet. et de Gynécol. de Paris*, 1923, v, p. 372), the symptoms of axial rotation of a myomatous uterus show an acuteness which varies directly with the breadth of the attachment of the base or pedicle of the tumour to the untwisted portion of the uterus. In one case the uterus had become rotated through 180 degrees on a long and thin cervix; the patient had experienced no pain and came to the operation table only because blood-stained vaginal discharge occurring twelve years after the menopause gave rise to suspicion of malignant degeneration of her myoma. A second patient had symptoms suggesting intestinal obstruction; examination showed a large myomatous uterus and a fluctuating tumour in the posterior cul-de-sac which was thought to be a twisted ovarian cyst. At the operation the uterus was found twisted through 120 degrees around the cervix, which contained myomata; the site of the torsion was a broad zone of the myomatous mass, and above it intense venous stasis and peritoneal reaction had led to the acute clinical symptoms. In this patient the rotation had occurred during sleep.

in such cases takes away the only chance the patient has; surgical emphysema develops with rupture of the duodenum or colon retroperitoneally. The death rate has been over 70 per cent., and only by early diagnosis and operation can this be reduced. The mortality should not be more than 40 to 50 per cent. in civil accidents. During the first six hours after rupture peristalsis is inhibited and every effort should be made to operate before it reappears. After dealing with the tear the abdomen should be thoroughly mopped out—irrigation or lavage has proved disastrous. If a patient kicked in the abdomen complains of pain he should be kept under hourly observation until all danger of a ruptured intestine has passed.

34. Radiology in Sarcoma of Long Bones.

H. W. MEYERDING (*Journ. of Bone and Joint Surgery*, April, 1923, p. 323) discusses the value in diagnosis of the various appearances in the radiograms of the sarcomata known as periosteal and central or medullary. In diagnosis he very rightly stresses the great importance of exploratory incision and microscopical examination of portions of the growth. The greatest use of the *x*-ray examination is in the early definition of pulmonary metastases, and if surgical interference for the removal of the primary tumour is contemplated a thorough radiological investigation should be made in every case to determine the condition of the lungs.

35. Inflation of the Perirenal Fat.

C. ALEXANDRESCO-DERSCA and E. LAZEANO (*Bull. et Mém. Soc. Méd. des Hôpitaux de Bucarest*, January 31st, 1923, p. 8) refer to the great progress made in radiography by the introduction of methods of inflation (1) of the peritoneal cavity and (2) of the perirenal fat by means of oxygen or C_2O. The authors have applied this latter method in two cases of renal colic: they describe Bayeux's apparatus and their own technique. An aperient is given before breakfast, the spinous process of the third lumbar vertebra is found and the puncture made at a distance of three fingerbreadths from the mid-line; after traversing the lumbar muscles the needle is felt to move freely in the perirenal fat; 250 to 300 c.cm. of gas is injected at the rate of 30 c.cm. a minute. The patients bore the inflation well, and there were no unpleasant after-effects. In the first case the kidney, surmounted by the suprarenal capsule, separated from the surrounding muscles, was clearly seen; in the second case the clearly defined kidney showed a calculus lodged in the pelvis. This simple and harmless method is useful in such cases as renal tuberculosis, hydronephrosis, polycystic kidneys, etc. Furthermore, the suprarenal capsule becomes visible on the plate.

Obstetrics and Gynaecology.

36. Diagnostic Difficulties in Early Tubal Pregnancy.

E. DOUAY and R. ROCHAT (*Gynécol. et Obstét.*, 1923, vii, 3, p. 216) point out that in a young patient who reports one or two months' amenorrhoea followed by abdominal pain and possibly by slight blood-stained discharge, and who is found to present, in addition to some of the minor signs of early pregnancy, a rounded swelling in the lateral vaginal fornix of one side, the diagnosis of early, uncomplicated tubal pregnancy is very likely to be made. Operations, however, undertaken in such cases have not infrequently revealed uterine gestation—either angular pregnancy or pregnancy in a laterally deviated uterus. The authors emphasize the following points in the differential diagnosis of these conditions from tubal pregnancy. A laterally deviated uterus can as a rule be easily restored to normal position by bimanual manipulation; in doubtful cases the examiner may fear by the exercise of force to rupture a tubal gestation sac, and it is useful to remember that in the Trendelenburg position lateral misplacement becomes rectified spontaneously. Angular pregnancy, in which the ovum is implanted and undergoes its early development in the endometrium near the opening of a Fallopian tube, so that during the sixth to eleventh weeks a well defined oblique groove separates the main body of the uterus from the angular portion containing the ovum, offers greater diagnostic difficulty. The gravid tube is postero-lateral rather than lateral; the swelling formed by angular pregnancy tends to be antero-lateral. The uterine insertion of the round ligament is internal to the swelling in tubal, external to it in angular, pregnancy; but the round ligament is not always perceptible in clinical examination. A sign described by the authors is elicited by repeated examination; at one time, in angular pregnancy, the major portion of the uterus is felt to be harder than the lax angular portion, while at another this finding is reversed, the muscle of the angular region being contracted and harder. It is practically impossible, the authors remark, to distinguish clinically between interstitial tubal and angular uterine pregnancy.

37. Treatment of the Commencing Incarceration of the Retroflexed Gravid Uterus.

UNTERBERGER (*Zentralbl. f. Gynäk.*, May 5th, 1923, p. 714) mentions the various treatments that have been adopted for the rectification of this condition, and comes to the conclusion that manual reposition is apt to be dangerous to the life of the ovum, owing to the pressure required sometimes for replacement; this often causes detachment of the placenta, partial or total, from the uterine wall, and thus abortion results in many cases. Lately he has tried with great success a method requiring no manual reposition; this method consists of first emptying the bladder with a catheter and then strapping the patient, who has been undressed, on to an operating table, which is put into an exaggerated Trendelenburg position for ten to fifteen minutes. That is the whole treatment and no handling is required. In most cases rectification occurs at the first attempt, but, if not, there is always an improvement and the treatment is continued on the following day. The author states that the patients do not complain of any unpleasant symptoms on account of the extreme Trendelenburg position. He also states that the treatment can be done in a private house on a four-cornered table with two strong chairs at one end. The success of this method is attributed to the suction power of the abdomen induced by negative pressure; the knee-elbow position also depends slightly on negative pressure, but chiefly on the weight of the fundus of the uterus favouring anteversion, but rectification is rarely accomplished without manual aid as well. The author concludes with the warning to be sure of one's diagnosis, as a retro-uterine ectopic gestation is very liable to be mistaken for a retroverted gravid uterus.

38. Effects of Irradiation on Foetal Development.

ACCORDING to H. BAILEY and H. J. BAGG (*Amer. Journ. of Obstet. and Gynecol.*, May, 1923, p. 461), experiments on the lower animals have shown that irradiation of the sex glands before fertilization is followed by disturbance of foetal development, progressive loss of fertility, and inherited defects in the young; irradiation during pregnancy leads to stunting or death, as well as various morbid organic lesions, in the embryo. From a survey of the literature, as well as from six personal cases, the authors conclude that irradiation of the human ovum during early pregnancy should never be permitted; given late in pregnancy, while it may not produce gross abnormalities at birth, it may hinder the post-natal growth and development of the child. Although at present clinical evidence is inconclusive with regard to the subsequent fertility of the mothers and healthiness of the offspring, in cases in which *x*-ray or radium treatment has been used in the non-pregnant state, it is probably preferable, in cases of menorrhagia during the child-bearing period, to induce complete sterility rather than run the risk of leaving a damaged germ-plasm. CATHALA and MÉRAT (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, 1923, 2, p. 109) record the case of a 4-para, aged 35, who received an intracervical application of radium for advanced carcinoma of the upper portion of the cervix, noted during the seventh month of pregnancy. Four days later the membranes ruptured, and the patient succumbed three days after Caesarean hysterectomy had been done. The child survived and appeared to be healthy. A. SIREDEY and COUVELAIRE (Ibid., pp. 112, 113) relate the irradiation of an early intracervical carcinoma in a woman, aged 24, who was eight to ten weeks pregnant; a living healthy infant was delivered by Caesarean section at term.

39. Corpus Luteum Cysts and Chorion-epithelioma of the Uterus.

A. FRUHINSHOLZ, HOCHE, and G. MICHEL (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, 1923, i, p. 63) quote from the French literature observations which show that cysts of the corpus luteum are found with particular frequency in association with hydatidiform mole; their appearance, progression, and regression correspond with those of the mole, and the occurrence of chorion-epithelioma as a sequel may be associated with persistent growth of the corpus luteum cyst. They record a case in which the objective signs of corpus luteum cyst formation were more conspicuous than those of a coincident development of chorion-epithelioma in the uterus, and played no small part in the early diagnosis and successful extirpation of the malignant tumour. A 2-para, aged 24, after two months' amenorrhoea followed by one month's irregular haemorrhage, expelled a hydatidiform mole; during the ensuing month the bleeding continued and the uterus failed to undergo involution. A cystic swelling palpable in the lateral fornix was found to increase in size, and a

483. Treatment of Perforated Uterus.

THE uterus may be perforated during the evacuation of an incomplete abortion, and it was the admission of such a case to hospital which led E. SCHWAB (*Zentralbl. f. Gyn.*, September 8th, 1923, p. 1451) to go thoroughly into the question of the proper treatment. The author thinks that each case should be treated on its merits; thus in the case of a perforation which has occurred in hospital under aseptic conditions, if there are no remnants of the abortion *in utero* and the perforation is small, the danger of considerable internal bleeding is but little, and the patient should be treated by rest, ice-bags, and opium. As regards operative treatment, laparotomy should be performed in all cases of doubt as regards asepsis and the degree of perforation. If the perforation is large, if its edges are mutilated, or the uterine tissue much torn, if there is any possibility of infection, or if a piece of placenta still remains which would require further curettage, hysterectomy is recommended. If the perforation is fresh, and excision and disinfection of the scar can be carried out, sutures may be applied.

484. Experimental Transplantation of Endometrial Tissue.

V. C. JACOBSON (*Amer. Journ. Obstet. and Gynecol.*, September, 1923, p. 257) records experiments on rabbits which afford confirmation of Sampson's views regarding the etiology of "perforating haemorrhagic" or "chordate" cysts of the ovary. These, together with the secondary cysts in the pelvis which are produced after their rupture, he regards as due to the activity of menstruating endometrial tissue in the ovary. Cornual endometrium, transplanted into the pelvic cavity, mesosalpingeal fat, or ovary, were found after seventy days to have grown where placed or in the neighbourhood; to the naked eye and microscopically the ectopic growth resembled multilocular cyst adenomata of the human ovary. The implantation cysts never attached themselves to the abdominal wall or mesentery, and only in one instance to the omentum. Sampson found that implanted human tumours underwent retrogression after castration; Jacobson in a series of rabbits whose ovaries were removed at the time of pelvic transplantation of endometrial fragments found that the experimentally produced cyst was only one-fourth the size of that in the first series. In two animals killed in the oestral period haemorrhage had occurred in the cystic tumours resulting from endometrial transplantation.

485. Febrile Abortions.

From the statistics collected during the last twelve years of 24,000 febrile abortions G. WINTER (*Zentralbl. f. Gyn.*, September 22nd, 1923, p. 1489) brings to light some interesting facts. Mortality is greatest with streptococci (15.5 per cent.), the haemolytic variety giving a mortality of 20.8 per cent. and the non-haemolytic of 11.1 per cent. Next in virulence come staphylococci (8 per cent.), *B. coli* (7.3 per cent.), and "saprophytes" (3.1 per cent.). The author distinguishes between two types of febrile abortions—the parovular, in which the decidua, cervix, or vagina is primarily infected, and the ovular, in which the ovum is the seat of primary infection. He also distinguishes between the uncomplicated type, where infection is confined to the uterus, and the complicated, where extension has occurred into the parametrium, etc. The mortality in uncomplicated cases is 2.7 per cent., independent of treatment and nature of bacteria, whereas in complicated cases it is 47.5 per cent., this mortality being derived from diffuse peritonitis, pyaemia, and septicaemia. The author comes to the conclusion that early evacuation of the ovum is the best method of treatment, for in the ovular type the source of the trouble is got rid of, whereas, in the parovular, involution follows evacuation and the chance of infection spreading is minimized by the closing of the lymph spaces and the decreased circulation. Spontaneous evacuation is deemed to be the best method, and this was effected in 72 per cent. of cases by the use of oral, intramuscular, and intravenous quinine. The mortality in such cases was only 1 per cent. With the expectant method of treatment, which is often warranted in the streptococcal cases, as the cocci frequently disappear owing to extensive growth of saprophytes, the mortality is slightly greater, being 1.1 per cent., whereas with active manual treatment the mortality rises to 2.9 per cent., the danger being most pronounced in complicated abortions. Active treatment with a blunt curette is ardently recommended by some, and Schottmüller cured in this way 33 cases infected by haemolytic streptococci. The advantages claimed for it over manual removal are that the uterus is not squeezed and pressed by the external hand, but is allowed to remain quiet, and also any extrauterine infections are not interfered with; whereas by manual removal the external hand may break down freshly made adhesions, perforate adnexal tumours, allow thrombi to loosen, etc., and drive the bacteria further into the lymph spaces.

Pathology.

486. The Pathology of Periarteritis Nodosa.

G. MARINESCO, D. PAULIAN, and S. DRAGANESCO (*C. R. Soc. de Biologie*, November 3rd, 1923, p. 903) report a case of that very rare disease, periarteritis nodosa. The patient, a man of 28, neither alcoholic nor syphilitic but with a history of gonorrhoea, was admitted to hospital suffering from severe sensory and motor disturbances, muscular swellings, painful articulations, enlarged spleen, and oedema of the lower extremities. He died three months after the first manifestation of symptoms. Extensive histological examinations were carried out by the authors. The lesions affected the small and medium-sized vessels, both arteries and veins, but left the larger vessels and the capillaries intact. Three stages could be determined in the evolution of the disease. In the first there is an infiltration of the adventitial coat with polymorphonuclear cells, with lymphocytes, and with occasional plasma cells; the endothelium is swollen, but the media is generally unaltered. In the second stage the intima is the seat of an intense proliferation leading to the obliteration of the lumen of the vessel. Numerous fibroblasts invade the wall, thrombi occur in the vasa vasorum, and the whole vessel becomes deformed, sometimes showing aneurysmal dilatations. In the third stage the existing thrombi become organized, and extensive cicatrization takes place. The middle and inner coats become fused into a single layer, which consists of granulation tissue. The small vessels of the liver, spleen, kidneys, heart, peripheral nerves, and the pneumogastrics were extensively involved, but the central nervous system itself appeared to be unaffected.

487. The Viability of the Gonococcus Outside the Human Body.

THE outbreak of an epidemic of gonorrhoea amongst the girls in a children's sunbath in Düsseldorf led P. ENGERING (*Zeit. f. Hyg. und Infektionskrank.*, September, 1923, p. 314) to investigate the capability of the gonococcus to live in the outside world. The technique employed did not reproduce natural conditions faithfully, but it may probably be trusted to give an approximate idea of the possibilities of the case. He found that in all cases the resistance of the organisms varied with the particular strain employed; some were definitely more susceptible to disadvantageous conditions than others, and as he only studied eight strains it is clear that his results register neither the maximum nor the minimum degrees which would be found as a result of the examination of a larger series. In sterile tap-water kept at a temperature of 22°C. gonococci lived from 3 to 10 hours; in the surface water of a swimming bath from 7½ to 10 hours; and in the deep water from the same bath from 8 to 14 hours. On pieces of linen infected with gonorrhoeal pus the organisms remained alive up to 4 hours if the linen were kept moist, whereas they died off in half an hour to an hour if it were allowed to dry. On wet sponges infected with a pure culture the cocci remained alive up to 24 hours. It is seen from these experiments that the viability of the gonococcus outside the human body is greater than it has generally been considered to be; knowing the extreme receptivity of the tissues of the body at certain ages to infection, one is forced to agree that in the interests of children it is of the greatest importance to take every hygienic precaution that is possible in practice.

488. Renal Tumours.

G. CARISI (*Il Policlinico*, Sez. Chir., August 15th, 1923, p. 411), who records 8 cases, states that renal tumours are a rare affection. According to recent statistics compiled by Küster, they constitute only 0.6 per cent. of all renal diseases. Brodeur estimates their frequency at 1 per cent., and Abbé at 0.9 per cent. During the last twenty-five years only 50 cases have been seen in the surgical department of the Civil Hospital at Venice, where Carisi is an assistant. The following classification of renal tumours may be employed: (1) Tumours derived from the renal epithelium of an innocent, malignant, or mixed character—namely, adenoma, carcinoma, and adeno-carcinoma—and tumours derived from connective tissue elements, including innocent forms, such as fibroma, angioma, and lipoma, and malignant forms such as sarcoma. (2) Hypernephroma. (3) Tumours derived from rests and embryonic tissue, as well as the epithelial and connective tissue tumours of infancy. With the exception of a child aged 3 years, all Carisi's patients were adults aged from 20 to 74. Three were examples of the first group, three of the second, and two of the third. Nephrectomy was performed in each case, and all recovered except the patient aged 74, who died of diffuse bronchopneumonia six days after the operation.

An Address

ON

THE STUDY OF NATURE AS SHEDDING LIGHT ON THE STRUCTURE AND FUNCTIONS OF MAN.

THE ANTLER OF THE DEER AND ITS RELATION TO THE GROWTH OF BONE.

DELIVERED AT THE SIXTH MEETING OF THE INTERNATIONAL SOCIETY OF SURGERY.

BY

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IN the name of the British Section of the International Society of Surgery and its local committee it is my privilege to extend to our international colleagues a very hearty welcome. We are not unmindful of the courtesy, kindness, and hospitality with which the British members have invariably been received in the countries where the Congress has already met—three times in Belgium, once in the United States of America, and once in France. It will be the endeavour of the British Section to make our colleagues from beyond the seas feel "at home" in our midst, on this the first meeting of the International Surgical Society in Britain.

One of the tragedies of the war was the disruption of intellectual co-operation beween the contending peoples. The work done in one country is often complementary to that done in others, and the collaboration of the scientific workers of all nations forms a powerful stimulus to the spread of enlightenment throughout the world. It is for the general good that endeavour be made to resuscitate and sustain the intellectual life of Europe by international co-operation, especially in the ever-active and boundless realms of science.

In a recent address given by me the question was raised whether the medical profession did not concentrate their studies too much on human phenomena to the exclusion of life as a whole. "The so-called divisions of Nature are purely arbitrary conveniences, having no existence except in our own minds, for, after all, we are but a bit of Nature, and everything pertaining thereto must have a bearing on humanity." Investigation into comparative anatomy and physiology tends to illuminate the obscure problems of growth of structure and function in man, and, as an illustration of this in one small field, attention is directed to some of the phenomena attending the growth and shedding of the antler of the deer, especially in its histological aspects, and the bearing which these have upon the growth of bone in man and other mammalia.

The male deer produce annually, within the period of three months, antlers of solid bone, which in some species grow to immense size. They carry these antlers for a few months, then shed them, and repeat the process every season. The antlers are branched outgrowths from the frontal bones of the skull, and are amongst the most remarkable and interesting instances of sexual dimorphism. The yearly recrescence takes place chiefly from June to August. Not only does the bone grow within these few months, but the whole antler is enveloped from base to tip by the velvet, which keeps pace with the rapid growth.

The Velvet: its Function.

There is very little inosculation between the vessels of the velvet and those of the bone in the antler. Besides supplying through its blood vessels heat and moisture and giving general protection as a cuticular covering and limiting membrane, the highly sensitive velvet serves at least two purposes, one to the antler itself and one to the animal as a whole. It protects the soft pulpy growing antler by causing the animal to eschew issues of combat and violent or even slight contact with foreign bodies. In this way wounds of the antler with their attendant haemorrhage and risk of septic or pyogenic infection are prevented. Were it not so protected the pulpy antler might be burst, ruptured, or torn, and, being highly vascular, so much blood might be lost as to endanger the life of the animal.

When the osseous matter in the antler has solidified there is no further need for this covering, which has already served its purpose. The growth of the bone at the corona compresses the blood vessels of the velvet and cuts off their blood supply, when the whole velvet withers, becomes dry and shrivelled, is cast off in ribbons or is stripped like a discarded glove. The solid antler now remains—a formidable, insensitive weapon.

What is the Cause of the Annual Shedding of the Antler?

As one of the secondary sexual characters, the antler is usually described as merely an ornamental weapon. It is, however, more intimately correlated to the sexual function. Though the reproductive organs with their interstitial tissue are the *fons et origo* of the antlers, the antlers, through the velvet, have a periodic reflex influence on the function of the testes. The phase of evolution and greatest sensitivity of the velvet corresponds to the period of minimal testicular activity as if a reflex inhibitive influence was exercised on the testes through the nerves of the velvet.

When the antler has become well formed and sclerosed, the nerves and blood vessels are obliterated, and the velvet is shed. At this period the bloodless, nerveless, insensitive structure is left as a weapon fit for combat. If, however, the velvet is to serve the retardative function over the reproductive organs, then it must be shed annually and grow afresh. The sensitivity of the antler at that early stage is thus probably purposive and is one reason for the antler being deciduous.

Two Points regarding the Structure of the Velvet:

(1) The stratum lucidum—has it an independent vitality?

(2) The cutis of the velvet grows directly on the bone.

With regard to the structure of the velvet, with its complete cutaneous investment containing glands, hair follicles, and appendages which are evolved with the rapidity and completeness of an embryonic structure, there are two points worthy of note from their bearing on surgical pathology.

First, the stratum lucidum is more advanced in development during the growing period than the stratum Malpighii, the former appearing mature when the latter is still embryonic; osseous tissue is first rapidly covered by stratum lucidum, the stratum Malpighii following. This corresponds with what is found in wounds, where the stratum lucidum penetrates blood clot and advances almost *pari passu* with the leucocytes, ahead of the stratum Malpighii, or on granulation surfaces where the stratum lucidum precedes the Malpighii, forming the "dry, red line" seen at the margin of a healing ulcer.

May not the question be raised whether the current view be correct—that all the layers of the skin grow from the stratum Malpighii upwards, and that the superficial layers, including the lucidum, are in process of being cast off as more or less effete? Would effete cells be the first to regenerate?

The evidence adduced tends to indicate that the stratum lucidum possesses an independent vitality and is endowed with the power of more rapid surface extension than the deeper layer. This also obtains when the stratum lucidum is detached from the body and is grafted on to a granulation surface. It is of importance to have this layer of stratum lucidum, thin as it is, covering a wound, as it forms a living barrier to the ingress of germs, and, once formed, the proliferation of the slower stratum Malpighii and the organization of the tissues inside the wound proceed apace. The deep cutaneous layers, however, provide a thicker covering for the wound and protect the interior from friction and injury.

The second point is that in the antler one sees the cutis

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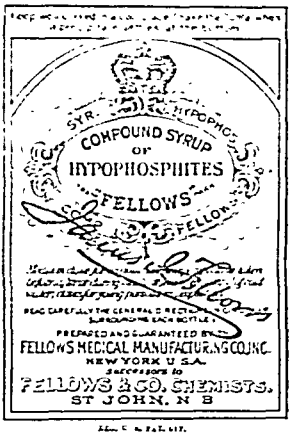

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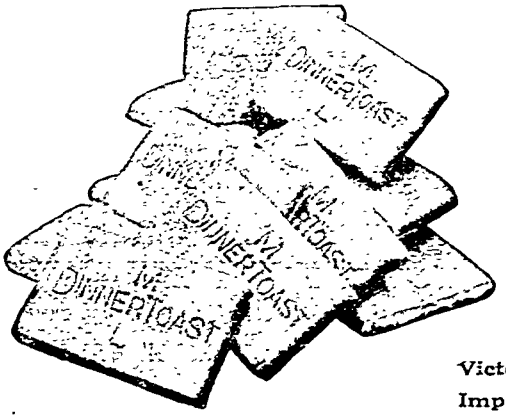

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Once the osteoblast assumes its mature form it becomes distinctive and the cell may be easily recognized and traced through its further evolution into bone. The typical form of the mature osteoblast is an ovoid cell with its nucleus situated peripherally and occupying its narrow end. In the antler one sees the mature osteoblast in great numbers all along the growing line. They are in such quantities that in many places they are obtrusively evident; though coincident with or in immediate sequence to attaining maturity, however, the osteoblast assumes the function of abstraction from the blood and deposition of ossein within a circumscribed area round itself. This forms a fuliginous veil of ossein quickly obscuring the cells and rendering the tissue opaque.

After recognizing this mature form of osteoblast in the antler of the deer, sections of growing bone from other animals were re-examined and were found to exhibit the same typical form of mature osteoblast, though they were not present in such numbers as in the antler. Thus they were seen in the growing epiphyses and in repair of bone in man, especially in children and in young adolescents, and in the growing epiphyses of the dog and other animals. The sections taken from bone growth in glass tubes also show the type of mature osteoblast somewhat similar to that seen in the antler. They may also be seen in bone growing in a cicatrix in the midst of the abdominal muscles—being carried there by the blood stream.

Two Forms of Ossification Found in the Antler at the Same Time.

This mature type of osteoblast may be recognized and followed through both forms of bone formation—the direct or membranous and the indirect or cartilaginous—though in the former it is more difficult to discern, as the ossein is deposited more quickly, thereby producing obscuration followed by rapid osseous fixation. These two forms of ossification are found in the same antler at the same time, and each proceeds through the same base, which is cartilaginous—a primary cartilaginous evolution.

In the human epiphyseal cartilage one finds two distinctive forms of osteoblasts placed back to back and contiguous to each other—the one destined to form epiphyseal cancellous tissue, the other dense diaphyseal bone.

The difference between the method of ossification in the antler and that of the mammalian epiphyses is that in the latter there are, in the epiphyseal plate, two layers distinct from each other — the one composed of diaphyseal cartilage, the other of epiphyseal cartilage. They go in different directions — the one toward the joint, the other away from it; whereas in the antler both forms of ossification pass through a common cartilaginous base, and after doing so the emerging cells become differentiated, the membranous ossification showing itself especially toward the distal aspects of the tines.

Bone Only Grows from an Osteoblast: the Osteoblast Breeds True to Specific Type of Bone.

It is held and taught by some histologists that all forms of mesoblastic tissue are intraconvertible—that a primitive connective tissue cell may develop into perfect fibrous tissue at one time, or into aponeurosis, cartilage, or bone at another—a kind of indifferent tissue capable of transforming itself as occasion requires.

From my observation there is no evidence of the existence of such an indifferent or elusive tissue, and none of an osteoblast being converted or being convertible into fibrous tissue. Periosteum never produced, nor is it capable of producing, a single osteoblast. The bone cell is derived from tissue which is primarily osteoblastic and which produces nothing other than osteoblasts. Not only so, but besides being generically bone cells, the osteoblasts are produced according to the specialized type of bone to which they belong. A diaphyseal osteoblast produces diaphyseal tissue, and an epiphyseal osteoblast always epiphyseal tissue. The osteoblast breeds true to its specific type.

In the canine species it would be as natural to expect that there existed a generic canine cell, which was so indifferent to specialization that it could develop into a fox-terrier or into a sheep-dog as chance or caprice might direct, as to believe that a single bone cell could be so indifferent to the behests of heredity as to produce a diaphyseal or an epiphyseal bone on demand.

The thousand memories of the atoms comprising each osteoblast make it always breed true to type. The cell observes the same adhesion to type in response to the demands necessitated for repair following injury of pathological change in the bone. What a difference in the bone formation produced by each! The diaphyseal is robust in regeneration and vigorous in pouring out the osteoblastic embryonic tissue or callus which forms an abundant splintage for fractures. The other is very economical in its response to injury, just issuing sufficient ossific substance to cement the damaged parts. What a blessing it is so, for, were the epiphyseal cells as vigorous in bone production as the diaphyseal, innumerable stiff joints would result from injuries, particularly as there is no limiting membrane at these points. How we humans are controlled by little things! If these minute cells did not breed true, slight injuries would result in stiff joints, and our national game of football, for instance, would be imperilled! If the intramembranous parietal bone were as vigorous at repair as a diaphysis, the new-formed bone masses might press upon and injure the brain.

Can a Living Osteoblast be carried by the Blood Stream?

If, from traumatic or pathological cause, a living osteoblast gains entrance into a blood vessel, can it be carried by the blood stream to a distance and be deposited within the body in some structure other than osseous, and, if so, can growth of bone result therefrom?

Experiments were tried to test this possibility, but the difficulties of isolating and handling such a minute structure and our clumsiness in manipulation rendered them abortive. While still pursuing investigation, however, Dame Nature, with her delicacy of touch and inimitable ways, performed the experiment and presented a beautiful illustration of the possibility of the fact that the blood stream can carry osteoblasts to at least a short distance and deposit them in blood clot, where they may grow and reproduce themselves, forming bone. Already it has been recognized—from experimental inquiry into the growth of bone, inside of glass tubes placed in the living tissue, which became filled with blood clot and serum—that the osteoblasts from the bone placed therein proliferated and penetrated the blood clot, the latter becoming slowly absorbed.

The experiment which Nature performed occurred in a man who had sustained a fractured humerus: a spiculum of bone from the interior of the shaft penetrated the brachial artery and allowed the blood to escape into the tissues and partly to return into the vessel through the rent in its wall. The blood, in its escape, flowed over the bare fractured bone, and osteoblasts, as they formed on its surface, would not only be laved by it, but some might be detached by the force of the stream. Six weeks after, when the patient presented himself to me, an aneurysmal swelling was found to have formed in front of the humerus, limiting flexion at the elbow. The swelling was dense and inelastic, with very little pulsation, though pulsation had been a marked feature of the swelling at an early period after the injury. In the fibrinous layer in the periphery of the sac there were plaques of new osseous tissue of varying thickness, which covered a considerable portion of the circumference of the aneurysm. These had evidently formed from the osteoblasts which had issued from the fractured shaft, and especially from the spiculum of bone which had penetrated the coats of the artery.

The osteoblasts had become peripherally distributed and entangled in the meshes of the fibrin formed from the coagulated blood. In this instance the osteoblasts were conveyed by the blood stream for a short distance only, measured by one or two inches, but it established the possibility that living osteoblasts, in favourable circumstances, may be detached from a naked bone in process of regeneration and may be conveyed by the blood stream to a distance, and there grow and produce new bone.

If the osteoblasts, in peculiar circumstances, could be driven into the lumen of the blood vessels, the stream could carry them and deposit them in internal organs where they

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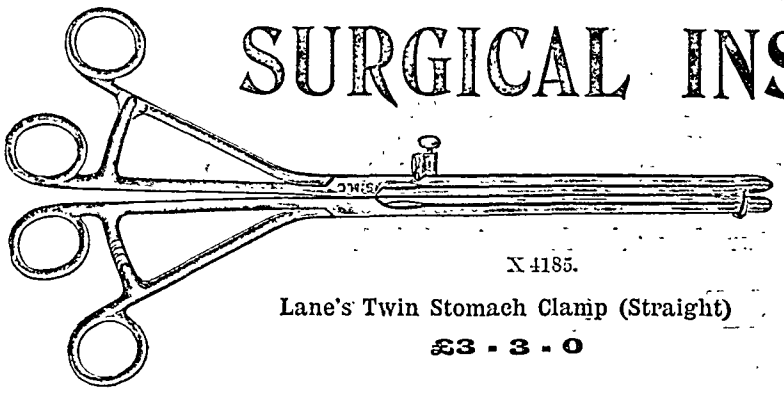

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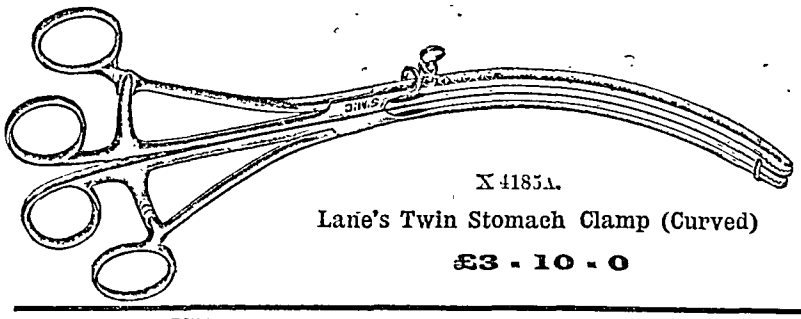

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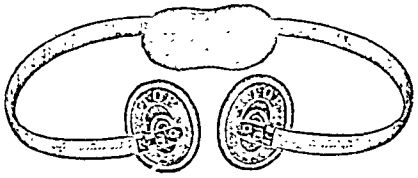

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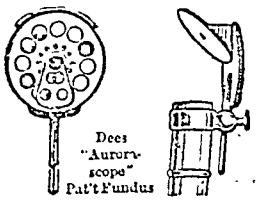

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hile there was no growth from the distal epiphysis, the owing plate having been destroyed. The grafted part ıd somewhat increased in length and also markedly in ıckness during ensuing years. While originally the ıafted portion was in the centre of the arm, it was pushed ward the distal portion owing to the more vigorous growth om the proximal epiphysis. The arm is shorter than its ighbour, and no one would take it for an artist's model, it it has been of great service to its owner. Since man-ood he has been able to maintain himself and his family his own efforts—first as a joiner, then as laboratory tendant—and also, he has been able to go to the front and his bit for King and country during the great war.

For the restoration of the lower jaw, grafting and trans-anting of bone has been frequently successfully employed many surgeons (especially in Frognal), restoring thereby e symmetry of the face, and, with the help of the dentist, e function of the lower jaw. In two such cases, operated over eighteen years ago, the mandible has increased in ze and strength commensurate with the rate of growth of e face, leaving little trace of the hideous deformities from hich the patients would otherwise have been doomed to ffer.

One has endeavoured to give a glimpse into some phases the comparative anatomy of the antler of the deer. Were e able to extend one's vision into other spheres of animal fe, not only would they prove of absorbing interest intrin-cally, broadening one's views, but they would shed fresh ght on human structure in evolution and repair.

As to Nature as a whole, we are still in deepest darkness. n't there within each of us a mystery which has never yet een fathomed—a mystery which man shares in common ith the minutest speck of primordial protoplasm of the ayside pool? The further we penetrate into the depths Nature, the more numerous are the paths which are vealed for our searching, and to our finite eyes seem limitable. Yet, in our search there are at least two things hich we may find—*one, not the extent, but a measure, of* ır abysmal ignorance; the other, that if we pursue our uest with a single purpose in search of truth for truth's ke only, we may get a glimpse of the spirit of Nature ıd feel the touch of The Hand that weaves the woof.

ORMAL AND MORBID CONDITIONS OF THE ADRENALS IN 100 HOSPITAL AND ASYLUM CASES;

ITH SPECIAL REFERENCE TO DEMENTIA PRAECOX.*

(*With Special Plate.*)

BY

SIR FREDERICK W. MOTT, K.B.E., M.D., LL.D., F.R.S., F.R.C.P.,

AND

ISABEL EMSLIE HUTTON, M.D.

rom the Pathological Laboratory of the London County Mental Hospitals, Maudsley Hospital, Denmark Hill, London, S.E.)

INTRODUCTION.

; making *post-mortem* examinations at the London County sylums I (F. W. M.) had long been struck with the fre-ıency with which I found small suprarenal capsules in ses of dementia praecox as compared with general ıralysis. I have already shown a regressive atrophy of ıe testes and ovaries in dementia praecox, and compared ıe conditions found in one hundred cases of each dying in ospitals and asylums.[5] There are many physiological and thological facts showing the correlation of the reproductive gans with the cortex of the suprarenal gland, therefore it ould not be surprising to find a diminution in weight these glands.† There are certain clinical symptoms in *dementia praecox* which show the probability of the corre la-tion of a morbid change in the medullary portion of this gland — namely, low blood pressure, feeble pulse, cold extremities, acrocyanosis, shallow breathing, low oxygen consumption, and katatonia. Dr. G. H. Rae Gibson[14] working at Claybury at my suggestion, investigated the blood pressure in various types of insanity, especially in relation to the above clinical signs of dementia praecox.

Table of Average Blood Pressure in 143 Cases.

	Males.		Females.	
	Average Blood Pressure.	Average Age.	Average Blood Pressure.	Average Age.
Dementia praecox katatonia ...	113	23	111	23
Dementia praecox hebephrenia	118	30	114	27
Dementia praecox paranoia ...	113	35	125	40
Epilepsy	120	35	123	39.5
General paralysis	123	45	125	44.5
Congenital imbecility	115	21	109	34.5

I should not attach much importance to the results of the average blood pressure in these various groups, for where the difference is great—for example, dementia praecox and general paralysis—the age factor might be cited as the causal relationship of the difference But on examining the tables in which the blood pressure of each of the 143 cases is given, one finds that in 10 of the cases of katatonic dementia praecox, and in 4 of the 27 cases of hebephrenic dementia praecox, the blood pressure is under 100; whereas in the 12 cases of epilepsy, in the 15 cases of general paralysis, and in 9 of the 10 cases of congenital imbecility, there is not a single case in which the blood pressure is under 100; moreover, in 5 out of the 10 cases of katatonia, and 2 out of the 4 cases of hebephrenia, the blood pressure was very low—under 90. In not one of the cases of general paralysis was it under 120. These observations were made before I undertook the investigation of the reproductive endocrine system of glands.

Dr. Dawson, assistant medical officer at the Maudsley Hospital, undertook last year, while assistant medical officer at Hanwell Mental Hospital, an investigation regarding the blood pressure and Goetsch reaction in dementia praecox. The following is a summary of Dr. Dawson's results.

The Blood Pressure and Goetsch Reaction in Dementia Praecox.

In a series of 50 cases the blood pressure was as follows:

	No. of Cases.	Systolic Blood Pressure.		
		Average.	Minimum.	Maximum.
Katatonics	27	116 mm.	93 mm.	135 mm.
Simple dementia praecox ...	14	117 mm.	104 mm.	126 mm.
Paranoid dementia praecox	7	120 mm.	115 mm.	136 mm.
Hebephrenic dementia praecox	2	115 & 122		

The diastolic reading was between 55 and 65 mm. in all cases.

Goetsch Reaction.—A subcuticular injection of 0.05 c.cm. of 1 in 2,000 Parke, Davis and Co. adrenaline solution was made in all cases. Two cases only gave a normal reaction, these had a systolic blood pressure of 122 and 123 respectively. One was a katatonic and the other a simple dementia praecox case with congenital defect. Eighteen cases gave a moderate reaction: in 13 of these the blood pressure was 120 or under (minimum 104); in 5 it was over 120 (maximum 150). Thirty cases reacted only faintly: in 25 the blood pressure was 120 or under (minimum 93); in 5 it was over 120 (maximum 136).

The test was repeated in cases with a high blood pressure which gave a faint reaction, and the same result was obtained. In several cases it was found that a faint reaction might be intensified by administration of thyroid extract, but without material alteration in the blood pressure.

Katatonic Stupor.—Nine cases of this variety of *dementia praecox* were included in the series. One case had a blood pressure of 135, but reacted faintly to the Goetsch test. In the other 8 cases

* This research was carried out with the aid of a grant from the Board of Control.

† Dr. Langdon Brown, in his interesting Croonian Lectures on the sympathetic nervous system in disease, says: "It is both interesting and suggestive to note that an important group of endocrine glands—the adrenals, the thyroid, and the pituitary—have three features in common: the secretion of each is stimulated by the sympathetic, they all lower carbohydrate tolerance, and they all act and react with the reproductive glands."

they may be also very irregular, and even ragged in outline, in this respect differing greatly from those of the cortex, which are sharply defined and compact. Many of the cells contain very fine droplets of lipoid. Sections treated with chrome show brown granules in many of the medullary cells, and most workers are of opinion that these chromaffin granules are limited to the medulla, though Cramer[4] shows very convincingly that they are also to be found in the zona reticularis. We have also noted this in cases, and apparently these granules occur in greater abundance in the zona reticularis than in the medulla; at any rate, this applies to the human subject, according to our experience. The cytoplasm of the cells stains well with eosin, and there is but little vacuolation; with the oil-immersion lens numbers of fine eosin-stained granules can be seen—? mitochondria.

The nucleus is small in comparison to the cell; it is round, stains deeply, and contains numerous chromatin granules, some intensely black and coarse when stained by Del Rio Hertega method, and others of dust-like fineness; a distinct and fairly complicated chromatic skein is present. The cell nuclei are for the most part of uniform size and shape. In normal glands there are very few nuclei without surrounding cytoplasm, and those are paler and contain fewer granules than the nuclei contained in the cells. Moreover, instead of being round, they are generally oval or fusiform in shape. Some of these may be fibroblastic.

Mitosis has been observed in the cells of the medulla of many glands and also in the zona reticularis. Graham[5] has found mitosis in the medulla, but much less frequently than in the cortex. In many cases groups of sympathetic ganglion cells were found in the medulla or just between the cortex and medulla, and occasionally bundles of non-medullated fibres. Cortex and medulla react as a whole in a different way to stains, for whereas the medulla takes up the basic, the cortex takes the acid stain.

Size and Weight of Adrenal Glands in One Hundred Cases.

Size.—The adrenals are glands so small and light that slight differences in their size and weight may have a certain significance. These differences may sometimes be marked and obvious even at the *post-mortem* examination; they can be still more clearly observed upon studying a stained section through the gland in its thickest part. It can be noted, on the one hand, without the aid of the microscope that the adrenal glands of a case of dementia praecox are, as a general rule, smaller than in cases belonging to any other class; and, on the other hand, the adrenal glands of a case of general paralysis are usually larger. It was also noted that a section of the gland in a case of tuberculosis did not differ, as a general rule, from that of the section of the gland of a normal hospital case dying of injury.

Weight.—The average weight for each group of cases was taken. Many of the glands in dementia praecox only weighed from 2.8 to 4 grams; the average weight, however, in this class was higher than might have been expected. Several factors contributed to the raising of this average, of which the following were the principal.

One case with heavy adrenals had been clinically diagnosed as dementia praecox and is included in the list, but its history showed that it was doubtful whether it was a case of dementia praecox.

Four were puerperal cases, which would probably account for some increase of the weight owing to the enlargement of the cortex[16] connected with the puerperal condition.

A few adrenals were heavier than normal, owing to the great fibrosis of their medulla.

The average weight of adrenals in dementia praecox cases = 6.326 grams (women = 6.548 grams, men = 5.327 grams).

Average weights were as follows:

Dementia praecox	6.32 grams
Other psychoses	6.60 ,,
General paralysis	7.35 ,,
Tuberculous cases	6.23 ,,
Hospital cases	7.21 ,,

The weights in the different classes are probably more clearly shown in the following table. The sum of the right and left adrenal is taken in each case, and the percentage of cases between certain weights is given.

	5 to 10 grams.	10.1 to 15 grams.	15.1 to 20 grams.	20.1 to 25 grams.
	Per cent.	Per cent	Per cent	Per cent.
Dementia praecox (21 cases) ...	43	29	23	—
General paralysis of the insane (21 cases)	9	43	43	5
Various psychoses (8 cases) ...	25	50	25	—
Tuberculosis (10 cases)	20	70	10	—
Hospital cases (23)	16	42	37	5

Note the high percentage of dementia praecox cases between 5 and 10 grams, and of cases of general paralysis of the insane between 15 and 25 grams.

The average for the normal gland of this series is 7.21 grams—a much higher average than Elliot's, which was between 4 and 5 grams.[7] Testut[11] gives 6 to 7 grams as the average weight, and Vierordt,[12] working from a very large number of cases, gives 7.3 grams as his average.

Ratio of the Area of Cortex to that of the Medulla.

So striking were the differences in the width of the medulla in the different cases that it was thought advisable to find means of arriving at some idea of the relative area of the cortex and medulla. This was at first done by actual comparative microscopic measurements through the thickest portion of the medulla, but it was felt that this method was open to many fallacies, so the following method was adopted. It has been previously explained how the glands were cut as nearly as possible through the thickest portion of the gland. The magnified outline of the section was drawn on paper of equal thickness by means of an Edinger projection apparatus. The medulla was also outlined, and this is a very simple matter, for, owing to the fact that their staining reactions are so different, the cortex and medulla stand out quite clearly from each other. The medulla and cortex having been delineated upon the paper were then separately cut out and each accurately weighed; thus a representation of the area in terms of weight was obtained. It was found that the normal glands showed an average ratio of 2.7—that is, the cortex covered 2.7 times as much area as the medulla. Tuberculosis cases showed an average ratio of 3.7, and general paralytics one of 3.2. The average for the dementia praecox cases was, however, a much higher one, and showed that the cortex covered 8.6 times more area than that of the medulla. If this fact be coupled with the fact that the average dementia praecox adrenal is relatively a smaller organ, it is probable that the deficiency in weight in most of the cases was, in great measure, due to deficiency in medulla. In fact, in some of these cases the medulla is a mere narrow strip of tissue; in a few cases, however, the medulla is as extensive as in normal cases because of great substitutive fibrous hyperplasia. The cases investigated by Dr. Dawson (referred to in the earlier part of this communication) have for the most part not died, therefore we have no precise data regarding the correlation of blood pressure, Goetsch reaction, acrocyanosis, katatonia, and anergic stupor with the degree of atrophous change in the medulla of the adrenal gland.

I am at present instituting an intensive research on the relation of the histological changes in the reproductive organs, the whole endocrine system, and the vegetative nervous system, to carefully recorded clinical investigations, including basic metabolism in individual selected cases of dementia praecox. (F. W. M.)

There does not seem to be any literature in which accurate figures can be found to compare with those of this series; Elliot and Tuckett,[13] however, have worked out this ratio in animals, and from the figures obtained have deduced the proportions of cortex and medulla in man. The proportion of cortex to medulla which they give is somewhat higher than that which we have found in this series. A graph shows well the ratio of the cortex to the medulla in the different classes of case.

Histological Changes in the Cortex.

(*a*) *Lipoid.*—It was found that in most of the cases of dementia praecox, in all cases of general paralysis and the other psychoses, as in the normal cases, it was apparent to

form is due to the less marked and less noisy character of the danger symptoms, and given constant observation and readiness of resource, these need not be more feared than those of ether? I am sure that in many cases chloroform has been blamed as against ether where the latter was either inadmissible or inadvisable.—I am, etc.,

London, S.W., July 7th. G. D. PARKER.

FREEDOM OF NEGRO RACES FROM CANCER.

SIR,—The letter of Dr. Fouché will interest all medical men practising in West Africa, who can, I am sure, amply confirm his remarks with regard to the rarity of cancer in pure negroes.

It is true it occasionally occurs in towns on the seaboard, such as Accra, Lagos, and Calabar, which have a heterogeneous population and where the natives have lived in close contact with Europeans for upwards of four hundred years, but even then it is a rare condition, differing in this respect from sarcoma. Appendicitis is likewise uncommon except in the coast towns, and the only case I have seen alive or in the *post-mortem* room (apart from a case in a half-caste that occurred at Accra in 1913) was secondary to a filarial infection of the psoas muscle.

In Northern Nigeria the extreme rarity of carcinoma may be judged by the fact that the only recorded case, at any rate in recent years, was one of carcinoma mammae in an old woman from Sokoto, and this specimen is now in the Museum of the Royal College of Surgeons. In Northern Nigeria, moreover, the women do not commonly cover their breasts, and it is therefore more than usually easy to observe cases of this kind among the 9,000,000 inhabitants.

I may add that during a period of two years in Abyssinia I neither saw nor heard of a case of carcinoma from my French, Greek, Italian, and Russian colleagues, all of whom had large practices in the capital. The Abyssinian, moreover, is not a negro, though intermarriage with slave tribes has produced negroid features in many cases.—I am, etc.,

N. A. DYCE SHARP,
London, S.W., July 2nd. West African Medical Service.

A HOSPITAL CONTRIBUTORY SCHEME.

SIR,—Much correspondence recently appeared in your columns concerning hospital policy, the tenor of which fairly reflected the absence of precedent to guide or constructive policy to build on. It may therefore be of interest to your readers to learn how we in Sevenoaks have tried to solve our problems.

Last year a cottage hospital of a dozen beds was rebuilt into the Sevenoaks and Holmesdale Hospital with twenty-six beds; it contains two main wards, private wards, operating theatre, *x*-ray rooms, laboratory, etc.

In order to find support for a larger hospital, we started a contributory scheme, under which a worker pays 2d. a week for himself and family, except such children as are themselves wage-earners, the latter also contributing 2d. a week. The income limit of those who join was fixed at £200 a year. In conformity with the British Medical Association policy, the medical staff claimed and obtained a "token" payment out of the premiums of 1 per cent. After less than a year the number of members who are paying weekly is approaching 2,000, and we find that the total of their premiums is very little short of the whole cost to the hospital of those contributors admitted during the same period.

Recently application was made to the Hospital Committee by workers earning from £200 to £375 a year to be enrolled under the scheme. The matter was very thoroughly considered by the medical staff, with the result that they unanimously decided that they would be ready to attend persons enjoying such incomes, under a contributory scheme, provided that the following fees were paid:

(1) For every case admitted £3 3s. to the doctor attending.
(2) An additional fee of £5 5s. for every major operation.
(3) A fee of £1 1s. for out-patient operations.

The honorary treasurer and honorary secretary estimated bed-days per 100 members and prepared figures, and found that premiums scaled from 15s. to 30s. per annum according to income would meet, with a margin, the total cost to the hospital of maintenance together with the above professional fees. The Committee has therefore given its consent to this extension of the contributory scheme.

As a hospital we may then, I think, claim that we have worked out a satisfactory plan for contract attendance of all below the paying-ward class, with due consideration of professional interests. And this has been due, first of all, to the ideal state of good feeling and united action obtaining amongst all the medical men in Sevenoaks, with the consequent thorough discussion of everything which touches their interests; secondly, to the fact that all doctors in the district are allowed to attend their own cases; thirdly, to the consideration of an able lay committee, the members of which have successfully attacked and mastered the new situation which hospitals have to face; and, lastly, perhaps not a little to the presence of a member of the medical staff on the Committee, acting as honorary secretary, and therefore in a position to act, as it were, as liaison officer between Committee and medical staff.—I am, etc.,

F. MARSDEN BURNETT, M.D., D.P.H.,
Hon. Secretary, Sevenoaks and Holmesdale Hospital.
Sevenoaks, July 3rd.

HYDROLOGY.

SIR,—I was one of those fortunate members of the medical profession who was able to accept the invitation to spend last week-end in Harrogate, when, besides being royally entertained, we were given opportunities of visiting and having explained to us the working of the Royal Bath Hospital and the Royal Baths and Wells. I would like to call attention to one lesson which the visit should have impressed on the medical visitors—namely, the vast amount of benefit to the sick which results from appropriate general non-specific treatment skilfully applied.

The growth of bacteriology, the development of clinical pathology and biochemistry have tended to divert the medical profession's mind from general to specific therapeusis. Vaccines and serums have enabled us to deal very effectively with certain diseases, and these advances in scientific knowledge are not neglected by the Harrogate physicians; but in the main the Harrogate treatment is general treatment, having for its aim the full development of the natural defences of the body by the stimulation of metabolism and the removal of injurious waste products. That this line of treatment may be very successful the patients shown to us in the hospital clearly showed.

A distinct advance in the study of that form of general treatment classed as hydrological has been made by the University of London by inaugurating a course of lectures and demonstrations on this subject—an advance for which we have to thank in the first instance Dr. Fortescue Fox, Dr. Campbell McClure, and their co-workers, but so apathetic had the profession previously been to this question that it permitted without protest the scrapping of all the balneological apparatus of the institute for officers in Great Portland Street soon after the end of the war, and it seems probable that a similar department of a large hospital for pensioners will be treated in the same way unless prompt measures are taken to prevent it. Much is said about the failure of panel practitioners to treat their cases, while at the same time an excellent method of treatment is not made available to them.—I am, etc.,

London, W., July 2nd. HAROLD H. SANGUINETTI.

THE PEPTONE TREATMENT OF ASTHMA.

SIR,—In answer to a letter published recently in your columns (June 30th, p. 1116) by Dr. Auld, I must apologize for any inaccuracy that occurs in my book on asthma with regard to the dosage of peptone advised by Dr. Auld for intravenous injection. What I meant to convey was that he used a mixture of both Witte's and Armour's peptones, while others used Witte's alone. The word "mixture" should be read instead of the word "each" in the text.

With regard to the absence of notes of reference to Dr. Auld's many articles, I imagined that his work on this subject was so well known as to need little further reference from me.—I am, etc.,

London, W., July 6th. FRANK COKE.

degree as in cases of dementia praecox. Syncytia were sometimes seen and the cells showed in some cases a certain amount of atrophy and vacuolation; slight nuclear proliferation was present in a few of these cases. A few cases of tuberculosis showed atrophy of the cells and vacuolation of their cytoplasm, but most of the specimens presented a normal appearance. A few of the hospital cases showed slight atrophy of the cells and vacuolation of their cytoplasm, but in most of them no definite cell changes were observed comparable with those seen in dementia praecox.

(*b*) *Fibrosis.*—There seemed to be a certain amount of fibrosis in all the dementia praecox cases, and this was also seen, though to a slighter extent, in some of the other psychoses. This fibrous hyperplasia was sometimes coarse and consisted of heavy wavy bundles which extended round groups of cells. On the other hand, it was in many cases a very fine fibrosis and delicate strands of fibrous tissue ramified between individual cells. In one dementia praecox case there were such thick bands of organized fibrous tissue that they could even be seen in sections by the aid of a hand lens. In a few of these cases the medulla consisted of little else but fibrous tissue, and the amount of cellular tissue was very small. It could not be said it was this fibrosis alone that caused the cell change, for in some adrenals that showed a marked fibrosis the cells were fairly normal. General paralytic cases showed a fair amount of fibrosis, but there was no pericellular arrangement of the fibres. The majority of the hospital and tuberculosis cases showed no fibrous hyperplasia, though there were a few specimens in which this was present.

(*c*) *Nuclear Ratio.*—It was thought that as there were in some cases such numbers of nuclei and so few cells, it might be instructive to count the numbers of nuclei and of cells in a given area. This was done, the area used being 0.25 mm. The numbers of nuclei and of cells were separately counted in three such areas and the averages taken. The number of nuclei was divided by the number of cells and a ratio of nuclei to cells was obtained. The averages of the nuclear ratio in the different classes of case were as follows:

Dementia praecox	6.37 to a cell
Other psychoses	3.82 ,, ,,
General paralysis	1.85 ,, ,,
Hospital cases	1.94 ,, ,,
Tuberculosis	1.84 ,, ,,

A glance at the above figures shows that the hospital, the tuberculosis, and the general paralytic cases have an almost identical average ratio. The dementia praecox cases show by far the highest ratio of all. The other psychoses occupy a place midway between the others, and it would seem as though this were possibly a stage of the process towards what is found in the dementia praecox cases.

(*d*) *Lymphocytosis.*—In many of the general paralytic cases a lymphocytosis was present along the line of the fibrous septa of the medulla and the cortex. This was very marked in some of the cases where the lymphocytes formed clumps which could be well seen even under a low power magnification. Some of the adrenals showed this much more markedly than others, and even in those cases where it was very marked the glands seemed to be otherwise practically normal.

(*e*) *Lipoid.*—In the great majority of cases this was present in small amounts in the medulla. It was distributed in fine droplets and was never present in all the cells, and very often in quite a small proportion of them. It was absent, as in the cortex, in cases where there was an acute or chronic septic condition.

SUMMARY OF DISTINCTIVE CHANGES WHICH CHARACTERIZE THE DIFFERENT CLASSES OF CASE.

Dementia Praecox.

Much more striking changes were found in this class of case than in any other, and these will now be given seriatim.

(*a*) *Size.*—The organs were smaller than the normal; this was quite apparent to the naked eye, and very marked in the slide preparation. They generally had a thin and shrunken appearance which was as a rule quite typical.

(*b*) *Weight.*—As a rule the organs were much lighter than the normal and many of them weighed only from 2.8 to 5 grams. The average weight was somewhat higher than this, but it has been already shown why this was so.

(*c*) *Medulla as a Whole.*—This was distinctly narrowed and in some cases was a mere narrow strip of tissue. In a few cases the medulla was as wide or wider than the normal, but this may be accounted for by the fact that in these cases there was marked fibrous hyperplasia and only comparatively few normal medullary cells. In one of the cases the fibrous bands were so thick that they could just be seen by the naked eye.

(*d*) *Medullary Cells and Nuclei.*—The cells were smaller than the normal and their cytoplasm much vacuolated. In some cases even atrophous cells were very few in number. The nuclei were, relatively to the normal, smaller and paler, the chromatin granules were fewer and finer, and the chromatin skein was simple or indefinite. They varied much in shape and size, and were usually out of proportion to the size of the cell. There were many nuclei present which were not surrounded by cytoplasm, and these were pale and larger than those which were surrounded by cytoplasm; they were generally oval or fusiform in shape, and the granules were scanty and fine. The ratio of nuclei to each cell (this had previously been explained) was 6.37, while the normal was 1.94.

(*e*) *Fibrous Tissue.*—Medullary hyperplasia has already been very fully described; it varied enormously. It was in some cases slight, and in others there was great coarsening of the fibrous framework; it may be a very fine pericellular ramification, or there may be thick organized strands of fibrous tissue.

(*f*) *Cortex.*—Here little or no change was observed, except that in some cases the fibrous septa were much thickened. Where there was fibrosis in the medullary portion it was not observed that there was always a corresponding thickening of the fibrous septa of the cortex. Lipoid was absent only in cases dying of acute or chronic septic conditions.

Other Psychoses.

In manic-depressive cases changes very similar to those in early cases of dementia praecox were seen in some of the cases. The cells were in some cases smaller, the nuclei immature, the cytoplasm was vacuolated, and a slight fibrosis was sometimes present. In no cases were the changes very advanced. The ratio of nuclei in the medulla was high—3.82 to a cell—which is midway between the ratio of the normal and dementia praecox cases.

General Paralysis.

The adrenals of these cases were larger than the normal, and there were few exceptions to this; this was very noticeable even on naked-eye examination of the slide preparation, and the average weight was greater. The medulla in all cases was large and wide, and here fibrosis was occasionally present, but never to any great extent. The cells were normal or practically normal throughout, and contained a great number of granules and a complicated chromatin skein. In some cases there was slight vacuolation of the cytoplasm, and in a few of the cases syncytia were present. The nuclear ratio corresponded with that of the normal adrenals.

The most marked feature was the presence of lymphocytosis, and this was seen along the line of the fibrous tissue septa in both cortex and medulla. In many of the glands there were such large collections of lymphocytes that well marked clumps were present, and these could be well seen even under the low power of the microscope. This lymphocytic infiltration may to some extent account for the weight of the adrenals in this disease even exceeding the average normal. But we are quite sure that this does not wholly account for the large adrenal glands in general paralysis. More probable is it that the large glands are connected with a strong sexual instinct. Spirochaetes were not seen; the Hortega method would probably have shown them had they been present. It is probable that these lymphocytes came from the cerebro-spinal fluid.

Tuberculosis Cases.

There was nothing remarkable to note about most of these cases, as they did not differ from the normal except in their cortical lipoid content. Sometimes the

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AT a meeting of Fellows on July 5th five Fellows were elected into the Council in the vacancies occasioned by the retirement in rotation of Sir Charters J. Symonds and Sir Herbert F. Waterhouse, by the deaths of Sir William Thorburn and Sir Charles Ryall, and by the resignation of Mr. F. F. Burghard. In all 1,052 Fellows voted, 1,043 sending their ballot papers through the post and 9 voting in person, and the result of the poll was as follows:

	Votes.	Plumpers.
JAMES BERRY	612	6
GEORGE ERNEST GASK, C.M.G., D.S.O.	466	28
JOHN HERBERT FISHER	445	53
PERCY SARGENT, C.M.G., D.S.O.	445	3
WILLIAM SAMPSON HANDLEY	433	8
Sir H. F. Waterhouse	358	4
Herbert J. Paterson, C.B.E.	342	11
George Grey Turner	332	13
Victor Bonney	304	3
Thomas Percy Legg, C.M.G.	177	4
Donald Armour, C.M.G.	111	5

Mr. Handley becomes substitute member of Council for Mr. Burghard until July, 1929, and Mr. Sargent becomes substitute member of Council for Sir William Thorburn until July, 1930.

CONJOINT BOARD IN IRELAND.

THE following candidates have passed the Final examinations:

Jane A. Brennan, F. S. Bourke, H. Bugler, P. J. Clarke, S. B. Carlisle, Dorothy M. Coulson, S. L. Christie, S. H. Ervin, F. B. Harrison, P. Kilcoyne, P. S. McCabe, P. J. C. MacDonnell, Iris P. Nolis, T. V. C. Nolan, Mary R. Nolan, D. M. F. O'Connor, J. F. O'Connor, Anne O'Connor, A. T. O'Grady, C. B. D. O'Henaghan, Helen P. Regan, Mary A. Ryan, J. D. Sayers, R. E. Sadlier, S. L. Simon.

Obituary.

PATRICK WHYTE RATTRAY, M.A., M.B.ABERD., F.R.C.S.ENG.,

Holloway.

THE death of Dr. Patrick Whyte Rattray on July 2nd, his 64th year, of angina pectoris, removes one who was regarded by his fellows as no ordinary man. A graduate of the highest distinction both in arts and medicine of the University of Aberdeen, he was for a time senior demonstrator of anatomy there.

Dr. A. Blackhall Morison writes: Those of his contemporaries who survive, will recall the high reputation he had as a teacher. Some years ago, the writer of this notice invited a well known Aberdonian to dinner, and remarked that he had also asked one of the most distinguished graduates Aberdeen ever sent out to meet him, who was living contentedly in general practice. He at once inquired, "Do you mean Pat Rattray?"

Rattray appears to have sought teaching appointments in anatomy and the assistant surgeoncy to a hospital in earlier life, and on all these occasions unsuccessfully, after which he quietly betook himself to general practice, which he cultivated with success. The writer, who was occasionally invited to confer with him, always regarded it as a compliment, and usually remarked on meeting him, "What insoluble conundrum have you set me this time?" For, the cases in which Rattray sought counsel, were always "hard nuts to crack." When he failed in his efforts to secure the public appointments referred to (and who can foretell the issue of such contests?) he seems to have shunned all publicity. He wrote nothing, which is to be regretted, for the studies of one with his calm judgement and comprehensive outlook would have been valuable. It is no abuse of language to state that, silent and unobtrusive as was the career he chose, one word alone adequately describes him—he was "great," and we shall not often look upon his equal.

He leaves a widow, a son (who did good work in the naval flying corps during the war), a daughter, and warm friends to mourn his loss.

DONALD MURRAY, M.B., C.M.GLASGOW,

Formerly M.P. for the Western Isles.

WE regret to announce the death of Dr. Donald Murray, which took place in a London nursing home on July 6th, in his 60th year. Dr. Murray was born at Stornoway, and received his medical education at Glasgow University, where he graduated M.B., C.M. in 1890. He was keenly interested in politics even as a student in Glasgow, and was president of the University Liberal Club in 1889; he was president also of the Medico-Chirurgical Society in 1890. For some years he was in practice at Brora, Sutherlandshire, and later at his native town of Stornoway. In 1910 he took the D.P.H. of Aberdeen University, and was subsequently appointed medical officer of health for the island of Lewis and the burgh of Stornoway, and school medical officer for Lewis and the western portion of Ross and Cromarty. From 1905 to 1910 he was chairman of Stornoway school board, and he was a justice of the peace for Ross and Cromarty. He resigned his offices on being elected to Parliament as an Independent Liberal in 1918. He soon made himself at home in the House of Commons and his ready wit enlivened many otherwise dull hours. He took an active part in the work of his party, and as a member of the Parliamentary medical group. He was an old member of the British Medical Association, and was always ready to aid the Association in its parliamentary work. He was defeated at the general election in 1922 by a National Liberal; his defeat was rather a severe blow to him and he had hoped soon to return to Westminster for a Highland constituency. He had a passionate love for the Highlands and for his native island, and while a member of the House of Commons endeavoured to improve the lot of the crofters in his constituency.

His funeral took place on July 9th, at Stornoway, and a memorial service was held at Highgate Presbyterian Church, London, when Sir Donald Maclean gave a brief address, speaking of Dr. Murray's high ideals, courage, independence, and friendship. He was faithful in all things, tender as a woman. They went through hard times together, but he never failed in his loyalty to his ideals, his courage, his independence of opinion, and his sense of humour. He was no man's enemy, but he had a hatred of social injustice, no matter where, and to its remedies he devoted his life.

A. G. PARROTT, M.R.C.S., L.R.C.P.,

Shanghai, China.

ON May 22nd, 1923, Dr. A. G. Parrott died suddenly from heart failure, at the age of 67, at his home in Shanghai, China. He was born in Suffolk and went out to China in 1878, and worked for six years in the China Inland Mission. In 1884 he returned to London with his wife and family and afterwards entered as a medical student at the London Hospital, and after six years' study he took the diplomas of M.R.C.S. and L.R.C.P. in 1892. He returned to China in 1893 to work with the Open Brethren as a medical missionary. He settled at Laohokou, a city in the north of Hupeh province, on the Han river, some thousand miles inland from Shanghai.

Life and medical work in a far-inland station in China in those days were by no means easy, and the stress and strain of it no doubt largely contributed to the illness and death of his first wife. As a consequence of the Boxer upheaval in 1900 Dr. Parrott had to leave Laohokou, and went to reside in Shanghai, engaging in private practice and throwing himself into all kinds of mission work.

He served as honorary medical officer to the Door of Hope Rescue Homes for Chinese girls, to the Foreign Women's Home, to the Blind School for Chinese boys, and to the Chinese Industrial School. He was visiting physician to the Shantung Road Hospital for Chinese.

Dr. Parrott was only indisposed for twelve days. Under rest and treatment he recovered sufficiently to sit up and enjoy reading, but his heart suddenly gave out and he died. He is survived by his widow and four out of his six children, to whom the deepest sympathy is extended.

Mr. Cecil J. Davenport, F.R.C.S., of Shanghai, to whom we are indebted for these particulars, adds: "He leaves behind him a fragrant memory, an inspiring example, and many sorrowing friends who feel that earth is poorer through the loss of his humble, helpful, hopeful presence."

SIR FREDERICK MOTT: NORMAL AND MORBID CONDITIONS OF THE ADRENALS IN HOSPITAL AND ASYLUM CASES.

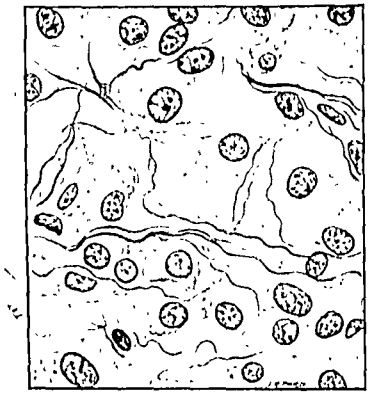

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIG. 5.

FIG. 6.

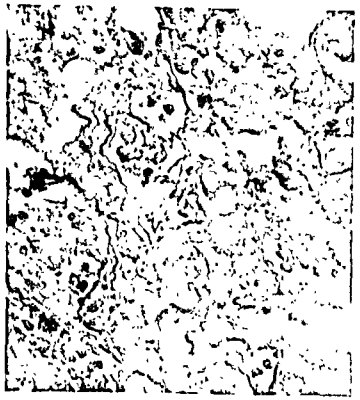

FIG. 7.

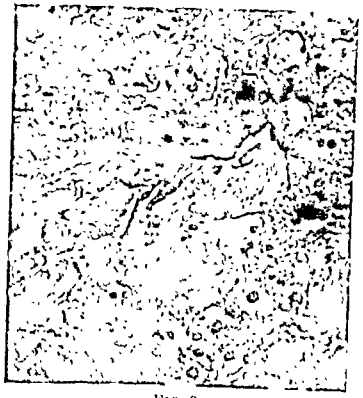

FIG. 8.

SIR STEWART STOCKMAN, chief veterinary officer to the Ministry of Agriculture, has been elected president of the Royal College of Veterinary Surgeons.

THE annual dinner of past and present students of St. Mary's Hospital Medical School will be held at the Connaught Rooms, Great Queen Street, W.C., on Monday, October 1st, at 7 p.m.

MESSRS. KNOEDLER AND CO., of 15, Old Bond Street, W., are exhibiting a collection of some fifty pictures by nineteenth-century French painters. At the back of the catalogue is a letter addressed to Sir Coutts Lindsay at the Grosvenor Gallery by a group of French artists, apparently at the end of last century. Many of these painters are now dead, but pictures by most of them are included in the present exhibition. The writers of the letter describe themselves as struggling against convention and routine to bring back art to the scrupulously exact observation of nature, attempting to render the reality of form in movement as well as the fugitive phenomena of light. The collection is of great interest in showing the development of art during the nineteenth century, from the landscapes of Corot with figures from the classical age and such pictures as Géricault's trumpeter of the Imperial Guard, to the realistic figures of Edouard Manet and Degaz and the landscapes of Claude Monet and Sisley. A portrait of Mlle. Gonin by Ingres can be compared with that of Mlle. Lemonnier by Manet. The method of producing effects with thick dabs of paint is shown in Monticelli's Les Reitrer, and we may admire the iridescent haze of Monet's Palais Ducal at Venice. The designers of the exhibition seem to have accomplished their purpose, and the collection is well worth a visit, and the observer will be able to judge how far the writers of the letter to Sir Coutts Lindsay have attained the objects with which they set out.

PATRICK JOSEPH HONAN, aged 26, who graduated M.B., B.Ch., B.A.O.Belfast in 1920, was convicted at the Surrey Assizes on July 9th on the charge of performing an illegal operation upon a woman. According to the report in the *Yorkshire Post* he admitted misconduct with the woman and that he had performed the operation which led to miscarriage. He was sentenced to eighteen months' hard labour. The judge said that but for his character and comparative youth, and the fact that he did not commit the offence for gain, but from personal reasons, he would have sentenced him to a long term.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

INCOME TAX.

"IRISH SURGEON" inquires whether the cost of attending purely professional meetings can be claimed as expenses.

*** We are of opinion that the reply is in the negative, assuming, as we do, that the meetings in question are for the furtherance of general professional interests rather than in connexion with some particular professional work for which remuneration is being received.

"F. J. T." bought his partner's half-share in the practice in February, 1923. What is the correct basis of his liability for the financial year ending April 5th, 1924?

*** "F. J. T." is in the position of a successor in the practice to the old firm; as such he is liable to tax on the full profits of the practice on the three years' average, but can claim an adjustment of that assessment if he should find that the amount of his profits (not necessarily on the basis of cash receipts) for his first year as sole proprietor has been less than the sum assessed.

"W. A. M." inquires (*a*) as to allowance of subscriptions to British Medical Association and Medical Defence Association, (*b*) as to the basis of assessment of fees from the Ministry of Pensions (part time) and locumtenent work, and (*c*) whether he can make any claim for loss incurred in a practice he has purchased.

*** (*a*) The proportion expended on membership is allowable; we suggest as a minimum that £3 3s. might be taken in the former case as representing the cost of literature supplied to members. (*b*) Strictly each appointment is separately assessable under Sch. E on the basis of the current year's (or period's) receipts; we believe that in practice in such a case as "W. A. M.'s" the whole earnings are pooled as being income derived in the form of professional profits assessable under Sch. D on the three year's average, but there seems to be no statutory title to that form of assessment. (*c*) "W. A. M." is assessable on his predecessor's average, which he can have reduced to *nil* on showing that owing to some specific cause since or by reason of the succession his work has resulted in a financial loss; if he has other income for the same year the amount of the loss can be set against it, and repayment claimed if that income has borne tax, but if that be done the loss cannot be carried forward for future averages as a negative quantity.

LETTERS, NOTES, ETC.

WIGHT, WHITE, LIGHT.

THE study of place-names is bewildering, and if we may judge from the scorn with which one learned writer greets the suggestions of another learned writer, not much progress has yet been made in establishing principles. It is perhaps because the British Medical Association is going to hold its annual meeting in Portsmouth, where the Isle of Wight lies across the narrow water, that "An Ignorant Student" has sent us a copy of a pamphlet on *Origins in Place Names*, luxuriously printed at the Chiswick Press. It suggests a generalization which may prove useful. In many place-names in England there is an element which indicates whiteness, and an explanation has been found in chalk cliffs or limestone formations. The suggestion now made is that the reference is not to whiteness but to lightness, a clearing or open space upon which the sun struck, relieving the gloom of the forest; it would be on such areas that our primitive ancestors would build their villages and cultivate the soil, and early feel the need of a name. The Romans called the Isle of Wight "Vectis," and Canon Taylor, still a respectable authority, was confident that Wight was derived from the Roman name according to phonetic laws, which, we believe, are still admitted. Taylor calls it a corruption, but it is more probable that the Romans corrupted an earlier name. It seems to be accepted that white is derived at long range from the Sanskrit "çveta," so that it does not seem altogether unreasonable to suggest that the name of the isle before the Romans came was something like "Vit," with a long "i."

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 36, 37, and 38 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 20.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

r many years before admission he was very abnormal mentally. ie adrenals weigh 8.02 and 6.52 grams respectively. There is little ntraction of the medulla, and here there is coarse fibrosis with a ericellular arrangement of the fibres. There is scarcely a cell to seen, and not one that could be called normal. The nuclear ngos are very advanced and the nuclear ratio in the medulla high.

CASE IX.

C.; general paralysis of the insane. Male, aged 48 years at death, hich occurred in a mental hospital where he had been for two ars. The adrenals were markedly large and weighed 9.8 and) grams respectively. The medulla is not constricted and lipoid present throughout. The medullary cells are normal in appearnce and there is no fibrosis. The nuclei are normal and the uclear ratio is low. Lymphocytic infiltration is present along the brous septa, and here and there are small clumps of lymphocytes.

CASE X.

Chronic tuberculosis. Female, aged 22 years at death. The drenals weigh 6 and 5.5 grams respectively. There is no lipoid resent except for a few droplets in the outermost layer of the ona granulosa. The medulla is not contracted and the cells are ormal in appearance; the nuclear ratio is low. There is no fibrosis resent nor any appearance of lymphocyte infiltration.

CASE XI.

V. B., single, aged 18 on June 12th, 1920, was charged with eing drunk and disorderly, was sent to Holloway, and was certified isane on June 21st. She was admitted to the Manor on June 25th, nd transferred to Horton on October 26th, 1920. Her mother ated that, as far as she knew, the girl was mentally sound up to bout a week before certification. She was accustomed to take eer, generally on Saturday, and was described as a flower seller nd afterwards a wardrobe dealer. She reached the sixth standard t school; one uncle was at Cane Hill, and another uncle died at Iorton some years ago. In other respects the history was defective. In admission she was diagnosed as a case of adolescent insanity. he was very noisy, irrational, excited, rambling, and resistive; as strange in manner and became emotional and abusive; was iolent and impulsive at times, and needed much supervision. Her hysique and general health were good apart from a mitral aurmur. On admission to Horton she was katatonic, destructive, nd dirty. On December 11th, 1920, she had a profuse offensive aginal discharge, but no gonococci were found. On January 10th, 921, she had frequently relaxed stools containing blood and mucus, ollowed by obstinate constipation, and her general condition caused hthisis to be suspected. During 1921 she became progressively lemented—dull, apathetic, with impulsive outbursts, and the ymptoms of impairment of volition (negativism) continued. She vas considered a typical case of dementia praecox. Her health again ot worse, and on September 12th, 1922, she had pyrexia and relaxed offensive stools. The diagnosis of pulmonary tuberculosis had by his time been confirmed, and after becoming very emaciated she died on October 19th, 1922. *Post-mortem* examination showed pulnonary tuberculosis of both lungs with caseation and cavity formaion. The ovaries weighed 3.4 and 3.2 grams; thyroid 8.3 grams; uprarenals 7 grams each. The most striking endocrine deficiency vas in the thyroid gland. The suprarenal glands were of normal veight, and there was no obvious diminution of the medulla. Microscopic examination showed abundance of well formed cells; in many places there was a nuclear excess and polymorphism associated with deficiency of cytoplasm. Throughout the medulla there was a pretty general pericellular fibrosis. In this case—which was, relatively to most of the other cases of dementia praecox, of short duration—there was not much histological change in the medulla.

CORRELATION OF ATROPHOUS CHANGES IN THE INTERSTITIAL CELLS OF THE TESTIS AND THE ATROPHOUS CHANGES IN THE ADRENAL MEDULLA.

In a paper on "Further Pathological Studies in Dementia Praecox, especially in relation to the Interstitial Cells of Leydig" (Mott and Prados y Such) regressive atrophic changes were shown in the interstitial cells of twenty-seven cases of dementia praecox, the degree of atrophous change corresponding as a general rule to the length of time elapsing between onset of symptoms and death. Duration of asylum treatment does not strictly connote the length of duration of symptoms.

In nine cases of psychoses other than dementia praecox, death occurring in post-adolescence, similar appearances of regressive atrophy of the testes were found in those cases in which the psychosis was biogenetic in origin and terminated in dementia. Three cases of manic-depressive insanity without symptoms of dementia showed active spermatogenesis, but apparently a diminution of normal interstitial cells.

As a contrast to these regressive atrophic changes occurring in the biogenetic psychoses are the changes in the testes in cases of general paralysis due to local inflammatory lesions. The interstitial cells in this disease do not undergo the same regressive atrophic changes.

There is considerable similarity in the findings of the medullary cells of the adrenal glands and the interstitial cells of the testes. The normal medullary cells of the adrenals, like the normal interstitial cells, are polygonal in shape with a round nucleus; the cytoplasm in both is stained with eosin and presents a fine granular appearance. In the regressive atrophy of dementia praecox that occurs in both these tissues the cells lose their discrete outline, are smaller, have irregular crumbling edges, and tend to form a nucleated syncytium. The nuclei, instead of being a fairly uniform round shape and size, are more or less irregular in size and shape, and increased in numbers, and there is a lack of chromatin in many; especially the large pale irregularly oval shape nuclei appear to be deficient in chromatin. In both tissues there is a fibrosis and increase of fibroblastic nuclei.

Microscopic appearances indicate the continuous development of new interstitial cells of the testes, and new medullary cells of the adrenal, as in both instances mitosis was observable.

In both the atrophous interstitial cells and the atrophous medullary adrenal cells the failure of development of cytoplasm points to a probable failure of the mitochondria to develop. This failure of development may be correlated with a failure of secretion of the specific autacoid of these two glands.

In an acquired disease, general paralysis, the adrenal medullary cells do not as a rule show a deficiency of cytoplasm. In tuberculosis, another acquired disease, there is not any deficiency in the majority of cases dying in an advanced stage in consumption hospitals.

There is, therefore, a certain degree of correlation probable between the symptoms and their duration in dementia and the regressive atrophy of the reproductive organs, and the medulla of the adrenal gland. An investigation on similar lines, of the pituitary glands (shortly to be published), shows that there is a similar regressive atrophy of the cytoplasm, and nuclear changes of the cells of the anterior portion of the gland. An investigation of the thyroid gland is in progress on similar lines. But what is required now is an intensive clinical and laboratory investigation of the whole reproductive endocrine glands and sympathetic system in the various types of mental disease. These generalized researches on a large number of cases should be followed by an intensive study of individual cases, to correlate if possible clinical signs and symptoms with pathological findings. (F. W. M.)

Conclusion.

The most constant change which is found in the medulla adrenalis in dementia praecox is, then, the increased number of nuclei, irregularity of their size and form, and deficiency of chromatin. There is, moreover, an increase of fibrous tissue which often takes a pericellular arrangement and an increase of fibroblastic nuclei. In tuberculosis there may be a great diminution of cytoplasm, but these nuclear changes are not seen. In general paralysis the nuclear change is not observed and the cytoplasm as a rule is not affected to any extent.

We wish to express our great indebtedness to Mr. Chas. Geary for his skilled assistance in making the microscopic sections and the photomicrographs.

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affects the bile ducts, pancreatic duct, and duodenum simultaneously. In such cases there is probably a new growth of the papilla of Vater or the adjacent region, and a search should be made for cancer cells. (3) If there is retention of bile without pancreatic retention, cancer of the head of the pancreas is probably not present, but the bile ducts may be compressed directly by a stone or a primary new growth, or indirectly by enlarged glands or adhesions. (4) If there is complete pancreatic retention—that is, absence of trypsin and lipase without biliary retention (that is, presence of pigments and bile salts)—there is probably a new growth of the head of the pancreas involving Wirsung's duct, but not the common bile duct.

28. Intramuscular Injections of Sulphur in Chronic Arthritis.

H. HAYN (*Deut. med. Woch.*, May 25th, 1923, p. 684) gives a very favourable account of the treatment of chronic joint disease with intramuscular injections of sulphur in olive oil. The ingredients of the emulsion were pure sulphur 1 to 8, olive oil 80 to 100, and eukalyptol 20. He experienced considerable difficulty in keeping the higher concentrations of sulphur in suspension, and found it advisable to shake well and to warm the emulsion before injecting it. The actual dosage of sulphur is not recorded in each case. The results of the injections were remarkably uniform; twelve hours afterwards there was a rigor, the temperature sometimes rising to 40° C., and the patient complaining of severe headache and great pain in the joints most affected. There was also general lassitude, and at the site of the injection slight swelling with tenderness. In no case did necrosis or abscess formation ensue. The general reaction usually passed off in twenty-four hours, and never took longer than forty-eight hours to do so. The injections were repeated every fifth or sixth day, and there was never any sign of inflammation of the kidneys or of cardiac complications. The author gives details of six cases, and concludes that this treatment is symptomatically effective and palliative. It is not indicated in acute early cases, which are more suited to other treatment.

29. Treatment of Ichthyosis with Thyroid Extract.

MARIE KROGH and C. WITH (*Ugeskrift for Laeger*, May 17th, 1923, p. 353) have investigated the basal metabolism in several cases of ichthyosis, and they have often found this disease to be associated with a reduction of the basal metabolism. By giving thyroid extract they have not only increased the basal metabolism, but they have in several cases effected marked improvement of the ichthyosis. They therefore confirm the views of earlier writers who have connected ichthyosis with hypofunction of the thyroid. They have not, however, been able to establish any definite relationship between the severity of the ichthyosis and the degree of the reduction of the basal metabolism. They add the warning that if the basal metabolism rises above normal under treatment with thyroid extract it should be discontinued.

Surgery.

30. Meat and Fish Bones Impacted in the Oesophagus.

THOMAS GUTHRIE (*Journ. of Laryngol. and Otol.*, May, 1923, p. 229) considers that the number of fragments of meat and fish bone which become impacted must be only a small proportion of those swallowed. The human oesophagus is less tolerant of these splinters than that of the carnivora such as the dog, and any existing disease of the oesophagus makes impaction more probable. The author notes certain distinctive features in these cases of impacted bone: (1) The patient has only a history of pain after swallowing some food. He is usually unable to give any estimate of the size and shape of the body, as in the case of pins or tooth-plates. (2) The patients are often edentulous—making detection of bones difficult but oesophagoscopy easier. (3) Bones usually have organic matter adhering to them, and this rapidly undergoes decomposition, causing early inflammatory lesions in the oesophagus and surrounding structures. This of course makes removal more difficult and the condition more dangerous. (4) Bones are singled out from other foreign bodies for attempts to "push down" (*a*) by the patient by swallowing masses of bread or (*b*) by the medical attendant with bougie and probang. The latter attempts are definitely harmful and prejudice any oesophagoscopic treatment. (5) The pain of an impacted bone persists between attempts at swallowing, and is fairly accurately localized. The pain caused by a scratch of the mucosa may be considerable, but is seldom persistent. (6) X-ray examination should invariably be practised before attempts at removal. (7) Removal under direct vision is the only permissible form of treatment. The author recommends the use of a general anaesthetic in all but exceptional cases. (8) Instrumentation must be extremely cautious owing to the inflammatory changes of the mucosa. THURSTAN HOLLAND (Ibid.) describes his x-ray technique. He gives opaque food with the left side of the patient's back against the screen. If a foreign body be present there may be complete obstruction, a hitch in the passage with or without some of the food being left behind, or occasionally the stream of food passes without a hitch but forks at some point and then reunites. This is due to a foreign body bridging across the oesophagus.

31. Lung Abscess.

J. HOMANS (*Boston Med. and Surg. Journ.*, April 19th, 1923, p. 577) discusses the etiology and clinical features of lung abscess occurring mainly as a post-operative accident, 13 out of 23 cases being due to this cause. The distribution of abscesses among the lobes is similar to that of other acute pulmonary infections, the right lung, and especially the right lower lobe, being chiefly involved either by abscess, pneumonia, or embolism; and the fact that the wear and tear of life falls more on the right lung than on the left, and that the former is about 10 per cent. larger in volume, accounts in some measure for this preponderance. Post-operative abscesses, especially those following tonsil and dental operations, occur more often in the upper lobes than do other pulmonary infections, which points to aspiration from the mouth and throat being less of an etiological factor than has generally been believed. The condition will generally respond to treatment by postural drainage and general hygienic measures, and operation is contra-indicated until it is clear that cure by other means is unlikely. In abscess other than post-operative, when the lung and pleura are not adherent, and the locality and the patient's condition are suitable, artificial pneumothorax may be useful. Preventive measures against the occurrence of post-operative abscess consist in precautions against inhalation of septic material by avoiding ether anaesthesia for tonsillectomy or dental operations when infection is present in the mouth and throat, but primarily in precautions against lowering the resistance of the lungs to infection.

32. Rupture of the Long Tendon of the Biceps.

N. BACKER GRØNDAHL (*Norsk Mag. f. Laegevidenskaben*, March, 1923, p. 123) has, in the capacity of an insurance referee, recently seen three cases of rupture of the long tendon of the biceps of the arm. In none had the correct diagnosis been made, and the most common mistake would seem to be the diagnosis of rupture or hernia of the muscle itself. These mistakes are the more regrettable as they entail inappropriate treatment, such as massage, which is not only futile but may even do harm. The only satisfactory treatment is, in the author's opinion, operative reunion of the torn ends of the tendon at the earliest possible opportunity, before the muscle has retracted too much. Even when the damage is not repaired by operation this injury does not inflict great disability, and the Norwegian State Insurance Office awards only 15 to 20 per cent. compensation. The author illustrates his account of this accident with the record of a case of a workman who fell, receiving the weight of his body on his flexed arms. He heard three small snapping sounds in the right upper arm, which suddenly became painful. He felt unwell and vomited. The right arm seemed perfectly normal when it hung down; but when it was flexed at the elbow a soft, pseudo-fluctuating, spindle-shaped swelling appeared on the anterior exterior aspect of the upper arm. This swelling tapered away when traced upwards, and ended in a small firm knob. The long tendon of the muscle had apparently been torn at the junction of the tendon with the muscle, and no sign of the upper part of the tendon could be found.

33. Traumatic Rupture of the Intestine.

A. L. LOCKWOOD (*Canadian Med. Assoc. Journ.*, May, 1923, p. 311) points out that there are certain intra-abdominal conditions caused by external violence without penetration of the abdomen the diagnosis of which is always difficult and often impossible. The extent of the injury to the abdominal wall is no indication of the amount of damage to the viscera. Rupture of the intestine may be due to direct crushing, compression, tearing, or bursting of the intestine. The small bowel is involved much more frequently than the large, in the proportion of nine to one. The rent is usually transverse and multiple rents occur in one out of every five cases. The early symptoms include subnormal temperature and increase of the pulse rate; shock develops immediately after the rupture; respirations are thoracic in type. Vomiting is invariably present after an hour or two, and pain and tenderness are present in all cases. If the abdomen be distended and liver dullness lost operation is of little value and surgery

B. THE ESSENTIAL NATURE OF THE SO-CALLED RHEUMATOID ARTHRITIS AND OSTEO-ARTHRITIS.

It is not my intention to describe in detail the pathological changes, since those occurring in osteo-arthritis have been described in detail by me elsewhere,[1] and the changes in rheumatoid arthritis have been described by many competent observers, particularly Nichols and Richardson and Strangeways. We have already seen that the pathological processes have received interpretations of an extraordinarily varied nature. Hence I propose to discuss shortly the true nature of the changes in the common types of chronic arthritis.

In the first pathological type, as Virchow pointed out, the disease commences in the central area of the articular cartilage and is associated with early "lipping" of the articular margins, although in rare cases this is absent. The synovial membrane is involved comparatively late, and never to the same degree as in the second type. This type of arthritis is known in this country by the name "osteo-arthritis." The well marked bony thickening with only slight changes in the synovial membrane and absence of "spindle-shaped" appearance of the joint, together with the usual moderate severity of the symptoms, form a well marked clinical picture. The earlier changes are very commonly seen *post mortem* in the joints of those who have passed the meridian of life.

In the second pathological type the process commences and remains more marked in the synovial membrane, and the articular cartilage is often, but not necessarily, invaded from the periphery. The formation of chondro-osteophytes, producing "lipping," is occasionally seen in the more chronic stages of the disease, but, as a rule, to a lesser degree and at a later stage than in osteo-arthritis. Pain and muscular spasm are more marked in this type and contracture deformity is common in neglected cases. This type of arthritis is known in this country by the name "rheumatoid arthritis."

In the third pathological type the process appears to start simultaneously in the synovial membrane and articular cartilage, and the change advances *pari passu*. Although borderland cases sometimes occur, usually there is not much difficulty in determining with which type we are dealing. It is clear that both pathologically and clinically these types, particularly the first two, have well marked distinguishing features.

TYPE 1.—*Chronic Arthritis in which the Disease Commences in the Articular Cartilage (Osteo-arthritis).*

The first departure from the normal consists, to the naked eye, in an alteration in colour of the surface of the central area of articular cartilage, which loses its normal bluish-white translucent appearance, and becomes more opaque and of a yellowish hue. Microscopically there is an alteration in the staining reaction of the matrix; for instance, with eosin the superficies stains very faintly compared with the deeper layer of the cartilage. There is at this stage no alteration in the cartilage cells. At a slightly later stage the so-called "fibrillation" of the matrix occurs at the surface of the central articular area. In a sense the term "fibrillation" is a misnomer, as there is no formation of true connective tissue fibre, but a mere splitting of the matrix. This appearance of fibrillation, as I have endeavoured to point out, is due to the peculiar structure of the matrix. If articular cartilage be steeped in brine for several days it will be seen that the matrix is arranged in alternating lamellae which lie horizontally in the superficial layers, form an irregular network in the intermediate zone, and constitute a palisade of vertical strata in the deeper layer. Histological examination shows that these alternate layers are formed by the more collaginous and the more mucinous elements of the matrix respectively. I believe that articular cartilage is nourished by lymph which percolates along these tracks, particularly the softer, more mucinous. I have little doubt also that the fibrillation is often due to the solution of the more mucinous tracks by toxic substances contained in the synovial fluid, whereby the more resistant collaginous elements remain as the so-called "fibres."

[illegible] of the cartilage cells at this early stage. Occasionally the cells at the extreme surface undergo degenerative changes. The most striking fact, however, is that in most cases the cells exhibit no sign of diminished vitality, and very often groups of actively proliferating cells may be seen. It is very striking, even in advanced cases, to see the "fibres" containing groups of healthy proliferating cartilage cells. A still more important point is that the most active proliferation occurs at the margins of the clefts in the matrix. This viability and active proliferation of the cartilage cells appears to me to be the very antithesis of an atrophic or degenerative process, at any rate as far as the cells are concerned. To me it seems fairly evident that the cells proliferate in response to irritation. We thus see that, as far as the central area of the articular cartilage is concerned, the change consists in a degenerative process in the cartilage matrix with proliferation of the cellular elements.

Shortly afterwards, or coincident with the above changes, the well known "lipping" of the articular margin occurs. This is caused by proliferation of the lateral part of the articular cartilage and of the underlying bone. As there is actual formation of new bone and cartilage cells, the term "hypertrophy" is a misnomer; but to regard the process as a pure degeneration is absurd. Later the cartilage on the surface of this new formation may undergo the same changes that we have seen to occur in the central area. As the cartilage disappears the subjacent bone becomes sclerosed from compensatory new bone formation. The deeper layer of articular cartilage is also invaded by vascular inroads of connective tissue which form new bone. The surface may thus be rendered hummocky—the epi-articular ecchondroses of Shattock (Fig. 1). The subjacent cancellous spaces are often of unusually open texture, due to a process of rarefying osteitis, and occasionally cyst-like spaces are in evidence. Some of these, I believe, may be due to cystic degeneration of islands of articular cartilage which have become isolated by the advancing tide of new bone formation.

Changes in the Synovial Membranes and Capsule.

For a considerable period no obvious changes may be seen in the synovial membrane, but eventually the portion of the membrane nearest to the articular margin becomes more villous. There is a hyperplasia of all its elements with occasional areas of small-cell infiltration, but the latter are rare compared with the second type, in which they are a prominent feature. Newly formed blood vessels are conspicuous, and show no evidence of arterio-sclerosis at this stage (Fig. 2).

During this stage of increased vascularity there is sometimes a development of adipose tissue, cartilage, or bone in the synovial membrane, but never to the same extent as in the second type. This increased vascularity and cellular proliferation strongly negative the primarily degenerative or atrophic view of the disease. The fact that the synovial fluid is usually not deficient in nutritive qualities is shown not only by my analyses, but by the fact that synovial chondromata and periarticular chondro-osteophytes may become detached and continue their growth while free in the joint. In the later stages the membrane and capsule may undergo sclerosis (Fig. 3); and with Hoffa and Wollenberg I have observed the occasional presence of areas of hyaline degeneration. Arterio-sclerotic changes may be seen in certain of the vessels of the synovial membrane, yet it is clear that these vascular changes advance *pari passu* with the changes in the membrane. It is also clear that they are not of etiological importance, but are coincident, and, like the changes in the membrane, inflammatory rather than degenerative.

Dr. Geoffrey Evans, in his recent investigations into the nature of arterio-sclerosis with special reference to its relation to chronic renal disease, has brought forward evidence that the latter is usually inflammatory in nature, as is also the coexistent arterio-sclerosis—that the latter is not of etiological import, but that both conditions are probably due to the same cause. The author and Dr. Evans have arrived at similar conclusions concerning the etiological importance of arterio-sclerosis through different avenues of approach.

diagnostic curetting performed two months after the abortion showed microscopical evidence of a chorion-epithelioma, which after the subsequent hysterectomy proved to be of insignificant naked-eye dimensions. Large lutein cysts were present in both ovaries.

40. Operative Treatment of Sterility.

R. v. STEINBUCHEL (*Zentralbl. f. Gynäk.*, June 9th, 1923, p. 929) agrees with Graff that the operative treatment of sterility has altered little in the last thirty years. The operations performed are of three main classes: (1) Operations for widening the vagina; (2) operations for replacing a displaced uterus; (3) plastic operations on the tubes. It is the last-named type which the author discusses fully, having had many successes in the cases treated by him, even after prolonged sterility. The method advised by most authors to diagnose the permeability of the tubes is by means of passing air into the abdomen through the uterus and tubes by Rubin's apparatus. This, the author states, is not without danger, as the stream of air can easily be infected *en route* from an infected uterus or tubes and a pelvic peritonitis set up; there is less risk for the patient in doing an exploratory laparotomy, for if any obstruction is present it can be seen and treated at once. The author comments on the fact that sterility is often due to appendicitis, and it was in operating for that condition that he did salpingostomy in many of his cases; in his other cases the abdomen was opened for fixed retroversions, lutein cysts, pyosalpinx, etc., but never for acute salpingitis. The operation is done by slitting up the closed fimbriated extremity and placing the greater part of the surface of the ovary in the widened tube. The uterine end of the tube is stitched by bringing peritoneum to mucous membrane. The method of treatment ensures that every ovum discharged by the surface of the ovary passes into the tube, and the further success depends on the permeability of the uterine end of the tube for spermatozoa. This may be demonstrated by air inflation when the abdomen is open; if an obstruction is present the tube can be widened at that point. The inflation by air when the abdomen is open does not cause increased risk. The author concludes by stating that these plastic operations are usually carried out when laparotomy has to be done for some other cause—for example, appendicitis, etc.—but he does not agree with Graff that laparotomy should not be performed for sterility without first proving the impermeability of the tubes; he would advise an exploratory laparotomy for sterility in any woman who ardently desires offspring, the inflation being carried out if required when the abdomen was open.

Pathology.

41. Local Immunity to Staphylococcal Infection.

FOLLOWING on his researches on anthrax, in which he was able to demonstrate the peculiar sensitivity of the skin to infection with the bacillus, A. BESREDKA (*C. R. Soc. de Biologie*, May 19th, 1923, p. 1273) has conducted some experiments with a view to determining whether the same local susceptibility holds good for invasion with the staphylococcus. Having obtained a strain of this organism which was specially virulent for guinea-pigs and rabbits, he compared the effects of subcutaneous injection in vaccinated and unvaccinated animals. When 1 c.cm. of a twenty-four-hour broth culture was injected beneath the skin of a guinea-pig an extensive oedema appeared at the site of inoculation about twenty-four to forty-eight hours later. The overlying skin became hard and brawny, took on a blackish colour, and finally sloughed off, leaving a large suppurating wound which was a long time in healing. To vaccinate the animals three methods were employed—the subcutaneous, the intracutaneous, and the cutaneous; this last being accomplished by using a compress soaked in the vaccine and firmly bound on to the previously shaven skin. The cultures employed were either filtered or killed by heat. It was found that though either of the two former methods of vaccination was successful in averting the skin lesion caused by injection of the living organism, undoubtedly the most efficacious mode was the cutaneous one. From this the author concludes that staphylococcal vaccination depends on a local immunity of the skin.

42. Beri-beri and Epidemic Dropsy.

J. W. MEGAW (*Indian Medical Gazette*, May, 1923, p. 193) discusses the origin and prevention of the great variety of manifestations included under the term "beri-beri," many of which are possibly distinct conditions. The vast majority of cases occurs among persons who eat overmilled rice, and the disease practically never affects those who do not eat rice in some form. He does not consider that the vitamin B deficiency theory can explain every type of case, but admits that some of the conditions met with may be of the nature of an avitaminosis, and that this theory cannot altogether be excluded. On the whole he inclines to the view that some form of food intoxication (possibly analogous to botulism) is the factor of greatest importance in the production of the different conditions encountered. The train of symptoms and the *post-mortem* appearances support this opinion. As the disease is known to be associated with the eating of old rice and to disappear when fresh rice is supplied, it is possible that it may be due to changes occurring during storage, whether in nutritional value or in the formation of an active poison. It occurs, too, among families subsisting without any obvious change of diet, which also supports the food intoxication theory, and leads the author to suggest the possibility of an accidental infection of rice by microbial agents. No cases have been known to occur among persons partaking of new and parboiled rice. There is extremely scanty evidence of any infectious element. Referring to measures of control and treatment, the author emphasizes the need for an appreciation of all the possible sources of origin, and puts forward the following necessary considerations: attention to hygiene, cutting off of the supply of rice on the occurrence of an outbreak, restriction to parboiled rice at ordinary times, and the provision of a diet which will fulfil body needs according to the standard of modern dietetics. Special attention, moreover, should be paid to the conditions of storage of all rice consumed. As the disease does not appear to be infectious, no antiepidemic measures are necessary. The author advocates further research on the conditions of occurrence and the reasons for the variations in the different types of the disease.

43. Relation between the Virus of Vaccinia and New Growths.

C. LEVADITI and S. NICOLAU (*Ann. de l'Inst. Pasteur*, May, 1923, p. 443) find that if the pure vaccinal virus be inoculated into epithelial tumours of the rat or the mouse, it leads to an increase in the size of the neoplasm. Excised six or ten days later and rubbed on to the skin of a normal rabbit, this tumour provokes a confluent eruption of vaccinia. With sarcomata the result is different: the virus grows poorly or not at all, and is not infrequently destroyed altogether. From this it may be concluded that tumours of ecto-endodermic origin constitute an excellent culture medium for the virus, whereas those of mesodermic origin more or less completely prevent its growth. Similarly, if the virus be injected into the blood, it is found that epithelial growths absorb it and facilitate its culture, in distinction to sarcomatous growths which destroy it. The effect of the virus on cancerous tumours is to alter them in such a way as to render them incapable of being propagated by grafting. Sometimes this sterilization can be attained by a single injection of vaccine; at others three or four injections are required into successive grafts. It is found that in an animal which has been rendered immune to the virus by the usual process of vaccination the tumour is also refractory to the virus; but if the virus be injected into a tumour in an unvaccinated animal, no immunity is developed. The cancer cell is therefore different in its properties from the normal cell. It can be passively immunized, but is incapable of developing active immunity for itself.

44. Bacterial Antagonism in the Genesis of Transmissible Lysis.

J. BORDET (*C. R. Soc. de Biologie*, May 12th, 1923, p. 1211) has endeavoured to confirm the work of Lisbonne and Carrère, who found that the *B. dysenteriae* Shiga, when grown in the presence of *B. coli*, develops a transmissible autolytic principle. Much the same technique was followed. Into a tube of broth just seeded with Shiga's bacillus a few drops either of a living culture of *B. coli* or of a culture of this organism killed by heat at 57.5° C. for half an hour were introduced and the culture incubated for four days. It was then killed by heat, and 30 drops transferred to a fresh tube of broth inoculated with Shiga's bacillus. After three or four passages it was found that an autolytic principle was elaborated, so that Shiga's bacillus did not develop for more than a few hours before clarification set in. A careful study of controls showed that the *B. coli* was responsible for the initiation of this autolysis. Further work made it evident, however, that the principle was originated, not by a process of bacterial antagonism, but owing to the fact that the strain of *B. coli* employed was itself lysogenic. By testing sterilized cultures of this organism on single colonies of the same strain, it was found that some of the latter underwent lysis, showing that the lysogenic property, though not evident under the ordinary conditions of laboratory culture, was yet possessed and perpetuated by certain particularly sensitive individuals of the strain.

Suggested New Nomenclature.

Chronic Arthritis (A, Monarticular; B, Polyarticular).

(1) *Synovial Type* (O.T., Rheumatoid arthritis).—The disease commences and remains more marked in the synovial membrane. The cartilage and bone may be invaded secondarily. Every gradation may be seen between the chronic types and the more acute forms which lead to ankylosis.

(2) *Chondro-osseous Type* (O.T., Osteo-arthritis).—The disease commences and remains more marked in the articular end, the synovial membrane being involved later.

(3) *Mixed Type.*—The disease commences simultaneously in synovial membrane and articular end and the changes advance *pari passu.*

In all three types osteophytes may form at the articular margins, but in the synovial type they occur comparatively late in the disease, and in the more acute forms which lead to ankylosis are usually absent. The suggested nomenclature is obviously a primary classification. It is probable that further research will justify us in subdividing each type.

E. THE NEED OF RESEARCH INTO ETIOLOGICAL ASPECTS.

Clinical evidence often appears to point to an infective or toxic origin in many cases of chronic arthritis. In a certain proportion obvious infective foci are present, the treatment of which may produce amelioration or cure of the joint condition. In other cases a careful search fails to reveal any primary focus, but it should not be forgotten that this fact by no means negatives the possible infective nature of the disease. For instance, chronic polyarticular arthritis may be ushered in by an attack of tonsillitis. The latter may entirely subside; yet the arthritis remains, and the supposition is that micro-organisms have entered the circulation via the tonsil and have settled in the synovial membrane, where they proliferate and form their toxins.

A young man came under my care suffering from chronic gonorrhoea with gleet. Gonococci were present in the prostatic smear. While under treatment he developed a spindle-shaped swelling of the interphalangeal joints of the hand exactly similar to rheumatoid arthritis. At this stage, however, examination of prostatic smears for organisms was persistently negative. The infective nature of his arthritis was therefore obvious on clinical grounds, although it could not be demonstrated bacteriologically.

Similarly in tuberculous disease of a joint the primary focus is usually a matter of assumption rather than actual demonstration. It is clear that any possible primary focus should be treated not only for these special reasons but because thereby the general health of the patient is improved.

At the same time we must bear in mind that the treatment of the primary focus need not necessarily bring about the desired result if the organisms were already entrenched in the synovial membrane and joint structures, as on clinical and bacteriological grounds sometimes appears to be the case. In these cases the treatment applied to the joints themselves is of even greater importance than concentrating on primary foci. How often the efforts of the medical man are devoted to the latter while the joints are allowed daily to become more stiff and deformed—an excellent example of a policy of "straining at a gnat and swallowing a camel."

The bacteriological aspects of the problem are clamouring for complete and scientific investigation. The important pioneer work of Blaxland and Poynton and Paine requires following up. From time to time bacteriological investigations of the synovial fluid have been made and have been usually negative. However, as an argument against the infective nature of these forms of chronic arthritis this fact is quite valueless; for we know that in the form of chronic arthritis occurring in such infective conditions as gonorrhoea the fluid is usually sterile. What is required is examination of the synovial membrane and other joint tissues. The extent of the operative field in chronic arthritis has increased of late years, and if every surgeon would make a point of having all tissues removed from the joint, systematically examined by a bacteriologist the evidence obtained might be of great value. This is one line upon which my own investigations are now proceeding.

In conclusion, let me repeat that the stage is now set for the bacteriologist and chemical pathologist in conjunction with the surgeon to march forwards, inspired by the immortal advice of John Hunter to Jenner, who was "thinking" of investigating vaccination: "Do not think but try: be patient, be accurate."

It is my pleasant duty to thank all those who have assisted me in my researches. To Sir Arthur Keith I am indebted for permission to work at the Royal College of Surgeons of England and for much help. Professor Shattock has been ever ready with advice on pathological points. To my colleagues at the hospitals with which I am connected, and especially in the Medical and Surgical Units of University College Hospital, I owe a debt of thanks.

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A CASE OF FEVER DUE TO B. PARATYPHOSUS C.

BY

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PARATYPHOID C fever appears to be rare in England, and only two previous cases have been described—one by Dudgeon and Urquhart (1920) and another by Andrewes and Neave (1921). Possibly the disease is commoner than is imagined, but in many cases (as pointed out by Dudgeon and Urquhart) agglutinins are not formed in the blood, and often the diagnosis can be made only by isolation of the organism from the blood stream, or more rarely from the faeces.

A girl, aged 13½ years, was under the care of Dr. Benson Young of Plymouth, to whom I am indebted for the clinical particulars. She had had the symptoms of a mild "influenzal" attack for three to four days—temperature 100° F., pulse 120, cough, sweating, and joint pains. The temperature steadily rose, until seven days after the onset of the disease it was 106° F., pulse 124. The patient was semi-delirious, the tongue furred and dry; there were scattered areas of consolidation over the lungs, and slight diarrhoea was present. The spleen was not enlarged and no spots were noted.

At this stage I saw the patient in consultation with Dr. Young. A blood count gave the following figures: Leucocytes 4,440 per c.mm., polymorphs 54 per cent., lymphocytes 44 per cent., large hyalines 2 per cent. Agglutination to *B. typhosus* and *B. paratyphosus* A, B, and C was negative in a dilution of 1 in 25. The urine contained no pus and was sterile on cultivation. No pathogenic organisms were isolated from the faeces. From the blood a Gram-negative bacillus was isolated which gave the reactions of *B. paratyphosus* B with the exception that dulcite was not fermented. On subculture, however, acid and gas were produced from dulcite, though this took about seven days. Acid and gas were also produced in dextrose, maltose, mannite, and xylose; no change was produced in inosite (unlike *B. paratyphosus* B); an alkaline reaction was produced in litmus milk.

The organism was tested with some *paratyphosus* C serum kindly sent me by Professor L. S. Dudgeon. It was agglutinated to the end point of this serum, whereas with *paratyphosus* B serum, with an end point of 1 in 8,000, agglutination only took place up to a dilution of 1 in 400. On saturation of this stock *paratyphosus* C serum with the bacillus isolated from the patient the following result was obtained.

The titre of stock *paratyphosus* C serum before saturation with the patient's bacillus on its homologous antigen was 1 in 8,000. The titre of the above serum after saturation with the bacillus isolated from this patient on the same antigen was 1 in 100 = trace. 1 in 200 = 0. Although the patient's serum did not agglutinate the stock *paratyphosus* C antigen, her own bacillus was agglutinated slightly (1 in 100, trace) by her own serum.

Course of Illness.

The temperature slowly subsided and was normal in ten days from the onset of the disease. No complications ensued. The pulse throughout was high: it was over 120 during the first week of illness, and a fortnight elapsed before it was below 100.

Frequent examinations were made of the faeces, using both the brilliant green enrichment method, direct plating, and the method of drying (Wordley, 1921); in no instance was *B. paratyphosus* C isolated. Fourteen days after the first agglutination was performed the patient was again bled and her serum tested on *paratyphosus* C antigen, with a negative result.

The source of infection was not discovered and no other cases of unexplained fever arose. The faeces of the other members of the family were examined, but no pathogenic

of the velvet growing directly on the bone without any intervening membrane (periosteum), the cells of the cutis resting on the osseous tissue contiguous the one with the other. The cutis is sessile on the bone. Analogies may be found in the human body under pathological conditions. It may be seen in exposed bone, in compound fractures of the tibia, with loss of soft tissues. The skin may then grow directly over the embryonic osseous tissue in the course of its formation, and, becoming rigidly attached, form an adherent cicatrix. The same may occur after amputations which have healed by granulation tissue, the skin becoming fixed to the osseous tissue, much to the detriment of the patient.

When an amputation has been performed in childhood through an arm or thigh, in the course of years, if the soft tissues are allowed to contract from disuse atrophy while the bone continues to grow, a conical stump may result. The bone gradually protruding through the soft tissues is covered only by a thin, stretched layer of cutis—chiefly stratum lucidum. Like the velvet in the antler the human skin tries to keep pace in covering the growing bone in its protrusion, but, unlike the velvet, it only succeeds in covering it by such a thin layer of closely adhering skin that it is liable to injury on slight occasion.

The Methods of Growth of the Antler—Analogous to Diaphyseal Bone.

The frontal bone from which the antler springs is not the usual site of diaphyseal bone. The frontal is only covered by pericranium, to which even the "Orthodox School" does not assign osteogenic powers of a high order. The method, however, by which the stag's antler grows from the pedicle, though not identical, is somewhat analogous to the growth of a diaphyseal bone, emanating from a single epiphysis, there being no distal apposition or impediment to its growth. Notwithstanding the myriad of cells so rapidly produced within there is no jumbling or overcrowding, each one forms and takes its proper place according to hereditary behest.

Protoplasm is not a single homogeneous substance. It is complex, each particle holding fast through countless generations to its own particular type. The cell also is not merely the expression of a chemico-physical basis of life, but every particle of living protoplasm within it has a long hereditary history fixed in the structure of each of its various molecules. So that, in the swarming millions of cells within the antler, each one follows by hereditary law its ordered sequence.

Metchnikoff's Belief as to Cause of Old Age and Death in Cells of Body Generally.

Metchnikoff believed that in the body generally old age is not brought about simply from the arrest of the reproductive power of the cells, but that the cells of the body grow old on account of the impairment of the phagocytes and the invasion of the body by germs introduced through the large intestine. In this way senescence, decay, and death occurred.

The Method of Death of the Cells of the Antler.

In the deciduous stag's antler none of these factors obtain. The whole evolution, ultimate sclerosis, death, and separation of the antler is aseptic, and phagocytosis plays no part therein. The death of the bone is primarily due to increased osteoblastic formation encroaching centripetally on the lumen of the vessels, resulting in sclerosis of bone, and finally in ischaemic death. The osteoblasts extract from the blood the ossein, which they deposit in their periphery and build themselves in, cut off their food supply, and become entombed.

There is no senescence in the cells of the antler—they all die young. The mature period of osteoblastic formation is just reached and the completed bone cells formed when they, while still in the full vigour of youth, perish by their own reproduction. For them there has been no senility and no decay. They have built up a beautiful structure, and when they perish they leave behind a *nerveless, bloodless*, hard, dense bone as a weapon of offence and defence, which can bear without sensation the blows of adversaries.

Why does the Osteoblast not Continue to Grow in the Antler Indefinitely?

There is no physical obstacle to an upward expansion of the antler. The rejuvenation of the cells of the antler depending on the increase of nuclear material is abundantly evidenced in nuclear budding, and even in the possible formation of new cells produced by the shedding of nuclear buds, surrounded by a layer of cytoplasm—daughter cells—an extra method of cell production augmenting the ordinary cell division.

Though contrary to recognized methods of cell proliferation, the phenomena of nuclear budding and the possible production of daughter cells is suggestive of a supplemental mode of cell production. Such would aid in the rapidity of cell formation and in the rejuvenation of the cells exhausted by constant segmentation and requiring to make still further effort to multiply at a point so far removed from their base—the pedicle.

The nuclear budding and the formation of daughter cells — formed and thrown off — may mark the commencement of a new cycle in cellular proliferation (being physiologically comparable to the period of sexual maturity in multicellular organisms); in this way senescence in the cells is warded off and rejuvenescence is maintained.

The Growth of the Osteoblasts outside of the Bone such as takes place after Fracture.

In the outpouring of osteoblasts in the repair of bone bereft of its periosteum, such as in fracture, the same question arises in an intensified form, as the osteoblasts are then outside of their own direct nerve control. Why do the regenerating cells which have been actively proliferating know when to stop their reproduction? Why don't they go on producing indefinitely? Here heredity cannot play the same dominating rôle, as the factors are so variable and accidental circumstances are introduced which the osteoblasts must overcome. There must be conditions governing the product of the outpouring beyond the influence of the trophic nerves of the bone—which, however, may still have a "wireless" control of the osteoblasts, or which may have a limited, independent life within the living tissue.

It is observed that as long as the osteoblasts which have thus been poured out can be kept in their germinal state fixation by ossein and consolidation is warded off and reproduction of cells is continued. Constant movement of the parts is conducive to large outpourings of cells, which are prone to take on the cartilaginous formation and fixation is delayed. An abundant supply of thin-walled blood vessels greatly facilitates the deposition of ossein and so encourages fixation.

Reference may be made to the case of a seaman who got his thigh bone broken in its upper third aboard a vessel wrecked in the Bristol Channel. He was tied to a spar, and, being washed overboard, got stranded on a rock, his damaged leg swinging to and fro in the waves for forty-eight hours. He was afterwards rescued and lay in hospital for many months. As a result of the constant movement to which his leg had been subjected by the waves, a great tumour-like mass of bone formed in the thigh in the midst of the torn and lacerated muscles; for the relief of this he was ultimately sent to me. So great was the development of new bone that an extensive "quarrying" with chisel and mallet was required before the normal shaft was exposed and alignment could be effected. After operation rapid healing took place with only an inch of shortening.

The Mature Osteoblast—A Typical Form of Cell.

A definite form or type of cell is recognized in the mature osteoblast of the antler. This is contrary to the opinion held regarding the mammalian osteoblast in general, which is said to be only definable by function and not by any special histological character.

When this cell was first seen by me in sections, from the growing antler, it seemed so distinctive as to appear *sui generis* to the antler itself. Many sections from various parts of the antler were subsequently studied to investigate the origin of the osteoblast and to trace it through its evolutionary stage from the germinal layer until it assumed its mature form.

mislead them far more. They should be treated as such and discarded. In the differential diagnosis of small-pox there are no more fertile sources of error."

Twenty-one years have run by since those words were penned—years constantly spent in consultations upon the numerous remarkable examples of cases simulating small-pox which a metropolitan area and its neighbourhood can show, drawn as they are from a population of about 8,000,000 persons of all grades, classes and races; and this experience has emphasized the general truth of the above mentioned comment. That comment applies in fact to all six of the above-mentioned points. There is this much to be said by way of modification: in proportion as the newer criteria are coming to be known as being more reliable, so less is now heard than formerly of shottiness and the rest.

Once more it must be said that there is no royal road, no beaten track, no measuring tape or touchstone, which will infallibly rescue the perplexed. Any case under review should be cross-examined, so to speak, on four main points: (1) What is the distribution, general and local? (2) What is the degree of prostration? (3) What is the depth of the lesions in the skin? (4) What is the rate and manner of maturation of the lesions?

The whole of the evidence must then be summed up and the verdict given accordingly.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DYSTOCIA DUE TO SHORTENING OF UMBILICAL CORD.

THIS interesting complication of labour occurred in a case in Belfast Union Maternity Hospital. The patient, a primipara, was admitted to hospital at full term. The foetus was in first vertex presentation, but the head was very freely movable above the brim. As she was a small woman contracted pelvis was suspected, but the pelvic measurements were found to be normal and no obstruction of any kind could be found, nor did the head seem abnormally large. The only thing noticed out of the ordinary was a very distinct funicular souffle.

Labour came on next day, and after the cervix was fully dilated the head still remained at the brim. My house-surgeon applied forceps tentatively, and at first could not get the head to advance materially. Suddenly a loud snap took place, which was heard by nurses at the side of the bed, and after that the head advanced easily enough, a little bleeding taking place continuously. On delivery the cord was found to be twisted round the neck of the child, and was completely torn through about three inches from the umbilicus. The child of course was stillborn, but the mother made a normal recovery.

Evidently the foetus was suspended in the liquor amnii by the shortened cord, which prevented the head from engaging or advancing after labour started. The placenta followed the foetus very quickly, and there was no *post-partum* haemorrhage.

It is rather interesting to consider what would be the proper procedure in such circumstances. Obviously a living child could not be delivered as a vertex presentation. I should think to introduce the hand right into the uterus might make the diagnosis clear and decide whether version would give sufficient length of cord. This would have to be long enough to reach from the placenta to the vulva or thereabouts in a breech. In the case I have described I do not think version would have given sufficient length of cord. Brickner, who has carefully studied the subject, states that delivery cannot occur in such circumstances unless one of the following accidents occurs: separation of the placenta, inversion of the uterus, umbilical hernia of the foetus, or rupture of the cord—the last two being of infrequent occurrence. I should think it might be possible to free one of the loops with the hand in the uterus, or Caesarean section would give the greatest certainty of a living child if one were sure of the condition.

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Reviews.

THE SURGICAL DYSPEPSIAS.

OF the making of books on abdominal surgery there appears to be no end. A short while ago Mr. Sherren published his lectures to students at the London Hospital on the surgery of the stomach and duodenum, and a very excellent little book it was. Now Mr. WALTON, from the same hospital, has brought out a large book on the *Surgical Dyspepsias*.[1] And this, too, is a good book, and well planned. Included in it are not only diseases of the stomach and the duodenum, but also those of the biliary passages, liver, and pancreas, with an account of visceroptosis to round it all off. The title is a challenging one, challenging criticism as well as interest. For not all of these conditions are truly or essentially dyspepsias, nor are they all essentially surgical. But the title has one thing in its favour: it suggests that the author has considered the clinical side of his subject, and has written something more than a book on operative surgery. As a fact, Mr. Walton has been at very great pains to furnish as clear a picture as he can of the various affections of the upper abdomen as met with in practice. And he has skilfully used histories of actual cases to show, as it were, what these conditions look like in their natural state.

Mr. Walton has his own views as to the meanings of symptoms. He emphasizes the importance of the clinical history and the relative lack of importance of the physical examination in the diagnosis of ulcers of the stomach and duodenum. This is an important point, though not, of course, an original observation. It is the most probable explanation of the omissions in diagnosis made by the so-called (and often actually) busy practitioner, who has no time to listen to his patients' often meandering account of their ailments. There is no doubt whatever that in order to be a good and trustworthy diagnostician of abdominal diseases, the practitioner must be a patient listener, ready to seize on important facts which are usually not realized as important by the patient and as frequently clouded over with unimportant detail. The days of the old aphorism, "Eyes first and much, hands next and little, tongue not at all," are as dead as Queen Anne. Major surgery to-day deals less with lumps and tumours obvious to the eye than ever. Nor, we think, should too much reliance be placed on our new eye, the *x* rays. The corroborative value of the opaque meal is great, but it is a gross error to base one's diagnosis, positive or negative, preponderatingly upon it.

Mr. Walton describes well the symptomatology of acute and chronic ulceration of the stomach and duodenum. It is interesting to see the author attacking again the question of acute ulcers, which have fallen into surgical disrepute. Indeed, in one sense Mr. Walton drives another nail into their coffin by stating it as his belief that such ulcers rarely perforate, and that the acute perforations are usually of chronic ulcers. He produces some evidence which gives this view a look of truth, but we cannot quite accept it, for the duodenum at least. He states that all except one of his cases of perforated duodenal ulcer gave a history of previous dyspepsia. His experience in this matter must differ from that of other surgeons. He is no believer in Hale-White's gastrostaxis, and many will agree. He is a believer in the frequent derivation of malignant ulcers from chronic. This is still rather a faith than a demonstrable fact; there is much parallel fact and little direct demonstration. W. C. McCarty, who is as it were the high-priest of this creed, is an unsatisfactory preacher. A close study of his writings leaves the reader mystified as to his real conclusions. Mr. Walton describes a symptomatology which to his mind denotes the malignant degeneration of a previously chronic and benign gastric ulcer. This must at present be accepted with reserve.

The operations on the stomach are very well described and illustrated. The sketches of the various manœuvres associated with the great names of gastric surgery are very clear and valuable. The author naturally has a predilection for the operation which he has helped to popularize—wedge-

[1] *A Textbook of Surgical Dyspepsia.* By A. J. Walton, M.S., M.B., B.Sc.Lond., F.R.C.S.Eng. London: Edward Arnold and Co. 1923. (Med. 8vo, pp. 723; 272 figures, 2 coloured plates. 42s. net.)

might produce osseous infarctions. It is fortunate that such a series of circumstances favourable to the transference of osteoblasts from one place to another by the blood stream seldom occurs.

The mature osteoblasts are of a size that does not render their transference by the blood stream easy, but if nuclear budding occurred and some of the minute buds covered with cytoplasm—daughter cells—were detached, their minute proportions would facilitate conveyance.

Instance of Osteoblasts conveyed by the Blood Stream and deposited in the Cicatrix of a Laparotomy Wound.

That bone sometimes forms heterotopically in the midst of the soft tissues and in the muscles is well known, and these instances are generally the result of accidental osteoblastic distribution following upon injury to bones and the tendonous expansion of the muscles inserted into them.* Besides this, however, it is possible that osteoblasts in their germinal stage may be carried by the blood stream and may be localized by injury with extravasation of blood—in the same way as germs circulating in the blood stream may be located. An instance which bears this interpretation has just occurred, and has been communicated to me by my colleague Professor Muir, pathologist to the University of Glasgow, who has also given me some of the sections—which my colleague Mr. MacRae, whose case it was, gives me liberty to use.

The new bone was formed in a cicatrix in the midst of the abdominal muscles, at the site of a laparotomy wound made seventeen days previously. There had been no bone present in that tissue at the time of the operation.

It is probable that the original tumour in the intestine of the patient was one that secondarily involved bone, and that some of the osteoblasts had gained entrance into the blood stream and had been deposited at the site of the extravasation—the laparotomy wound. It is interesting that the typical *mature* form of osteoblast is seen in the bone sections situated in the cicatrix in the midst of the abdominal muscle.

Miniature Antler: Bone grown in Glass Tube inside of Tissue.

The bone grown in the glass tube experiments resembles in miniature the growth of the antler. The bone grown in the tube receives all its blood supply from its base in the pre-existing bone. The main artery of the bone in the glass tube passes up the centre, sending out branches which subdivide into capillaries, which are seen most abundantly at the periphery next the glass of the tube. It is round the thin-walled vessels that the osseous tissue first forms. Though generally these thin-walled capillaries intervene between the new bone in process of formation and the glass, yet in some places the osteoblasts are in actual contact with the glass, in the same way as the osteoblasts in the antler of the deer come into immediate contact with the dermal covering (the velvet) without the presence of any intervening membrane. There is here no periosteum—except the glass which acts the part of a limiting membrane. There is, therefore, no peripheral blood supply; it gets all its nutriment from the base, yet the bone thrives and grows rapidly and abundantly. The soft tissues surrounding the glass tube supply the proper temperature to facilitate the growth of its osseous contents, thus taking the place of the velvet in the antler of the deer.

The Silver Ring Experiments and Deductions from them.

Duhamel in 1739 placed a silver ring round a bone under the periosteum in a living animal and found some time after that the ring had become covered by bone. He inferred from this that the periosteum secreted bone, and his experiment and deduction therefrom have been accepted ever since, and have appeared in many of our textbooks during the last 184 years as one of the cogent reasons for our belief in the osteogenic functions of the periosteum.

The result of the experiment was correctly observed, but the deduction drawn therefrom was wrong and illogical. It was based on a single premiss. It has been demonstrated by me that when the periosteum has been removed from the bone and silver rings are placed on the naked *growing* shaft, the new peripheral osteoblasts emanating from bone rapidly form over the nude surface and completely cover the silver rings, enclosing them in a mass of bone—greater than would have formed had the periosteum remained intact.

Whatever views one may hold regarding the osteogenic function of the periosteum, it is hoped that in practice no one would sacrifice an otherwise healthy bone merely because the periosteum, from traumatic or pathological causes, happened to be removed. As long as the nutrient vessels maintain the blood supply to the diaphyses, the shaft of the bone will live, grow, and function.

Even portions of detached living bone severed from all blood supply, preserved aseptically and replaced among the tissues in suitable conditions, have a probability of life. The osteoblasts of the detached bone receive sufficient pabulum from the blood serum until the fresh vessels of the part penetrate the bone and bring nutritive relief. New osteoblastic formation in the shape of a vigorous germinal layer ensues and quickly consolidates into new osseous tissue which aids in fixing the detached bone in its proper place and afterwards in performing the function of the shaft.

Recognition of these facts will prevent the removal of useful, although "bare," bone, and limbs may be saved that would otherwise be sacrificed.

Bone Grafting: Report on Earliest Case.

Nude bone has been grown heterotopically in various parts of the body—such as in the vicinity of the great vessels in the neck, in the muscles of the extremities, in the body cavity attached at the omentum, etc. Young, growing, nude bone may be transplanted, and it will live and grow in its new situation and will form part of the body of man, becoming homogeneous with him.* Forty years ago this was demonstrated,† and since then bone grafting and transplantation have been frequently employed, especially during and since the great war. Many surgeons at home and abroad have used it very successfully and extensively, none more so than Morison of Newcastle.

Reference may be made in passing to the earliest cases of bone grafting in order to report their present condition, as sufficient time has elapsed to demonstrate, more nearly than the recent cases, the ultimate results obtained.

The first was one in which a boy, aged 3 years, came under observation after he had suffered for several months from pyogenic osteomyelitis of the humeral shaft, the dead, blackened bone of the arm lying loose inside the remnant of the periosteal sheath lined with granulation tissue. The loose dead bone was lifted out. As belief in the periosteum as a bone producer was at that time still in vogue, it was hoped that some portions of the bone might form from the periosteum. This did not take place, and the wound healed, leaving an arm without a shaft. One year afterwards the mother returned with her boy, desiring that the arm be amputated, as she said it was not only useless but required the sound arm to look after it. The shaft of the bone had not grown. He had neither a fulcrum nor a lever, and when he attempted to flex the forearm on the arm the muscles and soft tissues of the arm contracting wriggled like a loose hanging rope, the forearm dangling helplessly at the end of it. Instead of acceding to the mother's request to amputate the arm, bone grafting was resorted to. The humeral shaft was restored by the introduction of young growing human bone, removed for the correction of deformity from the tibiae. Six pieces of bone—one each from six different legs of three different persons—were divided into small fragments and were inserted between the muscles of the arm where the shaft ought to have been. These fragments became firmly united to one another and to the epiphyses so as to form a solid shaft. It supplied the fulcrum and lever, and enabled the arm to function, the bone growing along with the growth of the body—but not quite proportionately to it. The greatest growth occurred subsequently, mainly from the proximal epiphysis which had been preserved in part,

* See instances in the volume on *Growth of Bone*, by Macewen, published by Jas. MacLehose, Glasgow, 1912.

* Macewen: *Growth of Bone*, 1-12.

† Read before the Royal Society, London, May, 1881, and published in the *Proceedings* of the Royal Society, and also in the *Comptes Rendus de l'Académie des Sciences*.

practitioner, for whom the book is admittedly intended, will probably get more assistance from its more practical chapters.

The skin tests employed are described and illustrated, and it is stated that a routine of dermal reactions is essential before rational treatment can be carried out. The statistical data of his 350 cases show that 52 per cent. yielded positive reactions; in rather more than half of these there was a family history of asthma, which was found in 42 per cent. of all the cases, and appears to be commoner in females. Fourteen clinical types of asthma are described, including the "thin," the "week-end," the "day or night," and the "colloidoclasic"; several cases of acquired sensitiveness to aspirin are mentioned, and the resulting asthma is explained by some interaction between the drug and the body proteins, "probably of an adsorptive nature, leading to a combination providing the specific adzyme that leads to these disastrous consequences when the patient has thus become sensitive to the drug." In the description of the treatment of the acute paroxysm the opinion is expressed that where relief is obtained from aspirin, as sometimes happens, the case is of microbic origin. As to the way in which adrenaline acts, it is pointed out that in asthmatic patients sudden shocks and emotions may lead to disappearance of the spasm as quickly as will a hypodermic injection of adrenaline. Treatment between the attacks and the cure of the affection are considered in detail, and illustrative cases are given under various heads, such as avoidance of the protein to which the patient is sensitive, specific protein therapy, specific vaccine therapy, non-specific vaccine therapy, Danysz's method, and non-specific protein therapy. Specific vaccine treatment is spoken of with some reserve, for although most successful in a small percentage of cases, it is in a large number not only useless but harmful. Under non-specific protein therapy the protein shock treatment is discussed. Consideration of the nasal factor in asthma leads to the conclusion that nasal symptoms are more likely to be part of the complaint than its cause. This work is brightly written and shows evidence of much practical experience and a knowledge of the literature.

A TEXTBOOK OF LARYNGOLOGY.

DR. COAKLEY'S *Manual of Diseases of the Nose and Throat*[4] is a standard work, and as a manual of convenient size for the senior student or practitioner it appears to fulfil every requirement. The essentials of the subject, especially as regards physical examination and diagnosis, are presented clearly and wisely; there is no tendency to exploit any fancies of the author nor to lay stress on methods which have not stood the test of time and experience. The harshest criticism that could be passed would be that in places the additions and alterations required in bringing the new edition up to date have to some extent upset the balance of the original work. There is, however, no topic which is not adequately treated. Possibly the sections on malignant disease might have been enlarged, considering the ever-increasing importance of the subject, particularly from the point of view of early diagnosis. The detailed consideration of the treatment of malignant disease does not fall within the scope of a book of this character.

The chapter on the methods of examining the nose, nasopharynx, pharynx, and larynx is excellent; numerous details are described, attention to which is of the greatest importance both to the comfort of the patient and the success of the examination. The section on diseases of the accessory sinuses, perhaps, shows the author at his best, for it comprises a group of diseases most rebellious to treatment and consequently most provocative of different opinions. Here the views of the author and his advice, especially in regard to treatment, are moderate and wise, and it is interesting to note that he finds that the Caldwell-Luc operation for suppuration in the antrum is rarely required.

The methods of removing tonsils are numerous, and the author practically confines himself to describing that which he himself prefers. The methods, however, really fall into two groups, those in which a guillotine is used and those in which the tonsil is dissected out, and the indications for employing one or other of these methods are tolerably clear. To ignore one or the other seems to deprive the operator of a valuable method suitable to certain cases. A method of securing bleeding vessels is described, which may prove helpful to those who find it difficult to tie ligatures in the depths of the pharynx.

The illustrations are adequate, but the utility and appearance of the book might be improved in this respect. In every other way the book is excellent, and should be useful as a class book for post-graduates or for occasional reference by the practitioner. For some reason not altogether obvious it begins at page 17, but even this has the merit of giving the reader the impression that he may have escaped some dull introductory remarks and has plunged at once deeply into the subject.

[4] *A Manual of Diseases of the Nose and Throat.* By Cornelius G. Coakley, A.M., M.D., F.A.C.S. Sixth edition, revised and enlarged. London: J. and A. Churchill. 1923. (Demy 8vo, pp. vi + 664; 144 figures, 7 plates. 18s. net.)

RADICAL CURE OF HERNIA.

THE aim with which Mr. J. HUTCHINSON has written *Hernia and its Radical Cure*[5] has been, in his own words, "to provide a practical account of the various forms of hernia with special reference to the best methods of obtaining its radical cure." This aim has undoubtedly been attained. The author writes clearly and his opinions rest on mature experience. Subjects such as ventral hernia, and the contents of hernial sacs, commonly very briefly dismissed in the surgical textbooks, are here discussed fully; the non-operative treatment of hernia, anatomical details, and differential diagnosis are omitted. Statistics are quoted to drive home important points, but are not allowed to overburden the text. It is true, as the author points out, that the frequency with which the operation is performed nowadays has led to its difficulties being underestimated, and that the success of the final result depends on careful selection of method and attention to details. In evidence of this he quotes the speedy recurrences which followed operation during the war. In discussing the disputed question of the origin of hernia, he expresses the opinion first that not all indirect hernias are of congenital origin, and, secondly, that all direct, practically all umbilical, and almost all forms of femoral, are acquired. For anaesthesia Mr. Hutchinson prefers the open method, preceded by nitrous oxide and oxygen induction, to the more elaborate forms of local and spinal anaesthesia. For buried sutures he recommends kangaroo tendon. The advantages claimed are that it is strong, durable, and non-irritating, and ultimately becomes normal fibrous tissue, and so part of the living structure; its use renders resort to filigrees and other foreign material for the repair of large hernias unnecessary. The various methods for radical cure are described, and preference is shown for that in which the inguinal canal is closed by drawing down the conjoined tendon to Poupart's ligament in front of the cord.

For repairing the parietes in umbilical hernia the "reinforced mattress-suture method" is recommended. The elliptical transverse wound is made linear by introducing hooked retractors at each end, and then a series of mattress sutures of kangaroo tendon are inserted, traversing peritoneum, fascia, and aponeurosis. The everted edges are caught up by another interrupted series of the same material, which tend to relieve the tension of the previous group. In discussing resection for strangulated hernia, the method of transferring the gangrenous bowel through a separate laparotomy incision, and performing an end-to-end anastomosis in comparative comfort rather than the confined hernial area, is strongly recommended.

The chapter on hernia of special organs is interesting; illustrative cases are quoted describing pitfalls and mentioning the surprises which may be concealed in hernial sacs. The success of early operative treatment, and its great importance to the community, have not been fully realized by the general public.

[5] *Hernia and its Radical Cure.* By J. Hutchinson, F.R.C.S.Eng. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1923. (Demy 8vo, pp. xiii+264; 52 figures, 2 plates. 12s. 6d. net.)

the blood pressure was below normal. The reaction to the Goetsch test was faint in all cases except one, in which it was moderate but less than normal.

So far, then, as the Goetsch reaction and the blood pressure are any indication, cases of dementia praecox, especially of the katatonic variety, appear to suffer from adrenal inadequacy.

Some years ago, in conjunction with Professor Halliburton, I undertook[17] a histological examination of the suprarenal gland of patients dying in Claybury Asylum, and we correlated the same with the chemical and physiological investigation of the adrenaline content of the gland. No definite results were obtainable, but this is not surprising, because the amount depends upon the cause of death and the time lapsing between death and the *post-mortem* examination. For this reason I did not think that comparative results by chemical and physiological investigations would be of value. I therefore resolved to pursue an investigation of the gland by the same histological methods as I adopted in the case of the reproductive organs. This work has been largely carried out under my direction by Dr. Emslie Hutton.

Histological Examination of the Adrenal Glands in 100 Cases.

The material dealt with in this article was collected from patients who died in the London mental hospitals, and also hospitals for consumption and various military and general hospitals.* In the majority of the mental cases the reproductive organs have already been examined, and work is going on at present on the thyroid and pituitary of these cases. So far as we have been able to ascertain from a search of the bibliography, there has been no complete systematic investigation of a similar nature.

One hundred cases were examined and classified, and the numbers in each group are tabulated below. The number in the class dementia praecox is large, the principal reason for carrying out the work being to afford an opportunity for determining if there is a change in the adrenal in this disease, the great importance of which is obvious from the fact that the bulk of incurable cases in mental hospitals belong to this group of the insanities. Moreover, many of the symptoms of this disease, as already indicated, point to an affection of the medulla of the adrenal gland. The number of hospital cases (which includes thirteen cases of death due to severe accident) is also large, for it is necessary to have a good picture of the normal. A comparatively large number of cases of tuberculosis in young adults were examined; these were required for comparison with cases of dementia praecox, the majority of whom die eventually from tuberculous affections. It has, indeed, been stated that 75 per cent. of the dementia praecox cases die of tuberculosis, and the hypothesis that tuberculosis stands in causal relation to dementia praecox might therefore be justified. Against this, however, is the fact that if this were so similar clinical symptoms and morbid histological changes to those found in dementia praecox should occur in cases dying of tuberculosis without mental symptoms. Moreover, some of the cases of dementia praecox died from pneumonia, dysentery, and suicide. These cases presented no signs of tuberculosis *post mortem*, although the histological changes in the reproductive organs and the brain were similar.

Classification of Cases.

Mental Hospitals:	
Dementia praecox	26
Other psychoses	8
General paralysis of the insane...	22
Hospitals for Consumption:	
Tuberculosis	12
General and Military Hospitals:	
Death as result of severe accident	13
Death from various general causes	19
	100 cases.

Method of Examination.

It was impossible to arrange that the glands should be removed by the same person, but they were taken out carefully, and in most cases arrived in a satisfactory condition. They were thoroughly freed of extraneous tissue in the laboratory, each being weighed separately, and then hardened for two months in formol. Each was cut across in the same way, and as nearly as possible through the thickest parts of each gland. Sections were cut by the freezing method and were of approximately equal thickness; various stains were used, the chief of which were haematoxylin and eosin, Scharlach R. alone and with haematoxylin counter-stain. Most of the details of the fibrous and nuclear changes were observed in sections stained by the Del Rio Hortega* method, or by that method counter-stained by eosin. The sections so stained were examined systematically. Their outline, magnified by means of an Edinger projection apparatus, was made; this showed very clearly the relative thickness of the cortex and medulla, and the general size of the organ. Means were also taken for obtaining an approximate idea of the relative amounts of cortex and medulla. The section was then microscopically examined and a full account of the appearances was recorded. The nuclear ratio in the medulla (to be explained later) was taken in each case.

Before proceeding to describe the morbid histological changes met with it is desirable to give a brief account of the weight and microscopic appearances presented by the normal human gland.

The Normal Adrenal Gland.

Each organ weighs from 6.5 to 7.5 grams, some, however, as will be shown later, weigh slightly more; the body weight must be taken into account when judging whether a case is lighter or heavier than the normal. According, however, to the very careful records of Kojima, body weight does not seem to have much influence.[14] The medulla is at least as wide as the cortex, and more often exceeds it in width at the thickest part of the gland. The cortex is composed of well defined polygonal cells, arranged in columns (zona fasciculata). Near the surface of the organ the columns have a more open arrangement (zona glomerulosa); near the medulla the arrangement is much more open (zona reticularis), and for convenience of description these terms will be used throughout this paper. The cells are well defined, and contain one, and sometimes two, darkly stained nuclei. They are packed with a glistening refractile lipoid substance; this is, as a rule, present in all the cells of the cortex, but is sometimes absent from its innermost layers. In these latter layers are often seen brown pigmented granules tightly packed in the cell; their significance is not yet known.[3] The cortical adenomata, such as are described by Elliot[7] and Vasilesco,[8] have never been observed in this series of cases. The fibrous tissue of the cortex continuous with that of the capsule is well defined, but of delicate structure, and runs down in a septa-like fashion between the cells carrying the blood vessels and lymphatics. The medulla will now be described fully, as it is here that most of the more definite microscopic changes, especially in dementia praecox, have been observed. There is a light fibrous groundwork with fine offshoots surrounding groups of cells; there is no pericellular arrangement of the fibres. The cells have a different arrangement and differ in form from those of the cortex. They are arranged more loosely in irregular columns with large interspersed blood sinuses; a striking feature is the appearance of the large vessels with very thick muscular coats; generally speaking, the medullary cells are arranged around and in contact with these vessels. Sometimes, however, the sections show the cells of the zona reticularis arranged around and in close contact with them. The cells are polygonal and larger than those of the cortex;

* We wish to thank the superintendents and medical officers of the London County mental hospitals for kindly forwarding material and notes of the cases, also the pathologists to the general hospitals and hospitals for consumption who have assisted us by providing the material for this investigation. We are especially indebted to Dr. Roodhouse Gloyne of the City of London Hospital for Diseases of the Chest, Victoria Park, E.2, for material.

* *Nuclear Staining: Del Rio Hortega Method.*—Sections cut by the freezing method are taken from distilled water, placed into the silver solution (see below), and warmed at a temperature of 50° to 55° C. until slightly yellow in colour. They are then placed direct into a 2 per cent. solution of formol (neutralized by calcium carbonate) until the section becomes black; washed in distilled water for about one minute, and then placed into gold chloride solution (1 in 500) until the section becomes grey, usually about half a minute; then into a 3 per cent. solution of sodium hyposulphite for five minutes—in this it becomes a rose colour. Wash in water, fix section to slide, blot off excess of water, and dehydrate with a creosote-carbolic-xylol mixture (creosote 10 c.cm., carbolic acid 10 grams, xylol 60 c.cm.), and mount in Canada balsam.

Silver Solution.—5 c.cm. of a 10 per cent. solution of $AgNO_3$, precipitated by 20 c.cm. of a 5 per cent. solution of sodium carbonate; dissolve precipitate by a few drops of ammonia, and add water to 55 c.cm.

THE SUN CURE FOR SURGICAL TUBERCULOSIS.

SIR CLIFFORD ALLBUTT AT ALTON.

By invitation of Sir William Treloar and his co-trustees, a visit of inspection to the Cripples' Hospital and College at Alton, Hants, was recently paid by the vice-presidents, companions, and local honorary secretaries of the Queen Alexandra League, which was founded to collect money for this institution. The visitors assembled first in the recreation room, where Sir WILLIAM TRELOAR prefaced his speech of welcome by reading a telegram of sympathy and encouragement from Queen Alexandra. He explained that the League now represents 103 local associations, which between them raised more than £9,000 last year for the hospital at Alton. He then asked the Right Hon. Sir Clifford Allbutt, K.C.B., M.D., Regius Professor of Physic in the University of Cambridge, to address the meeting.

"Surgery Without Surgery."

Having indicated his pleasure at being able at length to see the work carried out at Alton, Sir CLIFFORD ALLBUTT said that at first sight it seemed almost a misplaced honour to invite one who was not a surgeon to speak of the achievements of Alton; but Sir Anthony Bowlby, to whom he mentioned this objection, answered: "No! you are right to go because the glory of Alton is that it has abated surgery; it does surgery without surgery." In making this home for crippled children (the speaker continued) Sir William Treloar had had his reward in compassing a relief for them far greater and more complete than he could have dreamed of, bringing them not peace and consolation only, but bodily repair also, and in most cases restoration to health. Calling science to his aid, he associated with himself Sir Henry Gauvain, who thereupon achieved success, not merely by his dexterity and resource as a surgeon, but by pressing into his service other new and beneficent agencies, such as climate, sunlight, and artificial radiations. A striking example of the accurate adaptation of means was seen in the operation of sunlight as a powerful remedy, administered at Alton and Hayling by precise dose and distribution.

Sir Clifford Allbutt then very briefly sketched the history of tuberculosis from the time of Hippocrates, who well described the pulmonary form. It was not until Koch's discovery of the bacillus in 1882 that medicine held the clue—the Ariadne thread—by which to trace and identify the pest in all its insidious penetrations in the bodies of man and many domestic animals.

"Alton is of course a cripples' home, so here the modes of tuberculous destruction are chiefly of the bones, joints and superficial glands. The rapid advances of surgery had for a while tempted us to excise the evil, to make a short cut to cure. But this method belongs to a narrower view of the matter; the disease is perhaps always more or less a general one; and, so far as this is the case, by local excisions our larger ends are not attained. Even if the case be one of an early lesion hardly yet affecting the general system, or affecting it only so much as Nature's own powers might well repair, yet, in the joints especially, a deformity may be perpetuated only a little less than that of the active disease. Furthermore, some affected parts, such as the vertebrae for instance, are out of the reach of the knife; so that, if these parts are not to be given up as beyond hope of treatment, a system must be devised which shall deal alike with the accessible and the inaccessible. And here Sir Henry Gauvain has proclaimed 'Back to Hippocrates! back to the *vis medicatrix Naturae.*' What then is this healing power of Nature? Why, it is but a special instance of the universal law of reciprocal action—that there is no action without reaction. Every impact upon the body is met with a reaction more or less immediately equivalent. Nature always hits back, if often too feebly. Happily, as regards tuberculosis, in the large majority of us the reciprocation is equivalent; the tubercle bacillus is flitting about us all, and doubtless making many an entrance, but in most persons meets with opposition enough to neutralize it. . . . It is in the comparatively few and the comparatively young that it gains a footing."

The old conception of disease (Sir Clifford continued) as a thing to be cast out, had given place to phases of reaction. The morbid process and its cure were intrinsic natural reactions which fortunately could be governed with some considerable success; the physician could give scope to the healing power of Nature and even instruct it. Therein lay the modern doctrines of immunity and antidotal serums and vaccines. But for tuberculosis serology had been so far ineffectual and tuberculin disappointing. Whether Professor Dreyer's new preparation would prove more efficacious time would show. Meanwhile, Sir Henry Gauvain had achieved no little success by putting the diseased parts in the best position to resist. A *modus vivendi* had to be found between effective immobility of a part of the body and the health needs of the whole. The disposition of the organism to recover equilibrium was such that even a severe local damage might ultimately be compensated by some natural re-adaptation; happily every organ had large stores of reserved energy. But in disease the body became less and less able to adapt itself to average circumstances; to the infirm the winds must be tempered and the interplay with the outward stream of things limited. The hospital at Alton was tuned to such a tempering. It became so in part by removal or alleviation of the common stresses of mankind, both mental and bodily; in part by new combinations of influences brought artificially to bear—such as climate, foods, mechanical appliances, and so on; partly again by certain psychical influences of little less importance.

The Healing Power of Light.

Speaking of the remedial influence of light, Sir Clifford Allbutt said:

"In the study of tuberculosis, of rickets, and certain other maladies, and again of radiographic phenomena, attention has been drawn with a new interest to the physiological values of light. Light for the physician is no longer merely a cheerful and refreshing companion of our days, no longer merely the medium of ordinary sight, but a much farther reaching energy. We are realizing that in ordinary vision we have been, and are, using but a very short range of the gamut of light waves, waves which stretch far away both below and above the uses of our vision. Now these farther ranges, both above and below, are coming more and more within the command of the physician, and prove to have powerful physiological properties, powerful both for harm and good; so much so that their use must be guided by a cautious calculation; on the other hand, if so guided they are fraught with marvellous virtues. When in the early seventies of the last century I passed from the coddling of the consumptive in England to him on the uplands of Davos, after dinner at my hotel I asked Dr. Unger where were the patients, and when I was to see them. He laughingly answered, 'Why you have just been dining with them.' 'What,' I said, 'those jolly sunburnt travellers!' 'Yes, just those.' I could hardly believe him; still less did I then discern that the sunburn was far more than a superficial varnish, but signified a profound alteration within. Besides sight and joy, the glorious sun of Switzerland was pouring into these invalids an unseen influence of magical potency. To this occult influence gradually physicians have awakened, and are by direct investigation making themselves masters of it, not only as from the sun itself, but alternatively from the sphere of those artificial rays which belong to the family of X. In radiology we have not only a direct and effectual means of cure, but also most wholesome control records of the course of treatment by many kinds of local lesion. In England, at any rate, as we in this summer know too well, we have not sunlight at our command, but in such alternatives as the mercury vapour lamp science has given us some substitute. Among many workers we owe most in this method to Dr. Rollier of Leysin, who has worked out the problems of heliotherapy in large practice; and, if at Alton we have entered into his labours, it has been on terms of repaying the debt with usury. Especially by the invaluable development of a pavilion of 50 beds at Hayling the conditions of application of light, its direction, limitation, dosage and so forth, have been and are being determined. I have spoken of the potency of these invisible rays; fortunately we have found a means of measuring the effects of the treatment, in great part by the degrees of browning of the skin of the exposed limb or body; if the skin tans normally the exposure is effectual and wholesome; if not, the patient is not amenable to the method. There may be some racial difference between the tolerants and the intolerants of the rays; anyway, these differences are thus made plain and must be obeyed. From the sea it seems that the medicinal rays are reflected with high efficiency, so that at Hayling the patients fit for the particular exposures are deriving an enhanced advantage."

The following are drawings of sections through that part of the adrenal gland where the medulla is thickest. They are drawn from the slide preparation by aid of an Edinger apparatus with a magnification of 2.5.

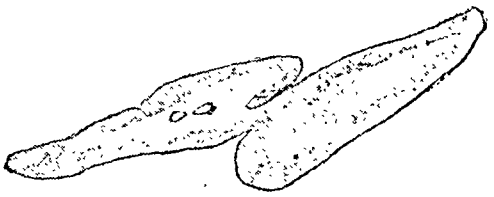

FIG. A.—Section of adrenal gland of a male, aged 20, who died from suppurative encephalitis two months after a severe bullet wound of the head. Note the extensive medullary portion.

FIG. B.—Section of adrenal gland of a case of general paralysis of the insane of two years' duration. Note the extensive medullary portion.

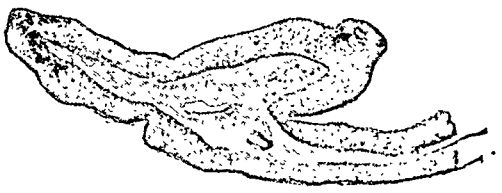

FIG. C.—Section of adrenal gland of a case of epilepsy who was for three years before death in a mental hospital, where she died of tuberculosis, aged 38 years. Note the extensive medullary portion.

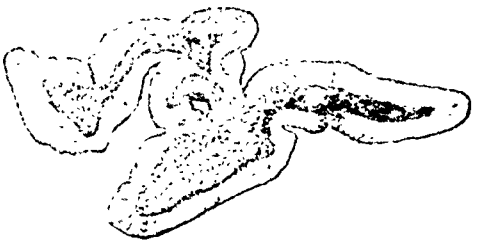

FIG. D.—Section of adrenal gland of a case of dementia praecox who was for five years in a mental hospital, where he died of dysentery, aged 30 years. Note the extensive area of the medulla, which stains black because it is composed almost entirely of thick strands of fibrous tissue.

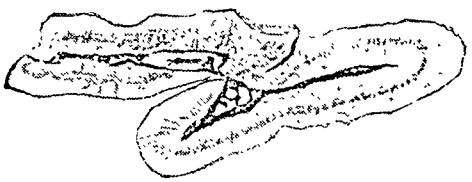

FIG. E.—Section of adrenal gland of a case of dementia praecox who was for two years in a mental hospital, where he died of pneumonia at the age of 25 years. Note the narrow strip of medulla, which is deeply stained because of the fibrous tissue which largely composes it.

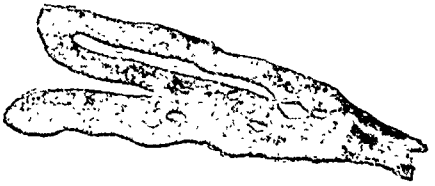

FIG. F.—Section of adrenal gland of a case of dementia praecox who was for sixteen years in a mental hospital, where she died, aged 33 years. Note the narrow strip of medullary tissue, which, however, is not deeply stained, as there is no marked fibrosis present.

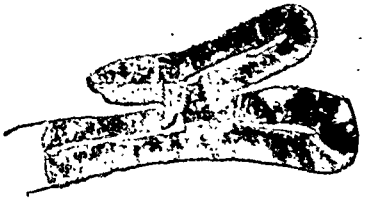

FIG. G.—Section of the adrenal gland of a case of dementia praecox who was for two years in a mental hospital, where she died, aged 29 years. Note the narrow strip of medullary tissue.

the naked eye that there was abundance of lipoid present throughout the cortex; the cortical cells in the three zones were filled with coarse to fine droplets of this refractile substance. In a few of the dementia praecox cases dying of tuberculosis lipoid was entirely absent, and in many it was reduced in amount to a variable degree. In one case who died of dysentery it was entirely absent. It was absent also in two cases of head wound where death was caused by septicaemia. It was also absent or much reduced in amount in cases of young adults dying from tuberculosis.

It may be said that the lipoid was absent or diminished where acute or chronic septic conditions were present. This is in agreement with what other workers, among whom are Elliot[7] and Mott, have found, and supports the view that it is an important source of antitoxins. It cannot be said that the lipoid content seems to have any kind of relationship to the mental condition of the patient. It has, probably, as Mott[5] has shown, an important relation to the function of reproduction. In one of the cases of dementia praecox of this series, the testis was absent on one side and on that side the adrenal gland was one-half the size of the other. A full account of this case was given in a previous communication.[18]

(*b*) *Fibrous Septa.*—Several of the cases showed thickening of the septa, but this did not seem to have any relation to the different classes of case. A fair number of general paralytics, and also a proportion of the normal cases, showed this appearance. When this was present in the cortex there was not always a corresponding fibrosis in the medulla.

(*c*) *Cells.*—It was not observed that these showed any definite changes. In the zona reticularis in some cases of dementia praecox active mitosis was seen, but it was not generally present; here, too, chromaffin granules were observed in some of the cases.

(*d*) *Lymphocytic Infiltration.*—In many of the general paralytic cases it was observed that along the lines of the fibrous septa there was an infiltration of small lymphocytes. In some cases there were definite clumps of these small lymphocytes near the outer part of the cortex, but more often the appearance was simply one of infiltration along the fibrous septa. In one of the hospital cases this appearance was present, but in no other case was it observed.

Changes in the Medulla.

It was in the medulla that the striking changes were seen; the first of these—namely, the differences in the amount of medulla present in the gland—has already been dealt with, and the microscopic changes will now be discussed.

(*a*) *Cells.*—In dementia praecox, even in very early cases, there were distinct cellular changes. Sometimes these changes were only found in some of the cells and many normal cells were present. The cells were as a rule smaller than the normal, and their cytoplasm was much vacuolated. The cell nuclei varied much in shape and size, and were generally smaller than the normal nucleus, though they were larger *in proportion* to the cell; they were not always round and many tended to be oval. They also stained poorly and showed fewer and finer granules than the normal nucleus, and many exhibited a very faint and simple chromatin network. Syncytia containing numerous polymorphic nuclei were frequently seen. There were a great number of nuclei present which were not surrounded by cytoplasm; these either occurred in patches or were diffused throughout the medulla. These nuclei were nearly round, but tended to be oval or fusiform, and many were larger, paler, and contained fewer chromatin granules than the nuclei seen in cells. In various psychoses, such as manic-depressive cases, somewhat similar changes were found, but never to such a marked

varieties of advanced disease, each of which had to be dealt with in a different fashion. He further advocated hostels for tuberculous single persons in place of common lodging-houses, and in this connexion did not hesitate to recommend the establishment of a civil canteen.

Dr. A. FERGUS HEWAT (Assistant Physician, Royal Infirmary, Edinburgh) and Dr. ERNEST WATT (Medical Officer, Scottish Board of Health) continued the discussion, which was wound up by Dr. JOHN ROBERTSON.

Surgical Tuberculosis from Milk.

The afternoon session had for consideration "The extent and nature of the damage done by tuberculosis derived from infected milk." The discussion was opened by Mr. J. D. WATSON in an interesting paper in which he described his first experimental efforts under the auspices of the Birmingham Drainage Board to obtain a tuberculosis-free dairy herd. The scheme adopted was a modified form of Bang's isolation method. This possessed the merit of simplicity and was capable of being put into operation without elaborate preparations. The two main objects were to rear healthy calves from stock certified to be free from tuberculosis and to segregate the healthy from the unhealthy cows. Experience soon proved that the ideal aimed at could not be attained immediately without pecuniary loss. All the reactors, therefore, were not disposed of at once, the younger cows being kept and bred from, a pedigree bull certified to be tuberculosis-free having been first obtained. Recurring tests appeared to point to the satisfactory conclusion that, by the maintenance of a consistent procedure, it was possible within four years of its initiation, and at small expense, to eliminate tuberculosis from a herd of shorthorn cows, which on the first test showed 60 per cent. to be suffering from the disease.

Sir GILBERT BARLING said he strongly supported the view that tuberculosis was not transmitted by inheritance. A certain delicacy or vulnerability of tissues, however, was transmitted. It appeared to him that within recent years there had been a decided diminution in the number of cases of tuberculosis of the bones and joints. Dealing with the points raised by the last speaker, he did not consider the complete extirpation of tuberculosis from dairy herds a practical proposition at the present time. In these circumstances he was of opinion that a Commission should be set up by the Ministry of Health to settle once and for all, if possible, the value of pasteurized milk. There were still conflicting views on this question. Tubercle-free milk could be got, but he warned the public to see that they got what they paid for in such a case.

Dr. JOHN FRASER (Surgeon to the Royal Hospital for Sick Children, Edinburgh) also contributed a paper to the discussion. He could not agree that the incidence of surgical tuberculosis showed any sign of diminution up to the present, war conditions and more recently the widespread unemployment with its attendant poverty probably being contributory causes. The great majority of cases of tuberculosis were infected during early childhood when resistance to infection is low, and the manifestations of later life were the recrudescence of this early infection. No limit could be set to the period during which the living bacillus might exist in the human body even without any clinical manifestations of tuberculosis. He believed that bovine infection, which was but another name for milk infection, was responsible for the vast majority of cases of surgical tuberculosis. The first essential of pure milk was a herd of tuberculin-tested and preferably home-bred healthy cows. The most rigid attention to hygiene in the necessary handling of the milk should also be enforced.

Sir HENRY GAUVAIN, by the aid of some beautiful lantern slides, brought vividly before the Conference the terrible ravages of surgical tuberculosis in childhood. In his opinion bovine infection conveyed by the milk supply was responsible for this. The bright side of the picture was shown in the wonderful results of treatment of such cases at Alton and Hayling Island. This treatment was costly, however, and many thousands of children had to undergo terrible suffering unnecessarily as the result of a polluted milk supply. The present position cried urgently for redress. There should be more open-air and sun schools to increase the resistance of the juvenile population, and this should apply to children of the pre-tuberculous type as well.

Mr. BRENNAN DE VINE (Chief Veterinary Officer, City of Birmingham) also contributed a paper on the subject and gave some instructive figures with regard to the Birmingham scheme. He pointed out that a cow may yield tuberculous milk even when there were no appreciable signs of disease of the udder. All reacting animals should be immediately isolated. More attention should be paid to the ventilation and cubic space of cowsheds, and calves should be fed only on milk from tubercle-free cows. Dr. HAROLD SCURFIELD (late Medical Officer of Health, City of Sheffield), Mr. BUCKLEY, and Dr. MUNRO also contributed to an interesting discussion, which Dr. JOHN ROBERTSON concluded, recording his belief in the pasteurization and bottling of milk. Tuberculin-testing was carried out free of charge for the farmers round Birmingham.

At the conclusion of the regular session the annual meeting of the association was held, and Dr. F. J. H. COUTTS (of the Ministry of Health) opened a discussion on "The work of Tuberculosis Care Committees." Mr. G. W. ALLEN (Director of the Tuberculosis Ex-Service Men's Society) condemned the "official" training of ex-service tuberculous men as a waste of public funds and claimed that the small efforts of the society which he represented showed better practical results. Miss MCGAW (member of the council of the association) also contributed to the discussion.

Tuberculosis in Industrial Workers.

The proceedings of the morning session of the second day of the Conference opened with a paper on the "Relative prevalence of tuberculosis among workers in different trades," by Professor EDGAR COLLIS, which was listened to with much appreciation. Industry, he said, had been accused of being the last stronghold of phthisis, and there was a large element of truth in this so far as adult tuberculosis was concerned. Generally speaking, whenever the habits and customs of a community in which tuberculosis was endemic were disturbed the disease had become more prevalent. Associated with this increased prevalence, the age of maximum incidence of the disease moved from late to early adult years. When a community settled down to the new and altered conditions the age of maximum incidence again receded to later life. This must be borne in mind when the specific occupational prevalence of the disease is being investigated. Professor Collis gave figures to show that the incidence of phthisis is higher and at a later period of life in that portion of the community most concerned with industrial occupation. He also gave tables showing the influence of social status and certain occupational groups on the mortality rate of pulmonary tuberculosis. There appeared to be three influences exhibited by these occupational records which conduced to phthisis—(*a*) aggregation of individuals employed at sedentary work; (*b*) the alcoholic habit by lowering the general resistance to disease; (*c*) exposure to certain dusts which contain silica. On the other hand, hard work, mental or physical, outdoor life, or uncrowded indoor life in no way favoured the disease. He regarded industrial prosperity as the most valuable instrument for the reduction of tuberculosis. Workers ought not to sit facing one another on either side of a narrow table, nor elbow to elbow. Economy of space meant economy of health. With regard to exposure to dust, the medical profession had done its part in calling attention to the particularly injurious character of silica dust: the industrial engineer must now do his and remove it.

Dr. G. B. DIXON (Chief Tuberculosis Officer, Birmingham) followed with a paper on the incidence of tuberculosis among brass workers, and gave some interesting details of the brass trade processes. He pointed out that workers in the "dipping" shops were exposed to the inhalation of acid fumes and that they very frequently had to stand on wet floors, and that in the casting shops the men were exposed to extremes of temperature as well as to the inhalation of zinc. An analysis of the occupations and ailments of 3,000 out-patients attending the Birmingham General Hospital showed that the ailments particularly affecting brass workers could be divided into two main groups:

medullary cells showed atrophy and vacuolation of the cytoplasm, but the nuclei showed but little deviation from the normal and there was little or no fibrosis. The medullary nuclear ratio was the same as in normal cases. In many of the cases the lipoid was entirely absent, and in nearly all of the remainder it was diminished in amount.

It will thus be seen that the histological appearances were different from those in dementia praecox. It might have been suggested that the changes in the adrenals of the dementia praecox cases were due to the tuberculosis from which they so often die. But this is not a fact, for twelve cases of tuberculosis occurring in young sane adults were examined with the above negative results. It may be observed that no lymphocytosis was observed in these twelve cases. There were, however, three cases, which were not used, as they showed tuberculous foci in the medulla. None of the many cases of dementia praecox that died of tuberculosis showed tuberculous foci in the adrenal glands. Another argument against the change in the medullary cells being due to tuberculosis is that some of the cases of dementia praecox died of dysentery and pneumonia after a short illness, and these presented no signs of tuberculosis at the *post-mortem* examination.

Extracts from Cases.

Space does not permit of extracts from all the cases, so eleven have been selected, and very brief notes appended. Two are hospital cases, four are cases of dementia praecox, two are cases of psychoses, one is a case of general paralysis, and two are cases of tuberculosis.

CASE I.

Case of duodenal ulcer; death occurring after operation. Adrenals weigh 10 grams and 9.5 grams respectively. The cortex and medulla are in normal proportion to each other; abundant lipoid is present in the cortex in all its layers, and there is no evidence of fibrosis. The medullary cells are of the normal shape and size, they stain well and show little or no vacuolation. The nuclei are round and of a uniform size and shape; they stain deeply and show many chromatin granules, some coarse and darkly stained, and others of dust-like fineness. The nuclear ratio is 1.2 per cell.

CASE II.

McK., aged 19 years. Admitted to Charing Cross Hospital ten days after accident. The wound was in the mid-dorsal region, and was foul and septic; there was complete paraplegia, and death occurred seven days later of septicaemia. Adrenals weigh 9.7 and 12.5 grams respectively. The medulla is large and wide and in normal proportion to the cortex; lipoid is entirely absent throughout. There is no fibrosis, and the medullary cells show a typically normal appearance. Nuclear ratio is 1.1.

CASE III.

W. F. S.; dementia praecox. Male, aged 18 years at death. He was for two years in a mental hospital, where he died, and before admission was said to have been ill for only four months. He was fairly intelligent, but childish mentally and physically for his age. He was hallucinated for general sensation and had curious feelings in his legs, upon which he based various delusions. He was quiet and depressed and was distinctly anergic, and on admission was certified as adolescent melancholia. For six months after admission he improved slightly, but then began to deteriorate and became apathetic, untidy, and anergic. He rapidly became more demented and developed tuberculosis, from which he died. Adrenals were small and weighed 3.9 and 4.3 grams respectively. The medulla showed marked pericellular fibrosis, and there was scarcely a normal cell present. The nuclear ratio is high.

CASE IV.

P.; dementia praecox. Female, aged 29 years at death. She was for two years in a mental hospital, where she died. Before admission there was several months' history of strange behaviour, moodiness, solitariness, and abstraction; she had one child. On admission she was restless, excited, impulsive, and disoriented. She was emotional, wept for no apparent reason, then laughed in a senseless fashion, grimaced and rolled her eyes. Six months after admission she showed negativism, and stereotypy of manner and speech. Six months before death her health began to be very poor and she became anaemic, cyanosed, and the extremities were oedematous. The Goetsch reaction was faint. She was stuporose and the breathing was shallow and slow. Tuberculosis was suspected, though physical signs were negative, and there was no rise of temperature. Gradual emaciation occurred and death. *Post-mortem* examination showed extensive pulmonary and intestinal tuberculosis. Adrenals: The medulla of this organ is a mere strip of tissue, and in this few normal cells can be seen. The cells are small and atrophied, there is considerable fibrosis, and the marked nuclear changes already described are found. The nuclear ratio is high.

CASE V.

G. T.; dementia praecox. Male, aged 37 years at death. He was for four years in a mental hospital, where he died from pulmonary tuberculosis. He was a typical case of dementia praecox of the type where progressive dementia is the most marked symptom. The adrenals weighed only 2.3 and 3.9 grams respectively and are small and shrunken in appearance. The medulla shows a pericellular fibrosis, and many of the cells are atrophied. There are, however, a fair number of almost normal cells. There are advanced nuclear changes and the nuclear ratio is high.

CASE VI.

R. M. W.: dementia praecox. Male, aged 19 years at death. He was for eight months in a mental hospital, where he died of exhaustion; there was nothing else to note in the *post-mortem* examination. He was a typical case of dementia praecox. There was a bad family history: his mother and father were aged 20 and 21 years respectively at their marriage, and have been separated for eighteen years. The mother was violent and drank heavily; the maternal grandmother died in a mental hospital; a maternal uncle and an elder sister were in a mental hospital at the same time as the patient. On admission he was sullen and depressed, but subject to attacks of acute excitement, when he was most impulsive and resistant. He steadily deteriorated mentally and physically. Adrenals: The organs are of normal size, and the medulla is not diminished in extent. The medullary cells vary to a considerable extent, some being normal and others being atrophied and showing much vacuolation of the cytoplasm. There are nuclear changes, but these are not very advanced and the nuclear ratio is low.

CASE VII.

E. B.; mental defective with polyglandular insufficiency. Female, aged 18 years. She died four days after admission to hospital, and at the *post-mortem* examination miliary tuberculosis was found. Little was known of her history as she was brought in by the police as a lost child at the age of 4 years and was at a special school. The adrenals weighed 2.5 and 4 grams respectively. The medulla shows fibrous hyperplasia and the cells vary greatly; some are normal and others show atrophy and vacuolation. The nuclei vary greatly in size, and there is a high nuclear ratio.

CASE VIII.

C. B., male, aged 50 years; melancholia. He was in a mental hospital for three years, where he died of pulmonary tuberculosis.

DESCRIPTION OF SPECIAL PLATE.

FIG. 1.—Drawing of a section of medullary portion of the adrenal gland of a male, aged 20 years, who died as a result of a bullet wound of the head; stained Del Rio Hortega method. (A macroscopic drawing of this gland is Fig. A.) Note the light fibrous groundwork, the abundant cytoplasm of the cells, the nuclei, which vary little in size or staining, and which contain abundant chromatin granules, both coarse and fine. (Magnification 800.)

FIG. 2.—Drawing of a section of medullary portion of the adrenal gland; stained Del Rio Hortega method. A case of dementia praecox who was for two years in a mental hospital, where he died of pneumonia at the age of 25 years. (A macroscopic drawing of this gland is Fig. E.) Note the fibrous groundwork, which tends to be pericellular an[illegible] show scanty cytoplasm, and some of [illegible] cell body. The nuclei are irregular in [illegible] in size and in intensity of staining; they contain fewer and on the whole finer chromatin granules than the nuclei in Fig. 1. (Magnification 800.)

FIG. 3.—Photomicrograph of a section of the medullary portion of the adrenal of the same case as Fig. 1, but the magnification is much less; stained Del Rio Hortega method. (Magnification 450.)

FIG. 4.—Photomicrograph of a section of adrenal gland of a case of chronic pulmonary tuberculosis in a man who died at the age of 32 years. Stained Del Rio Hortega method. The fibrous groundwork is light; the cells show exhaustion of the cytoplasm, which is small in amount and shows vacuolation. The nuclei, however, are of equal size, and show abundant chromatin granules, both coarse and fine. (Magnification 450.)

FIG. 5.—Photomicrograph of the medullary portion of the adrenal gland of a case of general paralysis of the insane, to show the infiltration with small lymphocytes that occurs here and there throughout the gland. A few cells are seen at the corner of the photograph, and these contain abundant cytoplasm and nuclei, which are regular in form and staining, and which contain abundant chromatin granules. (Magnification 350.)

FIG. 6.—Photomicrograph of a section of the medullary portion of the adrenal gland of a case of dementia praecox who was for eighteen months in a mental hospital, where he died of pneumonia following influenza at the age of 21 years. The cells in this case vary much. In parts, as at the top of the photograph, can be seen cells which approach the normal in appearance. Throughout the specimen small cells are seen, the cytoplasm shows vacuolation, and the nuclei show variation in size. (Magnification 450.)

FIG. 7.—Photomicrograph of a section of the medullary portion of the adrenal gland of a case of dementia praecox who was for sixteen years in a mental hospital, where she died, aged 33 years. (Fig. F is a macroscopic drawing of the whole gland.) Note that the fibrous background is slightly thickened, that the cells are small, and that the nuclei are surrounded in some cases by a very small amount of cytoplasm, and in some cases none is present. The nuclei vary in size and in staining. (Magnification 450.)

FIG. 8.—Photomicrograph of a section of the medullary portion of the adrenal gland of a case of dementia praecox who was for two years in a mental hospital, where she died, aged 29 years, of tuberculosis. (A macroscopic drawing of this gland is Fig. G.) Note the coarse fibrosis and the cells, which are atrophied. Some of the nuclei have no surrounding cytoplasm. The nuclei show variation in size. (Magnification 450.)

(that is, general practitioner) treatment as they might require in illness without additional charge, and the services provided included *inter alia* (*a*) the ordinary services of a co-operating hospital, (*b*) consultations at home in serious illness, (*c*) the services of visiting nurses, (*d*) treatment at the Radium Institute when required, and (*e*) the use of ambulances.

It was decided:

1. That the scheme should be provident—that is, that the subscriptions should be of such amount as would in the aggregate meet the cost of the services required without encroachment upon charitable funds.

2. That the administration should be in the hands of a neutral body which should impartially guard the interests of all concerned.

3. That the work of the general practitioner should not be interfered with, but that, as far as possible, he should be helped in his work for the benefit of those of his patients who were members of the Association.

4. That all benefits under the scheme should be obtained on the recommendation of the private medical attendant of the member.

5. That there should be no interference with the existing rules or routine and work of the hospitals or of any other bodies concerned.

6. That the income limit prescribed for members should, as nearly as possible, be in accordance with the income limits of those ordinarily admitted to hospital treatment.

Arrangements had also been made for group membership on the same principles at a lower rate of subscription which would cover the hospital services only, but this branch was transferred to the Hospitals Saving Association, who also took over and carried through the incorporation which had been applied for to the Board of Trade.

The income of £1,770 for the period was allocated beforehand as follows, namely:

	£	s.	d.
To Nursing (3/40ths)	132	15	0
" Ambulances (1/40th)	44	5	0
" Consultations at home, and Radium (6/40ths)	265	10	0
" Co-operating Hospitals (26/40ths) ..	1,150	10	0
" Administrations (3/80ths)	66	7	6
" Reserve (5/80ths)	110	12	6

Of the 2,315 members, 56, or 2.4 per cent., were in-patients during the year, and their average stay in hospital was 23.8 days; 253, or 11 per cent., were treated as out-patients or received special services, such as *x* ray, massage, electrical treatment, laboratory investigations, etc., the returns showing a total of 1,378 attendances, or an average of 5.4 per patient.

The payments to co-operating hospitals, amounting to £1,150 10s., are equivalent to a payment of £5 7s. 1d. a week for each in-patient and of 10s. for each out-patient, and include any provision which the hospitals may have made for a payment to general medical staff funds. Consultations in the patients' own homes were paid for by a fee of three guineas for each consultation. The payment allocated to nursing has been paid in full, but after paying for all the services rendered during the period, a balance of £406 remains in hand upon the other accounts after all liabilities to members have been finally discharged.

The committee feels that the year's experiment has fully justified its anticipations, and the statistical results encourage it to hope that in a system of provident co-operation lies the solution to the financial problem of the voluntary hospitals.

The executive committee of the Provident Association decided to treat this scheme as an experiment, and took in no new members after February 28th, 1922. The hospitals which had agreed to take part in the scheme were the London, St. Thomas's, and the Royal Free. In ceasing to enrol new members the committee was actuated by a desire to leave full freedom of action to the Hospitals Saving Association in its endeavour to secure a larger measure of co-operation amongst the several hospitals. Now, however, it seems to have been thought advisable to revive the Association, which was incorporated on May 8th last under the title "The British Provident Association for Hospital and Additional Services."

Persons enrolled under the scheme in London were arranged in three groups: (1) those without any dependants, (2) those with one dependant, (3) families. Reduced charges were made to the second and third classes. The whole of the money allocated to the hospital and nursing services was distributed without deduction, but payment for consultations, radium treatment, and ambulances was limited to charges for actual services rendered. Of the £265 10s. allocated to the consultations and radium account only £32 10s. were spent, and ambulances cost only £1 10s. 6d. Fees for consultation were paid to the consultants employed, but the committee has not sought to know whether any proportion of the payments to the hospitals was passed to a medical staff fund. If 25 per cent. of the money allocated to the hospitals were passed to such a fund the actual payment to the hospital for each in-patient would be £4 0s. 3d., and for each out-patient 7s. 6d.—sufficient in the one case in most hospitals to cover the cost of a bed, and in the other considerably exceeding the estimated cost per out-patient.

The success of the scheme in its experimental stage seems to justify the hopes of the executive committee, and we congratulate the members of the committee upon the care they have spent in considering the interests of all concerned from patient to general practitioner. In the Memorandum and Articles of Association, dated May 4th, 1923, the name of the organization now appears as the British Provident Association for Hospital and Additional Services.

PREVENTION OF VENEREAL DISEASE.

THE fourth annual general meeting of the Society for the Prevention of Venereal Disease was held on July 13th.

Lord WILLOUGHBY DE BROKE, the President, gave an address pointing out that the Trevethin Report amounted to a complete vindication and endorsement of the Society's policy, and proposed the following resolution:

"That the Society for the Prevention of Venereal Disease accept the Trevethin Report as a document supporting the six essentials of the policy of the Society, namely that:

1. A man who after exposure is properly and thoroughly disinfected by disinfectants of appropriate nature and strength, runs little risk of infection.

2. An intelligent man if furnished with reasonable instructions can, in favourable conditions, effectively disinfect himself.

3. The adoption of skilled disinfection (in disinfecting centres) is not to be recommended as part of any general system, for reasons of time, cost and impracticability.

4. The instruction by medical officers of venereal disease clinics of male persons attending such clinics in the preventive use of disinfectants, offers a useful means of educating the community.

5. There is no evidence of facts in support of the view that any system of disinfection would tend to increase the number of exposures and raise the disease rate.

6. The law should be altered so as to permit properly qualified chemists to sell *ad hoc* disinfectants provided that disinfectants are sold in a form approved and with instructions for use approved by some competent authority.

And also in view of the unqualified acceptance of the Trevethin Report by the National Council for Combating Venereal Diseases, that the Society for the Prevention of Venereal Disease is prepared to form a Joint Committee with the National Council for Combating Venereal Diseases under the Chairmanship of Lord Dawson of Penn to watch and further the policy based on the terms of the Trevethin Report."

Dr. J. H. SEQUEIRA, in seconding the resolution, said that as one who had served on the Trevethin Committee he had been struck by the unanimity of the evidence in favour of immediate self-disinfection, which had greatly impressed the Committee as a whole. Lady ASKWITH, chairman of the Women's Committee, in supporting the resolution, said that she looked upon that day as the greatest in the society's existence and considered that the Trevethin Report offered great hopes that at last something would be done for the protection of the health of women and children. Mr. BASIL PETO, M.P., urged that immediate steps be taken so as to ensure that the necessary bill to amend the Venereal Diseases Act, 1917, should be presented in the autumn session. Mr. FRANK SOUTER said he had just returned from a visit to the Far East, where branches of the society had been established with the result that venereal disease had been greatly reduced, to the immense benefit of local production and trade.

The resolution was carried unanimously.

The honorary secretary, Mr. H. WANSEY BAILY, in presenting the annual report, stated that opposition to the society's policy was now based, not on the society's published policy, but on a misunderstanding and consequent misrepresentation of such policy by certain persons, the most prominent being Lord Astor, who was chairman of the Interdepartmental Committee whose unsatisfactory report was the reason of the society's foundation. He considered that as the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease had both unconditionally accepted the Trevethin Report, the only logical sequel was cordial co-operation between the two societies, to press for the carrying into effect of the recommendations contained in the Trevethin Report.

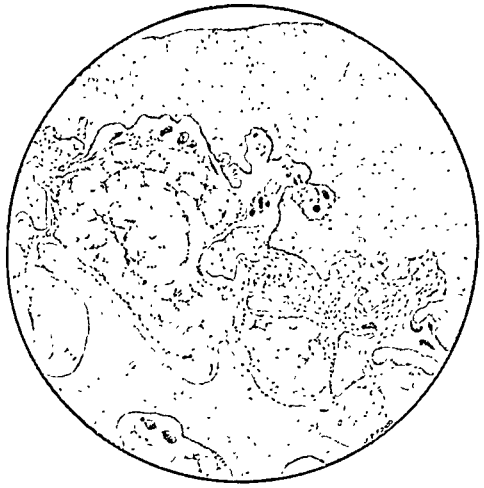

FIG. 1.—Microscopic section of an epi-articular ecchondrosis (1/6 in. obj.). The deeper layer of the cartilage is being invaded by inroads of vascular connective tissue from the subjacent bone. In these inroads are many multinucleated "chondroclasts."

FIG. 3.—Fibrotic synovial fringes in later stages of osteo-arthritis. No marked alteration in vascularity.

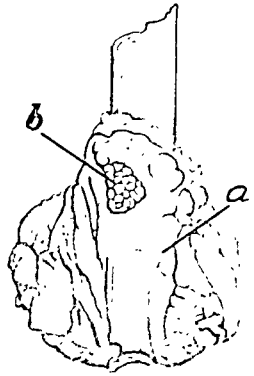

FIG. 5.—*Experiment II:* Experimental production of osteo-arthritis. One c.cm. of broth culture of streptococcus obtained from gums of case of osteo-arthritis injected into knee-joint of rabbit. Appearances after six weeks; *a*, commencing osteophytic growths; *b*, villosity of synovial membrane.

FIG. 6.—Drawing showing the typical appearances in chronic non-tuberculous arthritis of the synovial type (so-called rheumatoid arthritis). A A, Remains of the degenerate articular cartilage, in which many of the cell groups have undergone necrosis and the matrix is fibrillated in places. B B, Pannus of connective tissue derived from the synovial membrane which is spreading over the surface of the cartilage (A A), which it is invading and replacing. C C, Irruption of newly formed osseous tissue which has invaded the articular cartilage from below and joined forces with the afore-mentioned surface pannus. D D, Well marked areas of inflammatory small-cell infiltration, one of which occupies a cancellous space. See microscopic appearances of synovial membrane from this case (Fig. 7). From the knee-joint of a man, aged 45, upon whom synovectomy was performed through the author's patella-displacing approach.

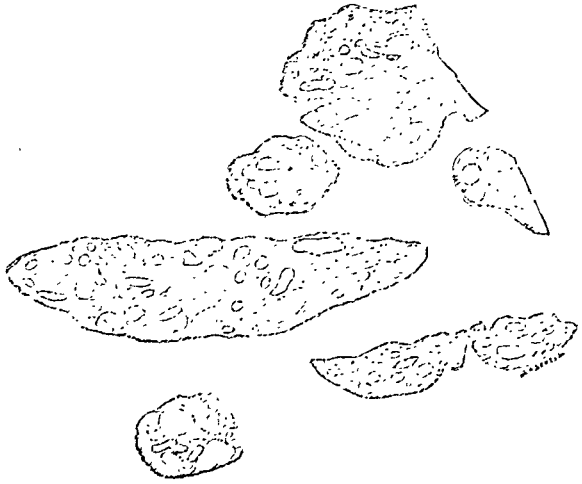

FIG. 2.—Synovial fringes from osteo-arthritic joint. Note vascularity with fatty infiltration in certain places. There is a complete absence of arterio-sclerosis.

FIG. 4.—Tuberculous "osteo-arthritis." Parts removed by excision from a very chronic form of tuberculosis of the knee-joint in a young adult. The synovial membrane is markedly villous, and in places contains caseous nodules. Microscopic examination shows that these contain typical tuberculous giant-cell systems. The articular cartilage is fibrillated [illegible]

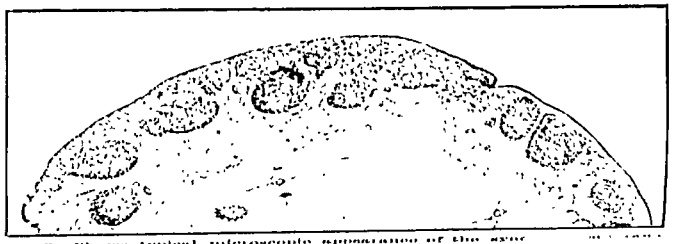

FIG. 7.—Shows typical microscopic appearance of the synovial membrane in case [illegible]

socialist, who proclaimed one more failure of voluntary effort, one more evidence for the need of State control. Then came a counter-reaction, and people began to inquire personally, locally, and by commission whether things were really so bad as was alleged. It appeared that the position was certainly not hopeless, and that the voluntary system had certain advantages over State administration, as displayed in Germany, which made it worth while to attempt to continue it.

To the development of this opinion the investigations of Sir Napier Burnett and his reports to the Joint Council of the Order of St. John and the British Red Cross Society have largely contributed. His latest report—that for 1922—just issued[1] will encourage the friends of the voluntary system to increase their efforts to perpetuate what is one of the finest examples of the capacity of the British race to organize and administer its own institutions.

Sir Napier Burnett's report is concerned with the voluntary hospitals in Great Britain, but excludes London, because the hospitals in that area are under the supervision of King Edward's Hospital Fund. The hospitals in England and Wales and in Scotland respectively are treated separately, but the results are combined in an interesting introduction. The report is founded on returns from 643 voluntary hospitals (87 per cent. of the whole) containing 40,331 available beds, or 94 per cent. of the total. The number of new patients treated was 2,090,855, at a total cost to the hospitals of £4,946,299. The total number of new in-patients treated at the 643 hospitals was 501,945, and the total number of new out-patients 1,588,910. The number of 643 hospitals is made up of 571 in England and Wales and 72 in Scotland. The total number of new in-patients in England and Wales was 403,036, and in Scotland 98,909. The new out-patients in England and Wales numbered 1,277,338, and in Scotland 311,572. An interesting piece of information is given in a table from which it appears that thirteen teaching hospitals in England and Wales were responsible for 30 per cent. of the total patients treated by the 571 hospitals—approximately one-third of the whole. In Scotland six teaching hospitals were responsible for 51 per cent. of the total patients treated at the 72 hospitals, or more than one-half of the whole.

In a note which Sir Arthur Stanley, chairman of the Joint Council, has prefixed to the report, he calls particular attention to the facts stated by Sir Napier Burnett with regard to cottage hospitals, under which heading are included hospitals with less than thirty beds; in England and Wales there were 314 in 1922—an increase of 13 as compared with 1920—and in Scotland 41, an increase of 2. The total number of beds provided in these hospitals in England and Wales rose from 4,271 in 1920 to 4,572 in 1922; in Scotland the increase was from 552 to 607. The total number of beds in cottage hospitals in Great Britain was 5,179, but of these approximately 2,000 remained idle throughout 1922. Sir Arthur Stanley's comment is that the facts appear to call for better co-ordination of the work, and he commends their careful perusal, "not only to those in charge of cottage hospitals, but also to the governors of hospitals in crowded districts, who are always faced with a long list of patients awaiting admission."

In a section of his introduction dealing with the investigation of the cause and nature of disease, Sir Napier Burnett divides the work done in hospitals into two categories: "defensive," when the patient is admitted to hospital for the repair of damage already done, and "offensive" work, which seeks to ascertain the cause and nature of disease which necessitates admission to the hospital. "It is," he says, "even yet too little recognized by the public that the great and ever-expanding science of preventive medicine owes its existence in large measure to the work carried out in the hospital laboratories." In the case of the larger hospitals he states that laboratory accommodation has been evolved during the past twenty-five years from a single room and one trained worker until there is now a pathological and bacteriological institute attached to many of the hospitals complete in all departments and staffed by highly trained workers, each a specialist in his own particular subject. With regard to smaller hospitals, he says, "the gratifying information is to be found in many annual reports that during the past year steps have been taken to establish some form of laboratory accommodation." "But," he adds, "the establishment of adequate laboratory accommodation and equipment is a matter requiring patient consideration, owing to the cost involved and the question of the supply of the requisite trained personnel." This last is undoubtedly a most important point, and somehow or other means must be found for making hospital laboratory work a career to which a man may devote his life. Such work is on the borderline of research, and with proper encouragement the border may in many cases with great advantage be overstepped.

In discussing the financial situation attention is directed to the fact, not always sufficiently appreciated, that the voluntary hospital system as a whole is to an important extent dependent upon the endowments provided by earlier generations. In the case of 666 hospitals with regard to which particulars have been obtained in this respect, the total amount of invested funds is over seventeen millions sterling, yielding an annual income of nearly £800,000. There was a great improvement in the financial poition of the voluntary hospitals in Great Britain in 1922. In the previous year (1921) their ordinary income failed to meet the ordinary expenditure by £419,138; in 1922 the corresponding figure was £74,978. A remarkable fact brought out by the analysis of the returns is that 378 (57 per cent.) of the 666 hospitals had an excess of ordinary income over ordinary expenditure of £315,420, whereas the remaining 288 hospitals had an excess of expenditure over income of £390,398. In 1921 the percentage of hospitals showing an excess of income was 51 per cent., while the percentage of hospitals which failed to make ends meet was 49 per cent.

This short preliminary account of some of the most striking features of the report will be sufficient to indicate that it is of great interest to the medical profession. We hope more fully to discuss in future issues some of the many points contained in the body of the report.

[1] British Red Cross Society, 19, Berkeley Street, London, W. Price 1s.

THE BRITISH EMPIRE CANCER CAMPAIGN.

WE mentioned last week that a discussion had taken place between representatives of the British Empire Cancer Campaign and of the Royal Society and the Medical Research Council with regard to the organization of the scientific side of the campaign, and that it had been decided to form an advisory committee if the necessary agreement upon details could be reached. We had assumed that negotiations would proceed between the two parties in order to reach a full agreement on all details, but we learn from a statement in the *Times* that at a meeting of

THE NATURE OF THE SO-CALLED RHEUMATOID ARTHRITIS AND OSTEO-ARTHRITIS.

SUMMARY OF

AN INVESTIGATION INTO THE PATHOLOGICAL CHANGES, WITH A PLEA FOR A SCIENTIFIC CLASSIFICATION.*

(*With Special Plate.*)

BY

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THE chronic forms of arthritis known in this country by the somewhat unscientific names "rheumatoid arthritis" and "osteo-arthritis" are among the commonest of all human ailments, and probably cause a greater loss of productive energy to the community than disease of any other system. It is true that the disease rarely, if ever, causes the death of the patient, but it often occurs in the comparatively young and active, to whom the resulting crippledom is a grave hardship. It is proposed in this paper to resist the temptation to discuss clinical aspects and treatment, and to review briefly certain aspects of the problem.

A. UNDERLYING REASONS FOR THE PRESENT STATE OF THE ARTHRITIC PROBLEM.

1. *Ignorance of the Physiology of the Articulations.*

It is a striking fact that until quite recently our ignorance of some of the most elementary facts concerning the articular cartilage and the functions of the synovial membranes and fluid was almost mediaeval. Claude Bernard wrote more than half a century ago with regard to the synovial fluid: "les données physiologiques sur ce liquide sont a peu près nulles: le siège anatomique de sa sécretion est lui-même très peu connu." It is somewhat of a reproach that these words are wellnigh as true to-day as when written. Even otherwise exhaustive treatises on physiology either ignore the subject altogether or dismiss it in a few lines as one of minor importance. My own halting and imperfect efforts in this realm will be briefly touched upon below.

2. *Ignorance of Normal Intimate Histological Structure.*

There exists great variance of opinion concerning the histological structure of articular cartilage and synovial membrane. With regard to the former, some hold that a perichondrium is present over the whole surface, others that it is present at the periphery only; while another school, following Ogston, hold that the superficial cells are in reality degenerate, and are in process of being cast off into the joint. With regard to the synovial membrane, hardly any two authorities agree as to the nature of the cells with which it is lined. In regard to its connexions, Schafer states "they are not connected with the lymphatic system;" but by injecting colloidal silver solution into the knee-joint of a living animal I was able to show that absorption by the lymphatics definitely occurs.

When faced with such multiplicity of views it would appear sufficiently obvious that the course to adopt is not to argue but to look and see. This is the method I adopted, and what I saw has been described by me in a recent Hunterian Lecture upon osteo-arthritis. Some of the main points will be briefly enumerated below.

3. *Ignorance of the True Nature of the Pathological Changes.*

It is clear that before we can hope to treat any disease on rational lines we must have a clear conception of its essential nature.

At the outset we are faced with contradictory views. For instance, Goldthwait christened the two groups, which we in this country usually call rheumatoid arthritis and osteo-arthritis, as atrophic and hypertrophic arthritis respectively. Nichols and Richardson, however, classify them into proliferative and degenerative arthritis. Thus the condition that we know as osteo-arthritis is interpreted by the former as a process of hypertrophy and by the latter as a degenerative process. Some may say, "This is very interesting, but how does it help the unfortunate sufferer?" I would reply that it is of fundamental importance in prognosis and treatment. If we accept the view that the disease is some form of degeneration having an obscure relation to old age, it is difficult to see how treatment can be of any avail or how the disease can be arrested. If, however, we accept the view that the disease is inflammatory in nature, it is clear that the disease assumes an entirely different complexion, and that we should not leave a stone unturned until we have discovered the source of the toxic substances that bring about these inflammatory changes. Moreover, like other inflammatory processes, they may come to a natural termination. Instead of a depressing policy of *laisser-faire*, we adopt a more active and cheerful outlook. I have known individuals who have been labelled "senile" arthritis of the hip converted from lives of painful crippledom to an active and comparatively painless existence. I propose to give a short description below of my conception of the nature of the changes.

4. *A Confusing Nomenclature.*

One of the commonest mistakes in this connexion lies in the investigator endeavouring to form a primary classification according to his conception of the *nature* of the pathological changes. Owing to the diversity of the latter confusion is bound to ensue. Another common error lies in mixing anatomical, clinical, and pathological subdivisions in the same classification. A good example of this lies in the terms "osteo-arthritis" and "rheumatoid arthritis." The former name is given owing to the supposed site of the principal changes, and is therefore anatomical. The latter term is a pseudo-clinical term in which the disease is compared, in terms reminiscent of the humoral pathology, to yet another disease, the etiology of which is still unsettled.

5. *Lack of Co-operation between Physician, Surgeon, and Pathologist.*

Specialism has its advantages, but we should never lose sight of its drawbacks and dangers. The policy followed at present is to divide many diseases into more or less arbitrary stages—the domain of the physician and surgeon respectively. Such divisions are obviously illogical and unnatural, and are among the most serious impediments to progress with which we are faced. We see the same lack of co-operation between physician and surgeon in the treatment of such conditions as gastric and duodenal ulcer. If we are to have specialists, let us have those who will make a thorough study of a system or organ and be responsible for the treatment of its disorders from beginning to end, whether operative or non-operative.

The surgeon's share consists very largely in dealing by operation with the failures of medical treatment. The last twenty years have seen a great development of elaborate surgical technique; but I believe and trust that before the present century terminates we shall see a more healthy co-operation between physician and surgeon in the direction of the *prevention* of those advanced states that at present demand operation.

Sir Robert Jones has with great courage frequently protested against the existing lack of co-operation, and, thanks largely to his efforts, there has undoubtedly been improvement. It is unfortunately still only too common to meet with gross deformities which should never have been allowed to occur; and, on the other hand, for individuals to endure unnecessary pain and suffering because the physician has not acquainted himself with the possibilities of surgical measures in overcoming deformity or in restoring movement to the stiff joint. At the special Ministry of Pensions clinic at Orpington such co-operation exists, and the results, which have been most gratifying, lead one to believe that an extension of such clinics in civil life would be of great advantage.

* The expenses of this research were defrayed by the Medical Research Council, to whom my thanks are due.

advertising. Sir Sydney Russell-Wells, M.P., who also responded, described the House of Commons as one of the best houses of detention in this country; its keepers were called whips, and if its inmates were allowed out at all they were only allowed in pairs. Sir Eric Geddes, whose important speech came almost at the end of the banquet, spoke on the lack of frankness in the discussion of insanity, the exceptional nature of the treatment, and the financial difficulties in providing the dual treatment, physical and mental, and the special environment necessary to the cure of the mental case. He said that although the Medico-Psychological Association was over 80 years old it would not claim for itself that it had explored more than the fringe of the subject of the cause, prevention, and cure of insanity. During the last ten years the recovery rate appeared to show practically no improvement. There remained a great field of research, alike among cases already in institutions and those not sufficiently advanced to require certification. If the case were put before the public clearly and definitely he was sure that the authorities, national and local, in this country would unloose their purse-strings. The public must be made to realize that a large proportion of the inmates of these institutions, constituting an inevitable drag on the utilitarian part of the population, could be cured, but that the possibilities of investigating each case on scientific lines were limited by lack of funds for education and research, so that those concerned could do little more than trust to Nature and environment to remedy what they knew might be remedied with more speed and certainty by scientific means. Apart from what might be called the physical side of the treatment in disease of septic or toxic origin, and the removal of nerve strain and shock, there was also a field which to himself as a layman appeared almost unexplored—that, namely, which awaited the psychiatrist.

MEDICAL SERIALS IN BRITISH LIBRARIES.

LAST week reference was made (p. 73) to the list of periodicals in medicine and the allied sciences prepared by Professor R. T. Leiper, F.R.S., Professor of Helminthology in the University of London, with the collaboration of Mrs. H. M. Williams and Miss G. Z. L. Le Bas, M.Sc., and it was stated that the British Medical Association, impressed by the need for such a guide to the principal medical libraries in Great Britain, had subsidized the preparation of the work and was about to publish it in a volume. We have now received an early copy of the volume, which makes a very handsome appearance. The periodicals noted are classified geographically: English-speaking countries and their possessions (pp. 1-72), French-speaking countries and their possessions (pp. 73-102), Teutonic countries (pp. 103-148), Slavonic countries (pp. 149-159), Scandinavian countries (pp. 160-166), Latin countries, including Italy, Portugal, Spain, Mexico, and South and Central America (pp. 167-186), and other countries, including Greece, Turkey, Japan and China (pp. 187-190). The main object has been to save the time of persons desiring to consult the very scattered literature, especially of the sciences allied to medicine. Professor Leiper has dedicated it "To those who have made the weary pilgrimage of London's Libraries," but, as has been said, the list embraces also the libraries of Oxford, Cambridge, Liverpool, Manchester, Edinburgh, and Glasgow. The aim has been to make an approximately complete list of periodicals, including serials of learned societies available in Britain. Over 4,700 periodical publications are included, and it is hoped that few important titles prior to 1921 have been omitted. The list indicates not only the name of the periodical and of the libraries in which it is to be found, but also the range in each library, whether complete or between certain dates only. The book will, we believe, serve its purpose and prove most useful to inquirers. Its price is 10s. 6d. and it can be obtained through any bookseller, but it will be supplied post free by the Financial Secretary of the British Medical Association, 429, Strand, London, W.C.2., at the price of 10s. 9d. Copies will be available at Stand No. 64 of the Exhibition of the British Medical Association which will be held during the Annual Meeting next week at Portsmouth.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AT the quarterly meeting of the Council of the Royal College of Surgeons of England on July 12th, Sir John Bland-Sutton was elected President in succession to Sir Anthony Bowlby, who had held that office for three years. At the same meeting Sir Berkeley Moynihan, Bt., professor of clinical surgery in the University of Leeds, and Mr. H. J. Waring, surgeon to St. Bartholomew's Hospital and Vice-Chancellor of the University of London, were elected vice-presidents. Sir John Bland-Sutton, who became M.R.C.S. in 1882 and F.R.C.S. in 1884, was surgeon to the Middlesex Hospital from 1886 to 1920, when he was appointed consulting surgeon. He was President of the Royal Society of Medicine in 1921, and last January gave the Hunterian oration before the Royal College of Surgeons, of which he was then vice-president. He gave the Address in Surgery before the British Medical Association at the Annual Meeting at Aberdeen in 1914; in the course of this address, which dealt with the surgeon of the future, he said: "It requires little foresight to recognize that for men ambitious to attain high places in surgery the high road lies through the pathological institute." Of this truth he is himself a living example, and one evidence of his faith is afforded by the Bland-Sutton Institute of Pathology at the Middlesex Hospital. It was built and equipped by him in 1914, and through it all the departments of the medical schools are brought into [illegible].

OPENING DOORS.

THIS is the title of a little book[1] written by Dr. John Thomson "for the mothers of babies who are long in learning to behave like other children of their age." The author first describes the way in which the mind of the normal infant develops, so that the mother may know "when the baby's brain is growing properly"; then he shows how she may know "when the baby's brain is not growing as fast as usual"; and lastly he instructs her as to what she can do to bring about an improvement. Many excellent books have been written giving advice to mothers; Dr. Thomson does not merely give good advice, but he gives it with insight and kindliness. Written in very simple language, this unpretentious book is pervaded by that indefinable charm which we find in a work of art and scarcely hope to discover in a book of medical advice. Dr. Thomson shows an appreciation of the fact that where a mental defective is found in the home the physician has not merely to treat a case, but has to deal also with a painful and delicate domestic situation. The feelings of the parents have to be considered, especially in the early days when they dimly begin to recognize that the baby's mind is not developing properly. Dr. Thomson has not thought well to refer directly to this aspect of the situation, but every line reveals a sympathetic insight into the mother's feelings; for this reason not only will the mother of a defective find this book help her "to open the doors of her child's mind," but she will find

[1] *Opening Doors.* By John Thomson, M.D. Edinburgh: Oliver and Boyd. 1923. (Pp. 20. Price, in cloth 1s. 6d.; in paper, 6d.; and in quantities for distribution (paper) 25s. per 100.)

Traumatic Osteo-arthritis.

This type deserves a few separate words. It is a purely localized form, in which the central part of the articular cartilage undergoes the changes that we have already enumerated owing to its being exposed to an undue degree of mechanical trauma or stress acting over a long period. Sir Arbuthnot Lane has rendered a great service by pointing out that this type is not a disease, but rather the series of compensatory changes that occurs in a joint in response to altered stress. This type, as Lane pointed out, is often occupational.

The nature of the pathological changes in osteo-arthritis supports the view that these changes are the response of the joint structures to irritation, either mechanical or toxic, and are inflammatory in nature; that these changes are both degenerative and proliferative, both processes often advancing *pari passu;* that the different reaction to the cause may largely be accounted for by the fact that the lateral articular area is better nourished than the central.

The theory of general diminished nutrition of the joint structures is negatived by the proliferation—often marked—that occurs, and by analysis of the synovial fluid; moreover, arterio-sclerosis is probably not of etiological importance. Proliferative changes also negative the theory that the process is one of atrophy due to old age. Hence such a term as "morbus coxae senilis" is a misnomer. I venture to give the following definition: Osteo-arthritis does not constitute a disease *sui generis*, but rather the series of physiological or pathological changes that ensue in a joint when it is subjected to prolonged or oft-repeated injury, either mechanical or toxic, but of a moderate degree of intensity. The causes are therefore very varied, and there can be little doubt that the future will bring to light additional factors in its causation of which we are at present ignorant. Osteo-arthritic changes, for example, occur with greater frequency in certain disorders of the ductless glands, such as acromegaly, than can be ascribed to mere coincidence. Whether in these cases the joint changes are due to the action of toxins formed from failure of the ductless gland to supply the necessary link in the chain of metabolic endogenous products, or whether in some way the resistance of the joint to bacterial toxins is lowered, it is impossible at present to state.

The relation of osteo-arthritis to the group of auto-intoxications due to defects in the excretory apparatus or to the accumulation in the body of products of normal metabolism is still undecided, but two groups emerge concerning the etiology of which we have a little more evidence. The following preliminary classification is therefore adopted: Group 1, traumatic osteo-arthritis; Group 2, osteo-arthritis due to bacterial toxins. Examples of Group 2 are well seen after many infective forms of arthritis. It is not generally recognized that the condition may occur in certain chronic types of tuberculous disease (Fig. 4). I have also succeeded in producing an infective type of osteo-arthritis experimentally[2] (Fig. 5).

TYPE 2.—*Chronic Arthritis in which the Disease Commences in the Synovial Membrane (Rheumatoid Arthritis).*

Clinically every stage of acuteness may be seen, from the subacute polyarticular or monarticular, in which pain or spasm are so marked that deforming contractures are liable to develop, to the more common type, also polyarticular or monarticular, in which spasm or pain are less marked features, and therefore limitation of movement is less likely to accrue. Different types are also seen, which have been so carefully described by Nichols and Richardson in America and by Strangeways in this country that I do not propose to discuss them in detail.

Some little confusion has, however, been produced by the introduction of the term "atrophic." For it is now almost generally recognized, save by those who "have eyes and see not," that the process is primarily of a pronounced inflammatory nature, and that when atrophy occurs this may be largely accounted for by disuse. As in osteo-arthritis, however, degenerative changes may accompany the proliferative. These may be seen, for example, in the articular cartilage, and the latter is often for this reason invaded and replaced by a pannus of granulation tissue derived from the synovial membrane and by ingrowths of vascular connective tissue from the subjacent cancellous spaces (Fig. 6). In the more chronic forms there may be no pannus, but mere fibrillation of the cartilage. This absence may be due to the movements of the patient which are possible owing to the less severe nature of the pain, and which militate against the progress of this tide of granulation tissue. In the synovial membrane inflammatory collections of small round cells in the vicinity of the vessels are prominent features (Fig. 7). As in the first type of arthritis, adipose tissue, cartilage, or bone may be developed in the synovial fringes. Periarticular lipping certainly occurs, although somewhat later than in the first type of arthritis. I believe it to be Nature's way of endeavouring to extend the articular surface, and is therefore more commonly seen in the more chronic cases where movement has been continued and sclerosis and contracture have not occurred.

C. SOME PHYSIOLOGICAL FACTORS UNDERLYING THE PATHOLOGICAL PHENOMENA.

I believe that the extraordinary difference between the behaviour of the central and lateral articular areas in these chronic forms of arthritis can be explained by a principle that I have endeavoured to establish—namely, that the lateral part of the articular cartilage is better nourished than the central, and is, moreover, furnished with a perichondrium in which lie blood vessels derived from the circulus articuli vasculosus. The central poorly nourished area responds to the cause of osteo-arthritis by degeneration, whereas the lateral part proliferates. It is possible that pressure may play a rôle—although I believe a minor one—in causing the different reaction. I found, on examination of a considerable number of cases of osteo-arthritis of the knee-joint, that in nearly every case the changes commence in the central articular areas of the patella and trochlear surface of the femur, and *not* where pressure is greatest upon the femoral and tibial condyles. The phenomena of repair of articular cartilage confirm the view of its nutrition. I was able to produce experimentally a traumatic form of osteo-arthritis by the simple expedient of removing the central part of the articular cartilage, when compensatory proliferation of the better nourished lateral area occurred, producing characteristic "lipping."[3]

It is instructive to study the appearances seen in cases in which a simple transverse fracture of the patella has occurred some years previously and in which the fragments have maintained good apposition. It will usually be seen that firm bony union is present; that there is usually no repair of the breach in the central part of the articular cartilage, but that the breach in the lateral portions on either side has been repaired. The adjacent articular cartilage is almost invariably fibrillated. It is probable that the condition we designate "traumatic osteo-arthritis" is in reality a physiological rather than a pathological process.

D. SUGGESTED SCIENTIFIC NOMENCLATURE.

We have already criticized some of the existing nomenclatures and offered the opinion that any attempt to classify the forms of chronic arthritis according to the supposed *nature* of the pathological changes is, owing to the complexity of the latter, undesirable.

Clinical or pseudo-clinical classification leads to great confusion. A satisfactory classification must fulfil the following requirements: it must be simple, scientific, and accurate, and non-reminiscent of mediaeval empiricism. Let us hope that an era will soon dawn when "rheumatism," "rheumatoid," and allied terms will be banished from scientific language. I suggest that the term "chronic arthritis" is simple, scientific, and accurate, since it indicates its inflammatory nature. How, then, are we to differentiate the various types? I suggest that the differentiation should be according to the site of origin, which is also the anatomical site of the principal changes. I may, perhaps, attempt to tabulate as follows:

INTERNATIONAL CONGRESS OF SURGERY.

INAUGURAL SESSION.

THE inaugural session of the sixth triennial meeting of the International Surgical Society took place at the Royal Society of Medicine on Tuesday morning in the presence of H.R.H. the Prince of Wales, the President of Honour. Sir William Macewen, President of the Society, occupied the chair, and the following, in addition to the Prince, were on the platform: The Marquess Curzon of Kedleston (Secretary of State for Foreign Affairs), Mr. Neville Chamberlain, M.P. (Minister of Health), Professor Willems of Liége (President of the International Committee), Surgeon Vice-Admiral Sir Robert Hill (Director-General of the Medical Department of the Royal Navy), Air Commodore D. Munro (Director of Medical Services, Royal Air Force), Sir George Newman (Chief Medical Officer, Ministry of Health), Sir Humphry Rolleston (President, Royal College of Physicians), Sir John Bland-Sutton (President, Royal College of Surgeons), Sir W. Hale-White (President of the Royal Society of Medicine), Sir W. I. de Courcy Wheeler (President of the Royal College of Surgeons in Ireland), Mr. H. J. Waring (Vice-Chancellor of the University of London), Lord Dawson of Penn, Mr. James Berry, Sir Anthony Bowlby, Dr. Leopold Mayer (General Secretary of the International Surgical Society), Dr. Jules Lorthioir (General Treasurer of the Society), Sir D'Arcy Power and Mr. J. E. H. Roberts (Secretaries of the meeting), and Mr. Percy Sargent (Treasurer).

His Royal Highness was received by the President of the Royal Society of Medicine, Sir William Hale-White, and signed the roll of the Society as an Honorary Fellow. He was then received by Sir William Macewen, and several presentations were made. The following national delegates were presented to the Prince:

Dr. Bruce (Canada), Dr. Presno y Bastiony (Cuba), Dr. Zahranicky (Czecho-Slovakia), Dr. Hansen (Denmark), Dr. Petridis (Egypt), Professor Hartmann (France), Dr. Koch (Holland), Dr. Alessandri (Italy), Dr. Nicolaysen (Norway), Dr. de Zawadski (Poland), Dr. Bastos (Portugal), Dr. Bartrina (Spain), Dr. Kayser (Sweden), Dr. de Quervain (Switzerland), and Dr. MacArthur (U.S.A).

The PRINCE OF WALES said that he greatly appreciated the honour of being asked to declare open the sixth triennial meeting of the International Surgical Society, held this year in London under the patronage of His Majesty the King. The meeting was held in a building (that of the Royal Society of Medicine) in which he did not speak entirely as a stranger, because he had just signed the roll as one of the Honorary Fellows of the Society. He recalled that when the Society had met in Brussels, King Albert had shown great personal interest in its success, and opened its first session in 1908. It was a great pleasure (the Prince continued) to welcome these distinguished surgeons to England, the country of Lister, who revolutionized the whole art of surgery by his practical application of the discoveries of Louis Pasteur—a splendid instance of the value of international co-operation in science. (Applause.) He was also very glad to extend a welcome to the last President (Professor Keen of Philadelphia), who, in spite of the eighty-six years he carried so lightly, and the weight of a world-wide reputation, was again amongst them, ready as always to take part in every meeting, social as well as scientific, of that distinguished gathering. He had further to welcome Sir William Macewen, pioneer of surgery of the brain and the bone, who was well worthy of the office of President. Finally, he welcomed once again the many leading surgeons of the world who had come into their midst, and he trusted that further progress in the art of relieving pain and prolonging life might result from their deliberations. (Applause.)

The MARQUESS CURZON OF KEDLESTON said that he had been asked to join in the welcome because this was an international body, and it was fitting that the representative for foreign affairs in His Majesty's Government should have the opportunity of saying how pleased he was that this gathering was being held in London. International meetings, with whatever branch of science or art they might deal, were parts of the great machinery for preserving the energy of the world. In the world of science rivalry might exist; hostility was unknown. There were no such hostilities as he had to deal with daily at the Foreign Office. Those present met on the common platform of an allied interest in the great problems the solution of which made for the benefit of mankind. No doubt in the course of their stay in London the visitors would go to the Houses of Parliament, where daily our legislators were engaged in dealing with the maladies of the body politic. He only wished they could apply to those maladies one-tenth part of the skill, one-hundredth part of the knowledge which surgeons applied to the conditions they had to treat. He described the Foreign Office as the operating theatre of the British Empire; at that moment he himself was applying the scalpel to some of the most unpleasant—he might almost say diseased—conditions of the body politic of Europe. He sympathized with those present in their undertaking; he prayed them to sympathize with his.

Mr. NEVILLE CHAMBERLAIN said that as Minister of Health he rejoiced to meet that gathering. In the whole field of international co-operation there were no more striking results and no more transcendent benefits to the human race than were to be found in surgery. The almost incredible advances made during the last half-century sprung from two great discoveries which were international in character—first of all, the discovery of anaesthetics by Morton, an American, and Simpson, a Scotsman; and secondly, the establishment by Lister of antiseptic surgery based upon the revolutionary researches of the great Pasteur. Upon those two pillars had been reared the whole edifice of modern surgery, and it was impossible to over-estimate the benefits it had conferred upon mankind. One of the rare consolations arising out of the great war was the wonderful advance in surgery in response to the demands made upon it. The conditions were unprecedented, but the response was immediate. The horrors of that great struggle would be gradually forgotten, but it might be hoped that the perfected modes of surgical procedure would remain as a permanent contribution to the relief of human suffering. To anyone who occupied his position there was one thing even more important than the cure of disease, and that was its prevention. To him as a layman surgery appeared essentially preventive in its nature. The State was like a hive of bees—the drones must never be allowed to outnumber the workers. Anyone who by reason of bodily infirmity was not able to make his full contribution to the service of the community was a drone, a parasite, a burden instead of a source of wealth and strength. Surgery was daily converting drones into workers, and thereby placing the community in its debt.

Mr. J. E. H. ROBERTS, F.R.C.S., as British delegate, welcomed the visitors from overseas, and thanked them for the honour they had done British surgery in choosing London as the centre for their sixth international meeting. Although the meeting was held in London, it was the surgeons of the whole of the British Isles who welcomed the visitors, and who hoped to be able to return in some small part the hospitality which had been shown them on previous occasions in Europe and in America.

Professor WILLEMS (Liége), as President of the International Committee, expressed the thanks of the gathering to the Prince of Wales, to the members of His Majesty's Government, and to the members of the British Committee, particularly the Honorary Secretaries, Sir D'Arcy Power and Mr. Roberts, who had taken charge of the organization of the Congress and had arranged for the visitors a cordial and brilliant reception. It was the first time that the International Congress of Surgery had met under the leadership of a surgeon belonging to the country in which the meeting took place. The previous five congresses had been held, three in Brussels, one in New York, and one in Paris, and on each occasion the president had been a foreign surgeon. It was that day the

organisms were isolated. As a precaution the other inmates of the house were inoculated with a *paratyphosus* C vaccine, and, as stated above, no fresh cases of infection arose.

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THE RELATIVE CONCENTRATION RATIOS OF SOME CONSTITUENTS OF THE URINE.

*(Abstract.)**

BY

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THE "filtration-reabsorption" theory of renal secretion states that the glomeruli filter off from the plasma its dialyzable constituents, some of which are reabsorbed, together with water, by the tubules, thus leading to a concentration of the remainder: the former are described as "threshold," and the later as "no-threshold" bodies respectively.[1] If two "no-threshold" substances are present together in the plasma, are filtered off by the glomeruli, and are concentrated in the tubules by the absorption of water, the degrees to which they are concentrated should be the same in each case. The "concentration ratio" is the ratio of the amount present in the urine to that in the plasma (expressed in percentages).[2] The experiments to be described were performed to determine the relative concentration ratios of some of the so-called "no-threshold" constituents of the urine; urea, inorganic phosphate, and creatinine were chosen for this purpose. They are present in a "free" (that is, dialyzable) condition in the plasma, and appear to be equally distributed between plasma and corpuscles *in vivo*, so that estimations made on the plasma give the amounts available for filtration through the glomeruli at that moment. As, however, it has been stated that urea and inorganic phosphate are present solely in the plasma *in vivo*, entering the corpuscles after the blood is shed, unless precautions are taken to avoid injury to them,[3] some preliminary experiments were performed on the distribution of these three substances between plasma and corpuscles in the blood of the cat, since this animal was used for the later experiments. It was found that urea and creatinine were evenly distributed under normal conditions: after injection intravenously, the same even distribution might be found, or there might be more in the plasma, while there was always more inorganic phosphate in the plasma than in the corpuscles after it had been injected into the blood stream.

The experiments on the concentration ratios were performed on decerebrate cats: a solution of the substances about to be examined was injected intravenously, a blood sample taken shortly afterwards, and a further sample after a variable length of time, during which the urine was collected; in some experiments further samples of blood and urine were obtained. The blood samples were oxalated and centrifuged, and the plasma used for the analyses. For calculating the concentration ratio the plasma percentage was taken as the mean of the analyses of the two samples obtained at the beginning and end of the period during which the urine was collected.

It was found that the creatinine was always concentrated to a greater extent than the urea—from two to five times more in the different experiments. This occurs whether the plasma or urinary concentrations vary or remain constant during the course of an experiment. The fact that the results obtained when the plasma concentrations are constant are comparable with those obtained when these concentrations vary, suggests that taking the mean plasma concentration for calculating the concentration ratio introduces no appreciable error.

Comparing the concentration ratios of inorganic phosphate and urea, it was found that the phosphate might be concentrated to about the same extent as the urea, or up to about three times more; but it was always found to be concentrated to a less degree than the creatinine in the same experiment. The degree of concentration seemed to depend directly on the amount of phosphate injected, being greater when the kidney had to remove a larger amount from the blood stream. If the concentration ratio of urea is taken as unity, those of creatinine and inorganic phosphate relative to this as standard can be plotted on a chart, and it is seen that there is a general parallelism between the ratios of the latter two, which possibly depends on the rate of blood flow through the kidney.

The fact that urea, inorganic phosphate, and creatinine may be concentrated to different degrees by the kidneys during excretion is difficult of explanation on the filtration reabsorption hypothesis. If the modification be accepted that the urea is partly reabsorbed in the tubules,[4] these experiments show that the hypothesis must be still further modified to admit of partial reabsorption of the inorganic phosphate also. It seems more probable that the tubule cells secrete these substances independently, according to the requirements of the moment. On the other hand, the facts are consistent with the view that selective reabsorption takes place in the tubules, the fluid absorbed varying in composition at different times. A fairly definite relationship was found between the excretion rates of the three substances in experiments in which several samples of urine were obtained: the factor correlating the excretion rates is presumably the blood flow through the kidney.

The experiments give data for calculating the rate of disappearance of the injected substances from the blood stream, taking the initial blood volume to be 5 per cent. of the body weight. Within two minutes of the completion of the injection, 75 to 90 per cent. of the injected urea and creatinine is no longer to be found in the blood; the loss is most rapid at first, and then the rate slackens until a balance is struck between the concentrations in the blood and in the tissues; the concentration in the blood may now remain fairly constant in spite of excretion in the urine, since the tissues act as a reservoir of the substances in question. The injected inorganic phosphate leaves the blood more slowly, and only about 65 to 80 per cent. disappears into the tissues.

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THE DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

OBSOLETE DIAGNOSTIC CRITERIA.

BY

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ANYONE who wishes to gain a really sound grounding in this subject will be well advised to assign beforehand their true value to certain traditional criteria with which he may have been equipped as a student. There are certain phenomena which frequently occur indeed, but are not pathognomonic in the hour of trial for the purpose of distinguishing between small-pox and chicken-pox. Into this category fall umbilication, shottiness, palatal and buccal lesions, lesions on the sole of the foot, cropping, uniloculation. Not one of these is a real friend in need; and the first four may prove to be very unreliable in the matter of the assistance which they offer.

In my article in the Jenner Memorial Number of the BRITISH MEDICAL JOURNAL, dated July 5th, 1902, on "The differential diagnosis between variola and varicella," the following observations were made: "It is well at once to say that the words 'shotty' and 'umbilicated' are mere broken reeds to lean upon in the matter of diagnosis. The expressions are pernicious in two ways: Their absence in a case suspected to be small-pox is taken as evidence against that disorder, and their presence in a case otherwise suggestive of varicella is held to negative that disease. The words are fetishes, or objects of superstitious worship, which help their devotees as little as do most idols, and

developed lymphocytes. It might have as one of its functions the removal of oxygen from the blood, so preparing it for the action of the liver upon it. While the function of the normal spleen was unimportant, the diseased spleen was a serious menace to the constituents of the blood and to the liver. The action of the spleen might perhaps be biophysical rather than biochemical. It did not initiate the pathological processes in which it was concerned, but acted as a secondary agent. Removal of the organ in the splenomegalous and in certain blood diseases removed a pathological agent or broke up a vicious circle. In the estimation of the benefit to be derived from its removal the entire syndrome of which it was a part must be considered. A chronically enlarged spleen which did not yield to reasonable medical treatment should be removed early unless in the individual case there were contraindications to splenectomy.

SUMMARY OF 504 SPLENECTOMIES.

The number of splenectomies performed in the Mayo Clinic for various conditions up to June 1st, 1923, was 504. All deaths occurring in the hospital are classified as due to the operation, without regard to the length of time following operation, or to the cause of death.

Splenomegalias due to Micro-organisms.—(1) Syphilis, chronic, 8 splenectomies, 1 death in hospital, good results in 7; (2) tuberculosis, 4 splenectomies, 1 death in hospital, good results in 3; (3) pyogenic organisms, 15 splenectomies, 4 deaths in hospital, good results in 6; no patient with septic endocarditis was cured; (4) splenic anaemia, 85 splenectomies, 11 deaths in hospital, good results in the great majority of the remainder. A number of the patients who made good recoveries had typical Banti's disease with advanced portal cirrhosis. Ten patients had gastric haemorrhages during the first six years following operation, and died directly or indirectly from that cause.

Haemolytic Icterus.—Forty-four splenectomies, 1 death in hospital; 40 patients recovered perfectly; 60 per cent. of the patients had coincident gall stones which required operation.

Pernicious Anaemia.—Fifty-seven splenectomies, 3 deaths in hospital, no deaths among the last 38 patients prepared by blood transfusion. The improvement in all was much more prolonged than that following blood transfusion alone. Over 10 per cent. of the patients lived more than 5 years following splenectomy, and over 22 per cent. more than three years following splenectomy. There were no cures, but the abnormal blood picture improved. Splenectomy in pernicious anaemia is justified in only a limited number of carefully selected cases. Elderly patients with advanced conditions and aplastic types of the disease should not be considered for surgical treatment.

Polycythaemia Rubra Vera.—One splenectomy, great improvement; the patient is able to work more than former years.

Haemorrhagic Purpura (Essential Thrombopenia).—One splenectomy, in advanced stage of disease; good recovery.

Splenomyelogenous Leukaemia.—Twenty-nine splenectomies, 1 death in hospital, great temporary benefit in 28. Six are alive and able to work, one more than 6 years following operation. The condition of the blood is improved, but not normal. There is less anaemia and less evidence of toxemia in splenectomized patients.

The 61 miscellaneous cases, many of which had not been accurately classified, were not discussed in this paper.

Dr. Ch. WILLEMS of Liége, (who spoke), and Dr. N. GOORMAGTIGH, of Ghent, next presented their report on the surgery of the suprarenal capsules. The two parts of the suprarenal gland were morphologically, functionally, and embryologically distinct. There were two main groups of suprarenal tumours—those of cortical and those of medullary origin. The speaker would call the first cortico-suprarenalomata. This was better than the term "hypernephromata" which had been first reserved for the tumours of Grawitz and had now spread to include all tumours of cortical origin and even of some formed from medullary tissue. Amongst cortico-suprarenalomata there were:

(1) Simple hyperplasias, which Virchow called "strumae lipomatosae suprarenales."

(2) Cortico-suprenal adenomata, usually very small, well defined, and sometimes formed of clear vacuolated cells, charged with lipoids—clear-celled adenomata, another type was composed of darker cells, sometimes pigmented, situated deeply in the cortex—dark-celled adenomata. These adenomata often underwent cystic degeneration.

(3) Cortico-suprarenal carcinomata. The close connexion of these tumours with the vessels had led certain authors to call them peritheliomata. Their clinical course betrayed their character rather than their histological structure.

(4) Carcinomatous cortical tumours tending towards sarcomatous transformation. Against the cortical group might be placed the tumours of medullary origin. These tumours were of two separate origins and types, for two kinds of tissue existed within the suprarenal medulla. They were (*a*) of sympathetic nervous origin; (*b*) of paraganglionic origin. Of tumours of sympathetic origin there were several types: the neuroblastomata or neurocytomata; the ganglio-neuromata; tumeurs sympathiques melaniques. The tumours of paraganglionic origin were rarer than cortico-suprarenalomata. Histologically these had the appearance of chromaffin tissue; they were essentially innocent and often underwent cystic degeneration. Peyron had called them innocent adenomatous paragangliomata. Only one case of malignant paragangliomata had been described. The cortico-suprarenalomata were by far the most frequent of all these tumours. They were found at any age. The whole group profoundly affected the secondary sexual characteristics. In embryological life they led often to pseudo-hermaphroditism. In babies they led to precocious development of the external genital organs, and in girls to a tendency towards masculinity. In the adult woman the tumours accompanied a progressive masculinization; a beard or moustache might appear, there was shrinking of the breasts, the contour of the thighs became masculine. In man there was testicular atrophy and swelling of the breasts. More frequently these cortico-suprarenalomata showed less definite symptoms, they remained latent and could not be palpated. In infants orbital metastases showed an oedema or palpebral ecchymoses, often thought at first to be due to trauma. In the adult the metastases showed a remarkable predilection for bone. Little intracranial adenomata were often only found at autopsy. Neuroblastomata were congenital or found only in infants. They were frequent and malignant. Ganglio-neuromata were much rarer and appeared at any age. They were not accompanied by any special symptoms and in children often gave metastases in the liver and in the lymphatic glands. Paragangliomata were generally found at autopsy. Only the laborious progress of endocrinology would elucidate the symptoms of these tumours.

Whatever might be the opinion of the physiologists as to the signification of adrenaline in the physiology of the suprarenal, the clinicians continued to admit the suprarenal insufficiency resulting from a total deficiency in the suprarenal functions, and not a deficiency of adrenaline alone. Moreover, the syndrome of Sergent-Bernard presented an acute form, corresponding to the destruction of the glands, and a lighter form which corresponded probably to partial lesions and was still a matter for controversy. The acute form had the appearance of an intoxication, while the chronic form presented as principal symptom the hypotension and the asthenia. This syndrome showed the alteration of the gland without giving any information as to the nature of this alteration. The extirpation of one of the healthy suprarenals, with the idea of lessening the amount of suprarenal substance, had been performed, especially for epileptic fits, according to the opinion of some physiologists who think that these convulsions do not depend upon the nervous central system, but upon the endocrine glands. The results obtained were interesting, but the problem was far from being solved. The removal of the suprarenal gland had also been performed in cases of hypertension, so as to reduce the suprarenal functions. Of the two ways which had been used for the extirpation of the healthy suprarenal, the transperitoneal one was not the widest, in spite of its appearance. The retroperitoneal way, according to the technic of the speaker, was more advisable, being more accurate and giving the required view.

Mr. PERCY SARGENT discussed pituitary surgery. He would, he said, try to point out the lessons he had learnt from personal experience. What might an operation be expected to do? It might (1) bring about some change in the secretion of the gland and so relieve symptoms due to disordered metabolism; (2) relieve symptoms due to pressure of an enlarged gland upon neighbouring structures, particularly the optic nerves and chiasma; (3) relieve symptoms of increased intracranial pressure. The activities of the gland might be affected by functional disturbances of obscure origin as in acromegaly; by being the seat of hyperplasia or neoplasm; by injury; by adjacent growths, or by pressure of intra- or extra-ventricular cerebro-spinal fluid. Surgical intervention upon the function of the gland had had little success. The surgeon could do more by relieving local pressure. "Removal" in speaking of the pituitary meant partial removal. Removal then helped the symptoms. Visual deterioration and the headache, whether "bursting" or more ordinary in type, became less marked. Simple temporal decompression relieved the intracranial pressure. The causes of failure, in his experience, were:

1. Errors of diagnosis leading to misdirected operations.
2. Massive intracranial extension of the tumour rendering the case unsuitable for any operation save a palliative decompression.

resection of the ulcer and gastro-enterostomy, as opposed to pylorectomy, which he reserves for special cases. On the whole, we believe he is on solid ground here. The section on the biliary system is good, and includes an account of his own ingenious and very successful operation for repair of the common bile duct.

One of the most valuable sections of the book is that on visceroptosis. It is becoming increasingly but very gradually clear that visceroptosis is not an affection remediable by surgical means. Many devices have been sought to combat it—divisions of bands and dissections of membranes on the one hand, fixations on the other, colectomies and short circuits. All are destined to one inevitable end. There is the first deceptive improvement, eagerly looked upon by both surgeon and by patient as a cure, and then the customary relapse. This is not to say that these patients should not be explored. Medicine is not a finite subject, so that one may know always and without exception that a patient has or has not a definite disease. And once the abdomen is opened the desire to do something for one's patient leads the surgeon on to perform someone's operation or devise a new one of his own. But it is well that the temporary value of such things should be known.

Mr. Walton has covered a wide field, and that with credit to himself and to British surgery. His views are essentially sound views, and he is not led by false enthusiasms. The book, we think, might have been shorter, and perhaps in future editions Mr. Walton may ruthlessly cut it down. But to the author who is proud and jealous of his work curtailment is the hardest task of all. Medicine, too, is at a disadvantage over the arts in that a certain amount of repetition is essential. The post-graduate is a "dipper"; he does not read a book from cover to cover save rarely. And the unfortunate author has to guard himself against the attacks of his readers. There is an excellent bibliography.

VENEREAL DISEASE IN THE AMERICAN EXPEDITIONARY FORCES.

IN this book, *Venereal Disease in the American Expeditionary Forces*,[2] Dr. GEORGE WALKER, late Colonel Medical Corps, U.S.A., gives a graphic and extremely illuminating account of the various measures taken by the Urological Department of the American Armies to prevent venereal disease among the troops and to treat it when it occurred. Great reliance was placed on what the author describes as "Prophylaxis." Disinfection at a "Prophylactic" station of the individual after exposure, and self-disinfection by the man himself by means of an outfit previously supplied, are both described in this work as "Prophylaxis." Interesting statistics are furnished as to the number of times such treatments were given, and of the number of infections afterwards noted. He comes practically to the same conclusions with regard to the value of "disinfection" of both kinds as the Committee which lately sat in this country under the chairmanship of Lord Trevethin—namely, that "skilled disinfection" at a station is by far the most effectual, but that "self-disinfection" properly and promptly carried out by a well instructed and sober individual gives also a certain measure of protection. The problem which faced the Medical Department of the American forces was indeed a vast and grave one. After the first troops landed at St. Nazaire the infection rate was 240 per thousand per year among the white and 625 per thousand per year among the coloured forces. Very stringent measures were enforced. Brothels were put out of bounds, and prophylaxis (skilled disinfection) insisted on; in the case of the negroes every man on his return to camp was disinfected, whether he had been exposed to infection or not. The result was that the number of cases of disease soon diminished. At many other stations and ports the infection rate, though not as high as that just given, was high enough to cause grave anxiety. In addition to "prophylaxis," other salutary and energetic measures were taken, First, extensive and intensive education. Secondly, places which served as rendezvous were put out of bounds. Thirdly, sources of infection were traced and removed. Fourthly, recreation and amusement for the soldiers were provided. Fifthly, means were taken to lessen the opportunities for the association of the Americans with the French population; and, sixthly, the use of alcohol was restricted. All of these measures were carried into effect as far as possible, and the final result, at the end of the war, was that though it was computed that 71 per cent. of the forces exposed themselves to the risk of infection, the case rate of venereal disease was only 35 per 1,000 per year. Many difficulties were encountered in carrying out this campaign, and also obstruction on the part of some French authorities and some American officers, but the success which rewarded the efforts made is an ample justification of the judgement of the American Urological Department. The horrible conditions obtaining in the "tolerated" houses and among the registered prostitutes are mentioned, and the periodical so-called examinations of the unfortunate women is stated to be quite useless. These examinations, as at that time conducted, were considered to be infinitely more likely to spread disease than diminish it. The chapters on treatment are full and interesting. The statistical tables throughout the book are very complete. The author also discusses the question of venereal disease in the other allied armies and the civilian population, and all he has to say on these subjects is well worth reading. It is evident that much can be done both in the way of prevention and cure when men are under discipline and the medical officers capable and energetic.

ASTHMA.

MR. FRANK COKE's recent book on *Asthma*[3] shows the change that has taken place in the etiological conception of this condition—namely, that it is the outcome of hypersensitiveness to a foreign protein—and how its modern treatment has altered in accordance with this interpretation. The therapeutic methods are indeed more novel than the etiological views, and Mr. Coke rightly quotes from Hyde Salter's remarkable book published in 1868 to show that the latest work on sensitization to animal hairs and the dermal reaction were anticipated by him. The development of the rational treatment of the affections, aptly termed the toxic idiopathies by Dr. John Freeman, has been a growth of quite recent years, and owes much to him and to I. C. Walker of Boston, Mass. Mr. Coke gives an account of the results obtained in 350 cases of asthma examined and treated on these lines, and recalls the papers by him published in our columns (1921, i, 372) and elsewhere. Although he defends his definition of asthma as "a form of dyspnoea in which the obstruction to respiration lies in and about the bronchi and bronchioles" from the objection that it is too broad, Dr. A. F. Hurst's definition, which is not quoted, as "the reaction of an over-excitable bronchial centre to blood-borne irritants and to peripheral and psychical stimuli" would appear to meet the case better. With apologies for its hybrid character, Mr. Coke suggests the new word "adzyme" to describe "some factor in the blood or tissues responsible for the process whereby an animal becomes sensitive to a foreign protein"; he thinks that it may be convenient until more definite knowledge of the whole syndrome of sensitization and anaphylaxis makes it possible to construct a better one. He imagines that when only small quantities of protein enter the body neutral adzymes deal with them, but that when larger quantities gain an entrance specific adzymes are evolved with the power of acting on or simply uniting with the protein to form a poisonous combination (anaphylatoxin) which causes anaphylaxis; it is suggested that "its method of action is rather by a colloidal change of adsorption than by a proteolytic change in the foreign protein such as can be measured against tryptic and antitryptic valencies." Anaphylaxis and asthma are compared, but the general

[2] *Venereal Disease in the American Expeditionary Forces.* By George Walker, M.D., late Colonel Medical Corps, U.S.A. Baltimore, Md.: Medical Standard Book Co. 1923. (Demy 8vo, pp. xxiii+237; 7 charts.)

[3] *Asthma.* By Frank Coke, F.R.C.S. Bristol: John Wright and Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1923. (Demy 8vo, pp. viii + 259. 15s. net.)

Lieut.-Colonel A. Murray asked how many of the 409 persons known to be suffering from small-pox in the four weeks ending June 30th were vaccinated at birth, and/or were vaccinated at a later period. Mr. Chamberlain stated that information was at present available in only 227 of the cases. This information was as follows, the particulars being subject to revision:

Unvaccinated...	183
Vaccinated in infancy including 2 suspected cases ...	31
Vaccinated later—	
After infancy and before exposure to infection ...	1
After exposure to infection	3
Revaccinated	2
Stated to have been vaccinated but showing no cicatrix of vaccination	2

In answer to Mr. Bromfield, Mr. Chamberlain said that the organism of vaccinia had not yet been isolated. He was advised that the efficacy of the lymph issued from the Government lymph establishment was judged by the usual laboratory tests for purity and its effect as reported by public vaccinators. The Government lymph used during 1922 for 254,000 cases of primary vaccination gave a percentage success of 99.4.

In answer to Mr. Leech, Mr. Chamberlain supplied the following table showing in a series of years the increase in the percentage of exemptions from vaccination and the number of cases of small-pox.

Year.	Percentage of Exemptions.	Cases of Small-pox	Year.	Percentage of Exemptions.	Cases of Small-pox.
1912	32.1	111	1917	37.9	7
1913	37.2	113	1923	37.5	63
1914	32.5	65	1919	40.1	311
1915	35.8	93	1920	40.4	280
1916	38.0	159	1921	45.0	356

Mr. Chamberlain stated on another question that the number of cases of small-pox notified this year up to June 30th was 1,225. A fatal case occurred at Gloucester on July 8th in an unvaccinated child. As was the case with other infectious diseases, errors in the initial diagnosis of small-pox had occurred in some instances, but the notification returns were corrected from time to time by the omission of those which had been found to be cases of chicken-pox and the addition of others originally diagnosed as chicken-pox but subsequently found to be cases of small-pox.

Ministry of Pensions.

A large number of questions with regard to matters arising in connexion with the work of the Ministry of Pensions were answered by the Minister last week. In reply he furnished information on the following points:

Steps have been taken to clear up doubts as to the exact effect of decisions by Assessment Appeal Tribunals. An explanatory note is to be included in the forms giving the decisions whereby these bodies set aside final awards. On June 30th the number of cases awaiting hearing by the various regional tribunals was: Scotland, 417; Northern, 289; North-Western, 1,007; Yorkshire, 551; Wales, 394; West Midland, 763; East Midland, 225; South-Western, 522; London, 1,716; Ulster, 356; and Ireland (South), 443. The number of appeals under Article 9 of the Royal Warrant received in six months ended June 30th was 16,969.

The Final Tribunals for assessment (which did not begin work until June, 1922) had decided 13,023 appeals up to the end of that year. Of these the assessment was increased in 2,500 cases and lowered in 22. The final award was set aside in 2,500 cases and the appeal disallowed in 8,000 cases. Cases of entitlement are referred to headquarters from the region only when they present special features of difficulty. In no case was entitlement cancelled on medical grounds whether in the region or at the headquarters of the Ministry except upon the advice of a medical board (usually with a specialist on it) which had seen and examined the man. Special Boards (not Re-survey Boards) are directed to satisfy themselves finally as to the correctness of entitlement. A review of entitlement might result in a change favourable to a man or the reverse. Thus in a recent fortnight's work there were 66 cases in which entitlement was changed to the advantage of the men from "aggravation" to "attributability" as compared with 45 in which the change was in the converse direction. In every such case the man had the right of appeal to the Independent Appeal Tribunal. During the two years ended June 30th, 1923, entitlement was corrected on the advice of medical advisers from "attributability" to "aggravation" in 13,000 cases, or 1 per cent. only of all the cases dealt with in recent years.

When it was certified by the medical officer of the Ministry that the nature of a treatment was such as to prevent the man from providing for his own support and the support of his family, treatment allowance would be paid.

In Scotland pensioners suffering from neurasthenia are treated at Edenhall and Craigleith. At both places there are facilities for occupational training. About 10 per cent. of the patients discharged were cured and about 60 per cent. materially improved. The total number of persons at present receiving treatment for war neurosis is about 6,900; the accommodation is ample and there is no waiting list.

Maternity and Child Welfare Services.—In a lengthy tabular statement furnished to Captain W. Benn, on July 12th, the Ministry of Health has analysed the expenditure on maternity and child welfare services. In 1921–22 the expenditure for medical supervision generally (including attendance at centres) was met by two equal contributions of £57,296 each from Parliamentary votes and from the rates. This compares with similar contributions of £38,047 from the two sources for the year 1920–21, and it 1919–20. The [illegible] food for expectant and nursing mothe[illegible] years of age was covered in 1921–22 by [illegible] of £157,330 from Parliamentary votes and from the rates. These figures compare with £183,619 for the year 1920–21 and with £31,824 for the year 1919–20. The total net cost (met by Parliamentary votes and the rates) of the school medical service and the provision of meals for school children came out for the year 1922–23 at £1,279,562 for school medical services and £357,413 for meals.

Private Patients in Poor Law Asylums.—Mr. Hayday asked, on July 11th, by what authority the London County Council, through its asylum regulations, had interferred with the right guaranteed to a petitioner by Section 72 of the Lunacy Act, 1890, to direct the discharge or transfer of a private patient from a pauper asylum by exacting four weeks' payment if the patient was taken away, whereas in institutions for the rich the provisions of the Section were punctiliously carried out and the petitioner was allowed to leave at once on the legal directions given by his petitioners. Mr. Chamberlain said that inquiry was being made by the Board of Control.

Medical Aid Societies.—Mr. Clarry asked, on July 11th, if the Minister of Health would frame regulations whereby a friendly society or group of societies might form medical aid departments to supply medicine and surgical appliances to their members. Mr. Chamberlain said that the object desired could not be secured without amending legislation of a controversial character which he did not see his way to introduce.

Lead Poisoning.—On the Home Office vote, on July 12th, Mr. Godfrey Locker-Lampson (Under Secretary) explained the position as to the recommendations of the Geneva Conference to meet the risk of poisoning by the use of white lead in paint. The Conference, which met in 1922, agreed on a number of regulations to apply not later than January 1st, 1927; the matter was further investigated in 1923 in order that legislation should be introduced by various countries to carry into effect the agreement. It then appeared that a misunderstanding had arisen about one of the principal agreements under the Convention—namely, as to the proposed prohibition of the employment of women or young persons under 18. Apparently a good many of the members at Geneva thought that the article referred only to the painting of houses. Others declared that it referred to the whole of industrial painting. Until that point had been cleared up it was difficult for this country to agree to the ratification of the Convention. Recently, however, a new process involving the use of wet sandpaper had been invented by which the dangers arising from dry rubbing down could be prevented. Some people, however, said that if this sandpaper was used the dust was turned into a wet paint which clung to the hands and was dangerous. It was necessary that further experiment should be made with a new material before a decision was reached.

Intoxicating Liquor (Sale to Persons under 18) Bill.—This measure, introduced by Viscountess Astor, obtained its third reading in the House of Commons on July 13th by 257 votes to 10. It provides that intoxicating liquor shall not be sold for consumption to any person under the age of 18 subject to the qualification that beer, porter, cider, or perry may be sold to a person over the age of 16 for consumption at a meal on such portion of licensed premises as is set apart for the purpose. It should be added that the age is not absolutely a matter of birth certificate; the section lays down that a licence holder shall not "knowingly sell" to a person under 18.

Answers in Brief.

Owing to the reduction in the number of cases of infectious disease in London, further admissions to the Brook Fever Hospital at Shooters Hill are being stopped for the present, but the hospital will be reopened as soon as needed.

The Minister of Agriculture is considering whether it would be practicable to give effect to the recommendations of the Departmental Committee for a legal minimum standard of quality applicable to whole-milk cheese and cream.

The number of inquests held in the County of London in 1922 was 5,015. Of these 6 deaths were reported by coroners under the collective headings of "Deaths from disease aggravated by want, exposure, or self-neglect." Mr. Bridgeman added that deaths from exposure or self-neglect were not always due to destitution, and the returns do not show which, if any, of these 6 cases were attributable to destitution.

The number of deaths from tuberculosis in England and Wales during the year 1921 was 42,678; during the year 1922 it was 42,717.

Mr. Chamberlain is giving attention to the lack of clean and well-ventilated milk vans on certain railway lines, as reported by the Departmental Committee on the Distribution of Agricultural Produce, and is asking the Minister of Transport to bring the recommendation of the Committee under the notice of the railway companies.

Special provisions as to the precautions to be taken to prevent the spread of infection through the use of library books are contained in Section 59 of the Public Health Acts Amendment Act, 1907, and that Section may be put in force in any district on the application of the local authority. The Minister of Health does not think it necessary at the present time to issue any special instructions to local authorities.

At the end of March 1,345,634, or 355 per 10,000 of the population of England and Wales, were in receipt of Poor Law relief. This is exclusive of special classes, such as lunatics in asylums.

Lord E. Percy informed Sir Walter de Frece, on July 16th, that it is within the powers of guardians, on the advice of the medical [illegible] to pay for the supply of insulin in cases of destitution.

NOTES ON BOOKS.

DR. BERNHARD-SMITH, in his book *Poisonous Plants of all Countries*,[6] gives short descriptions, accompanied by small line drawings, of the chief poisonous plants of the world. About a dozen lines are devoted to each plant and the botanical names, the common names, and the chief botanical characteristics are mentioned. We are not sure for what class of reader the book is intended; it is too small to be of much use for general reference, and the line drawings are not sufficiently detailed to be of much use for identification. The plants are classified according to their pharmacological actions under the headings of poisons acting on the brain, on the spinal cord, on the heart, irritants, and specific irritants. This classification results in hemlock, Calabar bean, jaborandi, and ipecacuanha being grouped together as cardiac depressants, while aconite, laurel, and digitalis are grouped as asthenics. We suggest that an alphabetical or botanical classification would be simpler and would produce fewer surprises. Short poetical quotations under each plant are an interesting feature of the book, but unfortunately the application of many of these is rather forced, and in some instances they are perverted from their original meaning. For instance, a quotation from Swinburne's *Garden of Proserpine*, which commences

> "But blooming buds of poppies,
> Green grapes of Proserpine,"

is made to serve for black bryony by the deletion of the first line.

DR. WILHELM STEKEL'S book on fetishism, for medical practitioners and criminologists,[7] forms the seventh instalment of an immensely long work on disturbances of the impulses and emotions, of which mention was made in the JOURNAL of April 15th, 1922 (p. 607.) The characteristic traits of fetishism are said to be the suppression of active sexuality in both sexes, psycho-sexual infantilism, and in most cases a disposition to accumulate large numbers of his fetish (articles of clothing, hair, flowers, etc.). A tendency to experience again certain infantile pleasures leads to fugues, kleptomania, and exhibitionism. Fetishism is regarded as a compulsion neurosis, which also gratifies the subject's ascetic tendencies. The impulsive actions are carried out in a sort of twilight state, and the fetishist is a day dreamer who fails to realize the differences between reality and dreams. In all cases there is a criminal element (sadism). After all this and much more, it is not surprising to be told that the symbolism of fetishism can only be explained by psychoanalysis. The book contains lengthy descriptions of cases from the practice of the writer and others, some of whom seem to be called sexuologists. How many persons will set out to read this work and how many who make the attempt will thereby be benefited are matters on which we will not speculate.

Since Jules Verne novelists have rather eschewed scientific sensations, but so much has been published in the daily papers about the prodigious store of energy that would be set free by the disruption of the atom that the shrewd reader will make a guess that it provides the plot of a novel entitled *Atoms*,[8] by T. C. WIGNALL and G. D. KNOX. The idea is worked out ingeniously and the possible consequences described in sufficiently lurid colours to satisfy the most insatiate lover of sensation; if the authors have to indulge in some didactic conversations they contrive a thrill in every chapter, and each thrill is skilfully made to arise out of the astonishing speculations and calculations of modern physicists. It is a good book for an idle afternoon, and the reader will be relieved that the worst did not happen.

[6] *Poisonous Plants of all Countries.* By A. Bernhard-Smith. Second edition. London: Baillière, Tindall, and Cox. 1923. (Cr. 8vo, pp. xii + 112; 165 figures. 6s. net.)
[7] *Der Fetischismus. Dargestellt für Aerzte und Kriminalogen.* By Dr. Wilhelm Stekel. Berlin and Vienna: Urban and Schwarzenberg. 1923. (Sup. roy. 8vo, pp. viii + 601; 54 figures.)
[8] London: Mills and Boon. 1923. (Cr. 8vo, pp. 288. Price 7s. 6d.)

BEIT MEMORIAL FELLOWSHIPS.

THE following have been elected to Beit Memorial Fellowships:

Senior Fellowship, value £600 per annum: Dr. David Keilin, fourth year Fellow working under Professor G. H. Nuttall, F.R.S., at the Molteno Institute for Research in Parasitology, University of Cambridge, on the life-history of parasitic protista and on the physiology of parasitic metazoa.

Fourth Year Fellowship, value £400 per annum: Miss Katherine Hope Coward, D.Sc., now working at the Biochemical Laboratory, Institute of Physiology, University College, University of London, on an investigation into the process of metabolism, nutrition and growth of young animals, particularly with reference to so-called deficiency diseases, such as rickets.

In view of the high attainments of the candidates for junior fellowships the trustees decided to award ten fellowships instead of six, and the following were the successful candidates:

John Maurice Hardman Campbell, Senior Demonstrator of Physiology at Guy's Hospital.

Charles George Lambie, Lecturer in Clinical Medicine, Edinburgh University, and Assistant Physician to the Royal Infirmary, Edinburgh.

William Kershaw Slater, who is in receipt of a grant from the Medical Research Council for research work on the heat of combustion of glycogen.

Dorothy Stuart Russell, Pathological Assistant, London Hospital.

Corbet Page Stewart, University Assistant in Medical Chemistry, Edinburgh University.

Harold John Channon, engaged on the study of certain fundamental dietary factors in the nutrition of living organisms.

William Smith, Junior Demonstrator in Biochemistry Classes, Cambridge University.

Lewis Bland Winter, Junior Demonstrator in Biochemistry Classes, Cambridge University.

Dorothy Beatty Steabben, Demonstrator in Physiology and Histology at King's College, London.

Cedric Stanton Hicks, Otago University, New Zealand, Public Analyst for Otago and Southland Provinces, and Chemical Pathologist and Assistant General Pathologist, Otago Medical School.

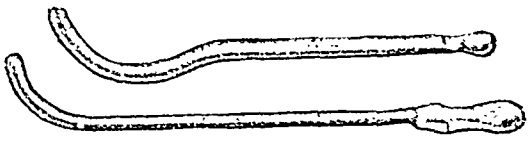
MEDICAL AND SURGICAL APPLIANCES.

A Resetting Case for Clinical Thermometers.

MESSRS. G. H. ZEAL, LTD., of 77, St. John Street, E.C.1, manufacturers of thermometers, have produced a resetting case for clinical thermometers to which they have given the name Acello. It is an ingenious little instrument, larger than the ordinary thermometer case, but small enough to go into the waistcoat pocket. The case containing the thermometer can be revolved rapidly between a small swivel handle held by the fingers of one hand, and a long handle, working on a screw shaft jointed to the case, held by the fingers of the other hand. The instrument will easily reset the most obstinate thermometer, and is likely to be useful especially to a patient who has to take his own temperature. The price is 2s. 6d.

Urethral Bougies.

MR. BERNARD WARD, F.R.C.S. (Consulting Surgeon, Queen's Hospital, Birmingham), writes: For several years past I have used with advantage urethral bougies considerably shorter in the beak than those usually employed, and Messrs. Arnold and Sons, of 50-52, Wigmore Street, W.1, have recently made some for me. They have a short beak; are graduated from the point to the convexity



of the curve in English, and in the corresponding Charriere scale. The advantage of these bougies is that in the ordinary treatment of a stricture I find they are more easily passed than the usual type. It is rarely necessary to pass them so far that the tip of the bougie goes beyond the membranous urethra; the advantage of this will be at once obvious. The same firm have also made for me a set of bougies with a Benique curve, which are also much shorter in the beak than the usual pattern. In use I find them extremely satisfactory.

An Aid to Ophthalmoscopy.

DR. D. N. HARDCASTLE (Bushey) writes: Last year, after having used an ordinary electric ophthalmoscope for some time, I found that if the light was sufficiently powerful to see the disc in an ordinary room, there was a haze round the slot in the mirror and also from the transverse beam. I tried various forms of mirrors—glass, steel, and silver—but could not obviate this haze and back light from the slot. I then tried building a small hood round the slot, but found this interfered somewhat with the vision. As a last resort I decided to try a glass prism slotted. Messrs. George Spiller, Ltd., have produced a small silvered prism with a slot for vision, and with this have made an ophthalmoscope from which there is no back light or haze, so that the light can now be much stronger and a good view of the disc obtained in full daylight.

A Two-Loop Button Suture.

DR. J. B. PIKE (Loughborough) writes: In the JOURNAL of June 9th, p. 969, I saw a description of a button suture to include two layers of tissue. In June, 1906, I described and illustrated in the *Lancet* a double-loop suture with a similar object, and I think somewhat simpler. It was stated at the time that the method had been used in Australia and by Professor Senn of Chicago. The only English surgeon who has mentioned the use of this suture is Mr. Sampson Handley. Personally I have often found it useful.

Scotland.

WESTERN ASYLUMS' RESEARCH INSTITUTE.

THE thirteenth annual report of the Scottish Western Asylums' Research Institute for the year 1922, presented by Dr. William Whitelaw (Superintendent of the Institute), deals with several lines of investigation into the physical basis of mental disease that are being carried out. The Institute is situated at 10, Claythorn Road, Glasgow, and is supported by a group of asylums, district boards of control, and parish councils in the West of Scotland. As regards routine work 1,200 specimens, 340 samples of blood for the Wassermann reaction, and 110 specimens of cerebro-spinal fluid for this and other reactions have been examined. An important piece of work in 1922 was the investigation of two serious outbreaks of infectious intestinal disease among inmates of two of the associated asylums. These outbreaks were both found to belong to the enteric group of diseases, and each was due to a patient who was an unrecognized carrier. After the discovery of these carriers there were no further cases in either institution. The treatment of general paralysis of the insane during periods of remission in selected early cases, by methods which have been recently advocated, is being attempted. In another class of cases associated with infective conditions, autogenous vaccines have been tried in some instances, and in others an attempt has been made to change the organismal content of the bowel by giving milk soured with the *Bacillus acidophilus*. It has been found that these patients have improved in general health but that they have not shown any mental improvement. Another line of investigation has been made into the bodily changes accompanying strong emotional states such as fear and anger. It has been found that such cases show an increase of blood sugar. The report contains an appeal for material from cases dying with dementia praecox as the changes in the nervous system in this condition are under investigation.

EDINBURGH RECTORIAL ELECTION.

It is now officially announced that Lord Buckmaster has accepted the invitation of the Edinburgh University Students' Liberal Association to stand as Liberal candidate at the Rectorial election in October next. His opponents are the Right Hon. Stanley Baldwin, Prime Minister (Unionist), and the Hon. Bertrand W. A. Russell (Labour).

AMENITY OF EDINBURGH.

An important addition to the health-giving open spaces of Edinburgh has been made by the acquisition of Duddingston Loch, the large sheet of water which adjoins the King's Park and lies at the southern base of Arthur's Seat. The loch and its shores have been purchased for £3,500 by Mr. W. H. Askew, of Ladykirk, Berwickshire, and handed over to the Office of Works on behalf of the public; the arrangements have been carried out by *The Scotsman* newspaper. The donor of the loch, Mr. W. H. Askew, is a retired London stockbroker, and comes of an old Northumbrian family, the Askews of Pallinsburn. The family are descended from two well-known physicians, Dr. Adam Askew, called the Northumbrian Radcliffe, who practised in Newcastle and died in 1773; and his son Dr. Anthony Askew who was physician to St. Bartholomew's Hospital and Registrar of the Royal College of Physicians of London from 1767 until his death in 1774, leaving six sons and six daughters.

Ireland.

QUEEN'S UNIVERSITY OF BELFAST: GRADUATION CEREMONIES.

THE Graduation ceremony of Queen's University took place on July 10th in the Assembly Hall, Belfast, when the Marquis of Londonderry, K.G., Minister of Education in Northern Ireland, inaugurated his term of office as Chancellor, to which office he was recently elected by the Council, by presiding and conferring the degrees. In his opening address he referred to his predecessors, Lord Shaftesbury, who had been nominated in the Charter of the University in 1908, to Right Hon. Rev. Thos. Hamilton, the Vice-Chancellor and President of the College; to Dr. J. A. Lindsay, M.D., F.R.C.P.Lond., Professor of Medicine; and Mr. Thos. Sinclair, M.D., F.R.C.S.Eng., Professor of Surgery, all of whom were now retiring; and whose loss to the University was deeply and widely felt. They had all served the College and University in their several capacities with devotion and distinction. As regards the relation between the State and the University he took this the earliest opportunity of assuring his hearers that he held the view that the autonomy of the universities must be preserved; and that anything in the nature of State interference or control was very much to be deprecated. In the midst of a busy commercial centre such as Belfast the importance of an independent university could hardly be exaggerated. The value of research and the pursuit of learning for its own sake was emphasized. The Chancellor, the Speaker of the House of Commons of Northern Ireland (the Right Hon. Hugh O'Neill), and Sir Havelock Charles, Sergeant-Surgeon to H.M. The King, received honorary degrees of LL.D., which were conferred by Sir Samuel Dill, Pro-Chancellor. Some seventy-six candidates received the M.B. degree.

In the afternoon Sir William Whitla, M.P. for the University in the Imperial Parliament, and Lady Whitla gave a reception in the University grounds; some eight hundred guests accepted invitations to meet the Chancellor and honorary graduates. The weather was ideal, and everything was done to provide for their comfort and enjoyment. Some excellent music was given by the band of the Royal Ulster Constabulary, and the hosts gained the warm thanks and gratitude for their delightful and well-timed hospitality.

MEETING OF CORK MEDICAL PRACTITIONERS.

At a meeting of Cork medical practitioners the following resolutions were passed:

(1) That the committee of Cork medical profession protest against the Government introducing any medical legislation without consulting the elected representatives of the Irish medical profession.

(2) That we strongly support the Irish Medical Committee in any action they may take in this matter.

Correspondence.

INSULIN IN GENERAL PRACTICE.

SIR,—I do not think the medical profession realize as yet the full economic possibilities of insulin.

The consensus of expert opinion seems to be that its usefulness is confined to tiding patients over such crises as may arise, and that on account of its cost its continued use is only for the very rich or the very poor. That perhaps is true if one aims solely at the ideal of so correlating the dose of insulin with the diet that the blood sugar never rises at any time above 0.15.

As an experiment I determined to give my poorer diabetic patients an amount of insulin per day commensurate with their means. After working out their blood sugars I gave them the dose of insulin they could afford—varying from 5 units minimum to 20 units maximum per day. The smallest dose (5 units) was given before one meal; doses of from 15 to 20 units were given in equal portions before two meals. At the present reduced price of insulin these doses range from 10d. to 3s. 4d. a day.

The result of the experiment has been surprising. All patients have gained weight, have resumed work, or where they were working short time are now working full time. It was clearly brought out that a normal blood sugar is not necessary for an amelioration and ultimate disappearance of symptoms such as polyuria, thirst, lassitude, neuritis, etc.

Case A.—Man aged 34. Symptoms—thirst, dry mouth, polyuria, and neuritis so severe that for the past seven years he has slept with his feet stuck out from under the bedclothes and has had a nightly dose of morphine. For the past two weeks he has had 10 units of insulin before breakfast and before the evening meal. At 8.25 a.m. before breakfast his blood sugar is 0.6, thirty minutes after breakfast it is 0.2, one hour after breakfast it is

Education and After-Care.

Passing next to the therapeutic aspect of the educational methods employed at Alton, Sir Clifford said:

"At Alton education means a drawing out of all the latent faculties of the patient, an experience that in itself, apart from the manner of doing it, is life and joy; a reanimation of body as well as of mind. As somebody said, 'What is the good of an airy house if you have a stuffy mind!' Now we are all materialists enough to admit that mind and body cannot be separated; that one cannot exist without the other; a pianist without a piano is a pianist no more. By mental activity the body also is aroused; higher spirits begin to course along the veins; affections are warmed; hope returns, and the little sufferer begins to feel that at last he too is somebody. Great is the medicine of happiness. It seems probable that not only is the nervous system thus aroused, but also that our wireless endocrine system submits to influences which in the organic life are no less powerful.

"In two ways the work at Alton may be aided: first, by sending early cases, and second, by following up patients after discharge, that the permanence of the cure may be attested and any tendency to relapse checked in time. There are good grounds for hoping that the cures may number 95 per cent. And I would add—let us see that the return home may not be to bad conditions of life, such as probably ministered to the disease; to insufficient food, insanitary houses, low habits of life, and so forth. Greatly to amend these conditions is beyond our individual efforts; but we may do, each one of us, a little by incessantly pressing these needs upon the minds of the leaders of the nation. Indeed, we need not be despondent; much has been done already, although much more lies on the public conscience for future harvesting. . . . And in speaking especially of Alton, may I play on an old string of mine, nay on two: First, may I rejoice in the remarriage of surgery and internal medicine, the divorce of which has been one of the chief banes of Medicine during long periods of its history; and secondly, on the establishment at last in my own university of an Institute for Comparative Medicine in which the study of the diseases of many kinds of animals will throw mutual lights upon those of each; as you know tuberculosis is a disease common to man and many animals."

THE CLIMATE AND REST METHOD.

A warm vote of thanks was accorded to Sir Clifford Allbutt, on the motion of the Medical Superintendent, Sir HENRY GAUVAIN, and the visitors then went on a tour of inspection of the wards and other departments of the hospital. The afternoon was fine, and a very large proportion of the children were receiving the open-air and sun treatment on the balconies which communicate with the wards. Care is taken by the use of movable screens, and in other ways, to avoid blistering; and, by means of such occupations as basket-making, the children's minds are diverted from the fact that they are undergoing a course of treatment. Constant attention to detail is needed in carrying out this form of conservative therapy, both general and local, which may be described in brief as the "climate and rest method." Besides the treatment and education of its child patients, the institution gives technical training in workshops to crippled lads between the ages of 14 and 18 for whom nothing further can be done medically. The majority of the children under treatment are cases of tuberculous hip disease; those with active spinal caries are nursed on special stands designed and made on the premises. An interesting part of the hospital is the plaster room and splint department; nearly 1,000 non-inflammable celluloid splints are put up in the course of each year. One ward in each of the two fan-shaped medical blocks is set apart as an observation ward, where every new patient on admission is kept in quarantine in a separate cubicle for at least a fortnight. During this period the patient is fully investigated, medically and from the educational aspect, and splints are prepared.

The bright eyes, bronzed skin, and firm flesh of these children speak eloquently in favour of the sun cure when judiciously applied in appropriate cases. Every kind and degree of pigmentation can be observed on their bodies as they lie out in the sunshine, naked but for a sun-hat, a loin-cloth, and (in most cases) a splint.

Members of the British Medical Association attending the Annual Meeting next week at Portsmouth will have opportunities of visiting both the Cripples' Home at Alton and the associated Hayling Island Sanatorium.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

CONFERENCE IN BIRMINGHAM.

THE opening session of the Ninth Annual Conference of the National Association for the Prevention of Tuberculosis was held in the University of Birmingham on July 12th, and in spite of the torrid atmosphere there was a crowded and, as events turned out, an enthusiastic meeting. The delegates were welcomed by the LORD MAYOR OF BIRMINGHAM (Sir David Davis), who referred with justifiable pride to the part played by the city he represented in the campaign against tuberculosis. The Hon. Sir ARTHUR STANLEY, who presided, thanked the Lord Mayor on behalf of the association and commented in a few happily chosen sentences on the high civic spirit of Birmingham.

Care of Advanced Cases.

The subject down for discussion was the care of advanced cases of tuberculosis, especially with regard to the prevention of infection. In the absence of Dr. William Robertson, M.O.H. for the City of Edinburgh, who was to have initiated the discussion, his contribution was read by Dr. JOHN ROBERTSON, M.O.H. for Birmingham. The author of the paper hazarded the view that the segregation of advanced cases of pulmonary tuberculosis was quite as important in its way as the isolation of a case of small-pox, and in dealing with the problems offered by the incorrigible "in-and-out" tuberculous subject, who, after a short period passed in an institution, insisted on leaving and returning to his home, where he was a grave potential danger to his friends, suggested that the use of more drastic measures for compulsory detention should be exercised by the sanitary authorities. He further emphasized the need for a more thorough system of disinfection of the rooms occupied by such a person. Housing was the *alpha* of the tuberculosis problem, but the disposal of the advanced cases constituted its *omega*.

Dr. F. N. KAY MENZIES (London County Council) questioned whether institutional segregation was the best policy, and further suggested that exaggerated statements had been made as to the infectivity of the disease. He thought that if the impression was given that the responsible authorities considered that the infectivity of tuberculosis was little less than that of small-pox, it might create difficulties in administration, and especially with regard to after-care work. In his view home segregation should be first considered, and, in default of this only, institutional segregation. The main consideration was the avoidance of the infection of children. He regarded food and not housing as the *alpha* of the tuberculosis problem.

Professor S. LYLE CUMMINS, who followed, emphasized the danger of infection. Every case of pulmonary tuberculosis had at one time been infected, although this might have been years before the development of the disease. The chronic fibroid type of advanced case, often only seemingly showing evidence of chronic bronchitis or asthma, was the most dangerous from the point of view of infection. In an inquiry undertaken by the medical staff of the Welsh National Memorial Association recently, 51 per cent. of 354 female cases and 33 per cent. of 268 males had a history of definite contact with such cases in their homes. He did not, however, believe in compulsory segregation. We still know too little about the disease and must endow research more generously than at present.

In the opinion of Dr. DAVISON (Assistant M.O.H. Birmingham) any such preventive measures as had been suggested must first be acceptable to the public. He was in favour of encouraging segregation in the home after a period of educational treatment in a sanatorium, as being the most humane method. There were many young adults in full work quite as dangerous sources of infection as the typical advanced case.

Some characteristic points were made by Dr. MARCUS PATERSON. He referred to the type of tuberculous person who not only made no attempt to follow advice given, but was often in fact wilfully harmful. These cases should be taken before a magistrate and certified as a danger to the community like any ordinary lunatic. There were several

his is a very different affair, and Marlborough's march o Blenheim, it will be seen, forms only a part of the ,176 miles of marching and sailing of the Royal Irish Regiment in 1704. I confess that I was very much uzzled to account for Colonel Garrison's statement, but ow that it has been cleared up my mathematical calculaion to explain the puzzle has, of course, no longer any ignificance.

The influence of Brambilla and Sax will be found recorded n the voluminous works of Myrdacz and other Austrian riters.

"Sax was the moving spirit in all matters connected with the Medical Service in the War of Liberation. The Austrian organizaion for dealing with masses of wounded and evacuating them to xed hospitals was indeed studied and imitated in the armies of Prussia and Russia, which formed the Allied Army against Napoleon."—(*Medical Services of Foreign Armies*, Part III, Austria-Hungary, 1910, p. 18.)

This, I take it, was the origin of the extension of the Austrian system to Continental armies; but, however that may be, I can only say that the British medical organizaion, which was first introduced into Field Service Regulaions and the Manual of Training for the R.A.M.C. by myself, was learnt in the Austrian school, and I also know hat my revered master, Sir Thomas Longmore, was influenced just as much as I was by its teaching and historical mportance.

My conjecture that Colonel Garrison's *Notes* were largely ulled from Frölich should be taken with the context, in which I fully recognized how deeply he had explored the iterature of his subject in other directions. His derivaion of the Homeric ἰατρός is, of course, debatable but not convincing.—I am, etc.,

London, S.W., July 12th. W. G. MACPHERSON.

ETHER *VERSUS* CHLOROFORM.

SIR,—To one who has been engaged in the administration of anaesthetics since the beginning of the century, this perennial controversy is a source of some wonder. One had thought the question settled long ago. But the old cry is revived that chloroform is quite safe if only the revivalist's technique is adopted; that deaths are not due to it, but to shock; that, from the operator's point of view, ether is an inefficient anaesthetic and equally dangerous owing to its remote effects.

Speaking generally, and I trust without offence, the experience of the advocates of these views is usually more peculiar than extensive. Dr. Samways speaks of hundreds of administrations to soldiers. Well, of these there were in the main two types—the shock-stricken or sepsis-ridden casualty near the front, and the healthy young man full of 'baccy and beer needing attention to a hammer-toe or tonsils at a remote base hospital. I venture to think that Dr. Samways's very satisfactory experience was not amongst the former. With the latter even an expert accustomed to getting every ounce out of ether will readily admit that in many cases the path of least resistance literally lies with chloroform. They required plenty of it, and it was indeed difficult to overdose them, and whatever anaesthetic was administered quick and good recoveries were the rule. In civil practice the vast majority of cases form a happy mean between these two extremes.

That chloroform is, on the table, more dangerous than ether has been proved by statistics; is, I believe, the considered view of all the most experienced anaesthetists; and is emphasized almost weekly in the press. Persuade yourself that many of these deaths are due to shock if you like, but you are still up against this—that chloroform is a depressant, promoting shock, ether a stimulant protecting from it. Moreover, should any contretemps arise during administration, if chloroform is the agent, grave, even if unnecessary, anxiety pervades the atmosphere; whereas if ether be the agent sublime confidence inspires all. Of three deaths I have seen before return of consciousness after administering ether, two were forlorn hopes before operation, and the third died of haemorrhage. All were kept alive by ether during severe and lengthy procedures and then slowly succumbed. Contrast this with two appallingly sudden catastrophes under chloroform—one during induction and one in quite an early stage of operation.

That as *profound* a degree of narcosis can be produced with semi-open ether has been proved by Rood,[1] and his "enclosed" *method* so ably advocated by Tilley I have found of the *greatest possible* value in such surgical procedures as demand it. In the vast majority of operations the light mixed narcosis produced by the minimum of open ether following *full* doses of alkaloids serves our purpose. When this method is carefully carried out after-vomiting is rare and bronchitis unknown, assuming, of course, infectious catarrhs are not epidemic and the patient has not been unduly exposed to chills. Finally, there is practically no risk of acidosis.—I am, etc.,

London, W., July 14th. G. A. H. BARTON.

SIR,—I should like to endorse all Mr. Tilley says in his admirable letter (June 30th, p. 1114), and it is strange indeed that chloroform is used when ether is so much safer.

It may be of interest to your readers to know that I looked up all the recorded deaths under anaesthetics in the United Kingdom in the *British Medical Journal* and the *Lancet* for three years—those preceding 1890—mentioning these in a letter to the *Lancet* (vol. ii, 1890, p. 44), there being 41 from chloroform and only 3 from ether, and 1 only from nitrous oxide.

I spoke very strongly in favour of ether in this letter, and from my own personal experience—it having been my duty to administer the anaesthetic for nearly ten years as resident medical officer in all major operations in three hospitals—I am happy to be able to state that I have had no death under any anaesthetic, either in hospital or private practice, before or since.

Ether has been chiefly my choice (or its mixtures) with Clover's inhaler, except in later years, when open ether has been used sometimes.

I have not seen any cases of "ether" bronchitis or pneumonia, and certainly no fatalities from this cause.

I will not repeat what I stated in the letter above quoted, except that ether always gives warning of its danger, whereas chloroform does not always, fatal cases occurring sometimes during induction—I am, etc.,

London, W.C., July 19th. H. C. NANCE, F.R.C.S.Eng.

TREATMENT OF FEVER.

SIR,—I have made trial in twenty-seven cases of influenza, eight typical cases of lobar pneumonia, and in several other acute infections, of the treatment recommended by Sir Archdall Reid for acute toxaemia (BRITISH MEDICAL JOURNAL, June 4th, 1921, p. 835), and I have obtained such excellent results that I would be glad to inform the medical profession of them. I will mention only three cases of lobar pneumonia which represent three different classes under different circumstances.

Case 1.—A priest, aged 57, had a severe chill on the afternoon of June 24th, 1921, followed by fever (39° C.); he passed a restless night and called me the following morning. I found him with a fever of 39.50° C., he complained of a stitch on the right side of his chest and had an incessant cough. Physical examination revealed the presence of all the symptoms of lobar pneumonia. I at once prescribed three powders, recommended by Sir Archdall Reid, and ordered him to take one at once and another in the evening. He was living in a village far from where I was, and on June 26th his son came and reported that his father had no fever, the cough was softer but contained traces of blood, otherwise he felt in perfect health and wanted to get up. He got up the next day. On June 28th he came himself to see me in excellent health, which he still enjoys.

Case 2.—A girl, aged 13, had a cold for about a week. On January 17th, 1922, she returned from the school with a fever of about 40° C. and cough and stitch on both sides; as they were not in a position to call a physician at once, they waited two days, when they noticed the bloody sputum, which caused them to send to me in the evening of January 19th. I found all the symptoms of double pneumonia, and after some hesitation ordered the same powders, with the result that on January 21st she had no fever and did not have any discomfort except the blood-stained sputum, which continued for over ten days after the fall of temperature.

Case 3.—A cabman, aged 35, robust and sanguine, had a history of two attacks of lobar pneumonia in the course of the last three years. In the first attack he was ill for over twenty-five days and

[1] *Transactions Royal Society of Medicine.*

(*a*) those giving rise to anaemia and gastritis; (*b*) those affecting the respiratory tract, of which tuberculosis was the more prevalent. If the injurious effects of this trade were to be reduced to a minimum, adequate methods of ventilation must be utilized and provision made for the rapid removal of dust. Bathing facilities might be made available for the men after leaving work, and it was of some importance that the amount of clothing worn should be increased on coming into a cooler atmosphere. More temperate habits were also desirable among this class of worker.

Mr. G. A. ISAACS, of the National Society of Operative Printers and Assistants, also contributed some valuable information to the discussion from the point of view of the interested layman. He refuted the popular view that compositors were more seriously affected by tuberculosis than any other branch of the printing trade, and quoted the result of an inquiry by the late Professor Benjamin Moore which showed that in the case of printers' assistants nearly one-half of all deaths were due to phthisis even at the present time. He considered that there were more deaths due to tuberculosis than the death certificates would indicate. With regard to the conditions under which machine-room work was carried on, these had considerably improved, but much had still to be done, and better wages had resulted in a great improvement in the physical condition of the workers. He asked for the co-operation of the medical profession in making the printing trade at least as healthy as other trades. Dr. SCURFIELD put in a plea for the breaking up of the tuberculosis death-rate into its component parts in order that the nature and extent of the problem of prevention as affecting various localities might be more clearly recognized.

Dr. J. DOIG MCCRINDLE (Chief Tuberculosis Officer, Northampton) took up the discussion in connexion with the boot industry. He gave an interesting résumé of the processes of bootmaking which threw some light upon the prevalence of tuberculosis among boot and shoe workers. Apart from its sedentary character, there seemed to be nothing intrinsically detrimental to health in this occupation, but the close proximity of the operatives to one another, and the frequently imperfect ventilation and lighting, were no doubt contributory causes in the high incidence of tuberculosis in this industry. The boot worker suffering from tuberculosis should, when the disease had been arrested as the result of treatment at a sanatorium, be given the opportunity of resuming his own work under the graduated labour system.

Notification of Tuberculosis.

The afternoon session, which met under the presidency of Sir ROBERT PHILIP in the unavoidable absence of Sir Arthur Stanley, dealt with the question of the "Notification of Tuberculosis," the discussion being opened by Dr. G. LISSANT COX (Central Tuberculosis Officer, Lancashire County Council). He was of opinion that while the Tuberculosis Regulations were admirably drawn up from an academic point of view and provided for every contingency if properly carried out, in actual practice some of the provisions had given rise to misconception with unfortunate results to the public health. Article V of the Regulations appeared to call for amendment more than any other. The profession should be encouraged to notify every case occurring in practice, even at the expense of duplication of notification. Further, as suggested by Dr. Dudfield, the medical practitioner should repeat his notification if the patient moved into a new district and the same practitioner remained in attendance. A large proportion of notified cases were too frequently in a late stage of the disease when notification was carried out, many of them having had no medical attendance until this stage had been reached. On the other hand, there did not appear to be any large number of cases of unreasonable delay by the doctors in referring cases to the tuberculosis officer. The further education of the public as to the symptoms and dangers of tuberculosis and the need for seeking advice early was urgently called for. The general practitioner should be encouraged to refer all doubtful or early cases to the tuberculosis officer. It was now possible, with the concurrence of the notifying practitioner, to have cancellation of any case wrongly notified as tuberculosis.

Dr. DUDFIELD (Administrative Tuberculosis Officer, Paddington) followed, and said that Dr. Cox had anticipated his remarks for the most part. He said it was a disappointing fact that compulsory notification of tuberculosis had not achieved the success hoped for. Not only was notification incomplete, but too many certificates were received too late. The proportion of deaths from pulmonary tuberculosis representing fatal terminations of cases not known to him before death had occurred had notably increased. There had of late, however, been some improvement in the notification of non-pulmonary tuberculosis. Articles V and VII of the Regulations both needed amendment. The administrative difficulties which often arose when patients left the district in which they had originally been notified and had refrained from seeking advice in their new homes might be overcome by friendly sympathy and tactfulness on the part of tuberculosis visitors or nurses.

In the opinion of Dr. A. S. M. MACGREGOR (Public Health Department, Glasgow) efficient notification depended upon an efficient tuberculosis service, and the provision of proper treatment was dependent upon promptitude of notification. He thought that our diagnostic service was not so efficient as it might be. Diagnosis and the facilities for this should be in the forefront of any tuberculosis scheme. There was a danger that the tuberculosis officer might develop a bias towards the diagnosis of pulmonary tuberculosis when the patient was not really suffering from this but from some other chest affection. The tuberculosis service had not been free from criticism in this respect.

Dr. CECIL WALL (Physician to the London Hospital and to Brompton Hospital) suggested that the ideal to be aimed at should be the notification not only of undoubted cases of tuberculosis but of suspected cases, and that the printed form should be so amended to allow of this being done. Notification should be repeated at intervals of six months if the patient was still under treatment. He further thought that there should be a clearing-house or bureau for the whole country.

The proceedings closed with a hearty vote of thanks to the Lord Mayor of Birmingham, and to Dr. John Robertson for his invaluable assistance, which contributed so much to making the present Conference one of the most successful ever held by the National Association.

As a fitting pendant to the work of the Conference, a public address on "The Actual Position of the Tuberculosis Problem To-day" was delivered by Professor Sir ROBERT PHILIP on the evening of the second day, in the Midland Institute, to a large and appreciative audience.

THE NATIONAL PROVIDENT ASSOCIATION FOR HOSPITAL AND ADDITIONAL MEDICAL SERVICES.

IN the SUPPLEMENT of April 20th, 1921, page 161, was published a scheme for the provision of hospital and other medical services drafted by the Council of the Metropolitan Counties Branch, and based upon what is known as the Sussex scheme. Under the title "The National Provident Association for Hospital and Additional Medical Services" the scheme then outlined took shape in London in November, 1921; and we have now received a report by the executive committee covering the period from November 1st, 1921, to February 28th, 1923. The report is signed by Sir Arthur Stanley, Lord Dawson, Mr. W. McAdam Eccles, Sir Alan Garrett Anderson, and Dr. J. F. Gordon Dill, and is as follows:

The National Provident Association for Hospital and Additional Medical Services, by arrangement with the several interests concerned, was established in London on November 1st, 1921, and £55 was spent in a few newspaper advertisements. When 2,315 members were rapidly enrolled it was decided to treat the first year's working as an experiment, and not seek further members until the Association was incorporated and put on a permanent basis. The amount received in subscriptions was £1,770.

The object of the Association was to induce people while in health to make provision for the time of serious illness and to enable its members to obtain such services other than ordinary

xperience resembles that of my colleague, Dr. Dyer Sharp: have never seen a case of carcinoma, or of sarcoma. ome of the medical men in the coastal regions of Nigeria ncounter carcinoma occasionally; but chiefly among natives ho have been in contact with the European, some of whose ietetic and other domestic practices they have copied—ndulging, for example, in the consumption of tinned stuffs, nd not impeccable tinned stuffs always; when they ncounter it among indigenous natives from the interior t will generally be found that these are more or less exiles nd almost inevitably denationalized to a greater or less legree.

It must, however, be remembered that the experience of he average observer is largely restricted to the inhabitants of European settlements — townships and Government stations; this means that many millions of natives inhabiting an area covering that of more than the British Islands thrice told (with a European medical personnel not exceeding that of a second-rate English provincial town) are not brought under anything which can be called systematic medical observation at all. On the face of it, one would naturally expect to find carcinoma commoner among natives outside of than among those within their proper habitat; but experience does not always conform to natural expectation; this points to the fact that cancer research, which does not include Nigeria (particularly Northern Nigeria), is far from being comprehensive.

Syphilis and many of the sequelae thereof are rife in Nigeria; and there must be few parts of the world in which the consumption of uncooked food and drink is more general. The wide dissemination of "idiopathic" abscesses sometimes impresses the observer with the feeling that molecular death may replace cellular anarchy among the indigenous natives of Northern Nigeria. But the pathology of Nigeria (like her natural resources) has only been scratched so far.—I am, etc.,

M. CAMERON BLAIR,
West African Medical Staff.

Edinburgh, July 16th.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following awards have been made:

Radcliffe Scholarship in Pharmacology.—The Radcliffe Scholarship in Pharmacology has been awarded to R. B. Bourdillon, sometime Fellow of University College.

Theodore Williams Scholarships—In Physiology: O. A. Beadle, New College. In Human Anatomy: J. S. Jerome, Christ Church. In Pathology: G. P. Wright, Exeter College.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on July 12th the following medical degrees were conferred:

M.D.—J. H. Pendered, F. S. Adams, R. French.
M.B., B.CH.—A. L. Crockford, W. Edwards, J. A. Struthers, H. D. Garson, D. J. Batterham, V. Wilkinson, A. P. Saint, L. E. H. Whitby.
M.B.—R. S. Corbett, W. R. Carling.
B.CH.—R. N. B. Wilson, E. B. Brooke, G. K. Cooper, J. Russell, J. M. Scott.

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—Part I, *Physics and Electrotechnics:* H. O. Gunewardene, R. Hayes, H. K. G. Hodgson. Part II, *Radiology and Electrology:* N. M. Bodas, L. R. G. de Glanville, M. Frizell, H. O. Gunewardene, W. H. Hastings, R. Hayes, M. D. Joshi, Anna T. Kellock, G. J. Luyt, Margaret J. Moir, Jessie E. Sheret, S. B. Warden, E. V. Whitby.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE following awards in the Faculty of Medical Sciences have been made at University College:

Buckhill Scholarship (1922): R. L. Midgley. Medical Entrance Exhibitions (1922): E. H. Madge and V. Freeman. Sharpey Scholarship: A. S. Parkes. Cluff Prize: G. F. H. McCormick. Schafer Prize Dr. Katherine Coward. Gold Medal for Anatomy (Senior Class): G. F. H. McCormick. Silver " : H. Awrounin. Gold Medal for McCormick. (General Cour (General Cours

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.

The following awards have been made:

Burney Yeo Scholarships: G. F. Taylor, M. E. Lampard, J. W. Thornton, J. A. Eyres. Epsom College Scholarship: R. P. Ross. Senior Scholarship: W. P. H. Sheldon. Jelf Medal: F. Brockington. Tanner Prize for Obstetric Medicine: W. P. H. Sheldon. Todd Prize and Medal for Clinical Medicine: F. Brockington. Class Prizes: Diseases of Children, W. P. H. Sheldon; Orthopaedic Surgery, W. P. H. Sheldon; Medicine, R. Cove-Smith; Surgery, H. C. Edwards; Obstetric Medicine, F. Brockington; Pathology, C. E. Newman; Forensic Medicine, M. A. Paul; Hygiene, L. H. Savin; Psychological Medicine, M. A. Paul.

UNIVERSITY OF DURHAM.

AT the Convocation held on June 27th the following degrees were conferred:

M.D.—T. H. Bates, S. Worthington.
M.B., B.S.—W. O. Rubidge, J. C. Yeoman.

VICTORIA UNIVERSITY OF MANCHESTER.

THE following candidates have been approved at the examination indicated:

FINAL M.B., CH.B. (*Old Regulations*): Greta Lowe, L. Magenstern, L. Morris, G. T. Robinson, G. B. Stenhouse, G. Talbot. (*New Regulations*): A. Brown, W. B. Bacon, ‡‡A. Barlow, B. Bowman, ‡A. J. E. Cave, ‡‡A Coleman, G. Crompton, N. L. Edwards, W. E. Fildes, W. A. J. Fleming, §E. J. Foulds, §Allen Glenn, ‡‡Marjorie A. Grant, Evelyn M. Holmes, ‡K. H. Jackson, A. M. Jones, H. M. §G. C. Sharp, Margaret Simcock, J. Witts. *Obstetrics and Surgery:* ood, Bertha Kahn, ‡A. C. Kelly, IcLean, Marjorie M. O'Dea, R. W. Robinson, Kate B. Scott, Agnes Sarah Walker, Jane M. Wilde, Marjorie Youatt. *Obstetrics:* C. N Aldred, V. F. Lambert, T. Pierson. *Forensic Medicine:* Bessie E. Cook, R. W. Fairbrother, T. Pierson. *Hygiene and Preventive Medicine:* C. N. Aldred, Bessie E. Cook, R. W. Fairbrother, T. Pierson, H. F. Shaw, R. Slater. *Surgery:* J. F. Bromley.

* First Class Honours. † Second Class Honours.
‡ Distinction in Obstetrics. § Distinction in Forensic Medicine.
‖ Distinction in Hygiene and Preventive Medicine.

UNIVERSITY OF LEEDS.

AT a congregation of the university held on July 13th the honorary degree of Doctor of Science was conferred upon Dr. W. J. Mayo of Rochester, Minnesota.

The Dean of the Faculty of Medicine, Professor J. K. Jamieson, in the course of the oration in which he presented Dr. Mayo, said:

"The remarkable institution called the Mayo Clinic in Rochester, U.S.A., emanates from the brains of the Mayo family, father and sons. Even were it permissible to describe it in a degree oration that could not be done in the Latin or English forms in use in our universities; it would require the happy amoebic pseudopodia of ancient Greek or the still developing collateral anastomoses of the American language to give a true idea of the development of the institution. It stands now as a monument of organizing ability founded on the sure rock of tireless work carried on with faith and enthusiasm. As there is nothing new under the sun one desires to seek its prototype in history. If there be a prototype it is in the Temple of Aesculapius at Kos. We do not know that this ever contained more than the spirit of a genius, and the Mayo Clinic fortunately possesses the body as well; but imagination allows us to draw a picture illustrating the resemblance. Were some catastrophe to dismember civilization it is quite possible that Rochester would become the second Kos. Therein we might find the buildings tenanted by priests clad in white vestments and masks performing a ritual reminiscent of the surgery of the early twentieth century, and receiving from the faithful tithes of the flocks and herds and corn and oil and—may we say—wine. The creation and development of an organism which is a fountain of progress in surgery flowing all over the world is surely good reason for our desire to honour its director; but here in this room we are not the whole congregation. We are surrounded by the faces of the unforgotten dead, who require of us that we accord no honour to success unless that success has been attained with due regard to certain ancient principles which are still the glory of the profession.

"I will therefore say that every new fact uncovered and every new idea conceived in Rochester has been freely and promptly communicated to the profession, and the whole surgical world have been free students of the Mayo Clinic; that the inheritance of an ancient obligation has been faithfully accepted and the afflicted poor have a generous share in the benefits of the institution; that success and praise have in no way misguided the workers in their quest for perfection. Emerson has said that if a man can do something, even the making of a mousetrap, better than anyone else, no matter where he hides himself, the world will make a beaten path to his door. Mayo has proved this true, but it is not only as the promoter of a colossal enterprise and as a distinguished figure in surgical research but as a true man, modest, charitable, and humane, that in the name of this congregation I present to you William Mayo for the degree of Doctor of Science."

The degree was conferred by the Vice-Chancellor, Sir Michael E. Sadler, K.C.S.I.

UNIVERSITY OF ABERDEEN.

AT the graduation ceremony on July 11th the following degrees were conferred:

M.D.—D. W. Berry, J. S. Anderson, A. Topping, Dorothy E. Bryant, A. C. Fowler, Louise Tomory.
M.B., CH.B.—*‡A. W. Downie, *‡R. D. Downie, *‡A. Lyall, ‡‖A. G. Badenoch, ‡W. H. Harris, ‡Charlotte S. Hendry, ‡‖J. W. Laing,

British Medical Journal.

SATURDAY, JULY 21ST, 1923.

ANTLERS AND BONE GROWTH.

IN these days of specialization, when the minds of men are absorbed by the study of sharply defined and particularized problems, it is inspiring to be confronted with one who grapples with things on the grand scale. We live in an age which is shy of generalizations, and truly the comprehensive reasoner often leaves himself open to attack. No one can deny the charm of these wide conceptions, but in order that they may bring us profit they must be propounded by one of great austerity and purity of mind. In his last book the late W. H. Hudson describes how he watched a hind in Richmond Park. The animal lay listening for a long time to sounds issuing apparently from a wood some distance away, sounds which were of the greatest interest to it, yet none of them appreciable to the human ear. The behaviour of the deer furnishes Hudson with material for a leisurely discussion on the nature of hearing in animals, vague and nebulous often, but always delightful in his charming prose.

Sir William Macewen, in his presidential address to the Société Internationale de Chirurgie, also takes the deer as his subject, and uses the growth of the antler to illustrate his views on the formation of bone. Now if we compare these two generalizations, or rather these men who made them, we find Hudson with a great reputation as a naturalist. If his reputation rested on that alone it is unlikely that he would be long remembered, for though he was a keen and accurate observer of birds and animals all his life, his was not a coldly scientific mind. He believed, for instance, in maternal impressions; he believed that the appreciation of smells and scent depended on the solution of the substance in the fluids of the nose. He believed, that is, that the odoriferous substance was a solid, in infinitely fine suspension perhaps, and that this, dissolved in the mucus of the upper olfactory passages, gave the necessary stimulus to the rhinencephalon. To put the matter thus prosaically is the absolute negation of Hudsonism. Hudson would never have dreamed of using such language, and we should have been the poorer had he done so. When we turn from him to Sir William Macewen we realize a different texture of mind altogether—a different standard. Macewen's work bears the stamp of the Royal Society; Hudson's resembles a popular lecture at the Royal Institution. And Macewen's Royal Society is the Royal Society of days when men were concerned with the wide problems of human origin and variation rather than with minute and specialized questions—with broad principles rather than with special corners of the animal kingdom. And if we must date it, it is interesting to know that the acknowledgement of the receipt of Sir William's first communication to the Royal Society on the restoration of the humerus by bone grafting was signed by Huxley.

Like all important discoveries, the study of the antler as the means of disclosing the general principles of the growth of bone is so obviously the simple and right way that one wonders that we had to wait 184 years—from Duhamel to Macewen. The meaning of the antler has always been an interesting problem. Darwin was puzzled to account for it. The rapid growth, the subsequent shedding after so short a period of wearing, the cumbrous nature of the mature structure, all present their problems and discrepancies. As an instrument of offence against any animal save one similarly armed the antler is not well planned. And there is reason to believe that the animal's sharp forefeet are much more deadly weapons. The deer's chief asset is its speed, that it may live to fight another day.

It is good to know that a thing which has troubled so many minds has been so largely the means of solving an important problem. Sir William Macewen's work on the osteoblast as "the one and only begetter" of bone has very largely proved itself. It was in the antler of the deer that he first saw the mature osteoblast conclusively. It has since been found in growing bone generally. He believes that it is a definite cell, recognizable on morphological grounds, and not merely, like a mouse in the wainscot, recognizable by the things it does.

In his present address he shows us how far-reaching in its effects is his conception of the formation of bone, but especially how elusive is the factor behind it all—the something which controls that growth. It is evident that the osteoblasts on the diaphyseal and epiphyseal sides of the cartilaginous plate in growing bone have somewhat different functions to perform, and those in the centre of the shaft something different again. Now what gave these their characters? Are they inherited? Must we, as the anatomists are so fond of saying, go further and further back? And why is the reparative function of the flat bones of the calvarium so limited? Sir William Macewen suggests the reason; but what is the cause? Is reason here synonymous with cause? Sir William Macewen recognizes in the bone cells hereditary specialism to type. He speaks of "the thousand memories of the atoms comprising each osteoblast." The doctrine he inculcates obviously has a very important bearing, not only on surgical pathology, but also on physiology and histological anatomy. Those who are working in the special fields of reparative and (as they hope) constructive surgery stand in need of these gentle reminders. They will show their worth by the manner in which they respond.

"The proper study of mankind is man," said Pope. But we shall do well to continue to take this not too literally. Of the many problems which await solution we shall gain much in knowledge and much more in wisdom by taking the wide view, in comparative physiology and pathology no less than in anatomy.

THE WORK AND FINANCES OF VOLUNTARY HOSPITALS.

THE voluntary hospitals during the last few years have been experiencing some of the vicissitudes which are apt to occur in the careers of institutions, and individuals—such as politicians—dependent on public favour. During the war the British public admired the readiness of the voluntary hospitals to use their resources for the benefit of the wounded soldier, and positively blushed to possess establishments so efficient. In the reaction after the war the discovery that the hospitals were short of money perturbed the mind of the general public, always disposed to judge the impecunious harshly, and greatly pleased the

DR. WALTER LEY PETHYBRIDGE, of Plymouth, who died on June 27th, aged 54, was born at Bodmin and received his medical education at St. Bartholomew's Hospital. He graduated M.B.Lond., with honours in obstetrics, in 1892, and M.D. in the following year; he also took the diplomas of M.R.C.S. and L.R.C.P. in 1892. He went to Plymouth in 1895, and was for nearly twenty years pathologist to the South Devon and Cornwall Hospital; he was also consulting pathologist to the Ear and Throat Hospital, Plymouth, and to the Tavistock and Bodmin Hospitals, and held the appointment of anaesthetist to the Royal Eye Infirmary, Plymouth. He was one of the first in this country to employ Pasteur's method of inoculation against rabies, and during the outbreak of rabies some years ago he undertook the treatment of cases from all parts of the country, at the request of the Local Government Board. During the war Dr. Pethybridge held the rank of Captain R.A.M.C., T.F., and was Director of Pathology for the South-Western Military District. In 1920 he was elected president of the Plymouth Medical Society.

THE death occurred at Taunton on June 27th of Dr. EDWARD LIDDON, in his 93rd year. He was educated at King's College, London, Edinburgh University, and Paris; he took the diplomas of M.R.C.S.Eng. in 1852 and L.S.A. in 1853, and graduated M.D.Edin. with gold medal for thesis, in 1854. At the time of his death he was consulting physician to the Taunton and Somerset Hospital, of which institution he was also an ex-president and the oldest life governor. As a young man Dr. Liddon was house-surgeon to the Bath United Hospital and resident assistant to the Brompton Hospital. He served for many years with the 2nd Volunteer Battalion Somerset Light Infantry, retiring with the rank of Surgeon Lieut.-Colonel. A keen sportsman all his life, he was at one time master of the Taunton Vale Harriers, and hunted with them until he was over 80. Dr. Liddon was a zealous churchman—his brother was the late Canon Liddon—and a generous supporter of every philanthropic organization in his district. He was twice married, and leaves a widow and two sons, one of whom is vicar of Minehead.

Medical News.

THE Duke of Connaught, President of the Royal Society of Arts, last week presented the Albert Medals of the Society, awarded to Sir David Bruce and Sir Ronald Ross "in recognition of the eminent services they have rendered to the economic development of the world by their achievements in biological research and the study of tropical diseases."

A MEETING of the London Association of the Medical Women's Federation was held on July 10th at the South London Hospital for Women. After tea in the grounds of the hospital, those who were unfamiliar with its buildings were taken on a tour of inspection by Miss Maud M. Chadburn, the senior surgeon, who played a prominent part in the foundation of the hospital in 1912 and in the planning of the building of the in-patient department on its present site in 1916. Notable features are the provision of accommodation in small rooms and cubicles for private patients at fees varying from 3 to 6 guineas a week and the wide balconies attached to nearly every ward. A visit was paid by certain members to the theatre, where Miss Eleanor Davies-Colley was operating, and in other departments of the hospital cases and specimens were shown. A business meeting of the association in the hospital board room concluded the proceedings.

DURING the International Exhibition of Hygiene a puerperal fever congress will be held at Strasbourg from August 1st to 4th under the presidency of Professor Bar of Paris. The following papers will be read: (1) Historical sketch of puerperal fever and the importance of Pasteur's discovery, by Dr. Couvelaire of Paris; (2) bacteriology and morbid anatomy of puerperal fever, by Dr. Brouha of Liége; (3) diagnosis and prophylaxis of puerperal fever, by Dr. Hauch of Copenhagen; (4) treatment of puerperal fever, by Dr. Alfieri of Pavia. The subscription is 40 francs, which includes admission to all parts of the Exhibition of Hygiene. Further information can be obtained from the general secretary, Professor Schickelé, Clinique d'Accouchements, Strasbourg.

THE series of post-graduate lectures at Queen Charlotte's Lying-in Hospital, Marylebone, came to an end on July 19th. A new series will begin in October.

THE foundation stone of the new casualty department of the Royal Northern Hospital, Holloway, was laid by Lady Patricia Ramsay on July 12th. The building is being erected by the Borough of Islington War Memorial to commemorate the supreme sacrifice of those who fell in the great war and the brave deeds of those who survived. The sum raised was about £12,000, and £2,900 more is required to complete the memorial.

THE annual report for 1922-23 of the Professional Classes Aid Council (on which the British Medical Association is represented by Dr. G. E. Haslip) shows that the work of the council in assisting in relieving distress among the professional and educated classes and their dependants has been steadily consolidated during the past twelve months. During the year there were 538 new applicants (of whom 149 were refused as being unsatisfactory or not within the scope of the council), and 89 former applicants reapplied (of whom 32 were refused for similar reasons). Fifty families received educational assistance during the year. The question of providing funds is still serious; the expenditure for the year amounted to £7,334, the balance sheet showing a deficit of £2,213.

PROFESSOR LUBARSCH has been appointed director of the Robert Koch Foundation for Combating Tuberculosis in place of the late Professor Orth.

VISCOUNT BURNHAM has accepted the office of Vice-President of the Royal Sanitary Institute, which was founded in 1876, and has for over thirty years maintained a museum of sanitary apparatus. The Institute will hold its thirty-fourth congress and health exhibition at Hull, beginning on July 30th. The Right Hon. T. R. Ferens, High Steward of Hull, will preside, and nearly 500 delegates have been appointed from this country, including those nominated by the Admiralty, the Board of Control, the Office of Works, the War Office, the Ministry of Health, and the Scottish Board of Health. Representatives have also been nominated by foreign and dominion governments, and municipalities, including Bombay, South Australia, New South Wales, Victoria, Brisbane, Perth, New Zealand, Christchurch, Cape Town, Kimberley, South Africa, Czecho-Slovakia, Greece, Mexico, United States of America. Sir Alexander Houston, K.B.E., M.B., will give a lecture on a pure water supply to the congress on Tuesday, July 31st, and on Thursday, August 2nd, Mr. B. Seebohm Rowntree will give a popular lecture on industry and national welfare. There will be four sections: sanitary science, of which Sir William Hamer, M.D., is president; maternity and child welfare, including school hygiene, presided over by Dr. J. R. Kaye; engineering and architecture; and domestic hygiene. There will be seven conferences; one of medical officers of health will have Dr. T. Eustace Hill as chairman, and another on health visitors will be presided over by Professor H. R. Kenwood.

IN reporting on two years' working of the United States Prohibition Act, the Federal Prohibition Commissioner makes special reference to the Treasury decision, first suggested by the American Medical Association, which limits withdrawals of whisky for medicinal use to spirit which has been bottled in bond. In 1920 the total whisky withdrawals amounted to 12,389,529 gallons; in 1921, to 3,243,845 gallons; and in 1922, to 1,819,888 gallons.

DURING the year 1922, 9,935 cases of small-pox occurred in Canada and the United States, of which 495, or 5 per cent., were fatal. In 1921 the mortality was only 1 per cent. In some towns the case mortality during 1922 ranged from 16 to 85 per cent.

A FRENCHMAN accused the English of taking their pleasures seriously. If under "pleasures" games are to be included the accusation had little truth in it until this present generation, which under the pressure of American excellences is studying and playing games with astonishing seriousness. We are informed that this seriousness is now to be extended to mountain climbing. A ten-day course of scientific instruction, theoretical and practical, in mountaineering is, we are told, to be given at the end of July at Klosters, in the Grisons district, Switzerland, at a fee, including board, of 6 guineas. The course is to include first aid in accidents. Full particulars may be had from Gustav Walty, Klosters.

THE house and library of the Royal Society of Medicine, 1, Wimpole Street, W.1, will be closed for cleaning and repairs during the whole of August.

X RAYS, LIMITED (11, Torrington Place, Gower Street, London W.C.1) has issued an album of illustrations of the apparatus it makes. It contains a photograph of a group, including Dr. Coolidge, but this and another portrait hardly justify the title, *Who's Who in X Rays*. The company informs us that in future if the end connexion is required for the Coolidge tube an extra charge of 15s. will be made, making the total £40 15s.

the Grand Council of the Campaign held on July 16th the principle of appointing a scientific advisory committee was accepted, and that apparently it has gone further than this and has proposed that the committee shall consist of ten persons—five to be nominated by the Royal Society and the Medical Research Council jointly, and five by the Grand Council. Whether the suggestion will be acceptable to the Royal Society and the Medical Research Council we have no means of knowing. The report presented to the annual meeting of the Imperial Cancer Research Fund on July 17th contained a summary account of the negotiations that have been going on since April between the Fund and the promoters of the Campaign. It was laid down that the complete independence and individuality of the Fund must be maintained, and that it could not associate itself with the Campaign unless other cancer research institutes were invited to take part and assured of receiving financial support. The result of an interview in May with Mr. G. Locker-Lampson, M.P., Honorary Secretary of the Committee of the Campaign, was not deemed satisfactory, and it was then decided that it would be inadvisable for the Fund to participate in the campaign. Since then the executive of the Fund has been informed that the promoters of the Campaign have recognized the necessity of modifying its articles of association. Speaking at the meeting on July 17th the Duke of Bedford, President of the Fund, said that the modifications proposed included the appointment of an Advisory Committee which it is hoped will comprise members nominated jointly by the Royal Society and by the Medical Research Council. "In the event of these modifications being carried out," the President continued, "they would, I think, secure the confidence and co-operation of bodies, including the Imperial Cancer Research Fund, which have been for many years past engaged in the work of cancer research, because in their opinion the future administration of the British Empire Cancer Campaign would then be guided by those whose knowledge would enable the best use to be made of all funds available. It is therefore obvious that the adhesion of this Fund to the British Empire Cancer Campaign must be dependent upon the decision of our Executive Committee when the revised articles of association in their final form have been fully considered. It is very certain from letters and articles which appear from time to time in the press that incredibly little is known of the work that has already been done by our Fund and by other research bodies, both in this country and in the rest of the world—for instance, the information collected by the Imperial Cancer Research Fund relating to cancer in native races throughout the Empire, and of its occurrence in all species of the animal kingdom. For this reason it would seem to be essential that the administration of the funds of the Campaign should be in the hands of those who know what experimental work has already been done, and what information on the subject has already been accumulated. By these means useless repetitions would be avoided and public money used to the best advantage. The annual report of the Imperial Cancer Research Fund shows that it has continued to pursue its considered policy of co-operation in the free and friendly intercourse between the workers in different laboratories, coupled with the interchange of material. In conclusion let me add that I believe that such co-operation and co-ordination must be voluntary. It cannot be forced on the workers."

TREATMENT OF LEPERS.

VISCOUNT CHELMSFORD presided at a meeting held at the India Office on July 12th, when it was decided to form a British Empire Leprosy Relief Association. It was stated that the British Empire has more known lepers than any other political entity in the world, but is doing far less in proportion than is being done by the United States for its lepers. Less than 5 per cent. of the sufferers in the King's dominions, it was reported, are being cared for in any way, and of these, owing mainly to the poverty of the countries most affected—namely, India, tropical Africa, and the West Indies—only a small proportion are receiving the treatment by derivatives of chaulmoogra and certain other oils which has been used with so much success during the last eight or nine years. A general committee was appointed, which includes Lord Chelmsford, Lord Ronaldshay, Lord Riddell, Sir Humphry Rolleston, Sir William Leishman, Sir Havelock Charles, Sir Clifford Allbutt, Sir Archibald Garrod, Sir George Newman, Sir John Rose Bradford, Sir Walter Fletcher, Sir Malcolm Morris, Sir George Berry, M.P., Dr. F. E. Fremantle, M.P., Sir William Edwards, Sir Edward Gait (Member of Council, India Office), Sir William Vincent, Sir Charles McLeod, Sir Rajendranath Mookerjee, Sir Frank Carter, Sir James Michelli, Sir Leonard Rogers, Professor J. J. W. Stephens, Lieut.-Colonel A. Alcock, Lieut.-Colonel S. P. James, Dr. Andrew Balfour, Mr. H. S. Wellcome, Dr. Cochrane, and Mr. F. Oldrieve. An executive committee and subcommittees were appointed to prepare plans for carrying out the objects of the association.

THE MEDICO-PSYCHOLOGICAL ASSOCIATION.

THE annual dinner of the Medico-Psychological Association on July 11th must surely have established a record, at any rate for this country, in the number of speeches—sixteen—accompanying the various toasts. Dr. Edwin Goodall, president of the association, was in the chair, and was in his happiest vein in proposing the health of the sister societies. He described a medical society as a conventicle where the older members of the profession assembled to drink in wisdom from the lips of their juniors. More seriously, a society was a means of exchanging medical experience, exposing new lines of research, presenting new facts, and promoting good manners among the followers of a profession who in their daily work sometimes indulged in asperities with regard to one another. He recited a formidable list of the medical societies now existing in London, and made a good deal of play at the expense of that "hydra-headed monster" the Royal Society of Medicine, against whose absorptive capacities, however, he was glad that the Medico-Psychological Association had remained proof. Sir Humphry Rolleston, Mr. H. J. Waring, Sir W. Hale-White, and Dr. Henry Cotton of New Jersey responded to the toast, the last named expressing the indebtedness of American psychiatrists to their British colleagues. Dr. Percy Smith gave the toast of the Legislature, and the Earl of Onslow, in replying, referred at some length to the Mental Treatment Bill. He dated the new spirit in legislation and administration with regard to the insane to the quite recent transference of the Board of Control from the Home Office to the Ministry of Health. Lord Riddell, in acknowledging the toast, pictured a well organized municipality having, in addition to its seven existing inspectors, a mental inspector equipped with rather terrifying powers. Taking up a remark by a previous speaker, Lord Riddell expressed himself strongly against the ban upon professional advertising. He found it difficult as an ordinary man to take an impersonal interest in medical progress. Discoveries would always be associated in the public mind with persons, and Lord Riddell argued that when a medical man made a discovery it was quite good from the public point of view that it should be associated with his name. He did not see why it should be thought discreditable to doctors within certain limits of decorum, to indulge in indirect

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

45. Treatment of Eczema and Neuro-dermatitis with Finsen Light.

S. LOMHOLT (*Ugeskrift for Laeger*, May 17th, 1923, p. 349) reports very favourably on the results obtained at the Finsen Institute in Copenhagen from the treatment of certain non-tuberculous skin diseases with concentrated carbon arc light. The diseases under consideration fall into four main groups: (1) Chronic neuro-dermatitis; (2) chronic, dry, to some extent desquamating, eczema; (3) chronic weeping eczema; and (4) acute eczema. The author's first series included 42 patients treated between September, 1921, and April, 1922. His second series consisted of 37 patients treated since June, 1922. The results in this second series were even better than in the first. In 6 cases the treatment was not yet completed, and in 3 it effected no improvement. Of the remaining 28 patients, 8 showed marked improvement and 20 were completely or practically cured. These good results were the more noteworthy because in the overwhelming majority of the cases the disease was chronic and had proved refractory to other methods. The improvement effected was both objective and subjective, and, in addition to the disappearance of such symptoms as itching, there were demonstrable changes in the skin, which became soft and flexible and ceased to desquamate. The intense hyperaemia provoked by this treatment lasted a considerable time, and was often associated with pigmentation, which was most common in those areas usually covered by the clothing. Compared with *x*-ray treatment, which devitalizes the skin and is apt to cause atrophy and ulceration, Finsen light, says the author, is quite safe. The results it effects may not perhaps be permanent, but it seems to increase and stimulate the vitality of the skin owing to the hyperaemia it induces. On the other hand, when eczematous skin has been treated with the *x* rays without permanent results, it is henceforth remarkably refractory to other treatment, probably because the vitality of the skin has been reduced by the *x* rays. The efficacy of carbon arc light is apparently due to the fact that it penetrates more deeply into the skin than does the light from the mercury lamp.

46. Herpes Zoster and Varicella.

CORNELIA DE LANGE (*Nederl. Tijdschr. v. Geneesk.*, April 21st, 1923, p. 1634) refers to the article by Cranston Low (see JOURNAL, January 25th, 1919, p. 91) and others, following the paper published in 1892 by J. von Bokay, on the causal connexion between varicella and herpes zoster. She records the case of a child, aged 20 months, who developed an attack of herpes zoster in the left fifth to seventh intercostal spaces. In the course of the next eighteen days three other children in the same house developed chicken-pox. On examination the blood of the four children all showed a more or less strongly positive reaction to varicella antigen, suggesting the identity of herpes and varicella. It is obvious that every case of zoster is not caused by the virus of varicella. Apart from cases of zoster due to pressure by a tumour on a ganglion or nerve, or arsenical intoxication, other infections such as rubella (Bénard) or tuberculosis (Schreiber) may give rise to zoster. Zoster is not the only proof of the affinity of the varicella virus for the nervous system, as was shown by Miller and Davidson in a paper on the nervous complications of varicella (*Brit. Journ. Child. Dis.*, 1914, xi, p. 15), in which they recorded a case of varicella complicated by encephalitis, and collected three other examples from the literature, published by Marfan, Caccia, and Osler respectively, as well as of examples of chorea following chicken-pox.

47. Treatment of Pleuritic Effusion by Calcium Chloride.

KRUMMENACHER (*Ann. de Méd.*, March, 1923, p. 204) states that in the course of his researches on the diuretic action of potassium and calcium salts Professor L. Blum observed that calcium chloride has a remarkable action in inflammations of serous membranes, not only inducing absorption of the effusion, but also producing a rapid fall of temperature. Krummenacher discusses the possible limitations of this treatment, and admits that one of the chief practical objections to the oral administration of the salt is its nauseous taste; he recommends administration of one or two dessert-spoonfuls of the concentrated solution (50 grams of granulated salt dissolved in 100 grams of water) in a small quantity of *café au lait*, followed by a few mouthfuls of the coffee. He gives details of ten cases of pleuritic effusion due to various causes, such as following lobar pneumonia, broncho-pneumonia, or tuberculous pleurisy (in one case complicated by "open" pulmonary tuberculosis), one case of pleurisy secondary to carcinoma of the left bronchus, and another of ascites following hepatic cirrhosis and carcinoma secondary to carcinoma of the sigmoid. The author claims that in all these cases there has been some improvement in the patients' condition. All patients were given a "chloride-free" diet for two or three days after admission; in those cases which did not respond favourably to oral administration of calcium chloride it was given intravenously. Cases of post-pneumonic effusion were the most satisfactory. One patient, aged 34, was admitted in the eighth month of pregnancy; she was confined prematurely, but the child was healthy and the mother made a good recovery; although the effusion increased after the confinement, and oral administration failed, an intravenous injection of 60 c.cm. of 5 per cent. calcium chloride solution produced abundant diuresis in two hours and a fall in temperature of three degrees in three hours. Two tuberculous male patients (aged 29 and 37 years respectively) appeared to show permanent improvement. The author recommends that oral administration should first be tried, and if not well borne it should be replaced by the intravenous method, although this is not free from danger of complications—in one case of septic bronchopneumonia thrombosis of the brachial vein occurred two days after the injection.

48. The Carrier Problem.

S. F. DUDLEY (*Journ. Royal Naval Med. Service*, April, 1923, p. 93) considers that the soundest policy for preventive medicine is to concentrate upon raising the tolerance of the people to bacterial invasion by the use of antigens in order to prevent outbreaks of disease, especially those spread by droplet infection. Typhoid can be thus controlled, and possibly also diphtheria, and in epidemic influenza prophylactic treatment by an efficient antigen is the only hope of control. That an ideal vaccine or antigen, which would raise the resistance against all bacteria, is a possibility is borne out by recent work on immunology, showing that antigens are probably mixtures of fatty acids dispersed in colloidal solution, and that if the right proportion of fatty acids is ascertained and correct colloidal phase reproduced, artificial antigens can be made as effective in producing immunity as the natural organisms, and that specific protein is not a necessity for antibody production. When the complexity of the bacterial flora in the upper air passages of apparently healthy people is realized, together with the effect of overcrowding in the spread of bacterial infections, the importance of carrier infection is evident, the carrier, according to the author, accounting for the vast majority of those cases of infectious disease previously attributed to bad sanitation, infected houses, and climatic conditions.

49. Obesity.

W. E. PREBLE (*Boston Med. and Surg. Journ.*, April 26th, 1923, p. 617) points out that persons over 30 years of age, who are more than 15 lb. overweight, show a rapidly decreasing life expectancy as age and weight increase. From observations on 1,000 cases the condition was found to result from habits of eating rather than from heredity or errors in metabolism. The majority of cases occur between 30 and 60 years of age, especially in women, and in those over 20 years of age the blood pressure is well above normal, but treatment causes it to drop considerably. The incidence of cardiac and renal disease, glycosuria, and hypertension is increased, and mortality statistics show that, while up to 10 lb. overweight there is no increase, the mortality rises steadily when the weight is above that figure, though this is less noticeable in women than in men. The mortality from heart disease in the obese is about two and a half times as great as in persons of normal weight, from circulatory diseases more than twice as great, and from renal disease nearly twice as great. While the cause of the trouble may be simply excess of food, it is usually due to an excess of carbohydrate or fat, or both, in the diet, and treatment consists mainly in regulating the diet, work, exercise, sleep, etc., care being taken to supply sufficient protein, a rather high protein diet, except in nephritis, being prescribed. The condition is easily curable, success in reducing weight being attainable in 100 per cent. of cases properly treated.

it a source of comfort and encouragement as well. Parents can scarcely be expected to be anything but very sensitive when they find something wrong with a child on whom, perhaps, their hopes and ambitions were centred. Sometimes they will endeavour to stifle their fears; they may shut their eyes to obvious defects and find evidence of intelligence in the simplest biological reactions. It is, of course, much better that they should face the situation, though it is quite natural that they should be reluctant to do so. They may find that their fears are exaggerated, for, as Dr. Thomson points out, "some babies whose outlook to begin with seemed almost hopeless, improve far more than could have been expected, and do wonderfully well in the long run." In any case, as he repeatedly insists, the mother herself can do a great deal to bring about an improvement, and the earlier she begins the better. All mothers with defective children will find his book most useful; we can commend it also to social workers and medical practitioners because, though the advice is couched in simple language, it is given by a writer with a profound knowledge of children.

PROTECTION OF CHILDREN.

AMONGST bills with which Parliament is unlikely to be able to proceed during the present session is the "Children, Young Persons, etc.," Bill. It has been introduced by Mr. Ammon and a group of Labour members, and despite its barbarous title deserves more public attention than it has hitherto received. The bill is primarily a measure of consolidation, covering existing provisions for the protection of children and young persons, a section of the Statute Book urgently in need of revision. But the feature to which we would more particularly direct attention is the attempt to extend and strengthen existing enactments at certain points. Clauses 1 and 2, based on provisions in the Indian Penal Code, extend the law of homicide for the protection of a child which has partly issued from the mother's womb, and makes it a felony punishable by penal servitude up to ten years to cause the death of an unborn child—that is, a child no part of which has issued from the body of its mother—by an act amounting to criminal homicide if directed against a person. Part II would strengthen the provisions of Part I of the Children Act relating to infant life protection by requiring notice of reception of an infant apart from its parents to be given in all cases, although the period may be less than forty-eight hours, by bringing "relatives" in cases of illegitimacy within the provisions of the Act and by raising the age limit for special protection to 10. The Minister of Health is empowered to require local authorities to enforce the several provisions of the Act, and the right of the local authority to exempt particular premises from visitation is withdrawn. Powers and duties under this part of the bill are confined to County Councils and County Borough Councils, except within the administrative county of London. Section 12 of the Children Act, 1908, is revised, and the maximum penalties for cruelty to children and young persons are increased. The age of competence to marry is raised to 16 for both boys and girls.

DISSENSIONS AMONG ANTIVACCINATORS.

THE hotheads amongst the antivaccinators have once more been defeated, and the threatened disruption for the present averted. The *Vaccination Inquirer* of July 2nd contains a belated report of an animated scene at the annual meeting of the National Antivaccination League held in London on May 2nd. An over-zealous section of the members appears to be causing considerable anxiety to the more sober-minded followers. The trouble arose through the reintroduction of the following resolution, which had been proposed but not adopted at the previous annual meeting: "That principle and policy alike demand that the National Antivaccination League should work for the entire prohibition of vaccination instead of the abolition of compulsory vaccination." The mover of the resolution made a fierce onslaught on the medical profession, describing doctors as "unmitigated scoundrels." Vaccination, he declared, was "organized blackmail." Two speakers, both laymen, protested against this onslaught on the medical profession. Several doctors were present and spoke, but the report contains no protest from them. Most of the speakers appear to have strenuously opposed the resolution, on the ground that it would "split the league," and that it was opposed to the liberty of the subject. Others threatened to leave the league, and others again urgently suggested that the resolution should be withdrawn. Eventually, however, a vote was taken and the resolution defeated. Thirty-seven voted against, seven in favour, and four or five persons present did not vote. The discussion reveals the real nature of the fight of the older stalwarts of the league. It has been with them for the most part a fight for people to please themselves whether they would submit their children to vaccination. In the present state of the law that liberty is conceded. Now that the chance of winning a crown of "martyrdom" has gone there seems much disappointment among a section of antivaccinators, and objection is taken to the conscience clause because it has removed the possibility of being sent to prison for refusal. It was remarked at the annual meeting that "the conscience clause has split up our society," and that the former organizing secretary went to prison "not because he was forced to go but because he knew that by doing so he would benefit the cause." Thus it came about that a resolution was submitted and carried by a majority of one (ten to nine): "That this meeting recommends all in a position to do so to refuse payment of that portion of the poor rate which is devoted to paying the expenses of vaccination, and pledges the full support of the league to all who do so." As an alternative to this recommendation, how would it be to suggest that the expenses of epidemics of small-pox should be paid by antivaccinators?

TO ENCOURAGE RURAL DOCTORS.

A SOLUTION to the difficulty of providing medical care for rural communities is suggested in the *Journal of the American Medical Association* (June 30th, 1923, p. 1930). The belief is expressed that any community that can support a medical practitioner can get one if its citizens are willing to pledge themselves to guarantee an income of 2,500 to 3,000 dollars (about £500 to £600 a year), and to interest the community in the support of the practitioner. This plan has worked out satisfactorily in a Middle West community, where the practitioner selected secured from his practice an income larger than the amount pledged, so that the guarantors were not called upon. The chief arguments advanced in favour of the plan are, first, that as the people of the community have a voice in the selection of their medical attendant, and as they have pledged themselves to his support, they will be disposed to consult him rather than practitioners in distant towns; and secondly, that young practitioners at the time they complete their medical training will be attracted to places where a reasonable income is guaranteed. In New Hampshire a law has just been passed which permits any town to appropriate sufficient money to support a resident medical practitioner when the town cannot otherwise obtain one.

kes longer to clear up, and requires two to three weeks' treatment before much difference is seen. Cases of nasal sinusitis have improved greatly under the treatment, but sufficient cases of otitis media and mastoiditis have not been treated to be able to pronounce an opinion; but mastoid osteomyelitis certainly cannot be treated without operation.

55. Tumours and Cysts of the Pancreas.

ARGNA (*Arch. Ital. de Chir.*, April, 1923, p. 115) publishes reports of three cases of tumours and cysts of the pancreas. (1) A woman, aged 45, with a rare type of tumour of the pancreas (hypernephroma) successfully removed and showing no signs of recurrence. As is often the case in tumours of the pancreas, some cysts were in process of formation. (2) A man, aged 65, operated on for what proved to be a sarcoma of the pancreas, a perithelioma; except for trouble with pancreatic fistula (which was eventually closed) the patient made a good recovery. Both the tumours are rare in connexion with the pancreas, and the author gives several photographs of the histological sections. The prognosis in perithelioma is good, but bad for perivascular sarcomata. For the most part it is impossible to diagnose these tumours, or at least their nature, before operation. The third case was a cyst. The symptoms in such cases are, as a rule, vague. The treatment for true cysts is extirpation; for pseudo-cysts marsupialization and drainage gives the best results. In troublesome fistulae possibly pancreato-enterostomy might be useful; usually these pancreatic fistulae close of themselves, sooner or later. The author appends a bibliography of recent literature on the subject.

56. Ossification Disturbances of the Os Calcis.

. HEIM (*Zentralbl. f. Chir.*, May 5th, 1923, p. 698) reports a case of pain and swelling over the os calcis, associated with disturbance of the process of ossification of that bone—a condition which has already been described by several workers as a clinical entity, and is believed to be of the same pathological nature as Köhler's disease (scaphoid bone of tarsus), Schlatter's disease (tubercle of tibia), and Perthe's disease (hip). The case was that of a girl, aged 11 years, who had complained of pain in the left heel for three weeks, so that she could not stand upon the left foot. There was no history of trauma or other assignable cause. The left heel was swollen, especially at its outer part, and tender; the skin was stretched and pale, not reddened. In the radiograph the os calcis appeared indistinct and the trabeculae soft as though "blotted"; near the epiphysis was an irregular clear space about the size of a finger-nail. The epiphysis itself was indistinct in outline and irregularly ossified. The right os calcis appeared normal. The foot was kept at rest for four weeks in plaster, after which the heel had a normal appearance. At the end of seven weeks the foot was quite normal, and the patient experienced no pain whatever and had a normal gait. A radiograph taken after removal of the plaster showed no clear space in the os calcis, and the epiphyseal structure was now regular; the bony trabeculae of the calcis still appeared somewhat poorly marked. The importance of recognizing the condition lies in the possibility of mistaking it for tuberculous disease. As in Köhler's disease of the scaphoid bone, the prognosis is entirely favourable, and no operative measures are required. The pathogenesis is not yet explained, but there is no evidence that trauma, tuberculosis, syphilis, or rickets play any part therein.

57. Pulmonary Abscess following Tonsillectomy.

F. T. CLARK (*Boston Med. and Surg. Journ.*, May 31st, 1923, p. 846) reports a case of pulmonary abscess following tonsillectomy in which the tonsils were small and filled with cheesy detritus, necessitating removal with forceps prior to dissection, the operation lasting over an hour. Since there is a real danger of such complication when a general anaesthetic is used, local anaesthesia is advisable unless contraindicated, the chief exciting cause being the aspiration of infective material into the lungs due to desensitization of the respiratory tract during general anaesthesia. The risk is increased by the presence of tuberculosis, nephritis, diabetes, chronic alcoholism, and infection of the accessory sinuses, etc. Among errors of technique which may act as causative factors are excessive manipulation, undue laceration of the fauces, prolonged operation, and, in general anaesthesia, the failure to have the head lower than the body, and to guard against the inspiration of blood (*a*) during operation by the use of an efficient suction apparatus and (*b*) between the conclusion of the operation and the recovery of consciousness. Pre-operative technique consists in the administration of calcium lactate for four days, and thorough cleansing of the teeth, nose, and mouth, and one hour before operation morphine and atropine subcutaneously. General anaesthesia is obtained by warm ether vapour given through nasal tubes; when the operation is completed the nose and throat are irrigated with hot normal saline solution, and the patient is placed in bed in Sims's position. By such careful attention to details of technique the development of post-operative pulmonary abscess is reduced to a minimum.

Obstetrics and Gynaecology.

58. Recognition of Fresh Effusion of Blood in the Abdomen after a Ruptured Ectopic Gestation.

L. PISKACEK (*Zentralbl. f. Gynäk.*, June 9th, 1923, p. 920) discourses on the great difficulty in the diagnosis of a fresh effusion of blood into the abdomen, especially when peritoneal irritation has caused meteorism, which obscures the diagnosis by percussion and palpation. The author states that the well known signs, such as a quick, thready pulse, subnormal temperature, quickened respiration, etc., can all be found in other conditions. The history of amenorrhoea is, however, useful, especially if the patient has a blood-stained vaginal discharge; but a tubal pregnancy may rupture without a period being missed, the rupture occurring before the next period was due—a condition of affairs which occurred in one of his cases. Puncture of the posterior fornix does not always yield blood in such cases. The blue-green shimmer near the umbilicus, which has been described by many authors, is commented upon, the shimmer being most liable to be seen when associated with an umbilical hernia. Mention is also made of the sign, first noted by Dewes, of pain in both shoulders, which can be quickly incited by laying the patient level on her back and applying pressure to the hypogastrium. This pain is supposed to be due to blood being forced between the liver and the diaphragm and causing irritation to branches of the phrenic nerve, which reflexly gives rise to pain in the shoulders. This sign has also been noted by Herzfeld in several cases, and this same author puts forward a further sign—anuria—which is corroborated by Piskacek, who describes his case fully. The cause of the anuria is supposed to be a depletion of blood supplied to the kidney owing to the great abdominal effusion, and thus little or no urine is secreted. The author states that the sign is only of use if the secretion of urine has been normal before the tubal rupture.

59. Menorrhagia of Puberty.

ACCORDING to E. PESTALOZZA (*Rivista d'Ostetricia e Ginecologia Pratica*, May, 19th, p. 193), menorrhagia about the time of puberty is most commonly encountered in girls aged from 12 to 16; usually the patients belong to the middle classes and have just commenced collegiate life. With expectant treatment and a fresh-air life the symptoms disappear within the course of a few months. In certain exceptional cases the menorrhagia is grave and progressive, and the resulting anaemia is resistant to all forms of treatment. In these patients physical examination is usually negative; occasionally haemophilia, or abnormalities such as uterus bicornis unicollis, have been noted, and in one of the author's patients laparotomy revealed very considerable bilateral ovarian hypertrophy. Irradiation of one ovary so as to produce a temporary partial castration has been recommended for intractable cases; and the spleen has been irradiated, apparently with success, in cases of menorrhagia associated with deficiency in the blood platelets. There is reason for assuming that grave cases of menorrhagia at puberty depend either (1) on a disturbance of the haemopoietic system in connexion with the establishment of ovarian function, or (2), more rarely, when there are other associated haemorrhages, such as epistaxis, purpura, etc., on a primary haemopoietic disorder.

60. Pregnancy in Infected Myomatous Uterus.

M. A. GROSSE (*La Gynécol.*, March, 1923, p. 164) records an unusual case of persistence of gestation in a uterus containing a submucous myoma. During the latter part of the eighth month the patient, a 2-para aged 26, suffered for six hours from severe pain accompanying violent uterine contractions. At the termination of labour, which occurred ten days later, a midwife had difficulty in extracting one leg after the other foetal parts had been delivered. Considerable abdominal pain continued to be felt, and four days after parturition there was fever, with marked cachexia. On the tenth day a tumour, recognized as a gangrenous myoma, protruded from the external os and was removed per vaginam. Subsequent intrauterine exploration showed a perforation. The patient recovered after vaginal hysterectomy; the gangrene had extended to the fundus uteri in the neighbourhood of the insertion of the myoma, which was pediculated. A. BRINDEAU and DESOUBRY (Ibid., p. 165) describe a case in which the infection preceded labour. A 4-para, aged 30, complained of vaginal bleeding during the fourth month of pregnancy, and

speaker's very pleasant privilege to extend the congratulations of the International Committee at once to Great Britain and to one of the greatest of British surgeons—to Great Britain, the generous nation, whose splendid soldiers spilled their blood on Flanders ground in defence of right and civilization; and to Sir William Macewen, the illustrious surgeon, whose name was universally known, and to whom he was glad to offer a tribute of admiration and respect. Speaking for the visitors, he said that they were very happy and proud to visit the British surgeons. During the war British surgery took a large part in the renovation of surgical methods, and gave several proofs of its well-known originality, and its careful and ingenious technique.

Dr. LEOPOLD MAYER (delegate from the Belgian Government), who spoke in French, referred to the recent visit of the Prince of Wales to Belgium. His Royal Highness, in honouring the Society with his presence, had doubtless wished to show that he had not forgotten it was in Brussels twenty years ago that the Society was founded, and that its standing committee was composed of Belgians. He also, in thanking the Ministers who had welcomed the gathering, referred to the cordial relationship which existed between Great Britain and Belgium. Since the last congress there had been heavy losses in their ranks by death; he referred particularly to the death of Sir Charles Ryall, who had helped to lay down the lines on which the present meeting was to be held. He thanked Mr. Roberts and Sir D'Arcy Power for the amount of work and thought they had put into the arrangements for the gathering. He mentioned that at a meeting of the International Committee held the previous afternoon 184 new members were admitted to the Society, bringing the total up to 748, representative of twenty-eight nations. Certain alterations in the statutes would be submitted in order to prevent the financial position of the Society being seriously compromised by the disorganization of the exchanges. Contrary to the usual custom, the scientific sessions at the present meeting would take place in the mornings, leaving the afternoons to be devoted to visiting hospitals, laboratories, and university institutions, but this would not mean that the scientific sessions would be shortened or ill-attended. In conclusion he welcomed certain representatives in particular—those, namely, from Jugo-Slavia and Czecho-Slovakia, from Russia, and from Latin America—and paid a tribute to the Presidents of the sixth and the fifth congresses Sir William Macewen, whose qualities were very eminent, and Professor Keen of Philadelphia, whose activity and alertness seemed to belie the fact that on the previous day he had entered upon his eighty-seventh year.

Sir WILLIAM MACEWEN then delivered his presidential address, the Prince remaining until its conclusion. The address was received with much acclamation. It is published in full at page 91.

DISCUSSIONS.

SURGERY OF THE ENDOCRINE GLANDS.

The first meeting of the International Congress of Surgeons dealt with the surgery of the endocrine glands and from this debate the thyroid was excluded. A large field was thus given to the reporters, a field perhaps too vast for adequate discussion.

Dr. VEAU, of Paris, first spoke on the surgery of the thymus in early infancy. Three types of surgical intervention had been practised in hypertrophy of the thymus. Rehn, Koenig, and Deneké, had contented themselves with fixing the organ in the substernal space. Results had not been satisfactory, perhaps because respiratory movements were too great. The next type of operation was a resection of the manubrium sterni with or without thymectomy. It was important to consider the question of the removal of the gland in these cases. Dr. Veau did not think that resection of the bone without thymectomy was justified. It had never been proved that the trouble caused by a hypertrophied thymus was due only to an antero-posterior compression. Removal of the manubrium after thymectomy should be reserved for those cases in which it had been impossible totally to resect the superior pole of the adherent gland. Subcapsular thymectomy—an easy and not a dangerous procedure—should be the only routine operation in cases of enlarged thymus. The results of the operation were excellent. In spite of the desperate condition of many of the patients he could never remember a case of immediate post-operative mortality. Thirty per cent. of the infants were dead a month after the operation. This mortality must be carefully considered; deaths were due to several causes. In babies who had been submitted to a previous tracheotomy there was a great danger of infection of the wound. In cases of dyspnoea of unknown cause a blind tracheotomy should never be done. "If it is necessary to operate, do a thorough operation and see what you find." Bronchopneumonia was another cause of death. Care must be taken not to operate wrongly on children with tuberculous glands. If this were done generalized tuberculosis followed. Again, infantile diarrhoea sometimes caused a fatal issue. There were three main symptoms of an enlarged thymus—permanent dyspnoea, crises of suffocation, and stridor. In two-thirds of cases the dyspnoea was immediately cured by operation; in four-fifths the suffocation disappeared; the stridor was less amenable to treatment. It was a habit and only gradually disappeared. Ablation of the thymus did not interfere with growth. Nor should it, for only the superior poles of the gland were removed. The operation was a good and simple one. However, another therapeutic agent was at hand. X-ray treatment cured these babies without operation; the rays could be applied blindly—they seemed to do no harm. If a doctor was even suspicious of a hypertrophied thymus, his duty was to send the patient to a radiologist. Then the diagnosis was less important. A thymectomy ought not to be done like an exploratory laparotomy. One or two points in connexion with radiotherapy should be noted. Occasionally it was ineffectual. If after one or two applications the symptoms persisted, thymectomy should be done. It was said that grave events sometimes followed the application of the rays. After six, seven or eight hours symptoms suggesting infantile cholera developed. The child became cold, a little dyspnoeic, and sometimes had bad diarrhoea. The periphery was cold; there was a high central temperature. *Post mortem* one found the gland had disappeared. Sometimes there were symptoms of a mild meningitis. These cases were so rare that they should not prevent x-ray treatment; but till the effects of the rays were proved by time the surgeon must not imagine his work on the thymus finally completed. There was, moreover, for him always the urgent case of the child near asphyxiation in whom the cervical incision had displayed a hypertrophied thymus.

Although Dr. LORTHIOIR of Brussels did not speak next, it will be of interest to take his remarks at this point. The physiology of the thymus was, he said, still largely a matter of conjecture. Probably it was related in some way to growth. The indications for operation he believed to be many. Thymic asthma—too well known to need description—respiratory insufficiency, atrepsy, general debility, all called for thymectomy. There was an analogy between ablation of the thymus and of adenoid vegetations. The time would come when thymectomy would be practiced as frequently as the removal of adenoids is now accomplished. The operation was simple. Any anaesthetic could be used—he usually advocated chloroform. Considerable care must be taken in advising the drug. The local anaesthetic was impossible in a baby. The submembraneous enucleation of the gland was the most difficult part of the operation, which could be total or subtotal. There should be practically no bleeding. He believed that the x rays affected other structures besides the thymus and were thus dangerous. They should remember that the operative mortality was nought.

Dr. W. J. MAYO, of Rochester, U.S.A., discussed the splenic syndrome. From the time when the Greeks were supposed to have removed the spleen from their long-distance runners there had not been, till recently, any great advance of knowledge in its functions. It was now known that the spleen was concerned with the blood and was closely associated with the liver. It was chiefly a mechanical filter, removing from the blood degenerated red cells and toxic agents above colloid size. Such were micro-organisms and débris on which it acted before sending them to the liver for further detoxication and elaboration. It also

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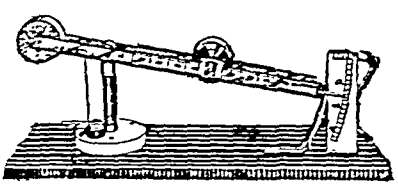

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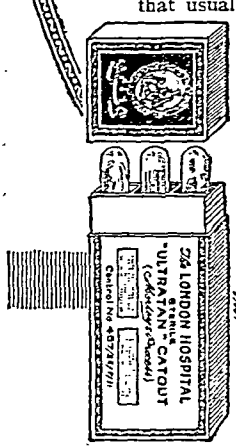

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Mr. Sargent advocated the frontal approach to the gland.

Dr. SERGE VORONOFF said that in the Collége de France he had been able to obtain durable ovarian, thyroid, and testicular grafts. Recently he had become interested in testicular grafting in men. Owing to the difficulties of obtaining human graft material he had utilized the testicles of chimpanzees and cynocephalic monkeys. Since 1917 he had been seeking a method to ensure long survival of the grafts. Many experiments on animals had been made. At present he had three cases dating back two years and nine months; two cases dating back two years and seven months; and one case dating back two years and eight months from operation. In all these cases the effects of testicular hormone artificially obtained by grafting was very apparent. Not only was there a subjective appreciation by patients, but such physiological phenomena as lowered blood pressure, loss of weight in obese subjects, production of better vision in hypermetropic subjects through increased tonicity of the lens and accommodative muscles, new growth of hair, etc., had been demonstrated. The size of the gland, or piece of gland, transplanted was important. Early he found that an entire testicle would not grow. Then he went to the other extreme and put in minute pieces. These were absorbed. Now he divided a testicle into six pieces and grafted three of the lamellae on to the visceral surface of one tunica vaginalis, and three on to the other. These were successful. All aseptic precautions were taken. Testicular grafts from young monkeys had not been successful; the animal must be mature. Forty-four of these cases had been done; of these six were doctors. The effects had been put down to auto-suggestion. For three months after the operation there were no appreciable effects. During these three months the doctor patients scoffed. Afterwards they began to appreciate the effects of the treatment.

Mr. IVOR BACK, who has been working in Paris, supported (in English) Dr. Voronoff's contentions. Mr. WALTON advocated the frontal approach to the pituitary gland. Dr. BANTING remarked that insulin helped surgery by getting rid of acidosis and acetone and thereby permitting grave operations on diabetics.

Drs. HENRY (Dublin), KOCHER (Berne), FROELL (Stockholm), Mr. PYBUS (Newcastle-on-Tyne), and others spoke.

[The remainder of the discussions will be reported in our next issue.]

CONVERSAZIONE AT THE UNIVERSITY OF LONDON.

On the evening of Monday, July 16th, a reception conversazione in honour of the Society was held at the University of London. The guests were received in the marble hall by Mr. H. J. Waring, Vice-Chancellor of the University, and Mrs. Waring. The String Band of the Scots Guards played a selection of music in the grand hall, and the galleries of the Imperial Institute were also open. In the library of the university were displayed a number of rare books, including the contemporary manuscript of the life of the Black Prince, which has been placed on permanent loan by the Prince of Wales. The guests, who numbered over six hundred, included, in addition to members of the International Society of Surgery, many representatives of universities and other learned bodies.

PRESIDENT'S RECEPTION.

On July 17th at 8.30 p.m. the President of the Congress, Sir William Macewen, received members of the Congress in the rooms of the Royal Society of Medicine. During the evening the President gave a further discourse, illustrated by lantern slides, on the growth of bone.

LUNCHEON BY THE GOVERNMENT.

The British Government on July 18th entertained at luncheon at the Savoy Hotel a number of members of the Congress, and some others. The Minister of Health was in the chair, and had on his right hand Dr. Willems (Liége), chairman of the permanent Executive Committee of the congress, and on his left Dr. Henri Hartmann, professor of surgery in Paris. After giving the toasts of the King, and of the Sovereigns of the Kingdom and Presidents of the Republics represented, Mr. Neville Chamberlain gave that of "Our Guests" in a short speech in which he referred to the presence of Dr. W. W. Keen of Philadelphia, who was president of the last congress of the International Society of Surgery in Paris three years ago. He touched on what has been accomplished in this country for the health of the people, as evidenced by the decline in the death rate and in the rate of infant mortality, and expressed the pleasure with which the British Government welcomed the representatives of the profession, which in all countries was labouring for the same end. He coupled the toast with the name of Professor Hartmann, who in a brief reply referred to his earliest visit to this country to learn the system of antiseptic surgery introduced by Lister and demonstrated by him at King's College Hospital. The president, Sir William Macewen, proposed in a few words the health of Mr. Neville Chamberlain, who made a brief response.

NEXT MEETING.

It has been arranged that the next congress of the Society shall be held in Poland, at Warsaw, in 1926.

BADGE.

The badge of the congress is a bronze medal having in relief the seated figure of John Arderne, which was reproduced in our columns on December 9th, 1922 (p. 1127), surrounded by the inscription "Int. Surg. Soc. VI. Congress: London, 1923."

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Small-pox.

SIR GEORGE BERRY inquired, on July 11th, whether the Minister of Health was satisfied with the manner in which the Vaccination Acts were being administered, and whether, if not, he was prepared to take steps to enforce rigid compliance with them. Mr. Chamberlain said that the responsibility for the administration of the Vaccination Acts rested with the boards of guardians and their vaccination officers. He was not satisfied that the Acts were being properly administered in all districts, and he was considering what steps could be taken to secure improvement in this respect. Dr. Fremantle asked whether the Minister would consider the transference of the administration of vaccination to the general sanitary administration under the sanitary authorities. Mr. Chamberlain replied that this question had been under consideration, but he could not undertake to introduce the necessary legislation during the present session.

The following statistics have been supplied by the Ministry of Health:

No. of Cases of Small-pox Notified in each of the Years 1892–1910 inclusive in certain Large Towns (including London), with a Total Population of such Towns.

Year.	Cases.	Population.	Year.	Cases.	Population.
1892	1,9 9	11,833,279	1902	13,923	18,697,791
1893	10,438	11,894,990	1903	7,383	18,781,337
1894	6,319	12,312,200	1904	5,766	19,845,072
1895	1,949	12,257,700	1905	2,338	20,333,503
1896	2,713	12,769,163	1906	1,020	20,653,699
1897	195	13,035,255	1907	127	21,050,550
1898	1,561	13,128,484	1908	22	22 189,310
1899	931	13,128,484	1909	87	20,029,850
1900	486	13,244,357	1910	108	21,662,6.2
1901	1,980	15,555,319			

No. of Cases of Small pox occurring in England and Wales in each of the Years 1911–1922 inclusive.

Year.	Cases.	Year.	Cases.	Year.	Cases.
1911	289	1915	93	1919	311
1912	121	1916	159	1920	283
1913	113	1917	7	1921	356
1914	65	1918	63	1922	973

Percentage of Vaccinations to Births in Each of the Years 1892–1921 (inclusive).

Year.	Percentage.	Year.	Percentage.	Year.	Percentage.
1892	74.5	1902	74.8	1912	50.1
1893	72.3	1903	75.4	1913	46.5
1894	70.4	1904	75.3	1914	44 6
1895	67.8	1905	75.8	1915	45.5
1896	66.0	1906	73.4	1916	44.7
1897	62.4	1907	70.9	1917	43.3
1898	61.0	1908	63.2	1918	41 5
1899	66.4	1909	59.8	1919	40.6
1900	63.7	1910	55.9	1920	39 5
1921	71.4	1911	52.3	1921	33.3

The figures for 1922 are not yet available.

British Medical Association.

NINETY-FIRST ANNUAL MEETING, PORTSMOUTH, 1923.

President's Address

OF

ENVIRONMENT AND HEALTH.

BY

CHARLES P. CHILDE., B.A., F.R.C.S., M.R.C.P.E.,
SENIOR SURGEON, ROYAL PORTSMOUTH HOSPITAL.

LADIES AND GENTLEMEN,—My most pleasing task to-night is that embodied in the first words I have to say to you. They are to extend to you, as President of this Association, the warmest possible welcome to Portsmouth. Although I do this first in the name of the Portsmouth Division, which has invited you to hold your meeting here, and is consequently your official host, yet I wish at once to assure you that this welcome is equally shared by the general body of medical practitioners in the neighbourhood, by the Corporation, by the naval, military, and air forces, by the business community, by the press, and by all classes of the inhabitants. All have contributed without stint in their endeavour to make this meeting one agreeable to you, as well as worthy of the hospitality and prestige of Portsmouth; and I feel, and I am sure the Division would feel, that I had been guilty of an omission if I did not freely and generously acknowledge this at the very outset. This whole-hearted joining of hands for a common purpose is evidence of a loyal and healthy citizenship, of which Portsmouth has furnished abundant examples in the past, both in the grim circumstance of war as well as in many historical functions of peace.

We shall have amongst us during the present week men and women belonging to the profession of medicine from all over the globe; from all parts of the British Isles; from our overseas Dominions; from the great continent of America. These are our own flesh and blood; all members of the Anglo-Saxon community of peoples. Need I say they are all equally welcome? And need I say that equally welcome with these are our distinguished foreign visitors? Indeed the word "foreign" is somewhat out of place at our meetings; for there are no foreigners in the profession of medicine. Medicine knows no frontiers. It is a working illustration of the international as opposed to the national conception of society. We have in being a Medical League of Nations. As far as the policies of medicine are concerned, as far as its problems are concerned, as far as its aims and ideals are concerned, there is only one race, and that the Human race; only one nation, the nation of Men and Women. All its discoveries, all its developments, all its weapons, both offensive and defensive, are common property, to be used by all, for the benefit of all. It has no crafty policies, no patents, no jealously guarded secrets, no selfish practices, at the disposal of one nation to the detriment of another, or of one class to the detriment of another. Its enemies, disease and death, are foes common to all mankind. If the nations of the world devoted their energies and opportunities internationally in the same sense that medicine does—to fighting the universal foes of mankind that confront us at every street corner; to remedying the many hardships and handicaps that are quite as painful and crippling as disease; instead of to the periodic pursuit of mutual self-destruction, styled by the strangest of paradoxes "civilized warfare," we should be a happier as well as a healthier world to-day; and incidentally we should not have to congratulate ourselves on a public debt of £8,000,000,000 and an income tax of 4s. 6d. in the £.

Portsmouth has been singularly fortunate in the honour you have bestowed upon it in visiting it twice within a quarter of a century. Considering that it does not possess a university and is not a centre of medical education—a handicap of no small extent in a gathering of this character—it is a great compliment that, having met here so recently as in 1899, the Association has repeated its visit this year.

It will recall two honoured memories if I mention that the late Dr. Ward Cousins was your President in 1899, and the late Alderman Sir Scott Foster our Mayor. The former was for years a member of the Council of the Association, a very regular attendant at these meetings, and he was one of the staunchest and most active supporters of the British Medical Association throughout a long life; that the latter was one of the most distinguished and respected public men that Portsmouth has known. It is peculiarly fitting that his younger brother, equally distinguished and equally respected in his public life, should occupy the mayoral chair to-day on the occasion of your second visit.

Inasmuch as the Printing and Publishing Committee has compiled a *Book of Portsmouth*, which will be presented to every member on registration, I do not propose to say anything of the history of Portsmouth, though it would have furnished engrossing material for an address, and I was sorely tempted to avail myself of the opportunity. But on consideration it seemed hardly fair to ask the Committee to go to the trouble of getting out a *Book of Portsmouth*, and then to anticipate the result of their labours by my remarks to-night. I have therefore chosen quite another subject. But before embarking on it, I should like to touch in the briefest way upon two or three current local topics. It was not till 1920—that is, three years ago—that Portsmouth, for the first time in its history, forsook its island home in Portsea, and crept out on to the mainland, embracing the village of Cosham immediately to the north, and to the west some 500 acres of the southern slope of Portsdown Hill. This extension, there is not the slightest doubt, will be in the future—indeed it has already begun to be—an invaluable asset to the town; for here is one of the most salubrious building sites in the kingdom, and within easy distance of the island of Portsea. It is

England and Wales.

MENTAL HOSPITALS ASSOCIATION.

THE fifth annual meeting of the Mental Hospitals Association was held at the Guildhall, London, on July 12th, under the chairmanship of Alderman Francis Bate.

The chairman said that the chief matter of discussion was the Mental Treatment Bill, which included many of the proposals which the Association had actively pursued in the past. It was the view of the Executive Committee of the Association, which had addressed a communication to the Minister of Health on the subject, that the bill contained provisions which, if passed into law, could not fail to prove beneficial to those suffering from incipient mental illness, although the various clauses were not as far-reaching as had been desired.

Various suggestions on the clauses of the bill as put forward by the Executive Committee were then considered. The principal discussion centred around Clause 4, Subsection 4, which states that one of the medical practitioners making a recommendation for treatment shall be a person approved for the purpose either by the Board of Control or by the local authority. The Executive while realizing that a similar provision existed in the Mental Deficiency Act, 1913, was of opinion that in this case it was open to grave objection. In small areas it would impose on either the Board or the local authority the obligation of making invidious distinctions between local medical practitioners. No useful purpose would be served by the enactment, and it was highly probable that it would add to the expense and inconvenience which must necessarily attach to any application made on behalf of a person requiring temporary treatment. An amendment was moved by Alderman H. E. Witard (Norwich), seconded by Alderman D. J. Davis (West Ham), to the effect that the practitioner in question should be one who had expert knowledge in mental cases. It was urged that the stigma attaching to any who had spent even a short time in a mental institution was such as to make it imperative that the responsibility of sending anyone there should rest only on the expert. On the other hand, it was urged that there were not enough practitioners having expert knowledge available, although every medical practitioner had a general knowledge of the subject. The amendment received little support, and was negatived, and the Committee's recommendation objecting to the subsection was endorsed. Another suggestion which was agreed to by the meeting was that certain provisions with regard to after-care militated against the voluntary principle. It was considered that it was undesirable that after a patient had been discharged upon a trial he should be in any way associated with the institution.

The hope was also expressed by the meeting that the scope of the subsection dealing with out-patients might be amended, and the privileges enlarged. It was pointed out that if the definition of the word "institution" in the Lunacy Act, 1890, and in the Mental Deficiency Act, 1913, was to be applied to the bill, a visiting committee would not be able to contribute to the cost of an out-patient department for mental treatment in a general hospital. Moreover, where, as in many instances, he mental hospital was situated at a considerable distance from large centres of population, it might be desirable to institute an out-patient department away from the mental hospital. Other suggestions, introduced by the Committee and upheld by the meeting, concerned the question of expense of administration and maintenance. Another question which was brought forward was the responsibility of the Ministry of Pensions for the cost of ex-service men in mental hospitals. A matter which had arisen in this connexion in Newcastle, where it was alleged the Ministry had refused to accept the cost, was referred to the Executive Committee.

A long report was presented on the proceedings of the Joint Conciliation Committee which has been engaged on the work of improving and stabilizing the conditions of service of the nursing staff in mental hospitals. The report was adopted.

Alderman Bate was reappointed Chairman of the Association, and all the officers were re-elected.

NATIONAL COUNCIL FOR MENTAL HYGIENE.

A public meeting called by the National Council of Mental Hygiene was held at Caxton Hall, Westminster, on July 12th. Sir Courtauld Thomson, who was in the chair, said that this was the first meeting of the National Council of Mental Hygiene since it became a legally constituted body. Its main object was the preservation and improvement of the mental health of the nation. This vital question was being studied, and would be studied more in the future, by various schools of thought. The fact that every avenue leading up to the solution of this difficult problem was now being explored was not a sign of weakness, but rather showed that the movement was alive and virile. It would be the duty of the Council to co-operate with every association and public body which was honestly trying to throw light on this important question. Laymen like himself on the Council considered it a great honour to be associated with the medical profession in this work. There were many ways in which laymen could help: they could stimulate and support legislation, advise local authorities, assist in propaganda campaigns, and relieve their medical friends of some of the routine and organization work necessary to a movement of this kind.

Mr. Clifford Beers, founder of the National Committee for Mental Hygiene in the United States, then gave some account of what is now being done in this direction there. A beginning had been made in those preventive directions which were likely to yield the best results. About 90,000 dollars a year was given to the National Committee for Mental Hygiene to assist in preventing juvenile delinquency. The Committee had established three mobile clinics each of which was given to a particular city for a year in order to demonstrate what could be done with the "problem" child of the city, and as a result permanent clinics had now been set up at St. Louis, at Norfolk (Virginia), and at Dallas (Texas). An international congress was to be held in the United States in 1925, and he believed that within ten years the mental hygiene movement would be the outstanding health movement of America. He spoke at some length on suicide cases, two-thirds of which, he believed, might be prevented. The number of suicides in the United States was between 10,000 and 15,000 a year, and this toll of life would continue until mental clinics were in general operation.

Sir Maurice Craig said that until now very little had been done in mental cases before a complete breakdown occurred. Yet mental disorder was not a sudden event; it was of slow growth, and long before disintegration took place there were minor mental changes and emotional disturbances. The beginning of mental trouble was often an unhappy childhood. As for the child who developed criminal tendencies, he had asked an authority on the subject how early he could tell the criminal type in school, and the reply had been that this could be done very frequently at as early an age as six or seven. Asked further what was done in these cases, the reply of the authority was "next to nothing." The work of the Council, Sir Maurice Craig continued, was to collect knowledge, to survey the position, to instruct the public, and to join hands with similar bodies in other countries, for this movement was becoming international. It was most important that medical men and laymen should work together; they could not get behind the medical problem unless this were done.

Viscount Burnham said that one of his vivid recollections was of seeing in the City of Damascus thirty years ago people who were supposed to be suffering from mental affliction chained up against the bare wall of a brick enclosure. That was an oriental example of extreme barbarity, but in its principle and essence, apart from its more obvious cruelty, it was not so very far removed from the manner in which mental disorder used to be treated here and in nearly all countries.

A hearty vote of thanks was accorded to the Chairman and speakers on the proposition of Dr. Helen Boyle. The meeting was attended by a number of distinguished people, including the Spanish Ambassador.

ing conditions which favour the growth, dissemination, and virulence of the infecting organism, by so altering environment and increasing natural resistance, whatever that may precisely mean, that many diseases which have been very prevalent and very fatal in the past have almost or entirely ceased to exist, and are no longer of any account. Let me give you one or two very familiar examples.

Take typhus fever. During the last century it prevailed in all the large cities of Great Britain and the Continent. So late as 1875 in England and Wales there were 1,499 deaths from the disease. During recent years the name "typhus" has seldom appeared in the Registrar-General's returns. It is a disease essentially dependent on filth and overcrowding. Bad as these conditions are even now in our large industrial centres, the disappearance of this disease is evidence of an improvement as compared with half a century ago—an improvement in environment and an improvement in natural resistance, owing to better living conditions, sufficient to have caused its disappearance altogether. After the peace of 1815, following a long and exhausting war, when the economic position was somewhat similar to that existing at the present time, typhus fever and relapsing fever, which occurs under similar conditions to typhus, were rife in England and Ireland. No such catastrophe has accompanied the economic depression following the last great war.

Take, again, typhoid fever. It is a water-borne disease. Bad drainage and a contaminated water supply are the factors favouring its distribution. Its prevalence or the reverse in a community is the measure of their sanitary intelligence and enterprise. Filth, overcrowding, and bad ventilation are factors conducing to its prevalence, by lowering natural resistance. The marked decline in typhoid fever is again the result of an improvement in environment. Typhoid fever has declined from 375 per million in 1870 to 25 per million at the present time. In Portsmouth typhoid fever, quite prevalent in the town when I came here thirty years ago, has almost ceased to exist.

These are examples of diseases which have disappeared, or are disappearing, owing to action following an intelligent study and comprehension of the conditions and environment favouring their distribution.

Now, "environment" is obviously a very wide term. It embraces living conditions generally. The amount and quality of food and water, the presence or absence of domestic hygiene, the supply or not of good drainage, the furnishing or not of healthy conditions in factory and workshop, the prevalence or not of smoke and fog, the provision or not of adequate open spaces, playgrounds, and recreation grounds, access or not to sound education—these and many others are all factors in environment. And it is satisfactory to note that these matters are receiving from governments and local authorities some of the attention which all of them deserve. But I propose to-night to consider for a few moments the special environmental factors governing the slum areas of our great industrial centres—the lack of fresh air and sunlight, and the cramped and penalizing conditions to health, both moral and physical, owing to overcrowding; and to inquire what bearing these factors have upon four out of five of the most formidable endemic scourges which afflict all northern civilized peoples to-day.

The five scourges I allude to are Cancer, Tuberculosis, Rickets, Venereal Disease, and Alcoholism. Tuberculosis and rickets account for most of the cripples we see about us; cancer, tuberculosis, venereal disease, and alcoholism account for most of the deaths; venereal disease and alcoholism account for most of the misery and moral degradation of our race.

We may dismiss cancer at once from the count. The humiliating confession must be made that we know very little about it. That it has some relation to civilized environment seems evident from the fact that it is a comparatively rare disease among primitive races, and that it is certainly making rapid headway among all civilized peoples. But of the nature of the environment favouring its activities we are in complete ignorance. It is neither foul air nor fresh air, neither hardship nor indulgence, neither poverty nor riches. Cancer like death—

> "Aequo pulsat pede pauperum tabernas,
> Regumque turres."

The only things we know about it which are worth knowing are its age incidence, its relation to chronic irritation, and the fact that it is in its beginnings a local disease, and that therefore it can be cured by early removal in those situations where removal is possible.

This is practically all we know about cancer. I wish to make only two comments. The first is that this knowledge is not enough. In an age which has yielded the secrets of so many diseases it is a point of honour with the medical profession not to rest content till this pressing problem has been solved. With the public it is not only an obligation but, from the point of view of their own interest and safety, a vital necessity to furnish the financial means of solution, and to see to it that research is not crippled or stinted by any niggardly parsimony.

The second comment I make is this: The most important fact we know about the disease is that in its beginnings it is local, and that its course is a centrifugal spread from its local point of origin. Is that knowledge anything like as productive as it might be? Undoubtedly it is not. Notwithstanding the fact that cancer has been cured over and over again by modern operation—a fact which in itself proves that it is curable—yet I believe patients come no earlier to the doctor with it than they did thirty years ago, though time is the very condition of the only cure we possess for it. Many medical men, and I confess I am one of them, are of opinion that there is considerable room for improvement in this direction. Without resort to any sensationalism some obvious steps could be taken to spread the knowledge of a few very simple facts about cancer. This would give a by no means unwarranted ray of hope to the public and would enable some of the victims of this terrible disease to apply in time to have, at all events, a chance of cure or freedom from recurrence, whichever you like to call it. This by the way.

I pass on to the consideration of the other four scourges—tuberculosis, rickets, venereal disease, and alcoholism.

Tuberculosis first. We know the cause; it is the tubercle bacillus. We know also the prime and essential conditions of its cure; they are fresh air and sunlight. These are not only the essential conditions of its cure, but are almost the sole conditions. Those of you who are interested in the subject will have an opportunity of visiting the establishments at Alton and Hayling Island, under the able administration of Sir Henry Gauvain, where the cures are fresh air and sunlight. Dr. Rollier of Leysin read a most instructive paper at the Glasgow meeting last year, and quoted many instances of cures, and lasting cures, by these agencies in all regions of the body. It is foreign to my purpose to discuss to-night the method or supposed method of their action, or the method of their application. If, then, these agencies, fresh air and sunlight, are, as we know they are, so powerfully antagonistic to tuberculosis—whether by directly controlling the activities and virulence of the tubercle bacillus itself or by fortifying the natural resistance and so enabling the human organism to establish an immunity to it (it matters not, the result is the same)—are we not justified in the converse conclusion, that the breeding ground of this disease, the environment most encouraging to its activities, are the sunless, airless, overcrowded, and insanitary slum areas of our great cities, where houses are built forty or more to the acre, and stand back to back, and side to side, like any jig-saw puzzle, so that fresh air and sunlight, the proved destructive agents of the tubercle bacillus, can never enter? Is it a sound economic proposition to equip and maintain, at the cost of millions of the taxpayers' money, sanatoriums for the so-called cure of tuberculosis, while we guard intact the very preserves of this disease by the exclusion of fresh air and sunlight, which cost nothing, and maintain in our midst a soil which can breed more tuberculosis in a week than all our sanatoriums can cure in a year? Dr. Rollier says:

> "Housing has played an immense part in the genesis of child and adult tuberculosis: the community bears the responsibility of the waste of human lives through insanitary houses."

0.34, by 5.30 p.m. it is 0.48. Yet all his symptoms have disappeared and he is full of the joy of life—no thirst, no polyuria, no neuritis.

This case is typical. What has struck me most is the quick acquisition of a sense of mental and physical well-being. Of course in all these cases I correlate the dose of insulin and the diet with the blood sugar findings as well as one can with the limited amount of insulin available.

In view of these results one can only conclude that insulin is a practical proposition, and that every diabetic patient who is handicapped in the struggle for existence by the complaint should be urged to spend what money he can afford on insulin, resting assured that it shall be returned to him a hundredfold in strength, happiness, and increased earning capacity.—I am, etc.,

Hornsea, E. Yorks, July 11th. ALEX. J. W. CALDER.

HISTORY OF MILITARY MEDICINE.

SIR,—In the BRITISH MEDICAL JOURNAL of March 10th (p. 419) General Sir W. G. Macpherson prints a long and courteous review of my *Notes on the History of Military Medicine*, in which, while pointing out several inexcusable blunders, he indulges in a little quibbling at my expense. At the end, where his chaffing culminates in "pyramidal pleasantry," my reviewer intimates that I do not even know the military significance of barrage fire or that daylight salvage of the wounded was possible before the barrage was invented. If one considers, however, the sad plight of wounded soldiers left for hours on the field in many great battles of the past (including some of the world war), I think it will be admitted that the barrage promoted efficiency in evacuation of the wounded, apart from its purely military aim.

My statements about the ultimate use of the evacuation hospitals and centres of *triage* referred, of course, to the American lines. In regard to the British casualty clearing stations, the parent of these devices, I stated on page 192 that they were invented in 1907—that is, five years after the conclusion of the South African war. That I date their origin in the period of the war itself seems an unwarranted inference.

My figures concerning Marlborough's march to Blenheim were not the result of mathematical calculation, but were taken on trust from Sir A. A. Gore's *Story of Our Service under the Crown* (1879). I regret that a book so interesting and informing should be misleading on this point. My figures of national battle losses in the world war are, for the most part, obviously rough estimates, but were the only thing of the kind available. They may be appraised in the light of Dr. Johnson's dictum: "Round numbers are always false." Those who expect too much from statistics of wars with heavy battle losses, particularly those in Eastern Europe from the earliest periods, may find consolation in the French proverb, *La plus jolie fille au monde ne peut donner que ce qu'elle a.* How such round numbers were ever evolved from the confusion and disorder following a pitched battle is one of those *problemas para solucionar* of which the Spanish-speaking physicians incessantly write. This is true of some of the statistics of the Napoleonic, Crimean, and Austro-Prussian wars. My failure to account for the work of the Austrian medical department in the pre-Napoleonic period is a serious error of omission, but that Brambilla and Sax are more important than Larrey and Letterman in the history of "collection, evacuation, and distribution of the wounded" will be news to American medical officers. I saw no mention of this view in the English, German, and French sources available (including Longmore). As for the assertion that the Brambilla-Sax sytem was subsequently adopted by the Continental and British armies, I am at this moment 10,000 miles away from any reference books, and beg that this momentous claim to perhaps the most important advance in modern military medicine be confirmed by textual verification.

The statement that my Notes were "largely culled from the writings of Frölich" will not, I think, be confirmed by anyone who is familiar with these writings or who has examined the pamphlet and its footnotes in relation thereto. Frölich's derivation of the Homeric ἰητρός from the concept "arrow" rather than from the verb "to heal," has, however, some justification, in that the Homeric "healer" was not a medicine-man but a wound-healer, as in the old High German epics in which surgery is *Heilkunst*. In this view, the verb ἰάομαι would connote wound-healing, and might have the same root-concept as ἰός.

In conclusion, I beg to say that my pamphlet was intended, not for the "instruction" of medical officers proper, but as a stimulus to further study among student officers at the Army Medical School, Washington, D.C., and that its title "*Notes*" conveys this fairly modest intention. I am glad to have perpetrated a few blunders in 206 pages, in view of their eventual correction by military authority so high.—I am, etc.,

F. H. GARRISON,
Manila, P.I., May 17th. Lieut.-Colonel, Medical Corps, U.S.A.

SIR,—You have kindly given me an opportunity of replying to Lieut.-Colonel Garrison's letter in which he criticizes my review, in the BRITISH MEDICAL JOURNAL of March 10th, 1923, on his *Notes on the History of Military Medicine*.

I will be as brief as possible. But first of all I must disclaim any attempt at quibbling or pleasantry in that review, and, moreover, I venture to think that no unbiased reader of it could discover any indication of such in it. I certainly fail to do so myself, and, in fact, nothing could be further from my wishes or intention than to indulge in any frivolity at the expense of so distinguished a colleague as Colonel Garrison, for whom I have the greatest respect and admiration, and from whom I have learnt so much. It was a reviewer's duty, however, to point out the errors which Colonel Garrison himself handsomely acknowledges to have occurred in his *Notes*, more especially as historical errors are apt to be perpetuated by repetition.

As regards barrage fire, I can state definitely, from personal observations during almost all the battles on the British Western Front, that wounded were cleared as rapidly before as after the introduction of barrage methods of attack; barrage, in fact, had absolutely no influence one way or the other on the work of clearing the wounded.

Colonel Garrison has entirely misread my remark about the casualty clearing stations. I did not say that he dated their origin to the South African war. What I did say was that he is wrong in implying their origin to the faulty organization of the field medical units during that war instead of to their faulty organization after the war—that is to say, to the faulty organization of the field ambulances during the reorganization of the bearer companies and field hospitals which existed at the time of the war.

He has cleared up the statement about Marlborough's march to Blenheim, but in doing so he offers us an extremely interesting example of how historical truth becomes perverted. He now tells us that the authority for his statement "Marlborough's celebrated march to the battlefield of Blenheim covering 1,176 miles in 86 days" was Sir A. A. Gore's *Story of Our Service under the Crown*. This book was a reprint from an article by Surgeon-Major A. A. Gore in *Colburn's United Service Magazine*, and this is the statement in it:

"Marlborough's campaigns are also to be remembered for two marches of historical interest. His celebrated march commencing 19th May, 1704, and ending in the crowning victory of Blenheim on 13th August; and the march of the Prince of Hesse, rarely equalled for rapidity and execution. The first was commenced on the breaking up of winter quarters, the troops returning in the autumn during which they covered 1,176 miles (Millner)."

Now Gore bases his statement on Millner. Who, then, was Millner? He was a sergeant in the Royal Regiment of Foot of Ireland—in other words, the Royal Irish Regiment—who kept a journal and published it in 1733, and the following extract tells us of the origin of Gore's statement as modified in Colonel Garrison's notes:

"The tedious but ever glorious, memorable and victorious campaign of 1704 was in length 30 weeks and one day; commenced the 24th day of April and ended on the 20th November; of which our Corps with the Grand Army, and apart, to, in and back from Germany march'd and sail'd ninety-one days and therein three hundred and ninety-two leagues or eleven hundred and seventy-six miles English."

, a good deal was said about the improvement of the lic-house; but nobody suggested that, by devoting ater attention to the home, we might go a long way improving the public-house out of existence altogether. nkenness stands in much the same relation to bad sing conditions as immorality and venereal disease, , moreover, is admittedly a potent factor in the dis- ination of the later.

n the foregoing remarks I have endeavoured to em- asize the relation of the special environmental factors the slum areas—lack of fresh air and sunlight, and over- wding—to four out of five of the great endemic scourges icting the community at the present time. I have said hing of their relation to epidemic diseases, though there o doubt that some of the latter are powerfully influenced the same factors. For instance, pneumococcus lung ection is certainly a disease mainly of cities and crowded ces, the infection spreading from pre-existing cases or lthy carriers. Observations in South Africa showed t natives who had recently arrived at the mines and upied crowded compounds were most susceptible; and rgas, in a report upon pneumonia in the Rand mines, ws attention to the fact that there was the same high idence among labourers in the Panama Canal zone, til they were removed from crowded compounds and couraged to live in separate huts. The high mortality ending measles is probably attributable to similar con- ions. Epidemic disease is, however, more elusive and s under control, and for that reason I have omitted it m argument.

f, then, I have submitted evidence that, by a deter- ned attack upon our slum areas, there would be a reason- le expectation of making a beginning of the end of four t of five of our most formidable endemic diseases, the estion is, Would it be worth while? Not as a sociological nture, or on humanitarian grounds, or as a moral ligation, on any of which there would be little difference opinion; but "would it be worth while" as a business position? Because, however satisfying it may be to our sciences to prate of social and moral duties to our low men, when it comes to doing anything, and pecially to spending taxpayers' and ratepayers' money, is usually the business and economic aspect of any ques- n which mostly counts. It is, therefore, from this point view only that I approach it, and I omit all moral con- derations. Besides, moral values cannot be assessed in unds, shillings, and pence, though nobody would deny at they represent a very real asset.

In a paper read at the meeting in Glasgow last year, titled "The economics of public health," Lieut.-Colonel remantle, consulting medical officer of health for the unty of Herts, by a series of calculations, estimates the tal direct material loss in England and Wales from ckness and disability at a minimum of £150,000,000 a ar. From tubercle alone the estimated loss is £94,000,000 year. In the United States of America, with a popula- on three times as great as England and Wales, the timated cost of sickness and death is £600,000,000 a year, which at least one-third is considered preventable. aking the cost to this country of sickness and disable- ent at £150,000,000 per annum, the country could spend ithout loss £50,000,000 annually, or, capitalized at 5 per ent., £1,000,000,000 on clearing the slum areas and curing better housing and living accommodation, pro- ided that the cost of sickness and disablement were ereby reduced by one-third.

What actual sum would go to the credit side of the ation's health bill it is obviously impossible to determine. would admittedly, therefore, be a speculation. But it ould not be a bogus venture. An assured dividend of con- derable amount is in sight. The improved physique of e nation; its better health; the diminution certainly, e extinction possibly, of such diseases as tuberculosis and ickets; the improved moral tone of the people, and the esultant diminution of venereal disease and its conse- uences; decrease in the consumption of alcohol with its isastrous effects on infantile and adult mortality, with the isery and moral degradation it brings to the home, with e loss of time, increase of industrial accidents and industrial inefficiency it entails—these and other items are the prospective dividend. Whether it would or not strike £50,000,000 off the annual health bill is the speculation. In this connexion I would remind the overcautions and those averse to any kind of speculation or any degree of risk, that it is the speculators who have made this great empire—the men of courage and enterprise, men who have faced the uncertain and the unknown, and have not been afraid to take risks. And if we have not been afraid to speculate in adventure, in arms, in trade, and in business, why should we be afraid to speculate in health?

To face the risk would require a bold and imaginative statesmanship. It does not belong to the business outlook of the parish pump, only prepared to estimate in pounds, shillings, and pence the return on the capital expenditure. It would almost certainly eventually result in a real economy to the State. What we are doing now is to provide the breeding ground for the mass production of disease with one hand, and with the other paying out millions of the taxpayers' and ratepayers' money to deal with the end-results of the very diseases we are fostering in our midst. It has been frequently said, the people make the slums. Such a pessimistic assumption would sound the death-knell of all progress. But it is nothing more than the comfortable argument of the man selfishly indifferent to the obligations of citizenship and regardless of his duty to the body politic. It is flatly contradicted by the fact that through all the ages man, like every other living thing, has been the product, not the cause, of his environment. The slums make the people you find in them, and the only astonishing fact is that they can breed any other sort. It is a testimony to their physique and spirit and grit, no less than to the universal natural law of the survival of the fittest, that some of the inhabitants of the slums win through such an environment and escape the moral and physical ruin which engulfs those of weaker fibre.

The industrial revolution which occurred in the last century accounted for the urbanization of our population, and the herding together of millions of workers in our industrial centres. This has been going on ever since. The early hour at which work commenced, the long working day, entire absence of rapid transport, or rather of any transport at all, necessitated their centralization in the heart of our great towns, where land has consequently become of greater value than health. These conditions are reversed to-day. Powerful centrifugal forces have come into play, and have come to stay. The working day as a rule begins later, the hours are shorter, the day for half the year is longer owing to the Daylight Saving Act, and the means of rapid transport are available, and are becoming increasingly available every year. It has become, therefore, practicable in many instances for the worker to live further from his work—in other words, to move from the centre towards the periphery of our large towns, where land is cheaper and where it becomes, therefore, a business proposition to build on town-planning lines, and avoid the past errors of herding human beings together like sheep in a pen or pigs in a sty.

In this connexion it would seem that the first and most essential requirement in future building is to reduce the density of the houses—in other words, the number to the acre; and it is disappointing, and in the opinion of many a grave defect in the Government's last Housing Bill, that no such restriction appears. In submitting town-planning schemes, however, local authorities have, under the Housing Acts, powers to regulate for this, and a memorandum from the Ministry of Health suggests twelve, ten, or eight houses to the gross acre as suitable density requirements according to the nature of the neighbourhood. If this in the opinion of the Ministry is the correct requirement for health, what are we to say about houses built forty or more to the acre? The only answer is that they should be swept away wholesale at the earliest possible opportunity.

The air space and sun space round the house is of infinitely more importance than the size of the house itself, or whether it contains a parlour or not. The cramped crofter's cottage does not produce rickets and tuberculosis, because his children live mostly in the sun and air round their dwelling; but children "cabin'd, cribb'd, confin'd"

in the second over forty days; it was a case of double pneumonia, the right side being affected first. When I saw him first on May 23rd, 1923, he had a fever of 39° C., a very severe stitch over the right side, and a dry cough: physical examination was positive as to lobar pneumonia. I again prescribed the same treatment. On May 26th I was called to see him, when I found him sitting up in bed with a smile; the fever had dropped the next day, cough was easier, but every now and then he spat pure blood, which continued for about a week, but later it stopped. He is at present as healthy as ever.

These and many other experiences cause me to believe that the above recommended treatment is more than worth while trying, especially so if started early enough.—I am, etc.,

Y. H. DJANIAN, B.A., M.D.,
Instructor in Parasitology and Materia Medica, American University of Beirut (Syria).

July 4th.

SIR,—May I renew the appeal published in your issue of November 18th, 1922 (p. 1000), by Surgeon Commander R. J. G. Parnell, R.N., and others, that a trial shall be made of Sir Archdall Reid's formula (aspirin gr. x, pulv. ipecac. co. gr. v, and phenacetin gr. v) in the treatment of small-pox?

Like the signatories of that appeal, I have employed this particular combination of drugs in the treatment of many different fevers and inflammations, and in more than one personal illness. My experience has always been the same—natural sleep, sweating, quick relief from feelings of prostration, and, relatively speaking, a short and mild illness.

I am convinced that Reid's explanation is correct—that the toxins of disease are largely eliminated in the sweat; that the toxins tend to paralyse the sweat centre and so put the pathogenic organisms in a position of advantage; and that the drugs in this formula, acting together, tend to deparalyse the sweat centre. The amount of sweating caused by it is always proportionate to the height of the fever. If fever returns, as it may do again and again, each dose is followed by proportionate sweating. When there is no fever little or no sweating follows the dose. The heart and respiratory centres are quite unaffected.

I share fully the opinion expressed by Surgeon Commander Parnell and his co-signatories—

"Our hopes, we may almost say expectations, are that, if the treatment be employed early in the disease, vesication may be prevented; or, if not vesication, pustulation; or if not the prevention of pustulation, at least a mild attack may be secured" [in small-pox].

In this connexion may I point to the highly significant letter published in your issue of December 2nd, 1922 (p. 1097) by Captain Gelston Atkins, R.A.M.C.? As stated by Reid, the surest proof of the truth of a supposition is that it bestows the gift of prophecy.—I am, etc.,

W. BASTIAN,
Surgeon Commander, R.N.

July 7th.

THE EFFECT OF HEAT UPON OPERATIONS FOR EXOPHTHALMIC GOITRE.

SIR,—Mr. Walton's paper (June 23rd, p. 1045) shows in an interesting way the influence of mere physical [illegible]—for example, atmospheric temperature—upon [illegible] which affect the thermal equilibrium of the operations [illegible] increased [illegible]ity in operations upon the body. The in[illegible] mortal[illegible] months suggests the use of thyroid gland in the summer [illegible] operation period. May I cooling treatment in the pre[illegible] effect of cold in Graves's record two observations on th[illegible] pression upon my mind? disease which made a strong i[illegible]

1. A man in middle life, with acute e[illegible]xophthalmic goitre, recovered from all serious symptoms in three [illegible]months spent in the north of Scotland, partly in a tent on the open moor, with persevering cold sponging. He died seventeen yea[illegible]s afterwards of heart failure.

2. A woman of 50, similarly affected and in an almost intolerable condition of heat, spent two hours daily in salt baths at 83° F. at Eastbourne, and proceeded afterwards to the Shetland Islands. After a second summer similarly spent, all her symptoms subsided, and she is now, twenty years later, in fair health.

No doubt many physicians could quote similar cases, showing the good effect of cool and breezy climates, with or without the temporary climate of cooling baths, in allaying excessive heat production in Graves's disease.

The risk of operations upon persons with deficient body warmth can, of course, be lessened by proper applications of heat. In the same way, the contrary condition, sometimes described as thermal debility or partial heat-stroke, is successfully treated by graduated and prolonged applications of cold. If the increased summer mortality of operation be due to heat, one might expect it to be prevented by a preliminary course of cooling treatment.—I am, etc.,

R. FORTESCUE FOX.

London, W., June 27th.

VACCINATION PROPAGANDA.

SIR,—A leading article in the JOURNAL of July 14th, under the heading "Vaccination Propaganda," discusses what has been done in this direction up to date, and states that the following steps have been taken: The issue of tracts, pamphlets, and leaflets by the Jenner Society, and one tract issued by the Ministry of Health to be obtained at the price of 3d. net, which, as you say, is not popularly known and probably very few outside the medical profession know of its existence. Compare this with the activities of the Anti-Vaccination League, and I don't see how one can be surprised at the low percentage of vaccination in proportion to births.

I maintain that the whole procedure of propaganda by leaflet, pamphlet, or tract is useless, especially if one has to go out of one's way and spend 3d. on it. The people who have to be educated by propaganda are the clerk, the working man, the small tradesman, and the like, who generally have no time or inclination to read unattractive tracts or pamphlets, and the only way, in my opinion, to drive home the importance of vaccination is to appeal to him through his sense of vision, and to do this at the time of his relaxation and in his home; and the best way to do this is the following:

A.

1. Have large illustrated posters depicting a man lying in bed suffering from confluent small-pox, the more ghastly-looking the better, with a footnote pointing the moral, such as: "What may happen to you if you do not get vaccinated."
2. Two faces of a beautiful woman—(*a*) vaccinated, without blemish; (*b*) not vaccinated, pitted all over and with a blind eye. ("Look on this picture, and on this.")
3. (*a*) Picture of a child blinded and pitted all over the body (non-vaccinated). (*b*) Picture of a child with a clear skin and perfect vision (vaccinated). ("Which would you rather your child should be like?")

B.

Have the various cinemas show films depicting the above or kindred pictures, but with more elaboration and explanation in the letterpress accompanying each, as here the people have more time to read about it, and end up the series with a brief film showing the process of the preparation of lymph, and expatiating on its harmlessness owing to the extreme care that is used to ensure its sterility.

The good work could be carried on in the home, as I am sure the great illustrated daily papers would reproduce the above, and the facts would be again impressed on the family and so help to drive one more nail into the coffin of the Anti-Vaccination League.—I am, etc.,

V. ST. JOHN CROLEY,
L.R.C.P. and S.Ed., D.T.M. and H.Lond.

Budleigh Salterton, July 16th.

SIR,—A fortnight since I was asked to judge at a baby competition among children up to 5 years of age. Vaccination was a point for which I gave a mark. Out of 222 children, only 54 had been vaccinated. The following excuses were given: Fathers objected to it being done on account of their having themselves had bad arms. The mothers in many cases had arranged with the officials for the vaccination, but had not turned up.

The outcome of this neglect will, I fear, be disastrous if an epidemic arose.—I am, etc.

M. CURSHAM CORNER, J.P.

London, E., July 12th.

FREEDOM OF NEGRO RACES FROM CANCER.

SIR,—One of the most lively impressions present to the mind of the medical worker in Nigeria after two or three years of routine work among the people is the apparent rarity of carcinoma. Personally, I have been looking out for it on the spot for some twenty-two years; and my

arked depression in the size of the contractions. When, owever, the change was made slowly, the alteration of one was either absent or much less marked, and the ffects on the size of the contractions could be more readily tudied. Passing from neutrality towards the acid side an ncrease in the height of the contractions was frequently een, before the depression, which occurred in the neighourhood of pH 6.5, appeared. Passing to the alkaline ide, there was again a gradual depression of the contracions as the pH approached 8.0. After depression by either cid or alkali, a change in the reversed direction improved he contractions; in other words, the intestine beat best n a medium of which the pH was near 7.9. Experiments ere also made on isolated rings of the inner part of the ircular muscle of the ileum, into which nerve cells are ot considered to penetrate. No alteration of tone ccurred in response to changes in the pH of the surrounding medium; but an acid reaction slowed the contractions. Dr. Underhill considers it possible that the alterations in one were due to an influence upon the nervous structures, while the alterations in rate were an effect upon he muscle fibres themselves.

Dr. J. V. WALSH (Research Scholar) has performed a arge number of experiments to elucidate the differences bserved between individual colonies of a pure culture f certain members of the intestinal group of bacteria. These variants are of two types and have been designated mooth and rough. Experiments to ascertain the conditions governing the appearance of the rough forms had eference to the influence of growth in agar and broth. The work is incomplete and conclusions cannot be drawn t this stage, but the experiments show that a definite ycle of changes takes place, the rough forms appearing fter varying times of incubation, and increasing to a naximum followed by a sudden drop and disappearance. An experiment to endeavour to maintain rough forms n a stable condition resulted in the observation that it was possible to do so by transferring colonies from agar-lating to agar-plating without passing through broth.

GRANTS.

Dr. A. COMPTON has investigated the hydrolytic ctivity of the serum of different animals on maltose. He has found maltase present in the serum of the dog, oat, horse, pig, rat, and sheep; and absent from that of he cat, guinea-pig, rabbit, and man. He has further oted a great variation in enzyme activity from dog to og under various modifying conditions, but marked stability for the individual. In a subsequent series of experiments he has shown that the enzyme maltase in the blood f the dog exhibits from animal to animal a constant ptimum temperature of 55° C., at which its action is most otent. This is in contrast with the variability which haracterizes the actual amount of enzyme present at any ime in the blood of different animals. Full details have een published in the *Biochemical Journal*, vol. 15, 1921, . 681, and vol. 16, 1922, p. 460.

Dr. M. COPLANS has tested the value of a bacteriaree vaccine lymph which he has prepared. The lymph an be prepared in the short period of five days, and the pecial bactericidal material employed is brilliant-green, hich at the end of the period is converted into the colourless and inactive leuco-compound by addition of sodium ydrosulphite. The leuco-compound is comparatively inert oth in bactericidal and vaccinicidal action, the potency f the lymph being retained at a temperature of 4° to 6° C. luring a period of two years. Subcutaneous injections of he lymph were made in 33 cases. In the unvaccinated ases the onset of local reaction occurred in 5 to 10 days, in he vaccinated cases from 6 to 9 hours only. There appears, herefore, in the case of vaccinated persons to be a clear gain f 5 days in the onset of the reaction as compared with accination by skin scarification. Further experiments ere made to ascertain how far inoculated animals would olerate intraperitoneal injections of fully potent lymph, nd the degree of immunity attained as shown by subsequent refractoriness to vaccination of the cornea or skin. t was found that both eye and skin eruptions were rofoundly modified if not altogether abolished.

Dr. LOUIS GROSS has studied the dynamics of the intestine in cases of vitamin-deficiency. A slip of ileum from a rat fed on adequate vitamin diet gave tracings showing: (1) Regular beats, 29 to 25 a minute, with amplitude of 2 to 3 mm., (2) regular periodicity of groups of beats resembling a tracing of Cheyne-Stokes breathing. A strip of colon gave a fairly regular beat of 2 to 3 a minute. The same test applied in the case of rats fed on a diet deficient in vitamin B showed: (1) For the ileum, often irregular beats, 28 to 27 per minute, with amplitude of 1.25 to 2.5 mm. (2) The periodicity was at times completely lost, or so altered that the periods of rest were greater than the periods of normal beats. (3) In most cases the strip of colon failed to show any myogenic contractions. Macroscopic examination revealed (*a*) increased tendency to dilatation of the ascending colon, (*b*) stagnation of faeces in the descending colon, (*c*) enlarged perileo-caecal glands, small spleen, small thymus, and dilated stomach and small intestine. The adrenaline content of the adrenal glands was well above normal, and the adrenaline content of the blood increased. From the above observations it appeared that a diet deficient in vitamin B produced well marked evidence of general intestinal stasis.

Dr. IVAN DE BURGH DALY (Research Grantee) has reported on the action of caffeine on the electro-cardiogram of intact animals, that (1) the heart rate increases, (2) the P-R interval if changed is slightly reduced, (3) the height of the R wave is reduced, (4) the S depression is slightly reduced, (5) the P and T waves are increased, (6) a T wave initially negative becomes more so and a T wave initially positive becomes more positive, (7) there is a tendency for the level of the curve between R and T to be raised. Experiments with the heart-lung preparation have shown that (1) the systolic and diastolic heart volumes are slightly decreased with small doses, (2) the venous pressure may be slightly lowered with small doses, (3) with larger doses the systolic and diastolic volumes are markedly increased and the venous pressure rises.

Dr. HELEN LEYTON has furnished a note on an investigation, carried out by herself and her late husband, on the influence of sugar in the diet on the total blood sugar in rats. The rats which had access to sugar in addition to the ordinary diet showed a variation between 0.07 per cent. and 0.26 per cent., average 0.18 per cent. of blood sugar. The controls, which were fed on ordinary diet, namely bread, water, and crushed oats, showed a variation between 0.05 per cent. and 0.03 per cent., average 0.07 per cent. The percentage was thus raised to the average of that found in human beings who normally take sugar in the diet.

Dr. E. P. POULTON (Research Grantee) has shown that distension of the stomach is an important element in the production of pain in cases of gastric ulcer. The experiments consisted in careful distension of the stomach with air introduced through a soft rubber tube and under measured pressure. Further experiments were made by introducing bags containing water or air, connected with a recording apparatus, into the oesophagus, stomach, duodenum, or jejunum. It was shown that pain in the upper alimentary tract was associated with movements in the oesophagus, stomach, duodenum, or jejunum. Pain was abolished by a successful contraction of the viscus. It was felt during the relaxation of the muscle after contraction. Pain is felt during contraction if the latter is not effective. Dr. Poulton read a paper before the Medical Section of the Royal Society of Medicine on January 25th, 1921.

Dr. J. ST. G. WILSON, who has investigated immunological factors in pregnancy at the Thompson-Yates Laboratories, University of Liverpool, has submitted a report on the complement-fixation reactions of pregnancy. The conclusions are in the main negative.

Professor A. W. SHEEN has completed his research, the results of which were set out in a joint paper by him and Professor Swale Vincent, published in the BRITISH MEDICAL JOURNAL of March 4th, 1922, entitled "The function of the chromaphil tissues in relation to splanchnic stimulation."

G. M. Anderson, Margaret J. Anderson, J. Burnett, Janet F. M. Burnett, C. W. M. Cameron, Catherine J. Clark, J. Clarke, P. G. Currid, R. Davidson, D. Dean, Elizabeth A. Dunbar, Mary Esslemont, E. C. Gordon, M. McK. Gunn, Eleanor M. Henderson, J. S. Hutchison, A. J. Ironside, E. J. Jolly, B. W. MacDonald, F. MacLean, §Florence J. Malcolm, J. C. Milne, H. W. Mulligan, R. G. Munro, F. R. Mutch, J. H. Peters, Margaret J. Rennet, E. R. Sorley, J. S. Taylor, Lily M. Watt, F. L. Webster, Mabel Wilson, Maude Wilson.

D.P.H.—Isobel C. Brown, Evelina I. Corbett, T. J. Davidson, G. L. Duncan, Ethel E. M. Gray, Elizabeth G. McCurrach, N. M. Maclennan, A. E. Reid, H. E. Smith, Christina Stuart, A. Topping, Alice M. Watt.

* First Class Honours.
† Passed Final Professional Examination with much distinction.
‡ Second Class Honours.
§ Passed Final Professional Examination with distinction.

UNIVERSITY OF SHEFFIELD.

THE University Council has appointed Mr. Denton Guest, M.B., Ch.B., to the post of Assistant Bacteriologist.

NATIONAL UNIVERSITY OF IRELAND.

AT the meeting of the Senate on July 6th Dr. Denis J. Coffey, Pro-Vice-Chancellor, was appointed as Representative of the University on the General Medical Council.

Dr. William M. Crofton, University Lecturer in Special Pathology in University College, Dublin, whose tenure of office was about to expire in accordance with the statutes, was reappointed.

The results of the recent summer examinations were considered and passes, honours, etc., were awarded in connexion therewith.

LONDON SCHOOL OF TROPICAL MEDICINE.

THE following were approved at the examination of the London School of Tropical Medicine, held at the termination of the seventy-second session (April to July, 1923):

E. Peterson (Duncan Medal), *A. R. Baldwin, *F. McCallum, *E. Pampana, *A. Salama, R. S. Alyar, M. M. Khan, W. J. E. Phillips, J. L. Rebello, A. N. Kingsbury, F. R. Thornton, J. W. F. Albuquerque, N. S. Sethi, A. J. Keevil, D. J. Valentine, A. N. Thomas, L. S. Chatterji, K. K. Shenai, W. Simmons, H. Sheinbloom, M. R. Goverdhan, S. W. Hardikar, H. Morrison, G. Gollerkeri, K. S Thakur, C. McIver, E. C. Cousins, G. W S. de Saram, J. G. Dunlea, B. W. Dakers, J. R. Chandhri, A. M. MacRae, P. Couacaud, K. T. Thalani, J. B. S. Baxter, L. Ray, M. K. Gopala-Pillai, K. Singh, E. Sutcliffe.

*With distinction.

The Services.

DEATHS IN THE SERVICES.

Colonel John Girvin, Army Medical Staff (retired), died in a nursing home on June 25th, aged 61. He was born at Seaforth, Lancashire, and received his medical education at St. Bartholomew's Hospital. He entered the army as surgeon on July 27th, 1887, and attained the rank of lieut.-colonel on February 9th, 1912, and became colonel in the great war promotion of March 1st, 1915. He served in the Sudan campaign of 1898, receiving the medal and the Khedive's medal; and in the recent war served as D.D.M.S. in Gallipoli and Egypt. Sir Robert Armstrong-Jones in the course of an appreciation writes: He came of a well-endowed Scottish family and the racial character of tenacity, caution and commonsense were innate to his nature. Although himself an Anglican, it was probably his paternal Presbyterian sympathies that caused him to regard ceremony with suspicion and to believe that truth and reality dwelt rather in the informal and the simple. He was born in 1861 and was one of a large family of successful brothers and sisters. It may be truly said of him that his mentality had no angles, and apart from the bent of his mind the upbringing he experienced caused him to be tolerant, receptive, and sympathetic. After an apprenticeship at Dorking—an unusual occurrence even in the eighties—he entered St. Bartholomew's Hospital as a student in 1882, where he developed a friendship with Sir D'Arcy Power, Sir William J. Collins and the writer, which lasted a lifetime. Shortly after his first term of service in India he was ordered to Egypt, where he remained for three years during the Egyptian war; after the war he served in Cyprus, where he received the special thanks of the Governor for his voluntary work for the civilians and peasants. Later, he was appointed to the medical charge of the Guards in Wellington Barracks, and for over two years was secretary to Sir A. T. Slogett. He was afterwards sent specially to Sierra Leone on the West Coast of Africa, and later to India, a second time, as senior medical officer at Hyderabad, Scinde. He returned home in 1913 and later helped to form a new hospital for Gallipoli, being there appointed, first, as chief in charge of the advanced base hospital, and secondly, as D.D.M.S. After Gallipoli he again served in Egypt, where has was in charge of the 27th General Hospital. Whilst in India he married Miss L. Smith, whose mother was well known in Poona for her public services. Their only child, a son, educated at Haileybury, was a most promising young officer in the 7th Royal Dublin Fusiliers; he died from wounds received in Salonika—a blow from which Colonel Girvin never recovered, his health gradually failing from that date.

Obituary.

ETTIE SAYER, M.B., B.S.LOND.

PROLONGED ill health, the warnings of which were persistently ignored by one always eager to forget herself, resulted, on July 7th, in the death of Dr. Ettie Sayer in her 48th year. Many societies and institutions, and even more individuals, will mourn the loss of a woman who was always generous with her help and advice—generous, unfortunately, to a degree amounting to self-neglect.

Ettie Sayer was born at Bacton, Norfolk, and received her medical education in London, studying during the early part of the course at University College, and completing it at the Royal Free and Queen Charlotte's Hospitals. She graduated M.B., B.S.Lond., in 1899. Her first house appointment was at the Tunbridge Wells Eye and Ear Hospital. In 1900 she went to South Africa as physician of the Cowley Mission to Mohammedan and Kaffir Women, and was later appointed Plague Officer by the Cape Government. During the South African war she worked in the concentration camps, and was also one of the few who visited the lepers on Robben Island.

On her return to England Dr. Sayer was appointed Assistant Medical Officer to the Education Department of the London County Council. She was one of the first women to do such work in the days before full-time officers for medical inspection of school children were appointed. There are so many men and women doing this work, which is now so efficiently organized, that it is not easy to visualize the difficulties which beset a pioneer. Always enthusiastic and zealous, Dr. Sayer accomplished her difficult task with the utmost conscientiousness, and by her personal charm endeared herself to her superior officers and subordinates alike. Dr. Sayer was particularly interested in feeble-minded and morally defective children. She was consulting physician to the National Society for the Welfare of the Feeble Minded, and wrote papers on morally defective school children. She was a Fellow of the Royal Society of Medicine and Honorary Medical Officer to the Society for Distressed Gentlefolk.

Recently Dr. Sayer interested herself in electro-therapeutics and was a Fellow of the American Electro-Therapeutical Society. She wrote papers on the effects of electric currents on blood pressure and compiled a most useful textbook for nurses on medical electricity and light.

GEORGE JOHN MURIEL, M.R.C.S.ENG., J.P.,

Consulting Surgeon, Whitehaven and West Cumberland Infirmary.

WE regret to record the death, in his 81st year, of Dr. George John Muriel, J.P., of Whitehaven. He was born in Ely on September 4th, 1842, and was the youngest son of the late John Muriel, F.R.C.S., D.L., J.P., of that city. The Muriels have practised in Ely and the Eastern Counties for several generations. George John Muriel was educated at Epsom College (being one of the earliest pupils there) and at Guy's Hospital. After acting as assistant at Whitehaven from 1866 to 1868 he began to practise on his own account at Alrewas in Staffordshire. On the death, however, of his former principal at Whitehaven he returned to that place, where he resided for the rest of his life. He was appointed to the honorary staff of the Whitehaven and West Cumberland Infirmary in 1872 and became consulting surgeon in 1900 when he retired from general practice, being succeeded by his second son. He was President of the Border Counties Branch of the British Medical Association in 1898 and the first Chairman of the West Cumberland Division under the new constitution of the Association. To celebrate his long connexion of fifty years with the Whitehaven Infirmary he was presented with his portrait two years ago. The large attendance at the funeral, despite the fact that he had retired from practice so long ago, showed the respect with which he was regarded by all classes in the town and district, and by his medical colleagues, all of whom were present. His wife died two years ago; he his survived by all his family (four sons and three daughters) except one son who died in 1878.

for the bone which would limit the formation of exudation, granulation, and fibrous tissue. It could not itself prevent adhesions. It must be fixed firmly in position. There were two conditions essential to provide a new synovial sac—there must be sufficient space between the bone ends, and there must be a gliding movement to stimulate the walls of the cavity to secrete a supply of fluid and to prevent fibrous organization. Attempts to provide a new synovia of olive oil or liquid paraffin had been unsuccessful. Continuous traction on the new articulation and early voluntary movements were the essentials of after-treatment.

In the elbow the indications included all cases of bony ankylosis free from active infection except those in which a strong useful arm was present in a labouring man. The best operation for the elbow was to preserve the whole width of the humeral condyles and to cover the bone with a free flap of fascia lata.

In the hip three different types of operation must be considered: For simple ankylosis an osteotomy of the neck of the femur with the interposition of a flap taken from the trochanter or from the capsule; for massive hypertrophic ankylosis a subtrochanteric osteotomy with the interposition of a fascial flap forming a saddle-shaped joint; for osteoarthritis excision of the head of the femur.

In the knee the importance of stability and painlessness rendered unjustified any mobilizing operation if the joint was fixed in a good position. It was only in the case of ankylosis of both knees that arthroplasty could be considered. The use of free fascia to cover the lower end of the femur, the preservation of the lateral ligaments, and the use of a jointed knee cage for some months after operation were the special points on which stress must be laid. If lateral mobility persisted then the lateral ligaments must be reinforced at a second operation.

Dr. PUTTI of Bologna then gave one of the most striking demonstrations of the Congress. He illustrated his remarks on the knee by showing cinematographic films of patients who had suffered from ankylosed knees walking, running, and cycling many months after operation. Finally, he produced patients with easily flexible knees, the joints having little or no lateral mobility. There were, he said, general and specific indications for arthroplasty. The general ones related to: (*a*) The state of the patient, his age, his mental and social conditions, and his occupation. Arthroplasty was a long and traumatizing operation. It should, therefore, only be done on patients who were favourably disposed from the point of view of organic resistance. The best age was between 20 and 50. It was absolutely indispensable that the patients should whole-heartedly co-operate with the doctor. He never operated on subjects hypersensitive, neuropathic, irritable, or mentally deficient. Nor should an operation be done when the patient's means did not permit a long stay in hospital. The profession or calling of the patient must also be considered. (*b*) The etiology, pathology, and anatomical conditions of the ankylosis. Cases of traumatic ankylosis were the most favourable. In ankylosis consequent upon infective arthritis the most amenable to correction were those following an acute inflammation. Osseous ankylosis was easier to correct than fibrous. Ankylosis of tuberculous origin should only be operated upon as an exception. Good results might be obtained from cases of war ankylosis, arthritis deformans, or polyarticular arthritis. Operations should never be done less than a year after the disappearance of the more striking symptoms of the stiffening process.

There were absolute indications for arthroplasty in ankylosis of the mandible, in bilateral ankylosis of the hip, in ankylosis of the elbow in extension, in polyarticular ankylosis. In cases of bilateral ankylosis of the hip it was generally wisest to operate only on one side. As good results could easily be obtained in the knee as in the elbow. Incisions should be made *in order to obtain* a wide field of observation. Resections should not be too sparing in nature. An exact adjustment of the epiphyseal extremities of the bone should be made with files and drills; they should be covered with free flaps of fascia lata. The first passive movements should be begun twelve to fifteen days after the operation. Thermotherapy *in the* production of active hyperaemia should not be neglected. After arthroplasty of the lower limbs patients should not be allowed to walk before the thirtieth day. The new joint appeared as the result of function. Interposition of aponeurotic flaps greatly helped post-operative treatment. Their action was only temporary. It did not therefore matter that they would not keep indefinitely vital. The growth of a new joint was very slow. Examined long after operation it showed anatomical conditions very like a normal articulation. Functionally these cases did very well, becoming neither arthritic nor deformed. Their functional resistance was high for many years.

Dr. MACAUSLAND of Boston commenced by congratulating Dr. Putti on his brilliant demonstration. He stressed the point that an excision was not an arthroplasty, for which special highly developed technical skill was especially necessary and for which judgement in the selection of cases was very difficult. Ankylosis was due to an infection or to trauma. Gonococcal metastasis usually occurred in eighteen to twenty days, staphylococcal in ten to fourteen days, and those due to streptococci and the colon bacilli in eight to ten days. The synovia was first affected and, long after, the cartilage. Infections, acute or chronic, did not constitute a contraindication to arthroplasty provided that the process had not been tuberculous and was not active. A tuberculous joint, even when ankylosed firmly, might retain small walled-off foci through life, and therefore, except in cases of great rarity, should be considered a direct contraindication to any mobilization. Occasionally deformity of such a degree was present as to warrant correction before an arthroplasty was attempted. The hip, ankylosed in marked flexion and adduction, should be corrected by a preliminary procedure. Similarly marked flexion of the knee might necessitate treatment before the arthroplasty was done. Indications for the operation were: two stiff hips, indicating arthroplasty in one or both; two stiff elbows, two stiff knees, again indicating arthroplasty in one at least. Combinations of hips and knees very definitely indicated an attempt to mobilize one or more joints. Amongst the lesser joints were stiff shoulders, fingers, wrist (a very rare subject for the operation), and the jaw. The speaker then surveyed the development of the operation. Special reference was made to Dr. Baer for his work with chromicized pig's bladder and to the late Dr. J. B. Murphy for his advocacy of the pedunculated flap. Free fascia in the hands of Putti and Payr had been most successful. Dr. MacAusland made a comprehensive statement regarding each joint, stating indications and contraindications for operation, and described the general methods of treatment. With regard to the knee, arthroplasty should only be very cautiously advised in cases of ankylosis of one joint, in spite of recent advances. Lateral stability and security were here of first importance.

Dr. SANTY of Lyons said that surgical mobilization of ankylosed joints had as yet been little used in France. The reason was that they continued to use Ollier's mobilizing resections. For the shoulder, elbow, and wrist the mobilizing resection gave excellent results, but to obtain them great tenacity and a great deal of patience were required, not only from the surgeon, but also from the patient. Arthroplasty was unquestionably an improvement and gave better results. For the hip the mobilizing resection was sometimes indicated, as in the case of large bony fusions, rendering surgical modelling and interposition difficult and dangerous. Apart from these cases, arthroplasty was here also an improvement. In the hip and knee the operation opened a new chapter in articular surgery. Resection for ankylosis had become a secondary method, to be used only in cases where arthroplasty had failed, or in those rare cases where the state of the bony or, more rarely, the soft parts of the articulation made an attempt at mobilizing the joints unwise.

Sir WILLIAM MACEWEN remarked that Dr. Murphy had once said that all excisions resulted in flail joints; they knew now that if intracapsular incision was made no flail joint need result. He had been glad to hear that the function of the various flaps used was that of a limiting membrane. He had always said that the periosteum was only a limiting membrane.

Mr. ELMSLIE of London said that in any new operative procedure it was important to know how to carry out the technique and when to utilize it. Arthroplasty differed

THE KING has granted a Royal Charter of Incorporation to the Royal Westminster Ophthalmic Hospital.

DR. S. GORDON LUKER will give a lecture in the anatomical theatre of the London Hospital Medical College on Tuesday, July 24th, at 4.15 p.m., on a new method of treatment of puerperal sepsis. The lecture is intended for senior students of the hospital and post-graduates, to whom a cordial invitation is given.

THE 19th South African Medical Congress will be held next year in Grahamstown, Cape Province, when the hosts will be the medical practitioners in Grahamstown, Port Elizabeth and Uitenhage. The president of the congress will be Dr. E. G. Dru Drury, of Grahamstown.

THE Lord Mayor of London (Alderman Edward C. Moore) has consented to act as the honorary treasurer of the Endowment Fund of the People's League of Health. Cheques should be sent to him at the Mansion House.

THE Military Hospital, Rochester Row, Westminster, has been closed and the work transferred to the Royal Herbert Hospital, Woolwich.

THE well known physiologist, Professor J. P. Langlois, of Paris, has recently died at the age of 61.

THE United States Public Health Service has declared the port of New Orleans to have been completely free from any trace of bubonic plague for the past two years, and will now entirely withdraw its staff; a test of 200,000 rats caught in that period revealed no trace of infection. Precautionary work in rat eradication and tests will in future be undertaken by the city board of health.

DR. GELLÉ, a well-known French pioneer in otology, and one of the founders of the Société Française d'Oto-rhino-laryngologie, has recently died at the age of 80.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

"J. D." asks for advice in the treatment of an old lady who suffers from intense burning of the feet at night, so severe as to prevent sleep. Many remedies—mostly external—have been tried in vain. She has a cardiac lesion, and the loss of sleep is a serious factor.

LETTERS, NOTES, ETC.

DEVICES FOR INVALID COMFORT.

SIR CHARLES BROWN, M.D., of Preston, who is nearly 87 years of age and has been all but confined to his dining-room (where he sleeps) for the past eighteen months, has devised a combination of two chairs with simple accessories, which invalids should find useful. The chief item in the combination is an American rocking chair, which can be fixed at different levels by a wedge; with it may be employed a companion chair which, with a flat cushion made to fit its seat and a hot-water bottle, makes a comfortable bed for the heels; a pulling-up cord controls the position of the hot-water bottle. The bedclothes are fixed to the back of the companion chair and are arranged somewhat in the form of a tube or sleeping bag. A simple table for meals completes the outfit.

TEETH AND SUGAR.

MR. C. N. PEACOCK, L.D.S. (Bedford), writes to suggest that practically all decay of children's teeth is to be laid to the charge of "so-called sugary foods": he inquires what daily amount of sugar should be included in a well-balanced diet for a child. Our correspondent points out that raw flour, tragacanth, and glucose which sticks to the teeth, are used in the manufacture of sweets. The child who eats them coats his teeth with an ideal paste for the production of dental caries. The suggestion is that the Sale of Food and Drugs Acts might be amended, but we are inclined to think that education of the parents both on this point and on the amount of sugar a child needs in its daily diet (it may be none is needed) would be more effective. It is a matter that might well be discussed at congresses of child welfare.

THE CAUSATION OF CANCER.

DR. A. S. DUTTON (London) writes: The circumstance that friction by the clothes of a chimney-sweep, when of a rough corduroy type or of other materials, during their employment most of each day doubtless considerably enhances the irritating effect of soot, and that the irritation by the latter is more or less constant, appears to account largely for cancer of the scrotum in man, and afford reasons for its non-production by the rubbing in of soot in rabbits, rats, and mice, as referred to in Dr. A. Leitch's article in the BRITISH MEDICAL JOURNAL of July 7th (p. 1). Apart from the effect of clothes, a reason for the scrotum being the site of cancer in sweeps and not other parts of the body may be that the scrotal rugae afford an especially favourable site for the lodgement of soot, which—although washing takes place, unless this is effected to the extent of full immersion in water and also the vigorous use of soap—tends to accumulate to a certain extent among them in some cases without being at any time wholly removed, and therefore forming a practically constant source of irritation. The wearing of suitable overalls which prevent soot reaching the scrotum would apparently prevent the occurrence of sweeps' cancer. Similarly, if tar, pitch, and paraffin were prevented from reaching the scrotum of workers in these industries by suitable protective material, cancer of this structure occasioned by them should be eliminated.

BREEDING RATS FOR FEEDING EXPERIMENTS.

IN order to maintain a collection of rats suitable for dietary experiments considerable wisdom has to be shown in the selection of the stock and precautions taken against parasites and bacterial infections. Professor V. H. Mottrams and his co-workers have described in a recent article (the *Biochemical Journal*, vol. xvii, No. 2, 1923) the method they adopt: this report will be of value to those engaged in similar work, and certain of their conclusions are of general biological interest. They have found that the best stock is obtained by intensive inbreeding from one or more pairs of adult animals which have been obtained from a good source when quite young and kept on a good diet under strict observation. There is no evidence that there is any danger in inbreeding when the original stock is good—in fact, it is of advantage in stabilizing the stock and limiting variations. The mixed stock from dealers is often infected with disease which may not betray itself early in life and is almost impossible to eradicate. Probably most of the failure in rat breeding is due to housing; in order to avoid such diseases as pneumonia the animals should be housed at a temperature of 65° F., with no more than 5° variation in either direction. There is no justification for the widespread belief that rats will not thrive in metal cages; they are easier to clean and they have been used by these workers for rearing generation after generation from birth to adult life. The stock should be fed on diets containing bread and milk and kitchen scraps with a high percentage of protein and fat, and the mothers should receive during lactation liberal supplies of bread and milk.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 27, 30, 31, and 33 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 28 and 29.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 32.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to th British Medical Association at the General Post Office, London. No respor sibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 42 Strand, London, W.C.2, not later than the first post on Tuesday mornin preceding publication, and, if not paid for at the time, should b accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restant* letters addressed either in initials or numbers.

Tension on the suture led to many bad results; fibrous nodules on the nerve must be removed. Two difficulties had to be faced: there was the possibility of resecting too little and making a bad suture, or of resecting too much and not being able to suture at all. The next cause of failure was faulty downgrowth from the nerve. It was best to suture early; to intervene late was preferable to not operating at all. The third cause of failure was the bad state of the paralysed limb. After careful study of many cases he thought that grafting of nerve tissue should only be very rarely done. It should be reserved for cases where there was great loss of nerve substance, making suture impossible even after flexing the limb. In these cases it was the best method of treatment. Although Nageotte, Guyon, and others had obtained excellent results in animals by heterografts, in the living man the autograft was better. For causalgia many operations had been attempted: complete section of the nerve with or without suture, neurolysis, hersage of the nerve, injection of alcohol, periarterial sympathectomy (the procedure most favoured at the present time), periarterial and perivenous sympathectomy, section of the posterior roots with sympathectomy, ionization, radiotherapy, etc.

1. What were the nervous wounds that should be operated on?

(a) He thought that all the cases of progressive compression that grow worse and led to the syndrome of serious irritation or interruption should be operated on. For those cases he would reserve liberation; it could in no way hurt either the subject or the nerves, and he did not see any advantage in postponing the operation.

(b) All the cases of complete interruption, clinically observed by competent neurologists after repeated examinations, and which showed no sign of regeneration, or useless signs of regeneration, like zones of limited stationary paraesthesias, and which showed no signs of improvement, should be operated on.

(c) For causalgias and serious neuritis recourse should be had to an operation, but there were no fixed rules.

2. When should they operate?

(a) The lessons of war surgery, which tended more and more to favour prompt operations, had shown them that they certainly had the right, even the duty, to examine during the preliminary surgical cleaning of the wound, the state of the important vessels and nerves. This was still more necessary if, from the first day, there were signs of paralysis of a large nervous peripheral trunk, which should be verified easily. Any severed nerve should be at once stitched up so as to permit of rapid regeneration and thus, moreover, avoiding the deviation or the formation of sclerous tissue; in the case of a bruised nervous trunk, its preservation and constant observation seemed to be preferable.

(b) If some time had elapsed before the wounded subject had received medical attention, the diagnosed lesion should be operated on as quickly as possible. Nevertheless, it was necessary to wait until the suppuration, the osteitis, the inflammatory symptoms had disappeared for some weeks. Aseptic operation was necessary.

3. What was to be done?

(a) Simple liberation, with replacement between healthy muscles, was applicable to the syndromes of compression and of irritation. The enucleation of small intrafascicular fibromas should be practised only when it was without danger to the healthy nervous fascicles; the intranervous extraneous bodies should always be taken out.

(b) Should the interruptions be several times examined without any improvement being remarked, resection of the fibrous callus and neurilemmatic suture uniting two permeable ends, without traction at the level of the suture threads, should be practised. If suture was impossible, a graft, or the dividing into two of the lower end (disguised graft), should be practised. Useful results would be obtained only if the wounded subject had been kept without ankylosis, without muscular retraction, during the time preceding the surgical treatment. This treatment should not be given up too early, because experience had shown that it depended on the nerves themselves affected, on the suture or the graft, whether the period of regeneration might last from eighteen months to several years.

Two cases were to be distinguished. In war surgery, as well as in civil surgery, immediate suture of the nerves should normally be completely successful. Delayed surgical treatment might give good functional results in 40 to 50 per cent. of the cases, according to the nerves, when it had been performed from one month to two years after the wound. After that time it should nevertheless be tried; it might be successful, but they agreed with most medical authorities that there was less chance of its succeeding. Nevertheless, the surgical treatment of the big nervous trunks was not by any means illusory if it was carefully and systematically practised by specialists who were equipped for that purpose, and when the patient could be kept under prolonged observation. In those circumstances satisfactory results might be obtained.

Dr. FRAZIER of Philadelphia stated that, of 208,000 casualties in the American Expeditionary Forces, it was estimated there were 3,500 perpheral nerve injuries. With few exceptions no operations on these conditions were performed overseas. All were done by specially qualified men at twelve peripheral nerve centres in the United States. It was the general practice to postpone operation until three months after the wound had healed. To wait for spontaneous regeneration longer than six months was not considered justifiable, although it was well known that the first clinical sign of spontaneous regeneration might be deferred much longer. He had seen one case of musculo-spiral paralysis in which the first sign of the return of voluntary motion did not appear till twenty-one months after injury. During the period of reconstruction he relied upon the various signs of recovering function to determine whether spontaneous regeneration was in process or not—signs such as contraction of the field of sensory loss, the return of muscle tone, the changing electrical reactions, and the advancement of Tinel's sign. This latter, however, was not an infallible guide. In 1922 a more accurate clinical method of determining the early recovery of a degenerated nerve was elaborated. With the aid of a specially constructed chrinomyometer the nerve muscle complex was found to disappear as early as the fifth day after the nerve was cut, and it began to appear from one to six months before a faradic response, from one week to three months before voluntary contractions, and up to five months before contraction of the anaesthetic area. If, six months after injury, the lesion was stationary, when there was evidence of complete anatomical interruption, when there was an interstitial neuritis or a neuroma in continuity without response to stimulation (especially if the neuroma were imperfectly encapsulated), operation was recommended. The damaged nerve should be resected sufficiently to expose normal fasciculi above the seat of fibrosis. Coaptation was effected with six to eight epineural silk sutures, and, when required to relieve tension at the line of suture, a stay suture of catgut was employed. Partial resection was rarely indicated. A nerve bed free from scar tissue must be provided at the line of suture and the protection of the line of suture with any foreign tissue—fascia lata, veins, or Cargile membrane—had been generally condemned. With regard to bridging defects, primary nerve stretching, nerve transposition, and the two-stage operation were the selected methods, in the order named. The two-stage operation virtually eliminated the necessity for transplantations. Nerve distortion must be avoided. A sensory fasciculus could not function as a motor fibre, and *vice versa*. With regard to end-results, he presented a table of 487 operated cases, including 132 neurolyses, 350 neurorrhaphies, and 14 transplants.

Nerve.	Good.	Mediocre.	Negative.
	Per cent.	Per cent.	Per cent.
Brachial plexus	33	37	29
Musculo-spiral	23	30	46
Median	53	23	14
Ulnar	12	55	31
Sciatic	25	41	33
External popliteal ...	31	52	15
Internal popliteal ...	46	46	8

50. The Use of Simple Cow's Milk Mixtures in Infant Feeding.

E. P. BAUMANN (*Med. Journ. of South Africa*, March, 1923, p. 197) gives a method of preparing cow's milk mixtures in which the proportion of the different ingredients is based on their calorific values, and not, as is customary, on the percentage as compared with human milk. The modern tendency, he states, is to discard the complicated methods involved in the use of top-milk and percentage formulae and is a reversion to early days. The method consists, roughly, in diluting with plain water, and only carbohydrate is added. This gives a mixture of high sugar, relatively low protein, low fat, and relatively low salts—not, he admits, an accurate or scientific mixture if taken on the percentage scheme, but based, nevertheless, on physiological needs and a knowledge of metabolism. A supply for twenty-four hours is made up at one time, the required amount being estimated in calories, not in ounces. The "maintenance requirement" of an average healthy infant is forty to fifty calories for every pound of body weight. Tables are given showing the approximate calorie values of 1 ounce of various foods, and among these cow's milk represents 20, human milk 20, and sugar 120 calories. Thus for a healthy infant of 4 months weighing twelve pounds a total of 540 calories would be required, and could be made up of milk 18 oz. (360 calories) and sugar 1½ oz. (180 calories). Further formulae are given from which the size, number, and necessary dilution of the feeds can be calculated. The author does not claim that the method will be found to answer in every case, but he lays stress on the fact that every food mixture, however prepared, must be regarded as being in the nature of an experiment. He further recommends that the ultimate composition of mixtures should be checked in percentages, on which basis feeds prepared as above would be represented as follows: carbohydrate 7.7 per cent., fat 2.4 per cent., protein 2.1 per cent., salts 0.45 per cent. The article contains other general observations of interest in connexion with infant feeding.

51. Heliotherapy in Tuberculosis.

FERRANNINI (*Rif. Med.*, May 14th, 1923, p. 157) speaks with chastened enthusiasm of the good results obtained by this form of treatment in internal manifestations of tuberculosis. After a preliminary historical survey, with especial reference to the work of Sciascia, he classifies the therapeutic effects of light in their order of merit as sunlight, Finsen lamps, quartz lights, α rays, and lastly, the incandescent lamp. In heliotherapy considerations of climate, atmosphere, place, etc., have all to be reckoned with. For various reasons mountain heights seem to give the best results. The treatment should not be continuous, but varied with interruptions or even change of climate. Authorities differ as to the value of pigmentation as an index of progress; some say good pigmentation is a favourable sign, others the reverse, or that it is of no value as a prognostic sign. In any case, says the author, it is always well to expose the body in sections and not the whole at once. Protection against excessive solar erythema is necessary. In addition to any direct curative effect, heliotherapy is useful as a prophylactic. The author suggests a new reading of the old adage "where the sun comes the doctor never goes" to "where the doctor comes he brings the sun with him" as part of his therapeutic armamentarium.

Surgery.

52. Experimental Surgery of the Thoracic Oesophagus.

R. T. MILLER and W. D. W. ANDRUS (*Bull. of the Johns Hopkins Hosp.*, April, 1923, p. 109) describe experimental work on the dog undertaken with a view to devising an intrathoracic method of operation applicable to strictures of the oesophagus in man, and in which the causes of previous failure are circumvented or avoided. These causes are stated to be lack of sufficient firm tissue wherein to sink the sutures, which consequently tear out; a fatally high tension on the suture line; and, finally, the frequency with which gangrene results from interference with the circulation where enough of the tube has been freed to permit of room for suture. After resection of the lower third of the oesophagus, the authors found that a much wider gap could be bridged by implantation into the fundus of the stomach than by end-to-end anastomosis. Excellent access was obtained through the eighth intercostal space, and implantation effected on the anterior stomach wall to the left of the cardia. Out of 18 such anastomoses 11 were shown to have resulted in an intact suture line and a successfully functionating union, and the mortality, though high, resulted from conditions in no way concerned with the security of the suture. Three deaths from septic infection are admitted, but it is contended that this risk could be reduced with experience and improved technique. From dilatation of the stomach (probably the result of section of the vagus nerves) two deaths occurred; the authors suggest that as this is not a permanent effect it could be met in human subjects by prompt recognition and treatment. Diaphragmatic hernia was found to be prevented by accurate stitching of the edges of the diaphragm to the stomach. Owing to tension, end-to-end anastomosis of the dog's oesophagus was found unsuited to bridge a gap of more than 3 cm., and, to meet this, experiments in mobilization of the stomach were initiated. Briefly, it was demonstrated that division of the anastomotic branches of the phrenic artery, the coronary artery, and the vasa brevia permitted the fundus to be mobilized to an extent that would replace most of the thoracic oesophagus in the dog, but that further interference with the blood supply could not be attempted without resultant necrosis of the stomach wall. Attention is drawn, however, to the limitations in this respect imposed by the atrophied stomach of a patient suffering from malignant disease as compared with that of a healthy dog. Histological study having shown that the human oesophagus possesses a well developed submucosa, the observers perceive no reason why, with adequate caution, it should not present as secure a grasp for a stitch as that of the dog. The development of surgical possibilities on the above lines would go far, it is urged, towards elucidating the problems of the present unsatisfactory treatment of cancer of the thoracic oesophagus.

53. Trypaflavine in the Treatment of Vincent's Angina.

H. BUSCHMANN (*Deut. med. Woch.*, May 11th, 1923, p. 617) has treated 14 cases of typical Plaut-Vincent angina between October, 1922, and March, 1923. In every case the clinical examination showed the characteristic diphtheroid ulceration, and the bacteriological examination showed the typical spirilla and fusiform bacilli. The following treatment was adopted in every case. A solution of trypaflavine, put up in 10 c.cm. ampoules, was painted three or four times a day on the tonsils, palatine arches, and uvula. Every other hour the patients gargled with a 0.5 per cent. solution of trypaflavine, and they were told that it did not matter if they swallowed some of the gargle by accident. In 13 cases the membranes were discharged, and recovery occurred three to seven days after the institution of this treatment. The fourteenth patient suffered from four different attacks of Vincent's angina; the first two reacted promptly to the treatment with trypaflavine, but on the third and fourth occasions the disease proved refractory to this treatment, and painting with salvarsan was resorted to. The author concludes that trypaflavine is an excellent remedy for Vincent's angina.

54. Auto-vaccine Therapy in Oto-laryngology.

G. WORMS and G. DELATER (*Rev. de Laryngol., d'Otol., et de Rhinol.*, April 30th, 1923, p. 307) are convinced of the value of autogenous vaccines. They had derived most excellent results in cases of furunculosis of the external auditory meatus and the vestibule of the nose. These were mostly staphylococcus infections. One case had a large abscess in the axilla and furuncles of the nasal orifices and eyelids. All kinds of treatment had been tried, but an autogenous vaccine cleared the condition quickly. These cases of furuncle round the nasal, aural, and ocular regions are exclusively due to cutaneous flora—staphylococci—and not to the streptococci and pneumococci of the mucosa. On the other hand, practically all cases of accessory sinusitis and otitis media have an infection of streptococci, in some cases mixed with other strains—staphylococci, pneumococci, diphtheroid and other bacilli. The more chronic the condition the more diverse and multiple were the bacteria present. In streptococcus vaccine it appears that the antigenetic properties are very quickly lost, and the authors now only prepare six or seven doses at a time, making a new vaccine from a fresh supply of pus when these are administered and the lesion is not cured. Sterilized pus has been administered to animals but not to man, on account of the danger of anaphylaxis from the rich mucus and albumin content of the pus. The disadvantage of auto-vaccines is that in the case of a thin culture several days may be lost before a rich enough growth is obtained to prepare the vaccine. This has been overcome by a method of rapid bedding out of the streptococci on to egg-albumen medium on the slant, and enough bacteria for the six or seven doses can be prepared in twenty-four hours. The original tubes are not used but only the bedded-out colonies. Sterilization is performed with 2 per cent. iodine, which is neutralized with sodium hyposulphite. The vaccine is standardized to 500 million streptococci and 1,000 million of other germs to 1 c.cm. The first dose is 0.5 c.cm., followed by 1.0 c.cm., 1.5 c.cm., and so on every second day. Pain and local inflammation rapidly disappear, but the purulent discharge

RECEPTION AT THE ROYAL COLLEGE OF PHYSICIANS.

A reception for members of the Société Internationale de Chirurgie was given by the President and Fellows of the Royal College of Physicians of London on Thursday afternoon, July 19th. The guests were received in the large library by the President, Sir Humphry Rolleston, who was accompanied by the censors, the registrar, and the Harveian librarian. A number of books illustrating the history of anatomy and surgery were placed on view. The library of the College contains an unusually large number of early anatomical and surgical works, and the history of anatomy and surgery from the fifteenth to the nineteenth centuries could be studied in the books exhibited. Special care had been taken to show as many books as possible written by anatomists, whose names are remembered to-day because they have been given to various parts of the human body. Besides the exhibition books of this character other rare books and manuscripts more particularly connected with the history of the College were on view, and visitors had the opportunity of seeing the oil portraits on the walls to the number of some 120, which illustrate the work of many British portrait painters from the seventeenth to the nineteenth centuries.

RECEPTION AT THE ROYAL COLLEGE OF SURGEONS.

A reception was given on July 19th by the President and Council of the Royal College of Surgeons of England in the College, when the guests were received by the President, Sir John Bland-Sutton, and the Vice-Presidents, Sir Berkeley Moynihan, Bt., and Mr. H. J. Waring. The visitors were guided through the museum by the conservator, Sir Arthur Keith, F.R.S.

Demonstrations.

During the meeting a number of demonstrations were given, including one by Sir Charles Ballance on nerve suture, and another by Sir Almroth Wright, at St. Mary's Hospital, on the practical application of points mentioned in his address on vaccino-therapy and sero-therapy. The members of the Society had the opportunity of visiting various hospitals each morning and witnessing operations.

(To be continued.)

TEACHING OF OPHTHALMOLOGY TO MEDICAL STUDENTS.

WE have received for publication from the Council of British Ophthalmologists the following correspondence which has passed between it and the General Medical Council:

To the Secretary, General Medical Council.

28th March, 1923.

Dear Sir,

The Council of British Ophthalmologists begs to draw the attention of the General Medical Council to the following statement in the final report of the Departmental Committee on the "Causes and Prevention of Blindness," which has recently been published:

"We recognize that the inadequate knowledge of diseases of the eye possessed by the large majority of the medical profession on admission to the *Register* is in a large measure due to the very limited amount of training in this subject which they receive as medical students. With a few exceptions the universities and examining bodies in Great Britain do not require candidates for a qualifying degree or diploma to be examined in ophthalmology. It is true that questions on ophthalmic surgery are occasionally included in a paper or in the oral examination, but these can in no sense be considered as an adequate test of the candidate's knowledge of this subject.

"In our opinion no licence to practise medicine should be granted without satisfactory evidence of an adequate knowledge of diseases of the eye. The supervision of the medical curriculum and qualifying examinations is in the hands of the General Medical Council. This body demands of medical students three months' attendance in an ophthalmic department, but representations of the inadequacy of this regulation have failed to produce any stronger insistence on more effective training in ophthalmology.

"We recommend that the General Medical Council again be urged to insist that every student presenting himself for a qualifying examination in medicine shall be examined in ophthalmology."

This recommendation of the Departmental Committee, which was composed of both laymen and medical men, is entirely in keeping with that submitted by the Council of British Ophthalmologists to your Council in 1919 (copy enclosed) in which it was suggested that: "No student shall be considered to have passed the qualifying examination unless he has shown a sound knowledge of practical ophthalmology in an examination conducted by ophthalmic surgeons." The action which your Council took at that time was—

"That every student should be required to attend a course of practical instruction in ophthalmology of not less than ten weeks' duration and that no student should be admitted to the final examination unless he presents a certificate to the effect that he has attended such a course regularly, and that his work in connexion therewith has reached a satisfactory standard."

The Council of British Ophthalmologists wishes to point out that this arrangement leaves it entirely to the ophthalmic surgeon in charge to determine what the evidence of satisfactory work in his department should be, an arrangement which is not considered sufficient with respect to any other of the essential subjects in a student's curriculum.

Further, the Council of British Ophthalmologists has ascertained that in the London medical schools the evidence of satisfactory work is receiving very different interpretations. In one school every student is now required to pass an examination before his certificate is signed, in others mere attendance in an ophthalmic department is recognized as sufficient.

This difference in the interpretation of the General Medical Council's requirements causes not only a feeling of injustice amongst the students of the different schools, but is also eminently unsatisfactory in the want of uniformity in the standard of requisite knowledge which it sets up, and in placing the responsibility entirely in the hands of the teacher.

The experience of the Irish universities and colleges, in which an examination in ophthalmology has been for many years recognized as an intrinsic part of the final examinations for their degrees and diplomas, shows that there is no great difficulty in conducting such an examination.

The Council of British Ophthalmologists desires to point out that the adoption of its recommendation would not entail any modification of the curriculum already required by the regulations of the General Medical Council, but only that an effective and uniform test be applied to the knowledge which a student should have acquired in the course of the curriculum.

The recommendation of the Departmental Committee on the "Causes and Prevention of Blindness," coinciding as it does with the previously expressed views of the Council of British Ophthalmologists, encourages the latter again to urge the General Medical Council to insist by means of an examination in ophthalmology on a uniform standard of knowledge in this subject.

Yours very faithfully,
(Sgd.) J. B. LAWFORD, *President.*
M. S. MAYOU, *Hon. Secretary.*

General Council of Medical Education
and Registration of the United Kingdom,
London, W.1, 5th June, 1923.

The Honorary Secretary, Council of British Ophthalmologists,
69, Harley Street, W.1.

Dear Sir,

I have to inform you that your letter of the 28th March, drawing attention to the report of the Departmental Committee on the causes and prevention of blindness, was considered by the Examination Committee of the Council, and that the greater part of your communication was printed in full in the report made by them thereon to the Council.

This report was considered at the meeting of the Council held on the 1st of June, and I was directed to inform you that it is too soon to judge of the effect of the resolution recently adopted by the Council.

I might add that in regard to the paragraph in the report of the Departmental Committee I was directed to inform the Ministry that on May 25th, 1922, the Council made certain recommendations to the licensing bodies for the improvement of the medical curriculum, one of which was that each student should receive instruction, *inter alia*, in the diseases of the eye, refraction, and the use of the ophthalmoscope. The Council thereby anticipated the wishes of the Departmental Committee as set forth in their report, which was not published until the autumn of that year.

Yours faithfully,
(Sgd.) NORMAN C. KING, *Registrar.*

subsequently showed signs of phlebitis; the presence of a myoma in the right iliac fossa was recognizable. Three months later severe pain was experienced in the region of the myoma, which rapidly increased in size; at the same time a foetid vaginal discharge was noted. The uterus, which was removed unopened, was found to contain a living seven months foetus. The myoma—an interstitial one—was the size of an orange, and exhibited central haemorrhage; the placenta was partially separated in the adjacent zone, and the uterine cavity in this region contained infected liquid blood.

61. Prolongation of the First Stage of Labour.

E. GUEISSAZ (*Gynécol. et Obstét.*, 1923, vii, 5, p. 390) observes that death of the foetus during labour is due twice as frequently to abnormalities of the maternal soft parts as to pelvic contraction or deformity. From an analysis of fourteen years' records of the Lausanne Maternité he draws the following conclusions. Rigidity of the maternal tissues plays the predominant part in abnormal prolongation of the first stage of labour, and is much more frequent in primiparae (128 cases) than in multiparae (22 cases). Advancing age is not the sole etiological factor concerned, and the author believes that an antecedent gonorrhoea is of considerable importance, especially in young subjects; of 30 cases of prolonged dilatation in primiparae aged under 25, more than one-third had gonorrhoea, as compared with 12 per cent. in older primiparae and 18 per cent. in multiparae, and with 2 per cent. among the whole of the mothers of the clinic. Other factors leading to cervical rigidity are pregnancy, nephropathy, and uterine myoma. The other main cause of prolongation of the first stage of labour consists in abnormalities of the uterine contractions, combined frequently with early rupture of the membranes. With regard to the merits of the various forms of treatment for a prolonged stage of dilatation (defined as exceeding forty-eight hours), Gueissaz remarks that over two-thirds of his cases received morphine, which in one-third was the sole treatment; given in the latter half of the second stage it not only diminishes pain, but also improves the uterine contractions. Hot vaginal douches of 30 to 40 litres improved the pains in about one-third of the cases, and, whether given before or after rupture of the membranes, were not followed by increased puerperal morbidity. Immersion in a hot bath for half an hour appeared free from danger, and had a still more favourable influence on the pains. Pituitary extract is not generally to be recommended at this stage, and incision of the cervix, the colpeurynter, and mechanical dilatation are dangerous. Manual dilatation of the cervix should be reserved for cases of commencing foetal distress.

Pathology.

62. The Influence of Hypertonic Salt Solutions on Granulation Tissue.

W. V. GAZA (*Zentralbl. f. Chir.*, June 2nd, 1923, p. 858) has arrived at the conclusion that the influence of strong salt solutions on granulating wounds is not to be ascribed to an osmotic effect, as commonly assumed, but to ionic action, and more particularly katonic. If the effect were merely osmotic it should not matter which salt were used; in fact, non-electrolytes such as sugar, urea, etc., should act in the same way. He has observed the results of applying 10 per cent. solutions of KCl, NaCl, Na_2SO_4, $CaCl_2$, $MgCl_2$, and $MgSO_4$ to flat granulating surfaces, using wet compresses. The results varied with the salt used, and the most marked differences were noted between the effects of NaCl and $CaCl_2$. NaCl caused the granulations to swell above the level of the surrounding skin. $CaCl_2$ caused them to shrink even in a few hours till they became level with the skin. Wound secretion was not much influenced by NaCl; with $CaCl_2$ it was diminished very markedly and became serous. Mg salts appeared to damage the tissues somewhat. Epithelialization was hindered by NaCl owing to hypergranulation, and promoted by $CaCl_2$ indirectly, owing to the shrinking of the granulations. These opposite effects of Na and Ca are in keeping with what we know of their antagonistic effects in biology. Sodium loosens the colloid of protoplasm and makes the cell more permeable. Calcium has the opposite effect. From various experiments the anion is found to have little, if any, influence. The practical application of these data lies in the employment of NaCl solutions when we wish to stimulate granulation formation, to fill up deep wounds, and to use $CaCl_2$ for flat granulating surfaces. $CaCl_2$ is particularly useful in the case of burns.

63. Studies in Local Immunity.

BESREDKA (*C. R. Soc. de Biologie*, June 2nd, 1923, p. 7) states that if an eighteen-day broth culture of staphylococci be filtered through a candle a clear liquid is obtained which is devoid of toxicity for animals. In this liquid, though other microbes grow almost as readily as in fresh broth, the staphylococcus refuses to grow. This is due to the presence of an inhibitory substance, which can be shown to be thermostable and specific. If this liquid be injected into the skin of a guinea-pig—or, preferably, applied as a dressing to the shaved surface—it acts as a vaccine, enabling the animal to withstand a lethal dose of living cocci given the following day. The rapidity with which immunity appears would seem to exclude the action of antibodies and to indicate that it is in the skin itself that the resistance develops. Applying this idea of cuti-vaccination, A. Bass (ibid., p. 9) has treated 25 cases of furunculosis, 5 cases of anthrax, 4 cases of acne, and 3 cases of pyorrhoea by the injection of killed cultures of the responsible microbe into the skin or mucous surface, as close to the lesion as possible. When dealing with staphylococci an autogenous vaccine was prepared, sensitized and killed by heat at 65° C. for forty minutes. Injections were given every two days. To cure boils four to six injections were required, to cure anthrax six to ten. Acne and pyorrhoea demanded a treatment of four to six weeks with a mixed staphylo-streptococcal vaccine. Many of the patients thus treated were seen after eighteen months to two years, and in none of them had a relapse occurred.

64. The Relationship between Auto-haemotherapy and Haemoclasic Shock.

THE beneficial effect of auto-haemotherapy on patients suffering from furunculosis has been demonstrated by French workers. What is its mode of action? This is the question asked by NICOLAS, DUPASQUIER, and DUMOLLARD (*C. R. Soc. de Biologie*, May 26th, 1923, p. 1293). That it is not due to a process of vaccination is shown by the fact that the same result can be obtained by the injection of the blood of other human beings and of that of animals, such as the rabbit or guinea-pig. It was noticed that patients subjected to hetero-haemotherapy show pronounced general reactions, and it was therefore surmised that this shock might bear some relationship to haemoclasic shock. To ascertain if this were so, a patient suffering from chronic pruritus was submitted to auto-haemotherapy and a study made of the biological effects produced. It was found that after each of the four injections given there was a fall in the blood pressure, a decrease in the coagulation time of the blood, followed about half an hour later by a rise to above normal, and a definite leucopenia. From this it would appear that the effect of auto-haemotherapy is to cause a marked humoral disturbance similar to that encountered in haemoclasic shock.

65. The Antagonistic Action of the Suprarenal Cortex and Medulla.

P. BRU (*Arch. des Mal. du Coeur des Vaisseaux et du Sang*, April, 1923, p. 256) observes that experiments in suprarenal physiology are rendered difficult by the complexity of these organs, formed of two substances absolutely distinct both embryologically and histologically. Moreover, the cortex and medulla penetrate each other reciprocally. Bru has succeeded in preparing emulsions of pure cortex and medulla of a dog's suprarenals. These emulsions were injected into the peritoneal cavities of rabbits. Each rabbit received three injections at intervals of eight or ten days. Eight days after the last injection 60 to 80 grams of blood were removed from the rabbits' carotids, and 10 c.cm. of rabbits' serum was injected into the saphenous veins of chloralized dogs. The effect was not immediate, but four or five minutes after injection of the "cortical" antiserum a definite fall of blood pressure occurred and persisted for more than fifteen minutes. An injection of 25 c.cm. of antiserum produced a more rapid and definite fall, with weakening and acceleration of the heart-beat. On the contrary, similar injections of "medullary" antiserum raised the blood pressure, in one case, from 17 to 19 cm. Hg in four minutes. Bru concludes that these antiserums permit the dissociation of the two constituents of the suprarenal capsules, the cortex lowering blood pressure while the medulla raises it. This conclusion is confirmed very clearly by the successive injections of the two antiserums at an interval of fifteen minutes (in the same animal). The pressure lowered by the "cortical" antiserum is raised to its former level by the injection of the "medullary" antiserum, while the pressure raised by the latter substance is lowered by an injection of "cortical" antiserum. Bru suggests that the "cortical" antiserum should prove valuable in combating certain syndromes of hypertension.

ANNUAL MEETING NOTES.

THE REPRESENTATIVE MEETING.

HE main feature of the first day's debate in the Representative Body (reported fully in the SUPPLEMENT this eek) was its simplicity and directness. There were no ›secure issues; there was no close voting; and there was ır less strong feeling than might perhaps have been ›pected. Two matters stand out in Friday's proceedings: unecontroversial business, the election of Overseas Vice-residents and Dr. Gibbs's acknowledgement; of controersial business, the scheme for co-operation between the ritish Medical Association and the Society of Medical fficers of Health. The course of the latter discussion as a little surprising, in view of the very strong pposition to the proposals shown by a section of the ouncil throughout the whole course of the negotiations ith the Society. The meeting was prepared for full-dress debate, and so ready to applaud a good point n either side that the way the voting would go was t first in doubt; but the large majority of representatives eemed to have decided beforehand that the object of the heme was sound, that the scheme itself would attain that bject, and that the time had come to adopt it without ıore ado. The opponents of the proposed policy failed to ıow the meeting any valid reason for believing that it ould not work; consequently their criticisms had little eight in influencing opinion, and there was almost a avour of unreality about some of the objections to "the ouble vote." The Representative Body had evidently ravelled a long way since this subject was debated at the 'ambridge meeting, and personal or sectional animosity 'as refreshingly absent. Dr. Sanders, as a spokesman of ublic health officers, did nothing but good by his emphasis n the danger to the Association of a separatist policy, nd of the advantages that would flow to it under the roposed scheme. Mr. Turner, in summing up the whole istory of the policy, dealt in facts and not compliments hen he attributed the successful evolution of the scheme o the statesmanship of the Chairman of Council. After he scheme had been accepted by a very large majority in full house, the afternoon's work on the necessary modifiations of Articles and By-laws was mainly formal. Notithstanding an eleventh-hour effort to defeat the scheme y constitutional procedure, the proposals of the Organizaion Committee went through, subject to a happy amendnent of the term "re-eligible" to "eligible for relection." Two other matters may be noted here. The Kent proposals for altering the By-laws governing the omposition of the Council gained little real support, but he ever-green question of providing individual medical lefence was debated with considerable vigour. It may be loubted whether the Warrington motion would have been ost had any of its supporters been able to indicate any ›racticable method of working such a scheme. The general eeling seemed to be one of regret that the British Medical Association should not be in a position to meet every conceivable need of every one of its members, from the time of qualification to the time of retirement.

Business on Saturday was again dispatched with unooked-for celerity, the Representative Body rising before 3.30 p.m. after dealing with the Hospitals, Journal, Science, Public Health, and Ethical Committees' reports, and some outstanding matters on that of the Organization Committee. The second day's session was mainly occupied n debating the Hospitals and Insurance Acts Reports; liscussion on other matters was limited to isolated points, and was for the most part simple and direct. The speech of the Chairman (Mr. Souttar) in presenting the Science Committee's report deserves special mention, as it introduced matter not covered by the printed report—notably the large number and very high quality of this year's applicants for scholarships and grants, and the prospect of increasing activity in post-graduate education. Dr. Macdonald's presentation of the Journal Committee's report was received with great cordiality. The absence of any prolonged discussion on medical ethics was in conspicuous contrast with the record for the last three years. The Public Health report was practically confined to a list of subjects dealt with; but the discussions under this head on tuberculosis, summer-time, and vaccination, more especially the last, should prove of value to the public. The course of debate on the motion for representation of the Medical Women's Federation on the Council of the Association seemed to be determined largely by the way in which the motion was worded. Not even Dr. Hawthorne's admirable and highly appreciated argument from analogy could do away with the facts put forward by the proposer as calling for action. The introduction of the Hospitals report completely changed the atmosphere of the meeting. It was evident that here, at least, there was sharp disagreement both on principles and on procedure. For the first time in three years a position apparently consolidated has been withdrawn from. Three elements could be detected in the several amendments on the agenda paper—criticism of the Hospitals Committee for its conduct of this matter, fear of an irremediable split in the Association, and the objection (strongly felt by many influential consultants and others) to compromising what might be called the "high honorary" position by accepting any payment not hallmarked as an honorarium. At Glasgow the Hospitals Committee was instructed to find the best method of bringing together two apparently irreconcilable views. The Portsmouth meeting has decided by a small majority that the method suggested does not suffice, and the problem therefore remains for solution next year. A guess may be hazarded that the decisive factor in the decision ultimately taken this year was fear of disruption of the Association, which outweighed the fact clearly enough put before the meeting by Mr. Souttar and by the Chairman of Council, that opportunity waits on no man, and those who do not lead must expect to be forced to follow. The debate was remarkable more for the diversity than for the novelty of the arguments brought forward. For the rest, the Bolton and Barnstaple representatives, ably assisted by Dr. Hawthorne, gave the meeting an interesting essay in definition, but in so doing they failed to accept Dr. Brackenbury's challenge to define "free will" as a preliminary to defining the adjective "voluntary." This may have been why Mr. Harman's vindication of his own working definition was accepted. The afternoon's discussion on the report of the Insurance Acts Committee was conducted with far greater reserve, presumably because the pressure of external circumstances was in this instance more urgent. The debate on Document M.10 traversed delicate ground. The meeting showed itself unwilling to compromise the position of the Insurance Acts Committee by unnecessary criticism at this stage of the negotiations. In the discussion on the schedules defining the range of medical service under the Acts, it was interesting to note the emphasis laid on the position of the Insurance Acts Committee as working primarily in the interests of adequate service to the insured person. The debate left that Committee in at least as strong a position as it found it.

The morning session on Monday, July 23rd, was devoted to consideration of the finance report and the new home of the Association; the afternoon session to medico-political, parliamentary, and naval and military matters. Dr. Gordon Bell's attack on the financial statement was of service, if only as eliciting the independent defence offered by Dr. David Lawson and Dr. Peter Macdonald. Dr.

The Ambulatory Treatment of Fractures and Diseased Joints

By CAREL A. HOEFFTCKE

7, HARLEY STREET, W.1.

(Inventor and Maker of Hoefftcke's Appliances.)

WITH AN INTRODUCTION BY

FRANK ROMER, M.R.C.S., L.R.C.P.

AND ARTICLES BY MANY EMINENT SURGEONS AND PHYSICIANS.

Royal 8vo. *Price 17s. 6d. net.*

THE publication of Mr. Hoefftcke's book describing the ambulatory treatment of fractures and and diseased joints with his extension appliance and giving cases and results, is a timely reminder of the existence of an apparatus for the application of a principle far too little known or appreciated. Hitherto descriptions of this treatment and testimony as to its value have been confined to papers read before the Medical Societies, articles in Medical Journals and short descriptions in Medical Books. The publication of this amply illustrated work, demonstrating its application to disease and fractures, should be the means of bring home to the Profession the extent of the mitigation of suffering obtainable by the use of the principle involved in this unique extension appliance. It is invaluable not only for fractures of the long bones of the lower extremities, but also because the whole field of arthritic pathology comes within its scope. A permanent cure may be confidently expected to follow its use, and not merely amelioration of the condition.

The mode of manipulation of tubercular and arthritic joints and their extension on Mr. Hoefftcke's extension table, by means of which the danger of friction between the articulating surfaces during the operation is avoided, is described in detail. Many distinguished medical men have altered their views upon the treatment of fractures and diseased joints, thus:—

Sir Arbuthnot Lane, Bart. (Consulting Surgeon to Guy's Hospital), writing in the *Lancet* of May 29th, 1920, says: "Quite a number of years have elapsed since my views on the treatment of tuberculous, rheumatoidal, and other conditions of joints by means of rest were first shaken and then altered by the observation of the results of the combination of movements and extension afforded by Mr. Hoefftcke's appliances. Up to that time I was imbued with the view then accepted, that rest was a factor of vital importance in the treatment of diseased joints. I then learnt that if sufficient extension could be exerted to take pressure off the opposing articular surfaces of the affected joint, movement was most beneficial and often accompanied by little or no pain. . . . The advantages afforded by the forcible separation of the diseased articular surfaces from one another, combined with free movement, are best shown by the use of a really efficient extension apparatus for the leg which does not interfere with the functioning of the diseased joint. This is effected by the apparatus which Mr. Hoefftcke has devised. . . ."

The cases quoted throughout the book, illustrated by X-ray photographs taken at intervals, have been sent to Mr. Hoefftcke by medical men, who all bear testimony to the efficacy of the ambulatory treatment.

It is evident that the severity of traumatism, the duration of the disease, and even the age of the individual are factors which may be disregarded when ambulatory extension treatment has been decided upon. Tuberculous joints in children, rheumatoidal arthritis with ankylosis in the aged, contractions with suppurating sinuses due to bony injuries, compound fractures, are all amenable to treatment by means of the Hoefftcke extension method, even after years of neglect or when other means have failed to effect a cure.

The principle of the treatment with Hoefftcke's appliance is *Extension with Movement*, transferring the weight of the body to the tuberosity of the ischium and surrounding gluteal muscles, leaving the pubic bone and perineum quite free from pressure. By means of a well-fitting ankle-spat powerful extension up to 25 lbs. can be produced night and day upon the joint surfaces without discomfort to the patient. With the help of this appliance the patient can be allowed to walk about and exercise the joint, so as to avoid slowing the blood supply, and to enable the usual blood current to combat the disease and repair the cartilage and articulating surfaces. Enough has been said to indicate the physiological principles of this treatment and the scientific aim of the extension appliance.

If this book be studied in an unbiassed spirit the Publishers are convinced that they will have placed in the hands of the Profession the means to an invaluable addition to surgical and medical therapeutics.

Published by—

WILLIAM HEINEMANN (Medical Books) Ltd., 20, Bedford Street, London, W.C. 2.

district; that need is supplied by the Corporation's official guide, of which also a copy has been presented to each member. In the words of its preface, the *Book of Portsmouth* "is simply a collection of historical facts, incidents, and impressions of the premier Naval Port of the Empire," put together for this occasion by a group of local experts under the editorial direction of Dr. William Carling. The volume covers a good deal of the ground already gone over by Dr. Carling in the interesting series of articles on Portsmouth which he has contributed during recent months to our columns. Mr. W. G. Gates, well known as a local historian, is responsible for the opening section, which consists of a number of short notes under the general heading "Portsmouth in the Past." He has written also a note on Portsmouth hospitals and physicians of the past, and the Committee records its gratitude to him for much general help in the preparation of the volume. Mr. Henry Rundle, F.R.C.S., gives an outline of the history of the Royal Portsmouth Hospital and other medical charities, while Surgeon Rear-Admiral W. Bett does a like service for the Royal Naval Hospital at Haslar. Dr. Charles F. Routh describes the charms of Southsea as a holiday and health resort. Dr. Mearns Fraser, Medical Officer of Health for Portsmouth, contributes an account of the municipal health services, and of the work of the Health and Housing Committees, whose chairman for the past four years has been Mr. C. P. Childe, President of this year's Annual Meeting. The illustrations to the interesting article on H.M.S. *Victory* include a sketch showing the famous flagship as she was in 1805, drawn by the eminent artist, Mr. W. L. Wyllie, R.A., who tells her story. The Mayor (Alderman F. G. Foster) outlines the admirable arrangements for higher and elementary education, in whose development he has had so large a share during his many years' chairmanship of the Portsmouth Higher Education Committee. Other short articles introduce the visitor to the Naval Dockyard, to the principal buildings of modern Portsmouth, to the sister town of Gosport, and to the remains of the famous old Roman fortress and Norman church at Portchester. Lastly, we may mention Dr. Carling's note on the neighbouring village of Hambledon (the cradle of English cricket) with its charming view of the old "Bat and Ball" Inn on Broadhalfpenny Down, once kept by Richard Nyren of cricketing fame. Indeed, the illustrations throughout the book are admirable, and reflect the greatest credit both on the Printing and Publishing Committee and on the publishers, Messrs. Charpentier, Ltd., to whose courtesy we were indebted for several of the pictures which have accompanied Dr. Carling's articles. There is no doubt that all who have enjoyed Portsmouth's hospitality this week will be glad to preserve the *Book of Portsmouth* as a memento of their visit.

LUNCHEON TO OVERSEA REPRESENTATIVES.

A NEW and very welcome feature was introduced into the early part of the Annual Meeting this year. Before the Representative Body concluded its sessions the delegates from Oversea Branches were entertained to luncheon at the Corner House, Portsmouth, under the chairmanship of Dr. Wallace Henry, Chairman of Representative Meetings. Those present on Tuesday, July 24th, to welcome them on this informal occasion included the principal officers of the Association, the Chairmen of several Committees, and the chief officials. The guests represented widely scattered parts of the Empire—India, Australia, New Zealand, South Africa, West Indies, Malaya, Zanzibar, Sierra Leone, and Hong Kong. Their names are: Sir Joseph Verco (South Australia); Major-General Sir G. Godfray Giffard (South India and Madras); Dr. E. P. Baumann (Witwatersrand); Dr. B. Spearman (Zanzibar); Dr. W. Owen-Pritchard (Tanganyika); Dr. Beringer (Sierra Leone); Dr. G. W. Bampfylde Daniell (Cape of Good Hope, Western); Dr. John Hutson (Barbados); Dr. J. A. R. Glennie (Singapore); Dr. A. C. Lankester (Hyderabad and Central Provinces); Dr. J. V. Manning (Orange Free State); Dr. H. E. Gibbs (Wellington, N.Z.); Dr. E. C. Dean (Perth, Western Australia); Dr. O. Marriott (Hong Kong); Dr. G. B. Mason (Grenada); Lieut.-Colonel Ashton Street (Bombay). The speeches were short, friendly, and to the point. After the loyal toast had been honoured the Chairman proposed the health of the Dominion visitors, mentioning his gratification at the increasing activities of the Oversea Branches of the British Medical Association, of which an index was the growing volume of reports received at headquarters and the larger number of visitors coming each year to attend the Annual Meetings in the mother country. The toast was supported by the Chairman of Council, the Chairman of the Organization Committee, the Solicitor of the Association, and the President-elect, and each in his own way offered a warm welcome to the representative members from overseas. Dr. Bolam told of the Council's constant desire to maintain imperial unity in the medical profession. Dr. Morton Mackenzie, on behalf of the Organization Committee, whose work brings it into constant communication with Oversea Branches, welcomed this informal opportunity for personal intercourse between the representatives from abroad and the officers and officials at home. Mr. Hempson acknowledged the great courtesy and hospitality shown to him during his tour of the Dominions. Mr. Childe, as one who was born and went to school in South Africa, expressed his pleasure at meeting the guests and his desire to do everything in his power to strengthen the bonds between the Association at home and the Association overseas. The toast was responded to in very cordial terms by Dr. J. V. Manning and by Sir Godfray Giffard, who remarked that the work of the Representative Meeting had shown him that the profession at home and the profession in the East were wrestling with very much the same medico-political problems. Dr. Baumann, in proposing the Chairman's health, expressed his warm appreciation of the reception given to him and his colleagues by the Representative Body during the past four days, and in particular by their hosts on this occasion. Dr. Wallace Henry's brief acknowledgement brought a very pleasant and profitable meeting to a close.

A SEA TRIP TO SOUTHAMPTON.

On Sunday, July 22nd, when the Representative Body rested from its labours of the two previous days, a large party of representatives and ladies accompanying them made a most enjoyable trip by sea to Southampton. The party left the Clarence Pier, Southsea, on the steamer *Duchess of Fife* at 10 o'clock, in delightful weather. Making its way past the island forts of Spithead and the anchored aircraft carrier H.M.S. *Argus*, the boat steamed towards Ryde and then passed along the wooded shores of the Isle of Wight to Cowes Harbour, before turning into Southampton Water. Bright sunshine and a cool breeze, and glimpses of the white sails of racing yachts in the Solent, contributed to the pleasure of the voyage. As Southampton was approached, and the long façade of Netley Hospital came into view, the vast funnels of ocean-going liners could be seen towering above the quays and dwarfing the cargo boats moored in the estuary. Disembarking at the Havre Dock, a visit was paid to the cross-channel packet-boat *Normannia*, after which the party was entertained to luncheon at the South-Western Hotel by their hosts for the day, the Southampton Division of the British Medical Association. The visitors then walked to the White Star liner *Majestic*, which was lying at her berth beside one of the longer quays, and every part of this luxurious great ship was inspected by kind permission of the directors of the White Star Line

here, when the country becomes alive, as it eventually must become alive, to the social and hygienic necessity as well as to the economic advantage of clearing the foul slum areas that disgrace the life of our great industrial centres, and breed and perpetuate an underworld, both moral and physical, whose end-results we annually spend millions of the taxpayers' and ratepayers' money in attempting to alleviate—it is here that the wage-earning classes of Portsmouth should find a sure escape from the poisonous, sunless, and depressing conditions in the slums of Portsea.

Next one word about the most famous of all our ships—H.M.S. *Victory*. She was not built at Portsmouth, though she had been the town's most treasured possession ever since she returned here, more than a century ago, with the dead body of a nation's hero. For over one hundred years she floated at the mouth of the harbour, the sentinel of England's greatest naval port, and the token of perhaps her most glorious days. Quite recently, as you are aware, owing to the ravages of time she has had to be removed to the dockyard, where no doubt many of you will be visiting her during the week. It is a national, no less than a local, satisfaction to know that owing to the energetic effort of Admiral Sir Doveton Sturdee and the ready response to his appeal, she will be restored to a condition worthy to fly the flag of the Commander-in-Chief of the first naval port of the Empire.

Portsmouth's past is writ large in the annals of our history. It is a town whose walls and stones, if they broke silence, could almost tell the story of the great empire over which the Union Jack flies. It is less easy to forecast its future. It has leant in the past on the British Navy, and the British Navy has leant no less upon it. All its interests have been sacrificed to the needs of the nation. It is not denied that this has had compensating advantages for the town. It would seem, however, if its energies are no longer to be required for national purposes, to be only fair that every consideration and every facility should be given it by the Government during the transition period which must elapse before it can make good in other directions and stand firmly upon its feet again. With these few remarks regarding local topics, I pass on to the subject of my address.

ENVIRONMENT AND HEALTH.

During the past fifty years medicine has done infinitely more to constitute itself a science than in all the previous ages. This has been mainly due to the flood of light thrown upon the specific etiology of many diseases by the epoch-making discoveries of Pasteur, and the stimulus those discoveries have given to other workers. Previous to this almost nothing was known of the agencies concerned in the onset of any diseases, except those of purely mechanical origin. Of such widespread and prevalent disorders as the surgical infections, enteric fever, tuberculosis, diphtheria, syphilis, malarial fever, pneumonia, and many others, the causes were entirely unknown, the speculations and theories as to their origins were various —"Quot homines, tot sententiae"—and their treatment was entirely empirical. All disease was a mystery. A great deal of it is no longer a mystery. Approximately one-half of the diseases with which we are acquainted are now known to have their origin in infection by living organisms belonging either to the plant or to the animal kingdom, and the probability is that the list is not yet nearly exhausted. Besides this it has been computed that nearly half the deaths that occur annually are traceable to the same cause.

With the emergence of medicine from the mysterious, no less a revolution has occurred in the practitioner of medicine. While a good bedside manner is still a valuable asset and will so remain in so far as it connotes a sympathetic and human attitude towards the sick and suffering, and while from a business point of view a good shop front no doubt has its value, no longer are the doctor's brains assessed by the sheen of his tall hat or the length of his frock-coat. Like medicine, the doctor has become less mysterious, less aloof from and superior to his fellow men. Knowing more he has become less omniscient. Standing on surer ground he has become less pretentious. The medical priestcraft, reminiscent of a time when the medicine man was more priest than physician and more charlatan than either, has disappeared or is disappearing. This is all to the good, and tends to a more enlightened confidence between doctor and patient.

Again, so much relating to the discoveries and advances in medicine nowadays finds its way into the lay press that the general public has, apart from its technical aspects, a broad knowledge of the progress medicine is making, and is alive to its new developments. This is again to the good. A strong opposition is always an incentive to good government. The advent of a wide-awake and informed public tends to keep the profession up to the mark. It adds nothing to the dignity, not to mention the security, of the doctor to be questioned by his patient on some new treatment or phase of a disease he has never heard of, but with which he finds his patient has more than a bowing acquaintance.

It was a natural sequence of the elucidation of the causative agent in many of the infectious diseases that scientific effort should be directed to two main objectives: first, to the discovery of means of producing an artificial immunity similar to the active natural immunity which it was a matter of common knowledge resulted after recovery from an attack of many of them; secondly, to producing immunity reactions which should have the effect of neutralizing the toxic products of the invading organisms during an attack. In both of these directions remarkable results have been achieved, both by what is known as vaccine prophylaxis and therapy, and antiserum prophylaxis and therapy.

The most completely successful example of *vaccine prophylaxis* is that of vaccination against small-pox, introduced by Jenner in 1798. This remarkable discovery was the result of shrewd observation and logical deduction. It was nevertheless empirical; the principle on which it rested was not understood until the work of Pasteur more than half a century later. In countries where vaccination is twice practised, small-pox has practically ceased to exist, and its sporadic outbreak from time to time is a warning to the public of neglect of the means to prevent it. In typhoid and paratyphoid fever, by measures along the same lines, immunity lasting for a period of one or two years can be secured, and has greatly reduced the incidence of these diseases both among civilians and soldiers.

Again, the mortality from rabies has been reduced from 16 per cent. to a fraction of 1 per cent., an active immunity being capable of being produced here after infection has already taken place, owing to the lengthy incubation period of the disease. *Vaccine therapy*—that is, the production of active immunity after attack by a known micro-organism—so ably advocated by our own countryman Sir Almroth Wright, has given very beneficial results in staphylococcus infections, skin affections, etc. Of *antiserum prophylaxis* the best example is that obtained in tetanus. The mortality following Fourth of July injuries in America has ceased to exist owing to its use, and no less life-saving results were obtained by the same means in the great war. The most familiar and the most successful instance of *antiserum therapy* is that of diphtheria, which has reduced the mortality from 40 to 10 per cent., and, if used on the first day of the disease, to almost *nil*.

These are veritable triumphs of strictly scientific medicine. In other diseases more or less success has been achieved. But closer investigation has shown that there are many factors requiring elucidation which undoubtedly influence the result—such as choice of route, recognition of different types of the same disease, etc.—and it will certainly take many years of patient endeavour before the ultimate possible results in securing immunity are obtained. In many instances prophylaxis or cure has eluded us, and the results have proved disappointing. The above may be termed the result of scientific effort, either preventive or curative, directed towards the individual.

There are other diseases, which have been attacked from a totally different angle—namely, by studying and combat-

his presidential address, to be delivered on the evening of September 12th, will deal with the electrical structure of matter, a subject in which he is a pioneer. Lectures will be given by Professor Elliot Smith on the study of man and by Mr. Julian S. Huxley on the physiology of development in the frog, and we learn from an article in *Nature* that citizens' lectures will be given both in Liverpool and in some of the neighbouring boroughs. It is also intended to repeat the experiment of giving a few lectures to young people, which proved so successful at last year's meeting at Hull. There will be thirteen sections. In the section of physiology Professor G. H. F. Nuttall's presidential address will deal with symbiosis in animals and plants. Dr. J. C. Burt will give an address as president of the section of psychology on the mental differences between individuals, with special reference to individual psychology in education and industry. The presidential address in the section of anthropology, by Professor P. E. Newberry, will deal with Egypt as a field for anthropological research. During the whole of the meeting an exhibition of scientific apparatus, specimens, diagrams, and so on, representative of the work of all the thirteen sections, will be on view in the Central Technical School. Judging from the success of the small sectional exhibitions arranged on several occasions during the last decade it is anticipated that this collective exhibition will prove of interest to all members. On the last evening of the meeting—Tuesday, September 18th—a scientific soirée will be held at the University on the lines made familiar by the Royal Society. A number of experiments illustrating recent developments in science will be shown and a series of short addresses will be given.

DIRECTOR OF MEDICAL SERVICES, INDIA.

COLONEL CHARLES HARFORD BOWLE-EVANS, C.M.G., C.B.E., M.C., Indian Medical Service, has been appointed Director of Medical Services of the Army in India, in succession to Lieutenant-General Sir Charles H. Burtchaell, K.C.B., whose term of office is about to expire. This is the first occasion on which an officer of the Indian Medical Service has been appointed D.M.S. India, with the exception of the short period, about three months, for which the appointment was held by the late Sir Pardey Lukis during the war. Colonel Bowle-Evans received his medical educa- graduated M.B., Ch.B.Camb. in 1894. He entered the tion at Cambridge and St. Bartholomew's Hospital, and Indian Medical Service in 1895, was promoted major in 1905, lieutenant-colonel in 1913, and colonel in 1921. He served in Waziristan 1894-95 (medal and clasp), Chitral 1895 (medal with clasp), North-West Frontier 1897-98 (clasp), and China 1920 (medal). For his services in the European war (1914-15) he received the C.M.G. He is at present A.D.M.S. Poona District.

MEDICAL DIRECTOR-GENERAL, R.N.

SURGEON REAR-ADMIRAL JOSEPH CHAMBERS, C.B., C.M.G., will on October 1st succeed Surgeon Vice-Admiral Sir Robert Hill, K.C.B., K.C.M.G., as Director-General of the Medical Department of the Navy. Sir Robert Hill has had a very distinguished career. He joined the navy in 1890, and during the war was principal medical officer of the Grand Fleet. He was thanked and promoted for his services at the battle of Jutland, where the Commander-in-chief stated that his excellent organization contributed much to the well-being of the wounded. He received the K.C.M.G. in 1919, in which year he was appointed Director-General; he received the C.B. in 1918, and was promoted K.C.B. in 1922. The new Director-General has recently been in chief medical charge of the Royal Hospital, Plymouth. He was a student of Trinity College, Dublin, where he graduated M.B., B.Ch. in 1887, and was promoted to be Surgeon Rear-Admiral three years ago.

THE THOUSANDTH SUPPLEMENT.

THE SUPPLEMENT of this week is the thousandth number. The propriety of issuing a Supplement had been under consideration for some time before the first number appeared on February 7th, 1903. In October, 1901, the Council adopted a recommendation of the Journal and Finance Committee to the effect that in view of the amount of official matter which had to be published in the JOURNAL it was desirable to issue from time to time Supplements containing such material. The recommendation was not immediately acted upon, because it was a time of transition, and it was thought well to wait until the new constitution was in full working order. At first the SUPPLEMENT was issued at irregular intervals as matter accumulated, but since the beginning of 1905 it has appeared with very few exceptions every week. It varies in size according to the exigencies of the moment; on several occasions it has contained 64 pages, either when the Annual Report of the Council was published or when there has been a special Representative Meeting. During the current year it has contained on several occasions over 40 pages, and that for this week, in which the first three days of the proceedings of the Representative Meeting at Portsmouth are reported, contains 44 pages. In addition, special SUPPLEMENTS have occasionally been published, as, for instance, the report on contract practice, containing 96 pages, published on July 22nd, 1905; on January 6th, 1912, the text of the Insurance Act, 1911, was issued, and occupied 64 pages, in addition to an ordinary SUPPLEMENT of 24 pages. The growth of this department of the JOURNAL can be measured by the fact that in 1903 the fourteen SUPPLEMENTS, including index, filled 246 pages, while in 1912 the two volumes contained 1,434 pages. During the war the bulk of the SUPPLEMENT was very much diminished, but it has grown again until last year (1922) the two volumes contained 492 pages. The object with which the SUPPLEMENT was established was that members of the Association should be able to follow every phase of its work, and to appreciate its variety and extent. In this way it was believed, and the expectation has been realized, that a larger proportion of members would be stimulated to take a wider interest in the Association's efforts for the furtherance of reforms within as well as without the profession.

THE National Alliance for the Increase of the French Population has awarded the first prize of fr. 50,000 to M. Paul Haury for the best popular pamphlet on the decreasing birth rate in France and the tragic consequences to the nation.

THE second Rumanian Congress of Oto-rhino-laryngology will be held at Bucharest on October 27th and 28th, when the following subjects will be discussed: Radiotherapy and radium therapy in oto-rhino-laryngology, introduced by Professor Metianu; otitis media in infancy, introduced by Drs. David and Predescu-Rion; vaccine treatment of ozaena, introduced by Drs. Tempea and Vasiliv. The titles of papers should be sent to the general secretary, Dr. Mayersohn, 97, Calea Mosilor, Bucharest, before October 1st.

THE Academy of Sciences of Cuba offers the Dr. Suárez Bruno prize, consisting of a diploma and 300 pesos, for the best work on anaemias of parasitic origin; the Cañongo prize of 250 pesos for the best work on an unspecified subject; and the Gordon prize of a gold medal for the best work on the respiratory functions and the circulation in Cubans. The competing papers, written in Spanish, English, or French, must be sent anonymously, with the author's name in an accompanying sealed envelope, and must be received before March 30th, 1924.

The industrialization of Sweden since 1870 has been accompanied by a high adolescent mortality due to pulmonary tuberculosis. Sandberg, commenting on this, says:

"The cause of this difference between earlier and more recent times seems to us to be in the fact that formerly the adolescent boy and girl remained at home for a longer time—nowadays one goes more frequently and at an earlier age to the city or factory. The new conditions of existence bring, in many cases, increased dangers to health and life, dangers which, especially in the case of women, often lead to tuberculosis."

In 1885 the tuberculous gland cases admitted to the Alexandra Hospital for Sick Children, Brighton, constituted 6.5 per cent. of all admissions. In 1899 they were 3.5 per cent.—a reduction of nearly 50 per cent. Between 1885 and 1899 Brighton has swept away most of its insanitary areas. Numbers of similar instances could be quoted. It is no unwarrantable assumption that by permitting—and that is all we have to do—the sun and fresh air into our slum areas we should see a very marked general decline in the incidence of tuberculosis.

Consider next Rickets. Its etiology is unknown. There are two opposing theories as to its origin—the dietetic and the hygienic. There are those who positively assert that it is a deficiency disease; that it is due mainly to lack of fat-soluble A. There are others who as stoutly deny that diet has anything to do with it. We may leave the theorists to settle their differences and turn our attention to certain facts about it which have long been established, and certain other facts which have recently come to light. It never occurs among races living under natural conditions, and is especially prevalent among the poor in Europe and America living under so-called civilized industrial conditions—in other words, the thoroughly bad hygienic conditions of overcrowding and absence of fresh air and sunlight. Among the well-to-do it is practically unknown. In India, on the other hand, as recently shown by Hutchinson, it is a disease of the rich. It does not occur among the poor labouring class who live an open-air life, but is prevalent among the rich Mohammedans and Hindus, who are confined in airless and sunless rooms. Hutchinson discovered also this remarkable fact—that late rickets was restricted to females, who alone are confined, according to the purdah system of isolation as practised by the wealthy natives of India. Again, eminent observers in Glasgow, who have quite an exceptional acquaintance with rickets—it being, as you know, very prevalent in that city—have always associated the disease with overcrowding and lack of hygienic conditions and sunshine, which you also know are conspicuous features of that great hive of industry. According to Miss Fergusson, 50 per cent. of the children in the poor quarters of Glasgow are rickety—a vastly smaller proportion in garden cities, such as Bournville. The prevalence of rickets, she says, is associated with close confinement in tenements. Most important of all, we have the recent experiments of the Lister Institute in Vienna. They prove conclusively that a deficient diet can only produce rickets in the absence of sunlight. If abundant sunlight be present a deficient diet is powerless to give rise to it. Lastly, we have the significant fact that the sun's rays without any other treatment whatever can cure it—an explanation of the oft-repeated dictum that anybody can cure rickets in the summer.

All this does not prove that the absence of fresh air and sunlight is the cause of rickets; but it does prove this—that in overcrowding, confinement, want of fresh air and sunlight, we have an environment conducive to the development of rickets, either by the supply of conditions favourable to the activities of the virus, whether microbic or otherwise, or by lowering natural resistance to it. Conversely, that fresh air and sunlight and good hygienic conditions furnish an environment which is powerfully antagonistic to the disease; that they have either the power of damping down the activities of the virus whatever it is, or that they can so alter the metabolism of the body as to provide an increased resistance and immunity to it. Whichever is the method, the result is the same. These facts appear to indicate clearly and unmistakably the way to the control of this crippling and dangerous disease. And, as Mellanby says, its eradication would do away with a great deal of the bone deformity, improve the physique, lower the infantile mortality, and, most important of all, improve the teeth of the people of this country beyond recognition.

Let me invite your attention in the next place to Venereal Diseases, which have figured so largely in the public eye during recent years, are discussed in every drawing-room, exhibited at every picture house, and with regard to the most suitable methods of controlling which there are acute differences of opinion, both among medical men and the lay public. They are the diseases of immorality. The contributing environmental factor here is the indiscriminate admixture of the sexes of all ages, a necessity of their living conditions. It is not, of course, contended that by an improvement in housing immorality would be stamped out, but it is contended that the conditions of overcrowding, without regard to age or sex, which exist in our industrial centres make the practice of morality wellnigh impossible.

Let me put before you a few facts; they are taken from the report of Dr. Chalmers, the medical officer of health for Glasgow, for 1921. There is no intention to single out that city as a sink of iniquity, or an example of a condition of things peculiarly revolting to the conscience of civilized humanity, and I have very little doubt its case could be paralleled in our own borough of Portsmouth; but I have the facts for Glasgow, and I have not similar facts for Portsmouth. In Glasgow, out of a population exceeding a million, over 600,000 live in one-roomed or two-roomed tenements. Under the heading "Sex overcrowding in small houses," Dr. Chalmers gives the following appalling examples:

"In a one-roomed house a father of 52 occupied the same bed with a mentally defective daughter of 24, who had an illegitimate child of 10. In another, with space for five adults, a father and daughter shared the same bed. In another a mother shared the same bed with two sons of 19 and 20 years respectively. In two-roomed houses, in one instance, a son of 19 and a daughter of 21 occupied the same bed; and in another a son of 19 and a daughter of 25, who was pregnant."

However revolting these facts may be, it is right that the public should be made aware of them. This, then, being an example of the state of affairs in our industrial centres, it may be confidently stated that a great deal, at all events, of immorality and its consequences, venereal disease, is the direct result of environment—that the conditions existing make either the teaching or practice of morality impossible, and furnish the breeding ground for venereal disease.

Have we not, it may be asked, missed one phase of the problem, and are we not somewhat out of touch with the situation, with our societies for the prevention of venereal disease and for combating venereal disease quarrelling amongst themselves as to the best means of meeting the evil, and local authorities and the lay public equally divided, when conditions such as I have depicted are rampant in our midst? It is this aspect of the problem—the immorality and its consequence, venereal disease, which are the direct result of overcrowding without regard to age or sex—which I wish to lay particular stress upon here.

Consider, lastly, the abuse of alcohol. There is no doubt that, without anything in the nature of prohibition in this country (and I believe it to be foreign to the instincts of our people to have their lives, what they may eat, and what they may drink, regulated by the policeman), there has taken place during the past fifty years a steady move in the direction of greater sobriety among all classes of the community. Among the upper and middle classes drunkenness was the fashion less than a century ago. It is now a disgrace. In the army, navy, and mercantile marine there was, fifty years ago, infinitely more drinking than there is to-day. In the streets of our towns the drunken man of any class is not nearly such a familiar sight as he was a generation ago. This must be attributed broadly to social evolution, to general civilizing influences—better education and the inculcation of greater self-respect, which such influences promote. There are, of course, many factors at work here; but in the forefront of civilizing influences is the improvement of the home. So long as the public-house is more comfortable and more attractive than a man's home, the former will claim his leisure hours. Give him a comfortable and respectable home, and the lure of the public-house will automatically diminish. In the debate on Lady Astor's bill, a few months

the disability only refers to a second induction of cancer, for these refractory animals may present recurrence or actively growing metastasis of the original primary tumour. Evidence has been obtained that the refractory state may set in early in the preparatory period before the first primary growth has started.

Dr. Russell has obtained a second tar sarcoma in a rat, in the series which has already given one as described in his paper on the subject published last year. It arose after an interval of six months from the last tar injection and eighteen months after the beginning of the experiment. He has continued his investigations on the utilization of carbohydrates by surviving tumour cells, extending them to a study of the pentoses. Some of these are apparently more easily attacked by cancer cells than by normal tissues. The indications afforded by these experiments will be the basis of chemotherapeutic experiments, in which he will have the collaboration of Mr. H. G. Crabtree, M.Sc., who has joined the scientific staff for this purpose.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Restriction of Sale of Alcohol to Young Persons.

IN the House of Lords, on July 19th, Lord Dawson of Penn spoke on the second reading of the bill (already through the Commons) for restricting the sale of alcohol as regards persons under 18. While supporting the measure he said he should have been more happy if he had heard one word of grudging approval of alcohol for any people of any class whatever. Quite a large proportion of those supporting the bill looked upon alcohol as harmful in itself, and therefore specially harmful for youths and adolescents. Facing the question what was the effect of alcohol, alcohol was, without doubt, a food, but that it was a good and effective food in health no sensible persons would contend whatever it might be in sickness. It was a stimulant, though only for a transient period, and anybody who referred to it as a narcotic was a scientific philistine. In excess it might be a narcotic, but in moderation it added to the pleasure, the exhilaration, the happiness, and the gaiety of life. At the end of a day the mind of a man who worked hard got into one track. Alcohol got him out of it, enabling him to travel from one topic to another. He took for example a working man who had been assisting in the manufacture of a motor car, utilizing the same muscles for six, seven, or eight hours. That meant that he had been utilizing precisely the same cells of his brain for those hours. At the end of the day the brain was in one track and the outlook grey. Lord Dawson suggested that here the moderate use of alcohol came in. Good beer at that particular time of the day would help and not harm. He happened to be at a public dinner not long ago when the centre table consisted almost entirely of prohibitionists, among them several high enthusiasts. It was the one dull grey spot in the whole of that dinner. Then as to digestion. A number of people at the end of a fatiguing day were unable to digest food because their nervous system was too tired. A small quantity of alcohol made them happy with themselves and with the world. In the particular phase of civilization through which we were passing alcohol, properly taken and in moderation, could serve a useful purpose. The great distinction between youth and age, however, was that whereas the first effect of alcohol was to exhilarate and uplift and to help, the second effect—namely, the narcotic—followed in youth very much more quickly than it did in adult years. The argument for this bill was that youth did not require alcohol. If it got into one track it got out of it quickly, sometimes too quickly. In taking alcoholic beverages much depended on quality and strength. Chemical analysis might disclose no difference, for the qualities of good wine and beer were due to traces of substances which might be compared to vitamins in food. The good effect of alcohol, however, depended entirely upon moderation. He thought it would be admitted that the community at large was showing an increasing moderation in the consumption of alcohol. To appreciate this it was only necessary to watch the returns of the magistrate's court, but he had got out the figures of a large hospital in London for ten years and had chosen two diseases produced by alcohol. In the year 1900 there were 39 cases of cirrhosis of the liver admitted into that hospital; in 1920 there were 7. He then selected an alcohol disease peculiar to women, and he found that for the year 1900 there were 19 such cases admitted into this big hospital, and in the year 1920 only 1. He then took all diseases due to alcoholism in that hospital per 1,000 of the male patients. In the year 1900 there were 5 per 1,000, in 1905 5.5 per 1,000, in 1910 4 per 1,000, and in 1915 2 per 1,000; in 1920 it was under 1 per 1,000. There was, in short, the most striking testimony that the consumer of alcohol was becoming much more circumspect, that there was a greater regard for its quality and the times of its consumption; he believed himself that the more critical attitude, the appreciation of what it would do, of the beneficent influence it would have if taken in moderation at proper times, would grow and penetrate through all classes of the community. He fully agreed nevertheless that up to the age of 18 alcohol was seldom or never required in health, and that the exhilarating and useful effects seen in the adult were rapidly followed in youth by irritating and narcotic effects. Therefore the distinction should be made between youth and age. After all, to limit alcohol in adolescence was doing no more than was done in many other aspects of social life. It was insisted that youth should be educated; youth is protected from sexual aggressions, and it was protected in factories. It seemed therefore only logical that youth should be protected from alcohol, and with the caveat that the bill did not carry with it any condemnation of alcohol as such he supported its provisions. The bill was read a second time.

Therapeutic Substances Bill.—On behalf of the Government the Earl of Onslow introduced, on July 19th, a bill "to provide for the regulation of the manufacture, sale, and importation of vaccines, sera, and other therapeutic substances."

Smoke Abatement Bill.—This bill, introduced by the Earl of Onslow in the Upper House on July 19th and now printed, would substitute £50 for £5 as the maximum penalty for a smoke nuisance, and would enlarge and strengthen the law generally for dealing with these matters.

Small-pox.

Mr. Flanagan asked whether the Minister of Health would consider the advisability of supplying Government calf lymph to all private qualified medical practitioners who applied for it, as the material they now have to use might not be up to the recognized Government standard. Mr. Chamberlain said this matter had been considered from time to time, but he doubted whether it was practicable to take action in the direction indicated.

Replying to Mr. Bennett on July 18th Mr. Chamberlain explained that the arrangements governing the appointment of small-pox consultants had been made solely with a view to securing promptly an accurate diagnosis in suspected cases of small-pox. In ordinary circumstances, if the doctor in attendance upon a patient and the local medical officer of health were doubtful whether the case was one of small-pox, arrangements were made, if possible, for one of the medical officers of the Ministry of Health who had special experience in the diagnosis of that disease, to see the patient in consultation with the practitioner and the medical officer of health. The recent outbreak of small-pox had rendered it necessary that some further assistance should be available for the diagnosis of doubtful cases. He had therefore secured the services of twelve medical men residing in different parts of the country, each of whom had special knowledge and experience of small-pox, to visit suspected cases when assistance was sought from his department an [illegible] Ministry were not imme[illegible] visits was to assist in diagnosis, [illegible] appointed endeavoured in each case to arrange to see the patient in consultation with the medical attendant and the local medical officer of health.

On the request of Mr. Lunn, Mr. Chamberlain gave, on July 23rd, the following particulars of the annual mortality from small-pox per million living at three group ages under 15:

	0–5.	5–10.	10–15.
1861–70	£33	115	56
1871–80	513	235	123
1881–90	60	13	25
1891–1900	29	10	3
1901–10	22	7	6
1911–20	0.57	0.12	0.11

In answer to Mr. Rhys Davies, Mr. Chamberlain said there had been three deaths amongst small-pox patients at the Brockworth Isolation Hospital. The first was an unvaccinated man, aged 58, who died five days after admission as a result of cerebral haemorrhage and delirium tremens; he was suffering from a mild attack of small-pox. The second was an unvaccinated child, 6 weeks old, who died seven days after admission to hospital. The third was an unvaccinated child, 10 months old, whose death twelve days after admission to hospital was due to small-pox complicated by enteritis and heart failure.

Ministry of Pensions.

Permanent awards of pensions have now been made in approximately 33,500 cases of disease and 120,500 cases of wounds and injuries. It is the practice to consider every case with a view to a final award not later than four years after the first award of pension, and only those found to be unsuitable for a final award are still subject to revision. The number of pensioners is something under 800,000. In March, 1923, the [illegible] of 50 per cent. or over was 160,800, and th[illegible] as follows: Eye disabilities, 6,600; injury to limbs [illegible] amputations), 58,000; other wounds and injuries, 22,800; ear disabilities, 2,800; tuberculosis, 30,300; other diseases, 40,300.

The number of half-time medical officers engaged in the work of medical examination and certification for the Pensions Ministry is 1,627, but a large number of them are employed as examining medical officers at clinics. The estimated cost of clinics under the control of the Ministry for the present financial year is £ 93,000.

There are now only six instead of seven principal medical officers at the headquarters of the Pensions Ministry, it having been found possible to amalgamate two sections of the work and to terminate the appointment of one of the officers. The duties of five of these officers and of nine of the twenty-one deputy commissioners at headquarters, though in general of an administrative character, were such as could be carried out only by med cal men, inc uding as they did the provision of treatment, control of medical staff, organization of medical boards, provision and inspect on of hospital accommodation and equipment, and many other duties calling for specialized medical knowledge. The other principal medical officer and the remaining twelve deputy commissioners at headquarters were not employed on administrative work, but were advising medically upon cases presenting special difficulty.

in the dark sunless and airless environment of our large towns are inviting both all the time. The most important educational requirement of domestic hygiene and its highest fulfilment is the open window, night and day, summer and winter. It is astonishing how quickly the human organism abjures the hothouse conditions of civilized living and adapts itself to its natural environment, fresh air. The tuberculous patient, after three months' open-air treatment in a sanatorium, cannot endure the closed window in his own home. The tuberculous children at Leysin in Switzerland, and at Alton and Hayling Island in this country, live practically naked in the open air, and by that habit and that habit alone throw off a most formidable and deadly disease. Why, then, all the care of healthy children, with their active metabolism capable of adapting itself to almost any requirement, to wrap them up in the warmest of clothing, confine them in hot rooms with windows shut, keep every draught from their bodies, and submit them to general hothouse conditions suitable only to the old whose metabolism is barely sufficient to keep body and soul together, and whose clock has almost run down?

Modern civilization is suffocating itself in the polluted atmosphere and darkness of our great industrial cities. The need of pure air and sunlight, of which there is plenty about, and to be had for nothing, was never so insistent as it is to-day. These great gifts of nature were plentifully supplied to primitive man, and were his only sure defence against disease. They are as bountifully given to civilized man, but he seems to have lost sight of their value, or to have deliberately turned his back on them, while he requires a whole volume for the mere nomenclature of his innumerable diseases.

Perhaps apology is needed for touching to-night on a problem which may be considered rather a sociological one than one of strictly scientific medicine. But apart from the fact that I believe a wide latitude is permitted in the Presidential Address to this Association, my choice of subject can, I think, be justified by both local and general as well as scientific considerations. First of all, it does not seem to be an unfitting subject to bring to your notice in the town which bred Charles Dickens and Walter Besant, who devoted their unrivalled literary talents to depicting scenes and characters drawn from our slums, and such as our slums are only too familiar with. Secondly, although this borough has witnessed some of the most brilliant pageants and displays in the history of this country, and although you are sitting here in what we are proud to think is one of the finest town halls in the kingdom, yet there is an obverse to the shield, and round the corner we can introduce you to slums as pestilential and overcrowded as any to be found in the land. Further, although the environment of the wage-earning classes, in our industrial centres, and its effects may in part be a sociological question, I have endeavoured to show that it is inseparably linked up with, and *is* in fact the greatest of all our problems of preventive medicine, the most rational and the most scientific of all medicine. And if this is so, then it is up to the medical profession, both individually and through this great Association of medical men, to educate and lead public opinion in this matter, and to strengthen the hands of governments and local authorities, on whom will ultimately devolve the responsibility, no less than the odium, of providing the remedy. Concentration on the prevention of disease, on strengthening resistance to disease, by the improvement of environment, rather than on the search for cures or palliatives when the damage is already done; more attention to stimulating and fortifying the natural defensive mechanisms against disease, less to direct attack on disease itself; as Professor Wynne so ably put it last year, concentration on the environment rather than on the individual—this appears to me to be the most scientific, the most economical, and the most productive means of combating the worst of the evils from which the community suffers. If, in conclusion, I might sound a personal note, it is this—that as Chairman of the Health and Housing Committee of this great borough, by the goodwill of my colleagues on the Council, this is a conclusion forced upon me by no mere theoretical considerations, but by an everyday acquaintance with undeniable facts.

British Medical Association.

REPORT ON WORK OF SCHOLARS AND GRANTEES.

THE following is an account of the results of work done by the Research Scholars and Grantees of the Association during the year 1922-1923 and reported to the Science Committee at its meeting on July 3rd.

SCHOLARSHIPS.

Dr. H. A. HARRIS (Ernest Hart Memorial Scholar) has made a detailed study of a foetus presenting a combination of anomalies. In addition to numerous anomalies in the skeleton, the left lung and pleural cavity were absent, the oesophagus was interrupted at the level of the seventh cervical vertebra, and in place of the left bronchus was a narrow canal continued into the distal part of the oesophagus. From the left ventricle there arose a right systemic arch giving off the left carotid, right carotid, and right subclavian arteries. From the right ventricle ascended a left systemic trunk, giving off a right pulmonary artery and continuing as a left arch to join that of the right side, after giving off the left vertebral and subclavian arteries. A small communicating vessel united the ascending portions of the two arches. A full account is given in the *Journal of Anatomy*, vol. 57, 1922.

Dr. Harris has also examined three anencephalic foetuses; in all both the pituitary body and the intermediate zone of the suprarenal cortex were well developed. He has investigated the effects of disease on bone growth. In the case of a patient who had two severe illnesses at an interval of eight months, the alteration in the structure of the bones, as shown by radiograms, demonstrated clearly the amount of growth during that interval. From an examination of children and animals Dr. Harris concludes that (1) enlargement of the ends of the long bones is, within wide limits, normal; (2) the degree of enlargement is in some diseases greater than in rickets; (3) in many cases beading of the ribs may be confined almost entirely to the deep surface; (4) the "rickety rosary" and "cranio-tabes" are of less value than the radiogram in diagnosing the disease.

Dr. R. ST. A. HEATHCOTE (Research Scholar) has studied the action of camphor, menthol, and thymol on the circulation. The action of these drugs on the isolated perfused heart was found to be, in every experiment, purely depressant; both rate and amplitude of beat were reduced, the effect being due probably to direct action on the cardiac muscle. The action of camphor on the chloralized heart was also studied. After a short perfusion with choral the heart beat became slower and the amplitude less. On changing to the mixture of camphor and chloral there occurred a rapid decrease in amplitude and rate, and no sign of stimulation of the chloralized heart was ever seen. The coronary flow was increased by all three drugs. Experiments on the circulation were performed on decerebrated cats, a solution of camphor in olive oil being injected subcutaneously or intravenously; a gradual fall in blood pressure was produced. From these experiments it was concluded that camphor possesses no value as a cardiac or circulatory stimulant.

Dr. Heathcote has also studied the active substances in squill. He has separated three substances — a glucoside fraction, a resin, and a third body, of unknown constitution but probably a derivative of the glucoside. The first resembled closely the glucosides prepared from digitalis and strophanthus in all respects. The resin was found to depress the rate of the heart and also to dilate the vessels, both coronary and systemic. The third body resembled in its actions the glucoside, but had only about one-third of its activity.

Dr. S. W. F. UNDERHILL (Research Scholar) has investigated the influence of the hydrogen-ion concentration of the environment upon the activity of smooth muscle (isolated ileum of the rabbit or cat). In the ileum it was found that a sudden alteration to the acid side of neutrality caused a diminution of tone with a decrease in the contractions, while a corresponding sudden change to the alkaline side caused an increase in tone with a less

Scotland.

GRADUATION CEREMONY AT THE UNIVERSITY OF EDINBURGH.

At the summer graduation ceremony of the University of Edinburgh on July 20th the Principal, Sir Alfred Ewing, conferred the degree of M.D. upon fifteen graduates and those of M.B., Ch.B., on 203 graduands (see page 162).

After the capping Sir Harold Stiles, Professor of Clinical Surgery in the University, delivered an address to the new graduates. After welcoming them into the university he appealed to them to uphold the honour and maintain the reputation of their renowned Alma Mater, and quoted the words of a distinguished divine who said, "Accept your profession as a vocation of God. Greater than all its dignities are its duties, higher than all its honours are its responsibilities." He advised them to devote some of their leisure to the reading of medical history and medical biography, which would foster the spirit of endeavour and emulation, and to give Garrison's *History of Medicine* a foremost place on their shelves. Bacon had said, "Reading maketh a full man, conference a ready man, and writing an exact man." The best way to become a ready man was, he said, to join a medical society (may we suggest the British Medical Association?), and the best way to become an exact man was to cultivate the habit of careful and accurate observation, keeping records of cases.

Need of a Large Maternity Hospital.

He then passed on to make a direct appeal to the graduates and the public of Edinburgh. It was deplorable that the university should have to send its students, some to Dublin and others to Paris, for clinical instruction in obstetrics. The citizens of Edinburgh had recognized Sir James Simpson's great services to humanity by building a maternity hospital as a memorial to him during his lifetime, but the memorial was no longer worthy of the man. A great effort ought to be made to raise funds for building and equipping a maternity hospital worthy of the great tradition of Edinburgh. He quoted from a graduation address at Yale University by Professor W. W. Keen, of Philadelphia, who had said that medical instruction was given far below cost. "If," he said, "the community wants the best doctors with the best possible education the facilities for obtaining such an education must be provided for them by the community. It can never be done through the fees of the students."

Alumni Associations.

In discussing the matter with American friends he had pointed out the difficulty of raising sufficient funds to build a new maternity hospital, and the reply was—"Well, if the community can't or won't help you, why don't you get your Alumni Association to take the matter up?" But there was no alumni association in Edinburgh, and Sir Harold Stiles went on to give some idea of the important part played by such associations in contributing to the welfare and finances of American universities. The Harvard Medical Alumni Association, he said, was founded in 1890, "to advance the cause of medical education, to promote the interests and increase the usefulness of the Harvard Medical School, and to promote acquaintance and good-fellowship among the members of the Association." It was due mainly to the influence and solicitations of the founders of the Alumni Association that J. P. Morgan and others were induced to become financial sponsors for the new medical school buildings, which are the pride and joy of Harvard. In 1906 the Association collected funds for the support of two junior teaching assistants, known as the Alumni Assistants, and the number of assistantships so supported has now been increased to five. At the present time the alumni are contributing towards a fund for the endowment of a professorial chair in obstetrics in the Medical School.

Again, a scheme is to be put into effect whereby New York University is to receive income annually by issuing what are called Loyalty Bonds of 50 dollars par value, to be subscribed for by the members of each year's senior class, and to be paid for in five annual instalments of ten dollars. These Loyalty Bonds were admittedly a gift rather than an investment. But they might well be termed a "gilt-edged investment," from which returns will come, not in mere money dividends, but in the turning out of better equipped, finer men and women for the nation, and in the keeping up of a comradeship with these men and women.

At Yale University alumni are invited to contribute annually such sums as they may be able to give to help the university and its work. The alumni fund began in a very small way; in the first year 800 alumni gave £1,000, but by 1917 some 5,000 graduates were contributing, the amount collected each year being upwards of £100,000. Every alumnus now regarded it as his duty to make an annual contribution varying from 5s. to £1,000 according to the means of the individual giver.

Sir Harold Stiles invited graduates of Scottish universities to imitate the example and to cultivate also the clan spirit, which was fostered in America by the residential system and by the fraternity houses. There, graduation day, or as it was called "commencement day," was an occasion for the assembly of graduates to renew friendships and to make themselves acquainted with the progress and the needs of their old university. A beginning might be made in Edinburgh by the medical alumni, as it was in the medical faculty that funds were most needed. He suggested that every graduate in medicine should become a member of the General Council of the University and that the pound paid to become a member should be converted into an annual subscription.

NOTIFICATION OF CHICKEN-POX.

The Scottish Board of Health has issued regulations making chicken-pox compulsorily notifiable in Scotland as from Monday, July 23rd. Several instances in which mild cases of small-pox were confused with infections other than chicken-pox came to the notice of the Board during the epidemic of small-pox in Scotland in 1920-21; in consequence the Board has suggested to local authorities that they should ask medical practitioners to seek the co-operation of the medical officer of health in dealing with any illness that has even a remote resemblance to small-pox. Every medical practitioner will be supplied through the local authority with a copy of the regulations.

England and Wales.

KING'S COLLEGE HOSPITAL.

A FESTIVAL dinner in aid of King's College Hospital, London, was held at the Savoy Hotel on July 17th. The President, H.R.H. the Duke of Connaught, took the chair and was supported by a very distinguished company, including the Ministers representing six foreign States, the High Commissioner of Australia, the Agents-General for Western Australia and Tasmania, and the Bishop of Southwark, Chaplain of the Hospital. In proposing the toast of the evening—"Prosperity to King's College Hospital"—the Duke of Connaught remarked that the hospital since its removal ten years ago to Denmark Hill had come to serve a very poor and deserving population of a million and a half people in South London. Lord Hambleden's gift of twelve and a half acres of ground made it possible for the institution to rebuild in a district where it was greatly needed. King's College Hospital was proud to remember that when the war broke out it immediately offered its accommodation to the military authorities, and during the war period 31,000 soldiers passed through it, as well as 11,000 civilians. His Royal Highness, whose speech showed complete familiarity with the work and needs of the hospital, asked all present to assist in obtaining financial support in order to extinguish the debt of some £73,000. He concluded by expressing the hope that the voluntary hospital system would weather the storms of to-day. The toast was responded to by Viscount Hambleden, Chairman of the Hospital, who said that experience had shown the wisdom of moving the hospital to its present site. The blessings of a great hospital were now available

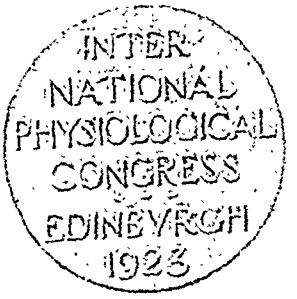
INTERNATIONAL PHYSIOLOGICAL CONGRESS.

MEETING IN EDINBURGH.

THE eleventh International Physiological Congress is being held in Edinburgh this week under the presidency of Professor Sir EDWARD SHARPEY SCHAFER, who was in the chair at the first General Session on July 24th. Captain WALTER E. ELLIOT, M.B., Ch.B., M.P., Under Secretary for Health for Scotland, on behalf of the Government extended a cordial welcome to those attending the Congress and especially to those members who had come from distant places. He was followed by Sir THOMAS HUTCHISON, Bt., Lord Provost of Edinburgh, who welcomed the Congress on behalf of the City; the Congress, he said, was remarkable in that those attending represented no fewer than twenty-one different countries. Principal Sir ALFRED J. EWING, K.C.B., then welcomed the Congress on behalf of the University of Edinburgh; he mentioned the fact that the University had possessed a Chair of Physiology for two hundred years.

President's Address.

The PRESIDENT (Sir Edward Sharpey Schafer) said that the several speeches of welcome had become progressively more intimate; beginning with the country at large, passing to the City of Edinburgh, and ending with the University. It was now his pleasant duty to tender the most intimate welcome of all, that of British physiology. Pointing to a bust of William Harvey, he said that the members of the Congress were invited to accept as a memento of the occasion a medal designed from that bust, a counterfeit presentment of the greatest of all British physiologists. The sculptor, Mr. Pilkington Jackson, was to be congratulated on his success; it had been necessary for him first to model a bust from authentic portraits of Harvey in order to obtain such an aspect of the subject as was demanded for the execution of a medal. "It is," the President continued,



"a far cry from Harvey to Lister, and many names eminent in British physiology intervene, but I desire especially to associate the name of Lister with this gathering, partly because he was for several years professor of surgery in this University, but chiefly on account of the fact that the researches which preceded his great discovery were researches in pure physiology, and were inspired by that great teacher William Sharpey, who migrated in 1836 from Edinburgh to London, and to whom I myself and many other British physiologists owe directly or indirectly their introduction to our science. Incidentally, it will be of interest to you to know that both Harvey and Sharpey were born in the same town—Folkestone—although at an interval of more than two hundred years. The countrymen of Harvey and Sharpey and Lister tender a cordial welcome to the countrymen of Vesalius and Van Helmont, of Magendie, Claude Bernard, and Pasteur, of Sylvius, Boerhaave, and Donders, of Caesalpinus, Fabricius, and Malpighi, of Michael Servetus, and of Albrecht von Haller, to mention but a few of the great names which are associated with our science."

The President then mentioned the names of physiologists who had died since the last meeting of the Congress, and concluded by saying that it was fortunate for the president of a Physiological Congress that he was not expected to give an account of the progress of the science since the preceding meeting. The task would indeed be difficult in view of the complexity of the science and the small part of it any one person could be expected to master. In view of the interest lately aroused and still existing, not only among physiologists but [illegible] and even the general public, in the internal [illegible] o pancreas, a subject especially connected with the activities of the Toronto school, Dr. Macleod, the distinguished professor of physiology in the University of Toronto, had been invited to give a lecture on insulin.

INTERNATIONAL CONGRESS OF SURGERY.

(*Continued from page 121.*)

ARTHROPLASTY.

THE discussion of the International Congress of Surgeons on Wednesday morning, July 18th, dealt with the subject of arthroplasty. All the speakers were good, but the masterly speech, cinema display, and exhibition of cases by Dr. Putti of Bologna earned him a personal triumph.

Mr. E. W. HEY GROVES (Bristol) said that arthroplasty should be defined as an operative procedure upon an ankylosed joint which had the object of restoring mobility. The pseudo-arthrosis which sometimes resulted from a simple fracture proved that a new joint could be formed, including interarticulating ends of bone, capsule, and synovia, without any elaborate plastic operation under the influence of constant movement. But such a joint was unstable and always developed the features of osteo-arthritis.

Clinical evidence on the question of arthroplasty had accumulated slowly since, ten years ago, Murphy had described his methods of operative mobilization on hip- and knee-joints. It was still conflicting. There had been many disappointments. The operation upon the hip, the one usually tried, was very serious and had a high mortality. Those recovering had only a very limited movement and the functional result tended to get worse with the lapse of time. New hope had been felt with regard to these mobilizing operations since the publications of Professor Putti had been considered. Arthroplasty could never create a normal joint, and the average result was a gain in mobility at the expense of strength and precision. In any given case the question was, Will the abnormal joint produced by the arthroplasty be more serviceable than the stiff limb which it is proposed to treat? The answer must be considered under three headings: The nature of the causative disease; the nature of the disability; and the circumstances of the patient.

With regard to the causative disease ankylosis resulting from trauma, pyaemia, or gonorrhoea in which infection was at an end gave the best results from arthroplasty. In such a disease as tuberculosis the majority of joints were unsuitable for the operation because of the latency of infection and the deep involvement of the bone ends, but in exceptional cases where the disease had been almost confined to the synovial membranes and the bones were formed and dense a good result might be expected. Selected cases of osteo-arthritis and rheumatoid arthritis might give a considerable measure of success. If ankylosis had taken place in good position and was bony and painless the joint should be left alone unless mobility would make it possible for the patient to carry out his occupation. But if the ankylosis was in a bad position, was painful, or the deformity progressive, choice had to be made between operative fixation and mobilization. Associated ankylosis of hip and knee on the same leg demanded mobilization of the hip, whilst ankylosis of both knees required arthroplasty on at least one of the joints. It was still the opinion in this country that bony ankylosis of the knee in good position should not be interfered with unless present on both sides. Youth was entirely favourable to arthroplasty provided that growth of bones had ceased.

There were six essentials in the operations. These were: To make a sufficient gap between the bone ends; to shape the articular ends and to cover them; to provide synovial fluid; to provide ligaments and prevent undue mobility; and to restore function.

Enough bone must be taken away at the time of the operation to allow full movement desired, but no more. It was wise to trust to other measures to prevent refixation. All possible fibrous tissue, and especially that of inflammatory origin, must be taken away from the site of the new joint. In shaping the bone ends the greatest possible width must be preserved in the articular surfaces. Instead of leaving the bone raw the cut surfaces might be rubbed with hard wax—a simple procedure, but not so efficacious as the use of tissue flaps. These flaps might be a foreign membrane, free fascia from the patient's own tissue, or pedicle flaps of fascia, muscle, and fat. Fascia lata was perhaps best, but all that it could do would be to provide a smooth covering

bacteriological methods and a proficient technique in chemical procedures. So that apart altogether from the question of undergraduate training, there must be a large number of general practitioners with the necessary grounding in the methods.

I suggest that it is lack of adequate financial return for increased skill in technique that hinders the general practitioner. In an ordinary middle-class practice the patient at the present day is unable to meet fees additional to the usual charges for consultations and visits. As regards the insured person, little or no provision is made for payment in respect of additional services such as blood sugar estimations, and absolutely no encouragement given to perform such additional services.

Perhaps as we are medical men, we should do all this in a spirit of altruism. New methods, however, mean new apparatus, and perhaps little alterations here and there in the consulting room—in fact, more financial outlay. In the present state of affairs as regards the general practitioner he who increases his capital outlay is, perhaps, a bold man. —*I am, etc.*,

W. HERBERT BUTCHER, M.A., M.D.

London, S.W., July 17th.

ETHER *VERSUS* CHLOROFORM.

SIR,—I am an old Edinburgh medical student, and in the summer of 1888 I was chloroform clerk in the Royal Infirmary for six months. How we used to waste the chloroform! but I do not remember a single death in the five years I was there.

Our procedure was as follows: We folded a white towel, and along its upper edge poured on the chloroform. The lower edge was held under the patient's chin, our hands pressing firmly on the angles of lower jaws and well forward, watching carefully the patient's appearance and breathing, and admitting plenty of air.

Now I have come to modify my views. During the war I did the work of our senior medical officer in a large Midland town in order to release him for service in France. During the two years and a half I performed about 250 operations for tonsils, adenoids, and minor operations. My favourite anaesthetic was a mixture of three parts pure ether and one part chloroform, and only once had I to resort to artificial respiration and pituitrin. In that case all went well for a time, and I was just about to remove the right tonsil when suddenly the patient stopped breathing; the pupils were widely dilated and the patient's appearance was like death. My assistant at once began artificial respiration and I injected pituitrin.

Allow me to say how much I enjoy reading my BRITISH MEDICAL JOURNAL. It seems to me to be much more interesting than it was twenty-five years ago. I only wish other general practitioners would give of their valuable experience.—I am, etc.,

Andover, Hants, July 8th. GEO. A. WOLFENDALE.

SIR,—From the discussion on anaesthetics, lately taking place in your columns, it would appear that chloroform is the better anaesthetic; securing "quietness and relaxation," requiring but little anaesthetic, and producing no bronchial irritation and little sickness. Ether appears, statistically, the safer, and, in motoring terms, the more "fool proof."

The question now practically resolves itself into this: Is ether so much more satisfactory than chloroform that it should replace it?

On June 28th an inquest was held on the cause of death of two patients. They had died through the nurse having administered an overdose of atropine prior to the administration of ether. Chloroform requires no atropine. About the same period the patient was anaesthetized with ether in a leading London hospital by a skilled anaesthetist. Vomiting occurred, the anaesthetic was pushed, respiration was obstructed and stopped, tracheotomy and artificial respiration were performed, and the patient died of pulmonary complication two days after, consequent on the administration of the anaesthetic. Some years ago my wife was given ether in London prior to a mastoid operation. She vomited for a week after, admittedly on account of the anaesthetic, and grave fears were entertained for her life, from that cause alone. I recall a series of letters by the late Mr. Clement Lucas, then surgeon at Guy's Hospital, on the danger of pneumonia after ether administration. In my letter of June 23rd I wrote: "Ether lets off the anaesthetist, but is often inconsiderate to the patient, and I doubt, if after-effects could be taken into account and tabulated, whether ether would not present the darker picture." The illustrations I have given justify, I think, that statement. Why should our patients be made so sick, why injected with morphine and atropine, why handed over to unskilled persons to anaesthetize?

If chloroform be pure, administered on a Skinner's mask, held at first six inches from the face and only gradually approached; if occasionally a few drops of ether be also sprinkled on; if morphine be never given, so that the pupil be free to react and be conscientiously watched, while the palpebral reflex is kept just absent, I doubt if misadventures with chloroform would occur more often than fatal complications with ether. If that be the case, why totally discard the better anaesthetic for the second best? We may have to do it because of the administrators of anaesthetics. The marvel is not that chloroform kills, but that it does not do it oftener. That is, I believe, why ether is popular abroad. I have seen a patient suffocated abroad, and held down while struggling for air till relaxation was produced, the mask being held tight down too.

Dr. Herbert Tilley says that the two mishaps with his patients occurred when two well known experts administered the chloroform. Mishaps occur with the sharp scalpels of surgeons, which blunt ones would have avoided. Why not use blunt ones? Because, though they escape the mishaps they bruise the tissues, cause after-troubles not less tragic though less spectacular, and embarrass the surgeon.

Chloroform, too, is a sharp-edged knife, but, personally, I have found it in every way a more convenient and controllable anaesthetic than ether, requiring no adjuvant, inhaled by the patient in far smaller quantity and far less cold, and causing less irritation, sickness, and after-trouble. Why should I and others discard chloroform for ether, which has more drawbacks and possibly equal dangers? Let the specialist teach the student how to administer chloroform safely and properly, and ether reasonably. —I am, etc.,

Knowle, Topsham, Devon, July 7th. D. W. SAMWAYS.

VACCINATION PROPAGANDA.

SIR,—The Research Defence Society has issued an essay on vaccination by Mrs. Scharlieb, and a short leaflet for general distribution. The secretary will gladly send copies of the essay and of the leaflet to all applicants. Address, 11, Chandos Street, Cavendish Square, London, W.1.

The Society has already distributed a very large quantity of the leaflets, and will gladly supply any amount of them. —I am, etc.,

London, W., July 22nd. STEPHEN PAGET, F.R.C.S.

Obituary.

HARRY SHORE, M.D., D.P.H.,

Medical Officer of Health, Walsall.

WE regret to record the death, in tragic circumstances, at the age of 52, of Dr. Harry Shore, medical officer of health for Walsall for the past fourteen years. Dr. Shore met by chance the superintendent health visitor in his department, who was riding a motor bicycle. Dr. Shore was much interested in motors, having been one of the first persons in the district to drive a motor car, and suggested trying the motor bicycle. Unfortunately, the end of his coat caught in the driving wheel and he fell to the ground, fracturing the base of his skull. Dr. Shore was educated at Queen's College, Birmingham, and Durham University, and at the latter he graduated M.B., B.S. in 1892, and M.D. in 1895, and took the D.P.H. in 1894. He was formerly in general practice in Walsall, and held the appointment of honorary surgeon to the Walsall Hospital for some seven

from excision in aiming at a stable, strong, mobile, and painless joint. The new joint should be reasonably free from future complications. There were two indications for arthroplasty—to improve function and to diminish pain. Pioneer work carried out by surgical enthusiasts was often experimental and bore little relation to the problems arising in surgical practice. The fact that a stiff joint had been made to move might be more satisfactory to surgeon than to patient, whose interest was whether he could now do things and whether his limb was painless. In the lower limb he was strongly of the opinion that ankylosis of any individual hip, knee, or ankle in good position was preferable, both from the view of function and of pain, to the results obtained from any form of arthroplasty. After reviewing last year 2,000 children suffering from hip disease he knew that boys and girls with bony ankylosis of the joint could walk far better than those without. He would always prefer an arthrodesis as the operation of election in such a joint. Only in those cases in which there was double ankylosis of both hips, or of hip and knee, was arthroplasty desirable. Unfortunately, there were often especially difficult cases—those terrible instances, for example, of spondylose rhizomyelia, when both hips and perhaps both knees were stiff and often painful. In these cases the inflammatory process went on in the new joint and produced persistent stiffness and pain. He was not sure that an ankylosis of both hips in abduction and 35 degrees flexion was not the most satisfactory end in these cases. The problem was very different in upper and lower limbs. In hip and knee, weight-bearing joints, it was very difficult to get satisfactory movement. In shoulder and elbow it was easy to get free movement, but difficult to provide good function. The shoulder was difficult; its mechanism was complicated. He noticed it had been much neglected by enthusiasts. The elbow was easiest and gave the best results. Indications were ankylosis in extension; painful movements not due to inflammation; exceptional cases where movement was required for occupational reasons. Mr. Elmslie then described his technique in operating on the elbow-joint. Active movements were permitted as soon as the wound was healed. A flexing sling was used.

Sir W. I. DE COURCY WHEELER (Dublin) said that arthroplasty of the shoulder was preferable to fixation if movements of the scapula were limited and the deltoid sound. In working men a fixation operation was best. In these operations a painless result was all-important.

Dr. JIRASEK (Prague) indicated that in arthroplasties done in Professor Kukula's clinic in Prague the interposition method was used: omental fat was used in 9 cases, subcutaneous fat in 7 cases, free fascia in 9 cases. Results showed that in 13 knee operations there was a return of complete mobility in 77 per cent., in 9 elbow cases 88 per cent. were entirely satisfactory, in 2 finger arthroplasties and 1 hip there was a 50 per cent. and 0 per cent. recovery of complete mobility respectively. Re-ankylosis was due to a return of the purulent or specific inflammation and to insufficient will of the patient during post-operative treatment. In interposition methods hope of a good result must not be bought at the expense of such an extensive resection as to cause a flail joint. He preferred fat grafts, easily obtainable by doing a small laparotomy, if subcutaneous fat were insufficient.

Dr. STONEY of Dublin advocated excision of the elbow in certain cases.

Dr. TUFFIER suggested the use of a small metal hinge, attached to adjacent bones, to keep the joint surfaces at a uniform distance apart.

Dr. A. JURAEZ (Poland) based his experience upon work done in Payr's clinic, where he had seen 150 cases of mobilized joints, and upon 24 operated cases of his own. There were patients who showed great pluck and energy before operation, and afterwards, owing to too early movements involving great pain, soon lost this early well-being. He considered a rational psychical treatment before and after operation of the first importance. In elbow cases he began movements not before a week after operation; in knee cases after two to three weeks; in hips after four weeks. In the meantime the limb was splinted or in plaster. The first movements merely consisted in changing the position of the extremity in the operated joint once or twice a day. As to the time after an infection of the joint in which it was permissible to operate he used a simple test. Hyperaemia was administered to the joint, best by diathermy. Swelling and pain indicated an infective process. He removed the diseased synovia and all cicatricial tissue, but was very careful to spare as much as possible of the soft tissue—especially the lateral ligaments. It was important to remember the stabilizing effect of the ilio-tibial band in the knee-joint. For hip operations he used Ollier's incision and chiselled off the great trochanter; in knee mobilization the longitudinal S-shaped incision of Payr with separation of the vastus medialis from the quadriceps and fixation of the patella externally. He had learnt that day to use Putti's incision in rare cases where there was insufficient room. The elbow and hip gave the best results.

Drs. VILARDELL, CORACHAN, RIBAS Y RYBAS, PINZI Y SUREDA (Barcelona), and ZAHRADNICKY also spoke.

INJURIES TO THE PERIPHERAL NERVES.

Dr. HENRIKSEN of Skien opened the third discussion. He said that much loose work had been done on nerve regeneration. Histological restitution was not proved to exist till nerves had been discovered of the same type as the nerve fibres, with axis cylinder, medullary sheath, and neurilemma nuclei. The process of regeneration must be followed up to the very formation of fully organized myelin fibres. Careful investigations of the conductive power of the nerve must be carried out. After a peripheral nerve had been cut with a sharp instrument it showed a pronounced disposition to heal spontaneously without leaving any permanent injury. Sensibility reappeared as soon as there was contact between the nerve ends, and motility in the course of two months. A similar return of function occurred as in spontaneous healing if the suture had been correctly performed with good adaptation and no tight knots.

Healing might be prevented as a consequence of the nerve ends being separated by displacement in other strata, by interposition of fat, or cicatricial tissue the result of infection. After a properly performed secondary suture return of sensibility set in at once. Motility and electrical reaction might appear in the course of two months and develop almost as after primary suture. If the nerve had been injured by blunt force, crushing, or tearing, the neurilemma nuclei were injured and part of them completely destroyed. Many of the newly formed nerve fibres were incapable of living and degenerated again. If the neurilemma nuclei were destroyed no new nerve fibres were formed and the nerve atrophied. The changes were most pronounced at the very spot of crushing where the nerve adhered to its surroundings. Improvement might be obtained in some cases by freeing the nerve and resecting the thickened fibrously infiltrated part. Then such degree of function was secured as the general condition of the nerve rendered possible.

Dr. GOSSET of Paris presented a table showing his war results in the various nerves operated upon. The percentages were of cures or of considerable amelioration of symptoms.

Nerve.	Freeing of Nerve.	Suture.
	Per cent.	Per cent.
Radial	95	45–55
Median	47	44
Ulnar	43	17
Great sciatic (1917)	55	35
" (1920)	—	40
External popliteal	66	50
Internal popliteal	—	40–50

The radial nerve was particularly favourable to regeneration. Even if the regenerated fibres had not passed down as far as the hand most of the muscles were reinnervated. Moreover, the nerve was so far from large vessels that a missile rarely wounded at the same time nerve and artery. Circulatory troubles and causalgia seldom developed in cases of radial paralyses. All other nerves could be said to give very variable results. Causes of failure were of three types. First, there was the defective operation.

Edith N. Hartley, W. M. Hetherington, S. L. Hislop, P. C. C. B. Hook, Doris M. Hopps, G. Horne, Agnes M. M. Hunter, Edith I. M. Irvine-Jones, Agnes L. Jenkins, C. D. Kennedy, A. M. Kerr, H. J. R. Kirkpatrick, P. L. Kock, Ena M'L. Laing, J. Lambert, W. T. Lawson, T. K. Lee, R. Levinson, Nora Lister, Elspeth H. R. Livingstone, W. Love, E. B. Low, Phyllis M. H. Luun, G. A. Macadie, D. I. Macaulay, A. R. MacCallum, A. R. M'Clure, A. D. Macdonald, J. A. Macdonald, A. M'Dowall, W. S. M'Ewan, R. M. Macfarlane, J. S. MacGill, I. H. Maciver, F. B. MacKenzie, A. MacPherson, J. B. C. Madge, W. F. Mair, D. S. Malone, A. Marly, J. J. B. Martin, G. A. Masson, R. J. Matthews, Margaret G. Maxwell, †Allison J. Maxwell Wood, H. Miller, Ellen A. Morrison, G. H. Morrison, W. Morrison, Janet M. Morton, R. Morson, H. Munro, H. B. Newcombe, Agnes M. Ogilvie, D. C. Osborne, L. C. Palmer-Jones, †J. R. K. Paterson, Susanne J. Paterson, Kate Y. Pearson, A. Penman, G. H. Perciva, O. O. Popper, F. N. R. Price, Jean R. Purves, A. L. K. Rankin, J. Reid, R. J. Reid, J. S. Riddle, F. L. Rifkill, R. P. A. Rigg, Hilda C. Roberts, I. M. Robertson, G. M. Ross, A. A. M. Sandison, P. Schneideman, W. C. S. B. Sewrey, D. A. M. Shearer, B. Siddons, W. A. Simpson, J. Sinclair, C. Siung, J. M'L. Smellie, A. B. Smith, A. F. Smith, Dorothy F. Smith, Jean L. Smith, S. M'K. Smith, G. Somerville, R. C. Speirs, Alice Steven, D. B. Strachan, †J. Sturrock, T. J. Sumner, H. W. Sutherland, C. J. Swanson, R. E. M. Taunton, L. M. Thompson, Vera Thompson, Elsie Thomson, F. B. Thomson, G. H. Thomson, K. J. Thomson, M. S. Toukby, J. Trotter, T. Tully, Anne M. Turnbull, D. A. Urquhart, E. R. C. Walker, F. M'D. Walker, E. P. Waters, W. N. B. Watson, G. M. Westwood, †A. C. White, I. G. Williams, J. H. Williams, N. B. Williamson, C. R. Wilson, Jeanie Wilson, Mary Wilson, †W. M. Wilson, J. F. S. Wiseman, G. K. Wood, E. D. M. Wright, D. H. D. Young, J. B. Young, J. N. Young.

* Passed with first class honours.
† Passed with second class honours.

D.P.H.—Esther J. Campbell, Mary C. Campbell, Grace Cumming, Gladys H. Dodds, T. Ferguson, Elspeth L. Gilmour, Elizabeth R. Kemp, Catherine A. J. Mitchell, Dorothea M. Norwell, Annie C. Roberts, Jessie W. Strang, Isabella Taylor, Annie E. Webster, Doris S. Williams.

Fellowships and Prizes.

The following Fellowships, scholarships, prizes, etc., were presented:

The [illegible] W. Wilson, M.D. The [illegible] J. J. R. Macleod, M.B., [illegible] iversity of Toronto, for [illegible] especially concerning carbohydrate foods in the treatment of diabetes. The Gunning Victoria Jubilee Prize in Materia Medica: J. H. Crawford, M.D. The Gunning Victoria Jubilee Prize in Forensic Medicine: D. J. A. Kerr, M.B., Ch.B. The Gunning Victoria Jubilee Prize in Obstetrics: D. A. Miller, M.B., Ch.B. The Ettles Scholarship and Leslie Gold Medal: R. Carmichael, M.B., Ch.B. The Allan Fellowship in Clinical Medicine and Clinical Surgery: J. Gray, M.B., Ch.B. The Murchison Memorial Scholarship in Clinical Medicine. J. Gray, M.B., Ch.B. The M'Cosh Graduate's and Medical Bursaries: W. N. B. Watson, M.B., Ch.B. The Beaney Prize in Anatomy and Surgery: Caroline A. Elliott, M.B., Ch.B. The Mouat Scholarship in the Practice of Physic: J. L. N. Dinwiddie, M.A., M.B., Ch.B. The Conan Doyle Prize: G. G. King, M.A.Oxon., M.B., Ch.B. The Annandale Gold Medal in Clinical Surgery: J. M. Cowan, M.B., Ch.B. The Buchanan Scholarship in Gynaecology: I. M. Robertson, M.B., Ch[illegible] Midwifery: F. B. Thomson [illegible] for Medical Education of [illegible] Ch.B. The Dorothy G[illegible] Bogle, M.B., Ch.B. The [illegible] Medicine: Gold Medal, J. [illegible] The Wightman Prize in [illegible] The Cunningham Memorial Medal and Prize in Anatomy: G. Brown. The Whiteside Bruce Bursary: I. G. W. Hill.

Honorary Degrees.

The Senatus Academicus resolved to offer the honorary degree of LL.D. to the following members of the eleventh International Physiological Congress now h[illegible] Bottazzi, Professor of Physio[illegible] Einthoven, Professor of Physic[illegible] Henry Howell, Professor of [illegible] J. E. Johansson, Professor [illegible] Stockholm; Albrecht Kossel, [illegible] of Heidelberg; Hans Horst [illegible] University of Vienna; Ivan [illegible] University of Petrograd; Charles Richet, Professor of Physiology, Sorbonne, Paris.

ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.

THE Dr. Jessie Macgregor Prize in Medical Science for the present triennial period has been awarded by the trustees to Miss May Laurie Walker, M.B., Ch.B.Edin., of the Department of Physiology in the University of Edinburgh, for her record of work on the anatomy and physiology of the depressor nerve. The value of the prize is 50 guineas.

SOCIETY OF APOTHECARIES OF LONDON.

THE diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: W. E. Farnham, A. Gullertein, N. Howard, C. M. John, E. F. Johnson, I. Lipman.

The Services.

TERRITORIAL DECORATION.

THE Territorial Decoration has been conferred upon the following officers of the R.A.M.C., T.A.: Lieut.-Colonel (Brevet Colonel) A. B. Gemmel, C.B.E., ret. (General Hospital); Major A. B. Murray; Major H. M. Fort, and Captain E. P. Minett, ret.

Medical News.

THE University of St. Andrews will celebrate the installation of Mr. Rudyard Kipling as Rector by conferring the honorary degree of LL.D. upon a number of distinguished persons, including Sir John Bland-Sutton, President of the Royal College of Surgeons of England, the Prime Minister, and Mr. Kipling himself.

THE Council on Medical Education and Hospitals of the American Medical Association reports that the number of medical schools in the United States is now 81, a decrease of two from last year due to the closing of two homoeopathic medical schools. The number of medical schools at the present time is exactly half the number that existed in 1906, when there were 162. The number of medical students during the present year is estimated to reach a total of 17,700, the largest number enrolled since 1912. In 1919 the total was 13,052, which was the lowest number recorded since 1890, but of this number approximately 50 per cent. possessed higher educational qualifications as compared with only 6.2 per cent. in 1904. The average age of the medical students who graduated in 1922 was 26.8 years.

THE trustees of the fellowships founded as a memorial to the late Sir William Ramsay, F.R.S., Professor of Chemistry at University College, have made their awards for 1923–24. Since the institution of the trust in 1919 twenty-one fellows have been appointed and nine others have so far been nominated this year. Among the appointments is that of a Norwegian fellowship of 5,400 kroner to Mr. Gunnar Weidsmann, to work at Cambridge under Professor Gowland Hopkins. Information received with regard to the present position of earlier fellows shows that most of them are now occupying important posts.

THE Minister of Health has drafted Regulations as to the labelling and composition of dried milk on the lines of the Regulations recently made with regard to condensed milk. Copies can be purchased under the description "Draft of the Public Health (Dried Milk) Regulations, 1923," from H.M. Stationery Office, or through any bookseller (price 2d.). Any representations on the subject should be addressed to the Secretary to the Ministry at an early date. The Regulations are intended to come into operation on January 1st, 1924, and will apply to all dried milk intended for sale for human consumption in England and Wales.

DR. W. CAMPBELL LYONS, who recently resigned the post of medical officer of health to the South Shields Town Council to take up private practice, has been presented by the members of the departmental staff with a handsome mahogany bureau.

PROFESSOR ROGER has been re-elected Dean of the Paris Faculty of Medicine. Professor Pierre Marie will resign his chair in the Faculty on August 1st.

A GIFT of 150,000 dollars by Mr. John D. Rockefeller, jun., is to be distributed among fifteen hospitals in the United States and Canada for the purpose of promoting the use of insulin in the treatment of diabetes. The hospitals will be selected from all parts of the countries.

THE second International Congress of Military Medicine and Pharmacy was recently held in Rome, when the following subjects were discussed: (1) carrying out of evacuations; (2) collaboration of civil and military authorities for the protection of public health; (3) methods of disinfestation and disinfection.

AN All-Russian Congress for combating venereal disease was held at Moscow from June 6th to 9th. The fourteenth Congress of Roentgenologists was recently held at Moscow, under the presidency of Professor Nemenow, Director of the State Institute of Roentgenology, and was attended by representatives from America, Bulgaria, China, Czecho-Slovakia, Holland, Hungary, Italy, Japan, Jugo-Slavia, Norway, Rumania, Spain, Switzerland, and Turkey.

SIR HUMPHRY ROLLESTON, K.C.B., President of the Royal College of Physicians, has accepted an invitation to join the honorary medical board of Lord Mayor Trelcar Cripples' Hospital and College.

THE William Gibson Research Scholarship of the Royal Society of Medicine has been awarded to Miss M. Forrester-Brown, M.D.Lond., of Dundee.

THE seventeenth French Congress of Medicine will be held at Bordeaux from September 27th to 29th. The subjects for discussion include: (1) Remote sequelae of malaria, by Professor Le Dantec, Dr. Hesnard, Dr. Marcel Léger, and Dr. Broden, of Brussels; (2) relationship of the sympathetic system and the endocrine glands in pathology, by Professor Pachon and Dr. Perrin; (3) treatment of meningococcal infections, by Professor Dopter and Dr. Boidin.

Recoveries Seen in True End-Results.
(157 Suture Operations at Grangethorpe Hospital, Manchester.)
Professor J. S. B. STOPFORD.

Nerve.	Number of Operations.	Motor Function.					Sensory Function.			
		Proximal Muscles *plus* Distal Muscles (Total) (Complete Motor Recovery).	Proximal Muscles *plus* Distal (Partial).	Proximal Muscles Alone.	Distal Muscles.	No Motor Recovery.	Protopathic Recovery Alone.	Protopathic *plus* Epicritic (Partial).	Sensory Complete.	No Sensory Recovery.
Musculo-spiral ...	37	20	16	1	—	—	—	—	—	—
Ulnar— Upper arm ... Forearm ..	33 {19 {19	None —	12 —	7 —	— Hypothenar alone 8. Hypothenar and 1 other, 9. 1st dorsal interosseous 1	— 1	9 6	4 9	None 1	6 3
Median— Upper arm ... Forearm ...	43 {21 {21	None —	7 —	15 —	— 9	— 12	11 9	6 10	None None	5 2
Sciatic	27	None	None	27 (I.P. and E.P. muscles 20, I.P. alone, 7)	—	—	16 (incomplete 14, complete 2)	6	None	5
External popliteal	12	—	—	6 complete, 6 incomplete	—	—	6	None	4	2

Transplants, in spite of the brilliant results of the experimentalists, had been a failure. It was his opinion that after the lapse of five years the question of re-exploration should be considered in all cases of total failure.

Dr. CHIASSERINI (Rome) read Dr. Verga's paper. Perfect recovery after nerve injury was very rare. The percentage of improvement and of recoveries obtained by the writer in 82 cases observed for longer than one year after intervention were: 52.4 per cent. of recoveries, 37.8 per cent. of improvements, and 9.7 per cent. negative results. Out of 9 cases observed up to six and a half years after operation, only once a change for the worse had been observed, and only once restoration stopped. In all the cases improvement had been the rule, which showed that improvement was a question of time. The results obtained from suture and neurolysis were quite superior to those of all other operations.

Dr. LERICHE of Lyons expressed himself as being more and more convinced that causalgia was the consequence of a peripheral sympathetic lesion, or, if they preferred it, a vasomotor syndrome. In wounds involving arteries it was not the arterial lesion, but the periarterial sympathetic which mattered. Causalgia could be produced through the accidents and wounds of civil life. The malady, like any other of vasomotor origin, had two phases—a peripheral and a radico-medullary type. Operation could relieve the first phase. In the second radicotomy was not always sufficient and a chordotomy was sometimes necessary. Of peripheral operations he had had experience only of sympathectomy. Failures came through allowing the disease to enter on its later type and through operating in the wrong place. He had sometimes used heterografts of veins from calves or rabbits. An autoplastic graft was much preferable to the dead heteroplastic graft of Nageotte. To cause trophic symptoms in limbs it was necessary to add trauma to an already existing nerve trouble. Resection of the neuroma and simple liberation was followed by temporary cure; resection followed by reconstruction had led to cure in favourable cases. For trophic limbs he recommended periarterial sympathectomy or the reconstruction of the nerve by graft, with or without sympathectomy.

Mr. PLATT of Manchester and Mr. BRISTOW (London) presented the British report.

Mr. PLATT said that there was no doubt that results in general had fallen below their earlier expectations. He gave a list of true end-results in 157 suture operations collected by Professor J. S. B. Stopford of Manchester. (See table above.) Even in radio-spiral nerve recovery, the best of any, normal synergic action of the extensors of the wrist was lacking. Neurolysis should be regarded as a necessary step in every efficiently conducted exploration and repair of an injured nerve. In cases of failure and partial failure after operations on the musculo-spiral nerve the results of tendon transplantation had been strikingly good. In this operation the pronator radii teres was transplanted into the extensor carpi radialis, longior and brevior; the flexor carpi ulnaris into the extensor communis digitorum and extensor longus pollicis and the flexor carpi radialis into the extensor ossis metacarpi pollicis and extensor brevis pollicis.

Mr. BRISTOW quoted with approval the report published by the Medical Research Council in 1920: "Lateral implantations and flap operations are only mentioned here to be condemned." With regard to pathology an interstitial fibrosis and an ascending toxic neuritis occurred in the nerve proximal to the injury. Distal to suture occurred a tissue reaction due to the stitch itself and to sepsis, even when mild, fibrosis and shrinkage of the neuroma after its formation, and compression by fibrous tissue.

Mr. YOUNG of Glasgow presented reports of over 300 cases. He spoke of the technique of nerve operations. The parts should be disturbed as little as possible consistent with thorough liberation of the ends. Nerves should be dried in the air as little as possible. Thin catgut should be used. He regarded the use of a non-absorbable material such as silk unjustifiable in nerve suture. Sheathing of the reunited nerve might be accomplished with vein, fat, muscle, fascia, tendon sheath, or other material. He believed the best form of sheath was made from loose fatty tissue taken from the vicinity of the wound or the chest wall. He thought there was a fundamental error in thinking of the mechanism of nerve repair as different from that of other tissues. It was really the same. In it they must depend on the vitality of the essential cell of the tissue involved. Hence minimal operative trauma in order to avoid muscular interference and perfect asepsis must be the surgeon's aim.

Dr. CHIASSERINI of Rome discussed the question of grafting. He believed that many of the poor results observed in men after nerve grafts were due to faulty technique; the use of too thin grafts; primary tubulization of fresh grafts; suture not correct; adhesions preventing normal growth of fibres, and no after-treatment. He agreed with Elsburg in saying, "the era of peripheral nerve surgery is still to come."

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

66. Non-diabetic Glycosuria.

M. LABBÉ (*Paris méd.*, May 5th, 1923, p. 411) remarks that in addition to diabetes mellitus various disturbances may occur in the function of sugar regulation due to changes in the nervous system, endocrine glands, kidney, and especially the liver, which are quite distinct from diabetes as regards their evolution. In diabetes the disturbance in the regulation of sugar is more intense; it is permanent, and in severe forms progressive, as well as being associated with disturbance in the metabolism of albumin and fats in the severe forms. In non-diabetic glycosuria the disturbance of sugar regulation is less pronounced, being transient and often curable. There is not the same tendency to a progressive course, and even when some disturbance in the metabolism of albumin and fats is present it is much less marked than in severe diabetes. The treatment of non diabetic glycosuria is very different from that of diabetes mellitus. Reduction of the carbohydrates is not indicated, but in glycosuria of hepatic origin a cure is best effected by suppression of meat and reduction of fat and the substitution of a milk and farinaceous diet. In presence of glycosuria, therefore, it is very important, especially in a young subject in whom the diagnosis of diabetes mellitus is very grave, to make a definite diagnosis. This can be arrived at not by clinical examination alone, but by laboratory methods, especially by estimation of the blood sugar and the test of alimentary hyperglycaemia with glucose.

67. Subcutaneous Fibroid Nodules in Rheumatism.

E. BRONSON, E. M. CARR, and W. A. PERKINS (*Amer. Journ. Med. Sci.*, June, 1923, p. 781) discuss once more the diagnostic value of subcutaneous fibroid nodules in severe rheumatic infections. Varying in size from that of a grain of sago to 1 or 2 centimetres in diameter, they occur most frequently in easily irritated sites—for example, the olecranon or occiput—and they appear larger than their actual size owing to a chronic thickening of the surrounding subcutaneous tissues, the apparently large ones being often due to collections of smaller units. They are attached to tendon sheaths and aponeuroses and vary in movability with the tissue to which they are attached, the skin moving freely over them, and they are not tender or reddened except by external injury. Composed of fibrin with multinuclear fusiform cells, leucocytes, and plasma cells, they can be detected early on moving the skin over the suspected area, even a small nodule feeling different from skin and subcutaneous tissue. While a few isolated nodules, disappearing with the subsidence of arthritic and cardiac symptoms, may not be of great significance, those cases which present recurring crops show serious and progressive cardiac damage. They occur frequently in those subacute rheumatic infections with only a mild carditis, little or no fever or severe joint symptoms, but eventually developing a crippling stenosis, damaged muscle or adherent pericardium, while in cases with acute general and cardiac symptoms, but making good recovery, they occur more rarely. Such recurring nodules are of greater prognostic value than any other sign in rheumatism, affording a significant warning that the infection will probably result in great cardiac inefficiency. They were present in 44.7 per cent. of cases; of these 35.9 per cent. were fatal, and of 17 with serious cardiac damage 76.5 had nodules. Death occurred in only one instance in which nodules were not present.

68. The Heart in Diphtheria.

M. LOTH (*Arch. Int. Med.*, May 15th, 1923, p. 637), from a clinical and pathological study of the heart in diphtheria, points out that almost every type of arrhythmia has been observed with fairly uniform cardiac findings, though only a relatively small percentage show serious heart symptoms, such as rapid action, fall in pulse rate to 30 or 40, feeble diffuse apex beat displaced outwards, and an increase of the cardiac area to the right. Initial tachycardia persisting during convalescence is of serious import as a possible precursor of heart-block, which occurs suddenly and ends fatally in 15 per cent. of the cardiac irregularities. While the clinical cardiac picture is fairly definite the pathological findings are less so, death being attributed to affection of the myocardium, the conducting system, or the vasomotor system. True myocarditis is rarely found *post mortem* and though fat accumulation and cloudy swelling are fairly regularly observed, these appearances are not more pronounced than in other acute affections, such as scarlet fever, measles, or pneumonia. Degenerative changes in the cardiac muscle by pronounced fat accumulation in the fibres, similar to those seen in the human heart in fatal cases, follow the injection of diphtheria toxin in guinea-pigs without inducing a true inflammatory myocarditis. Of 425 cases of diphtheria 65 (15 per cent.) were fatal, and the above findings are based upon data furnished by 19 which came to necropsy.

69. Still's Disease.

N. JOHANNSEN (*Acta Paediatrica*, vol. ii, Fasc. 3–4, 1923, p. 354) describes in detail the symptoms of Still's disease and records a case. The disease occurs in early childhood. The onset is gradual, with high temperature (remittent or irregular). The joints become gradually enlarged, the knees and elbows being affected first and then the joints of the hands and feet. The swelling of the joints is not due to fluid but to thickening of the capsule and periarticular tissue, tendons, and joint ligaments. The bones are not affected. The *x*-ray examination is practically negative. The affection causes little pain. The spleen and lymphatic glands become enlarged and anaemia of a secondary type develops. A case of the disease is reported in a boy, aged 4½ years. The fluctuating swelling of both knees in this case was not caused by exudation in the joints, since the knee-joint was punctured in three places, but no fluid could be drawn off. The etiology of the disease is discussed. Enlargement of the spleen and lymphatic glands do not occur in rheumatic joint affections, also the changes in the joint cartilages, the exostoses, exudations, and ankylosis, so common in chronic rheumatic polyarthritic affections, do not occur in Still's disease. The author considers Still's disease to be probably the result of a chronic sepsis of unknown form.

70. Pituitary Gland Dystrophies.

L. HOLLANDER (*Arch. Derm. and Syph.*, May, 1923, p. 632) records the presence of keratosis pilaris, hypertrichosis, cyanosis, nutritional disturbance of the scalp, and pigmentary and hypertrophic changes in the skin in three cases of pituitary gland disturbance, and, without insisting upon any relation between the skin lesions and the pituitary dystrophies, urges the importance of noting such conditions in definite endocrine syndromes in order to allow of conclusions when sufficient data are forthcoming. Two of the cases presented dystrophia adiposa genitalis, recognized by marked obesity and delay in development or atrophy of the genitalia. The first, a girl aged 9, height 56½ inches, weight 114 lb., had entire subcutaneous adiposity, waxy skin, and thin oily hair, with definite hypertrichosis on the arms and legs, keratosis pilaris on the arms, and marked cyanosis of the hands and feet. The second case, a woman aged 30, height 60 inches, weight 221½ lb., complained of oiliness of the scalp and scanty growth of hair, and showed marked adiposity, small genitalia, nervousness, and blindness of the left eye from birth. Given post-pituitary gland substance her general condition improved, and in eight months she was able to read with the left eye, and she weighed 177 lb. A third case, a woman aged 33, presented gradually developing fibroma-like moles on the face with an acneform eruption and pigmentary changes in the skin, thyroid hypertrophy, marked frontal alopecia, and changed facial expression. *X* rays showed a distorted pituitary fossa. The case is of interest in the consideration of pituitary gland disturbances and their possible effects on the skin.

71. Thoracoplastic Lung Compression in Pulmonary Tuberculosis.

P. K. BROWN and L. ELOESSER (*Arch. Int. Med.*, May 15th, 1923, p. 701) emphasize the primary value of rest in treating tuberculosis, the five methods producing relative immobilization of the lung being: (1) lying for 23½ hours a day on the affected side or with sandbags thereto; (2) section of the phrenic nerve to paralyse one-half of the diaphragm, to allow partial collapse of the lower lobe; (3) local replacement of the area affected after extrapleural rib resection; (4) collapse of the lung by gas, or air, introduced under pressure; (5) resection of all parts on one side to cause narrowing of the chest commensurate with the required collapse. Notes of five cases are given in which thoracoplastic lung compression was performed, with improvement in all, and apparent cure in three. In cases of unilateral disease in which an artificial lung is indicated but cannot be carried out effec-

Parliament, under vote-catching influences, can ever again be relied on to give reasonable protection to the house owner, or by these causes in combination and other causes besides? If so, if things have come to such a pass that houses for the industrial classes will no longer be built privately, then, indeed, provision for wage earners becomes a definite and permanent public responsibility, central, local, or both. It is a stupendous task, which it might never have been necessary to face but for foolish legislation. At the Annual Meeting in Glasgow last year Dr. F. E. Fremantle, M.P., discussed the economics of public health,[1] and urged that even financially its further advancement would be a profitable investment. He was fundamentally right, but in providing houses the State will have enormous difficulty in preventing the taxpayer and ratepayer from being fleeced as they were when Government took up the matter before. In our issue of August 26th last we wrote: "When, two or three years ago, the politicians and the press and the public outvied each other in their shoutings for houses, what was the result? The Government took up the matter, and with the enthusiastic support of builders and brickmakers and bricklayers entered on a course of reckless extravagance, which was brought to a stop when the nation came to realize that this was a post-war method of fleecing it, such as had hardly been surpassed by the great army of profiteers during the war itself. Straightway prices began to fall, and now houses can be built for a half, a third, or even a fourth of what the country had to pay for grandiose schemes which played into the hands of extortionists." A similar difficulty will certainly emerge in similar circumstances, and Government must be fully prepared to deal with it if, as it ought, it tackles the whole subject of housing on the lines suggested in the President's address. No more impressive argument for facing the situation boldly and speedily has been advanced than that which he brought before his medical audience, and through it, before the public.

THE GRADUATE'S DEBT.

SIR SAMUEL WILKS was fond of quoting Bacon's saying, "I hold every man a debtor to his profession; from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto." Sir Harold Stiles, had he remembered it, or perhaps had he not had other quotations less hackneyed, might with a slight restriction have taken it for the text of his address as promotor of the new graduates at the summer graduation ceremony of the University of Edinburgh last week. The old custom in Edinburgh was that the graduate being capped—with a cap made, by a lively combination of sentiment and economy characteristic of the country, from the velvet breeches of George Buchanan, historian and poet—was promoted to the platform. Nowadays there are too many for this physical promotion; there were over 200 last week in medicine alone, and the promotor was content to impress on his audience in the body of the M'Ewan Hall the spiritual meaning of the promotion they had metaphorically enjoyed.

It was perhaps temerarious of the promotor in addressing newly capped graduates, whose brains would be fuller than their pockets, to make an appeal for money, but there is a sort of man who may steal a sheep and another sort who may not look over a gate. Doubtless Sir Harold Stiles belongs to the former sort, and doubtless, too, he had in his mind's eye a larger audience of Edinburgh medical graduates who have crossed the Tweed and sailed the seven seas to seek and find fortune. We have done our best to second his appeal by giving at page 159 a full account of what he had to say about the Alumni Associations of American universities. Barring the name, which is alliterative but not euphonious, they are organizations which deserve the compliment of imitation. American universities have been happy during the last two or three generations in winning the sympathy of rich men whose ambition it has been to found, not a family, but a place of study, a *studium generale*. But the notoriety of these immense benefactions has perhaps obscured what the graduates themselves do to strengthen the interest in learning and the strong sense of fellowship the universities foster.

The organization of graduates in America is twofold, and the one cuts across and supplies the deficiency of the other. There are the fraternities known usually, we believe always, by three letters of the Greek alphabet chosen apparently at random. Membership is not confined to any one university, but their portals are jealously guarded, and eligibility for admission would seem to depend primarily on the candidate's academic distinction. Their aim is mainly to promote good comradeship, and, as far as possible, to ensure to a travelling member in all the chief cities a sort of club where he may expect to meet men of his own kidney. They recall one side of the work of the mediaeval guilds, which made it possible for a wandering craftsman in a strange town to fall in with his fellows, to be comforted by them, and to learn from them. The other kind of organization, one more adapted to conditions in this country, is the Alumni Association. Of what such a body can do Sir Harold Stiles gave several examples. In an American university a great deal is made of graduation, or, as they perversely call it, commencement day. On that day all graduates of the university are welcomed by the officials of the university; here, except at Oxford and Cambridge, where collegiate life is strong and where a man can keep his name on the books of his college until the end of his days, the old graduate is like a fish out of water; the authorities know him not, neither do they care a pin about him, and it will be a pure chance if he runs across any man of his year. There are annual dinners of universities or medical schools, and the Scottish university graduates have dining clubs in several English centres, but they are unsatisfactory and ineffective substitutes for the American Alumni Associations, which have found many ways of preserving and stimulating the sense of corporate unity. The promotor suggested that a beginning might be made in Edinburgh with the medical alumni, and invited the General Council of the University to consider how the matter might be brought within the sphere of its activities.

Sir Harold Stiles had his sheep to steal, and we hope he may get clear away with it. The Simpson Memorial Hospital is a good intention ill fulfilled. That Edinburgh has no adequate maternity hospital in which its students can be taught preventive and operative midwifery is a reproach to the city, to the university, and, if we accept the doctrine of the Professor of Clinical Surgery, to its alumni also.

[1] BRITISH MEDICAL JOURNAL, 1922, vol. ii, p. 338.

reducible. Reduction should be performed immediately. A assistant makes counter extension on the upper part of e arm; extension is then applied to the forearm and, the teral displacement being corrected, the elbow is acutely xed and reduction is accomplished. The arm is kept in is position by a plaster splint applied whilst the child is ill under the anaesthetic; this is left on for a fortnight and e child is then allowed to move the elbow. Progress is cessarily slow, and the movement of full extension appears st, but with care and patience good results can be obtained. be plaster must not be applied too tightly, as there is a nger of Volkmann's contracture following this type of jury. Fractures of the internal condyle are rare, and if ley cannot be satisfactorily reduced the loose fragment ould be excised. Fractures of the external condyle are nerally treated in acute flexion and seldom require open peration. In cases of vicious union the best treatment is xcision of the condyle, where movements of the elbow are mited.

77. Perforated Gastric and Duodenal Ulcers.

. C. CUTLER and F. C. NEWTON (*Boston Med. and Surg. ourn.*, May 24th, 1923, p. 789) find that perforated ulcers, specially in the duodenal ulcer cases, show a marked preonderance among males. About 90 per cent. of the ulcers re situated within an inch of the pylorus, and there is no elation to age. About 75 per cent. of cases show a history f indigestion or other abdominal complaint preceding the cute rupture, but there are a certain number that occur ithout warning. The mortality depends on the duration of he interval from perforation to operation. A summary of he published operated results in 486 cases of free perforation hows the mortality for simple closure to be 19.4 per cent., losure *plus* gastro-enterostomy 24.3 per cent., and resection 2.8 per cent. In the group of simple closure a number evelop symptoms of gastric retention which necessitate a econdary gastro-enterostomy. If a primary gastro-enterosomy is done the incidence of later complications is inequent, and Deaver claims that convalescence is easier and he mortality actually diminishes. The authors advocate hat in any case under twenty-four hours' duration, and in he absence of contraindications, a gastro-enterostomy should e done. It is not a long operation, it does not require the auma of retractors, and the added thirty minutes of anaesheia should not be deleterious. In five personally recorded ases convalescence was entirely satisfactory in four, and n the fifth only delayed by the presence of pulmonary uberculosis.

Ophthalmology.

78. Glioma of the Retina.

J. A. MORGAN (*Amer. Journ. Ophthalmol.*, June, 1923, p. 484) reports, with comments, the following case of glioma of the retina. The patient was a full-blooded Hawaiian male child aged 3 years. There was nothing of note in his family history or past history. The father had noticed that his vision was defective and the presence of a peculiar white reflex in the right eye for some months before seeking advice. On the first examination with the ophthalmoscope a whitish area in the central zone of the retina was seen; this area was protruding forward from the surrounding retina and its surface was well vascularized and somewhat nodular. At this time the tension of the eye was not raised, and in every other respect the child was in good health. Immediate enucleation of the eye was advised, but this was refused. The child was next seen four months later: he was then in pain, the tension of the eye was raised, the interior of the globe was filled with growth, and there was the suggestion of some external extension of the growth at the limbus up and out. The left eye showed no changes. Enucleation of the right globe was carried out and the gliomatous nature of the growth was confirmed microscopically. Six weeks later pain returned and secondary tumour masses were found in the right orbit. The orbit was exenterated and 100 mg. of radium was inserted into the orbit and kept there for two periods of seven and twenty-four hours respectively. There was no recurrence for five months, during which time radium applications were given every four days. After this, during the course of the next year, three more operations were performed, the growth recurring in the orbit and also in the fascia of the scalp. Bone was never invaded until the end, and just previous to death there were signs of intracranial invasion. In commenting on the case Morgan states that at one period he hoped that the radium would effect a cure, as the periods of recurrence appeared to be growing longer, but he admits that he never felt very optimistic. With regard to treatment, prompt enucleation of the globe followed by exenteration of the orbit, if pathological examination confirms the diagnosis of glioma, is absolutely necessary. Conditions which may be mistaken for glioma are: (1) detachment of the retina; (2) leucosarcoma of the chorold; (3) tuberculosis of the chorold; (4) chronic inflammatory processes of the ciliary body; (5) cysticercus in the vitreous; (6) congenital anomalies; (7) retinitis circinata.

79. Retinal Changes in Diabetes.

E. GRAFE (*Klinische Wochenschrift*, June 25th, 1923, p. 1216) has examined the eyes in 700 cases of diabetes mellitus and found retinal changes in 90. The finest retinal changes in diabetes are very similar to the retinal changes in essential hypertonus (cases of increased blood pressure without other signs of disease); the severe retinal changes simulate those of albuminuric retinitis. The author seeks a common cause for all three forms. For the retinal changes in essential hypertonus and in albuminuric retinitis this is the hypertonus. As regards diabetic retinitis, the author found in 24 consecutive cases that the average maximal blood pressure was 170 mm. In a similar group of diabetes cases (without retinitis), control cases, the average blood pressure was 1:0 mm. Volhard states that he has never seen a case of diabetic retinitis unassociated with hypertonus, and the author's experience has been much the same; he has only seen 2 cases of diabetic retinitis unassociated with hypertonus. In the 24 cases of diabetic retinitis above mentioned, in addition to hypertonus, some sign of kidney affection was found in 21. The author has never found retinitis in a young diabetic patient; his youngest case was 39. The average duration of the diabetes in cases of diabetic retinitis was ten years. In the author's opinion hypertonus is the common basis in the retinitis of essential hypertonus, in diabetic and in albuminuric retinitis. In all cases of diabetic retinitis a high percentage of blood sugar was found—average 0.24 per cent. But the amount of sugar in the urine was often quite small. Retinitis, like other eye changes in diabetes, is related to the percentage of blood sugar. In hypertonus, diabetes, and nephritis capillary changes occur which may lead to disturbances in the tissue metabolism in the retina.

80. Clinical Aspects of the Eye Symptoms in Encephalitis Lethargica.

W. G. CAMERON (*Amer. Journ. Ophthalmol.*, May, 1923, p. 383) describes his experience of the epidemic of encephalitis lethargica during the years 1919 and 1920 in the Western States of America. His article deals with the epidemic from the standpoint of the ophthalmic surgeon. With regard to the ocular lesions he comes to the following conclusions: (1) In encephalitis any of the cranial nerves may be involved. (2) The lesion may be a neuritis or paralysis. (3) The third nerve is most often affected. (4) Loss of accommodation is one of the earliest eye symptoms to appear as well as the last to recover. (5) Neuro-retinitis occurs in about one-half of the cases. The point which he stresses most in his paper is the early loss and late recovery of the power of accommodation.

Obstetrics and Gynaecology.

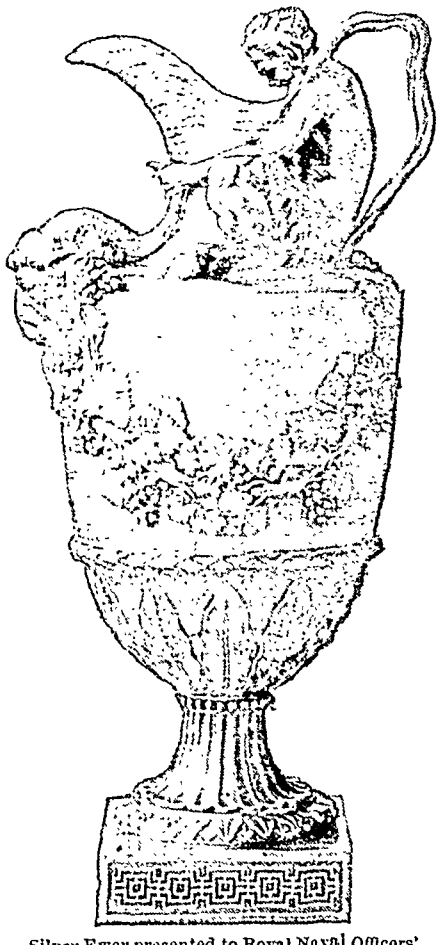
81. Dry Labour.

ACCORDING to J. O. POLAK (*Amer. Journ. of Obstet. and Gynecol.*, May, 1923, p. 488) dry labour following rupture of the membranes before labour or during the early part of its first stage is always prolonged and subjects both mother and foetus to considerably greater danger. Discussing the substitutes for the hydrostatic dilatation of the bag of membranes, he remarks that the intrauterine dilating bag is of uncertain action, may displace the presenting part, and is apt to cause, just above the bag, the formation of a retraction ring; it increases the danger of sepsis, and in a large proportion of cases its use must be followed by operative intervention. Manual dilatation might be better described as manual laceration. Dührssen's incisions presuppose an effaced cervix; the extent of the incision is difficult to limit and subsequent suture is not always successful. In a certain number of cases expectant treatment, combined with the exhibition of morphine, is all that is required. The vaginal bag, or colpeurynter, is superior to the intracervical dilating bag in that no retraction ring is formed above it, the presenting part is not displaced, and the cervix is thinned by being compressed between that part and the bag. The treatment recommended by the author is as follows: (1) For rupture of the membranes before labour, with head presentation in a normal pelvis, purely expectant measures. (2) In similar circumstances, except that the membranes rupture early during labour, the pains should be allowed to progress for several hours until they are strong and regular. If then the cervix is found to be

D'Ewart remarked that the weakness of criticism so emphatically offered might be taken as a very fair index of the strength of the position attacked. In any case, an attack founded in part on an alleged omission from the report of any estimate for the current financial year could hardly be effective. The criticism offered by Hastings, based only upon the increase in the volume of expenditure since 1920, lost its force in the atmosphere created by the earlier discussion, quite apart from the fact that, in avoiding the risks of concrete criticism, it suggested no practicable methods of effecting the desired economy. Dr. Rose's far stronger appeal for economy, based upon the burden of expense to the individual member, would have failed for the same reason, but the real reply to his contention was voiced by Dr. Peter Macdonald when he pointed out that to cut down expenditure as long as each additional outlay is producing an increasing return is economically unsound. The discussion on the relations between the Association and medical charities, introduced by Dr. Dearden, struck an unexpected note in criticism. The present position, as indicated by the Treasurer, is obviously unsatisfactory, and since it can only be remedied by action on the part of the governing bodies of the charities—that is, ultimately by pressure from subscribers—ventilation of the subject amongst these should prove of value. As regards the new building for the Association headquarters, the Chairman of Council and the Treasurer, reinforced by Dr. J. A. Macdonald and Mr. Bishop Harman, had a light task. If the representatives did not meet in a state of enthusiasm they came fully prepared to take fire, and the final vote of approval was given unanimously and with acclamation. The report of Dr. Bolam's lucid and persuasive speech should be read by every member. The medico-political report raised relatively little discussion; what debate there was arose on points of substance, and served a useful purpose, if only as indicating the thorough way in which the Committee had worked over the field covered by its report. The criticisms and inquiries offered were based on real difficulties. There was substantial agreement in regard to several amendments covering procedure in connexion with the report of offences to the General Medical Council by the Home Office. Many representatives clearly found the existing conditions objectionable in theory, but, as pointed out by Sir Jenner Verrall, the difficulty was to discriminate between cases to be reported and cases not to be reported, and consequently the meeting had no alternative but to leave things as they are. Even in the matter of midwives and the use of drugs, on which warm feeling was displayed, the ultimate decision left the Association's position unaltered. So, again, with the obligation of notification of births without remuneration. It was unfortunate that one motion of considerable interest, put forward by Dr. Noy Scott and Mr. Russell Coombe, was not on the agenda paper, and was adopted without attracting much attention. This was the resolution in favour of consultation between medical witnesses in the courts, especially in compensation cases, with a view to agreement on questions of fact prior to giving evidence for either party. The only point at which any acrimony was displayed was in connexion with the paragraphs of the Council's report dealing with the affairs of nurses. However, the meeting, directed to the real issue by Sir Jenner Verrall, refused to question the Committee's action.

GIFT TO NAVAL OFFICERS' MESS.

THE Exhibition at the Annual Meeting is being held this week in the Gymnasium of the Royal Naval Barracks, Portsmouth, which has never previously been open to any association or body other than the Royal Navy. To mark this unique occasion, and to show the appreciation of the assistance rendered to the Exhibition by the authorities at the Naval Barracks, it was decided to offer for the acceptance of the President of the Naval Officers' Mess at the Portsmouth Barracks a trophy which it is hoped will take its place amongst the beautiful collection of silver possessed by that Mess.



Silver Ewer presented to Royal Naval Officers' Mess, Portsmouth.

The piece selected is an ewer, a reproduction of one of a very fine pair of ewers (wine and water) designed by John Flaxman, R.A., working under the inspiration of an ewer now preserved in the museum at Naples. Flaxman was born at York in the year 1755 and died in 1826, and from an invoice still in existence from Flaxman to Wedgwood and Bentley, these ewers appear to have been designed and modelled in March, 1775, and are among the first articles produced by the artist for Josiah Wedgwood. The wine ewer is of classic design and feeling, as may be judged from the photograph here reproduced. A bold goat's head is mounted on the front of the body under the lip, with festoons of leaves and grapes on either side. The neck is ornamented with ripples of water; seated on it and forming the handle of the ewer is the figure of a satyr with his arms round the neck clasping the horns of the goat. The lower part of the body is ornamented with a mounted laurel band and leaves, and rests on a hollow-fluted and beaded foot, terminating in a low square plinth, decorated in panels with a form of key ornament.

The ewer, which is 16¼ inches in height and weighs 126 troy oz., was reproduced and manufactured by Mappin and Webb, Ltd. The ewer was presented to the President of the Naval Officers' Mess by Mr. Charles P. Childe when, as President-elect, he formally opened the Exhibition on Tuesday morning, July 24th (see SUPPLEMENT, p. 76).

THE BOOK OF PORTSMOUTH.

EVERY member of the Association, on registering his or her name this week at the reception room at the Municipal College at Portsmouth, has received a delightful little volume issued as a souvenir of the Annual Meeting by the Printing and Publishing Committee.[1] The *Book of Portsmouth* is not in any sense a guide-book to the town and

[1] *The Book of Portsmouth.* Portsmouth: Charpentier, Limited. 1923. (Cr. 8vo, pp. 191, illustrated.)

A Lecture
ON
INSULIN.

DELIVERED TO
A GENERAL SESSION OF THE ELEVENTH INTERNATIONAL PHYSIOLOGICAL CONGRESS, EDINBURGH,

BY
J. J. R. MACLEOD, M.B., CH.B., F.R.S.,
PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF TORONTO.

'EAKING for my collaborators, as well as myself, I wish to sure you that we consider it a very great honour that an count of our researches on insulin should be given so ominent a place on the programme of the XIth Inter- ıtional Congress of Physiologists. In accepting the invita- ɔn to address you on this work, I fully realize the great sponsibility that I have assumed, the more so since at e present time there yet remains so much that is obscure ıd unfinished, particularly with regard to the physiological pects of the subject.

There is no other problem in the whole vast field of edical science that has attracted such diverse groups of ɔrkers as that of the relationship between the pancreas ıd disturbances in carbohydrate metabolism. Anatomists, ıthologists, biochemists, physiologists, and physicians have ntributed much to it, each adding some new and funda- ental fact, and the knowledge thus acquired has formed e foundation upon which the present investigations ɔend. I shall not occupy your time here with a review this earlier work except in so far as it is essential to an ıderstanding of its relationship to these investigations.

HISTORICAL.

Towards the end of the seventeenth century Brunner, in s celebrated researches on the digestive functions of the ıncreas, had occasion to remove the gland, and he described mptoms in the operated animals which were without doubt ose of diabetes. This was, however, some time before the sease had come to be recognized as a clinical entity, and was not until considerably later that physicians began point out the frequent occurrence of morbid changes in e pancreas of patients who had died of it. The clue which is observation offered suggested to experimentalists, nong them Claude Bernard, the advisability of seeing hether removal or destruction of the pancreas might cause abetes. The experiments were without success until 1885, hen von Mering and Minkowski announced their well ıown discovery, as a result of which Minkowski subse- ıently published a complete account of the pathological ıemistry of the diabetic condition as observed in depan- eated animals. As the cause of the diabetes Minkowski ıggested the removal from the organism of "a something" ıat is essential for the metabolism of carbohydrates. He early meant an internal secretion, although it is in the ritings of Lépine that for the first time we find this rm actually used in connexion with the pancreas. But the istence of an internal pancreatic secretion could not be nsidered as an established fact until it could be shown ıat the administration of an extract of the gland to de- ıncreated animals is capable of removing the diabetic mptoms, and this none of the investigators of this period uld succeed in doing. These failures led some to suppose ıat the pancreas must control the metabolism of carbo- ɔdrate otherwise than by an internal secretion, although e majority considered that it was merely owing to ɔstruction of the active principle during the preparation the extracts that the failure to obtain it in extracts ıs due.

At the same time as these experimental investigations ere in progress most valuable work was being done on e minute anatomy of the pancreas, particularly with gard to the islets of cells which had been described in 869 by Langerhans as distinct and separate from the creting acini. Among these workers I cannot refrain om paying tribute to Laguesse and Diamare and, among more recent workers, to R. R. Bensley, and their respective collaborators. This work established the essential independence of the cells of the islets and acini, and, since the latter were obviously concerned in the production of the digestive secretion of the gland, it was postulated that those of the islets must be responsible for the internal secretion that controls the metabolism of sugar. This hypothesis was greatly strengthened by experimental and pathological evidence. Minkowski and Hédon and, later, W. G. Macallum, demonstrated that when a small portion of the pancreas is transplanted under the skin, the main gland can be completely removed without any symptoms of diabetes supervening. Schultze and Ssobolew, independently, found that complete blockage of the secreting ducts is followed by a degeneration which involves the cells of the acini, but not those of the islets. This was more or less confirmed by other investigators, and furnished strong support for the islet hypothesis, since no diabetic symptoms were observed in the operated animals. Finally, pathologists, particularly Opie, described definite histological changes in the islet cells in patients dying of diabetes mellitus.

But all this evidence, strong though it might be, could not be considered as affording positive proof that the pancreas produces an internal secretion necessary for the control of the metabolism of sugar, and renewed attempts to demonstrate its presence in pancreatic extracts did not meet with sufficient success to prove convincing. That this would ultimately be achieved, however, was apparent to many, and to none more so than to the President of this Congress, Sir E. Sharpey Schafer, who, by suggesting the name Insulin for the hormone, indicated his belief that its source is the isles of Langerhans.

The most successful attempts to prepare pancreatic extracts containing insulin were made by Zuelzer, who, in 1908, showed that alcohol extracted from pancreas which had previously been subjected to a certain degree of change by ligation of its veins, a substance which was capable, when injected subcutaneously, of preventing the rise in blood sugar and the glycosuria which ordinarily follows injection of epinephrin. Zuelzer carried his investigations far enough to show that alcoholic extracts of beef pancreas could also remove many of the symptoms of diabetes in man, but, unfortunately, he failed to establish the therapeutic value of his product because of certain toxic symptoms which followed its administration. It is possible that these may have been due, in part at least, to an excessive lowering of the blood sugar which we now know to be associated with peculiar symptoms? From this time on the problem of attempting to produce extracts of the pancreas containing insulin fell to the lot of experimentalists, among whom may be mentioned Knowlton and Starling in this country, and E. L. Scott, J. R. Murlin, and Cramer and I. Kleiner in America, but with only occasional success.

RECENT RESEARCHES.

We may take up the recent researches on insulin at this point; they had their origin in a suggestion, made by F. G. Banting, that since it was probable that the failure to preserve the active hormone in extracts of pancreas was due to the presence in them of proteolytic enzymes which would destroy it, the action of these might be circumvented by extracting glands that had been caused to undergo degeneration by previous ligation of the ducts. With the collaboration of C. H. Best, Banting ligated the ducts of the pancreas in several dogs, and a few weeks afterwards killed the animals by chloroform, quickly excised the partially degenerated residue of the gland, and extracted it with ice-cold Ringer's solution by grinding in a mortar with sand. Intravenous injection of the extract into depancreated animals was found to cause prompt and decided lowering of blood sugar, accompanied by a fall in the sugar excreted in the urine without any change in the percentage of haemoglobin in the blood. That the treated animal had regained some of its lost power to utilize carbohydrates was demonstrated by comparing the sugar balance, following administration of a measured amount of sugar, with and without the extract. Incubation of active extract

arrangements for the comfort and safety of passengers and crew were much admired; special interest was shown in the medical equipment, the swimming bath, and the apparatus for enabling passengers to take active exercise during an ocean voyage. After this tour of one of the largest liners afloat, the party made their way back to the little *Duchess of Fife*, and found tea ready to be served on board during the return journey. Southsea was reached in time for dinner, and it was generally agreed that a delightful day had been spent.

THE INTERNATIONAL SURGICAL CONGRESS.

THE meeting of the International Surgical Congress in London, the early proceedings of which were reported last week (p. 121) came to an end on Friday, July 20th. We publish this week reports of two more of the discussions—one on arthroplasty, which was well sustained and excited a great deal of interest, and the other on injuries to the peripheral nerves. The meeting, under the presidency of Sir William Macewen, was in every way a great success. A general meeting of the Society, very largely attended, was held, with the President in the chair, on July 19th, when it was decided that the next congress should be held in Rome, and not in Warsaw as had been proposed. Dr. Davide Giordano of Venice, was elected president. Votes of thanks to Sir William Macewen for his services as president, to Dr. Leopold Mayer of Brussels, general secretary of the Society, and to Sir D'Arcy Power and Mr. J. E. H. Roberts, the two British secretaries of the meeting, were proposed by Dr. W. W. Keen of Philadelphia, who expressed the feeling, shared by the whole Congress, of deep indebtedness to the secretaries for the able and particularly thorough way in which all arrangements for the convenience and comfort of the delegates and members had been made. A banquet was held on Friday evening, July 20th. Sir William Macewen, who was in the chair, proposed the health of the delegates, and expressed the pleasure he and his British colleagues felt in meeting so many representatives from different countries. The Society had received two invitations for the next Congress—one was from Poland. It was, Sir William Macewen said, a plucky thing for our Polish friends to do, and it showed that they had great faith in themselves; he hoped that if the invitation were repeated at some future date the Society might be able to meet in Warsaw. The next Congress, it was arranged, should be held in Rome, the capital of a country vibrant with scientific life. The toast was acknowledged by the spokesmen of several countries. Dr. R. A. Alessandri, Professor of Clinical Surgery in Rome, said that medicine was the only world-wide art, and that its universality was its most important attribute. In the modern Greece, as Osler had called England, the foreign members had received, and were most grateful for, abounding hospitality. Dr. Mayer, responding for France and Belgium, also expressed the gratitude of the foreign members and the hope that the *entente cordiale* of medicine might continue. Dr. Koch, who spoke for Holland, recalled the time when an English king was Stadtholder of Holland, and said that the Dutch would never forget the help given them by England in the time of Elizabeth, when their country was oppressed by Spain. Dr. Crile returned thanks for the United States of America, Dr. Hansen for Denmark, Dr. Petridis for Egypt, Dr. de Zawadski for Poland, Dr. Kayser for Sweden, and Dr. de Quervain for Switzerland. In response to loud calls Sir D'Arcy Power and Mr. J. E. H. Roberts, the British secretaries, briefly and very modestly returned thanks. Mr. Roberts observed that Sir D'Arcy Power had been for twenty-two years and until last year British representative. A number of receptions, besides those mentioned elsewhere, were given during the meeting of the Congress; on July 17th the men were received by Sir Charles and Lady Ballance, and the following evening by the Lord Mayor and Mayoress at the Mansion House.

MEDICAL RESEARCH IN INDIA.

THE committee on retrenchment in India, over which Lord Inchcape presided, recommended, among other things, the payment of research officers from central revenue should cease, and that the grant-in-aid to the Research Fund Association should be discontinued. The association has accumulated 33 lakhs, derived from the Government contribution and earmarked for a new central institute at Delhi; the committee advised that the interest on this sum should be used for the maintenance of medical research. The *Pioneer*, which is commonly credited with being well informed as to the intentions of the Government of India, stated in its issue of June 7th that it was understood that the Inchcape Committee's recommendations regarding the continuance of expenditure on medical research will not be accepted in their entirety. The adoption of the drastic proposals put forward by Lord Inchcape and his colleagues would, our contemporary continues, have involved "the virtual closing down of all research work in India, for, in the face of such a curtailment of activity, the chances of obtaining research workers in the future would have been small indeed. As it is, there is ground for the belief that the policy to be adopted will be that of securing a state of suspended animation. Thus instead of abolishing the appointments of twelve bacteriological officers, as recommended by the Retrenchment Committee, it is proposed to leave six of these appointments unfilled until financial conditions are more favourable. The establishment of a central research institute at Delhi and the grant of five lakhs a year to the Indian Research Fund Association are similarly suspended. This measure of retrenchment will be regretted, but it, at least, will not render the position hopeless, and it provides the retention of a nucleus for expansion when the occasion is suitable. The Directorship of Medical Research has been abolished for the time being, but arrangements are being made for that officer's duties to be carried on departmentally." The *Pioneer* goes on to express the opinion that if its prognostications prove to be correct, the Government of India has been able "successfully to temper its obsession on the subject of retrenchment with a due appreciation of the vital importance of medical research in a country like India." We can only express a fervent hope that this interpretation of the situation may prove to be correct; it does not seem to be a particularly courageous manner of dealing with a matter of so much importance. As we observed when the Inchcape report was first published, it is a paltry piece of economy to cut down the relatively small sum provided for the scientific study of the causes which lead to the high mortality among the 350 millions of the population of India. The amount represents an expenditure of about one-twelfth of a farthing a head a year. The wisdom and policy of establishing a central medical research institute at Delhi is, we admit, open to doubt; it may be very much wiser to subsidize provincial institutes and special inquiries. It is easier to destroy than to build up, and even if a nucleus be retained the loss of experienced workers can hardly fail to make the eventual expansion more difficult.

THE BRITISH ASSOCIATION.

THE arrangements for the meeting in Liverpool of the British Association for the Advancement of Science are now far advanced. This will be its fifth meeting in Liverpool; the last occasion was in 1896, when Lord Lister was president.

given along with carbohydrate to depancreated dogs, very large quantities of glycogen become deposited in the liver and that the respiratory quotient becomes raised in the same manner as it does in normal animals with carbohydrate alone. We know also from the work of Banting and Best on depancreated dogs that it reduces the blood sugar to the physiological level, that the glycosuria disappears, and that the well-being of the animal becomes normal in every regard.

We must conclude, therefore, that insulin is necessary for the metabolism of carbohydrate, and we may suppose that its function is in some way related to the preparation of the glucose molecule for combustion and condensation. But as to whether this preparation consists in a change of α, β glucose into the γ variety cannot as yet be considered as settled. Dr. G. S. Eadie[1] has repeated Winter and Smith's observations, and by strictly following their instructions has obtained similar results. Briefly stated, these results are that after removal of the proteins by phosphotungstic acid and alcohol from normal blood, the dextrorotatory power of the filtrate is lower than it should be as calculated from the reducing power, and on standing twenty-four hours the differences become less, and later they practically disappear. On the other hand, when blood from diabetic patients or hyperglycaemic animals is used, the dextro-rotatory and reducing values correspond from the start, or the former may exceed the latter. Administration of insulin causes the diabetic blood to behave in these regards like normal.

The question is with regard to the interpretation of the results; as Hewlett has pointed out, this need not necessarily be that γ glucose is present, but rather that chemical changes have occurred in the very complicated procedure which is involved in the preparation of the solutions for the polariscope. Others have believed that the blood may contain, besides glucose, other carbohydrates or related substances having a relatively low dextro-rotatory power. Since this question is not yet settled I need not dwell on the further claim of Winter and Smith that insulin is capable of causing γ glucose to be formed when added to a solution of ordinary glucose along with an extract of liver. I may state, however, that we have so far been unable to confirm this result.

The action of insulin on the metabolism of fat in diabetic animals is as striking as on carbohydrates, and here again its effects are revealed by chemical changes occurring at both ends, as it were, of the metabolic chain. In a few days after pancreatectomy in the dog, the blood and the liver contain excessive quantities of fat, although the extreme degrees of lipaemia sometimes encountered in diabetic patients have not been observed. There is also a certain degree of acetonuria, although again this is much less pronounced than it is in diabetes in man. Evidently the migration of fat in the body is abnormal, and its final oxidation seriously interfered with. When insulin is given along with carbohydrates to these animals, the acetonuria very promptly disappears, the blood fat, apparently more slowly, returns to normal, and the liver in a few days contains no more fat than that of a normal, similarly fed animal. As the glycogen increases in this viscus the fat correspondingly declines. We cannot state at which stage in the metabolism of fats insulin exercises its corrective influence, but wherever this may be there can be little doubt that it acts indirectly because of its effect on carbohydrates. It has been said that fat burns in the fire of carbohydrates, and although this generalization may, in some respects, be misleading, it is, nevertheless, a useful guide in interpreting the results with insulin.

THE THERAPEUTIC EFFECTS OF INSULIN IN DIABETES MELLITUS.

As would be expected, the effects of insulin on patients suffering from diabetes mellitus, in so far as these have been studied, are of the same general nature as those observed on diabetic (depancreated) dogs. Until the laboratory investigations had furnished perfectly definite results no serious attempts were made to carry the investigations into the clinic, nor would it have been permissible to do so in view of the failures of previous workers to provide an extract that did not cause toxic symptoms. Without animal experimentation we would be no further to-day in the treatment of diabetes, and in the undoubted saving of human life which has been the result, than we were a little over a year ago when the treatment was first applied on any considerable scale.

In studying the results obtained by administration of insulin to patients, we must bear in mind that two factors may come into play that are not involved in the experiments on completely depancreated animals. One of these is dependent on the fact that there probably still remains in the majority of diabetic patients a certain remnant of pancreatic tissue capable of secreting insulin. The other is dependent on certain differences between laboratory animals and man, related in part to peculiarities in the type of metabolism and in part to the greater development of the nervous system, to which the frequent occurrence of coma as a serious symptom of the clinical form of the disease is due. Moreover, we must remember that subjective phenomena can be studied only in man.

The first case in which a complete study of the therapeutic value of insulin was made was that of a boy fourteen years of age, exhibiting all the classical symptoms of the disease; treatment by dietetic control had resulted in no improvement. Daily injections of insulin between January 23rd and February 4th, 1922, reduced the blood sugar, even to the normal level, greatly diminished the glycosuria, and often caused it to disappear, removed entirely the ketonuria for a period of some days, and, perhaps most striking of all, "the boy became brighter, more active, looked better, and said he felt stronger." There could be no doubt as to the great therapeutic value of the treatment when judged both by the improvement in the objective and subjective symptoms of the disease. This, along with other cases treated by insulin, and reported by Banting, Best, Collip, Campbell, and Fletcher, is only the first of a large number, exhibiting the disease in all its forms, that have been most carefully studied in numerous clinics both in Canada and the United States and in Great Britain, and I cannot refrain from expressing my admiration for the excellent spirit of collaboration which has made this possible. I am not qualified, nor even if I were would it be in place for me here, to discuss further the clinical results, but I may say that there can be no doubt that insulin is capable, when wisely used under controlled conditions, of saving many cases of diabetes which would otherwise inevitably succumb to coma, or to one of the many other complications of the disease. It is also certain that as an adjunct to dietetic control, treatment with insulin greatly improves the nutritive condition and increases the resistance towards infections, thereby prolonging the expectation of life. The subjective condition and the sense of well-being of the patients are also vastly improved. As to whether continued treatment with insulin will enable the diabetic patient to recover any of his lost power of producing this internal secretion in his own pancreas, nothing definite can be said at present. It is at least significant in this connexion that the islet tissue develops considerable powers of regeneration after much of it has been destroyed as a result of ligation of the secreting ducts of the pancreas, as has been shown by R. R. Bensley to happen, at least in the rabbit and guinea-pig. Arising as it does in these cases from outgrowths of the duct epithelium, may it not be possible in man, in whom the pancreas has not been completely destroyed by disease, that new islet tissue will become regenerated when, by administration of insulin, the strain to produce this hormone endogenously is removed?

THE EFFECT OF INSULIN ON THE BLOOD SUGAR OF NORMAL ANIMALS.

Returning now to the more purely physiological aspects of the subject, let me briefly lay before you what is known regarding the effects of insulin on normal animals. In the consideration of these results we must bear in mind that the conditions in the normal animal are fundamentally different from those obtaining in the diabetic. In the normal animal there is probably available at all times a sufficient amount of insulin for every purpose for which it is required, so that the addition of more from without

IMPERIAL CANCER RESEARCH FUND.

As mentioned briefly last week, the annual meeting of the Imperial Cancer Research Fund was held on July 17th, when the usual business was transacted. We have already quoted the observations of the President, the Duke of Bedford, with regard to the relation of the Fund to the British Empire Cancer Campaign.

Lord Atholstan's grant to the Fund for research has been utilized by the appointment of Dr. A. M. Begg to carry out an investigation on the subject of the infective sarcomata (dogs and fowls) with a view to defining the difference, if any, between them and true neoplasms. Last March an anonymous donor founded an "Alice Memorial Fellowship" for cancer research under the auspices of the Fund, and recently Dr. Marshall Findlay has been appointed to be the first Fellow. The question of clinical research in cancer has been under consideration, and last December the directors of the surgical units in London were asked to discuss with a subcommittee the possible lines of such an investigation. Various proposals were considered, including an investigation into deep x-ray radiation, but further proceedings were postponed on account of the proposal to institute the Cancer Campaign. The director, Dr. J. A. Murray, presented his annual report:

REPORT OF DIRECTOR.

Vitamins.

The investigations mentioned in the preceding Annual Report have been continued. Dr. Cramer's work on vitamin deficiency has been brought to a conclusion, so far as regards cancer, and will be treated as a whole in a paper in the forthcoming eighth Scientific Report, which it is hoped to issue in the autumn. Briefly, it can be said that repeated experiments, under the most stringent conditions, have failed to give any evidence of an inhibitory effect on the growth of cancer, even when the deficiency is so severe as to be incompatible with life. This apparently paradoxical result has been obtained with deficiency of both the water-soluble and fat-soluble vitamins separately and in combination. No experiments have been performed to test the effects of deficiency of the antiscorbutic vitamin C, as it was felt that this deficiency is too dangerous to life in man to permit of even a tentative application to the treatment of cancer in human beings. While a practical value in treatment is not to be expected in this direction, the results of these experiments cannot fail to have a considerable influence on our conceptions of the way in which vitamins act.

Effect of Radiation.

The curious fact that the absence of vitamins from the diet produces atrophic lesions very similar to those produced by exposure to radiations from x rays and radium led to an investigation into the biological effect of radiations on the normal organism. In this investigation Dr. Mottram, of the Radium Institute, has collaborated with the workers of this Fund. It was found that exposure to radium has a profound effect on intestinal activities and that large doses may lead to severe lesions in the intestine. There is also an effect on the blood platelets which, if it is allowed to continue unchecked, is constantly associated with an incurable anaemia of the pernicious type. These observations on the effects of large doses of radiation are of importance in connexion with the therapeutic applications of radium and x rays. Small doses of radiation often lead to obesity. The manner in which this condition is produced has also been studied, and shown to be related to the testicular atrophy and hypertrophy of the interstitial cells.

Tissue Culture.

Dr. Drew's tissue-culture work has been carried on energetically, and has added considerably to our knowledge both of normal and cancerous cell life. The phenomena of differentiation and loss of differentiation, as they appear in tissue cultures, have been reduced to an orderly sequence, and can now be reproduced at will. He has shown that differentiation is absent in cultures of normal tissues (kidney, skin) when the essential parenchyma cells are grown in pure culture without admixture of connective tissue. The addition of a pure culture of connective tissue to such a pure culture of kidney epithelium or squamous epithelium is quickly followed by typical histological differentiation—the kidney producing convoluted tubules with swollen bulb-like extremities, and the squamous epithelium keratinizing out in cell nests. It is practically impossible to maintain the exact balance between the two factors under the experimental conditions, as usually the connective tissue overgrows and suppresses the epithelial elements. Occasionally the epithelium obtains the upper hand, and it then grows as before, as an undifferentiated sheet of cells. The sequence of forms presented by squamous [illegible] of experiments corresponds with the [illegible] met with in squamous-cell carcinomata, and leaves no doubt that in this lies the explanation of the extraordinary range of cell forms, well known from human pathology and in the tar carcinomata of animals, which have been the subject of inconclusive controversy in the past.

Analogous experiments with undifferentiated mammary carcinoma of the mouse (alveolar carcinoma) have shown that here also complete loss of differentiation is not necessarily an irreversible process—an anaplasia in v. Hansemann's sense. When grown with an abundance of active connective tissue the large alveolar masses of polygonal cells become broken up into small trabeculae in which a minute lumen appears. A typical loose adenomatous structure, closely resembling developing mamma, results. The undifferentiated condition returns when the connective tissue is removed or suppressed by overgrowth of the carcinoma. From both series of experiments Drew concludes that the loss of differentiation, which has played so large a part in the theoretical discussion on cancer, is merely a superficial peculiarity of cancer cells when it occurs. Even when exhibited in its most superlative degree, it may be replaced by wonderfully perfect differentiation, without in any way affecting the essential malignancy of the cells, as evidenced by their behaviour on further culture or on inoculation into susceptible animals.

A Hypothesis of Growth-activating Substances.

Another series of experiments has enabled Dr. Drew to gain an insight into the mechanism of repair and possibly the essential nature of the malignant transformation. It has been known for a long time that, while embryonic tissues and tumours grow with ease and without delay when placed in a suitable culture medium, adult tissues, even from young animals, only begin to proliferate after a considerable lapse of time. With adult kidney or heart of the rat this delay may extend to fourteen days. If, however, an extract of adult minced kidney, which has been incubated along with the fluid used for extraction for one or two hours, be added to the culture medium, growth commences at once in every case. If the extract of minced kidney be made with ice-cold saline without incubation, the initial delay in growth is as long as in the cultures made without it. When a similar ice-cold extract is made from a rapidly growing transplantable tumour, growth of adult tissue is elicited as energetically and with as little delay as when the incubated extract of minced kidney is used. At first sight this might be regarded as merely a consequence of the frequency of cell death and autolysis in new growths, but there is another possibility which should be borne in mind. It is that malignant cells produce, automatically and continuously, growth-activating substances, which normal tissues only elaborate in response to injury. The strength of the extract is directly proportional to the rate of growth of the tumour in the strains which have been investigated and not to the degree of necrosis. I incline to the opinion that the mode of production of these activating substances is an essential part of the difference between normal and cancerous cells.

This conception helps to rationalize the part played by chronic irritation in cancrogenesis. The specific irritants which are known to lead to the development of cancer are relatively mild, and do not cause rapid destruction. Rather, they may be imagined to set up a slight degree of protoplasmic disintegration still compatible with continued life of the cell. The curious sudden change after a long period of irritation, which marks the beginning of autonomous growth, would on this hypothesis correspond to a change in the protoplasm by which the production of activating substance turns from its purely induced reactive character to a self-acting process, as the result of a sort of education of the cells. Deelman has shown that this preparatory stage can be shortened by combining trauma (by scarification) with the application of the much more slowly acting tar products, and there can be little doubt in the light of Drew's experiments that such scarification produces activating substances in the damaged epithelium.

Tar Carcinoma and Sarcoma.

My own experiments on the production of tar carcinoma have mainly been directed to overcome the refractoriness to cancer production—to which attention has already been drawn—encountered when animals which have already reacted with cancerous growth to tarring, or which have developed spontaneous mammary carcinoma, are painted with tar on an apparently healthy skin surface. A provisional account of this work will be presented to the cancer congress to be held in Strasbourg. So far tar carcinoma has not been produced in either group, and the conclusion is drawn that a generalized insusceptibility to the induction of primary cancer is present in animals which have once developed a malignant new growth. It is to be noted that

it excites the production of glucose out of the glycogen reserves. It is of use, therefore, only when these reserves are considerable, and should not be depended upon to antidote the symptoms of glucatonia in diabetic patients, because in them the glycogen stores are apt to be low. A similar relation between the percentage of blood sugar and convulsive symptoms had previously been described by Mann and Magath in dogs deprived of the liver; administration of glucose also removed the symptoms, other monosaccharides having only a slight effect.

There can be little doubt, then, that the symptoms are related to a lowering of the glucose tension in the tissues. But we cannot imagine that this, in itself, is responsible for the violent stimulation of the respiratory and muscular centres that evidently occurs. Some unphysiological condition must become developed as a result of the glucatonia, and it has been suggested that anoxaemia may be an important factor. Olmsted and Logan point out that there is a remarkable resemblance between an insulin convulsion and an asphyxial convulsion, and that the arterial blood is invariably intensely venous in colour when convulsions supervene. "It may possibly be that through the lowering of blood sugar certain oxidative processes become depressed to such a degree that the brain cells are affected in much the same manner as in asphyxia." Whatever may be the nature of the toxic condition, it is clearly on the cells of the pons and medulla that it acts. It does not, like strychnine, act on the motor centres of the spinal cord, since insulin causes no convulsive symptoms in a decapitate cat, although it may lower the blood sugar to well below the convulsive level (Olmsted and Logan).

On what particular detail in the chemical structure of the molecule the remarkable specificity of glucose in antidoting the symptoms may depend cannot as yet be said, but it is evident that, by studying the relative antidoting value of various sugars and substituted sugars, we are furnished with an interesting method for determining the biological significance of the different side-chains and of the other molecular arrangements of the glucose molecule.

THE PHARMACOLOGICAL ASSAY OF INSULIN.

The extent to which insulin lowers the blood sugar forms the basis for its pharmacological assay, one unit being originally defined by us as the amount which is required to lower it to 0.045 per cent. within four hours in a rabbit weighing two kilograms and after twenty-four hours' fasting.

Since convulsions supervene at this level, their occurrence can be used as a check on the assay, and when small animals, such as mice, are used, so that large numbers can be injected with varying amounts of insulin, it can be made by observing the onset of the symptoms alone. In this case one mouse unit is defined by A. Krogh as the quantity of insulin which can cause convulsions in 50 per cent. of the animals within two hours, precautions being taken to maintain the body temperature and to standardize the diet. Dale and Burn have also tried this method of assay.

Even when rabbits are carefully selected so as to correspond in weight and in every other particular, are similarly fed prior to the preliminary starvation period, and are injected intravenously so as to obviate any uncertainties in rate of absorption, the assays, as judged either by the blood sugar curve or the occurrence of convulsions, do not always correspond. Differences in glycogen content, which can never be accurately adjusted by dieting, are probably largely responsible. We have attempted to circumvent these difficulties by confining the observations on the blood sugar to the first half-hour after the insulin injections, hoping in this way to circumvent the influence of the glycogen reserves, but with no conspicuous success. Probably the most accurate method of assay is that worked out in Toronto by Dr. F. N. Allen on depancreated dogs. The principle of this method, which was suggested by our clinical associates, is to determine the number of grams of glucose that a given quantity of insulin can cause to be metabolized while the animal is on a diet containing enough carbohydrate so that there is some glycosuria. He has found that the carbohydrate equivalent of insulin, as it is called, varies somewhat with the weight of the animal and the carbohydrate balance, but that it is satisfactorily constant when these conditions are made uniform. It is not likely that this method will succeed in the clinic, because of the varying degree to which different diabetic patients retain the power to produce insulin.

I have said enough about this problem of assay to indicate how difficult it is. It is probably advisable to point out, however, that it has been found advantageous to adopt, for clinical purposes, temporarily at least, a unit which is one-third that of the standard unit as defined above. This is done to obviate the necessity of prescribing fractions of a unit for the treatment of mild cases of diabetes.

THE EFFECT OF INSULIN IN EXPERIMENTAL HYPERGLYCAEMIA.

Insulin also lowers the blood sugar in every known form of experimental hyperglycaemia, whether this be produced by the addition of glucose exogenously or endogenously. With regard to the former type, Eadie has found that when insulin is injected into rabbits coincidently with, or at varying periods preceding, the injection of sugar the curve of the resulting hyperglycaemia becomes greatly altered. When the insulin injection coincides with that of sugar the curve rises to the same height as with sugar alone, but it returns much sooner to the normal level, and when the sugar is given some time after the insulin the curve is not only of shorter duration but is also much less in height. The maximal influence of insulin in suppressing the curve is when the sugar is given at an interval of about 75 to 90 minutes after the insulin. At longer intervals the curves progressively rise again, the suppressing influence of insulin having, as a rule, disappeared in about eight hours. We have attempted to use these facts as the basis for a method of assay, but with no great success.

Of the endogenous forms of experimental hyperglycaemia, we have studied the effect of insulin on those due to piqûre, to epinephrin, to asphyxial conditions, and to anaesthetics, and Stewart and Rogoff have studied it on the peculiar form due to morphine. The hyperglycaemia which becomes rapidly developed in glycogen-rich rabbits in all these conditions is greatly diminished, if not entirely absent, in animals injected with insulin, this depending, obviously, on the amount injected. Most attention has been paid to epinephrin hyperglycaemia, because in this case alone is it possible to control the intensity of the hyperglycaemia by varying the dosage. This, it will be seen, offers a method for the assay of insulin, and Eadie has found that when equal quantities of epinephrin are injected into a series of uniformly fed rabbits along with varying quantities of insulin, there is usually a definite mathematical relation between the dose of insulin and the extent to which the blood sugar rises.

Further interest attaches to the antagonistic action between insulin and epinephrin, with regard to the blood sugar, because they are both hormones, although it is questionable whether the hormonic action of epinephrin is of importance to the animal. It is significant in this connexion that Stewart and Rogoff have found that the hypoglycaemic effect of insulin is not perceptibly different in adrenalectomized than in normal animals, thus showing that the adrenals are in no way linked with the internal secretion of the pancreas in the control of sugar metabolism.

The observation that insulin can prevent the hyperglycaemia due to ether is of clinical importance, because it is probably on account of this hyperglycaemia that a large part of the risk of surgical operations on diabetic patients is due. It should be pointed out, however, that the hypoglycaemic action of insulin is much more readily demonstrated by having the animal well under the effects of insulin before the ether is administered, than by giving insulin to animals that are already anaesthetized. This would seem to indicate that diabetic patients should be treated with insulin before being anaesthetized, and, indeed, that this preliminary treatment should extend over several days so that the reserves of glycogen may be augmented. I am informed by my clinical colleagues that insulin is of little avail in combating post-operative coma if its administration is delayed until after the operation.

An interesting antagonism between pituitrin and insulin has been described by Burn. Given in large doses, pituitrin, like insulin, may inhibit the hyperglycaemia due to epinephrin or to ether, but when insulin and pituitrin are given together to normal animals, instead of there being a greater fall in blood sugar than insulin alone would produce, there

Mr. Pielou asked, on July 24th, whether instructions had been issued to ex-service Deputy Commissioners of Medical Services terminating their temporary services at the end of September; and that non-service doctors were being retained. Captain Craig replied that it had been found necessary to give notice of termination of employment to 36 out of the 88 Deputy Commissioners of Medical Services employed on a six-months' contract. Of those now under notice 30 were ex-service officers and 6 not. There would then remain only 4 non-service Deputy Commissioners employed on a six-months' contract, and these medical officers were being retained in the interests of the pensioners because of their special experience and qualifications.

Mr. R. Morrison asked, on July 19th, for what reason the Ministry of Pensions refused to grant treatment allowances on the certificate of a man's panel doctor that the man was unable to work. Major Tryon said that treatment allowances were payable only when a medical officer of the Ministry was satisfied that the nature of an approved course of treatment was such as prevented a man from providing for his own support and that of his family. Full consideration was always given to any opinion expressed by the panel doctor on the requirements of any treatment approved. Certificates given by Pensions Ministry institutions and clinics recommending home treatment with allowances are not referred to a deputy commissioner of medical services in the ordinary way, but where the examination had been conducted by an outstation medical officer, his recommendation was referred to a deputy commissoner, who never disturbed a recommendation of allowances without personally seeing the man concerned unless the examining medical officer agreed, on reconsideration of the case, that allowances were not admissible.

On a question by Mr. Robert Jones, on July 19th, Major Tryon said that the Deputy Commissioner of Medical Services (Tuberculosis), Wales Region, was attached to the south-western region. The Minister had no definite knowledge whether this gentleman was acquainted with the Welsh language, but as he was performing his duties satisfactorily it might be assumed he had no difficulty in understanding and making himself understood by Welsh pensioners. During the year ended November, 1922, the Deputy Commissioner of Medical Services (Dental) for Wales examined personally 494 individual cases where dental treatment was provided; a considerable proportion had to be referred back for further treatment or adjustment. There were about sixty dentists on the pensions panel in Wales.

Major Tryon states that the final award of life pensions which have been granted up to date for each class of disease are as follows: Dysentery 67, enteric 19, malaria 293, trench fever 34, rheumatism 2,466, pulmonary tuberculosis 623, tuberculosis not pulmonary 265, affections of respiratory system 4,954, organic disease of heart 1,577, functional disease of heart 1,070, nephritis 553, gastric ulcer 146, appendicitis 89, other diseases of alimentary system 326, hernia 328, neurasthenia 2,234, epilepsy 333, tabes dorsalis 99, other organic nervous diseases 516, insanity 284, diseases of eye resulting in complete blindness 83, other diseases of eye 3,761, diseases of ear 3,743, debility 1,013, diabetes 22, flat foot 195, frost bite 907, gas poisoning 341, miscellaneous 5,078, diseases of veins 761, diseases of joints 1,136, and arterio-sclerosis 109. Total 33,445.

At present 2,976 men are undergoing treatment and training in convalescent centres. There was a waiting list of about 380, of whom 45 had been waiting more than two months; it was expected to provide for them within a fortnight. Any course of treatment necessary was provided for waiting cases.

In answer to Mr. Ede, on July 12th, Major Tryon said that the records of admissions to and discharges from ambulances, hospitals, or clearing stations during the war had now been sorted and indexed in one register. The work was begun by the War Office and completed by the statistical division of the Pensions Department as part of its regular duties.

During the past fifteen months about 2,800 claims for pension on account of tuberculosis have been accepted by the Pensions Ministry.

Infant Mortality.—Mr. Chamberlain said, in answer to Mr. A. V. Alexander, on July 9th, that as regards England and Wales no figures as to the deaths of illegitimate children of 1 to 2 years and 2 to 3 years of age were available prior to 1919. From this date the statistics were as under:

Year.	Births.		Deaths under 1 Year.		Deaths, 1 to 2 Years.		Deaths, 1 to 3 Years.	
	Total.	Illegitimate.	Total.	Illegitimate.	Total.	Illegitimate.	Total.	Illegitimate.
1919	692,438	41,876	61,715	7,237	14,124	1,138	7,658	469
1920	957,782	44,917	76,552	7,017	14,741	1,162	6,100	364
1921	848 811	38,618	70,2.0	6,115	15,636	1,041	4,994	336
1922	780,124	34,138	60,121	4,736	18,943	1,064	8,678	453

Trade Advertisements on Insurance Medical Certificates.—Mr. Chamberlain, on July 18th, said that he did not think that any of National Health Insurance forms that bore advertisements were now being sent out from the Stationery Office. It was possible that Insurance Committees still had some stock on hand, but new forms which did not include the advertisements were now being printed by the Stationery Office. Captain Wallace asked, on July 23rd, when the contract for the Maypole butter advertisement on the back of the medical certificates under the National Health Insurance Act would expire; and whether the Minister of Health would give an assurance that it would not be renewed. Mr. Chamberlain said that the contract for the advertisement on the back of Form Med. 40B related to a print of 20,000 copies of the form. A further supply of the form which had now been ordered from the Stationery Office would be printed without an advertisement.

Milk Feeding Experiments.—Mr. Hurd asked, on July 18th, whether the Minister of Health could state in general terms the results of the milk-feeding experiments among Birmingham Council school children, showing the physiological value of fresh milk as an article of diet and particularly the effect on children suffering from malnutrition of the addition to their dietary of a pint of fresh milk daily; and whether he would publish a report on the experiments to encourage co-operative movements of the same kind among other educational, agricultural, and health authorities. Mr. Chamberlain said it would not be possible in an answer to a question to state the results of the experiments even in general terms. The question of publishing a report was one for the authority responsible for the investigations. The Ministry of Health was conducting investigations in conjunction with the Medical Research Council into the nutritive properties of milk in the feeding of children and the question of issuing a report on these investigations would considered.

Institutional Treatment for Tuberculosis.—Lord E. Percy said, on July 12th, in reply to Mr. T. Thomson, that the Ministry of Health approved, generally of the arrangements made by the London County Council for the assessment of contributions payable by tuberculous persons towards the cost of institutional treatment provided by the Council. The statutes under which institutional treatment was provided in London for persons suffering from other infectious diseases did not authorize the recovery of any part of the cost of the treatment from the patient.

Infant Welfare in Cumberland.—Mr. Gavan Duffy, on July 12th, again by question asked the Ministry of Health to press upon the Cumberland Maternity and Child Welfare Committee the urgency of appointing qualified midwives to serve in the districts of Cleator, Cleatormoor, and Frizington. According to the county medical officer of health, the infant mortality in the urban district area of Cumberland last year was 116 per 1,000 as compared with 101 for Scotland, a rate which had been described as murderous. Lord E. Percy replied he was anxious to put the matter right, but the responsibility rested primarily with the local authority.

The Lunacy Act.—In answer to Mr. T. Griffiths, on July 12th, Mr. Chamberlain said the result of the inquiry made by the Board of Control showed that in only a very few institutions had the requirement of Section 8 of the Lunacy Act not been fully adhered to. The reference was as to informing patients in private asylums as to their rights of appeal. The Minister added that the Board had warned the authorities concerned and had received assurances that the Statute requirements would be fully observed.

Royal Army Medical Corps.—Mr. Becker asked, on July 24th, whether the Secretary for War would recommend that young medical men should be invited to serve in the Army Medical Service three, five, or seven years, with a gratuity at the end of the term, so as to maintain a steady flow of young men into the service. Lieut.-Colonel Guinness replied that it was already open to army medical officers to retire with gratuity after eight and a half years' service. He did not think that the shortening of this period was desirable or administratively practicable, having regard, for instance, to the requirements of the army in India.

House of Commons Ventilation.—A departure from reliance upon a scientific system of ventilation has lately been made in the House of Commons by opening some of the windows. This, on July 18th, gave rise to a variety of questions addressed to the First Commissioner of Works. Sir William Davidson inquired whether members were aware that for the first time they were breathing fresh air free from dead streptococci, and suggested that the windows on the other side of the Chamber should be open during divisions. Another member, Mr. Hardie, asked the Minister whether the pressure upon the outlets under the seats could be increased and whether the air inlet could be taken above the present terrace level. Sir John Baird said that he must await the result of experiments during the recess prior to forecasting any changes. Sir C. Kinloch-Cooke suggested that the Minister should visit the Stock Exchange and adopt the same principle at Westminster. Later Mr. Morrison called attention to a very strong odour of turpentine. The Speaker said that the First Commissioner would look into the matter.

Answers in Brief.

The number of convicted debtor and surety prisoners certified insane in prison during the last four years was 432. None of these persons died while still in prison. The Home Office had no information how many of them died before they were discharged from asylums. During the same four years 28 prisoners committed suicide in prison.

Lord Eustace Percy informed Dr. Chapple, on July 19th, that up to July 14th the number of applications received for registration under the Nurses' Registration Act was 4,436. After this date the Council had no power to accept applications by existing nurses.

Mr. Neville Chamberlain, in reply to Sir R. Newman, on July 23rd, gave the following figures of the death rate per million living from pernicious anaemia during the last three years: 1920, males 55, females 62; 1921, males 55, females 74; 1922, males 61, females 74. As regards ex-service men pensioned for injuries or disabilities, 152 out of a total of 60,000 deaths were due to pernicious anaemia.

there being any sufficient degree of hyperpnœa, and of consequent "washing out" of CO_2 from the blood to account for it. To be quite certain of this latter possibility, Dixon and Pember have examined the blood removed from dogs at regular, frequent intervals after giving insulin without finding that there is any significant change in the CO_2-combining power. This observation, by the way, also shows that there can be no production of acid substances as a result of insulin, a fact which has also been demonstrated by F. N. Allen from observations on the behaviour of the acid excretion by way of the urine.

We are, therefore, at a loss to explain the cause for the initial disappearance of sugar from the blood; it is not converted into glycogen, its oxidation in the tissues is not augmented, at least until after increased muscular activity sets in, and if some of it does become reduced to fat-like substances this is not an invariable process.

THE SOURCE OF INSULIN IN THE HIGHER ANIMALS.

The evidence that insulin is derived in the higher animals from the islets of Langerhans and not from the acinar (zymogenous) cells of the pancreas has, until recently, been of an indirect nature.

Continuing the work of Diamare and Laguesse on the comparative anatomy of the isl [illegible] 2, in 1905, described in detail their [illegible] zymogenous tissue in numerous Teleos[illegible] in *Lophius piscatorius*, Myoxocephalus, [illegible], that the islet cells exist as separate encapsulated glands lying in the mesentery quite distinct and apart from the bulk of the zymogenous tissue, which is usually spread as narrow bands along the branches of the mesenteric blood vessels. These glands he called Principal Islets, and he found the largest of them to be situated near the anterior pole of the spleen.

Although the more recently discovered methods of differential staining for islet cells have not been successfully applied to the principal islets, no one has doubted the conclusion of Diamare and Rennie that they are homologous with those of the islets of Langerhans of the mammalian pancreas. The absence of these structures in the zymogenous tissue in the Teleostei supports this view, as does also the fact that in the Elasmobranchi, in which there are no principal islets, the pancreas itself, which is a compact gland, contains abundant islet tissue. In collaboration with Fraser, Rennie investigated the effect of the principal islets, administered by mouth, on diabetic patients, but without results that could be considered to show definite amelioration of the symptoms. In one case an extract of the gland was injected subcutaneously, but the development of toxic symptoms made a repetition of the experiment inadvisable. In view of the now well established fact that insulin is quite inactive when given by mouth, it is clear why these earlier observations should have failed to yield satisfactory results. Recently, we have reinvestigated the problem, and have found very definitely that alcoholic extracts of the principal islets cause a profound lowering of the blood sugar of normal and diabetic animals, including man, when they are injected subcutaneously or intravenously, whereas similarly prepared extracts of the zymogenous tissue have no such effect—indeed, not infrequently, rather cause the percentage of blood sugar to increase. In contrast to these results, an extract of the pancreas of the skate, which contains islet tissue, has a marked insulin effect,* and so also had one prepared from the intercaecal fat of the trout (in which the islets and zymogenous tissue lie separately embedded). The islets are, therefore, the only source of insulin in the bony fishes, and we may conclude that they are also so in the mammals, since in them none of this hormone is produced after pancreatectomy.

This conclusion is supported by the experiments on duct ligation and on grafting already referred to, and by the experiments of Banting and Best, although in all of these there still remained the possibility that partially degenerated or regenerated zymogenous tissue might be the source of the hormone.

Much attention has been given in recent years to the mechanism of control of the secretion of glands producing internal secretions, and, since many of those concerned in the production of external secretions are under nerve control, it has been supposed that this must also be the case with the ductless glands. It cannot be said, however, that much success has attended the various endeavours to demonstrate this nerve control. Since the islets of Langerhans are provided with a rich nerve supply, which is believed to come in large part from the right vagus, and since an increased discharge of their internal secretion, insulin, would be revealed by the behaviour of the blood sugar, McCormack and O'Brien have investigated the effect which is produced on the latter by electrical stimulation of the right vagus, in decerebrate cats and in etherized dogs and rabbits. To avoid cardio-inhibitory effects, the nerve has either been stimulated below the origin of the cardiac fibres, or it has been allowed to undergo partial degeneration. The fact that hyperglycæmia follows stimulation of the great splanchnic nerve further suggests the possibility that hypoglycæmia might result from stimulation of the vagus.

Similar observations were made some years ago by de Corral, working in Asher's laboratory, with results which are at least suggestive. Those of the present investigation are more definite, although not entirely convincing. In many cases no change can be detected in the level of the blood sugar following the stimulation, but in several others there is a prompt fall, which is usually of a temporary nature, in spite of continued stimulation. In one or two cases, however, stimulation with slow, weak induced shocks for a long period has caused a gradual decline in blood sugar, in one case to 0.070 per cent., with a return towards the normal level after removal of the stimulus. It is of great interest in connexion with these experiments that Best and Scott have recently discovered that insulin can be prepared from blood by the usual methods.

THE CHEMICAL REACTIONS AND THE PREPARATION OF INSULIN.

The method of preparation developed by Collip depends on the solubility of insulin in concentrations of ethyl alcohol up to about 90 per cent., above which it becomes precipitated.

Since most proteins are insoluble at concentrations of alcohol that are considerably below this, they can be removed from the original extract of pancreas (which is made with 50 to 60 per cent. alcohol) by fractional precipitation after the extract has been concentrated by evaporation *in vacuo*. A watery solution of the precipitate which settles out at a concentration of 90 per cent. alcohol is insulin. It can be evaporated to dryness *in vacuo* without loss of potency, and the powder contains about 14 per cent. of nitrogen, is free from phosphorus (Doisy, Somogyi, and Shaffer), but contains sulphur. A solution gives a distinct biuret test, but only faintly those of Millon and Hopkins-Cole. The insulin is readily absorbed by kaolin and charcoal, and considerable losses are apt to occur in passing it through a porcelain filter. It does not dialyse through membranes or collodion sacs; it is precipitated by half-saturation with ammonium sulphate, by barium salts of weak acids, and by picric acid. The solubility in water and alcohol is determined by the H-ion concentration, the iso-electric point being at a *p*H between 5 and 6. Watery solutions at a *p*H below 5 can be boiled for several hours without any loss in potency, but this occurs more rapidly when the *p*H is about 7. The potency quickly vanishes in the presence of pepsin or trypsin. In acid solution insulin is relatively stable to mild oxidizing and reducing agents. Insulin is also soluble in phenol and the cresols, glacial acetic acid, and formamide. It is insoluble in most other organic solvents (Malony).

These reactions, and its destruction by pepsin and trypsin, suggest that insulin is of the nature of an albumose, but it is possible that it is really only adherent to this protein, and is itself of much simpler chemical structure. This view is supported by the fact that we have been unable on several occasions to detect any biuret reaction with insulin prepared from the pancreas of the skate or to obtain from this source precipitates containing it by means of high concentrations of alcohol, or by adjustment of the iso-electric point. Whether it is really a protein or not, it is significant that all the methods now used for its purification are based on reactions that are characteristic of colloids: precipitation of the iso-electric point (Doisy, Somogyi, and Shaffer), or by picric acid followed by the regeneration from the picrate as a hydrochloride (Dudley), or by benzoic acid (Malony) or by half-saturation with ammonium sulphate.

It is highly creditable to those who have been responsible for producing insulin on a large scale for clinical use that they should have succeeded in so short a time in their work.

It may be assumed that insulin is present in all animals, and since structures similar to the islets of Langerhans have not been described in the invertebrates, it is likely that in them its site of production is delegated to other structures. What these may be in the more highly developed invertebrates is as yet undetermined, but it is of interest that Collip, shortly after isolating insulin from mammalian pancreas, prepared it from clams, and suggested that it must be present wherever glycogen is found. Later he prepared a substance like it from yeast, thus confirming

* These extracts have an unusually marked effect in causing violent convulsions.

almost at the doors of those who formerly had to travel miles in search of relief in sickness or accident. Some of the wards which had been closed from lack of funds were now being occupied by a class of patients who paid for the cost of their maintenance; other patients contributed according to their means. Nevertheless, although there was already accommodation for 400 beds, only 240 could be occupied at the present time, because the hospital had not enough income to maintain a larger number. The health of the Chairman was proposed in very warm terms by Dr. Ernest Barker, Principal of King's College, and the Duke of Connaught in his brief reply was able to announce that the appeal that evening had produced £6,000 towards the hospital funds.

Correspondence.

THE DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

SIR,—Dr. Wanklyn, in his note upon this subject (July 21st, p. 106), gives four main essential points for the differentiation of small-pox and chicken-pox. They are briefly—(1) distribution of rash, (2) degree of prostration, (3) depth of the lesions in the skin, (4) rate and manner of maturation of lesions. In regard to No. 2, "Degree of prostration," if Dr. Wanklyn could have added the experience recently afforded in Gloucestershire of "mild small-pox" to the wide experience which he reminds us he has had in the London area, he would almost certainly have shortened the four points to three, which only goes to prove that even when narrowed down to only four points it is still necessary to have an open mind, and that even in regard to all of these four points the statement can only be a general one which is more applicable to the formerly described type of small-pox than to the type now being experienced. The degree of prostration at any stage in many cases of mild small-pox stands at a cipher, and it cannot be less. I have watched contacts by close daily observation through the whole incubation period and early days of the eruption, without any prostration whatever being either complained of or discoverable, and at the same time have been seeing cases of quite typical chicken-pox where the prostration was marked. It is the difficulty at present at Gloucester to persuade people that their children have small-pox because there is no illness, and one of the doctors practising there told me last week that he had assured mothers that their children were not ill enough for the case to be chicken-pox, when they were being removed to hospital as suffering from small-pox.

Further, in regard to the other points mentioned by Dr. Wanklyn, numbers of cases have been seen that were undoubtedly small-pox, but in which all the signs were so trivial that not one of the four points mentioned above would apply. These were cases occurring in families some members of which had definite signs, whilst others occurring simultaneously had perhaps ten papules or less, sufficiently diagnostic when seen in connexion with the other cases, but which alone could not have been diagnosed by any manner of means.

All this, however, is not to say that Dr. Wanklyn's points, except the prostration, are not the chief points of diagnosis of small-pox, even when it is "mild small-pox."—I am, etc.,

July 21st. J. H. GARRETT, M.O.H. Cheltenham.

SIR,—The importance and value of diagnostic signs in varicella cannot be over-estimated at any time, and never so much as now when chicken-pox and small-pox coexist. Many so-called distinguishing characteristics are quoted in textbooks, but all of these may fail, and leave one in perplexity. Others are more reliable, such as (*a*) the absence of lumbar pain, (*b*) the presence of one or more elliptical or oval vesicles, (*c*) the continued fever after the appearance of the eruption, (*d*) the fact that the vesicles collapse on being punctured in one place only, showing them to be unilocular.

But there are two signs which are pathognomonic, and, remarkable to say, seldom if ever referred to in textbooks, and which ought to have the first place assigned to them among differential diagnostic signs:

(1) The early vesiculation and crusting of the papules, which may occur in so short a period as thirty-six hours.

(2) The contemporaneous presence of papules, vesicles, and crusts on various parts of the body.

These two signs are invariably seen in varicella, and never observed in variola.—I am, etc.,

Driffield, July 22nd. ALEX. THEODORE BRAND, M.D., C.M.

TREATMENT OF GONOCOCCAL INFECTION BY DIATHERMY.

SIR,—The article by Drs. Cumberbatch and Robinson in the JOURNAL of July 14th (p. 54) upon the treatment of gonorrhoeal rheumatism by diathermy is of great interest. The successful results of local attack upon the focus in the urethra and cervix are most encouraging, and the publication of their work in ampler form will be eagerly awaited. They seem, however, to look upon the matter from rather too narrow a view-point. Wilde has for many years maintained that the best treatment for chronic rheumatic affection is the raising of the body tissues a few degrees by hot packs or similar methods: if persisted in this line of treatment cures and not merely alleviates the condition. His views have not met with the recognition which they deserve: those who have adopted his line of treatment are convinced of its efficacy and it is very gratifying to find that the writers of this paper are able to lend support to his theory.—I am, etc.,

London, W., July 16th. C. E. SUNDELL.

SIR,—I have read with great interest the valuable paper by Drs. E. P. Cumberbatch and C. A. Robinson published in the BRITISH MEDICAL JOURNAL (July 14th, p. 54) on the treatment of gonococcal infection by diathermy; it is specially interesting owing to the fact that cases of gonorrhoea both in men and women have been under treatment by diathermy for the past two years at the Derbyshire Royal Infirmary. The treatment has been carried out by Mr. A. K. Maclachlan, surgeon in charge of the Venereal Diseases Department, and myself. We can confirm the successful results obtained by Dr. Cumberbatch and his colleague.

The effect of diathermy on gonorrhoeal arthritis is immediately beneficial, and permanently beneficial. Treatment at the original seat of disease does undoubtedly cure gonorrhoea. I have already written on the diathermy technique adopted, and as soon as Mr. Maclachlan has completed his record of the cases a full statement will be published.

I think there is a distinct advantage for the electro-therapeutist to carry out these investigations in collaboration with one who has special knowledge of gonorrhoea, as the gonococcus is elusive, disappearing in smears for a considerable time, to turn up again when least expected. It would be a precarious decision for an electro-therapeutist to give a patient who has suffered from gonorrhoea a clean bill of health and permission to marry.—I am, etc.,

Derby, July 15th. A. E. MILNER.

BLOOD SUGAR ESTIMATIONS BY GENERAL PRACTITIONERS.

SIR,—I agree with Dr. Alex. J. W. Calder (July 14th, p. 85) that the tendency of some general practitioners to relegate new methods of diagnosis and treatment to specialists is regrettable. Undoubtedly some labour, time, and perseverance is required to master these new methods; but surely the general practitioner is as capable of taking pains to master a new technique as is his brother in the hospital ward or in the laboratory. The latter also is generally just as busy an individual as the general practitioner, so lack of time is hardly a valid excuse. Perhaps it is lack of fundamental knowledge that prevents the general practitioner from undertaking this work, but many general practitioners take additional qualifications such as D.P.H., etc., which require considerable knowledge of

FIG. 1.—Epithelioma contagiosum in pigeon (right-hand figure); normal control bird (left-hand figure). Section of epithelioma from this case is shown in Fig. 3.

FIG. 2.—Epithelioma contagiosum involving the floor of the mouth.

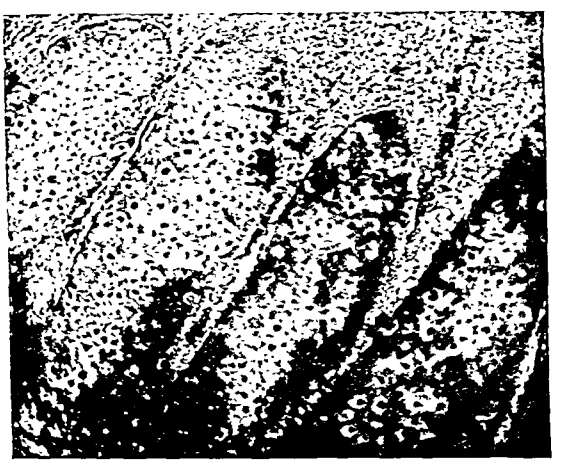


FIG. 3.—Section of nodule showing infiltrative new growth of epithelium; early stage before degeneration of cells has begun.

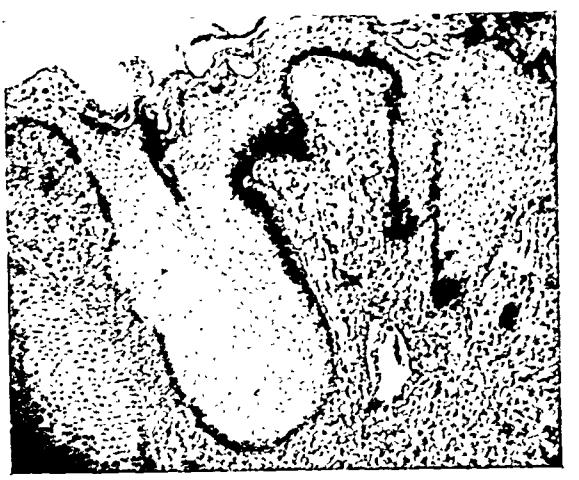


FIG. 4.—Advancing edge of growth invading floor of mouth, showing epithelial downgrowths and swollen epithelium containing cell inclusions.

FIG. 5.—Low-power photomicrograph of epithelial growth advancing from buccal mucous membrane into the tissues forming the floor of the mouth.

FIG. 6.—Section of nodule from the nostril. Low-power magnification showing the characteristic epithelial downgrowths and islets of epithelium; a number of the latter show degenerative change in their centres.

years, before being appointed medical officer of health, school medical officer, and police surgeon. He was a zealous and conscientious medical officer, a man of strong convictions and fearless in expressing them. He is survived by his widow and one son.

Dr. GEORGE EDWARD MILES died at Sydney on June 11th. He was the son of the late G. D. Miles, of Jamaica, and was educated at Guy's Hospital, taking the M.R.C.S. in 1875 and the L.R.C.P.Lond. in 1884. Subsequently he went to Australia, where he filled the posts of medical officer of Callan Park Hospital, Sydney, and Medical Superintendent of the Lunacy Department of New South Wales. He took a temporary commission as lieutenant-colonel in the R.A.M.C. from October 27th, 1915, and served till 1919, receiving the C.B.E. on June 3rd, 1919.

Medico-Legal.

BIRTH CONTROL LIBEL ACTION.

STOPES *v.* SUTHERLAND AND OTHERS.

THE Court of Appeal on July 20th, 1923, allowed the appeal of Dr. Marie Stopes from the judgement of the Lord Chief Justice on the findings of the special jury in the action brought by her against Dr. Halliday Gibson Sutherland, the author, and Messrs. Harding and More, Ltd., the publishers, of an alleged libel. The trial was reported in our issue of March 10th, 1923, page 445.

The Lord Chief Justice had left four questions to the jury: (1) Were the words defamatory of the plaintiff? (2) Were they true in substance and in fact? (3) Were they fair comment? (4) Damages, if any; and, upon the jury finding that the words were true in fact but that the comment was not fair, assessing damages at £100, the Lord Chief Justice considered the answers of the jury to amount, in law, to a verdict for the defendants.

Lord Justice Bankes, in delivering the judgement of the majority, said that the questions left to the jury were not happily framed. Without considerable explanation of what they were intended to cover they were likely to lead—as in fact, they had—to considerable difficulty. There were, no doubt, cases in which the line could be clearly drawn between what were statements of fact and what were expressions of opinion. If there had been no summing up he should have thought that, having regard to counsel's speeches and the form of questions, the jury must have understood that all parties invited them first of all to deal with the libel on the footing that it consisted of statements of fact and to give their opinion whether those statements were true or not, and that they might ignore the remaining questions if they answered this question in the affirmative. But the jury's answers indicated that they did not so understand the position. He was unable to agree with the view taken by the Lord Chief Justice that this was a case in which the rule applied—that the plea of fair comment did not arise if the plea of justification was made good. He thought the Lord Chief Justice invited the jury in his summing up to consider whether the words complained of were statements of fact or expressions of opinion, and therefore the jury were entitled to read the questions as inviting a separate opinion on matters of fact and on expressions of opinion, or partly one and partly the other. As to some of the words, the Lord Chief Justice had clearly intimated his view that they were expressions of opinion. It was impossible to ignore any of the answers of the jury and to deal with the case as the Lord Chief Justice had done by entering judgement for the defendants because the jury had entered a verdict in their favour on what the Lord Chief Justice had described as the main issue. If there was a subordinate issue, and the jury decided in the plaintiff's favour on that issue, she was entitled to the benefit of that decision. In spite of the speeches of counsel, and the challenge taken up by the respondents to treat the issue of justification as a decisive issue, in spite also of the form of questions, Lord Justice Bankes considered that the Lord Chief Justice was right in directing the jury as he did as to the separate issues, and that there was evidence on which the jury were entitled, if they thought fit, to treat parts of the libel as expressions of opinion on facts truly stated which were not fair comment, and to which, therefore, a plea of justification of the facts was no answer. The only courses open to the Court were either to order a new trial, or to direct judgement for the appellant on the issue of fair comment. The judgement for the defendants must be set aside and entered for the plaintiff for £100.

Lord Justice Scrutton concurred, but Lord Justice Younger delivered a dissenting judgement. On what he considered to be the narrowest permissible view of the answer of the jury to the second question, the defendants had justified to such an extent as was required and were entitled to hold their judgement.

THE IMPERIAL COLLEGE OF HYGIENE.

IN April, 1922, the Rockefeller Foundation agreed to purchase a site at the corner of Gower Street and Keppel Street, London, from the Shakespeare Memorial Trust for the erection of the Imperial College of Hygiene for £52,000, but in July, 1922, the solicitor for the Ministry of Health, who was acting on behalf of the purchasers, requested the vendor to apply to the Charity Commissioners for their consent to the sale. The vendor, the Earl of Lytton, is the sole surviving trustee of the Shakespeare Memorial Trust, and, upon an originating summons, he asked the Court for a declaration that he could sell without the consent of the Charity Commissioners.

It was in the autumn of 1904 that the late Mr. Richard Badger and Sir Israel Gollancz formed a committee for the organization of a movement for a Shakespeare memorial in London; and early in 1905 a general committee was constituted. In May, 1908, the National Theatre Committee and the Shakespeare Memorial Committee resolved to unite in forwarding a scheme for a Shakespeare Memorial Theatre. It was estimated that £500,000 would be required, and on May 8th, 1908, the late Sir Carl Meyer, without any stipulations as to the particular objects on which it should be expended, paid £70,000 to trustees, of whom the Earl of Lytton is the sole survivor, to hold in trust for the committee. The first annual subscription to the fund was received nine days after Sir Carl Meyer's donation, and down to the end of 1922 £10,821 16s. 7d. was received by way of subscriptions. Upon the outbreak of war the site was granted rent free to the Y.M.C.A. for the use of soldiers, and after the war it was rented by the Y.M.C.A. for the accommodation of Indian students. The increased cost of building and general scarcity of money since the war caused the Memorial Committee to abandon the theatre scheme, and to empower the sole surviving trustee to enter into an agreement to sell the site to the Rockefeller Foundation.

The questions for the Court to decide were: (1) Was the Shakespeare Memorial Trust a charity? and if so (2) was it a "mixed" charity? in which case the Charity Commissioners' consent to the sale would not be necessary.

Mr. Justice Lawrence has now held that it was a good charitable trust on educational grounds, as the main object was an educational scheme to raise the tone of the drama and produce plays for the benefit of the community. The solution of the second question depended upon whether at the date when the £70,000 was given the charity was maintained partly by voluntary subscriptions and partly by income from endowments. This would make it a "mixed" charity from its inception. The learned judge, however, held that it was not, and that therefore the Charity Commissioners' consent to the sale of the land was necessary. Because a charity shortly after receiving £70,000 became a "mixed" charity, or because the committee had intended all along that it should be supported by voluntary subscriptions, did not exempt it from the jurisdiction of the Charity Commissioners.

Universities and Colleges.

UNIVERSITY OF LONDON.

THE following grants have been made out of the Thomas Smythe Hughes Medical Research Fund for the year 1923–24:

1. To Dr. Evelyn E. Hewer, D.Sc., and Mrs. Lucas Keene, M.B., B.S., jointly, £100 for an investigation of the human foetus, with a view to establishing the normal development of organs, their normal microscopical structure at all ages of development, the scope of "physiological" variations, and the effects of various abnormal factors.
2. To Dr. H. M. Woodcock, D.Sc., £50 for an investigation of blood digestion by tissue cells along histological lines; especially in connexion with the increased development of the mammary gland during pregnancy and the formation of milk.

Mr. Raymond Johnson, O.B.E., F.R.C.S., has been re-elected chairman of the committee of the medical members of the Senate.

The following candidates have been approved at the examinations indicated:

M.D.—BRANCH I (*Medicine*): A. G. Duncan, R. Ellis, D. M. Lloyd-Jones, Olive Rendel.
BRANCH III (*Psychological Medicine*): P. C. P. Cloake (University Medal).
BRANCH IV (*Midwifery and Diseases of Women*): T. G. D. Bonar, Mariamne O. Ramsay, P. J. Veale (University Medal).
BRANCH V (*State Medicine*): E. W. C. Thomas.
BRANCH VI (*Tropical Medicine*): G. Covell.
M.S.—BRANCH I (*Surgery*): M. W. B. Bulman, Esther Rickards.

UNIVERSITY OF EDINBURGH.

Ordinary Degrees.

THE summer degree ceremony in medicine of the University of Edinburgh took place on July 20th, when the Principal, Sir Alfred Ewing, conferred the following degrees and diplomas:

M.D.—A. F. Adamson, R. A. Chambers, J. D. M. Claassens, ‡J. H. Clarke, W. H. Dickinson, J. F. Duncan, ‡B. A. G. A. Edelston, ‡J. H. Fairweather, T. J. Howell, †H. A. Macmillan, *R. Maller, †G. L. Moriarty, ‡J. P. Watt, *H. W. Wilson.

* Awarded gold medal for thesis. † Highly commended for thesis. ‡ Commended for thesis.

M.B., CH.B.—J. N. Adam, S. F. Allison, D. G. Anderson, D. T. Anderson, E. W. Anderson, H. P. Anderson, D. Band, J. S. Banks, C. Bateman, Elizabeth A. Baxendine, R. S. Begbie, M. J. Bett, A. Beveridge, Helen Blacklay, Anna L. Blair, C. E. M. Blumer, Harriette G. Bogle, J. P. S. Bow, G. P. F. Bowers, Margaret G. Bowie, E. F. Boyd, W. Boyd, R. D. Bradshaw, D. Brims, N. M'D. Brown, W. N. Brown, W. J. Burns, T. D. Burt, A. J. M. Butter, Eva T. Cairns, Flora H. M. Calder, D. Cameron, J. D. S. Cameron, A. Campbell, L. F. Capell, *R. Carmichael, H. Carter, W. H. Carter, Aileen M. Chester, Dorothy A. Christie, A. L. Clark, A. G. Cole, H. H. Condie, J. Cooper, A. Cowan, J. M. Cowan, Margot A. Craig, J. Crooks, J. F. Cunningham, J. D. Dear, R. Dick, A. Dickson, W. R. Duff, G. A. Dunlop, H. H. Dunlop, C. W. Durward, †Caroline A. Elliott, Helen B. Ewart, Marjory H. Ewing, W. R. D. Fairbairn, J. S. Faulds, A. W. Fawcett, A. W. Gardiner, Elizabeth M. R. Garrigan, F. W. Gavin, J. Gillies, M. A. Graham-Yooll, R. Grant, ‡J. Gray, A. M. M. Grierson, D. Grieve, I. M. D. Grieve, B. T. Halliwell, R. W. W. Hardie, G. M'N. Hargreaves, C. H. de la Harpe, J. A. Harris,

The development of epithelioma contagiosum in seven out of twelve birds which had been subjected to previous vitamin depletion, at a time when sixty others not so depleted escaped the malady, indicates that this depletion combined with other food faults was responsible for the occurrence of the disease. Before they were put into the stock-pen the birds had been fed on washed milled rice to a point at which typical polyneuritis columbarum developed. Now while the polyneuritic symptoms are directly attributable to the absence of vitamin B from this dietary, the disorder of metabolism and the changes in the body tissues are the consequence not only of this want but of the excess of starch and the deficiency of protein, fats, and inorganic salts associated with it.[4]

Outside the laboratory pure and complete avitaminosis must be extremely rare, but partial avitaminosis is common in human dietaries, and is always, or almost always, associated with other deficiencies or excesses or both. Indeed, the permutations and combinations of food deficiencies with food excesses are numerous, and in practice it may be expected that the disturbances of metabolism, and the symptoms resulting from them, will vary according to the particular combination of food faults in the diet.

The belief is now common that vitamin deficiency, so far from favouring tumour growth, is actually unfavourable to it. But in appraising the significance of any such effect of vitamin deficiency not only must the degree of avitaminosis be considered, but also the other food faults by which it is accompanied. If the avitaminosis be complete, growth of any tissue will become impossible; whereas if it be incomplete it may favour the operation of a growth-inducing factor. While, therefore, complete avitaminosis, or extreme degrees of it, protracted over long periods, may be unfavourable to the growth of tumours in laboratory animals, the case may be different in practice, where avitaminosis is rarely, if ever, complete, but is often of sufficient degree to play an important part in association with other food faults in bringing about disordered states of metabolism not necessarily incompatible with life, but incompatible with perfect health.

The condition of the "cured" birds at the time of their entry into the stock-pen had been produced rapidly, but it results as surely, although more slowly, when the vitamin deficiency is less drastic. In a high percentage of the birds the function of the gastro-intestinal tract was greatly impaired.[4] The restoration of this function takes time and is not coincident with the cure of the polyneuritic symptoms. In all the birds the liver had lost approximately one-third of its total cells, and approximately one-third of its total content of nucleic acid. In all the gonads were atrophic, involving a deficient supply to the body of their internal secretions. The function of the adrenal glands, which is intimately related to the metabolic processes of the animal organism, was deranged in all[4]; and although in a proportion of polyneuritic birds the provision of suitable vitamins restored in part this function, yet restoration had not occurred in the birds affected by the virus of epithelioma contagiosum. Further, the vitamin depletion involved a loss of body lipoids and changes in the reaction of the body fluids and tissues. Though the polyneuritic symptoms are the most obvious evidence of vitamin depletion, they are not the most important; for while they usually disappear rapidly with the provision of the missing vitamins, recovery from the less obvious metabolic disturbances and pathological changes is slower. After the cure of the polyneuritic symptoms the birds had access, for periods of from six weeks to three months, to a food mixture that sufficed for the maintenance of perfect health in previously healthy birds; but although they appeared to eat well of the food provided, yet it did not suffice, within the period, for the complete restoration to health of birds previously depleted of vitamins; it did not protect them against the action of the virus which causes infiltrative new growth of epithelium. Nor did it suffice, as appeared on *post-mortem* examination, to restore the deranged function of endocrine organs. In birds which developed epithelioma contagiosum it was found that the adrenal enlargement consequent on avitaminosis had persisted and had indeed in most cases become exaggerated.

The combined weight of both glands ranged between 40 and 110 mg.; in two cases it reached 100 and 110 mg. respectively. Their average weight was 75 mg., or 375 mg. per kilogram of body weight; the normal figures being 26 and 95 mg. respectively. In one male the testicles weighed only 10 mg.; in another 30 mg., and in a third 320 mg.; the normal average weight is 1,355 mg.

The adrenal hypertrophy and the atrophy of the gonads was evidence that the disordered state of metabolism, induced by previous vitamin depletion, had not been recovered from. It seems likely, indeed, that the derangement of endocrine function induced by avitaminosis was a factor of importance in the development of epithelioma contagiosum in these cases.

Looking at the matter from the point of view of the combination of factors concerned in the development of the epithelial new growths in this particular instance, we find this combination to have been:

1. Lessened bodily vigour; which favoured the occurrence of injury or abrasion of exposed parts, and the entry into the body of a growth-inducing virus.
2. The fortuitous presence in the pigeon-pen of an invisible virus possessing the property of inducing infiltrative new growth of epithelium.
3. An abnormal state of metabolism, with disorder of endocrine function, favourable both to the entry of this virus into the body and to its activity therein.

Apart from the fact that deranged metabolism, induced by faulty food, appears to favour the development of epithelioma contagiosum in birds, this combination of causal factors deserves consideration from a more general point of view. Given the intervention of a factor possessing growth-inducing properties it is possible to suppose that faulty food may induce in the animal organism such a state of deranged metabolism that this factor may become operative and epithelioma may arise. In the experiment here recorded the epithelial growths were more or less benign, but the significant fact is that the combination of causes which existed favoured the development of epithelial new growth.

It is not suggested that all these conditions must invariably be satisfied before epithelioma contagiosum can arise; it is possible that the virulence of the virus may vary, and may sometimes be so great as to cause epithelial growths even in birds whose nutrition is perfect. Since disordered states of metabolism consequent on vitamin depletion and the food faults associated with it are favourable to the operation of this invisible virus, they are probably also favourable to the operation of others possessing like properties. The virus in the experiment here recorded must have been introduced into the body, and it is possible that in nature there are others possessing the property of inducing new growth whether of epithelium or of other tissue cells. In this connexion I am reminded of the association of carcinoma and of sarcoma in rats with infection by certain nematode and cestode worms—such, for instance, as *Spiroptera neoplastica* (Fibiger) with carcinoma of the stomach; and *Taenia crassicollis* (Rohdenburg and Bullock) with sarcoma of the liver. It is conceivable that these parasites produce poisons possessing inherent growth-inducing properties. If this were so vitamin depletion might well be a "limiting factor"* as important in the development of these growths in rats as it is in the development of epithelioma contagiosum in pigeons.

It is indeed conceivable that substances possessing this property may be evolved from the tissue cells themselves under conditions of slow disturbance of nutrition, in a manner comparable to the evolution of such during the process of autolysis of cells.[2] Many of the effects of avitaminosis resemble, as shown by Cramer and his co-workers, those produced by exposure to x rays; the development of epithelioma in man or of sarcoma in rats following injury by x rays may be related to disturbance of the nutrition of cells induced by these rays. If it could be shown that a growth-promoting factor is evolved in tissue

* This term is used in its agricultural sense: a lacking condition, the insufficiency of which prevents proper growth.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

COTTAGE HOSPITALS.

DR. CHARLES H. GREENWOOD (7, Park Street, Ripon) asks for information as to cottage hospitals recently built or provided. If any such institution exists in Yorkshire the committee of the proposed hospital, which is to have two wards of eight or ten beds each, and an *x* ray room, would like permission to visit it.

INJECTIONS OF ETHER IN WHOOPING-COUGH.

"M.R.C.S." asks for further information with reference to intramuscular injections of ether in whooping-cough, regarding which several references were recently published in the EPITOME (April 21st, 1923, paragraph 333; October 14th, 1922, paragraph 272; November 18th, 1922, paragraph 378). He inquires whether it is Ether Pur. (*B.P.*) which is used, and what, in the case of a girl aged 12 years, should be the dose and at what intervals.

INCOME TAX.

"W. F. W." bought an 8-h.p. B—— in 1913 for £165, the usual price being £197. In 1920 he bought a 12-h.p. A—— for £530 and agreed to sell the B—— for £80, the cost of a similar new car being then £560; in fact, however the B—— was retained and is used privately and, on occasions, for professional purposes also. The inspector refuses to allow more than £165—£80=£85.

*** So long as the B—— remains available for professional use we are not clear that "W. F. W." has any claim to an allowance for the cost of replacing it. If, however, the inspector is prepared to waive that point, the allowance is determinable—on lines as to which official evidence was given before the Royal Commission on the Income Tax—according to the cost of replacement, and not, where that amount is less, according to the original cost of the machine. On this basis we compute the allowance as follows:

Original cost	= £165
Present equivalent for replacement purposes— 13/7ths of £560	= £470

LETTERS, NOTES, ETC.

VACCINATION PROPAGANDA.

DR. WM. VERNER FURLONG (Dublin) writes: The method suggested by Dr. St. John Croley (July 21st, p. 130) is very good, but when one thinks that the actual disease—itself passing through and killing a number of the inhabitants—has little, if any, effect in converting these antivaccination cranks, the only true remedy is compulsory vaccination. Why should the health and vitality of a people be at the mercy of ignorant faddists who cannot realize that vaccination is a means of adopting Nature's plan of immunity?

COOLIDGE TUBES.

DR. H. FLECKER (Melbourne, Victoria) writes with reference to the behaviour of the Coolidge tubes described by Dr. Robson in the JOURNAL of April 21st (p. 699): Surely this is to be traced to faulty operation of his outfit, particularly faulty rectification, rather than to any inherent faults of the tubes themselves. "I have myself," he continues, "noticed a steady diminution in the lives of the new deep therapy Coolidge tubes, the first four of which last 190 and 130 hours at 5 milliampères, and 80 and 48 hours at 6 milliampères (200,000 volts). This I believe to be due to rectifier defect, and since it has been remedied I look forward to a much longer life with my next tube."

M. SPAHLINGER'S TREATMENT FOR TUBERCULOSIS.

THE *Manchester Guardian* last week published articles to which it gave great prominence detailing a proposal stated to have been made by the Lancashire Insurance Committee for establishing a tuberculosis institute at Eastbourne where insured persons from Lancashire could be treated with serum obtained from M. Spahlinger's laboratory near Geneva. This it was suggested could be done under Section 21 of the National Insurance Act, 1911, which authorizes an approved society or insurance committee "to grant such subscriptions or donations as it may think fit to hospitals, dispensaries, or other charitable institutions." The last term is wide, and has been interpreted to mean institutions of a similar kind to hospitals, or such other institutions as carry on work of the kind dealt with by the Act. A deputation from certain approved societies in Lancashire was in London last week, and after conferring with Lancashire members of Parliament and in their company it had an interview at the Ministry of Health with Sir Walter Kinnear, controller of the Insurance Department, and Sir George Newman, chief medical officer to the Ministry. The deputation, according to the *Manchester Guardian*, came away with the impression that "if certain technical difficulties could be overcome the scheme may receive the approval of the Ministry." We have already fully explained the position of the Ministry in an article published on May 12th, p. 830. The Ministry, through unofficial channels, has intimated to M. Spahlinger that it will be prepared to appoint a committee of recognized medical experts to watch the results of his method of treatment in a number of cases to be selected by a physician nominated by M. Spahlinger. One of the difficulties has been that M. Spahlinger declines to divulge the technique by which the vaccines and serums he makes are prepared, but the Ministry is prepared to waive any objection on this score. We believe that the Ministry's position is exactly what it has been during the last two or three years; that is to say, the Ministry is prepared, as soon as it can obtain some of the material prepared by M. Spahlinger, to have it tried on a number of suitable cases of his own selection, under the supervision of an impartial committee of competent and disinterested physicians. It is considered that the evidence hitherto received is not conclusive, although it is enough to call for further investigation. M. Spahlinger's methods imply nothing new in principle; they are essentially those which have been tried sometimes with and sometimes without success in other bacterial diseases. He seeks (1) to produce active immunity against the tubercle bacillus and its toxins in a patient by the injection of a vaccine, and (2) to make an antiserum which has antitoxic and bacteriolytic properties, and to use this to confer passive immunity on a human being. M. Spahlinger's vaccines are essentially similar to the tuberculins. He has, we understand, four vaccines made from tubercle bacilli, and a complete course of vaccine treatment consists of successive courses of injections of each of these four vaccines. The complete antiserum is made by mixing a large number of antiserums each obtained from a horse which has been subjected to some particular course of injections; the serum of each such horse is called a partial antiserum. It is stated that M. Spahlinger and his family have provided about £80,000 to carry on his work, and the *Manchester Guardian* adds that he has recently received a contribution of £20,000 from an individual in this country. Whether the surplus funds from approved societies can be used to relieve M. Spahlinger's financial embarrassments is a legal question which we do not propose to discuss. It seems to us, as we have said before, that M. Spahlinger's difficulties are of his own making, and that they would disappear were he to accept the very reasonable and simple condition proposed by the Ministry of Health.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 31, 34, 35, and 36 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 76.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	0
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
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THE SECTIONS.

BRIEF SUMMARY OF PROCEEDINGS.

ARRANGEMENTS have been made to publish full reports of the discussions in the Sections of the Annual Meeting at Portsmouth during the next few months. Meanwhile, the brief notes printed below, and those that will appear next week, should enable members who were not present to gain a general view of the proceedings. Any errors to which attention may be drawn will be corrected in the full reports.

SECTION OF MEDICINE.

Wednesday, July 25th, 1923.

DIABETES AND INSULIN.

THE President, Sir Thomas Horder, in opening the very largely attended discussion on diabetes mellitus, said that it would naturally turn into a discussion on insulin. The public had come to regard the problem of the treatment of diabetes as already solved by the introduction of insulin; but that was not so. Diabetes might be the result of several biochemical disturbances, and insulin would help to mark off certain different types seen in practice. It was already known that some cases benefited much less than others, and that some, again, were not benefited at all. This position must be made quite clear. It was not yet established whether the pancreas would recover; if the disease was necessarily progressive the outlook was still very bad for young diabetics. At what level should the blood sugar be maintained to rest the pancreas most thoroughly, and are blood sugar estimations to be continued as a necessity in treatment? Were the rapid methods in use accurate for estimating the blood sugar, and could they be carried out by the general practitioner? Could the dosage of insulin be controlled by examination of the urine only? Would it be possible to give the active principle of insulin by the mouth by suitable preparation? The President drew attention to the abuse of insulin by the greedy patient and in cases of renal glycosuria. The discussion of insulin would leave no time to touch on the relation of sepsis to diabetes, nor on the ultimate causation of pancreatic diabetes. Insulin was the greatest contribution yet made to the study of diabetes, and a hearty welcome was extended to Dr. Banting of Toronto.

Dr. F. G. Banting said that Mr. Best and he and their associates thanked the profession for the way in which it had received the result of their experiments. He outlined the story of his research, saying that many attempts had been made to prepare extracts of the pancreas and use the active principles. Following ligation of the pancreatic ducts, dogs did not become diabetic and the acinous cells alone degenerated. Ten weeks after ligature the degenerate pancreas was removed and extracted with saline. In a depancreatized dog the blood sugar rapidly rose, reaching 0.4 per cent. in a few days; the wound broke down, the animal weakened; hunger, thirst, and rapid loss of flesh followed. On injecting the extract thus prepared, the blood sugar diminished, the animal gained strength and lost its ravenous appetite. But the amount of pancreas so obtained was very small and the method was not satisfactory for preparing the extract. The injection of secretin over a long period to exhaust the acinous cells and destroy the trypsin was not reliable. Up to the fourth month no trypsin granules were found in the acinous cells of the pancreas of a foetal calf, and an extract of this material was found very potent in lowering the blood sugar; the second dog was killed by an overdose and died with symptoms now recognized as those of hypoglycaemia. The problem was to extract the whole pancreas by some chemical agent which would destroy the proteolytic ferments without touching insulin. Alcohol in certain percentages was tried. Dr. Cobb succeeded in fractionating out the active principle in 82 per cent. alcohol. Since then rapid progress had been made, and the product now contained no protein, was non-irritating, and more easily standardized. Insulin in proper doses in the laboratory reduced the blood sugar of a diabetic dog to normal or less, and rendered the urine sugar-free; by it a depancreatized dog could be kept alive for thrice the usual period. The liver of a depancreatized dog did not contain more than 0.5 per cent. of glycogen, but after insulin and glucose as much as 18 per cent. of glycogen might be found; therefore insulin enabled the dog to store glycogen. Adequate doses of insulin would control all forms of hyperglycaemia. In a rabbit the effect of an overdose of insulin caused a fall in the blood sugar, the animal became hungry, then dull, and had intermittent convulsions and periods of unconsciousness; if given glucose the symptoms were relieved or prevented. The clinical work at Toronto had been carried out by Professor Duncan Graham, Drs. Campbell, Fletcher, and Gilchrist. In the management of a diabetic the following was the routine adopted. If the condition was at all severe the patient was admitted to hospital for at least three weeks for training and the working out of the sugar tolerance. A careful history was taken with special reference to heredity and infection; for twenty-four hours the patient was kept on his ordinary diet to judge the severity of the disease. He was then placed on his basal requirement diet; if fully grown, three-quarters of a gram of protein per kilo of body weight per diem was allowed, but more protein was given if the patient was not fully grown, and the remaining calories were made up of carbohydrate and fat in the proportion of 1 to 1.3 (modified Woodyat diet). He was kept on this from three to four days; if a mild case, he would become sugar-free; if severe, the sugar output became more constant. If the patient was sugar-free the carbohydrate was raised; if he could take 500 calories over and above the basal requirement, insulin was not given. The output of sugar was of value in estimating the initial dose of insulin. In severe cases one unit of insulin metabolized 2 to 2.5 grams of carbohydrate, though it varied in different persons and cases; where infection was present also the amount was less. In mild cases one unit might metabolize 5 or 6 grams. The initial dose should not render the patient sugar-free, as there was not enough glycogen in the liver to act as a buffer. A dose of 5 units to begin with was usual unless the patient was comatose; it should be given half an hour to an hour before meals and never more than once a day. It was advisable to keep the patient sugar-free, because when sugar-free the pancreas tended to produce insulin. There was evidence of a development of an increasing tolerance in many cases, but this was not so marked in those whose glycosuria was adequately controlled by dieting.

Dr. P. J. Cammidge (London), after expressing his admiration of Dr. Banting's work, said that he had been engaged for the last ten or fifteen years in trying to find the cause of diabetes. All cases were not due to disease of the pancreas. The pancreas acted as a brake on carbohydrate metabolism and regulated the storage of glycogen in the liver. There were three main types of diabetes—due respectively to pancreatic deficiency, to inability to store glycogen in the liver, and to factors which stimulated an increased carbohydrate metabolism. In 80 per cent. of cases there was a pancreatic element, but only 45 per cent. were entirely pancreatic. It was in the pancreatic group that insulin was of the greatest advantage. Dr. George Graham (London) said that sugar tolerance could undoubtedly be recovered under treatment with insulin to a certain extent, but the main aim and object of treatment was to make certain that the blood sugar was normal in the morning before the dose of insulin was given, and no carbohydrate beyond that present in vegetables should be added till the morning blood sugar had been normal for three or four weeks. If the blood sugar was 0.2 or 0.15 the islets cells were being overworked. In order to produce this a varying dose of insulin would be required in different individuals; in some 10 to 15 units a day sufficed, but in others 30 to 50 units, even twice a day, might be necessary; no two patients responded in the same way. He had treated three cases of coma; two recovered and one died. The fatal case had an abscess in the parotid, and it was of the utmost importance to hunt for sepsis in every case of coma. Twenty to 30 units should be given subcutaneously at once; sugar need not be given if

tively, operative collapse is the ideal treatment, cases of chronic fibrous phthisis with thick pleural deposits and rigid chest walls offering the best prospect. Operation should be done under local anaesthesia, since a general anaesthetic greatly increases the risk owing to loss of the cough reflex, thereby adding to the danger of aspiration of sputum and the greater tendency to exhaustion, and the procedure should only be undertaken after close observation and repeated consultation, and after compression by pneumothorax has failed. Two operations are advocated—Sauerbruch's total thoracoplasty, in which the chest is collapsed by resecting small portions of all the ribs at the costal angle through a paravertebral incision close to the spine, or partial pneumothorax with partial thoracoplasty, as indicated when stiff-walled cavities do not collapse or are maintained by firm pleural adhesions. Sauerbruch's operation can be performed under local anaesthesia, causes less shock than the Brauer-Friedrich's thoracoplasty, can be done in stages if necessary, and collapse occurs in two directions, transverse and sagittal, the chest wall falling in more and more as the ribs are resected from below upwards, while the resulting deformity is scarcely noticeable when the patient is clothed.

Surgery.

72. Technique of Thoracic Surgery.

E. A. GRAHAM (*Journ. Amer. Med. Assoc.*, June 23rd, 1923 p. 1825) says that the avoidance of an open drainage during the acute pneumonic stage explains better than anything else the remarkable reduction of mortality in acute empyema; at Camp Lee the mortality dropped from more than 40 per cent. to less than 5 per cent. when early open drainage was given up. Intrathoracic operations can be performed on many patients, the author asserts, with a disregard of any form of apparatus for differential pressure; these are patients who have extensive adhesions or rigid mediastinal pleurae or those whose vital capacities are high; others will go through intrathoracic operations more safely if some auxiliary agent is present to assist in inflating the lungs if necessary. The author has found that Gwathmey's suggestion of using an ordinary nitrous oxide apparatus with a tightly fitting inhaler is satisfactory. He believes that the anaesthetic of choice in thoracic surgery is nitrous oxide and oxygen; at any time during the operation the lungs can then be inflated; also in children, even in cases of empyema, much of the fright and terror which accompany an operation under local anaesthesia can thus be avoided. In any event the surgeon should remember that too large an opening may cause death, and that the surest way to avoid fatal asphyxia is to close the opening by plugging it with lung, with gauze compresses, or in any other way. Surgical drainage is not necessary in all cases of acute lung abscess. Proper postural drainage and artificial pneumothorax in certain cases will give results just as satisfactory as surgical drainage. Postural drainage will be of value in those cases in which the abscess communicates with a bronchus. Artificial pneumothorax should, in the author's opinion, be reserved for small abscesses without adhesions. Surgical drainage should be employed in large acute abscesses, and probably in any abscess with increasing toxic symptoms. In chronic lung abscess surgical drainage with a tube is usually of little avail; in most of these cases the patient must be content with a life of chronic invalidism or submit to a radical surgical procedure.

73. Treatment of Haemorrhoids.

A. ALEXANDER (*Deut. med. Woch.*, June 15th, 1923, p. 792) is very favourably impressed by the treatment of haemorrhoids described in 1920 by Boas. After the intestines have been emptied and opium given, Bier's suction pump is applied once or oftener to draw out and distend the haemorrhoids. Perianal injections of novocain-suprarenin are given, and the suction pump is again applied. Into each haemorrhoid from 2 to 5 c.cm. (according to the size of the haemorrhoid) of a 95 per cent. solution of alcohol are injected. The author tried to modify Boas's technique by injecting the anaesthetic direct into the haemorrhoids, but this procedure frequently provoked severe gangrene of the haemorrhoids and was therefore discarded. After the alcohol has been introduced into the haemorrhoids they are pushed back into the rectum with the help of vaseline. If they are not completely pushed back they are apt to be nipped by the sphincter of the anus, and pain, lasting for less than a day, is followed by gangrene of the haemorrhoids. When they are completely replaced they are practically painless, and they may be felt fourteen to sixteen days later as small, firm nodules, of the size of a pea, above the sphincter. The patient should be kept in bed for three or four days after the injections without the bowels being opened. At the end of this period plenty of vaseline should be introduced into the rectum to facilitate defaecation. The patient is usually confined to his bed for four or five days, and some are able to return to work at the end of this period. The author has adopted this treatment in 24 cases, in 22 of which a complete and permanent cure was effected at one sitting; in the other 2 cases the haemorrhoids recurred, their recurrence in one case being due to two minute haemorrhoids being overlooked on the first occasion. The use of Bier's suction pump helps to prevent small haemorrhoids being overlooked.

74. Fractures in Transplanted Bone.

S. L. HAAS (*Surg., Gyn., and Obstet.*, June, 1923, p. 749) points out that the success of an entire graft depends upon the ability of the cellular elements of the tissue to remain viable after the severance of its blood supply and retain its life properties until its vascular supply is re-established. In the bone graft it is believed that many of the osteoblastic cells survive and share in the regenerative processes. Others maintain that there is a complete degeneration of the cells of the transplant, and that all regenerative changes depend on secondary ingrowth from outside. It is important to know, in considering the healing of fractures in transplanted bone, if the cells of the transplant possess inherent power of repair. In order to obtain some information on these problems experiments were performed on dogs. First, an entire metacarpal bone was removed from the animal's foot. This was fractured and, after placing the fragments in apposition, was replaced in the foot. The entire blood supply was necessarily destroyed. Next a bone similarly located was transplanted in the muscles of the back. The fragments were thereby removed from any possible osseous contact. In a third group the fragments were boiled for ten minutes; and lastly, one fragment of bone was boiled and the other not injured to see if normal bone exerted any influence on the boiled dead half. These experiments showed that fractures in transplanted bone united firmly even when buried in muscle. Fractures in boiled transplanted bone showed no signs of proliferation or attempt at repair. Fractures in transplanted bone where half was boiled and half was alive united, even when buried in muscle. The author says that this test of the independent inherent osteogenetic power of the cells of transplanted bone established beyond doubt the proof of this independency.

75. Treatment of Acute Otitis Media in Children.

T. B. LAYTON (*Brit. Journ. Child. Dis.*, April–June, 1923, p. 65) points out that this treatment is one which should be carried out in nearly every case by the general practitioner, as the consulting specialist is seldom in the best position to apply it. The treatment must be both general and local. General treatment consists in keeping the patient at rest in bed, while local treatment consists in performing the operation of incision of the drumhead at the right moment. Layton maintains that it should be the aim of the practitioner never to allow a drumhead to rupture spontaneously, to look upon an inflamed ear which under his observation has gone on untouched to the stage of discharge as something of a disgrace to himself, just as he would consider to be so a case of acute appendicitis which in these circumstances had gone on to acute peritonitis. As it is important that nothing should prevent a good view of the drumhead being obtained, hot fomentations, which cause the superficial epithelium to swell up and entangle any bits of cerumen, should never be used, but pain should be relieved by applications of dry heat to the ear and side of the head with a hot-water bottle or pad of wool and by instillation of antiseptic drops. The drumhead should be incised as soon as it is seen to be bulged, the incision being made deliberately under a general anaesthetic. In the subsequent management of the case the practitioner must watch carefully for signs of mastoiditis.

76. Treatment of Fractures of the Lower End of the Humerus.

ALBERT MOUCHET (*Journ. de Méd.*, May 10th, 1923, p. 305) describes in detail the treatment for the different types of fracture of the lower end of the humerus met with in children. They are the most frequent form of fracture found in the region of the elbow-joint, and in diagnosing the condition *x*-ray examination is essential. In obtaining proper reduction a general anaesthetic is necessary, whilst care must be taken to look for lesions of the nerves round the elbow-joint. The usual type of fracture is where the lower fragment is drawn upwards and backwards by the triceps, and results from a fall on the hand with the elbow extended. In addition to the antero-posterior displacement there is often a lateral displacement, and this may be difficult to correct. Open operation may be required where there is a compound fracture or where the injury is complicated by damage to the vessels or nerves, and also where the fracture is otherwise

the first group would diminish; the essential requirement was a careful inquiry into the previous medical history. The keynote to the diagnosis was the condition of the caecum; if this were visibly distended, or if it were definitely felt to harden and soften alternately under the fingers, then the obstruction was distal. In the most desperate cases of this group no attempt should be made to find the obstruction; but under local anaesthesia the caecum should be exposed through a right gridiron incision and "blind" caecostomy performed. By this means obstruction was relieved and the patient was rid quickly of the intense toxaemia, so that in a few days the operation, having for its object a search for the cause of the obstruction, could be proceeded with. He deprecated the performance of an exploratory laparotomy except in cases where very obviously the patient would not be likely to suffer. The experience in the Manchester Royal Infirmary over a period of years was that the percentage of mortality was nearly 30. He advocated strongly the routine performance of caecostomy, even in cases where secondary operations were performed; he felt convinced that those high figures could be very materially reduced. In cases where it was possible to make a more or less leisurely examination, exploratory laparotomy was likely to be the operation of choice. The discussion was taken part in by Mr. Seymour Barling (Birmingham), Mr. Mitchell (Belfast), Mr. Carson (London), Mr. P. Lockhart-Mummery (London), Mr. Charles Pannett (London), Mr. Geary Grant (Cardiff), Mr. C. P. Childe (Portsmouth), Dr. Mothersole, and Mr. Mamourian (Ashton-under-Lyne). The general tendency of the discussion was altogether in support of Mr. Burgess's argument, but the hope was expressed that cases might in the future be received much earlier by the surgeon, as there must be many patients who suffered from slight colicky pains and diarrhoea of persistent nature, which on investigation proved to be the preliminary signs of a colonic cancer. If these early evidences were supported by x-ray and other examination the likelihood of acute obstruction occurring would be lessened.

After a short interval the President vacated the chair, and Mr. Patrick (Glasgow) called upon Mr. H. J. Paterson (London) to read his paper on the question as to the improvement or otherwise in the results of operative treatment of malignant disease during the past twenty years. Mr. Paterson suggested that improvement was not so great in results as in technique, and he wondered whether technique had not been carried beyond the pathological necessities of the case. He regarded it as questionable whether it might not be better to remove the infected glands at a later stage, on the ground that these glands were actually the first barrier of defence, and that it was unwise to remove that barrier at the primary operation. There were, he thought, good grounds for hoping for better results in the future, but these better results would follow rather upon earlier diagnosis than upon improved technique. Mr. Childe expressed the opinion that there was a place for educating all people who came in contact with the sick poor—nurses, clergymen, and others—in the early signs of cancer; propaganda along these lines, which had for its object the education of the people, had been carried on in Portsmouth. The subject was further discussed by Sir StClair Thomson, who contrasted the ideas of malignant disease of the larynx held by the great masters of throat surgery of a generation ago with those held in the present day, and pointed out that out of 60 cases of his own only 8 had shown recurrence within the first year. Dr. Major Greenwood spoke from the point of view of the statistician, and advocated a better standardization of operation statistics. Dr. Bruce (Toronto) said that in Canada as the direct result of propaganda the public were coming much more readily to consult the surgeons in regard to possible cancerous tumours.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Wednesday, July 25th.

THE first meeting of this Section was devoted to a discussion of the treatment of acute salpingitis. In calling upon Mr. Aleck Bourne to read the opening paper, the President, Mr. Victor Bonney, said that this subject had been chosen because at present there was no consensus of opinion on the matter and he thought it was highly important that some such consensus should if possible be reached.

In his preliminary remarks Mr. Bourne explained that he was confining his paper to the treatment of those forms of acute suppurative salpingitis which gave rise to the signs and symptoms of pelvic peritonitis. Clinically, such cases consisted essentially in an attack of acute suppurating pelvic peritonitis with a background of genital symptoms due to an acute suppuration of one or both Fallopian tubes. After briefly describing the cardinal signs and symptoms whereby this condition could be recognized, Mr. Bourne proceeded to outline the primary objects to be aimed at in treatment. The first object should be to arrest the acute disease and prevent its extension to the abdominal cavity proper. By efficient treatment it should be possible not only to localize the disease, but to cut short the long-drawn-out course of tubal and pelvic suppuration which nearly always occurred when expectant methods only were adopted. The second object should be to prevent the formation of chronic sequelae in the shape of adhesive pelvic peritonitis, interstitial salpingitis, pyosalpinx, etc. He considered that it was virtually impossible for a suppurative salpingo-peritonitis to resolve unless operated upon. Chronic thickenings, adhesions and cold abscesses were the almost inevitable result producing a state of chronic semi-invalidism with relapses of acute symptoms and, in the case of bilateral infections, certain sterility. The third object should be to enable the affected tube to resolve sufficiently to resume its normal function. Their aim should be not only to prevent chronic ill health, but, if possible, to give back the reasonable hope of conception. Mr. Bourne proceeded to demonstrate with the assistance of slides the essential pathology of acute tubal inflammation, arriving at the following general conclusions: (1) That in spite of a very acute inflammation the tubal epithelium was very resistant in the early stages and only desquamated in patches. (2) That after the acute phase had passed the greater portion of the epithelial surface was intact, but what lesions remained were very likely to develop adhesions. (3) That plical adhesions in the tube might be very extensive, cutting the channel into a number of diverticula which probably continued to harbour infection, and furthermore might predispose to ectopic gestation. The epithelium being so remarkably resistant should be able to function provided that it were relieved of its acute irritation at the earliest possible moment and that the barrier to the entrance of ova set up by the inevitably sealed abdominal ostium was relieved by artificial salpingostomy. As a rule the employment of expectant medical means would result in the acute symptoms passing off and the subsidence of any pelvic inflammatory mass, but the patient would probably be sterile and the slow development of chronic salpingo-oöphoritis or pyosalpinx would only be a matter of time. Something more than that should be accomplished. Mr. Bourne urged strongly that this could only be attained by surgical measures, and claimed that operation should be undertaken at the earliest possible moment. After disposing of the principal objections to operation during the acute stage, Mr. Bourne proceeded to describe in detail the operative measures to be adopted according to the condition found on opening the abdomen. He advised the slitting up of both tubes: if the epithelium were found to be intact the tubes should be left, pelvic drainage being provided for either through the abdominal wound or by the vagina. By these means a check was given to spreading peritonitis and the formation of adhesions, the lumen of the tube was given a chance of resolution without the risk of further permanent changes caused by the continuation of suppuration, and the formation of a pyosalpinx was obviously impossible. If on laying open the tube the mucous membrane was so severely ulcerated and gangrenous as obviously to be beyond the power of functional recovery it should be removed forthwith as a useless organ and probable source of future danger. Mr. Bourne had examined a recent specimen of a tube treated by salpingostomy in a patient who had died of intercurrent pneumonia and found that complete resolution had taken place. He claimed that if the tube were treated early salpingostomy

thinned out, even though the os is no wider than 2 or 3 cm., morphine, scopolamine, and time will almost always effect complete dilatation. If, on the other hand, the cervical rim remains thick and unyielding, the vagina should be plugged by the Dublin method, and morphine and scopolamine given—other methods of inducing dilatation are less effective and more dangerous. (3) When there is disproportion between the foetal head and the pelvis too much time must not be wasted on treatment of dystocia due to the soft parts; if there is not progressive advance after twelve hours of labour, Caesarean section must be seriously considered, and, since every dry labour is at least potentially infected, should consist, not in the classical operation, but in one that excludes peritoneal infection by peritoneal flaps.

82. Attempted Abortion and the Production of Monsters.

A. FEIL (*Paris méd.*, June 23rd, 1923, p. 559) states that the theory that attempted abortion plays a part in the production of foetal anomalies, finds considerable support in Dareste's experiments on hen's eggs. Dareste, improving on the somewhat primitive methods employed by Geoffroy Saint-Hilaire, and later by Prévost and Dumas, was able to produce a large number of malformations, such as spina bifida, single median eye, exencephalus, double heart, etc. The methods consisted in subjecting the eggs to a number of shocks or to unusual temperatures, or in applying a coat of varnish. Subsequently Kölliker discovered that an abnormal formation of vessels takes place and gives rise to malformation of the organs when the eggs are kept in an incubator deprived of air or one in which the air is not renewed often enough. Feré produced abnormalities by injecting various poisons into the eggs, such as morphine or lead salts, or by exposing the eggs to chloroform vapour, and Chabry was able to produce local malformations in ascidia at the site of injection. Mme Nageotte has recently described several suggestive cases of hemivertebrae and supernumerary ribs in which there appeared to be a relation between the malformation and the attempted abortion. Feil points out that though it would be illogical to attach too much importance to attempted abortion in the production of foetal anomalies, inasmuch as tuberculosis and syphilis play a very important part in their causation, cases of malformation may undoubtedly occur in a previously normal family where attempted abortion is very likely responsible. The possibility of this factor should therefore be realized by the medical profession and impressed upon the public.

83. Treatment of Uterine Prolapse in the Aged.

ACCORDING to H. HARTMANN (*Gynecol. et Obstét.*, 1923, vii, 5, p. 415), treatment of prolapse by the formation of an artificial vaginal septum, although generally abandoned, has a useful, if strictly limited, application in aged patients, to whom capacity for coitus is of no importance. As practised by Le Fort and Neugebauer, operation was followed by speedy recurrence, but, in common with Cotte and Creyssel, Hartmann has had satisfactory results from the following technique: long and wide rectangular strips of mucous membrane, reaching from the cervix to the urinary meatus and the fourchette respectively, are excised from the anterior and posterior vaginal walls, and the raw surfaces are united by a series of absorbable sutures, of which the first are inserted near the cervix, and the successive ones more remotely. The operation is easy, rapid, and free from danger, and can be done under local anaesthesia.

Pathology.

84. Toxins of B. dysenteriae Shiga.

MCCARTNEY and OLITSKY (*Journ. Exper. Med.*, June, 1923, p. 767) have succeeded by a new method in separating the exo- and endo-toxins of Shiga's dysentery bacillus. The exotoxin is an early product of the growth of this micro-organism *in vitro*, is relatively heat-labile, and yields an anti-exotoxic immune serum. The endotoxin is a product of the autolysis, or disintegration, of the bacillus, with the resultant liberation of intracellular components, is heat-stable, and is not neutralized by anti-exotoxic serum. The exotoxin has a specific affinity for the central nervous system in the rabbit; the endotoxin, on the other hand, affects only the intestinal tract. The pure neurotoxic exotoxin can be obtained from the filtrate of early growths of Shiga bacilli before bacterial disintegration commences. The endotoxin, which arises later as a result of bacterial dissolution, is always admixed with the exotoxin, which is first produced in the medium, and therefore the toxins require mechanical separation for purification. McCartney and Olitsky succeeded in obtaining the endotoxin alone by suppressing the exotoxic function of Shiga bacilli by growing the micro-organisms under anaerobic conditions, either in fluid medium under a petrolatum seal or in this medium in an anaerobic jar. The bacteria, now in an exotoxin-free environment, could be autolyzed, or dissolved, with the resultant liberation of intracellular components, including endotoxin. This pure endotoxin had a special affinity for the intestinal tract, producing oedema, haemorrhages, necroses, and ulcerations, but did not affect the central nervous system. They studied also the diffusion of the toxins through [illegible] such as collodion sacs, and showed t[illegible] bacillus implanted intra-abdominally [illegible] depending on the permeability of the collodion membrane; highly permeable sacs allowed the early passage of exotoxin, somewhat denser membranes permitted only the diffusion of substances inducing agglutinins or immunity. Cultures in sacs placed in flasks yielded in the fluid surrounding the membrane first exotoxin and later endotoxin, and the passage through the membrane of endotoxin depended on the rate of bacterial disintegration within the sac. Thus the biological and physical differences of the two toxins, which had already been demonstrated, were confirmed.

85. The Mechanism of Haemoclasic Shock.

THE phenomenon of haemoclasic shock has hitherto been held by most writers to be an indication of hepatic inefficiency, but F. MOUTIER and J. RACHET (*C. R. Soc. de Biologie*, June 16th, 1923, p. 151) now bring evidence to suggest that it is really no more than a result of variation in vago-sympathetic tone. The experiments on which this conclusion rests consist in a comparison of the effects produced on the same individual of the administration of milk and of distilled water. On a fasting stomach the individual to be tested was given 250 c.cm. of fresh milk; then after an interval of some days the same experience was repeated, with the substitution of an equal quantity of distilled water for the milk. Before each test, and ten minutes and thirty minutes after, the blood pressure was taken and a leucocyte count performed. In 9 out of 10 subjects examined parallel results were obtained, 5 giving a haemoclastic shock and 4 showing the inverse phenomenon—increase of blood pressure and a rise in the number of white cells. In the remaining subject ingestion of water determined a haemoclasic shock, ingestion of milk the reverse phenomenon. On a further series of 5 subjects a triple test was performed, using fresh milk, powdered milk, and distilled water. The results of the fresh milk and of the water coincided every time, whereas those given by the dried milk agreed in 2 cases and disagreed in 3 cases. From these experiments the authors feel justified in regarding the phenomenon of haemoclasia as the effect of a physical disturbance of the vasomotor system rather than of a chemical reaction connected with the liver.

86. Amato "Bodies" in Scarlatina.

IN 1913 Amato described certain "bodies" found with the leucocytes in the blood of scarlatina patients and not in other diseased conditions. TRON (*Lo Sperimentale*, An. 76, 1922, Fo. 5) has examined the question in relation to 40 cases of scarlatina, 14 cases of measles, 3 cases of serum rash, 1 case of varicella, and 3 healthy controls. He finds that Amato "bodies" are almost always present in the very earliest days of the disease. The number is usually greater when the fever is well marked, and diminishes with the defervescence, disappearing as a rule before the temperature falls. In relapses the "bodies" reappear. The number of "bodies" and their presence in the circulation does not seem to have any relation to complications. The clinical importance of these "bodies" lies in the help they may give in early diagnosis of doubtful cases. Of the 14 cases of measles examined 13 gave a negative result and 1 showed a few scarce "bodies." In the other non-scarlatinal cases the results were negative.

87. Classification of Types of B. pertussis.

M. HAYANO (*Japan Medical World*, May 15th, 1923, p. 104) describes four types of *B. pertussis* which he was able to differentiate by means of agglutination tests. Strains of each type were examined by rabbit serums immunized by intravenous injection of type cultures. The classification was upheld clinically when diagnostic tests for pertussis were applied to the serum of patients. In all cases the serum reacted for a certain type, two of which appeared more virulent than the others, and it was also demonstrated that a predominant type existed in different epidemics. Autogenic and polyvalent vaccines gave good results in treatment of the disease (out of 159 cases satisfactory effects being obtained in 94.8 per cent.), and a number of experiments demonstrated the possibility of successful prophylaxis by vaccine. The dose administered for treatment was 200 increasing to 400 millions, seven or eight subcutaneous injections proving efficient.

wanted to emphasize the value of the typical stance described by Dr. Cameron, and compared it to the post-war posture of the modern young woman. She had notes of 40 cases, of which 20 had a bad stance; in the majority of cases this tended to get well. She commented on the memory of many young children, and also on the desire to conquer, which in some cases might take unpleasant shapes. Dr. W. A. Potts (Birmingham) wished to stress the importance of a very thorough physical examination, which should include as far as possible the function of the endocrine glands, for in some cases excellent results were obtained by small doses of thyroid gland. A lack of good parental control was most injurious to the child; example was the best form of psychotherapy. Parents should remember their own childhood and not interfere with the child's development by excessive anxiety. Sensation should be studiously avoided. Every child should have some simple religious instruction, and also instruction in the elementary facts of reproduction from its mother.

Dr. Crichton Miller (London) was sorry that Dr. Cameron had not gone further into the question of the etiology. He suggested that a faulty calcium metabolism might produce other effects than mere skeletal deformities. But physical inferiority was not always a mark of the nervous child. Faults of parental control could produce bad results even in a perfect physical specimen. A fundamental point in treatment was, as he expressed it, to "switch off the limelight," for in many cases the child showed a "glory" in his misdeeds. He mentioned especially nocturnal enuresis as a symptom for which archaic forms of treatment still persisted. It was the supreme symptom of infantility and the life of the cradle, and was often used as a defence against unpleasant realities such as school. Sir Robert Armstrong-Jones (London) congratulated the Section in that the subject had been so ably treated by a general physician, as well as by psychiatrists. He recalled the pedagogic maxim of "Don't say don't," and emphasized the value of making the child feel its own responsibility. He should be encouraged to see what was the rational end of his behaviour and his peculiarities. The importance of sleep had been hardly adequately emphasized, and such nervous children should be made to rest for twelve hours out of the twenty-four. In conclusion he would point out the threefold parts of the child—physical, mental, and spiritual—all of which must receive proper attention and study. Dr. R. G. Gordon discussed the psychological causes of the various special symptoms such as suggestibility which had been brought forward by Dr. Cameron. The personality was formed by the interaction of the inborn dispositions and of the environment. Many nervous children were backward, and a few were mental defectives. A neurological basis, especially disease of the frontal lobes, must not be forgotten. Environment, however, was all-important. Dr. Harford discussed the occurrence of squints in nervous children, and the connexion between squints, left-handedness, and stammering. He spoke favourably of psychotherapy, especially of carefully guided auto-suggestion. Mr. Inman was called on by the President to give the meeting an account of his work on squints in children, and he gave an interesting summary of his conclusions on the connexion between left-handedness, squints, and stammering.

Dr. Parry (Brighton) thought that the nervous child was more common now than twenty years ago, especially amongst the Jewish people. He was strongly opposed to the treatment of these cases by psycho-analysis. Dr. Peter Macdonald wished to draw the attention of the Section to the work of Alexander in the formation of the correct posture for man, and described the good effects which he had personally experienced from his method of treatment. Dr. Cameron briefly replied to the points raised in the discussion.

SECTION OF OPHTHALMOLOGY.

Thursday, July 26th.

THE President of the Section, Sir John H. Parsons, said it was his privilege to welcome a satisfactory attendance of members and visitors to the Section, and to express the gratitude of them all to their colleagues of Portsmouth. An interesting programme had been provided for them. Mr. Ransom Pickard of Exeter, Vice-President of the Section, thereon took the chair, and called upon Mr. A. H. H. Sinclair of Edinburgh to introduce the subject for discussion—the clinical significance of scotometry. Mr. Sinclair briefly outlined the great advances that had been made in recent years in this mode of clinical investigation. The work of Bjerrum had produced great changes in our methods. They had now a most delicate test due to the general adoption of small objects. He showed charts of the normal field, with its variations due to diminution of the size of the test object, the conformation of the blind spot, the amblyopic zone about it, and its extensions due to the obstruction produced by the trunks of blood vessels. In pathological conditions all these features were subject to variation. There were areas of depression in the general fields, the amblyopic areas were extended, and near areas of saturation or scotomata appeared in these latter areas. Detailing the variations of those conditions in various diseases, he contrasted those found in toxic states such as tobacco amblyopia, depressions such as severe anaemias, glaucoma, and direct affections of the optic nerve by local inflammations and growths. He insisted that, invaluable as were the clinical significance of fields of vision and their variation, they must be always related to other clinical symptoms—each was complementary to the other. Dr. Gordon Holmes (London) emphasized the variability of the results obtained in perimetry according to the mental level of the patient and also to the general mental outlook or attitude of the patient. Tests must be adapted to the patients, and even so in some patients the findings were not satisfactory. Mr. Malcolm Hepburn (London) dealt specially with variations in the fields due to choroidal disease. Mr. H. Neame (London) illustrated the variability of scotomata due to pituitary tumours. Mr. Bishop Harman (London) emphasized the necessity for simplicity and uniformity of tests. Mr. Aubert Kerry (Montreal) and Major R. E. Wright (Madras) put questions on the charts demonstrated. Sir John Parsons (London) explained some of the physiological aspects of these tests, and remarked that there was much to be learned concerning them. Mr. Ransom Pickard (Exeter) demonstrated charts correlating fields, tension, and size of cups in the discs. Mr. Sinclair, in reply, agreed with the desirability of the use of standardized tests; nevertheless, there would always be difficulty in delineating relative conditions.

SECTION OF PUBLIC HEALTH.

Thursday, July 26th.

THE Section was opened by the President, Dr. Mearns Fraser, and Dr. Wheatley (County Medical Officer, Shropshire) introduced a discussion on the factors contributing to the recent decrease in infantile mortality and whether such factors were likely to be permanent or temporary. Dr. Wheatley exhibited charts showing the variations in infantile mortality since 1841, and the relationship of these changes to legislative measures such as the Education Act of 1870, the Public Health Act of 1875, the Housing of the Working Classes Act of 1890, the Midwives Act of 1902, the Notification of Births Act of 1907, etc. He showed that there had been no fall in the rate from 1841 to 1900, but that since then the fall had been large and continuous. The fall in the general death rate had been continuous though comparatively small during the sixty years previous to the fall in the infant rate. He suggested that the factors—improved sanitation, etc.—which had reduced the general death rate had been neutralized in the case of infant mortality by other opposing factors. These he found in an increased prosperity among the working classes without increased education or improvement in a sense of responsibility. In these circumstances increased prosperity was a danger to infant life as it tended to increase drinking and to reduce the amount of breast-feeding. The effect of the Education Act was seen, as would be expected, in a reduced mortality in the generation following its passing. An analysis of replies to inquiries received from the medical officers of health of forty-four towns showed that twenty-five attributed the reduction to health visiting and child

with trypsin in alkaline reaction was found to remove its hypoglycaemic action, which was not the case when faintly acid extract was incubated without trypsin. Similarly prepared extracts of spleen and liver had no effect, neither had otherwise active extracts of pancreas when given by mouth or by rectum.

These results, confirmed many times, seemed sufficient to prove the existence of the elusive pancreatic hormone, and the next problem was to devise a method by which it could be extracted from pancreas obtained from the abattoirs. As a step to this, Banting and Best took advantage of the fact, established by Ibrahim, that up to four months of foetal life in the ox the pancreas does not contain active proteolytic enzyme, although there is evidence, furnished by the experiments of Carlson and Drennan, that the antidiabetic hormone is produced by the gland during foetal life. They found that active extracts could be prepared from the pancreas of the foetal calf, and they carried the search with success to adult pancreas, using alcohol, as had previously been suggested by E. L. Scott and Zuelzer, as the extraction fluid, in the hope that in this medium proteolytic destruction of the hormone would not take place. Larger quantities of extract being now available, they succeeded in keeping a depancreated dog more or less constantly under the influence of the extract for a period of over two months, during which the animal gained in weight and exhibited only in slight degree the characteristic general symptoms of diabetes.

The criticism has been made that Banting and Best's experiment in which simple extracts of duct-ligated pancreas were used formed no essential step in the investigations which have given us insulin. I need scarcely reply to these criticisms. They were apparently made without any appreciation of the real obstacle that stood in the way of development of the subject—namely, convincing evidence that an antidiabetic hormone does actually exist in the pancreas—and to Banting and Best is due the credit of furnishing this by experiments of a different type from those of their predecessors. We owe much to the initiative, skill, and patience they displayed in completing this first essential step in the investigation.

It now became apparent that attempts should be made to see whether the crude alcoholic extracts of ox pancreas could be sufficiently freed from those substances which made them unsuitable for subcutaneous administration to diabetic patients, either because of local irritation or general toxic effects. At this stage of the investigation we were joined by J. B. Collip, who, in a remarkably short time, succeeded in isolating from the alcoholic extracts, by fractional precipitation with alcohol, a precipitate which contained the antidiabetic hormone in high concentration, and which, in watery solution, could be injected subcutaneously in man without any deleterious effects. At the same time it was also discovered that the blood sugar is lowered in normal rabbits by subcutaneous injection of extracts containing the antidiabetic hormone, and to this observation was due in large part the rapid progress which it was possible to make in the isolation of insulin. It offered a ready means for testing the relative potency of the various precipitates and filtrates, and of determining the most favourable conditions under which extraction of the gland should be carried out.

Provided with a comparatively simple method for the preparation of insulin, it now became possible to undertake a systematic investigation of its physiological and chemical properties and its possible therapeutic value, and I shall endeavour to describe briefly what has been found, and to indicate, in a general way, what appear to be the most hopeful lines for further research. It seemed advisable at this stage to group the problems demanding immediate investigation, and this was done as follows:

1. The effect of insulin on the respiratory exchange, the distribution of glycogen, and the metabolism of fat in animals rendered diabetic by pancreatectomy.
2. Its therapeutic effect in diabetes mellitus.
3. Its effect on the blood sugar of normal animals and the symptoms which result from overdosage.
4. Its pharmacological assay.
5. Its effect on the blood sugar in the various forms of experimental hyperglycaemia.
6. The physiological mechanism by which it lowers the blood sugar.
7. Its source.
8. Its chemical reactions and its preparation on a large scale.

In planning the investigations of these problems we were in the fortunate position of having the whole-hearted collaboration of several trained workers, not only in my own department (E. C. Noble, J. Hepburn, and J. K. Latchford), but also in that of internal medicine under the direction of Professor Duncan Graham (W. R. Campbell and A. A. Fletcher). We were also afforded, by the Connaught antitoxin laboratories of the University under the direction of Professors J. G. Fitzgerald and R. J. Defries, the facilities necessary for the preparation of the extracts on a large scale, and through the generous support of the University and the Carnegie Corporation it was made possible later to add several others to the group of workers.

The Effect of Insulin on the Metabolism of Carbohydrates and Fats in Experimental Pancreatic Diabetes.

From the time carbohydrates are absorbed, mainly as glucose, into the blood of the portal circulation until they are completely oxidized, changes in chemical structure are constantly occurring. These consist, partly, in a condensation of several glucose molecules to form glycogen, and partly in a splitting of the molecule, proceeding through various intermediate stages. The intermediary substances formed at each stage are doubtless in a certain state of equilibrium, one with another. Many of them do not accumulate sufficiently to be detectable by chemical means, being changed into the next stage almost as quickly as they are produced, and at the present time we are limited, in our attempts to follow the various steps in the process, to observations on the concentration of glucose in the blood, the amount of glycogen deposited in the tissues, and the type of combustion occurring in the organism as a whole. In diabetes marked and significant alterations occur in each of these; the blood sugar rises to a high level, glycogen practically disappears from the liver and becomes decreased in the muscles—except the heart, in which it increases—and the nature of the combustion process, as revealed by the behaviour of the respiratory quotient, becomes changed so as to indicate that no carbohydrate is being oxidized. It is safe to assume that the increase in blood sugar is secondary to the other changes, but it is difficult in the present state of knowledge to understand the relation. It has been a favourite hypothesis that the primary fault in diabetes is in the oxidation of glucose, or in the chemical changes which precede, and that this leads to the drafting to the tissues from the glycogen reserves of a plethora of sugar; a sort of forced-feeding process, as it were. Another hypothesis is that the glucose molecule must become altered in some way before it can be either oxidized or condensed into glycogen, and that this alteration does not occur in diabetes. Through the work of Irvine and his school much light has been thrown in recent years on the structure of the sugar molecule, and it has been shown that besides the well known α and β varieties of glucose, in which the oxygen linkage is between the first and fourth carbon atoms, there is also a third variety, called γ glucose, in which the oxygen ring is displaced from the normal stable position. The detection of the γ sugars depends mainly on a comparison of the reducing and polarizing powers of the solutions, and, by using this method, Winter and Smith have recently published results which they interpret as showing that the alteration in the glucose molecule alluded to above is the production of γ glucose. According to this view, γ glucose is a necessary preliminary stage in the oxidation of glucose, and, if we suppose that it is also so for its condensation into glycogen, the interrelation of the three changes found in diabetes becomes immediately intelligible.

I have dwelt on these theoretical considerations because of their great interest in connexion with the mechanism of the action of insulin. For it is a significant fact that this hormone, when administered to depancreated animals, completely restores to normal each of the three functions. We have repeatedly found, for example, that when it is

line; some of the quantitative cases were familial, some toxic, and some due to depression or elevation of sensitivity. He mentioned the relation between Paget's disease and nerve deafness, and gave notes of a case. He dwelt upon the importance of the lowering of the upper tone limit, and of the use of the monochord in diagnosing nerve deafness. He described cases of astounding acuity of hearing in the blind and in certain types of neurasthenics, where whispers could be heard round several corners. Perhaps the canals were getting less valuable to man. Mr. A. J. Wright (Bristol) classified 71 cases from the point of view of etiology; those with an obvious cause, such as trauma and syphilis, offered no difficulty. Of the remainder, two-thirds were females. In these doubtful cases septic foci accounted for a certain number, some were functional, and in these one could find a history of some *suggestion* at the outset. Of the remainder, childbirth, thyroid deficiency, and vasomotor rhinitis accounted for the majority. Sir James Dundas-Grant (London) discussed senile deafness, vertigo (which in middle-ear disease was caused mechanically), the value of quinine in unilateral labyrinthine vertigo, tuning-fork tests, war cases, traumatism, deaf-mutism, and numerous other points. Mr. Leighton (Manchester) said syphilis was not to be overlooked, emphasized the psychological factor, described a labyrinthine storm relieved by inflation, and mentioned the importance of caloric tests. The President said the speeches had brought out the important point that in a large proportion of cases of internal ear deafness evidence of middle-ear disease was present. Many cases of so-called nerve deafness were possibly due to disease in the foramen rotundum. It was important that all cases of hyperostosis of the meatus showed signs of deafness of the internal ear type. He had not found during three years with the army any chronic deafness caused by quinine or by malaria.

Mr. E. D. D. Davis (London) read a workmanlike paper on retrobulbar neuritis of nasal origin. He and most of the speakers agreed in finding it a sufficiently rare disease. Out of 54 cases in only 4 could he prove the existence of sinusitis. Sir StClair Thomson (London) condemned a tendency in some countries to operate upon sinuses without evidence of disease, simply because improvement had followed such steps on occasion. They must draw the line somewhere. Dr. Ritchie Rodger and Mr. Somerville Hastings, on the other hand, had seen dramatic improvement after opening sinuses apparently healthy. Mr. H. D. Gillies (London) read a too short paper upon the treatment of deformities of the nose, with special reference to the nose of tertiary syphilis; it was illustrated by lantern slides of dramatic interest. The treatment rested upon a diagnosis in terms of the structures lost by the disease; a two-stage operation was necessary—the first to restore the lining, and the second the cartilage. Previous failures had been due to an omission in regard to the lining.

SECTION OF RADIOLOGY AND ELECTROLOGY.

Wednesday, July 25th.

IN the Section of Radiology and Electrology, which was presided over by Dr. S. Gilbert Scott, a discussion took place on the *x*-ray examination of the urinary tract. The discussion was opened by Dr. R. W. A. Salmond, who pointed out the enormous advances in urology in respect to more accurate diagnosis which had taken place since the advent of *x* rays. The success of *x*-ray examination of the urinary tract might be said to depend on two main factors—namely, proper technique and accurate interpretation. The latter could only be obtained by combining the experience of the radiologist with that of the urologist. The speaker proceeded to give a detailed account of the most suitable *x*-ray apparatus, the preparation of the patient, the technique of exposure, and the routine of examination. He considered that radioscopy of the urinary tract was of considerable value, not only because stones could be seen, especially the larger kidney and bladder stones, but chiefly because the relative movement of a supposed stone shadow to that of the kidney and its direction of movement with respiration could be determined. Radioscopy was also of great value in the diagnosis of movable kidney. Turning to the more special technical methods which, although they might not be employed in every case, were in everyday use in selected cases, the speaker discussed the perirenal injection of oxygen, the method of pneumoperitoneum, colon inflation, and pyelography. He dealt next with the interpretation of the various shadows found in the region of the urinary tract and their differential diagnosis, and the abnormal shadows of the outline of the kidney or bladder. The investigation of conditions of the urinary tract other than stone demanded careful and elaborate technique, for here one had to depend largely on the outlining of the soft organs. He concluded by saying that all *x*-ray examinations of the urinary tract should be done so carefully that a negative opinion as regards stone might be of real value, bearing in mind, of course, that such an opinion did not exclude a uric acid stone. There had been many mistakes in diagnosis by *x* rays, and there probably always would be some, as in every branch of medicine and surgery; but some of the shortcomings of *x* rays in this work would probably be avoided if only a closer relation existed between the clinician and the radiologist. The discussion was continued by Mr. Ogier Ward, who contradicted the opinion generally held by medical men that pyelography was difficult, painful, and dangerous; it was not more than irksome. He deprecated the use of an anaesthetic, because one of the chief guides a practitioner had as to the filling of the renal pelvis was the patient's complaint of discomfort, at which stage one knew that the dangerous limit was being reached. He exhibited lantern slides illustrating the value of pyelography. Dr. L. A. Rowden thought that sufficient attention had not been drawn in the past to the value and simplicity of screen examination, combined with palpation, in diagnosis of urinary calculus. He asserted that he could have seen, on screen examination, with proper technique, every shadow that he saw on the prints exhibited in the room. For many years past, during a large hospital practice, he had made positive diagnosis of stone in the kidney by that method alone. Dr. G. B. Batten regretted that Dr. Salmond had not referred to the very valuable method, introduced in Argentina, and demonstrated some months ago at the Royal Society of Medicine, of injecting CO_2 gas around the kidney. Dr. J. Metcalfe said that the success of radiography of the urinary organs depended largely upon the technique. Personally he should certainly depend upon his films in the great majority of cases; no eye was so sensitive as the radiographic film. The President, in summing up the discussion, laid stress upon the importance of paying attention to minute and apparently unnecessary technical details.

SECTION OF NAVAL AND MILITARY HYGIENE.

Wednesday, July 25th.

THE President, Sir Percy Bassett-Smith, opened the first morning's session with a general outline of the day's programme. Group Captain M. W. Flack then read his paper on "Some considerations in the estimation of physical efficiency." In the discussion which followed Surgeon Commander K. Digby Bell asked whether in doing heaving exercises holding of the breath was essential, and what was the best method of measuring abdominal breathing. The opener replied that in his experience it did not appear to injure a man to hold his breath up to a period of circulatory discomfort, but as a practice for educational gymnastics it was not to be encouraged. He agreed that abdominal breathing was hard to measure; callipers appeared to be the best means, and measurements were taken at the level of the tenth rib. Lieut.-Colonel C. R. Sylvester-Bradley, R.A.M.C., read a précis of his paper on some aspects of normality, with special reference to the selection of recruits. He asked whether in examining candidates all possible precautions were taken to put them at their ease, owing to the increase in pulse-rate which the excitement of examination aroused. Group Captain Flack replied that all allowances were made for

upsets the metabolic balance and thereby induces an abnormal state. In the diabetic, on the other hand, the injection of insulin only restores to the body a hitherto missing part of the metabolic machinery and enables it to run smoothly again.

Within a few minutes of the intravenous or subcutaneous injection of a moderate dose of insulin, the percentage of sugar in the blood begins to fall, and it continues to fall, more or less in a straight line, for a period which varies from about half an hour to several hours, according to the animal; afterwards the curve may gradually become less steep or it may begin to rise again.

The prompt onset and the steep nature of the fall in blood sugar are characteristic features of the action of insulin, and are quite unlike the hypoglycaemic effects that may be produced by administration of other substances, such as phosphorus or the insulin-like materials that have been prepared by Collip and others from clams and from various vegetable sources. Indeed, the character of initial fall is such as to give the impression that the process responsible for it must be one operating within the blood itself—an intravascular glycolysis. But this cannot be the case, since we have been unable to find that the addition of insulin to defibrinated blood kept under sterile conditions at body temperature outside the body has any influence on the rate at which sugar disappears; neither is there any difference in this regard between the blood of normal animals and that of animals injected with insulin at varying periods preceding the withdrawal of the blood. Evidently, therefore, the locus of action of insulin is extravascular; it is in the tissue cells. We must conclude that the insulin sets up some process by which, as it were, a vacuum for sugar becomes established in these cells, so that sugar is removed from the blood. One may imagine that in the tissues there exists a certain balance between the concentration of free glucose, the complex carbohydrates from which it may be derived, and the various derivatives into which it breaks down prior to its oxidation. In other words, one may speak of a certain tension of glucose as being necessary in the tissues and consider the action of insulin as having the effect of reducing this tension so that glucose diffuses into them from the blood in order to maintain it.

After about half an hour the blood sugar in the rabbit usually begins to rise again, or at least the fall to become much less pronounced, indicating that the effect of insulin is becoming neutralized by the liberation of sufficient glucose from the glycogen stores of the muscles and liver. This, of course, means that the hypoglycaemia following insulin will be much more prolonged and will ultimately become much more pronounced in animals provided with small reserves of glycogen than in those that are rich in glycogen. Such can readily be shown to be the case, and it is significant that a well fed animal may withstand many times the dose of insulin that would prove fatal to one that was starved.

It is customary to imagine that the glycogenic mechanism of the liver is so finely attuned to respond to the concentration of sugar in the blood that glycogenolysis immediately sets in when this falls below the normal level. That such is not the case following insulin may depend on the fact that the glycogen, which is first of all called upon to maintain the glucose tension in the tissues, is that of the muscles themselves; but I will not here venture further into the various interesting consequences of such an hypothesis. It is at least significant that the glycogen of the muscles, as well as of the liver, is usually reduced in animals that have been given large doses of insulin (McCormack and O'Brien and Dale and Dudley). On account of its practical significance it should be pointed out that it is because of the poverty of the glycogen reserves that the blood sugar of diabetic patients treated with insulin is more apt to fall suddenly to a dangerously low level than in normal persons.

THE HYPOGLYCAEMIC SYMPTOMS.

When the percentage of blood sugar has fallen to about 0.045, curious symptoms supervene. They were first observed in rabbits, and in a typical case consist of a violent convulsive seizure in which the animal throws itself over sideways, usually first in one direction, then in the other, with the head retracted and the hind limbs in an extended position.

The condition is not unlike that caused by strychnine or by acute asphyxia, except that certain groups of muscles are less affected by the convulsions than others. After a period, usually of from 30 to 60 seconds, the convulsions cease and the animal lies on its side in an unconscious state, with rapid, shallow breathing, and perhaps showing running-like movements of the extremities. The exact condition of the animal at this stage may, however, vary considerably; well fed and therefore glycogen-rich animals often sit in apparently normal fashion between the convulsive seizures, which are often brought on by attempts to move. After a varying period the comatose stage is followed by another convulsive seizure, and these phases may continue alternately for an hour or more, the convulsions becoming feebler and feebler and the rectal temperature falling, until at last the animal dies of respiratory failure. After death rigor mortis sets in at once. The arterial blood is venous in colour and clots very quickly. Preceding the onset of typical convulsions there are usually premonitory symptoms of hyperexcitability and evidence of hunger; sometimes, however, paralysis of the extremities is the first symptom.

The symptoms vary somewhat in other animals. In the dog the first signs are usually very rapid breathing, restlessness, and general hypersensitivity; muscular twitching then becomes evident and the sphincters may relax. Barking is often a prominent symptom, and there may be frothing at the mouth. At this stage, or as the first symptom, convulsions not unlike those seen in the rabbit may supervene, and between them the animal lies on its side, showing violent twitching of the musculature, almost a tetany. It is evidently unconscious. The rates of breathing and of the pulse increase; inspiration is usually short and jerky, and inspiratory tetanus not infrequent, so that artificial respiration may have to be applied. Attempts to get on its feet often cause convulsive seizures, and, during recovery, the muscles of the extremities, particularly the anterior, are seen to have entirely lost their power of co-ordinate action. In etherized dogs even massive doses of insulin have no immediate effect on the blood pressure.

In the cat the symptoms are like those in the dog, profuse salivation, mewing, and relaxation of the sphincters being especially marked.

In the mouse kept at room temperature, A. Krogh observed that insulin may only cause the animal to become weak, but its temperature falls to a very low level. If it be kept in an incubator at about 28° C., however, characteristic symptoms supervene—convulsions and coma, preceded by paralysis of the legs—with doses of insulin, which, when compared on a body-weight basis, are only about one-fifth that necessary for rabbits.

This influence of body temperature is particularly interesting, since it probably explains the apparent immunity of frogs even to massive doses of insulin. We failed to note any symptoms even in three days after injecting insulin, but A. Krogh has since found that they occur in a day or so later—a fact which we have confirmed.

In man, in whom the subjective symptoms can be interpreted and cardio-vascular changes more accurately observed, the picture is different. When the blood sugar reaches about 0.075 per cent. the patient experiences extreme hunger and a sense of fatigue. He usually becomes anxious and may lose his emotional control. Actual tremor of the musculature is rarely seen, but there is a definite sense of tremulousness and some inco-ordination for fine movements. "Vasomotor phenomena are common; pallor or flushing, sometimes one after the other; a sense of heat, of chilliness, almost always a profuse sweat" (Banting, Campbell, and Fletcher). At lower levels of blood sugar, acute mental distress, mental disturbances, delirium, and finally coma, with loss of the deep reflexes, supervene.

The correspondence between the onset of definite objective symptoms and a blood sugar percentage of 0.045 in laboratory animals is remarkable. Sometimes, as in starved animals receiving a large dose of insulin, the blood sugar may be found to be considerably below this level when convulsions first appear. Very occasionally it is decidedly higher, and immediately after a convulsion the sugar may rise somewhat. These facts suggest that the symptoms are the result of the lowering of the tension of glucose in the tissue cells below a certain critical level—a condition of "glucatonia," we may call it—to which the hypoglycaemia runs parallel. This view is supported by the striking manner in which the symptoms are almost instantly removed by administration of glucose, and it is of great significance that other hexose monosaccharides have only a slight beneficial effect, although of course their injection causes a marked rise in the reducing power of the blood. Mannose and laevulose seem to be somewhat more efficient than galactose. None of the pentoses or disaccharides has any effect. Injection of epinephrin, subcutaneously, also removes the symptoms, no doubt because

should first be given. He thought it unwise to refuse to operate because there was a possibility of adhesions being present. He maintained that the ordinary physical signs were more important than x-ray evidence. If a case was deemed suitable for thoracoplasty this operation should not be delayed too long. Dr. Burrell said that unilateral cases were those that benefited. Since every case was unilateral at first, artificial pneumothorax should be done earlier than was the practice; there was less likehood of finding adhesions in early cases. Mr. Tudor Edwards referred to shock after thoracoplasty. In cases where the blood pressure had been taken before and after operation there was no actual fall in systolic pressure if the operation was performed under local anaesthesia. He preferred to do the operation in two stages, as most of the cases which he got were at a late stage of disease.

SECTION OF ORTHOPAEDICS.

Friday, July 27th.

THE Section of Orthopaedics held its session on July 27th, with Mr. T. H. Openshaw, the President, in the chair. Among those present during the morning was Sir William Macewen. The proceedings commenced with a discussion on the operative treatment of osteo-arthritis. The opening paper, by Mr. R. C. Elmslie, gave an able general survey of the present attitude of orthopaedists towards the subject. Mr. P. Jenner Verrall, secretary of the Section, announced that by agreement those who had promised to speak had each been requested to confine their remarks to particular parts of the subject. He then gave a short account of certain less drastic procedures. Mr. Harry Platt described the methods he employed for hip cases. Mr. McCrae Aitken spoke of manipulative measures and minor open operations. Mr. Max Page spoke of the value of arthrodesis in cases of osteo-arthritis of the hip. Mr. Rowley Bristow spoke also on hip cases, emphasizing the fact that it was constant pain which provided the clearest indication for operation. He also referred to the problem of double severe knee disease. The President spoke of the importance of climatic conditions in this disease, and the factor of spasmodic adduction in the production of pain in the hip. Sir Robert Jones spoke of the value of manipulation, especially in adducted hips and the shock of large operations, and advocated his well known operation for osteo-arthritic hips in old persons. Mr. Elmslie then replied briefly.

Mr. E. Laming Evans read a highly scientific and interesting paper on acute rachitis in late childhood and adolescence, and showed interesting slides. The subject was discussed by Mr. Elmslie. Mr. Robert Milne gave a valuable communication on the prognosis of Legg's disease of the hip, illustrated by numerous slides. The subject proved to be highly controversial; Messrs. Aitken, Platt, Elmslie, and the President took part in the discussion, no very definite consensus of opinion being reached. Mr. P. Bernard Roth spoke on the treatment of fractures of the lower end of the humerus. The subject was discussed by the President. Mr. Naughton Dunn read a paper on congenital talipes equino-varus, its prognosis and treatment, emphasizing the importance of early and complete manipulation and prolonged fixation, and insisted that in bad cases open operation should not be delayed unduly. The President discussed Mr. Naughton Dunn's paper, and went on to read a short paper on some deformities of the os calcis, in which he gave a valuable description of fractures of the os calcis and the resulting deformities and painful symptoms, and indicated the methods he employed in treating these and other deformities.

SECTION OF VENEREAL DISEASES.

Friday, July 27th.

AT the meeting of the Venereal Diseases Section held on July 27th, with the President, Sir Archdall Reid, in the chair, the subjects under discussion were the prevention and treatment of chronic gonococcal prostatitis and vesiculitis, the opening papers being read by Mr. Kenneth Walker (London) and Dr. David Watson (Glasgow). Mr. Kenneth Walker, in introducing the subject of chronic prostatitis, laid stress on the frequency with which the prostate and vesicles furnished the gate by which organisms entered the blood stream. As a rule vesiculitis and prostatitis were associated conditions and the fact that the vesicle was a horizontally placed structure lying along and closely associated with the upper border of the prostate sometimes made it difficult to differentiate a prostatitis from a vesiculitis, so that mistakes in diagnosis might arise. However, as the treatment of the two conditions was in the main the same this was not of great importance. He then went on to discuss certain points in treatment, in particular prostatic massage, electric massage of the prostate, and diathermy, vaccines, and sulfarsenol. In Mr. Kenneth Walker's opinion a definite reaction was taking place against the excessive use of instruments, particularly in posterior lesions, where they were more than likely to damage the tissues and perpetuate the disease. Dr. David Watson then discussed the prevention and treatment of vesiculitis. He said that vesiculitis was a rare disease and that there was very little field for the extensive operative measures advocated by certain American urologists. Vaccines had not proved of much use, at any rate in the later stages of the disease. The whole success of treatment in gonorrhoea lay in avoiding secondary infections and such complications as vesiculitis and epididymitis. Mr. David Lees (Edinburgh) continued the discussion and agreed that such treatment as vaccine therapy and the injections of sulfarsenol were of use in the earlier rather than the later stages of the disease. Mr. Cambell (Portsmouth) divided cases of chronic prostatitis and vesiculitis into two types—those in which the lesion was associated with no symptoms and no metastatic troubles, and those associated with symptoms and such secondary complications as iritis. Vaccines were useful in the latter rather than in the former type. Another form of treatment that he had found of use was the application of heat to the prostate by rectal irrigation. Surgeon Commander Parnell agreed that vesiculitis was a rare disease and stated that he had abandoned all vaccines except the detoxicated variety. However, by the use of the latter the average duration of complicated cases at Haslar had been reduced from 70 to 46 days. Dr. Hudson (Newcastle) spoke of the danger of using too strong antiseptics for lavage, and Dr. Eastes (London) defended the position of the pathologist and claimed that many failures in vaccine therapy were due to failure to incorporate in the vaccine all the organisms and all the strains of gonococci that were responsible for the discharge. After the readers of the opening papers had replied, Sir Archdall Reid congratulated the Section on the excellent discussion that had taken place.

SECTION OF ANAESTHETICS.

Thursday, July 26th.

A WELL attended meeting of the Anaesthetics Section was held on Thursday, July 26th, at the Municipal College, Portsmouth, under the presidency of Dr. W. J. Essery. In declaring the meeting open the President, after expressing his regret at the enforced absence of the London Secretary, Dr. H. R. Phillips, through an accident, extended a warm welcome to his colleagues from other centres. He then called upon Dr. Harold Sington (London) to read his paper on anaesthesia for children. Dr. Sington first considered the preparation of a patient before the anaesthetic, and drew special attention to the importance of examining the urine completely in every case. Owing to its great importance he considered acetonuria in some detail. He next discussed the choice of an anaesthetic, mentioning that the Great Ormond Street Hospital staff were convinced that for children ether (preceded by a hypodermic injection of atropine) would always be the anaesthetic of choice. The operation for which gas and oxygen was peculiarly well suited was that for hypertrophic stenosis of the pylorus; ethyl chloride was very useful for dental extractions in childhood. Dr. Sington next discussed various practical points in the administration of an anaesthetic to a child, and concluded with some suggestions for making the recovery as free from discomfort as possible. The paper led to a lively

is little change, or, it may be, a rise. A dose of pituitrin which in itself has little effect on blood sugar is thus capable of neutralizing the hypoglycaemic action of insulin. This observation has been confirmed by Logan and Olmsted, who have also found that it is necessary to give enormous amounts of insulin to cause any decided decrease in the hyperglycaemia which is present in decerebrate cats still retaining the pituitary gland. When this gland is absent, on the other hand, not only is the hyperglycaemia much less pronounced, as Bazett had suggested it would be, but insulin promptly lowers the blood sugar and hyperglycaemic convulsions can readily be induced.

All of the forms of experimental hyperglycaemia just alluded to are primarily due to a rapid breakdown of the glycogen of the liver, and that produced by epinephrin may therefore be taken as a type. This does not, of course, warrant the assumption that some have made, that a hypersecretion of this hormone is the underlying cause of the hyperglycaemia in the other forms. Indeed, Stewart and Rogoff have conclusively shown that such is not the case, with the possible exception of that caused by morphine. Taking epinephrin hyperglycaemia as a type, then, it seemed of interest to compare the amount of glycogen left in the livers of uniformly well fed rabbits after they had been given equal doses of epinephrin, some of them at the same time also receiving insulin. This observation, made by E. C. Noble, has shown very definitely that the insulin protects the glycogen against breakdown. In one experiment, lasting eight hours, the livers of two animals receiving epinephrin alone contained 1.40 and 1.96 per cent. of glycogen, whereas those of three others which were given insulin along with the same amounts of epinephrin contained 8.12, 6.4, and 3.64 per cent. of glycogen. It is of interest to note that it was necessary to give about forty times the usual dose of insulin to cause convulsions under these conditions, and that sometimes the convulsions occurred while there was still over 10 per cent. of glycogen remaining in the liver. The results show quite clearly that insulin antidotes the glycogenolytic action of epinephrin.

The Physiological Mechanism by which Insulin lowers the Blood Sugar.

We are now arrived at a stage where it will be advantageous to consider briefly the possible mechanism of the hypoglycaemic action of insulin. We have presented evidence that this is not because it stimulates increased glycolysis within the blood itself, and have concluded that insulin in some way lowers the tension of glucose in the tissue cells.

Further evidence that insulin causes the sugar to pass from the circulating fluid into the tissues more quickly than normal has been furnished by perfusion experiments on the isolated mammalian heart.

Hepburn and Latchford, using Locke's method, found, as previous workers have, that an average of 0.9 mg. of glucose per gram of (rabbit) heart per hour disappears from the perfusion fluid. By adding insulin to the perfusion fluid the average sugar consumption rose to over 3.0 mg., and in some cases reached the value of over 4.0 mg., the highest without insulin being below 2 mg. They did not find that insulin affected the heart beat, nor could they detect any significant differences in the glycogen content of the hearts used in the two groups of experiments.

Hoping to be able to demonstrate a similar effect of insulin on the sugar content of fluid perfused through skeletal muscles, these workers attempted to perfuse the hind limbs of various laboratory mammals, but, although every possible precaution was taken to avoid interruption of the circulation prior to starting the perfusion, or a fall in temperature, they could never succeed in preventing either marked oedema or vaso-constriction. This failure led them to compare the sugar concentration of blood removed at the same time from the femoral artery and vein, and from the portal vein, of anaesthetized or decerebrated animals, and to see whether insulin would cause the differences normally existing between these bloods to become changed. It was found not to do so. McCormack has since found that this method is also incapable of revealing an increased retention of glucose as a result of insulin, either in the muscles or in the liver of depancreated animals, in which, as we have seen, insulin certainly causes glycogen to be formed. This shows that the method is not sufficiently sensitive for the purpose for which it was employed.

The evidence of the observations on glycolysis and the perfused heart leave little doubt, however, that the glucose is lost in the tissue cells, and the problem narrows itself down to the cause for its disappearance. The possibilities that may be considered are: its polymerization into glycogen, its oxidation, and its reduction to substances similar to fatty acids.

With regard to its possible conversion into glycogen, the fact that insulin causes large amounts of this polysaccharide to become deposited in the liver of depancreated animals when carbohydrates are given would seem at first sight to lend support. But the conditions, as already pointed out, are fundamentally different in the normal organism. As a matter of fact, it has been shown that insulin given to normal rabbits, instead of causing glycogen to be deposited, has the opposite effect, and either prevents the deposition of glycogen when it is given along with carbohydrates to previously starved animals (McCormack and O'Brien) or causes the stores of this substance to become reduced when given to well fed animals (Dale and Dudley).

Further evidence that insulin does not stimulate formation of glycogen in normal animals has been obtained by Noble by perfusion experiments on the liver of the turtle. When each of the two lobes is perfused for several hours with Ringer's solution containing glucose, under exactly similar conditions except that the fluid on one side contains insulin, the relative amounts of glycogen in the two lobes were found to be the same as they usually are. Since the normal variation may be considerable, the method is not a very delicate one, and on this account Noble has also used that of observing the sugar content of the perfusion fluid, as recommended by Snyder, Martin, and Levin. By comparing this for equal periods of time, with and without the addition of insulin, no differences could be detected. The only objection to the experiment is that insulin may not act quickly enough in the case of cold-blooded animals to make it possible in the time of perfusion for measurable quantities of glycogen to be deposited.

Clearly, therefore, none of the disappearance of sugar from the blood of normal animals which follows the injection of insulin can be accounted for by its polymerization to glycogen. Why, then, does insulin cause glycogen to be deposited in the diabetic animal, and why does it inhibit the breakdown of glycogen in experimental hyperglycaemia? The reply, based on the considerations already set forth, is that an excess of insulin, beyond that actually required for the control of carbohydrate metabolism, develops towards glycogen an action which is the reverse of that which it has under normal conditions. When insulin is given to the diabetic animal, on the other hand, it supplies a previously missing agency necessary for the oxidation and polymerization of glucose. To explain the retarding effect which insulin has on glycogen breakdown in experimental hyperglycaemia, we may suppose that the sugar which is produced by this process is a mixture of active and inactive forms, and that insulin, by tending to produce the former in relative excess, disturbs the balance existing between the sugars and glycogen, so that less glycogen is broken down. This suggestion assumes some sort of balanced action between glycogen and its hydrolytic products, for which, however, there is no experimental evidence.

The possibility that glucose disappears because excess of insulin causes its oxidation to be increased has been investigated by observing the respiratory exchange.

In the experiments of Dixon, Eadie, and Pember, dogs and rabbits were used. In the former, the results show that insulin causes a very marked increase in oxygen consumption and in respiratory volume and rate, but very little change in the respiratory quotient. These changes do not, however, begin to be evident until from 30 to 60 minutes after giving the insulin, by which time the blood sugar has completed its initial fall and stands at about 0.060 per cent., which indicates that the sudden call for sugar on the part of the tissue cells cannot be attributed to its increased oxidative breakdown. There can be little doubt that the increased metabolism is dependent upon the hyperexcitability and the increased muscular tone of the animal. It reaches its acme when convulsions supervene, and it develops either steadily or intermittently. Evidently, as the tension of glucose declines, conditions become established within the nerve centres which excite them and which may be dependent upon an intracellular lack of oxygen. That the development of the symptoms depends on the lowering of the glucose tension is supported by the observation that their severity is lessened by the injection of glucose.

In rabbits, in which it will be recalled increased muscular tone is not so marked a symptom as in dogs, the increase in oxygen consumption does not set in until the convulsions occur—indeed, there is often, if not usually, a drop both in this and in respiratory volume. Sometimes in rabbits the respiratory quotient rises decidedly. It would be rash at this stage to draw definite conclusions from these results, but it is quite plain that the initial fall in blood sugar, which is primarily what we must attempt to explain, is not due to any increased combustion of glucose.

The remaining possibility that glucose is reduced to substances related to the fatty acids receives some support in certain of the observations from the behaviour of the respiratory quotient. This may rise to over unity without

to allow of the sucking of blood during the first twenty-four hours of adult life. Copulation could take place within the next twenty-four hours, and eggs to the number of forty were laid six to ten days later. The length of life of the adult female fly in nature was about two weeks, though in the laboratory life might be prolonged for thirty days or more. In the summer only a third of the life of the insect was spent in the imago stage. It had been found possible, as in the specimens shown of the living larvae and adult flies, to prolong the larval stage considerably by the retarding effect of increased moisture or lowered atmospheric temperature. Hibernation of the insect occurred in the fourth larval stage. Several larvae had been kept in this stage for six months, and then, by reducing the amount of moisture and incubating at 80° F., pupation occurred. Fully formed imagines eventually hatched out of the pupae.

The demonstration arranged by Dr. Ford Robertson comprised microscopical preparations of the diphtheroid bacillus found within neoplastic cells and cultures of this organism isolated from the primary tumours and from secondary metastatic growths.

Reviews.

INTERFACIAL FORCES IN PHYSIOLOGY.

IN his Herter Lectures on *Interfacial Forces and Phenomena in Physiology*[1] Sir WILLIAM BAYLISS brings together a large collection of most interesting data dealing with phenomena which are now held to play an intimate part in tissue activity, in the broadest sense of the term. The phenomena are for the most part, as the title indicates, those which make themselves manifest at the place or surface where two immiscible substances are in contact; the common contact surface of these two substances is referred to as the "interface."

The field covered in the course of the lectures is extraordinarily wide. The first four chapters deal with the more or less fundamental problems of physical chemistry as applied to physiology, such as heterogeneous systems in general, surface tension, and adsorption and colloids. In the chapter on adsorption stress is laid upon the relation of this phenomenon to the nature of the electrical charges on the surfaces, and in the chapter on colloids aggregation and osmotic pressure, the nature of proteins, viscosity, and imbibition are discussed. The following chapters deal with various substances and tissues of physiological importance. Chapter V deals with haemoglobin and its relation to oxygen and other gases. In Chapter VI on enzymes, their relation to adsorption and their mode of action, it is interesting to note that what is required "to control the sign of the activity of enzymes in the living cell is an effective method of changing the concentration of free water." Chapter VII deals with the properties of the membrane which covers the surface of living cells, its mode of production and the changes in activity, particularly in relation to the state of excitation of the cell. The electrical phenomena in living cells such as result from excitation are discussed in the following chapter. In the next protoplasm—that is, the cell contents—especially the part its structure plays, is examined. In Chapter X muscle, nerve, and gland, including the formation of lymph and urine and the action of drugs, are all briefly dealt with.

In a final general chapter the author maintains that physiology is a separate science which should be cultivated for its own sake and irrespective of ultimate practical applications. He deplores the fact that there is a tendency "in some quarters to confine the physiology taught to the medical student to that part of the science which is at the moment seen to be of immediate direct application to clinical practice." It may be deplorable, but the fact remains that were it not for the constant influx of medical students and the need of investigation of clinical problems, the facilities for the study of physiology would not be so ample to-day as they are. Let it be granted freely that physiology is a separate science, but it must also be admitted that the majority of those who pass through the courses have no intention of specializing in the subject.

The book in many ways is an interesting one and it is frequently suggestive, but on the whole it cannot be said to reach the high standard of excellence set by Sir William Bayliss himself. He has not given himself enough room.

[1] *Interfacial Forces and Phenomena in Physiology.* By Sir W. M. Bayliss, M.A., D.Sc., F.R.S., LL.D. London: Methuen and Co., Ltd. 1923. (Cr. 8vo, pp. ix+196; 7 figures. 7s. 6d. net.)

REGIONAL ANAESTHESIA.

IN his book *Regional Anesthesia*[2] Dr. GASTON LABAT, now of New York, states that his object is "to afford the opportunity of acquiring rapidly a practical knowledge of regional anesthesia and to teach the reader how to use the method successfully."

The book opens with a chapter on method and instructions to operating-room nurses, followed by another on general principles of technique. The cranial nerves are then dealt with, special methods of blocking are described, and a full description given of the methods of inducing anaesthesia for the various operations on the head, face, jaws, tongue, tonsils, and teeth. Methods of blocking the spinal nerves are then described, and in succession follow chapters dealing with operations on the neck, upper extremities, thorax, abdomen, genito-urinary organs, rectum, and lower extremities. Intraspinal block, or spinal anaesthesia, is described and discussed in a separate chapter, and the book ends with a general discussion of the value of regional anaesthesia. The art of regional anaesthesia is comparatively new and has hitherto, with the exception of spinal and sacral block, been but little practised in this country. Latterly dentists have to some extent taken up the subject, but in general surgery it has received scant attention. The author, as is but natural, is an enthusiast for the methods he describes, but acknowledges that a long training is required if constant results are to be obtained. No hard and fast rule as to dose can be given, as considerable judgement is required to suit the dose to the individual. Failures to anaesthetize properly are met with, but these become rarer the more practised the administrator. A special knowledge of anatomy is necessary, as the anatomy taught to medical students is of little use in this particular art. The more complicated methods, in addition, require to be first practised on the cadaver. Dr. Labat states that it is always difficult to procure adequate anaesthesia for abdominal operations where the spinal block is not employed, or where it is of use, as in upper abdominal operations. An experienced administrator will, however, succeed.

The chief advantages he claims for regional over general anaesthesia are: (1) that it is not dangerous to life; (2) that it gives complete muscular relaxation; (3) that its main effects are confined to a relatively small region of the body; (4) that by its interruption of the sensory nerve conductivity the brain is protected from the effects of local operative injury; (5) that it reduces or eliminates operative shock when combined with narcotics such as morphine and scopolamine; (6) that it does not affect the general conductivity of nerves; and (7) that it shortens surgical convalescence.

The disadvantages of the method are not tabulated by the author, but a perusal of the text will show that such exist. Among these are: (1) possible undue susceptibility to novocain, the drug recommended by the author; (2) possible failure to ensure complete anaesthesia, especially in complicated operations, thereby necessitating the presence of a general anaesthetist; (3) apprehensiveness on the part of the patient, or any unusual psychical condition; (4) nausea while under the influence of the drug; (5) syncope or faintness, etc.

Another disadvantage which suggests itself is the time taken by the anaesthetist to bring the patient to the condition required by the surgeon. In hospital practice, where a large number of cases have to be dealt with at the same session, the time lost by all these preliminary manœuvres must certainly prolong to a considerable extent the length of the session and so lead to undue strain on the operating and nursing staffs. Selected cases could doubtless be so dealt with, but were the methods to be applied to every case extra theatre accommodation and extra staff, both surgical and nursing, would inevitably be required. It is questionable whether the advantages claimed for the new

[2] *Regional Anesthesia: Its Technic and Clinical Application.* By Gaston Labat, M.D., Lecturer on Regional Anesthesia at the New York University; formerly Lecturer on Regional Anesthesia, The Mayo Foundation. With a foreword by William J. Mayo, M.D. Philadelphia and London: W. B. Saunders Company. 1922. (Roy. 8vo, pp. 456; 315 figures. 35s. net.)

Winter and Smith. The insulin prepared from these sources appears to differ from that prepared from pancreas, in that its action in lowering the blood sugar is delayed, sometimes for a day or so, which is also the case with an insulin-like substance prepared by Collip from various vegetable sources, and styled by him, in recognition of these differences, "glucokinin." Best and Scott have also succeeded in preparing insulin, or insulin-like substances, from various other sources. It would appear, therefore, that the distribution of hormones capable of accelerating the disappearance of glucose from the blood is widespread, not only in the animal kingdom but in the vegetable as well; it is probable, however, that these do not all have the same physiological action. In the investigation of this we must bear in mind that many substances have been known for long to be capable of lowering the blood sugar—for example, peptone, hydrazin, certain mineral salts, phloridzin, etc. All of these also cause glycogen to disappear from the liver, and indeed certain of them cause structural changes in this organ. Although it would certainly be desirable to have substances like glucokinin having a more prolonged action than insulin in depressing the blood sugar, we must exercise some caution in recommending them for clinical use until it is certain that they have no deleterious effects on the liver. It is possible also that these substances merely stimulate the secretion of insulin from the pancreas of the animal into which they are injected, or serve as precursors for its production. If such be the case, then they can have little value in diabetes.

I have endeavoured in this review to adhere strictly to ascertained facts, and have refrained from venturing to speculate with regard to the numerous problems in metabolism, both of animals and plants, for the investigation of which insulin may prove a useful instrument. If I have succeeded in giving a bird's-eye view, as it were, of the results that have been obtained, I shall consider that my efforts have not been in vain, and I shall feel repaid if, as an outcome, others join us in the work on insulin.

REFERENCE.

[1] G. S. Eadie: BRITISH MEDICAL JOURNAL, July 14th, 1923, p. 60.

THE RELATION OF FAULTY NUTRITION TO THE DEVELOPMENT OF THE EPITHELIOMA CONTAGIOSUM OF FOWLS.

(*With Special Plate.*)

BY

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EPITHELIOMA CONTAGIOSUM (avian variola; fowl-pox; chicken-pox; epitheliosis; pigeon-pox; canker) is a disease of birds which has been described as follows:

It is characterized by "the appearance of wart-like nodules, varying in size to that of a pea, or slightly larger, on those parts of the skin of the head where feathers are few or absent, such as the nostrils, openings of the ears, the comb, wattles, and the eyelids, the last named being one of the most common sites. The nodules are encapsuled, firm in consistence, with a caseous centre, and usually remain discrete, but a number situated closely together form a mulberry-like mass. In some cases the contents resemble fatty tissue, except for being more vascular; in others they are warty and contain flakes of coagulated material very much like small clots of milk. Lesions are also found on the buccal mucous membrane, the affected parts of which become covered with thick whitish-yellow exudate, in appearance resembling that of diphtheritic false membrane."[1]

"Marx and Sticker, in 1902, demonstrated that the disease was due to a virus which was capable of passing through a Berkefeld filter, and their results were confirmed by Juliusberg and Hertzog. Burnet, however, obtained very varying results in his filtration experiments. He found that the virus was frequently arrested by the Berkefeld filter, although the infective material had been largely diluted with water. It has not been possible to cultivate the virus artificially, and its nature remains a matter for further investigation. It exists in the blood, internal organs, and in the fluids expressed from the lesions, and is possessed of considerable resistance to the action of heat* and antiseptics. The disease can be transmitted by rubbing juice from the lesions into an area of skin from which the feathers have been removed, or which has been lightly scarified, and the lesions then produced are confined to the part inoculated. According to Burnet, it can also be transmitted by intravenous inoculation and by feeding, and the lesions develop at the predilection seats of the disease."[1]

"The microscopic examination of the epithelioma of the skin shows, according to Polowinkin, the epithelial layers thickened and the epithelial papillae elongated inward; in the papillary layer the vessels are dilated and, like those of the subcutis, surrounded by migrating leucocytes; in addition there are small haemorrhages into the tissue of the papillary layer. Cell-inclusions are found in the swollen epithelium, similar to Guarnieri's pox-bodies (Loewenthal, Burnet). In a general way the characteristic features of the efflorescences are composed of a more or less pronounced hyperplasia and proliferation of the cell elements of the skin, which sooner or later succumb to degeneration. This is associated with the extension of the process to the external skin and there follows a condition which, according to Reischauer, is similar to true pox; the difference lies mainly in the fact that in bird-pox the more chronic character of the disease causes the nodular and tumour formation to predominate."[3]

My purpose here is to record the occurrence of epithelioma contagiosum in pigeons under conditions which indicate that nutritional factors may play an important part in its development. The observations have another and a more general interest, inasmuch as they tend to show that a certain state of faulty nutrition, and of deranged metabolism, favours the entry into the body and the activity of an invisible virus possessing the specific property of inducing epithelial new growth.

Experiment.

Polyneuritis columbarum was produced in a number of pigeons by exclusive feeding on washed milled rice. Twelve of them were "cured" at the height of the disease by artificial feeding with green *mung dal*. Within forty-eight hours of the disappearance of polyneuritic symptoms they were placed in an open-air pen with sixty healthy stock birds, and had access to the mixture of grains found to be most suitable, in this climate and at this altitude, as a stock food for pigeons. It consists of one part of green *mung dal*, one part of *ragi*, and four parts of *cholum*. Thus, the birds, after the cure of the polyneuritis, received a food containing a sufficiency of vitamins and other essentials for their maintenance in perfect health. Owing to their poorer nutrition when put into the stock-pen, they were less able to protect themselves against attack by their more lusty companions. The lessened ability to escape injury and to recover from it is an important effect of faulty food on the animal organism, and in this instance abrasions about the head—the most frequent seat of injury—appear to have favoured the entry of the virus of epithelioma contagiosum. In general, then, the twelve "cured" birds were more subject to injury than their fellows. Nevertheless, as weeks passed they appeared to prosper; their plumage improved and their body weight rose. Six weeks to three months after they were put into the stock-pen seven out of the twelve developed epithelioma contagiosum (Fig. 1), while their sixty healthy well fed companions remained free from it.

The growths occurred about the angles of the mouth, on the eyelid, the nostril, in the neighbourhood of the ear, and in the floor of the mouth beneath the buccal mucous membrane (Fig. 1). Their histological characters are shown in the photomicrographs (Figs. 3 to 6). The epithelial downgrowths stimulated in appearance those seen in such a condition as carcinoma of the penis in man. The epithelial new growth was infiltrative to a limited extent, had local destructive properties, and its cells tended to undergo rapid degeneration.

The nodules were emulsified, and the emulsion was rubbed into lightly scarified surfaces at the angle of the mouth of six healthy and well-fed pigeons. In two of these diphtheritic false membranes developed, and one of them died from the extension of the false membrane backwards, resulting in interference with swallowing and in involvement of the air passages; the second recovered. The other four were unaffected. In none did the inoculation of the emulsified nodules cause infiltrative new growth of epithelium. It would seem, therefore, that these well nourished birds were resistant to the influence of the growth-inducing virus, since those affected by its inoculation exhibited only superficial lesions. It appears likely that the virulence of the virus was not great; it was great enough to cause typical lesions in birds whose nutrition was faulty, but not so great as to be capable of causing infiltrative lesions in healthy, well-nourished birds.

*In this respect resembling the growth-promoting substance evolved during the process of autolysis of tissue cells.[2]

danger of infection is greatest five days before the rash appears and five days after.

A very informing chapter on milk is contributed by Mr. H. M. Lancaster. It contains the text of the Canadian regulations with respect to the production and distribution of milk. Pasteurized milk, when delivered to the consumer, must not contain more than 100,000 bacteria per cubic centimetre. In Ontario the term "pasteurized" must not be applied to any milk unless it has been subjected for at least twenty and not more than thirty minutes to a temperature of not less than 140° F. and not more than 150° F., and then at once cooled to 45° F. or under and kept at that temperature till delivered to the customer. Dirty milk or milk from diseased cows is not permitted to be pasteurized. The chapter on public health organization in Canada should prove of interest to public health administrators in this country. In Ontario the local medical officer of health has permanency of tenure to the extent that he can only be dismissed from office with the approval of the Provincial Board of Health. The expenses incurred by medical officers of health in attending an annual conference are borne by the municipality.

A very well arranged index adds to the value of a work which is essentially one of reference, and the large number of excellent illustrations are helpful in elucidating the text.

ENLARGEMENT OF THE PROSTATE.

A COMPARISON of the first edition of Dr. J. B. DEAVER'S *Enlargement of the Prostate* with the second[5] helps one to realize how great has been the progress achieved by genito-urinary surgery during the last ten years. In the first edition the statement appears that operation should only be advised for enlargement in those cases in which palliative measures have been tried without success. In the new edition operation is urged in all cases of enlargement unless some special contraindications, such as severe renal lesions or cardiac complications, exist.

It is in the section of the work dealing with operative methods that the most marked changes appear. With regard to the pathology and the causes that lead to enlargement of the prostate very little new knowledge would appear to have been gained. Diagnosis, however, has been rendered more exact by a clearer knowledge of the cystoscopic appearance of the condition. Notable additions appear in the chapter dealing with intraurethral operations for the relief of obstruction at the vesical outlet, such as contracture of the vesical neck, median bar formations, submucous fibrosis, and hypertrophy of the submucous glands. Dr. Deaver is not an enthusiastic advocate of intraurethral methods of treatment, and prefers to open the bladder and deal with the obstruction by the suprapubic route rather than to employ diathermy or division of the obstructing tissues by means of a punch. Another point on which the author lays emphasis is that when the obstruction is found to be due to a ball-valve enlargement of the prostate without any increase in size of the lateral lobes total enucleation is unnecessary, all that is required being the removal of that portion of the prostate that is responsible for the obstruction. He sounds a note of warning against attempting to do too much to some of the decrepit old men who apply for relief. "Their tenure of life is slight, and pressing our manipulations too far may at any moment loose the silver cord, and instead of curing the patient by a brilliant operation we shall have killed him by meddlesome, injudicious surgery." There are many who will agree that this warning is not entirely unnecessary. In discussing the relative merits of the suprapubic and perineal operations the author says that no genito-urinary surgeon can afford to confine his attention to either operation, but must be prepared to employ both. It is true that by the suprapubic route the majoriy of prostates may be removed, but there are always some for the removal of which the perineal operation is better suited.

An interesting chapter is that which deals with operative mortality; it is of great interest to note the different rates reported by the recognized leaders in prostatic surgery and those obtained by less experienced hands. If ever a justification were required for the recognition of urology as a definite branch of medicine and surgery these figures alone would supply it.

Altogether Dr. Deaver's book is one of the completest and most carefully compiled works on the subject of prostatic enlargement that has ever appeared. It is a book that should be of interest to all surgeons, but more especially to those engaged in genito-urinary work. The author has been ably assisted in his work by his collaborator Dr. LEON HERMAN.

ABDOMINAL PAIN.

OF books on abdominal pain one of the best and certainly one of the most successful is Professor NORBERT ORTNER'S. It is a large work containing upwards of 400 pages, and first appeared in 1917. It is now in its third edition.[6] Some few weeks ago (May 5th, 1923, p. 770) we published a review of a book entitled *Abdominal Pain*, by Dr. Brams, late of the United States Army Medical Corps, and Dr. Luger, one of Professor Ortner's assistants. This was at once a translation and a condensation of the second edition of Professor Ortner's rather encyclopaedic volume. The original bears very fully the mark of the author's personality. We gather that he is an extremely careful clinician. He is one of those rare, but not always happy, people who remembers every possibility. It has been said that success in diagnosis depends not alone on the possession of a well stored memory, but rather on the faculty of recalling things known at the right time. It is obvious, however, that in order to be a good diagnostician one must first possess a wide knowledge of facts. When dealing with the abdomen, these must relate not only to the organs contained within the peritoneal cavity, but also to those within the thorax. The importance, for instance, of pulmonary and vascular lesions is not to be minimized. The reader of Professor Ortner's book is not likely to be allowed to forget anything. The symptomatology of thrombosis of the portal vein, of the aorta, rupture of the auricle, and so forth are all paraded for our inspection. This method of including everything possible has had its share of ridicule, and it is undoubtedly stupid when badly done. But when done well, as in this case, it must command our respect.

It would be doing Professor Ortner an injustice were we to give the reader the impression that the book was anything but a very able and clear exposition of the varieties of abdominal pain and of the significance of various types of pain. Professor Ortner has studied his cases carefully. Very brief case histories are sometimes included in the text in order to drive a lesson home. The chapter headings are arranged very conveniently on a regional basis. Thus under epigastric pain the reader will find a reference to every lesion, whether abdominal, thoracic, or spinal, which can give rise to pain in that situation. Professor Ortner makes his reader grasp the fact that it is only when a particular pain is the chief manifestation of a disease that that disease becomes important and diagnosable. To take tabes as an example: epigastric distress in a patient presenting every other sign of tabes or long known to be a sufferer from that disease is often not worthy of special record. It is only when epigastric pain is the outstanding symptom, and when in particular it occurs in a patient not suspected hitherto of tabes, that a problem is set the examiner for his solution.

OLD AGE.

A Green Old Age[7] is a translation of the second edition of Professor A. LACASSAGNE'S medical summary of old age, and represents the mature conclusions of a distinguished physician now an octogenarian. Its matter is full of interest, but Mr. HERBERT WILSON'S translation leaves room for improvement, and sometimes arouses the suspicion that

[5] *Enlargement of the Prostate.* By J. B. Deaver, M.D., LL.D., Sc.D., F.A.C.S., assisted by L. Herman, B.S., M.D. Second edition. London: J. Bale, Sons, and Danielsson, Ltd.: Philadelphia: P. Blakiston's Son and Co. 1923. (Med. 8vo, pp. xii + 353; 141 figures. 7 dollars.)

[6] *Klinische Symptomatologie innerer Krankheiten.* Erster Band, erster Teil: *Bauchschmerzen (Schmerzhafte Bauchaffektionen).* Von Professor Dr. N. Ortner. Dritte, verbesserte Auflage. Berlin and Vienna: Urban and Schwarzenberg. 1923. (Sup. roy. 8vo, pp. viii + 453.)

[7] *A Green Old Age.* By Professor A. Lacassagne. Translated by Herbert Wilson from the second French edition. London: John Bale, Sons, and Danielsson, Ltd. 1923. (Demy 8vo, pp. xiv + 321; 17 illustrations. 15s. net.)

FIG. 1.—Intradural tumour.

FIG. 2.—Extradural tumour.

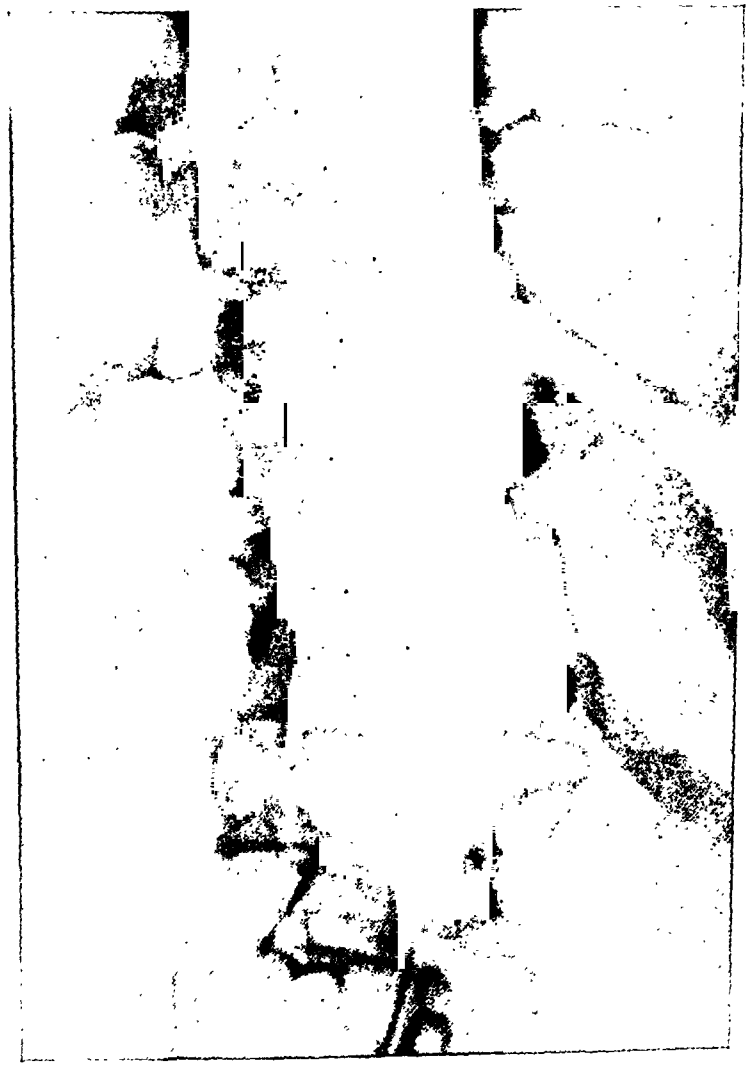

FIG. 3.—Fracture of first lumbar vertebra.

sponding increase in the cells. The Lange colloidal gold test is illustrated by four coloured plates showing the reaction in tabes, general paralysis of the insane, tuberculous and meningococcic meningitis. This edition fully maintains the value of the book as a work of reference.

Mr. ZACHARY COPE'S little book on *The Early Diagnosis of the Acute Abdomen* has, of course, run into a second edition[11]; and this despite its title, to which some have taken exception. Perhaps, as medical students to-day have so limited a curriculum and so much time on their hands, they would benefit by a six months' course of lectures on nomenclature; but there is no "perhaps" about the benefit they will reap from six hours spent in reading these pages. A rereading after less than two years confirms the first impression of sound sense, simple description and no padding. Every house-surgeon should possess a copy, and if every man and woman who may have the care of acute abdominal emergencies would study such a work with zeal there would not be, in 1924, the 6,898 deaths from acute appendicitis, intestinal obstruction, and hernia recorded by the Registrar-General in 1921.

The object of Professor F. E. WYNNE'S little book *Ductless and other Glands*[12] is to give a popular account of their nature and functions for the enlightenment of the general reader and to prevent him from being carried away by sensational newspaper reports—for example, of rejuvenation by transplantation of glands. Whether in this instance a little knowledge is useful may be doubted, and in spite of the author's efforts the lay public may find difficulty in following the argument. Some of the statements are open to question—such as that the pineal gland is concerned with the metabolism of sugar, that the thymus is an endocrine gland, that the fat boy in *Pickwick* is a well observed clinical study of thymus deficiency, and that nettle-rash will be found to depend to a great extent on adrenal disorder. After quoting some cases of acromegaly observed by him in Dublin, there is the following charmingly ambiguous sentence: "Ireland has suffered from many victims of acromegaly, mostly cases in which the swelling has been limited to the head."

Dr. CHARLES FIESSINGER has written for the use of the general practitioner a practical and readable book, the outcome of forty years' experience, on prognosis.[13] An introductory chapter, in which the principal laboratory methods, including examination of serous fluids, blood, urine, cerebrospinal fluid, and sputum are described, is followed by others on prognosis in diseases of the nervous system, the alimentary canal, liver, and pancreas, in infectious diseases, in respiratory disorders, in diseases of nutrition, especially diabetes, and in cardio-vascular diseases. In dealing with each group the author considers the prognosis according to the age of the patient, the symptoms, complications, forms of the disease, and the treatment adopted. A special chapter is devoted to diseases without prognosis—that is, those on the one hand which have a natural tendency to recovery, among which he enumerates acute tonsillitis, acute bronchitis, nervous dyspepsia, membranous enterocolitis, and certain eruptive fevers, such as varicella; and on the other, those which are inevitably fatal, such as malignant diseases of lung, liver, and pancreas.

As a "first lines" to the subject *Nursing of Diseases of the Eye*,[14] by the matron of the Royal Sussex Eye Hospital, can be safely recommended; there was need for a cheap book on this subject and the work admirably meets the want; those who wish to study theory more fully can buy one of the larger and more expensive books on the subject, but this little work contains a great deal of excellent advice in a small compass and should prove valuable to those who have to spend even a few months of their career nursing in the eye wards of a general hospital. The opening chapters on the structure and diseases of the eye are simply written and give as much information as it is necessary for a nurse to be possessed of. A chapter on the general nursing of eye cases is followed by one on methods of treatment and one on theatre work; lists are given of the various instruments required for operations on the eye and illustrations of the more important of them.

[11] *The Early Diagnosis of the Acute Abdomen.* By Zachary Cope, B.A., M.D., M.S.Lond., F.R.C.S.Eng. Second edition. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1923. (Demy 8vo, pp. xvi + 225; 23 figures. 12s. 6d. net.)

[12] *Ductless and other Glands: A Popular Account of their Nature and Function.* By F. E. Wynne, B.A., M.B., D.P.H., Professor of Public Health, Sheffield University. London: George Allen and Unwin, Ltd. 1923. (Cr. 8vo, pp. 127. 4s. 6d. net.)

[13] *Les Pronostics du Praticien en Clientèle.* By Ch. Fiessinger. Paris: Maloine et Fils. 1923. (Cr. 8vo, pp. 321. Fr. 10.)

[14] *Nursing of Diseases of the Eye.* By Jessie Elms, A.R.R.C. London: The Scientific Press, Ltd. 1923. (Cr. 8vo, pp. 70; illustrated. 2s. 6d. net.)

INTERNATIONAL CONGRESS OF SURGERY.

(*Concluded from page 117.*)

SERO-THERAPY AND VACCINO-THERAPY IN SURGERY.

IN the absence of Major Parker Hitchins of Washington, Dr. MICHEL (Nancy) opened the discussion by reading the paper of Dr. Bazy of Paris. Although knowledge of the general action of serums and of vaccines, and of their paraspecific effects in such a phenomenon as Widal's colloidoclasic shock, was important in modern surgery, they would not be able to make full use of the resources offered by sero-therapy and vaccino-therapy unless they realized to the full the value of specificity. Immunity and specificity were inseparable terms, and they could not confer real and durable immunity without specific intervention. Apart from serums having an especially antitoxic effect, such as anti-tetanic and antigangreno serum, most of the serums used in surgery were uncertain in their effect, at least as regards general infections. It was therefore advisable to draw attention to local applications of sero-therapy and to point out that injections of serum were less and less productive of effects as they were repeated. They should be reserved for cases of extreme need and used as a last resort. The use of vaccines was to produce in the organism a state similar to the condition it would be in if there had been a natural attack of the illness in question. This went to show that in surgery vaccination could not be claimed to produce any practical results, because surgical infections, when healed, did not confer immunity. Vaccino-therapy was chiefly used, and this consisted of the treatment of an illness during the stages of its development by means of the germ, more or less artificially modified, of the malady. Another method was to try to get a mixed immunization by a concurrent use of serums and vaccines, which they might call "sero-vaccination." Serum was a medicament to be used in cases of urgency, not as a curative remedy but to obviate infection and to produce a quick effect, not necessarily lasting. With vaccines only slow effects were to be looked for, but their effects remained longer. Sero-therapy and vaccino-therapy were of valuable assistance to the surgeon when operating. They were also to facilitate surgical treatment or to localize it; but neither serums nor vaccines were of any use in cases of necrosis or cicatricial lesions. The greatest attention should be paid to signs of susceptibility to microbes on the part of germ-bearers, for most cases of operation shock were caused by the sudden and startling development of an organism. The skilful use of vaccines and serums enabled them to anticipate this susceptibility and to counteract it.

Mr. D. P. D. WILKIE of Edinburgh said that happily infection after operation was rare, but the patient was especially liable to this complication after operations on the lower part of the alimentary tract. In fatal cases the organism found was usually a streptococcus; in cases which recovered it was the colon bacillus. If an animal were given two injections of a vaccine and thereafter an intraperitoneal injection of the organism sufficient to kill a normal animal, it lived. It could stand one and a half times a lethal dose. If it had been given a vaccine on two occasions, followed the night before the intraperitoneal injection by an injection of nucleic acid, it could stand three times the lethal dose. In patients undergoing a major operation on the lower intestine he gave, ten days before the operation, an injection of vaccine of streptococci and colon bacillus; three days before the operation he gave a second dose, and on the night before 8 c.cm. of 2 per cent. nucleic acid—this produced a leucocytosis of 12,000. He had done this on 63 cases where infection might be expected. There had been two deaths—in neither case apparently due to infection. It was a comfort to him, when a death occurred, to think of the animals upon which he had done intraperitoneal injections—those without the preliminary vaccines cold and dead the next morning, the others sitting up and eating their food.

Sir ALMROTH WRIGHT of London said that they should ask for what purpose might vaccine therapy be used. The

over-exposed to x rays, then x-ray burns would provide a combination of factors favourable to the development of epithelioma analogous to that which caused the development of epithelioma contagiosum in pigeons—injury, disturbed nutrition of cells, and the possible presence of a conjecturable growth-promoting factor.

Having regard to the profound degenerative changes which are produced in the gastro-intestinal tract by faulty food deficient in vitamins,[4] and to the ease with which, in these circumstances, harmful substances may find their way into it, or may be formed in its contents, it is possible to suppose that among these substances there may, at times, be some possessing growth-inducing properties. In this connexion attention may be drawn to the occurrence of a carcinoma of the pylorus in an early stage in one of my monkeys fed on a diet of autoclaved food, butter, and onion.[4] Although I cannot affirm that this carcinoma had actually developed within the period of the experiment, yet the observation is to be borne in mind in connexion with the considerations raised in this paper.

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RADIOGRAPHIC LOCALIZATION OF SPINAL LESIONS BY SICARD'S METHOD.*

(*With Special Plate.*)

BY

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DURING a recent visit to Paris Professor Sicard kindly demonstrated to me his method of localizing certain spinal lesions by radiography after injecting an opaque fluid into the spinal theca. It provides us with a new means of diagnosis of great value.

Briefly, Professor Sicard's method is as follows. A small quantity, between 1 and 2 c.cm., of lipiodol is injected into the spinal theca through a suboccipital puncture, the patient being in a sitting posture. Lipiodol is a heavy oily fluid consisting of "huile d'oeillette" containing 40 per cent. of iodine, and is remarkably opaque to the x rays. The lipiodol sinks slowly downwards and is arrested at any point of occlusion of the spinal theca, so that the upper limit of a tumour, for instance, can be accurately demonstrated by x-ray examination. Similarly the lower limit of such a tumour can be shown by injecting the lipiodol through a lumbar puncture, and taking a radiogram with the patient in the head-down position. The three cases in which I have employed this method are as follows:

CASE I (*Under the care of Dr. M. A. Cassidy*).

An intrathecal neurofibroma compressing the cord at the level of the ninth thoracic segment. The curved lower border of the shadow defines clearly the rounded upper surface of the tumour (Fig. 1). The two small shadows situated lateral to the main mass mark the position of a posterior root ganglion. The tumour was removed, and the patient made a rapid and uninterrupted recovery.

CASE II (*Under the care of Drs. H. G. Turney and A. E. Russell*).

An extrathecal endothelioma at the level of the eighth thoracic segment. The radiogram (Fig. 2) showed the lipiodol to have been completely arrested at the level of the body of the sixth thoracic vertebra. In this case the neurological signs were such as to render it doubtful whether the case was one of spinal compression at all, whilst at the same time the exact segmental level was difficult to define. The radiographic examination immediately and almost dramatically settled both these questions. Laminectomy was performed and the tumour was removed.

CASE III.

Fracture-dislocation at the level of the first lumbar vertebra. Here the radiogram (Fig. 3) shows the narrowing of the spinal canal and the upper limit of thecal occlusion. It also shows small droplets of lipiodol arrested at various points, probably demonstrating the presence of arachnoidal adhesions.

Even from these few cases the value of Sicard's method is obvious. Not only can it be employed to ascertain whether or not a block exists in the spinal theca, but it shows the exact position of the lesion with relation to the bones. From the operative standpoint the localization is more accurate than that which can be arrived at by neurological examination. Neurological signs may enable the segmental level to be accurately determined, but the exact position of any given spinal segment with relation to the bones is by no means easy to ascertain. Consequently a radiographic demonstration of the relation of the lesion to the vertebrae is of great value, and enables a tumour to be exposed by the removal of perhaps only three laminal arches. If, the upper limit of a tumour having been defined, a second examination is made by taking a radiogram with the patient placed head downwards after injecting lipiodol through a lumbar puncture, the lower limit of the tumour can also be demonstrated. This is a point which cannot be ascertained by neurological examination, but it is a matter of considerable importance to the surgeon, since tumours extending over many segments are sometimes encountered.

I am indebted to Sir Archibald Reid and Dr. Fildes for the excellent radiograms from the radiological department of St. Thomas's Hospital.

*A paper communicated to the Section of Surgery at the Annual Meeting of the British Medical Association held at Portsmouth.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A LONG PAROXYSM OF AURICULAR FIBRILLATION.

MRS. M., now aged 74, was seized on November 15th, 1919, with right hemiplegia and aphasia. The pulse was hard, regular, and slow. Early on November 17th she became faint with cold clammy skin, and later in the day it was found that auricular fibrillation had set in, the pulse rate averaging 130. On November 24th this attack ceased, and the pulse was regular at 64. On December 3rd fibrillation once more appeared, and its onset was apparently associated with the same symptoms of heart failure as before. From this time onward till July, 1921, a period of eighteen months, she was seen at first weekly and later about once a month, and during the whole of this period the pulse remained quick, and wholly irregular. At my July visit the pulse was found to be regular at 60 a minute. Since that date she has had three paroxysms of fibrillation, each of a few days' duration, and each time she has become collapsed and somnolent at the onset of the attack. When the heart is regular, the rate is slow (50 to 60), and the symptoms of heart failure at the commencement of fibrillation are doubtless dependent on the great increase of rate. As she is constantly in bed she apparently becomes inured after a time to the defective circulation. The polygraph curve during an attack shows a wholly irregular pulse without accurate spacing of the beats, such as is found in the irregular pulse of auricular flutter.

It is well known that a paroxysm of auricular fibrillation may continue for some months and then cease (Mackenzie), but it is probably very unusual for an attack to last as long as a year and a half. It seems fair to assume that during the whole of this period fibrillation was present even though the patient was seen only once a month during the latter part of the period. The onset of tachycardia is always associated with the prominent symptoms of heart failure, and these would almost certainly have been observed and reported to me by her daughter had there been any return of the normal rhythm followed by a fresh paroxysm.

E. E. LASLETT, M.D.

Hull.

might suppose that the oxidation electric wave would pass down the nerves from the area of higher potential in the brain to the area of lower potential in the muscles and glands, and since the liver had the lowest rate of oxidation—hence the lowest potential—the current would finally reach that area, whence it would return through the electrolytic system to the brain, thus completing the circuit.

The following facts were interpreted by the hypothesis that the body as a whole was an electro-chemical mechanism, the positive pole being the brain; the negative the liver; the connecting wires the nerves; the salts in solution the electrolytic fluid in which the electro-chemical mechanism was immersed.

(*a*) When either pole—that is, the liver or the brain—was removed or destroyed, the organism perished.

(*b*) If the difference in potential within the cells, no less than the difference in potential between the poles (the liver and the brain), was dependent on the supply of electricity by oxidation, then, if the organism was deprived of oxygen, the existing difference in potential within the cells and within the organs was lost and equilibrium or death was established.

(*c*) Since the speed of chemical action and the electric conductivity were fundamentally controlled by heat and cold, it followed that in an electro-chemical mechanism there must be an optimum temperature as well as a lethal cold and a lethal warm temperature. Abdominal surgery in the colder months in unwarmed front area huts illustrated this point by a forbidding mortality rate.

(*d*) The opposite effects of stimulation and of exhaustion on the temperature and on the electric conductivity of the brain and of the liver, the muscles and other tissues in the splanchnic area would be explained by the conception that the driving power depended upon the difference in potential between the brain and the liver, muscles and other organs. Hence, if a stimulus caused only the potential of the brain to rise and the liver remained unchanged, the difference in potential, hence the driving power, would be correspondingly less.

All these conceptions had a practical application in the treatment of shock. For the last two years treatment of patients in their clinic had been based upon the suppositions that the difference in potential between the nucleus and the cytoplasm of the cells, as well as between the essential organs of the electro-chemical system, must be maintained. The following had been their main principles:

1. The organism needs an abundant supply of water.
2. An abundant supply of oxygen must be delivered to the cells.
3. The permeability of the selective semi-permeable membrane must be maintained within normal range.
4. Both the local and general temperature of the body must be kept at or near normal.
5. An abundance of mental and physical rest and an abundance of sleep are essential.
6. The physical structure of the cells must not be impaired by the indirect effects of the trauma of the operation nor by the anaesthetic.

Every patient should be treated individually. The practical application of the above principles was thus achieved. In "bad risk" cases nitrous oxide-oxygen analgesia (not anaesthesia) was employed together with local anaesthesia. The trauma of the operation was divided. In cases of hyperthyroidism, if the operation produced an exacerbation of the symptoms the operation was stopped at any point, the wound packed open with flavine or sterile gauze, and closure delayed. Water was urged by every route, and to ensure the readiest possible hydration of the cells 3,000 c.cm. were routinely given by hypodermoclysis by Bartlett's method. Oxygenation of the cells was promoted by the transfusion of whole blood before operation, during operation, and after operation, according to the indication. To assure the maintenance of an adequate circulation—which was essential to the supply of water and oxygen to the cells, digitalis was administered as a routine in those cases in which the myocardium was impaired, a condition most commonly seen in cases of hyperthyroidism. Rest and sleep were promoted by control of the environment and by narcotics, except in the presence of an already depressed liver function, as in jaundice, for the function of both the brain and the liver was depressed by narcotics, especially by morphine. In abdominal cases moist hot packs were applied immediately after operation for the support of the liver cells. The environment of the patient was controlled from his entrance to his exit from the hospital. With the gradual extension of the application of these measures based upon the electro-chemical conception the mortality rate of every type of case had been diminished, and the operability had been extended until now no case was considered inoperable unless the stage of final dissolution was initiated.

Dr. Mocquot (Paris), speaking also for Dr. Quénu and Duval, gave in addition to the recognized type a description of a type of mitigated shock, often met with in ordinary surgery, caused, like the former, by attrition of the tissues, and which required to be dealt with by means of similar therapeutic treatment; it outlined a new chapter in surgical pathology. The prognosis of traumatic shock might be calculated by the central temperature, the analysis of the arterial tension, and by the analysis of the urine and the blood. The recovery of the urinary function, a discharge of urea and the diminution of azotaemia were the best signs of a favourable prognosis. The therapeutic treatment included prophylactic measures and the treatment of the shock when such had been ascertained to exist. Prompt medical and surgical treatment was a *sine qua non* of prophylactic care. The best surgical treatment consisted in the excision of the wound; immunization by means of an anti-shock serum had not yet given proofs of its efficiency, at least from a clinical point of view. The treatment of an ascertained case of shock might be either symptomatic or causal. The former was especially useful as a means of first aid. Causal treatment was founded on the new notion of the shock. The shock was an intoxication the seat of which was the traumatic lesion; it was consequently there that their efforts were required. Theoretically, what was required was the excision of the wound where the noxious albumins had their rise. Practically they were confronted with two sets of circumstances, according as the limb affected should or should not be amputated. In the latter case they should have recourse to amputation. In the former case the treatment should consist of a thorough excision of the wound, and the devitalized parts should be cut off as far as possible; in any case, the seat of the malady should be thoroughly cleansed. The future progress of the wounded subject depended principally on prompt treatment. A few technical details should be emphasized: The operation should be as quick and simple as possible. The wound should be sprinkled with a hypertonic solution, and no attempt should be made, in the beginning, to bring the edges of the wound together. The choice of the anaesthesia and the anaesthetic had not yet been settled, and required that further researches should be undertaken.

Mr. FRASER of Edinburgh divided our knowledge on the subject of shock into two periods: (*a*) to the end of 1915, and (*b*) subsequent to 1915. During the first period many theories as to its cause had been propounded. Crile and Mummery argued that sensory stimuli produced a rise in blood pressure from the irritation of "pressor" nerves, and that finally the vasomotor system became exhausted. Then followed dilatation of the peripheral vessels and a fall of blood pressure. But it had been demonstrated that the vessels in shock were contracted, and that even in the profoundest shock the vasomotor centres were not exhausted. Yandell Henderson, in his acapnia theory, assumed the sequence: hyperpnoea, acapnia, failure of the vasomotor pressor mechanism, fall of blood pressure, and possibly a secondary concentration of the blood (oligaemia). Boise regarded the fall of blood pressure as being secondary to a cardiac condition, and Meltzer believed that the stimulus of injury resulted in an inhibition of the functions of the spinal cord. The second period of investigation coincided with the European war. Mr. Fraser's definition of shock was "a state of depression of all the vital functions of the body, the state being primarily induced by the infliction of injury on the body tissues and being characterized by a progressive fall of the blood pressure." He then gave a graphic picture of the well known clinical condition. The problem was to explain the progressive fall of blood pressure. Other symptoms were secondary to this. In health there were three factors maintaining the blood pressure—the heart, the vasomotor mechanism, and the blood stream. There was no interference with the nervous mechanism of the heart even in profound shock, and Mann had shown that apart from myocardial disease an efficient contraction of cardiac muscle could be guaranteed so long

the patient had much glycosuria; but if very bad 50 grams of sugar should be given and 60 units of insulin; but as much as 140 units might be required in the twenty-four hours. If the patient had glycosuria, blood sugar estimation was not essential; but if sugar-free, an occasional estimation was necessary for the control of the dose. It was possible to preserve blood for sugar estimation by adding one drop of formalin to 5 c.cm. oxalated blood.

Dr. J. A. Nixon (Bristol) said that this was a very memorable discussion; he spoke of insulin perhaps prematurely, but certainly enthusiastically. He would like to know if a patient was any better for being sugar-free when he had a high blood sugar; mere glycosuria was not a sufficient guide in treating patients. Was such a patient safe when gaining in weight and in sense of well-being? Provided the sugar threshold was known, if glycosuria occurred with a normal blood sugar it might be said that glycosuria was the safest point. But were patients with hyperglycaemia safe to send out of hospital for treatment? Dr. Nixon recounted the case of a patient who had had 20 units of insulin daily for three days, and then developed temporary aphasia in which repetition of syllables occurred; he was given glucose, and talked moderately well in two days. He had had angina pectoris before this. Was this a symptom of hypoglycaemia? Another patient complained of tingling in the lower limbs and swelling in the feet. Was this due to hypoglycaemia? He considered Woodyat's formula of the greatest value in adjusting the minimal adequate diet. Should insulin be given to a true diabetic with a high sugar tolerance? Dr. John Rennie (Glasgow) referred to the treatment of ten cases, in all of which an attempt was made to get them sugar-free by dieting before commencing treatment with insulin. As a rule the chronic cases with a low tolerance did well. With sugar and acetone present in the urine blood sugar estimations were not necessary, and in cases showing much acidosis the urinary sugar might be neglected. On a constant carbohydrate intake the insulin might perhaps be reduced and the tolerance partly restored. He had been unable to find any experimental evidence that insulin was absorbed through the skin. Dr. E. P. Poulton (London) had tried to determine if there was any increase of sugar tolerance in mild cases—that is, those which became sugar-free on diet restrictions after prolonged treatment with insulin; the rise of blood sugar was estimated after giving a dose of 25 grams of sugar, and the experiment repeated after a period of treatment. The diet yielded about 40 calories per kilo, and the patients were walking about. After 60 units a day for thirty days there was no evidence of improved tolerance in one case, though the patient gained in weight. In a second case there was some distinct improvement; in a third, perhaps a slight improvement; in a fourth case, after eighteen days' treatment, there was a slight but definite improvement.

Dr. O. Leyton (London) divided cases into two groups—those of recent onset, and those of longer duration in which the pancreas had been saved as far as possible by dieting. In the majority of cases if the patient was given a general anaesthetic—whether chloroform, ether, or nitrous oxide—the sugar tolerance fell. Insulin should be given to make the blood sugar below rather than above normal. In recent cases an attempt should be made to keep it below 0.09 or 0.07 per cent. He detailed certain symptoms of hypoglycaemia. In one instance a boy of 5, who was suffering from Hirschsprung's disease as well as diabetes, suddenly became comatose, and a man over 40 had an epileptiform seizure preceded by dizziness, sweating, tremors, and slurred speech. Dr. A. P. Thomson (Birmingham) discussed the treatment of thirty cases, two of which had definitely recovered tolerance. It was impossible to treat a fool with insulin. If the patient would not stand dieting insulin was of no use. Blood sugar estimations were essential when giving large doses of insulin, as in cases of coma, but at other times treatment could well be carried on without. He related the case of a young man aged 21, who, though nearly in coma, did well upon insulin, but suddenly developed bilateral cataract while sugar-free; he mentioned also two cases of haematuria following large doses. Toxic symptoms might occur without hypoglycaemia and be relieved by 0.5 c.cm. pituitrin. Dr. F. A. Roper (Exeter) considered it important that a patient should be under strict observation before insulin treatment was begun. He described a severe case of diabetes in a man aged 56 in whom the onset coincided with an attack of dysentery, and who now had albuminuria also and a strongly positive Rothera reaction; his general condition contraindicated prolonged alimentary rest; a comparatively small dose of insulin (10 units thrice a day) rendered him unconscious, but he made a complete recovery after a dose of glucose intravenously. Dr. Waters (I.M.S.) asked if the potency of insulin was affected in any way by the temperature at which it was stored; and Dr. Clarke Begg (Swansea) asked what instructions should be given to patients on leaving hospital. Should the aim be to get them sugar-free, or should they have a small degree of glycosuria?

Dr. Banting, who replied at the request of the President, said that the cause of the deficiency of the islets was not known. Continued treatment was necessary in severe cases, and the patients could be trained to give injections to themselves. Larger doses were always necessary at the outset of treatment; when two doses a day were given the larger should be in the morning; the ideal was to balance the amount administered to correct the deficiency. It was easier to treat a long-standing elderly diabetic than a young and early case. An attempt should be made to maintain the blood sugar at its normal level; raised blood sugar stimulated the pancreas. On the patient's discharge from hospital a detailed letter was sent to his family physician; but by this time the patient was thoroughly acquainted with the routine. Of the symptoms of hypoglycaemia the most frequent were a feeling of uneasiness, of impending disaster, trembling; in children pallor, increased pulse frequency, and sweating. These symptoms were succeeded by incoherent speech, hunger, sleepiness, and coma. The rate of fall of blood sugar was influential in determining the onset of symptoms, which might not occur till 0.05 per cent. was reached, and as low a figure as 0.032 per cent. had been recorded. Adrenaline (♏x to xv) would usually render a comatose patient conscious, owing to its rapid action in turning out glycogen from the liver; when conscious the patient should be given 10 to 20 grams of glucose by the mouth. Insulin, if kept at room temperature, did not lose its potency in six months, but Dr. Banting had no knowledge of the effect of high temperatures. There was no reason why a diabetic should not be treated as well by the general practitioner as by the specialist.

SECTION OF SURGERY.

Wednesday, July 25th.

THE discussion on the treatment of obstruction of the colon at the first session of the Section of Surgery attracted a good audience. The President of the Section, Sir Henry Gray, in introducing Mr. Arthur Burgess of Manchester, said that he was grateful for the compliment paid himself in being elected President of the Section, as it was probable that this would be the last occasion on which he as a Britisher would be able to attend. Mr. Burgess indicated that his intention was to deal with obstruction of the colon by gross mechanical obstacles. He discussed the chances of obstruction of the colon in relation to cause, and pointed out that malignant disease was responsible for acute obstruction in the proportion of 9 to 1; in regard to the location on one side of the body or the other, the proportion of cases on the left compared with the right was as 6.5 to 1. He approached the discussion of the appropriate treatment of acute obstruction of the colon mainly from the clinical standpoint, and considered the cases as they presented themselves prior to the operation under three groups. In the first came those in which it could not be ascertained whether the obstructions were in the ileum or in the colon; the second group included cases where the obstruction was of the colon, but its precise situation therein was not known; the third group included cases where the site of obstruction in the colon could be definitely ascertained. With increasing experience the number in

British Medical Journal.

SATURDAY, AUGUST 4TH, 1923.

THE PORTSMOUTH MEETING.

THE ninety-first Annual Meeting of the British Medical Association, held last week at the great seaport town of Portsmouth, has played a notable part in forwarding the three chief aims for which the Association exists—namely, to promote the medical sciences, to maintain the honour and interests of the profession, and to foster a feeling of friendship among its members. From each of these points of view—the clinical and scientific, the medico-political, and the social—the Portsmouth meeting was highly successful. It will be remembered by all who took part in it for the practical tone of the discussions in the Sections; for the business-like spirit in which the Representative Body carried through its long programme; and, perhaps most of all, for the abounding hospitality extended by the Portsmouth Division of the Association, by the Mayor and Corporation, by the Naval authorities, and by residents in the town and neighbourhood, both medical and lay. This gathering of more than a thousand medical men and women from all parts of the British Empire demonstrated something of the power wielded by the British Medical Association in consolidating members of the profession for their own good and in the public interest. Everyone who heard the President's address and followed the work of the meeting must have been impressed both with the universality of Medicine, and with the closeness of its contact with educated lay opinion in all that affects the welfare of the community. The growing public interest in medical matters was reflected in the zeal with which the proceedings of the Representative Body and the Sections were followed by the lay newspapers, and gave point to Mr. Childe's dictum from the Presidential chair that "the advent of a wide-awake and informed public tends to keep the profession up to the mark."

The scientific and clinical work of the meeting lost nothing in interest or value from a reduction in the number of Sections; they were 16 this year as against 19 at Glasgow. In another column we begin the publication of summaries indicating the scope of their work, in anticipation of the full reports to be published in subsequent issues. The attendance at most of the Sections was good, and interest was well maintained throughout. The discussion on diabetes, in the Section of Medicine, attracted a very large audience to pay honour to Dr. Banting of Toronto, and hear from his own lips some account of his discovery of insulin, and learn the latest news of its application to clinical practice. Another big gathering was that in the Section of Obstetrics and Gynaecology on July 26th, when Mr. Comyns Berkeley opened a spirited debate on the use and abuse of forceps. To illustrate further the unacademic nature of the sectional work this year, and its interest for the general practitioner, we may mention the discussions on the etiology and treatment of heart disease in early life, and on chronic bronchitis, in the Section of Medicine; Dr. Cameron's attractive introduction to a discussion on the nervous child; the surgical symposium on how to treat acute primary affections of the hand; and the debate by the pediatrists on summer diarrhoea. The pathological proceedings showed no aloofness from clinical medicine; and the public health officers—like the radiologists, the orthopaedic surgeons, and the experts in venereal disease—considered in their several Sections topics of interest to others than specialists. The anaesthetic discussions, both in the special Section and in the Section of Surgery, were eminently practical, and the same can be said for the excellent debate on ophthalmology in its relation to the Army, Navy, and Air Force, which brought together civilian ophthalmic surgeons and many medical officers from the three services.

In the premier naval port special attention was naturally given to the Section of Naval and Military Hygiene, in which papers were read by prominent officers, and several demonstrations were given of great interest to all members of the profession, and particularly to those in the services. The Sections were not organized on any fixed pattern. Thus while the oto-rhino-laryngologists had a very varied programme, the Section of Tuberculosis focused attention on three problems, and the medical sociologists concentrated upon three aspects of a single topic. Lastly, in connexion with the scientific work done at Portsmouth, a word of praise is due to the organizers of the Pathological Museum.

The four days preceding the sectional meetings were devoted, as usual, to the transaction of medico-political business by the Representative Body and to discussion of the domestic affairs of the Association. A feature of these meetings in recent times has been the growing number of delegates from Oversea Branches, and it is pleasant to be able to record that this year their number was greater than ever before. A full report of the first three days' work of the Representative Body appeared in last week's SUPPLEMENT, and the concluding day is reported in the same detail this week. From these accounts and from the outline sketches published last week in the JOURNAL at page 151, and this week at page 198, it will be seen that the programme, though long and intricate, was completed with great expedition under the able chairmanship of Dr. Wallace Henry. Of the controversial matters discussed at full length, mention must be made here of the scheme for closer co-operation between the British Medical Association and the Society of Medical Officers of Health, which was adopted by a large majority after every objection had been heard; and the hospitals debate, which ended in putting off for another year a solution of the "staff funds" problem. On the first subject a working agreement has been reached; on the second, professional opinion is still sharply divided. The outstanding domestic event brought before the Representative Body was the recent acquisition of a new headquarters building for the Association in order to keep pace with its growth in membership and activity. The action taken in this matter by the responsible officers was heartily endorsed by a unanimous vote. For information on this and many other topics of professional interest members must turn to the very full reports in the SUPPLEMENT and the running commentaries in the JOURNAL.

As we have indicated already, this year's Annual Meeting was notable for the success of its social side. The hospitality of Portsmouth and Southsea, and their neighbours, was lavish. The President and the indefatigable Local Honorary Secretary, Mr. Scott Ridout, and their many willing colleagues devoted themselves heart and soul to make the meeting not

would give a patient the chance of further childbirth, while if the tube were already too much damaged salpingostomy would prevent permanent ill health. A lively discussion ensued in which the following took part: the President, Dr. Carlton Oldfield (Leeds), Dr. John Campbell (Belfast), Professor R. W. Johnstone (Belfast), Mr. Leonard Phillips (London), Dr. Gilmore Currier (U.S.A.), Mr. Rivett (London), and Mr. Hendry (Glasgow). A communication from Mr. Blair Bell (Liverpool) was read by the President. Mr. Bourne closed the Section's proceedings by a brief reply.

SECTION OF PATHOLOGY.

It is proposed to publish next week the full report of the first day's proceedings in the Section of Pathology and Bacteriology, when a discussion took place on diseases of the stomach, particularly with reference to modern methods of investigation, opened by Dr. Charles Bolton, F.R.S.

Thursday, July 26th.

Professor H. R. Dean, in his paper on serum reactions, pointed out that the reactions which take place *in vitro* between antigen and antibody are in a sense by-products of other research, the primary object of which was the means by which bacterial disease may be prevented or cured. The discoveries of agglutination, precipitation, and complement deviation were made by men interested in the broad and general principles of immunity, and the valuable practical methods were the outcome but not the primary objects of their discoveries. The remarkable specificity of these reactions was observed during the progress of the earliest work on the serum reactions, but the nature of this specific reaction remained to-day as great a mystery as ever. Professor Dean recalled several examples illustrating the specificity of serum reactions, and mentioned Nuttall's work on the differentiation of the blood serum of nearly allied species of animals by the precipitation reaction, the agglutination reactions of the typhoid-paratyphoid group of bacteria, and the separation of pneumococci and meningococci into groups. As Andrewes's work had shown, serum reactions could be made to demonstrate variations occurring in the individuals comprising the population of a pure bacterial culture. He gave instances in which the serum of a wounded soldier suffering from mild anaphylaxis reacted with dilutions of the tetanus antitoxin which had been used to inoculate him, but not with normal horse serum. Other examples of extreme specificity mentioned by Professor Dean were the production of specific antibody by the injection of the proteins or antigens of the lens of the eye, and the antigenic differences between the protein fractions of one and the same sample of serum as shown in Dale's experiments by the use of the guinea-pig uterus. In the second part of his paper Professor Dean considered the significance of a positive serum reaction. In typhoid and allied infections the significance of a positive reaction was purely diagnostic. In the case of the Wassermann reaction there was, in addition to the diagnostic, a therapeutic and prognostic interest. The complement fixation tests for gonorrhoea and tuberculosis were by no means so firmly established. In the days when the opsonic index was a popular method of diagnosing tuberculosis it was claimed that the majority of tuberculous patients could be shown by the opsonic index method to be deficient in antibodies. At the present time the complement fixation reaction was more popular or was regarded as affording better prospects of success. Even if the specific opsonin was quite a different kind of antibody to the complement fixing antibody it would be remarkable if tuberculosis could be recognized by deficiency of the one and superabundance of the other. Judged by the one reaction tuberculosis was to be suspected if the antibody content of the serum was below normal; judged by the other if the antibody content was above normal. Thus our interpretation of the significance of a positive reaction was somewhat empirical and founded largely on the practical experience of different workers, using different reactions for the diagnosis of different diseases. Professor Dean considered that the facts could be covered by the hypothesis that the formation of specific antibody was induced by the introduction of the antigen into the animal body, was continued as long as the antigen persisted in the tissues, and came to an end when all traces of the antigen were destroyed. A positive serum reaction would thus be evidence of the existence at that time of antigen in the tissues. Evidence in support of this hypothesis was cited from experiments designed to test both the presence of antigen and antibody in the tissues. The sharply localized reactions which sometimes appeared when soldiers received repeated injections of antitetanus serum might be explained by the existence at these spots of a surviving and limited focus of antibody formation, and such a small focus of antibody formation situated at the spot where a trace of the originally injected antigen still persisted might have acted as a sufficient stimulus for the production of a small quantity of antibody. In conclusion Professor Dean pointed out that whereas during the last twenty years there had been progress in technique and much ingenuity had been directed towards the improvement of existing methods, very little effort had been made towards the solution of the underlying problems involved in serological reactions.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

Wednesday, July 25th.

The proceedings of the Section opened with a discussion on the nervous child. The President of the Section, Dr. H. Devine (Portsmouth), took the chair, and in a brief introductory speech sketched the scope of the Section's work, emphasizing the change of outlook of psychiatry, which was now coming to be regarded more as a branch of general medicine. A very interesting and lively discussion ensued, which was closely followed by a large and attractive audience.

Dr. Hector Cameron (London) opened with a paper which was full of interest, wit, and great psychological insight. He began by drawing attention to certain physical peculiarities which characterized the nervous child. These he classified as amyotonia, resulting in a characteristic stance, with lordosis and a protuberant abdomen, as pallor from a vasomotor anaemia, as postural or lordotic albuminuria. Further characteristic physical symptoms were attacks of abdominal pain which might be mistaken for chronic appendicitis, enteroptosis, and constipation. Such children, again, possessed but a low immunity to infections, especially of the catarrhal kind. Frequently also irregularities of the temperature were found. The origin of many of the nervous symptoms was to be found in a study of the parents. The young child was highly suggestible, and very quick to catch and make the most of any anxiety which is aroused in the household by its refusal to take food, etc. Timidity on the one hand and excessive foolhardiness on the other could be traced to faulty management on the part of the parents. Nervous children often displayed a strongly negativistic attitude, which could be well seen in certain cases of anorexia nervosa. The desire to attract attention or self-assertion was another common symptom in the nervous child, which might sometimes explain acts and behaviour which were either distressing or even indecent. Dr. Cameron illustrated his paper by several interesting slides, showing the characteristic stances and postures of the type of child under discussion.

Dr. McFie Campbell (Boston) agreed that physical infirmities might be reflected in behaviour defects. The psychologist, however, would be most interested in those cases where no physical defects could be found, and such cases could include loss of sleep, anorexia nervosa, morbid fears, and a whole variety of failures of adaptation to environment. Parents should realize more that children were not merely an appanage of the household, but were individuals. The suggestions of the mother not seldom caused great difficulties, and in the treatment of these cases the whole home life of the family must be carefully studied. Children should be more left to develop their own individuality. Dr. Helen Boyle (Brighton) welcomed Dr. Cameron's paper, especially as it combined the study of both the physical and mental aspects of these cases. She

We may conclude this brief survey of the information about insulin contained in this issue of the JOURNAL by echoing two of Professor Macleod's observations. The one is that without experiments on animals we should not now be in possession of the knowledge of the mode of action of insulin which justifies its confident use in the treatment of severe cases of diabetes in man, and in particular of its great value in diabetic coma. Until the laboratory investigations had furnished perfectly definite results serious attempts to carry the investigations into the clinic could not be made. The second is the credit he justly gives to those responsible for producing insulin on a large scale for clinical use, that they should have succeeded in so short a time in their work.

TEACHING OF OPHTHALMOLOGY.

IN the correspondence with the General Medical Council printed last week (p. 147) the Council of British Ophthalmologists takes up once more its parable of 1919 and urges that no student should be considered to have passed the qualifying examination unless he has shown a sound knowledge of practical ophthalmology in an examination conducted by ophthalmic surgeons. Its position has been fortified by the recommendation of the Departmental Committee on the Causes and Prevention of Blindness, inviting the General Medical Council "to insist that every student presenting himself for a qualifying examination in medicine should be examined in ophthalmology." The Departmental Committee found fault with the limited amount of training in the subject which students receive, and pointed out that as a general rule the examining body does not require a candidate for a degree or a diploma to be examined in ophthalmology. It will be remembered that the General Medical Council took limited action in 1919 by requiring that every student should attend a course of practical instruction in ophthalmology of not less than ten weeks' duration, and that his schedule should not be signed unless his work in connexion therewith has reached a satisfactory standard. The ophthalmologists object to this that it leaves it entirely to the ophthalmic surgeon to determine what the evidence of satisfactory work in his department shall be. At the meeting of the General Medical Council on June 1st the Chairman of the Examination Committee drew attention to the report of the Departmental Committee, and also mentioned the letter from the ophthalmologists. The Council decided to inform the Ministry of Health that one of the recommendations made by the Council last year to the licensing bodies for the improvement of the medical curriculum was that each student should receive instruction in diseases of the eye, refraction, and the use of the ophthalmoscope, and the Council of British Ophthalmologists that it was too soon to judge of the effect of the recommendations to the licensing bodies. It is of course very true that the curriculum is overloaded, and that the student of to-day has to undertake far more classes than was the case even twenty years ago; if students know that they will not be examined in a special subject they cannot be expected to give much attention to it; they will gamble to a certain extent with this and with other special subjects. Ophthalmology, however, is intimately bound up with general medicine and surgery, and there should be no great difficulty in the student finding time to attend the required course of lectures and practical instruction in the wards and out-patient department in the time at his disposal. The experience of the Irish examining bodies has shown that there is no particular difficulty in conducting an examination in ophthalmology as part of the final examination. The sense of sight is of such paramount importance to man that the present state of affairs cannot be regarded as satisfactory, and yet it is hard to blame the General Medical Council for not at once instituting a special ophthalmological examination as part of the final qualifying examination. Such an examination must be conducted by ophthalmic surgeons, and so many years have passed since general surgeons were also ophthalmic surgeons that few, if any, of the members of a court of examiners at the present time have the necessary knowledge of diseases of the eye to conduct such an examination. Any examination, however, should be simple in type and of a clinical character.

THE HEALTH OF LONDON.

THE London County Council, like other public authorities in these days of retrenchment, cuts down rigorously its output of paper and printing, including annual and other reports. Its Public Health Report for 1922[1] contains in 130 octavo pages the report of the County Medical Officer and School Medical Officer, and the report on main drainage and housing. In an introductory note Sir William Hamer refers to some of the salient facts in the health history of the year. There was a heavy prevalence of infectious diseases—influenza, measles, whooping-cough, scarlet fever, and diphtheria—in the early months, but summer diarrhoea was checked by the wet cool summer and the activities of child welfare centres and other agencies, so that the rate of mortality from that cause under one year of age was unprecedentedly low—6.26 per 1,000 births, as against 18.63 in the previous year, and 24.28 in the four years 1911-14. As a result of this the all-age death rate was 13.5, or only 1 per 1,000 above the record minimum of the previous year. Of typhoid fever there were only 264 notifications—the very minimum for London—and 1922 has been the eleventh year in succession with almost complete absence of an autumnal rise in the curve of prevalence. This leads Sir William Hamer to review the whole question of typhoid incidence. As in cholera in the past, cases of typhoid tend to occur in groups, sometimes in circumscribed areas or in institutions, and, as pointed out in a previous report (1911), such groups commonly occur in streets occupied by families living in poverty, but not in extreme poverty. Two theories have been advanced in explanation—one that of healthy carriers, the other, not infection from person to person, but the continued operation of a common cause. The latter is the hypothesis adopted in the report, and the common cause is food supply, the food responsible being immature flat-fish. That thesis is defended in most interesting fashion in the body of the report, but in the present brief paragraph we are dealing only with the introductory note. Turning to phthisis, it is observed that there has been some increase in the registered death rate at young adult ages, but this is attributed to the debiting (Sir William says crediting) to London of deaths which would formerly have been registered in health resorts or abroad. The United States policy of limiting immigration has had in respect of health an indirectly favourable influence in this country, through which many emigrants, some developing acute infectious disease, used to pass on their way to America. In 1922 administrative progress has been made in tuberculosis and venereal disease treatment schemes. A February census of homeless persons showed a great reduction as compared with pre-war years, and the same remark applies to occupants of common lodging houses and furnished rooms. Similarly the census of 1921 showed some diminution in overcrowding. We hope in a later notice to deal more fully with some parts of the report.

[1] Annual Report of London County Council, vol. iii. Public Health. P. S. King and Son. 1923. Price 2s. 6d.

welfare work with better midwifery service. Two gave better education as the cause, four reduced birth rates, five improved sanitation and social conditions, and two the use of dried milk. He personally had come to the conclusion that the principal factor was improved education, both general and special, and that there was good reason to believe this improvement would be permanent. In the discussion that followed Dr. Peeke (Derbyshire) thought that Dr. Wheatley had underrated the effect of improved sanitary conditions, especially the conversion of privy middens. He also regarded the introduction of summer-time as a factor of importance. Dr. Brackenbury (Hornsey) agreed with Dr. Wheatley as to the supreme importance of education, including direct instruction in personal and domestic hygiene. He thought the effect of the work of the child welfare centres had been exaggerated. Dr. Kirkhope (Tottenham) emphasized the importance of the education given to mothers at the pre-natal and infant clinics. Dr. Clark Trotter (Islington) contended that the most important part of child welfare work was in visiting the homes and thus improving the environment of the child. Dr. Miller (Radnorshire) had found a lower percentage of breast-feeding in rural than in urban districts. He agreed that home visiting by health visitors was the most important factor in hygienic education. Dr. A. Bullough (County Medical Officer, Essex) observed that heredity had an unfavourable influence on infant mortality, since the careless mother often had the largest family. The mother formed the true environment of the child, and everything depended on her knowledge and character. Education fitted her to receive the instructions of health visitors and others. Professor Wynne (M.O.H. Sheffield) expressed some scepticism as to the value in these respects of the instruction given in elementary schools. Dr. Wheatley replied on the various points raised in the discussion, and maintained the supreme importance of education and the real value of the existing system.

Dr. H. Scurfield read a paper on the value of watercress in dietetics, especially to urban communities. Watercress, he said, was a form of green food eaten uncooked and available at low cost all the year round. Its value as an anti-scorbutic was well known, and there was reason to believe that it was also rich in the other vitamins, as well as containing iron, iodine, and calcium. In some of the large cress farms he had visited every care was taken in its growth and handling, and the danger of infection with typhoid fever or other water-borne disease was eliminated. Inspection of such watercress beds was a simple matter. Dr. Smedley said that watercress had fallen out of favour in this country, though it was largely consumed in France with excellent results. Dr. Wheatley hoped that careful experiments into the dietetic value of watercress would be made, as general impressions were not sufficient to act on in view of the possible risk of infection as disclosed by the late Sir Shirley Murphy. Dr. Scurfield, in reply, pointed out that he advocated only the increase of watercress produced on a large scale and under sanitary conditions.

SECTION OF DISEASES OF CHILDREN.

Thursday, July 26th.

In opening the first discussion, on acidosis and alkalosis in children, Dr. Cammidge said that it was important to understand clearly what was meant by those terms. Acetonuria had been and often was used synonymously with acidosis, but the two conditions were by no means identical and either might occur without the other. The term ketonuria should denote the presence of acid products of abnormal metabolism in the urine, and acidosis should be reserved for the true condition. During metabolism there was a tendency for acid bodies to appear in the blood, but the reaction of blood and tissue was kept constant by the action of buffer substances. The entrance of acid products into the circulation decomposed some of the bicarbonates and produced a relative excess of carbon dioxide. The respiratory centre was thereby stimulated and the carbonic acid was eliminated by means of the lungs. Normal plenished, but in pathological conditions they might be depleted and the percentage of bicarbonate in the blood permanently diminished. There would be a corresponding reduction in the capacity of the blood to transport carbon dioxide, which would accumulate in the tissues and give rise to symptoms of suffocation and finally death. Acidosis, then, was a condition in which the concentration of bicarbonate in the blood was reduced below the normal level. Acidosis in children occurred chiefly in diabetes and in cases with recurrent "bilious attacks." Nothing had been published on alkalosis in children as far as he knew.

Dr. Ruth Verney (Edinburgh) gave the results of her investigations on buffer substances in the blood in children. Protein acted in this way, as well as weak acids and bases. One of the most powerful buffers was haemoglobin. The President, Dr. Edmund Cautley, mentioned his own uncertainty in regard to the differentiation of acidosis and alkalosis and their effects. He asked at what stage ketosis became acidaemia. Dr. E. P. Poulton said that although he himself had suggested some three years ago the nomenclature adopted by Dr. Cammidge, he now preferred the terms alkalaemia and acidaemia as connoting a diminished or an increased hydrogen ion concentration. He referred to the clinical and experimental aspects of the association of alkalaemia with tetany. Dr. Eric Pritchard considered that health in children depended more on the extent of the alkaline reserve than on any other condition. The kidneys were not the only means of getting rid of metabolic products; the faeces were probably a more important source of elimination of bases. In premature infants the absence of a calcium reserve constituted a serious danger. Dr. Catherine Chisholm said that in her experience acidosis occurred frequently in pneumonia, and that the disease responded quickly to large doses of alkalis. Dr. Cammidge replied to the discussion.

Colonel R. J. Blackham read a paper on cow's milk in infant feeding. He discussed the form in which cow's milk should be used when breast-feeding was impossible. Raw milk was dangerous because of the bacterial infection it could engender. Besides sterilizing the milk, heat had the advantage of diminishing the toxic properties of foreign casein. In the speaker's experience condensed milk was apt to make a child fat, flabby, and dull. Milk powder had the advantage of uniformity, while it was less liable to contamination and retained most of its vitamin content.

SECTION OF LARYNGOLOGY AND OTOLOGY.

Thursday, July 26th.

In opening the discussion on internal ear deafness, Dr. Dan McKenzie (London) began by deploring the disparity between our anatomical as opposed to our pathological knowledge of the labyrinth. He described the well known difficulty of assessing the value of tuning-fork tests in deciding whether a case was of middle or inner ear deafness. With regard to obstructive deafness, nobody had thrown a doubt upon the correctness of the inferences to be drawn; but he described a case in which all the classical signs of nerve deafness were present in which removal of impacted cerumen was followed by immediate relief from all deafness. Mixed deafness was the commonest type of all, and the affection of the labyrinth in these cases might be merely a functional derangement. The commonest cause of nerve deafness was middle-ear disease, and the prognosis of nerve deafness in middle-ear disease was grave unless the latter could be arrested. Myxoedematous deafness was of this type, but yielded readily to thyroid medication. He next dwelt upon the relation between the vestibular reflexes and nerve deafness; they coexisted in acute but rather in chronic labyrinthitis. Vertigo might attend upon almost any ear disease, but tinnitus was usually tympanic. Having dealt with noise deafness, senile deafness, syphilitic and toxic, he concluded by sounding a note of hope even in the present state of ignorance. Thirteen speakers took part in the discussion. Mr. Mollison (London) grouped deafness into qualitative and quantitative. In the qualitative types there was a loss either of the upper or lower tones, whereas the remainder of the scale was unaffected. In [illegible] there was an alteration all along the

November, after inquiring into "the conditions of service in all branches of the Medical Department." The report now issued[1] will materially affect the development of the medical services, and is of considerable interest. As regards medical officers, whilst some inequalities and anomalies are recognized in connexion with allowances and fees, no change is suggested, and the existing salary scales of £500 to £600 for second and £600 to £700 for first grade officers are considered satisfactory. Certain changes are recommended in the distribution of districts, and also (on the plea of economy) the abolition of the Demerara River medical officership. The importance of a qualification in tropical medicine is emphasized, and it is suggested that a recognized degree or diploma in this subject should in the future be required from candidates for appointment, whilst any member of the service not holding such a qualification should acquire it during his next period of leave, or as a preliminary to promotion to Grade I. Payment of class fees and an extension of two months' leave on full pay are recommended in the case of applicants for study leave approved by the Surgeon-General. This concession means, of course, that the officer concerned must devote to the course selected the four months' leave to which he must be entitled at the time of application, in addition to the two months' extension. It is also subject to an undertaking to refund all amounts received under this head in case of failure to return to the colony on completion of the course, or to remain in the service for at least two years from that time. Considerable extensions of the public hospital at Georgetown are recommended, and a scheme is put forward for the appointment to the hospital staff of specialists in eyes, nose, throat and ear, venereal diseases, and tuberculosis; the first of these appointments—that to the eye department—to be made at once, on a scale of £700 rising by yearly increments of £50 to £900 per annum, with free quarters or house allowance; the others as finances permit. The report also provides for the appointment of a non-medical radiographer, to relieve the bacteriologist of the duties he at present discharges in the x-ray department. It is suggested that the fees earned by this increased staff should materially relieve the revenue. In the Public Health Department it is recommended that medical officers of health acting as port medical officers should be permitted to charge and retain overtime fees for work done between 6 p.m. and 8 a.m. Finally, it is laid down that all future appointments to the medical service should cover the duties of medical officer to the Baby Saving League and service at the league centres. The report also covers the nurses' and dispensers' departments.

IRISH MEDICAL SCHOOLS' AND GRADUATES' ASSOCIATION.

THE summer general meeting of the above association was held on July 25th at "The Corner House," Portsmouth. The chair was filled, in the absence of the president (Sir William Taylor, K.B.E., C.B.), by Dr. J. A. Macdonald, vice-president, who congratulated the members present on the exceptionally large attendance, one of those who were with them that day having come all the way from far-off Donegal. The luncheon which took place the same day was graced by the presence of several ladies, and the chairman said he was glad to know that an increasing number of women doctors who had studied in Ireland were joining their ranks. They were thus supporting an association which was the first medical society in England to admit women to membership. In fact, one of the original members was a lady who was still practising in the West of England. The speeches which followed the chairman's were commendably short. The health of Dr. Macdonald was proposed by Mr. Hempson, who said it was refreshing to learn that an association of Irishmen representing every shade of political and religious opinion had been, as the chairman had told them, forty-five years constantly meeting thrice yearly, and that there had never been the whisper of a quarrel all that time. It was evident that the *mens medica* had imbued them with those high ideals of good fellowship for which their profession was noted all the world over. Dr. Douglas, whose health was proposed by Dr. James Stewart, said that their members who cultivated the spirit of camaraderie were rewarded by the pleasure they derived from meeting, after years of perhaps foreign service, old comrades they had not seen since they were students together in Dublin, Belfast, Cork, or Galway. They had much reason to thank an army surgeon (the late Dr. James Thompson) for giving to these men and women the same opportunities that the ex-students of London hospitals enjoyed of periodically renewing old friendships. A very enjoyable reunion was brought to a close by the entire company singing, in the heartiest manner possible, "God Save the King."

A PORTRAIT OF SIR CHARLES SCARBURGH.

THROUGH the generosity of Dr. R. W. Innes Smith of Sheffield a fine portrait in oils of Sir Charles Scarburgh has just come into the possession of the Royal College of Physicians of London. It was known that two portraits of Scarburgh were in existence—one in the Hall of the Barber Surgeons and the other in the collection at Temple Newsome, Whitchurch, Yorks. Lately the collection at Temple Newsome has been dispersed, and Dr. Innes Smith found that the portrait of Sir Charles Scarburgh was for sale. He lost no time in finding the seller, and purchased the portrait; he has now generously presented it to the College of Physicians, where it will be on view shortly. Although this portrait was styled in the sale catalogue the portrait of a "Navigator," on account of mathematical instruments being on the table, Dr. Innes Smith had no difficulty in establishing its identity by comparing it with an engraved portrait of Scarburgh by Van der Gucht. Scarburgh was a distinguished physician in the seventeenth century, and occupied the position of physician to Charles II, James II, and William III. He was deeply interested in mathematics, and was the friend of Harvey, who bequeathed to him his velvet gown and his "little surgical instruments of silver."

NOTIFICATION OF TUBERCULOSIS.

THE Ministry of Health has issued to all medical practitioners in England and Wales a circular letter, dated August 2nd, expressing its concern that more than 40 per cent. of the persons dying from tuberculosis have not previously been notified as suffering from that disease. Under the Public Health (Tuberculosis) Regulations, 1912, it is the duty of every practitioner, within forty-eight hours of his becoming aware that any patient of his is suffering from tuberculosis, to notify the case to the medical officer of health of the district, unless he has reasonable grounds for believing that the case has already been notified to that officer. Attention is called to the fact that the regulations expressly require that every notification and every document relating to a person so notified is to be regarded as confidential by the medical officer of health and every other person who has access to the documents. Further, if the practitioner considers that the circumstances of any particular case are such as to render it unnecessary or contrary to the interests of the patient for his home to be visited by the medical officer of health or his staff, it is open to him to arrange to dispense with such visits. It is of course

[1] Report of a committee appointed by his Excellency the Governor, to consider and report on the medical services of the Colony. Combined Court, No. 23/1922. The Argosy Co., Ltd., printers to the Government of British Guiana.

nervousness and there was the difference in mental state between examiner and examinee to be considered; prowess in games he considered as very important as showing psychomotor responses. Lieut.Colonel N. J. Crawford Rutherford asked whether a standard could be arrived at to eliminate the number of recruits discharged within six months as unfit due to middle-ear disease. In spite of auroscopic examination of all recruits on enlistment, discharges for middle-ear disease continued to head the list. He also considered it advisable to put recruits through mental tests on enlistment in order to have some record of their mentality, and to prevent subsequent discharges as "mentally inefficient" when the recruit's mental attitude towards soldiering had altered. Lieut.-Colonel Salisbury Sharpe agreed that marked deviations from the average of stature either above or below were disadvantageous to the individual. He thought that the only satisfactory method of doing hearing tests was with a stop watch which could be started or stopped without any audible noise. The opener replied that a War Office committee had been appointed to deal with the question of middle-ear diseases. Aural surgeons were by no means unanimous in their opinions as to whether a recruit should be passed or not, and he cited a case where three specialists had differed. Time did not permit of Surgeon Commander K. Digby Bell's paper being read in the forenoon, but it was dealt with at a special demonstration at the Royal Naval School of Physical and Recreational Training that afternoon. Wing Commander H. E. Whittingham read a paper on the life-history and bionomics of *Phlebotomus papatasii*, illustrated by lantern slides. Major H. Home asked whether it was correct that phlebotomus fever could be diagnosed by the leucocyte count as claimed by certain German workers. Wing Commander Whittingham replied that it was possible as the result of a blood examination by an accustomed pathologist to give a fairly certain diagnosis.

SECTION OF TUBERCULOSIS.

Wednesday, July 25th.

AFTER a few preliminary remarks by Sir Henry J. Gauvain from the chair, Professor Axel Reyn read a paper on the artificial light treatment of lupus and other forms of tuberculosis. He said that the creator of this light treatment was the late Professor Finsen; time would not allow all the different investigations on which Finsen based that treatment to be discussed, and Professor Reyn dealt only with the results of light treatment in different forms of surgical tuberculosis and tuberculosis of the skin. At the beginning of his experiments Finsen used the sun as a source of light, but it became clear that if light treatment was to be of any great value in northern countries it would be necessary to use artificial light. In further experiments Finsen showed that the ultra-violet rays had the strongest effect, and he gradually came to employ artificial light alone, for the carbon arc light contained far more ultra-violet rays than the sun, whose ultra-violet rays were absorbed by the atmosphere. Finsen died before he could finish his work on light-bath treatment, and it was left to others to carry out the experiments laid down by him. Bernhard and Rollier were the first to use the sun bath for surgical tuberculosis. Having seen the excellent results that Rollier obtained, he (Professor Reyn) decided to try light baths in treating lupus vulgaris and various forms of surgical tuberculosis. Professor Reyn then showed on the screen some very interesting cases of lupus and tuberculosis of glands which had been cured by artificial light baths. In referring to x-ray treatment for glands, he contended that in the great majority of cases nothing but bad results were obtained. In the discussion that followed, Dr. Sequeira (London) directed his remarks to the following points: First, he maintained that failure was often due to a faulty technique. Secondly, the attack should be a combined one—namely, local and general. Excision of a tuberculous lesion should be practised when it was in such a situation that a resulting scar did not matter, but for a scar on the face Finsen light was the ideal procedure. Dr. Sequeira then showed photographs of cases treated by Finsen light in this country. He agreed with Professor Reyn that x rays in dry lupus was a treatment to be deplored, and maintained that it could do nothing but harm. Professor Russ said that wave lengths of all radiation had been measured and that it was becoming possible to predict the effect of different rays on diseased parts. Wave lengths from 3,000 to 2,000 Angstrom units were easily absorbed by animal and vegetable tissue. No radiation up to 3,000 would penetrate one millimetre of skin. Wave lengths from 3,800 to 3,000 were a very important series. Those parts of the spectrum responsible for clinical improvements should be ascertained so as in future to concentrate on those particular rays. Sir StClair Thomson described his visit to the Finsen Institute, and his observations of the results obtained in tuberculosis of the larynx. In Copenhagen he heard that 50 per cent. of arrests had been secured, and he thought this very possible, as local measures in addition to the arc lamp baths were employed. He asked for further directions as to technique and precautions. Dr. J. M. Johnston mentioned two cases of painful laryngeal tuberculosis in which the carbon arc lamp was used with great relief to the larynx; there was, however, no change in the pulmonary physical signs. In his reply Professor Reyn said that the light treatment was better carried out in England than in any other country. He agreed with Dr. Sequeira that other local measures should be combined with light treatment.

Dr. J. Gravesen (Copenhagen), in opening a discussion on the present position of surgical treatment of pulmonary tuberculosis, said that the particular kind of surgical treatment he would discuss was based upon experiences with artificial pneumothorax, the principles of that method having put an end to all previous devices, such as incision with drainage of cavities, and excision of lobes. The results of pneumothorax treatment must be judged according to the anatomical and physiological possibility of full benefit from the treatment. In order to determine the actual results and to justify further methods in cases where the induction of pneumothorax was technically impossible, it was necessary to classify the cases with regard to the influence exerted by the presence of pleural adhesions. Such classification had been utilized in the largest series of cases published on this subject—namely, that of Saugman (Vejlefjord Sanatorium, Denmark). Dr. Gravesen gave details showing how often adhesions made it difficult to obtain the full benefit of artificial pneumothorax, and what excellent results the treatment would give could the injurious influence of adhesions be removed. As a general indication for collapse treatment a case was considered suitable when no hope of lasting cure by ordinary sanatorium treatment or other special remedies could be brought about. Dr. Gravesen then discussed the treatment in various groups of cases. In those with complete or almost complete pneumothorax, but with localized adhesions, thoracoscopy with cauterization was practised. When artificial pneumothorax was impossible thoracoplasty should be performed, and two questions with regard to that operation were considered: (a) Should a partial or a complete thoracoplasty be done? and (b) Should the operation be performed in one, two, or more stages? In the discussion Mr. J. E. H. Roberts said it was not necessarily true that bad results were due to adhesions, but infection was more virulent in cases where adhesions were strongest. He had lately modified his views regarding the Jacobaeus operation for cauterizing adhesions. He believed that in many cases it was a good procedure, but in others the adhesions were so firm that thoracoplasty had to be performed. He urged the importance of careful preparation of a case to be subjected to thoracoplasty. He preferred not to rely on a local anaesthetic; gas and oxygen was the anaesthetic of choice. The after-treatment was as important a factor as the operation itself. The chest wall should be immobilized by strapping for at least ten days, and subsequently proper physical exercises should be practised to prevent scoliosis. Dr. Vere Pearson, in discussing the choice of patient for artificial pneumothorax, urged that a fair trial of sanatorium treatment

ir calling. Reverence was not always paid by looking wards to the light which no man could approach unto. d was known largely through the things He had made, which He had imparted light and colour, mystery and auty, the majesty of order, and the skill of natural ocesses. The reverent man had reverence, not only for e Creator, but for created things. Here surely was mething which belonged to the sphere both of those whom was addressing and of himself as a minister of the urch. It might well be that those whose task it was to each reverence were not always themselves the most verent. Familiarity, habit, and contact with the sordid merely material aspects of life might deaden reverence those who should uphold it. Before the medical pro-ssion the knowledge of the human body lay open, a achine incomparably finer, more adaptive and resourceful an any possible work of man, with unsounded mysteries animating life and force, and relations with things which ere not material. But, not content with this, the pro-ssion made a claim, which the rest of them gladly allowed, share in that wonderful sphere of which the body was nly the arena, or the instrument, or the companion—that ner life of man, with its affections and passions, its elicate reserves, its powers of sacrifice and of patience. ll this came before the medical profession as well as before he Church, and in dealing with it the profession could npart that spirit of sympathy and wisdom which was born f true reverence. Those were the more familiar and bvious things, although intensely sacred and important; ut he would go on to indicate another region, upon which, owever, he could not dwell. The absorbing interest of our ime was in the complex interrelation of the physical, ental, and spiritual life. Here there were possibilities to e explored, dangers to make for caution, and vistas to llure. Here was a sphere in which reverence might well nd a new call and opportunity. Not by one jot would hey abate their allegiance to what had been proved and ested, nor would they allow the sternly won gains of science o be taken from them; but after two or three generations f astounding progress on the material side of life, they ould not be surprised or displeased that there should be ome fresh disclosure of the part which mind—and, beyond nd through mind, that which they called spirit—could play. f God worked through material things, how much more losely could He work through the higher efforts of man's nind, his rare imaginings, his courage and moral struggle! In conclusion the Bishop bade his hearers have no jealousy of the things of the spirit, but work for the alliance of spiritual power with their own splendid physical resources. Then they would find in the sphere of their own labour fresh evidence of the God in whom existence had its centre, ts animating life, and, in spite of all its mysteries, its ntelligible meaning.

The Popular Lecture.

The Popular Lecture was delivered on Friday evening n the Examination Hall of the Municipal College by Dr. W. E. Elliot, M.C., M.P., Parliamentary Under Secretary of Health for Scotland, whose subject was "Food and ealth." Those present were treated to an interesting exposition of some principles of dietetics, and carried away ome good advice, the chief of which was perhaps, in the vords of the old music-hall song, "A little bit of what you ancy does you good." Captain Elliot took his audience n some pleasant excursions into the realms of fantasy to ring home to them the wonders of the process of assimila-ion. Here were various substances used as foods, widely lifferent from one another in their origin and compo-ition, and all of them alien in structure from the flesh f human beings, yet when taken into the body they were onvertible into human tissue. If a man could breathe upon a pork chop so that it rose up and became Plato the world would acclaim a miracle. But what actually took place during digestion and assimilation was scarcely less miraculous. It was as wonderful as if a wizard were to turn the chairs and tables on the platform into members of Parliament. Assimilation, one of the key factors in living matter, was still a mysterious thing; so much so indeed that students of dietetics were constantly driven to explain it by the invention of new hypothetical sub-stances which nobody had seen or isolated. He noticed that vitamins had now reached the stage of newspaper advertisement; when that stage was reached in any depart-ment of science it might be depended upon that the men of science themselves were beginning to discredit the original discovery. There were some who believed vitamins to be actual substances, while others—to whose views Dr. Elliot evidently inclined—considered them to be, not substances, but merely a balance between various factors. He went on to speak of the distinction between tissue-building foods and energy-yielding foods, and described the work of Lavoisier on oxidation in the body, just as it took place in a furnace, and of Liebig, to whom the classification of foods into proteins, fats, and carbohydrates was due. Man, said the lecturer, was a parasite upon the green plant, just as truly as the green fly was a parasite upon the rose. He described nitrogen and its powers, in some forms so innocent, in others so tremendously destructive, and in food, where its molecules could be taken apart and built up again into a new combination within the body, responsible largely for vitality. He showed how the body used iron as the machinery for taking oxygen from the air and conveying it to every tissue, also how necessary calcium was even in the repair of the smallest wound, how chlorine was handled by the soft tissues, and so on. He believed that the mineral elements in diet had received less attention than their important place deserved. One of the few things established as the result of a study of dietetics was that monotony in diet was dangerous, and the danger could not altogether be disregarded even in a civilization in which the chef had more resources than ever before; for our people lived very largely on imported food—this country spent about £500,000,000 a year on imported foodstuffs—and it might well be that these products were deficient in some vital principles. Fresh green foodstuffs would supplement many deficiencies. The instincts of man might be depended upon to some extent as to diet, and the instincts of animals in the way of supplementing any deficiencies were often un-cannily correct. A pig kept for twenty days on a diet deficient in lime, when let out of its sty went straight to a heap of builder's lime and took its fill. In conclusion the lecturer uttered a warning against paying heed to anyone, medical man or other, who claimed to understand the process of nutrition. These things were still mysteries, and the man of science was holding up a candle in the night by which to descern only the extent of the things he did not know. The chair was taken by Dr. C. F. Routh, who, in thanking the lecturer, referred to the extent to which food, like dress, passed through phases of fashion.

The Secretaries' Conference.

The Conference of Honorary Secretaries (reported in the Supplement this week) owed much of its success to the character of the programme provided. Four secretaries, each of whom is doing yeoman service for the Association, had been asked to prepare short papers covering some aspect of local activities, and instead of an address to secretaries we had a discussion amongst secretaries which should prove of considerable value. Although the difficult nature of the area necessarily limits the work done in Caithness and

discussion of various points made by the author, in which Drs. Flemming, Wilkins, Featherstone, and Moore joined. Dr. Sington, in turn, replied in detail to each of his critics. This paper was followed by one from Dr. A. L. Flemming (Bristol) on fatalities from anaesthetics, which was in turn criticized by Drs. McNamara, Sington, and Mott. As time was pressing and there was still another paper to read, the President then called upon Dr. Flemming to reply. Dr. H. E. G. Boyle (London) next read a paper on anaesthesia by the gas-oxygen-ethanesal and the gas-oxygen-chloroform-ethanesal combinations, and illustrated the same by demonstrating his apparatus for the carrying out of these sequences. There being no time for discussion of this paper, Dr. Christopher Mayhew (Southsea) demonstrated a new apparatus of his own invention for the administration of warmed ether vapour, the chief advantages of which were, he claimed, its lightness and portability, the whole apparatus only weighing a little over a pound, and its warming cylinder being able to accommodate easily the whole of the rest of the apparatus when packed for travelling.

THE PATHOLOGICAL MUSEUM.

The Pathological Museum contained a series of thirty-four separate sets of exhibits illustrating a great variety of pathological curiosities. Many of the specimens were used by the exhibitors for demonstrating subjects about which they spoke in the different sectional meetings, in the reports of which a record will be found of some of the exhibits displayed in the Museum. Other exhibits, not coming within the scope of subjects discussed in the sectional meetings, were explained in brief demonstrations in the afternoons.

On July 25th Dr. H. A. Miller gave an account of the effect of certain esters of unsaturated fatty acids in the tubercle bacillus when growing *in vitro*. The bacteria showed banding and beading appearances similar to those obtained by Sir Leonard Rogers with leprosy bacilli by treating them with chaulmoogra oil. He described experiments he had commenced on the treatment of guinea-pigs suffering from tuberculosis with these unsaturated fatty acids, the results of which had been encouraging. He used chiefly the ethyl ester of hydnocarpic acid, and also potassium linoleate and sodium morrhuate.

Sir Leonard Rogers described how, by first employing intravenous injections of the sodium salts of the fatty acids of chaulmoogra oil obtained from seeds of *Taraxtogenos kurzii*, he first produced reactions in leprous tissue with the breaking down of acid-fast bacilli, followed by great improvement of the patient. Subcutaneous injections did not produce reactions in leprous tissue, and were less effective than intravenous. He subsequently used sodium gynocardate and later olive oil, soya-bean, and castor oil, all with equally good results, and came to the conclusion that it was all a question of the unsaturated fatty acids. The ethyl esters were more convenient preparations, as they could be given intramuscularly. These unsaturated fatty acids probably acted by defatting the bacilli in the body. The addition of any of these substances increased the action of the ferment lipase, and treated cases had been shown to have increased lipase in the tissues. These substances probably acted, therefore, by increasing the activity and amount of lipase in the blood.

Dr. H. A. Harris demonstrated some beautiful specimens illustrating the relation between normal ossification and arterial distribution by the method of Spalteholz; also microscopic preparations of injected lymphatics by Hyrtl, and microscopic preparations of injected blood vessels by Thiersch. He showed specimens illustrating the bony changes in rickets, and radiograms showing the process of growth in the long bones of a child.

On July 26th Dr. Da Fano gave a demonstration on herpetic and epidemic encephalitis.

The first fourteen specimens were from the set from which the drawings illustrating the author's paper on herpetic meningo-encephalitis in rabbits were made. They clearly showed the intensity of the inflammatory

seen in the specimens were independent of the chosen for the transmission of the herpetic virus an characterized by widespread small-celled infiltrations, nerve cell degeneration, and diffuse proliferative phenon the part of some of the fixed elements of the tissues (neuroglia cells, endothelia, adventitial cells, fibroblasts In preparations from animals which either died or were a few days after inoculation the inflamed areas contained number of polymorphonuclear leucocytes which were observed in epidemic encephalitis in man, but in prepa from animals which survived for longer periods foci of celled infiltration were found which, because of their co tion and situation, could not fail to remind one of described both in cases of lethargic encephalitis and in a experimentally infected with the encephalitic virus. specimens of this series showed the small granular stru which were termed by the author "herpetic minute bo and might perhaps be the virus itself.

Specimens 15 to 25 were from an acute case of encepha presumably epidemic. The case was particularly intere because of its very rapid clinical course (death took thirty-six hours after the onset of symptoms), and because o intensity of the small-celled infiltrations affecting the white grey substance of the medulla oblongata, pons, mid-brain, thalamus, and certain parts of the cerebral cortex. In addi various haemorrhagic lesions were observed of a type unusu epidemic encephalitis. The most important of these cha were shown in the specimens and corresponding drawings. one of them the demonstration was given of very small gran situated within polymorphocytes, and in every way similar the "minute bodies" mentioned above.

Four specimens were from a chronic case of epide encephalitis in a child which was clinically investigated by Helen Ingleby. As shown by the microscopical preparatio lesions were observed in this case on the whole similar to th described in subacute cases of the disease.

Within or next to elements of the lymphocytic type "min bodies" were again noticed, characterized by the same morpl logical and tinctorial properties as those shown by Dr. Da Fa in some of the other specimens, and particularly in the last on prepared from the brain of a rabbit inoculated intracerebral with an encephalitic virus sent from Stockholm by Profess C. Kling. The rabbit died about a month after inoculatio and the histological examination of the brain showed a certai degree of congestion associated with a moderate perivascula and subependimal infiltration chiefly consisting of sma lymphocytes. In certain regions (areae rhinicae) man "minute bodies" were noticed either scattered in the nervou tissue or adherent to fragments of some protoplasmic material probably the remains of degenerated nerve cell.

Lieut.-Colonel Buchanan showed thirteen lantern slides and twelve mechanical models illustrating the mechanics of midwifery, and Mr. E. P. Bertwistle demonstrated a series of radiographic prints showing the characteristic contour of soft parts as well as bony tissues.

On Friday, July 27th, Wing Commander H. E. Whittingham, R.A.F.M.S., showed a series of slides and drawings illustrating the life history of *Phlebotomus papatasii*.

He said that the Royal Air Force Sandfly Fever Commission had shown that the virus of phlebotomus fever was transmitted from generation to generation of *Phlebotomus papatasii*. This might be effected in two ways—either it was transmitted by heredity or the larvae infected themselves in the breeding grounds by eating the excreta or the dead bodies of the parent flies. It followed that prophylactic measures against the fever must be directed upon the fly, the habits and habitats of which must be understood. The life history of *Phlebotomus papatasii* covered a period of about eight weeks, the exact time depending on conditions of temperature and humidity. The ovum in its maturation showed certain changes in its surface markings, and on the ninth day caudal bristles appeared. A few hours later the shell broke on the dorsum by the action of the egg-tooth. The larva emerged and entered upon its first instar, lasting six days and ending with the first moult. In all the larva passed through four instars of about six days each, and four moults, during which there occurred not only increase in size but developmental changes, characterizing each period. With the conclusion of the fourth instar the larva entered on the pupal stage, lasting about nine days, before the emergence of the imago. The wings of the newly hatched fly were crumpled and moist. Until these dried the young fly could only crawl. The recognition of this stage was most helpful in

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

BILLS.

Dentists Bill.—A Dentists Bill introduced by the Marquess of Sligo was read the second time in the House of Lords on July 24th. It had already passed all its stages in the Commons. Under the Act of 1921 the right of admission to the *Dentists Register* was extended to unqualified men who had served in the war and had before July 18th, 1921, attained the age of 23—provided that they passed a specified examination, though not the whole course. The bill proposes that the concession shall apply to ex-service men who had, before the date of November 11th, 1921, attained the age of 21—in other words, it extends the age of concession by two years and a few months. The Earl of Onslow said that the Government looked with favour upon the bill.

Intoxicating Liquor Bill.—The bill to restrict the sale of intoxicating liquor as regards persons under 18 years of age was passed through Committee in the House of Lords without amendment on July 24th and read the third time on July 25th.

Smoke Abatement Bill.—On the motion of Lord Onslow, on July 25th, a Smoke Abatement Bill, to stiffen the law and enlarge penalties, was given second reading. Viscount Novar, Secretary for Scotland, said he hoped to introduce a second bill for that country this autumn. Lord Onslow announced, in reply to inquiry, that he would endeavour to press his measure during the autumn session.

National Health Insurance (Consolidation) Bill.—This measure, introduced in the Upper House by the Earl of Onslow on behalf of the Government, was read the second time on July 26th. The Minister stated that as soon as it was passed the Government would undertake the duty of consolidating the many statutory regulations which governed National Health Insurance.

Small-pox and Vaccination.

Mr. Adams asked, on July 25th, whether in view of the fact that public vaccination was controlled by the Poor Law authorities who had no responsibility for the prevention of small-pox, the Minister of Health would take steps to transfer their powers in this connexion to the health authorities. The Minister of Health (Mr. Neville Chamberlain) said that this suggestion was under consideration in connexion with the general question of possible amendment of the Vaccination Act.

Mr. Rhys Davies asked under what Act a medical officer of health had power to isolate compulsorily healthy people; and whether he would inquire into the fact that the medical officer of health of Taunton threatened a perfectly healthy family from Gloucester with a period of isolation if they persisted in their refusal to be vaccinated, and in consequence the family returned to Gloucester where they were examined by the small-pox officials and given a clean bill of health. Mr. Chamberlain said he was not aware of any Act of Parliament conferring upon a medical officer of health power to order compulsory vaccination. He promised to communicate with the local authority in regard to the particular allegation.

Insulin Treatment for Diabetes.—Viscount Ednam asked, on July 25th, whether diabetic sufferers were able to obtain insulin treatment at a lower cost than 10s. a day, although panel patients under the Insurance Act were obtaining free treatment. Mr. Chamberlain replied that the average cost of insulin was at present about one-third of the figure mentioned, though the treatment of exceptionally severe cases, such as must go to an institution, might cost more. It was within the power of the guardians, on the advice of their medical officer, to pay for the supply of insulin in cases of destitution. He did not agree with Viscount Ednam that the Ministry should control prices. The cost had been reduced already very materially, and there was good reason for hope that it would be further reduced.

Private Patients in Mental Institutions.—Lord E. Percy, on July 26th, dealing with a lengthy question by Mr. T. Griffiths, said that in the year 1922 there were three private institutions in the provinces which had failed to comply fully with the requirement of Section 8 of the Lunacy Act. This failure did not invalidate the reception orders. The authorities concerned had been warned and had given assurances that the law would be strictly observed.

Answers in Brief.

The Minister of Health informed Mr. Adams, on July 25th, that the reorganization of the registration service was being considered, and a suggestion that the administration should be transferred from the Poor Law to the health authorities would be borne in mind.

Only four authorities in Scotland have taken exception to the draft minute issued recently by the Scottish Education Department providing for the payment from the Education (Scotland) Fund of grants in aid of training of health visitors. As the Scottish Education D[illegible]

The Minister of Health has stated that the form which would be issued to vaccination officers by his department would be that set out in the schedule to the Vaccination Act, 1907. The Order recently issued stated that declarations must be made in a form which might be obtained from the vaccination officer, or in a form to like effect. It did not mean that a person who wished to make a conscientious objection must apply to the vaccination officer for the form.

INTERNATIONAL PHYSIOLOGICAL CONGRESS.

MEETING IN EDINBURGH.

WE reported last week the inaugural meeting of the eleventh International Physiological Congress which began in Edinburgh on July 24th, and presented a reproduction of the medal of the Congress showing on the obverse the head of William Harvey to the left, and on the reverse the name and date of the Congress.

Insulin.

Immediately after the conclusion of the President's address Professor J. J. R. MACLEOD of Toronto gave a lecture to the Congress, the full text of which is published at page 165.

In the afternoon Professor Macleod gave a demonstration of lantern slides bearing on insulin. Among the points illustrated was that the hypoglycaemia, respiratory increase, and restlessness, followed by convulsions, which were caused by excessive doses of insulin, all showed a close parallelism; it was, however, necessary to distinguish carefully between some of these symptoms, which were directly due to insulin, and others, like the convulsions, which were a secondary toxic condition. He drew attention to the fact that in addition to exogenous hyperglycaemia there were numerous forms of endogenous hyperglycaemia, due to sudden mobilization of the glycogen of the liver—for example, that produced by epinephrin. This could be controlled by insulin, as could also the hyperglycaemia following puncture of the hind-brain. The lantern slides showed very strikingly the uniformity with which this occurred. An interesting series of observations had been made by Dr. Allen upon the effect produced by insulin administration upon the metabolism of proteins; it had been shown that nitrogenous substances were saved, just as were carbohydrates, under the influence of insulin.

Dr. F. G. BANTING (Toronto) read a paper upon insulin, using that term to signify a substance, isolated by chemical means similar to that used in making preparations of the pancreas, which would not only lower blood sugar in rabbits, but also in depancreatized dogs, and which would relieve their symptoms. It had been shown, he said, that insulin occurred in the blood of normal man, dog, and rabbit, but it could not be demonstrated in the blood of depancreatized dogs. Whether it was contained in the cells or plasma had not been determined. Approximately one unit of insulin could be obtained from 30 c.cm. of normal rabbit blood. The blood of a rabbit showing hypoglycaemic convulsions contained more insulin than that injected to render it hypoglycaemic. The tissues (except the pancreas) of such hypoglycaemic rabbits did not contain demonstrable amounts of insulin. The urine of normal man contained small amounts of insulin. The whole blood of hypoglycaemic rabbits in convulsions injected intraperitoneally into normal rabbits or mice produced no symptoms of lowering of blood sugar. Dr. Banting suggested that this was due to some antibody, or to the insulin being involved in some complex, from which it was only liberated by the process of extraction.

He then proceeded to speak of the factors influencing the production of insulin. While in certain early cases of diabetes mellitus no morphological changes in the pancreas could be demonstrated histologically, more advanced cases did show changes, and in certain types of diabetes these were of a purely degenerative character. This might suggest that in these cases the islets had suffered from prolonged overwork, that the metabolism of sugar threw a strain on them, and that sugar might stimulate insulin production. An attempt to demonstrate this action had been made as follows. Dogs were anaesthetized with ether for thirty minutes and immediately afterwards received an intravenous injection of 2 grams of glucose per kilo of body weight. This caused a sharp rise in blood sugar, with an abrupt fall to a subnormal level, then returning to normal; the whole period of fall being approximately eighty minutes. Subsequently the same dogs, during the period of anaesthesia, were depancreatized and immediately given the same amount of glucose intravenously. The[illegible]

method are sufficient to counterbalance the disadvantages which its wholesale application would entail. That it has its uses in selected cases no one will deny.

The book is well got up, printed on good paper, and the illustrations are excellent, both from a practical and an artistic point of view. There is an adequate index and a foreword by William J. Mayo, M.D. Altogether the volume can be recommended to those who are interested in a new and growing department of the art of anaesthesia.

ARROW POISONS.

Die Pfeilgifte,[3] by Dr. L. Lewin, is an encyclopaedic account of the arrow poisons used throughout the world. The author deals with each continent in turn, and proceeds region by region to give an account of the arrow poisons used by hundreds of different tribes of savages.

In most cases the sources of the poison, the mode of preparation, and the pharmacological nature of the poison, are all given. Many hundreds of different poisons are dealt with in this manner. Needless to say, such a book could only have been written by a scholar with a wide knowledge of toxicology and ethnology. In addition, much of the information concerning the pharmacology of the poisons is original work by Dr. Lewin. In his preface he states that the book is the product of thirty years' work.

The book will appeal to several classes of persons. The preparation of arrow poisons is usually a carefully guarded secret, and in most parts of the world the more civilized races drastically discourage the preparation of poisoned arrows by the more primitive races; this policy increases the difficulty of obtaining any accurate information on the subject. Dr. Lewin's book should therefore be of considerable value to administrators and doctors in such countries as tropical Africa and the Malay Peninsula, where the use of poisoned arrows is particularly prevalent. The work is essentially one of reference, and for this reason we would suggest that it would be improved by fuller indexing; an author index in particular would be of value.

The first impression produced by the work is one of surprise that the use of poisoned arrows should be so prevalent and that there should be such an amazing number and variety of arrow poisons. Whilst the art of healing is represented amongst most savage tribes by a confused jumble of superstitions which at the best are useless, but usually actively harmful, yet in the art of destruction even the lowest savages show a most surprising degree of skill and ingenuity. A misanthropist might be tempted to moralize on this, but in fairness to the savages it must be remembered that poisoned arrows are used for hunting as well as for war, and the more primitive the weapons the more essential is poison if large animals are to be attacked. The skill shown by savages at the lowest stages of culture in discovering poisons for weapons is surprising all the same. Dr. Lewin considers it certain that poisoned weapons were used in Europe as early as the Magdalenian period. This is the more unexpected as Europe is not rich in poisonous plants; indeed, aconite and white hellebore are almost the only European plants likely to yield an effective arrow poison.

Arrow poisons reach their highest efficiency and complexity in the Malay Peninsula, and some of the poisons prepared there are made from as many as twenty constituents, the chief being the juice of the upas tree, so famous in fable. It is remarkable that all over the world glucosides allied to the digitalis series, and obtained from the most varied sources, are used as arrow poisons. In West Africa strophanthin is obtained from the climbing shrub strophanthus, while in South America the natives obtain a similar type of poison from the poison glands of toads. In the Malay Peninsula antiarin, a glucoside with an action like that of strophanthin, is obtained from the upas tree.

The complexity of the arrow poisons is, however, in many cases purposeless—for example, the bushmen of South-West Africa use a poison prepared chiefly from vegetables, and add to it snake venom, but since they subject the mixture to prolonged boiling to bring it to the right consistency the snake venom must be rendered completely inert. Some tribes, however, know how to use toxalbumins such as snake venom for arrow poisons, for they drop the fresh poison on to the arrow and dry it in the sun. The bushmen of the Kalahari desert prepare a poison of great virulence from the larvae of a beetle (*Diamphida simplex*). Lewin found that one-quarter of the juice obtained from one larva, which weighed about two grains, sufficed to kill a dog. The bushmen, it is reported, kill lions with arrows poisoned in this way. In another part of the book the use of curare by the natives of South America is fully described, and physiologists will find a very complete description of the origin and constituents of the different varieties of this poison.

Dr. Lewin's book, dealing with all parts of the inhabited globe and with all periods of human history, contains a wonderfully interesting and full account of a very curious aspect of human culture. We believe it to be much the most complete treatise that has yet appeared on this subject.

[3] *Die Pfeilgifte: nach eigenen toxicologischen und ethnologischen Untersuchungen.* By L. Lewin. Leipzig: J. A. Barth. 1923. (Med. 8vo, pp. xi+516; 75 figures, 1 plate.)

THE PRACTICE OF PREVENTIVE MEDICINE.

Although it was not until the beginning of the present century that any serious efforts were made in Canada in the direction of public health organization, it is already being realized in the Dominion that curative medicine and preventive medicine are very closely allied, and that the general practitioner must not be ignored in any public health scheme. Dr. J. G. Fitzgerald, professor of hygiene and preventive medicine in the University of Toronto, has written *An Introduction to the Practice of Preventive Medicine*[4] with the object of outlining "some of the work of the physician who is to function on the preventive as well as the curative side of medicine." Although at the outset the practitioner may be alarmed at the sight of a volume of 800 odd pages which only outlines the subject with which it deals, he will not need to read very far before discovering that the author is an original thinker who is able to place facts and conclusions before his readers in an attractive and helpful manner. He looks forward to a time when everyone in the community will feel that an actual stigma attaches to one who has a preventable physical or mental disability and when the physician will be engaged to keep his patient well by routine examination, by supervision and advice. Nearly one-third of the volume is concerned with transmissible diseases, each being dealt with separately as regards its etiology, incidence, mode of transmission, and methods of control. With respect to the last, much sensible advice is given. For example, in the chapter on diphtheria the practitioner is reminded that he and not the laboratory makes the diagnosis, and that the bacteriological examination of a swab is only part of the evidence upon which a diagnosis should rest. Dr. Fitzgerald considers it highly desirable that the quantity of antitoxin which it is decided to administer should be given in a single dose, not in divided doses. He does not give much assistance in dealing with the difficulties connected with the control of diphtheria carriers. He admits that antitoxin is not a specific for the permanent relief of such carriers because it does not kill diphtheria bacilli but simply neutralizes any toxin they may produce. He considers that removal of diseased tonsils and of adenoids and the correction of deviations of the nasal septum may in many instances result in the disappearance of the germ because their lodging place has been removed or rendered unsuitable.

The control of measles in the mass is the despair of most public health officers; we turn, therefore, with interest to the advice tendered the family doctor who is attending individual cases. Stress is laid on the importance of the two earliest symptoms of measles—namely, rise of temperature and oedema of the conjunctiva. The temperature should be taken morning and evening, particularly on the eighth, ninth, and tenth days after exposure. The medical practitioner is urged to have clearly in mind the periods of incubation and infectivity of the disease and to remember that the

[4] *An Introduction to the Practice of Preventive Medicine.* By J. G. Fitzgerald, M.D., F.R.S.C., assisted by Peter Gillespie, M.Sc., M.E.I.C., and H. M. Lancaster, B.A.Sc. London: Henry Kimpton. 1923. (Roy. 8vo, pp. xx+826; 129 figures. 37s. 6d. net.)

sterior roots still caused some flushing on the homo-teral side. This seemed to prove that the capillaries re affected independently of arterial blood pressure, either rectly by nerve impulses or by metabolites. Whether the gital arteries or their branches dilated was more difficult determine. In the cat each toe was supplied by a single tery, one side by the central part and the other side by the eripheral part. When the sensory fibres to the peripheral art were stimulated, usually one-half of the toe only ushed, the other half becoming pale. When the sensory bres to the central part were stimulated, the flush usually read farther over the mid-line, but a small oval pale rea was left on the opposite side. The greater outspread f flushing in the latter case suggested arterial dilatation, ut if this occurred the whole of the opposite side should lush. Flushing in one part of the foot was usually accom-anied by pallor in the rest of the foot. It occurred after ection of the nerves to the foot, and did not appear to be lue to an axon reflex. This showed that capillary diameter vas greatly dependent on local blood pressure.

Humoral Transmission of Nervous Impulses.

Professor H. J. HAMBURGER (Groningen) said that hitherto physiologists had recognized two methods of co-operation between organs—one established through inter-ference of the central nervous system in cases where a quick response is needed (reflexes), the other coming into play where slow processes are concerned, exemplified by the influence of the thyroid secretion on metabolism and growth, and where a correlation is possible without any nervous con-nexion (graft under the skin of the abdomen). A new third form of correlation between organs, used in processes neither slow nor quick, was activation of substances set free by means of nervous stimulation. Experiments made by Dr. R. Brinkman, Miss E. van Dam, and Dr. L. Jendrassik had demonstrated that on nervous stimulation of the heart substances were set free that influenced the contractions of the stomach and the gut in the same way as if the nerves of those organs were stimulated by an electric current. The substances liberated by stimulation of the vagus quickened the movements of stomach and gut. Those liberated on stimulation of the sympathetic of the heart stopped the movements of the stomach. That such substances really existed could be proved directly by physico-chemical methods. This humoral transmission suggested a number of problems. Thus the physiologist would consider the latent period and the after-effect of vagus stimulation on the heart beat in connexion with the liberation of certain substances. The clinician would think of the bearing of these facts on the nature of vagotonia and sympathetico-tonia, and would endeavour to neutralize the unfavourable influence of these substances. On the supposition that there might be a reserve of vagus substances in the atrium of the newly killed rabbit, an extract in Ringer's fluid was made. It appeared that this extract had the same influence on the contraction of the gut as stimulation of the vagus. This influence was neutralized by atropine. It seemed certain that a correlation similar to that described would be found between other organs also. There was much evidence to lead to the belief that the three forms might finally be reduced to one.

Alternating Periods of Activity and Rest as a Property of Living Tissues.

Professor P. T. HERRING (St. Andrews) said that the alternation of periods of full activity and complete rest appeared to be common in living tissues. It had been observed in the capillary blood vessels of muscle and skin by Krogh, and in the glomerular and other blood vessels of the kidney by Richards. It had been noted in voluntary muscle by Barbour and Stiles. Fluctuation was observable in some of the receptors of the skin and had been recorded by Waterston in regard to the sensations of heat and cold. There was reason to believe that fluctuation was of normal occurrence in nerve, muscle, and glands. The assumption of a "law of fluctuation" appeared to be necessary in the case of all tissues which obeyed the law of "all or nothing." That law applied to the tissue units, and the organs com-prised of such units could only manifest gradation of activity by the employment of varying numbers of units. The law assumed that in the moderate activity of an organ the groups of units which were in action were constantly varying so that all units were employed in rotation, individual groups coming into action and going out of action in orderly sequence. This arrangement prevented undue fatigue of the units, permitted varying degrees of graded activity of the organ as a whole, and preserved an important reserve which could be brought into action when the necessity arose if there had been long periods of disuse. Fluctuation might be ascribed to fatigue in recep-tors and synapses, or might be an inherent property of certain cells. Its occurrence provided an explanation of many physiological and clinical phenomena.

The Sensory Activity of the Skin.

Professor DAVID WATERSTON (St. Andrews) recalled that it had been shown by Goldscheider, by Head and Rivers, and by others that the cold and hot spots of the skin were variable and inconstant and readily exhausted by stimula-tion. By repeated examination of a marked area of skin it had been found that the total number of receptive spots was very much larger than those detected at a single examination. When the local condition of the skin was modified by the application of a mustard leaf practically all points of its surface were found to be sensitive to warmth. It followed that the whole skin surface was potentially capable of receiving thermal stimulation, but that at any one time only a few points were active. There was a coming and going of activity, analogous to the fluctuation found in the skin capillaries. Experiments showed also that the receptor mechanism for the sensation of touch was formed by the epithelial cells, and not by the "tactile" organs found in the deeper layers of the skin and the subcutaneous tissues.

Water Intoxication.

Dr. LEONARD G. ROWNTREE (Rochester, Minnesota) said that in man and animals (dog, cat, rabbit, and guinea-pig) water ingested in excess of the excretory ability of th organism resulted in water intoxication. Water intoxica tion was manifested by restlessness, asthenia, polyuria frequency of urination, diarrhoea, salivation, nausea, retch ing, vomiting, muscle tremor and twitching, ataxia, toni and clonic convulsions, frothing at the mouth, helplessness and stupor and coma. The convulsions were general, ex tremely violent, and in the main resembled those of strych nine poisoning. They might recur at intervals of a fe minutes. The condition terminated in death unless th excessive intake of water was discontinued. As a rule manifestations of water intoxication disappeared prompt after the intravenous injection of hypertonic salt solutio in appropriate quantities. The effect of the excessive ad ministration of water on the blood had been studied i detail. Water had been given at half-hourly intervals i amounts of 50 c.cm. for each kilogram of body weight. Th haemoglobin concentration was found to fall progressively This change might be as great as 25 per cent., and wa most rapid between the second and third hours after startin the experiment. It continued to increase slightly as lon as the water was given. The haemoglobin returned to normal in from twelve to twenty-four hours after ingestion was discontinued. There was a decrease in the refractive index indicating a diminution of the protein per unit of blood serum. The viscosity was decreased. The change in protein content was similar to that in the haemoglobin content of the blood. The salts in the blood serum were likewise decreased. The changes in protein, haemoglobin, and salts (chlorides) were similar, and approximately of the same magnitude. Part of the change might be due to a washing out of salt by diuresis and vomiting.

Demonstrations.

On Friday morning several cinematograph demonstra-tions were given by G. P. ZELIONY (Petrograd) on observa-tions on dogs with cerebral hemispheres removed; by S. SIMPSON (Ithaca, N.Y.) on the gait in thyroidectomized sheep; by A. KROGH (Copenhagen) on capillary circulation; by O. FRANK (Munich) on the cardiogram; and by E. RETTERER and S. VORONOFF (Paris) on the relation of physio-logical phenomena with the structure of grafted testicles.

(To be continued.)

he is not entirely familiar with medical science—for example, the sentence "Salimbeni and Gery carefully examined the tissues of a woman of 93, in which were found little cells coming from the lymphatic ganglion and the spleen" has a rather unusual sound. The work is beautifully illustrated, especially the chapter entitled "The old as viewed by the artists," including Rembrandt, Jordaens, von Lenbach, and Leonardo da Vinci's portrait of himself, which is described as that of a man who has seen, judged, and suffered everything, and no longer expects anything from anybody, the head of a lion overcome by old age.

Although the worst record is presented by dramatists, poets, and writers of romances, the author concludes that the best prospect of a long life is found among the intellectual and actively minded. The view of various philosophers and men of letters on the physical and moral states of old age, from Cicero to F. Faguet (obiit 1919), are collected into a chapter which is followed by a detailed account of the structural changes. Old age is defined as a disease of the colloids, the protoplasm, and the interstitial tissues of the body. The mental characteristics and behaviour of old men are fully considered, with many references to well known historical personages, and to the views of Pierre Janet, Bergson, and Freud. The concluding chapter on the hygiene of old age contains much sage advice, recalling the directions of the late Sir Hermann Weber, who is duly quoted, on exercise, diet, and so forth. Sleep should last at least six hours and never more than eight, though bed may be utilized for work or reading; of books, the author's five favourites are the Bible, Plutarch's Lives, Horace, Montaigne, and Sainte-Beuve's *Lundis*. In conclusion, it may be said that Professor Lacassagne's essay is an interesting storehouse of information with a personal touch and a pleasant flavour of scholarly lore.

MORBID HISTOLOGY.

To the student commencing his practical studies in pathology, Dr. DONALDSON's *Practical Morbid Histology*[8] should prove very helpful. The author's plan has been to select a series of pathological lesions which shall include all those usually studied in the class of practical pathology, and to describe each lesion in language very similar to that which would be used in demonstrating an actual microscopic slide. The student, with his slide before him, will find in these descriptions all the important points to be recognized in the section. By marking those points which he has succeeded identifying he will be relieved of the necessity of making own notes, which his inexperience is apt to render defective; and he will thus have a record of what he has himself observed and of any details that the section has failed to illustrate. Later in his course of studies the student will find the book useful as a reminder of his previous observations and the particulars in which his knowledge needs supplementing.

Dr. Donaldson has wisely refrained from inserting any diagrams or illustrations. There can be no doubt that a good figure is of very great value in conveying a correct idea of a lesion, and many would consider it superior to any verbal description. But this would apply only to experienced microscopists; and it cannot be too strongly impressed on beginners that one of the principal objects of the practical class is to teach him how to use the microscope for the observation and interpretation of pathological changes. Illustrations tend rather to relieve him of the necessity of making an effort to this end, and are best dispensed with, at least in the earlier stages.

The author has gone somewhat beyond the scope indicated by the title of his book, in adding fairly full descriptions of the macroscopical appearances of the affected organs. It is not unusual in classes of practical histology to introduce specimens from the museum or *post-mortem* room; the addition of these descriptions is therefore justifiable, and the student is placed in a position to judge how far the changes observed in the microscopical sections are recognizable in the naked-eye preparations. Of less value, perhaps, are the brief accounts of the pathogeny of the several diseases, which have been inserted with a view to forming a link with the textbooks of general pathology.

Forty pages are devoted to technical matters, including fixation, hardening, embedding in paraffin and celloidin and staining. The instructions given are clear and full, and the staining methods recommended cover all that the student will require. A series of tables has been arranged in an appendix setting out the characteristics of the various worm parasites and their ova, together with brief notes regarding their life history. The book is one that will be welcomed alike by teachers and students.

[8] *Practical Morbid Histology.* By Robert Donaldson, M.A., M.D., Ch.B.Edin., F.R.C.S.E., D.P.H. With a foreword by Sir H. Rolleston, K.C.B., M.D. London: W. Heinemann (Medical Books), Ltd. 1923. (Demy 8vo, pp. viii+364. 15s. net.)

TOMES'S "DENTAL ANATOMY."

THE eighth edition of TOMES's *Dental Anatomy*,[9] the standard textbook on the subject, has been edited by MARETT TIMS and BOWDLER HENRY. The book deals with both human and comparative anatomy and considerable additions have been made, especially to the description of the human teeth but the work remains as captivating and absorbing as found it on first acquaintance many years ago. We thought then, and we still think, that comparative dental anatomy was of no practical use to us, and we wonder what the dental student thinks now when the medical aspect of his profession is much more apprehended than it was thirty years ago. But Dr. Marett Tims is appealing not only to the dental student: he has in mind the anthropologist, and from this point of view we may suggest that an account of the common, or normal, variations of the human teeth might be included.

Remembering the preliminary report of the Royal Commission on Dental Caries, with its discussion of the existence and significance of organic matter in enamel, it is interesting to find the author roundly declaring that "there is no organic matter at all (in any noteworthy amount) in enamel"—and we are bound to say he seems to us to establish his point.

That dentine is (in evolution) the oldest calcified tissue is a point that will surprise and interest many. The assertion that there would seem to be very little doubt that the cementum (of the neck of the tooth) is sensitive is a point we should absolutely contradict on clinical evidence. We should have liked a better description of the upper wisdom tooth of the Talgai skull than that "it is large but with the usual characteristics of an unerupted tooth," and we do not quite understand the statement (p. 127), "small rounded aggregations of pavement epithelium are met with at a little depth or even embedded in the surface"—are they under the surface or exposed? But such faults are few and every student of odontology will be grateful to Dr. Marett Tims and Mr. Henry for this enlarged edition. The short account of human prehistoric remains—among which Galley Hill Man is included—adds greatly to the interest of the book.

NOTES ON BOOKS.

THE first edition of Dr. ABRAHAM LEVINSON's beautifully illustrated and finely got up monograph on the *Cerebro-spinal Fluid in Health and Disease* was reviewed in our columns (1919, ii, 634). The call for a second edition[10] has given opportunity for revision and addition so that the volume contains 46 more pages, 8 more illustrations, and costs 7s. more. The foaming of all pathological fluids on shaking, which lasts for half an hour or longer as compared with a persistence for a few minutes only in normal fluids, is of greater size and longer duration in acute meningitis, and has been shown by the author to be due to the increased protein content and not to carbon dioxide. In encephalitis lethargica the type of cell in the cerebro-spinal fluid is inconstant, being in some cases a small lymphocyte, in others the polymorphonuclear leucocyte, but the author has found that there is often an increase in globulin without a corr

[9] *A Manual of Dental Anatomy, Human and Comparative.* By Sir Charles S. Tomes, Kt., LL.D., F.R.S., F.R.C.S. Eighth edition, edited by H. Marett Tims, O.B.E.(Mil.), M.A.Cantab., M.D., M.Ch.Edin., F.R.A.I., F.Z.S., with the assistance of C. Bowdler Henry, L.R.C.P.Lond., M.R.C.S., L.D.S.Eng. London: J. and A. Churchill. 1923. (Demy 8vo, pp. 54[illegible] 323 figures. 16s. net.)

[10] *Cerebro-spinal Fluid in Health and Disease.* By Abraham Levinson, B.S., M.D., North-Western University Medical School. Second edition. London: Henry Kimpton. 1923. (Med. 8vo, pp. 267; 5 coloured plates, 61 figures. 25s. net.)

B.M.A. Reception for Edinburgh Graduates.

At the Edinburgh Graduation Ceremony on July 20th, when as reported last week over 200 graduands received the degree of M.B., an interesting innovation was introduced by the Edinburgh and Leith Division of the British Medical Association, which held a reception on Tuesday, July 17th, in the hall of the University Union. It was attended by about two-thirds of those about to graduate. The Chairman of the Division, accompanied by a number of members of the Association, received the guests. Copies of the *Handbook for Newly Qualified Medical Practitioners*, published by the Association, were handed to the guests on arrival. After tea the company was entertained with various musical items by Mr. Watt Jupp, violinist, and Mr. Paterson Lamb, pianist. An address of welcome into the medical profession was delivered by Professor Lorrain Smith, Dean of the Faculty of Medicine in Edinburgh University, who dealt with some of the difficulties that had to be faced by practitioners at the outset of a medical career, and emphasized the great advantages that accrued from the pursuit of other interests and hobbies, and from co-operation between members of the medical profession. Dr. James R. Drever, Scottish Medical Secretary of the British Medical Association, then gave an address dealing especially with the functions of the British Medical Association and the advantages to be gained both by the individual members and by the profession at large from making the membership as nearly as possible inclusive of everyone in active practice. A most enjoyable meeting terminated with a vote of thanks, proposed by the Chairman, Dr. John Stevens, to Professor Lorrain Smith for his address.

Medico-Sociological Society of Edinburgh.

An excursion was made on July 7th by the members of the Medico-Sociological Society of Edinburgh to two ancient buildings of great importance in Scottish medical history. The society first proceeded to Torphichen Priory, some twenty miles west of Edinburgh. One of the members of the society stated that a colony of the Knights of the Order of St. John of Jerusalem had settled there in 1124, and had prospered greatly, inheriting all the Scottish property of the Templars on the suppression of the latter order in 1312. Throughout four centuries the Knights, both here and at almshouses and hospitals in other places, tended the sick poor. They had also tended the injured wayfarer, their most celebrated patient having been Edward I of England, when kicked by his horse at Falkirk in 1298. At the Reformation the Scottish Preceptory had been disbanded, the Preceptor becoming a temporal Baron with the title of Lord Torphichen. The Norman remains in the Gothic building were inspected by the society, as also the stones of sanctuary, a privilege which the Priory had possessed. The party then proceeded to the House of Kipps in the immediate neighbourhood. Here Sir Robert Sibbald had been born and had spent a large part of his later life in medical practice. He had been responsible for obtaining the Charter of the Royal College of Physicians of Edinburgh in 1681 through the mediation of Sir Charles Scarburgh, who came to Scotland as physician to the Duke of York. In 1685 Sibbald, with Archibald Pitcairne and James Halket, had become the first professors of medicine in the University of Edinburgh. Sibbald and his friend Pitcairne had thus been the founders of a medical school in Edinburgh. The House of Kipps formed still a fine example of the fortified Scottish country home of the sixteenth century.

Extension of Medical Benefit.

At the annual meeting of the representatives of branches of the Scottish Rural Workers' Approved Society in the Lothians District on July 14th, a memorandum by the Board of Management explained that the Society was now providing for its members, through the agency of the Scottish National Benevolent Association, dental treatment, medical and surgical appliances, and spectacles and other optical appliances. The secretary stated that these benefits, particularly dental treatment, were now being requested by members on a considerable scale, and that nearly £3,000 had been expended since these benefits had begun four months previously. It was reported that during 1922 sickness, disablement, and maternity benefits had accounted for £64,853 and medical benefit for £42,000. Donations amounting to £2,500 had been granted by the society to hospitals and district nursing associations in respect of 1922, including a donation of £325 to the Royal Infirmary of Edinburgh.

Ireland.

Free State County Councils.

Many matters of medical interest were discussed at a recent meeting held in Dublin of the Irish County Councils General Council (Free State). The principal questions under consideration were health (including tuberculosis, maternity and child welfare), reconstruction, and unemployment, in which connexion the demobilization of the army was discussed.

A recommendation in the report of the Standing Committee on health matters was adopted, proposing that the qualifications of all candidates for surgical, medical, and veterinary appointments by Local Health and Poor Law Authorities be in accordance with regulations made by the Minister of Local Government, to include competitive examinations, practical as far as possible.

The Committee also recommended the repeal of the Medical Charities Acts, and in substitution, the extension of medical benefit to insured persons and their dependants and the preparation of a register of those unable to contribute towards the cost of medical treatment, and the provision of such treatment for this class. The establishment of a medical service, paid by the State, and appointed under arrangements made by the State Health Authority, was recommended. It was agreed that the forthcoming legislation should make the present permissive health legislation mandatory on local authorities.

The Committee also recommended that tuberculosis, both human and bovine, should be made compulsorily notifiable. It was agreed to recommend that compulsory powers be given to the Tuberculosis Medical Officer to isolate persons suffering from tuberculous diseases where he considered isolation essential in the interests of public health. Recommendations were adopted also calling for effective inspection of cattle in respect of bovine tuberculosis; the application of the tuberculin test to milch cattle; the inspection of cowsheds, dairies, bakeries, and slaughterhouses; and for preventive treatment in the case of persons especially liable to contract tuberculous disease. It was agreed that there ought to be an abattoir in every city, town, and urban district with a population of 10,000 and over.

Approval was given to the scheme for medical inspection and treatment of school children and enforcement of regulations against overcrowding.

Victoria.

[From Our Own Correspondent.]

The Melbourne Hospital.

The Melbourne Hospital, one of the clinical schools attached to the University of Melbourne, was re-erected on its present city site some twelve years ago. It was felt then as now that the retention of that site was a mistake. It is completely divorced from the University, has no possibility of extension on its restricted area of five acres, is everywhere surrounded by city property, and, in some respects, particularly its out-patient department, is out of date. There has, therefore, been again raised the question of re-erecting the hospital on what is known as the Horse Market site. This site covers over sixteen acres, is in the closest proximity to the Medical School, is on high-lying land with an abundance of fresh air, has large possibilities of extension, and could be made to serve a much larger area of population than at present. The advantages

sterilization of their instruments, aseptic methods, were prophylactic measures against bacterial infection. It sounded like heresy, but it might be possible for a surgeon not aseptically efficient to vaccinate the patient against the few microbes he was likely to introduce. It might be heresy, but it was intellectually sound. There were certain cases they could not take precautions with, and the only way here was to raise the patient's resistance. Such operations were avulsion of teeth and excision of tonsils. A great many cancers came to the surgeon already infected with streptococci and staphylococci. He believed that the swollen arms seen after breast operation were due to streptococcal infection. What was the treatment of bacterial disease? Lister thought bacteria could be killed in the tissues by antiseptics. This was impossible and unsuccessful. The last thing an antiseptic would attack was the highly resistant microbe; an antiseptic would attack any other prey before a microbe. If they had organisms in a test tube and put in an antiseptic the chemical would attack the bacteria because it had nothing else to attack. The case was very different when an antiseptic was added to bacteria in an albuminous fluid. It went then for the fluid and not for the bacteria. Similarly it went for blood rather than the microbe in the blood. They could get better cultures from blood containing bacteria to which antiseptics had been added than from similar blood without antiseptics. The addition of antiseptics into blood or tissues was a foredoomed failure. He wished to use certain new words. "Prophylaxis" meant to take protective precautions in advance. He would shorten this to "phylaxis." Hence the phylactic power of the blood was the power the blood had of taking care of itself. "Ec-phylaxis" meant a part into which the body fluids did not penetrate, as an abscess cavity—an ec-phylactic focus. "Kata-phylaxis" meant the bringing of the protective powers of the body to the part where they were needed. Surgical methods of producing kata-phylaxis were the opening of an abscess, the application of a fomentation or 5 per cent. salt solution. The last new word was "epi-phylaxis." If they could not get what they wanted by the blood, by kata-phylaxis, etc., then they might resort to epi-phylactic measures. They would never be able to do away with their operations, but they could increase resistance by epi-phylactic means. There might be a time when the patient's blood gave no immunizing response to vaccines; then if the abscess were opened and immediately another sample of blood taken an immunizing response might be given. Not every patient nor a patient in every condition could respond. If the patient's leucocytes were so poisoned that they could not respond, the first thing in treatment was to get rid of the microbes. For local infections a proper dose of a proper vaccine must be given. Pasteur said give a living vaccine; the speaker and others said give a dead one. Next arose the question of an autogenous or a stock vaccine. The more he considered this question the more difficult did it become to make out a case for the autogenous vaccine. A man with sixty furuncles might have a separate organism in each! There was justification for the autogenous vaccine if there were not a suitable vaccine in stock. With regard to dose it was most important to apply the right quantity. The only way to judge the right dose was to test the response of the blood. They could not possibly go by clinical symptoms. Vaccine therapy did a great deal if the right dose were given and the patient were capable of response. There were cases where the patient was so ill that one hesitated to give a vaccine. Would a vaccine to an already intoxicated system do good or just intoxicate more? In these cases the blood must be tested. If there was no response in the leucocytes it was useless to try vaccination unless the surgeon could come in first and get rid of the poison. Immunotransfusion was the correct treatment in these cases. The normal and slightly ill man could give active immunization, but the graver cases needed passive immunization—serum therapy. In hospital the relatives should be warned, a compatible and willing man taken and inoculated with a suitable vaccine. In two or three hours the blood was drawn off, defibrinated, and 500 c.cm. introduced. Citrated blood should not be used since it pulled down the power of the leucocytes. It should be remembered that vaccinotherapy was not applicable to all diseases. The patient might be too ill for this treatment.

Dr. ALEXANDRE ZAWADZI (Varsovie) advocated the use of autogenous vaccines in septic cases and especially in cases of calculous cholecystitis. Vaccination was a great help to surgery in such patients. The operation ought to be considered as a first vaccination with living microbes. It should not be thought, however, that vaccino-therapy would help a case in which there was no vital resistance left. In especially acute infections it might be wise to vaccinate with living organisms, after the manner of Besredka. In cases where it was impossible to obtain microbes for culture purposes he had found that injections of sterilized milk or fresh white of egg helped greatly.

Dr. MAYER (Brussels) pointed out that vaccino-therapy helped, but should never be taken to replace surgery.

Dr. LECLERCQ (Morristown, New Jersey) and Dr. ZAHRADNICKY (Prague) also spoke.

OPERATIVE SHOCK.

Dr. CRILE of Cleveland, U.S.A., opened the discussion by elaborating a theory that men and animals were electro-chemical mechanisms to whom the laws of chemistry and physics might be applied in interpreting the action of therapeutic agents and measures. Each living cell consisted of two parts—the nucleus and the cell body—separated from each other by a selective semi-permeable membrane. The nucleus and body could not best be stained by the same medium, the one taking most successfully an acid stain, the other an alkali. The content of each, in the main, consisted of colloidal solutions. Two colloids of different reactions, separated from each other by a semi-permeable membrane, constituted an electric cell. Each cell of the organism was therefore a true electro-chemical unit—an electric cell. Since all organs and tissues of the body were multiples of these ultimate units, then each organ and tissue must be an electro chemical mechanism, as must the whole organism. Careful measurements of the electrical conductivity of organs under varying conditions indicated that the first effect of stimulation within the organism was a slight decrease in the conductivity of the liver, followed by a rapid continuous rise in that organ as the state of exhaustion approached; a slight and prompt increase in the conductivity of the cerebellum followed by a gradual continuous fall; a relatively slower increase in the conductivity of the cerebrum followed by a gradual continuous decrease. In tracellular histological changes following excitation and exhaustion were paralleled by changes in electrical conductivity. Changes in the temperature of organs bore due relation to these facts. For instance, motor activity either voluntary or produced by direct electrical stimulation of a nerve, was accompanied by rapid alteration in the temperature of the brain and liver corresponding to phases of muscular activity—these alterations, however, being in opposite directions. Water was essential to the activity of the cell. It was the only medium in which a colloidal system could be established; it had greater catalytic power than any other substance, and was a chemical activator; it had also a greater specific heat than any other substance, and was a non-conductor of electricity. Before oxygen became available for use in the cell it must be dissolved in water. Oxygen, the "acid-maker," was also essential. Oxidation produces acids, and these acids produced the essential alterations in the difference of potential between the nucleus and the cell body, and probably between parts within the cytoplasm, as the result of which accumulations of acid and an adaptive discharge of energy was provided. Water carried the oxygen in solution to the cells, dissolved the acid by products of oxidation and bore them away from the cells. Thus it constantly restored the acid-alkali balance, which was as constantly altered by the acidulating oxidation. In accordance with the electro-chemical conception water and oxygen in a vital and inseparable relationship made possible the electric variations within the cells whose manifestations constituted life.

Since electricity flowed from a higher to a lower potential, and since oxidation in the brain was the highest, the

meridian of life has passed, a yearly intravenous injection of a parasiticide, such as a preparation of arsenic and mercury. I have yet to hear of a syphilitic, who has undergone salvarsan mercurial treatment, developing cancer, from which I firmly believe he is immune. Once the cancer cell has appeared the surgeon's knife is, and always will be, the only remedy.

It will be difficult, almost impossible, to prove my contention. There will be no immediate and brilliant results. To my way of thinking we are more likely to get better results in the prevention of cancer by medicinal means than in its cure.—I am, etc.,

Upholland, Wigan, July 30th. J. THOMSON SHIRLAW.

ENVIRONMENT AND INTELLIGENCE.

SIR,—In your issue of April 14th, on page 644, under the heading "Environment and Intelligence," you quote from a report of the Medical Research Council as follows: "That progressive improvement in home conditions may be expected to react favourably, not only on the health, but also on the intelligence of school children." That the more intelligent children are better cared for is beyond question, but it by no means follows that by improving domestic conditions we shall improve the intelligence of those living under them; indeed, I am convinced that this would not be the case.

Nothing is so hereditary as intelligence, and those of defective intelligence will tend constantly to gravitate towards the lowest stratum of society—that of the casual and the unskilled labourers—in which drink and disease are unremittingly carrying on their task of the elimination of the intellectually unfit.

Last year my nurses classified the homes of hundreds of cases of mental and physical defect into three grades—the "A" grade homes being "good," "B" grade "fair," and the "C" grade "bad." Obviously such a classification must be arbitrary, but those put in Grade "C" were all such as were beyond question of a kind to make an altogether undesirable environment for young human beings. In Grade "A" were put 23 per cent., in Grade "B" 69 per cent., and in Grade "C" 8 per cent. Of the cases of mental defect investigated 58.33 per cent. came from the 8 per cent. which constituted the "bad" homes. These homes are made and kept by the parents who manifest the characteristics of mental defect—namely,

(*a*) The inability to plan their lives to ensure a reasonable standard of comfort.

(*b*) The inability to resist suggestion—to say "No, thank you," to excess of alcohol, or to deny themselves sexual pleasures—resulting in alcoholism and venereal disease.

(*c*) The inability to grasp an abstract idea: and "where there is no vision the people perish."

(*d*) The inability to persist in any undertaking. This want of persistence is a marked characteristic of primitive races and of mental defectives.

In the State schools of New Zealand children of all classes are educated, and such schools reflect very fairly the average health of the population. The private schools are, on the other hand, on the whole a selected class of children from families which for various reasons prefer to pay for their children's education. Presumably the tendency to dental defect would be approximately the same as in the children attending the State schools, yet the number of perfect sets of teeth varies considerably.

Of 197 children examined at P. School 11 (that is, 5.5 per cent.) had teeth free from caries or extractions.

Of 136 children examined at H. N. School 5 (3.69 per cent.) had such teeth.

Of 28 children examined at a private school in the same district and drawn from the same population but selected by the fact that a small weekly sum is paid for the course of instruction, 6 (21.4 per cent.) had such teeth.

The condition of the teeth is a better criterion of home conditions than clothing, as it can only be affected by persistent and intelligent parental care. Instead, therefore, of assuming that either good clothing or good teeth cause high intelligence we must conclude, I think, that the parents of intelligent children, being themselves intelligent, will exercise such care and foresight in the upbringing of their offspring that a good home, suitable clothing, and sound dental and physical health will result. I am quite prepared to admit that dissolute and alcoholic parents of good intelligence may beget children of low intelligence as a consequence of their excess and disease, thus starting a new "vicious circle" of drink, poverty, and mental defect, to carry their families down the rapid incline to extinction; but that is the consequence of the effects of the poisons (alcohol, or the toxins of syphilis or tubercle) on the reproductive cells of the parents, and not of environment.—I am, etc.,

ALFRED CLARK, F.R.C.S.Ed.,
School Medical Officer, Hawkes Bay, New Zealand.

Napier, New Zealand, June 1st.

THE DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

SIR,—Dr. V. St. John Croley (BRITISH MEDICAL JOURNAL, July 21st) suggests that the most effective method of propaganda in favour of vaccination would be by means of illustrated posters depicting the horrors of small-pox—"the more ghastly looking the better." I wish to point out that the present time is singularly inopportune for propaganda of this character. No doubt, photographs of such cases of small-pox as he has in mind are in existence (I could furnish him with some myself), but they certainly would not be a fair representation of the type of small-pox which is prevailing to-day and about which the present scare is being raised and apart from which this country is so remarkably free from the disease and has been for many years. The present "alastrim" strain of small-pox is so extraordinarily benign in its character that even in unvaccinated persons the "horrors" Dr. Croley wishes to depict are practically unknown. A fair description of the average case occurring, say, at Gloucester would be "a mild attack of influenza followed by an eruption of pimples and free from complications and sequelae." Two or three days in bed during the prodromal stage is usually all the real illness that the patient suffers from. No doubt there is a small proportion of cases which are somewhat more severe, but secondary fever is quite exceptional and it is very rare for the patient to be "pitted." Indeed, at the end of a fortnight the skin is frequently quite clear. Moreover, eye complications, even in unvaccinated children, are almost unknown.

In the interests of veracity it is most desirable that medical men should avoid even the semblance of exaggeration in their advocacy of vaccination. We all deplore the exaggerations of the antivaccinists; let us be very careful not to be guilty of the same fault. Is not the case for vaccination strong enough without being bolstered up by any doubtful methods?

Unfortunately, the lay press, in its anxiety to help the cause of vaccination, often makes the most exaggerated claims and loose statements. There have been many glaring examples of this during the past few weeks. Even the medical press is not quite blameless. Let me quote one instance: Last week an important medical journal published a photograph of a woman with a thick small-pox eruption, and wrote over it: "A case of 'mild small-pox' as at present prevalent in Gloucestershire." In view of the fact that the case in question was one of the very few severe cases which have hitherto occurred at Gloucester, such a statement is certainly misleading.

May I also suggest the desirability of medical men refraining from prophesying evil as the necessary consequence of not taking medical advice? Prophecy is proverbially dangerous, but in connexion with a controversial question like vaccination it is especially so. Medical prophecy in connexion with this question has so often failed to come true that it tends to bring discredit upon the profession and certainly reduces the value of our advice on other questions. How often have we reiterated that if small-pox once got hold on a community where infantile vaccination had been neglected the result would be disastrous and terrible retribution would fall upon the defenceless unvaccinated children. The experience of Leicester in 1904 (307 cases with four deaths) and the present experience of Gloucester, not to mention Nottingham and

as the heart was properly supplied with blood. With regard to the vasomotor mechanism, Malcolm and others had asserted that the vessels were actually contracted during shock. All evidence supported this probability. Many, however, had shown that when shock was established the blood volume in active circulation was reduced. But why was it reduced? Cannon had called it "the problem of the lost blood." Where was it—in the splanchnic area or the capillaries? The practical surgeon said that it was not in the splanchnic vessels, which he knew were contracted during deep shock. In this condition the capillary blood count might exceed the venous by 2,000,000 corpuscles per cubic millimetre. There was therefore a capillary stagnation of the blood. Respiratory, motor, and sensory disturbances during shock were all accounted for by the low arterial pressure. Nervous causes, the influence of the absorption of toxic products, cold, the internal secretions, anaesthesia, haemorrhage, and sepsis, all might play their part in producing this condition. From whatever cause the lowering of the blood pressure came the effect of the change was to set in motion a series of events ultimately leading to a derangement of the body metabolism. There was necessarily a deficient oxygenation of the body tissues and a low capillary stasis. Here a vicious circle began, for capillary stasis resulted in a deficient oxygenation of the tissues, while this in turn aggravated the capillary delay, and it was an obvious consequence that a further fall of blood pressure should result. There followed, as a symptom of a deficient capillary circulation, a fall of the alkali reserve of the blood. Treatment should follow well known lines. The possibility of haemorrhage and sepsis simulating true shock should not be forgotten; the patient must be kept warm. Fluid would help to maintain the blood pressure. Sleep was all-important, though the extent to which morphine should be pushed was very debatable. Adrenaline, strychnine, alcohol, and pituitary extract were of little if any use. Digitalis and camphor were useful as temporary stimulants; oxygen should be given if there was cyanosis; it also relieved restlessness and air-hunger. Glucose and sodium bicarbonate were of value if acidosis was present. Transfusion of blood was excellent, of colloidal solutions useful, but the value of saline solutions was probably very small. Based upon the researches of Abel, Rous, and Turner, the injection of blood corpuscles preserved in a citrate-dextrin solution might be employed. The solution could be kept on ice as long as three weeks. Results so far had been encouraging.

Dr. Victor Pauchet of Paris said that the transfusion of pure blood was on physiological grounds superior to the transfusion of citrated blood. But the latter was easier to perform and could in consequence be more widely applied. The blood was obtained from the donor in an atmosphere of oxygen, and thus venous became transformed into arterial blood, whose action was especially efficacious in the treatment of shock. Its injection after the method of Bécart was a most excellent weapon against the pathological effects of the condition. By it there resulted a rise of blood pressure not tending to subside as after normal saline injections. Blood, moreover, unlike saline, did not filter through the capillary walls. By it also acidosis was neutralized and oxygen carried to the central nervous system and the endocrine glands. The transfusion of citrated blood was already a wonderful discovery, and he considered that the transfusion of pure oxygenated blood was a further improvement. The reason why blood transfusion, the ideal treatment for shock, had not been more widely used was due to the lack of systematic organization in most hospitals. Every unit—surgical, gynaecological, or medical—ought to be provided with a special service, with trained attendants and latest instrumentation, so that blood transfusion could be as easily carried out as the injection of normal saline.

Dr. Uffreduzzi (Turin), Dr. Jiraseck (Prague), and Dr. Mayer (Brussels) also spoke briefly.

PITUITARY SURGERY BY A NEW METHOD.

Mr. A. K. Henry read a paper on a new method in pituitary surgery. He showed an instrument which he had devised, which, used in conjunction with intermittent radiographic control, allowed the pituitary fossa to be entered with mathematical precision by the trans-sphenoidal route. The instrument consisted of the following parts: Two intranasal bars lay one on either side of the nasal septum. These bars bent vertically down in front of the lips and carried a pivoted rod with a terminal cap which entered the mouth. This cap, protected by rubber, pressed against the hard palate, when a screw approximated the rod to the vertical bars; this kept the instrument fixed and stable. He was indebted for this effective device to Dr. Dorothy K. Milne-Henry.

To the vertical rods were attached two plates, and between them was pivoted a tube which could be aimed at the pituitary by means of a screw. The squared end of the tube carried a vernier which travelled over a scale attached to one of the plates and enabled the inclination of the tube to be [illegible]. The aim was controlled and corrected [illegible]. Resection of the nasal septum allowed instruments to be introduced submucously to the face of the sphenoidal sinus. The method admitted the use of any manipulation which could be carried out through a tube, and instruments resembling those used with an operating cystoscope were available. It was a simple matter to leave a radium tube within the sella. The use of the instrument removed the difficulties which made the trans-sphenoidal route formidable. Earlier diagnosis would still further increase its utility.

His first experience with the instrument in the living after a year's experimental work on the cadaver was not, however, in a case of pituitary disease, but in an operation for sphenoidal sinusitis, performed with Mr. J. Stafford Johnson, in which it gave excellent results. He had since used it in two operations upon a case of hypopituitarism with irregular hemianopia, followed by blindness, in which radiography appeared to show a greatly enlarged sella.

At the first operation a part of the pituitary was removed easily, and without any incident except the occurrence of a polyuria of 5 litres daily for three days. Six weeks later, as the blindness was unrelieved, a second operation was performed, and a second moiety of gland was removed. This intervention was followed by death in eight hours.

Autopsy revealed the fact that the hypopituitarism was due to an occlusion of the aqueduct of Sylvius causing hydrocephalus, and giving rise to a rarefaction of the bones which, in the radiograph, had simulated a deep excavation of the sella. Only a very small fragment of pituitary substance remained. Death was due to diffuse choroidal haemorrhage caused by the sudden relief of pressure following a small tear in the third ventricle, which had bulged down into the almost empty sella. This tear gave rise to a gush of cerebro-spinal fluid, which, at the time was thought to come from a cyst. These operations were performed before ventriculography became current practice.

The point emphasized was that at the first operation the greater part of a small compressed gland, offering an exceptionally small mark for the instrument, was removed without ill result.

Failure in this case was due to the diagnosis, and not to the instrument. The opening made by it was as precisely accurate as if drilled from within under direct vision.

In conclusion he cited the following passage: "We have sacrificed opportunities of progress in the anatomy, physiology, and surgery of the brain by too ready acquiescence in the assumption that we must remain dependent on the visual sense for every species of intracranial operation."

The second International Congress of Urology will be held in Rome from April 23rd to 27th, 1924, when the following subjects will be discussed: Renal innervation, introduced by Dr. Ambard of Strasbourg, Professor J. S. B. Stopford and Mr. J. B. McAlpine of Manchester, and Dr. Zoia of Pavia; vaccine treatment of urinary diseases, introduced by Drs Rovsing and Wulff of Copenhagen, Dr. L. S. Dudgeon of London, Dr. Noguès of Paris, and Dr. Pirondini of Rome; remote sequelae of operations for renal calculus, introduced by Drs. Brongersma of Amsterdam, Cifuentes of Madrid, and Tardo of Palermo; recent progress in urology. The last subject has been proposed by the British and American delegates, but the speakers have not yet been selected. Further information can be obtained from the general secretary, Professor A. L. Bonanome, via dei Gracchi, 124, Rome.

indefinite causation of illness is evident, and tuberculosis as a differential factor in the beginning of disease in a fair proportion of cases is ignored.

The report of our M.O.H., Dr. J. J. Jervis, shows that the Registrar's deaths from bronchitis has fallen in Leeds from 738 in 1915 to 556 in 1921; whilst the fall for death from pulmonary tuberculosis was from 651 to 519. From records of over 880 contacts I personally examined repeatedly at periodic intervals during three and a half years on symptomatic grounds reported by our trained nurse-visitors, 35 per cent. were clinically tuberculous as confirmed by present history. When the definite cases were classified as adults and children under 15, the adults for the last two years gave the high percentage of 67 and children a percentage of 15. Diagnosis in children is admittedly more difficult in the incipient stage, and the estimate, therefore, more guarded.

From the above considerations I submit: (1) That in the interest of a vigorous tuberculosis campaign to the advantage of the patient, all cases of tuberculosis, definite or suspicious, should be notified by all practitioners, whether in private practice or in institutions.

(2) Insured cases certified as bronchitis, anaemia, debility, gastritis for over three months should be investigated by the Regional Medical Officer and the differential diagnosis of tubercle ascertained, if possible, with the aid of an expert from the tuberculosis department. Notification of positive cases and examination of other suspicious contacts could thus be effected.

(3) All contacts with symptomatic history should be periodically examined by an experienced member of the staff whose diagnostic skill is recognized locally and definite cases referred to own doctors and notification enforced.

(4) For notification to be effective it is imperative clinical ability and diagnostic skill should be the paramount qualification for tuberculosis work. The system followed in Birmingham, Sheffield, and partly in Leeds of officers doing dispensary, sanatorium, and domiciliary consultation work is excellent, and wherever possible should be encouraged by the Ministry. By that means after-history will be known and there will be no squabble over diagnosis.—I am, etc.,

Z. P. FERNANDEZ, B.A., M.D.,
July 22nd. Leeds City Tuberculosis Department.

POLYGLANDULAR THERAPY.

SIR,—While the facts in Professor A. J. Clark's lecture on the experimental basis of endocrine therapy (JOURNAL, July 14th, p. 51) are beyond dispute the conclusions drawn are not in accord with clinical experience. Polyglandular therapy has succeeded in some cases where other remedies have proved useless. In my hospital and private practice I have for several years had occasion to treat cases of arthritis occurring in women at or about the climacteric period of life.

The history and type of patient vary considerably from the acute infective *polyarticular* cases. The patient has always been well and active, looks healthy and well nourished in early cases. She has usually passed the climacteric, and her only complaint is the joint affection. The onset is insidious and the condition tends to progress and in many cases there is great deformity and disability. The joints affected are more commonly the metacarpo-phalangeal and the metatarso-phalangeal (usually the first and second) and the knees. The condition is not often symmetrical and often suggests gout.

It is difficult to find any definite infective foci but of course difficult to exclude the possibility of some slight infection. It has been recognized for some time that there is probably some endocrine deficiency or faulty metabolism in these cases. Treatment in the past has been difficult and disappointing. Vaccines are of little use, stimulating and eliminative measures are certainly helpful, and in some cases thyroid has been of undoubted efficacy.

For some time I have been using a pluriglandular preparation in these cases and it has certainly proved most useful. As the mortality of this form of arthritis is almost *nil* definite evidence is lacking as to the exact condition of the ductless glands in these cases, but we know that the ovaries and thyroid often atrophy at that time and that substitution therapy is indicated. If results are favourable there is a great deal of experimental work to be done to confirm the facts.

Leonard Williams, in his paper in the JOURNAL of June 16th, refers to arthritis as a deficiency disease, due to exhaustion of the endocrine glands as the result of toxaemia and lack of vitamins in the diet.

The whole subject is complex and it is only necessary to read the report of the discussion on rheumatoid arthritis at the meeting of the Royal Society of Medicine on April 23rd to realize how vague are our ideas as to the cause of these conditions, and although polyglandular therapy does not get to the root of the matter it is of undoubted utility in combination with other treatment.—I am, etc.,

FLORENCE THEOBALDS,
July 15th. Honorary Physician, Devonshire Hospital, Buxton.

ETHER *VERSUS* CHLOROFORM.

SIR,—Dr. D. W. Samways asks us who specialize in anaesthetics to "teach the student how to administer chloroform safely and properly and ether reasonably." That is what we are daily employed in doing. Reasonable use of ether means that ether should be the routine anaesthetic for major surgery; safe and proper use of chloroform means that this drug is used solely for certain special cases. If Dr. Samways believes that chloroform can be safe as a routine anaesthetic, will he explain how it is that almost all those who constantly use anaesthetics have replaced it as the routine drug, and also how it is that there has never yet been an administrator of wide experience, so far as I am aware, who has not caused death by chloroform? With one interrogation of Dr. Samways, however, I beg warmly to associate myself, and that is where he says, "Why should our patients be handed over to unskilled persons to anaesthetize?"—I am, etc.,

London, W.1, July 26th. J. BLOMFIELD.

SIR,—From the correspondence on ether *versus* chloroform reference to the experimental work of Levy with chloroform, administered to cats, is absent. To quote Sir Thomas Lewis's opinion of Levy's research—"His work upon this subject is a landmark in the history of research upon death under chloroform." Quite briefly stated, Levy's two main conclusions are as follows:

(1) Death during administration of chloroform to cats is almost always due to *ventricular* fibrillation, which is also the cause of death in the majority of chloroform fatalities in the human subject.

(2) These fatalities are especially liable to occur "in the induction stages or at other periods when the saturation of blood with chloroform is relatively low."

The latter conclusion, based upon very careful and convincing research, would seem to take the wind out of the sails of those who strongly advocate the safety of chloroform "given with a light hand."—I am, etc.,

Reading, July 22nd. GORDON LAMBERT.

DYSPNOEA IN CARDIO-VASCULAR DISEASE.

SIR,—I read with interest the article of Dr. Jonathan Meakin, M.D., on "Dyspnoea in Cardio-vascular Disease" (B.M.J., 23.6.23). There are many details of his article with which I do not agree. But his assertions, *re* Cardiac Failure, "there is a sharp decline in the out-put of the ventricle per beat; instead of expelling 100 c.c. per beat the ventricle may only expel 15 c.c. to 25 c.c. per beat; in such circumstances the ventricle on each contraction does not completely empty itself and consequently there is a residue of blood left in the ventricle at the beginning of diastole. As the amount of this residue increases so the symptoms of Cardiac Failure become more pronounced." I believe Dr. Meakin is mistaken in these views. In a booklet I brought out ("Original Observations in Cardiac Disease," 1/3d., Cornish Bros., Bmham.) in April, 1920, I there gave an account of what I term "Fractional Heart Contractions." If I might use a simile I can explain Fractional Heart Contractions clearly and briefly:—Imagine a ladder with 20 rungs (number 1, 2, 3, 4, 5, etc. from the bottom to the top) placed at the side of a house, and a bucket (manipulated by a rope and pulley) hoisted

merely an instructive medical conference, but a series of charming entertainments. Chief among the evening functions were the President's reception on Tuesday, the Mayor's reception on Wednesday, the Divisional reception on Thursday, and the Mayor's ball on Friday. The hours of daylight were equally full of festivity for those who could tear themselves away from sterner business. Each day had its programme of garden parties or visits of inspection to naval establishments and kindred objects of interest, while on Saturday no fewer than seven separate excursions were in progress. For the excellence and variety of these many trips the Association owes a debt of gratitude to its hosts. Some acknowledgement to those who co-operated so generously in entertaining members and their womenfolk during the week was made at the Annual Dinner and at the end of the Representative Meeting, as recorded in the Supplement at pages 81 and 84. Further appreciation of individual hospitality and service is offered in a note on the excursions at page 87. From all quarters we have heard praise for the local arrangements.

THE HORMONE OF THE PANCREAS: INSULIN.

The numerous questions raised by the isolation of insulin were discussed both in the Section of Medicine at the Annual Meeting of the British Medical Association and at the International Physiological Congress at Edinburgh. The latter body, whose members are more accustomed to lecture than to listen to lectures, gave up its first session to Professor Macleod, who reviewed the present situation in the lecture printed in full this week (p. 165). He began by relating the story of the earlier attempts to obtain the hormone of the pancreas; it is not only an interesting chapter in the history of physiology, but it is helpful to the practitioner of medicine by the strong impression it produces of the special characters of this hormone, its delicacy, and its potency.

The two great merits of the researches carried on at Toronto seem to us to be, first, the courage and enterprise shown by Dr. Banting in attacking the subject again. He took advantage of an old observation that obstruction of the ducts of the pancreas was followed by degeneration of the cells of the acini by which the pancreatic juice is secreted, while the islets of Langerhans remained little if at all affected. Physiologists had long been confident that the pancreas produced a hormone, and that it was formed in the islets of Langerhans; so confident indeed were they that Sir E. Sharpey Schafer suggested the name "insulin" for the hormone. The difficulty was that when an extract of the whole pancreas was made the hormone was destroyed by the trypsin-producing cells. Many physiologists attempted to overcome this difficulty, but they were not able to obtain convincing evidence that an antidiabetic hormone did actually exist in the pancreas. It is to the enduring credit of Banting and Best that by experiments of a different type from those of their predecessors they established its existence. The other great merit of the Toronto experimenters was, we take it, that they unravelled the meaning of the convulsions which ensue in an animal rendered diabetic by excision of the pancreas when insulin is injected. Several earlier experimenters seem to have been on the verge of the discovery of insulin, but were deflected by the occurrence of symptoms considered to be toxic but which it is now seen were probably due to hypoglycaemia. The Toronto observations showed that convulsions are in fact produced by a deficiency of sugar in the blood, and can be arrested by the injection of glucose; apparently the brain cannot function without a sufficient amount of sugar in the blood which reaches it.

Knowledge of the way in which insulin produces a lowering of the sugar in the blood, both in health and in diabetes, is as yet imperfect. It seems to have been conclusively established by animal experiments that insulin does not stimulate the destruction of sugar within the blood itself. Its action is extravascular, and it seems probable that it produces, so to say, a kind of hunger of the tissue cells, which pick out the sugar in the blood. In this connexion it must be remembered that insulin has an important action on the metabolism of fat in diabetic animals. Lipaemia may occur in advanced diabetes as well as acetonuria, and in a dog removal of the pancreas is followed by the presence of excessive quantities of fat in the blood and the liver. In some way the migration of fat in the body becomes abnormal, and its final oxidation is seriously interfered with. When insulin is given to the animal acetonuria very promptly disappears, the blood fat apparently more slowly. As the amount of fat declines that of glycogen in the liver increases; that is to say, there is a movement towards normal.

Again, the history of the subject makes it improbable that one of the questions asked by Sir Thomas Horder in opening the discussion on insulin in the Section of Medicine at Portsmouth can ever be answered in the affirmative. His question was whether it is likely that it will become possible to administer insulin by the mouth. It was the destruction of the hormone by the trypsin secreted by the gland that stood in the way of the earlier experimenters, and it is now known that insulin is also destroyed by pepsin. The chemical constitution of insulin is, however, not yet known. The fact that it is destroyed by pepsin and trypsin seems to make it probable that it is in the nature of an albumose, but Professor Macleod suggests as a possibility that it is really only adherent to this protein and itself has a much simpler chemical structure. Another question asked by Sir Thomas Horder was whether there was any hope of recovery of the pancreas in diabetics. While admitting that nothing definite can yet be said on the point whether continued treatment with insulin will enable the diabetic patient to recover any of his lost power of producing internal secretion in his own pancreas, Professor Macleod mentioned the observation that islet tissue develops considerable powers of regeneration after much of it has been destroyed as a result of ligation of the secreting ducts of the gland. In the course of the discussion at Portsmouth Dr. E. P. Poulton made a rather encouraging statement, as he had observed some increased toleration in three out of four mild cases.

As to the exact value of insulin in the everyday treatment of diabetes, it is yet too soon to speak. There is a general consensus of opinion that it produces an immediate and dramatic effect in diabetic coma, and that the patient's symptoms may afterwards be held in control by suitable dieting. As to whether it is necessary to use insulin in mild cases opinion is yet very far from being settled. Professor Macleod probably expressed the present position well when he said that as an adjunct to therapeutic control treatment with insulin greatly improves the nutritive condition and increases the resistance towards infection, a complication to which diabetic patients are particularly prone.

Examination in Anatomy and Physiology.

Under the new regulations candidates who commenced their professional studies after January 1st last will be allowed to pass in anatomy and physiology separately, provided that they attain not less than half the number of marks required to pass in the other subject. In future the same privilege will be extended to candidates under the old regulations.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary quarterly Comitia of the Royal College of Physicians of London was held on Thursday, July 26th, the President, Sir Humphry Rolleston, being in the chair.

Members.

The following candidates, having passed the required examinations, were admitted as Members:

Frances Braid, M.D.St.Andrews, Robert Alexander Chambers, M.D. Edin., Edward Ffolliott Creed, M.B.Oxon., Samuel Whately Davidson, M.D.Durh., Sidney Campbell Dyke, M.B.Oxon., Horace Sharman Le Marquand, M.D.Lond., L.R.C.P., George Reid Meltobert, M.D.Aberd., Oswald Marriott, M.D.Lond., L.R.C.P., William Moodie, M.D.St.Andrews, William John Morrish, M.D. Lond., L.R.C.P., Elizabeth O'Flynn, L.R.C.P., Adam Patrick, M.D.Glasg., Gerald Maurice Joseph Slot, M.D.Lond., L.R.C.P., George Herbert Sowry, M.D.Lond., L.R.C.P., William Benjamin Batchelor Taylor, M.B.Durh., George Duncan Whyte, M.B.Edin., Wilfrid Burton Wood, M.B.Camb., L.R.C.P.

Licences.

Licences to practise Physic were granted to the following 193 candidates who had passed the required examination and conformed to the by-laws and regulations:

P. M. Acheson, N. F. Adeney, *Katharine M. Andrew, W. A. Atkins, G. F. Axon, S. C. Bakhle, W. E. Barnie-Adshead, A. A. Battson, A. Beauchamp, *Susanna M. Bernard, D. H. Berry, J. Bevan-Jones, T. S. Blackledge, *Nina O. Bohthingk, E. R. Boland, W. B. Boone, J. C. Bose, J. A. Brew, *Enid A. Brock, R. Brooke, S. N. Browne, W. A. Caldwell, R. H. Carter, E. H. P. Cave, N. E. Chadwick, J. H. K. Clarke, L. T. Clarke, J. E. Clegg, E. C. T. Clouston, L. Collins, G. G. Cooke, N. B. Cooke, V. Cotton-Cornwall, R. S. Creed, *Cecily D. Crossley, J. A. Currie, G. C. W. Curson, W. Dabbs, C. K. David, A. B. Davies, K. S. Dickinson, M. A. Distaso, G. A. Dolman, *Helen M. Du Buisson, G. Dudley, A. D. Dyson, F. Earlam, H. C. Edwards, A. J. C. Eland, H. N. K. Elphick, R. H. Enoch, *Ursula E. Eva, G. M. Evans, H. Evans, J. L. Faull, A. E. Fergusson, *Mary D. Fletcher, K. Fletcher-Barrett, *Mary E. Fox, *Emily L. Franklin, N. G. C. Gane, C. E. Gautier-Smith, G. F. Gibberd, A. D. Gladish, N. M. Goodman, R. Goodman, A. Gordon, B. W. B. Gordon, W. A. Gornall, A. W. Gott, S. A. Grant, E. H. Griffin, G. E. R. Hamilton, A. G. Hammond, *Tatiana I. Hardy, A. J. Hawe, M. Hawke, B. D. Hendy, *Gladys Hill, *Nancy W. Holloway, M. Honigsberger, *Mary D. Horton, *Phyllis M. Horton, L. G. Housden, E. R. Hughes, J. T. Ingram, W. O. C. Jarratt, S. W. Jeger, J. Jemson, B. H. Jones, N. A. Jory, *Winifred A. Kane, *Hilda M. Kennedy, M. E. P. Killard-Leavey, G. L. S. Kohnstam, D. Kostitch, *Emilia B. M. Krause, K. H. Lachlan, R. E. Lane, T. Latham, H. V. R. T. Lauder, B. J. Leggett, M. M. Lewin, J. L. Lewinwaite, Carlos E. M. J. Libert, L. O. Lindsay, P. M. Lissack, W. A. Lister, B. S. Llewelyn, J. I. Lyons, C. C. Mahoney, L. P. Marshall, C. A. Martin, *Dorothy E. Mason, H. R. Matthews, *Margarethe Mautner, J. Maxwell, *Margaret S. Mills, *E. B. Moffat, W. B. R. Monteith, J. W. Morledge, A. C. Mowle, J. D. R. Murray, L. Mushin, A. Nathan, M. Newfield, E. Obermier, H. L. Oldershaw, *Carrie H. Osmond, C. L. Ousep, E. D. Owen, J. N. J. Pacheco, *Louise O. Paterson, R. T. Payne, J. Pearce, *Florence M. Pearson, G. G. Penman, [illegible] Phillips, J. W. Poole, T. H. I. P [illegible] uvid, *Esther M. E. E. Rickar [illegible] T. E. Ryves, L. H. Savin, J. [illegible] H. Sheldon, R. W. Smith, [illegible] *Doris M. Stone, R. V. Storer, G. R. M. Swan, R. G. Tame, H. C. C. Taylor, H. A. Thomas, T. B. Thomas, G. L. Thompson, J. H. Thompson, G. K. Thornton, P. Thwaites, *Doris Todd, N. C. Tughan, F. S. Vaughan, A. L. Walker, E. G. L. Walker, *Hygeia L. J. Wallace, M. H. Webb-Peploe, *Ethel Whitby, N. L. White, *Joan F. White'ock, A. K. Wiggins, E. G. Wilkinson, H. C. M. Williams, R. E. Wilson, R. K. Wilson, I. E. Wolf, *Edith V. Wood, E. Wornum, J. T. Wybourn, H. D. Wise, *Mildred M. E. Yate, B. B. Yolh, *J. P. Yeoman, B. Zeitoun, L. S. V. Zinober.

* Under the Medical Act, 1876.

Diplomas.

Diplomas in the subjects indicated were granted in conjunction with the Royal College of Surgeons to the following candidates:

PUBLIC HEALTH.—P. N. Basu, W. T. G. Boul, L. G. BourJillon, F. A. J. Brodziak, Maude C. Cairney, A. W. Carleton, A. A. Cockayne, Katherine M. L. Gamgee, E. Hesterlow, N. H. Linzee, Muriel J. Lough, D. W. McKay, J. L. Pawan, S. L. S. Pearson, G. L. Ranking, H. Singh, G. M. J. Slot, J. Sullivan, M. L. Talwar.

TROPICAL MEDICINE AND HYGIENE.—J. W. F. Albuquerque, A. H. Baldwin, J. Donald, G. V. Gollerkeri, A. J. Keavill, A. N. Kingsbury, F. McCallum, C. McIver, E. J. Pampana, E. Peterson, W. J. E. Phillips, J. L. Rebello, A. Salama, N. S. Sethi, W. H. Simmons, D. J. Valentine.

OPHTHALMIC MEDICINE AND SURGERY.—M. Baranov, T. Butler, R. Colley, T. Colley, M. A. M. El-Kattan, J. G. F. Heal, P. C. Livingstone, Brenda A. Mitchell, Z. Schwartz, S. D. Sondhi, N. L. Varma.

PSYCHOLOGICAL MEDICINE.—Y. Abul-Nasr Barrada, T. M. Davie, T. L. Edwards, M. K. El-Kholy, F. R. Martin, Eveleen B. G. Rivington, G. W. Shore, P. M. Turnbull.

College officers, members of committees, and examiners were appointed on the nomination of the President, the Council, and the Library Committee:

Censors: Dr. John Fawcett, Dr. Herbert Morley Fletcher, Lord Dawson of Penn, Dr. E. Farquhar Buzzard.

Emeritus Treasurer: Sir Dyce Duckworth, Bt., M.D. Treasurer: Dr. Sidney Phillips.

Examiners.

Chemistry.—William Bradshaw Tuck, D.Sc., Charles Stanley Gibson, B.Sc., F.C.S.

Physics.—Frederick Womack, M.B., B.Sc., William Edward Curtis, D.Sc.

Practical Pharmacy.—Alfred Ernest Russell, M.D., Edward Alfred [illegible] Alfred Joseph Clark, M.C., M.D., [illegible], M.B., John Mellanby, M.D. [illegible] M.B.

Medical Anatomy and Principles and Practice of Medicine.—Sir Archibald E. Garrod, K.C.M.G., M.D., John Hannah Drysdale, M.D., Arthur Philip Beddard, M.D., William Cecil Bosanquet, M.D., James William Russell, M.D., Charles Richard Box, M.D., Sir James Purves [illegible] Bolton, M.D., Lewis Albert Smith, M.D., [illegible] K.B.E., M.D.

[illegible] *Midwifery and Diseases of Women.*—John Prescott Hedley, [illegible] I.D., Thomas George Stevens, M.D., John [illegible] Forbes Simson, M.B.

Public Health.—Part I: Henry Wilson Hake, Ph.D. Part II: David Samuel Davies, M.D.

Tropical Medicine.—Sir Percy William Bassett-Smith, K.C.B., C.M.G. (Bacteriology), Sir Leonard Rogers, C.I.E., M.D. (Diseases and Hygiene of the Tropics).

Ophthalmic Medicine and Surgery.—Gordon Morgan Holmes, C.M.G., C.B.E., M.D.

Psychological Medicine.—Part I: Henry Devine, M.D. Part II: James Taylor, M.D., Charles Hubert Bond, M.D.

The following communications were received:

1. From Sir Thomas Barlow, a [illegible] retiring Treasurer, Sir Dyce Duckworth, [illegible] to the general Funds of the Royal Coll[illegible] of the probability of necessary alteration [illegible]. The offer was gratefully accepted and a most sincere vote of thanks was accorded to Sir Thomas Barlow for his great generosity.

2. From Dr. R. W. Innes Smith offering for the acceptance of the College a portrait of Sir Charles Scarburgh. The Harveian librarian, Dr. Arnold Chaplin, explained that two portraits of this distinguished physician were known to exist, and this was one of them. The offer was gratefully accepted and the thanks of the College were voted to Dr. Innes Smith (see p. 197).

The Baly Medal was awarded to Mr. J. Barcroft, F.R.S., and the Bisset Hawkins Medal to Dr. T. M. Legge, C.B.E.

The College placed on record its deep regret at the death of Mr. William Fleming, and its high appreciation of his faithful and valuable services, which extended over fifty years, during thirty years of which he held the office of Bedell.

A committee was appointed to consider and report on the question of increasing the accommodation of the College and on the best way of doing so should it prove desirable.

An application from Dr. Philip H. Wells for the restoration of the membership, resigned by him in January, 1922, was granted.

UNIVERSITY OF EDINBURGH.

HONORARY DEGREES.

IN connexion with the eleventh International Physiological Congress at Edinburgh a special graduation ceremony was held on July 25th, when the following eight distinguished physiologists received the Honorary LL.D. degree. The presentations were made by Sir Edward Sharpey Schafer, who in each case gave a short account of the work of the new honorary graduate.

Of Dr. FILIPPO BOTTAZZI he said that as Professor of Physiology in the Royal University of Naples he had at his disposal the resources of the famous aquarium and had known how to utilize them to the advantage of comparative physiology. There were few subjects in the realm of physiology Professor Bottazzi had not attacked, and whatever he had approached he had illuminated. His researches on the heart and circulation, on the alimentary tract, and on the physiology of the muscle, both plain and striated, and on its innervation, were familiar to physiologists. Recently he had undertaken the thankless task of editing a new journal of physiology, which was all that such a journal should be.

Of Professor WILLIAM HOWELL he said that during a long tenure of the chair of physiology in the Johns Hopkins University, Baltimore, he had shown his capacity to conduct the most difficult and intricate investigations, extending over a wide range, including investigations of the blood and its coagulation, of the action of the nerves to the heart, of the effect of brain stimulation on blood pressure, and of the physiology of the pituitary body.

The Senatus desired to cement the bonds between Edinburgh and Leyden by conferring an honorary degree on Dr. WILLEM EINTHOVEN, Professor of Physiology in the University of Leyden. By his invention of the string galvanometer he had done more [illegible] thoscope, to [illegible] and been concerned mainly with the nerves of the heart and blood vessels and with the effect of muscular exercise on bodily functions; he had also carried out investigations into the metabolism of carbohydrates and the regulation of the temperature of the animal body.

Professor ALBRECHT KOSSEL of Heidelberg, by his researches on the simplest proteins, the so-called protamines, had extended knowledge of the chemical structure of these all-important constituents of the body, and physiologists were indebted to him for having trained some of the best physiological chemists.

Professor HANS MEYER of Vienna was a pharmacologist, but to be a pharmacologist a man must first be a physiologist. There was no system of the body which he had not investigated as to the action of drugs—muscle, blood, central nervous system, sense organs, heart, respiration, alimentary canal, and kidneys.

Professor CHARLES RICHET, President of the Congress when it met in Paris three years ago, was a worthy successor and disciple

SEGREGATION OR AGGREGATION?

The Ministry of Health has issued a very useful report[1] by Dr. J. R. Hutchinson in which the important question of the influence of hospital overcrowding on the occurrence of return cases and the spread of cross infection is discussed. The report also raises incidentally the question of the relation between scarlet fever and diphtheria. It appears that the Abingdon Isolation Hospital was well planned, and had, on the Ministry's standard, accommodation for 46 patients, which was ample for the needs of the borough and rural district. From time to time, however, agreements were entered into for taking patients from other districts, and on visiting the hospital Dr. Hutchinson found 124 beds and 120 patients. This overcrowding had existed for a considerable period, and at one time there were as many as 138 patients. The total population attempted to be served was 110,000. One of the areas is the Ramsbury rural district, and here it appears that as a matter of routine all cases of scarlet fever and diphtheria are removed to hospital at the instance of the notifying practitioner. Through admission and discharge of patients the Ramsbury district and the hospital were thus in frequent association, and the position of Ramsbury village as to disease prevalence is notable. For several years prior to 1922 the district had been almost completely free from scarlet fever and diphtheria, but in that year there were 91 cases, of which 79 were in the village; there were 57 cases of scarlet fever, and 19 of diphtheria; in 3 cases both infections were present simultaneously. In 17 houses a total of 60 cases occurred, 46 of them in 10 houses. The length of time over which the cases were spread and the change of infection in a house from scarlet fever to diphtheria pointed to reintroduction from without. This view is strongly supported by a detailed analysis of various groups of cases. In the Abingdon borough and rural district the practice was similar, and there was similarity in the effects. On the other hand, in the West Berkshire combined districts, comprising 70 per cent. of the total population served by the hospital, only a minimum of cases were sent to it, home treatment being adopted wherever practicable. The case rates per 1,000 of population in the three areas are significant. For scarlet fever Ramsbury rural district had a rate of 9.7, Abingdon borough and rural district 18.5, and West Berkshire only 3.0. For diphtheria the corresponding rates per 1,000 population were 1.7, 2.1, and 1.0. It is impossible to disagree with Sir George Newman's prefatory note, in which he says it would be far better in many cases to treat the patients at home than to submit them to risks of cross infection and damaging sequelae. In short, we may summarize the lesson of the report by the title of this note. If a hospital is overcrowded, its patients are not segregated but aggregated, and even though the cubic space per case may still be greater in the hospital than at the child's own home, yet in the former the risks of cross infection may much more than counterbalance the advantages of the extra cubic space. This should always be borne in mind in the administration of a hospital for infectious disease, especially if it possesses no isolation block composed of multiple cubicles entirely separated from each other, for treatment of doubtful or mixed infections.

[1] Report by Dr. J. R. Hutchinson on the Incidence of Scarlet Fever and of Diphtheria in 1922 in the village of Ramsbury, etc. London: H.M. Stationery Office. 1923. Pp. 28. 9d. net.

THE UNIFICATION OF PHARMACOPOEIAL PREPARATIONS.

This year's meeting in London of the International Pharmaceutical Federation was arranged to coincide with the diamond jubilee session of the British Pharmaceutical Conference, held last week at Great Central Hotel, Marylebone. The Federation represents twenty countries, and delegates from France, Italy, Spain, Belgium, Hol Roumania, Greece, Australia, South Africa, the U States, Czecho-Slovakia, and other nations were pre The president, Professor van Itallie, dean of the Unive of Leyden, devoted a large part of his inaugural ad to the problem of an international pharmacopoiea. pointed out that in these days of increased traffic betw countries the absence of uniform standards in medicin an anachronism. As president of the committee for pharmacopoiea of Netherlands he realized the amount work connected with its periodical revision, and advi that a central international bureau should be formed do the work of revision for all pharmacopoieas. In t way we should arrive at uniformity at least in the case the more important drugs and their preparations. J. J. Hofman (Holland) said that the Belgian Governme which had brought together the Brussels Conference Potent Drugs of 1902—a conference which resulted in t valuable international agreement of 1906—had been ask to approach the other governments in order to conve another conference which should decide on the formatic of an international pharmacopoeial bureau as outlined b Professor van Itallie. No answer had as yet been obtaine from the Belgian Government, and if unfavourable anothe Government could be found to take the matter in hand Mr. V. Cofman (Roumania), in a communication dealing with the same subject (the international uniformity o medicinal preparations), suggested a different way o attacking the problem. He presented to the conference, in collaboration with other members, a number of monographs on several important drugs—for example, those on opium by H. B. Stevens, on cinchona by C. T. Bennett, and on belladonna by A. J. Jones. Each of these monographs dealt with its subject in an exhaustive manner, giving comparative tables of the formulae and strengths in all existing pharmacopoeias, and a reasoned criticism of the various methods in use. It was suggested that this preliminary work of documentation should be continued in the faculties of medicine and pharmacy of every country, and, when all the information necessary for unification had been obtained, a conference of medical men, pharmacist and analysts should meet under the auspices of the Healt Department of the League of Nations and decide whic formulae and methods could be universally adopted. Th proposal will be considered by the permanent bureau o the Federation. Several other matters of interest we discussed. Dr. C. Rousseau (France) presented a thorc report on pharmacopoeial nomenclature, showing th dangerous confusion which exists at present, the sam product being in certain cases known officially—in sev teen countries—under fourteen different names. Th seriousness of the situation is indicated by the fact th the official name for calomel in Belgium is hydrar praecip. alb., and that the tinct. camph. co. of th Portuguese pharmacopoeia is a liniment containing twen times as much opium as its British synonym. Oth reports dealt with patent medicines and with recent legi lation on dangerous drugs which, though arrived at international agreement through the intermediary of t League of Nations, still shows variations from one count to another. The clause which places the responsibility dispensing a forged prescription on the shoulders of ph macists was criticized, and various resolutions on matt of pharmaceutical interest were passed.

BRITISH GUIANA MEDICAL SERVICE.

In August, 1922, the Governor of British Guiana appoin a committee "to consider and report as to what best co be done to place the medical services of the colony on satisfactory and permanent basis." The committee h its first meeting in August, 1922, and reported

magnesium sulphate 2 to 3 drachms, morphine sulphate 1/4 gr., hyoscine hydrobromide 1/100 gr., and glucose 4 drachms, with distilled water to 2 oz. The mixture is heated to 110° F. and given as a retention enema. If followed by an injection of ether 1½ oz. and oil 6 drachms, it can be used for surgical cases.

A NEW quarterly journal for the publication of original papers in experimental biology, to be called the *British Journal of Experimental Biology*, is announced by Messrs. Oliver and Boyd, of Edinburgh, with Dr. F. A. E. Crew, *Director of the Animal Breeding Research Department*, Edinburgh University, as managing editor; he will have the assistance of a strong editorial board. The annual subscription will be 40s., post free.

AT the June matriculation examination of the University of London 130 candidates were successful in the first division and 1,030 in the second division; in addition, 47 took the supplementary certificate for Latin.

A CIVIL LIST pension of £75 has been awarded to Miss Bacot in recognition of the services of her brother, the late Mr. Arthur W. Bacot, entomologist to the Lister Institute of Preventive Medicine, who died in Cairo last April from typhus fever contracted in the course of experimental research into the disease. A pension of the same amount has been awarded to Mr. Morley Roberts, the novelist, who has written well on certain biological and pathological problems.

SOME curious statements were made at the fifty-ninth annual conference of the National Association of Medical Herbalists of Great Britain, Ltd., which was held at Sheffield last month. The president said that the association's energies had been directed to two main objects—the progress of the Medical Herbalist (Registration) Bill, and education. They were determined to give the House of Commons no rest until the public obtained that medical freedom they had a perfect right to demand—the freedom to be attended by the medical herbalist without fear or detriment. For years the people of England, and especially those in authority, had been dominated by the opinions of the medical fraternity, and there was real danger and menace in the recently revived prophylactic vaccination for small-pox. A member proposed that a special fund should be opened for cancer investigation by herbalists, but the feeling was that the association had neither the money nor the equipment to carry it on. A telegram was sent to Commander Kenworthy thanking him for his work in connexion with the registration bill. This parody of a scientific meeting shows how subjects of medical interest may be picked out and unfounded assertions made regarding them. The identity may be questioned of the "responsible member of the Government" who informs herbalists that the authority of the medical profession is on the wane—unless, perhaps, Commander Kenworthy is disguised under this description.

THE fifth annual general meeting of the Association of Certificated Blind Masseurs was held on July 19th at the National Institute for the Blind. Sir Robert Jones, the president of the association, drew attention to the council's excellent report of the year's work. Mr. C. Mansell Moullin, Mr. A. H. Tubby, and Mr. Harry Platt, vice-presidents of the association, were also present.

THE Home Secretary has amended the regulation under the Dangerous Drugs Act, 1920, with reference to the supply of drugs to the masters of merchant ships. The new regulation, which is to come into force forty days after July 24th, authorizes the master of a foreign ship in any port in Great Britain to purchase a supply of any of the drugs to which the Act applies in order to complete the necessary equipment of the ship. The quantity so purchased will be subject to the certificate of the medical officer of the port and must not exceed what is required for the use of the ship until it next reaches its home port.

AT the recent examination held by the National Health Society fifteen women passed for health visitors and infant welfare workers; eight women trained by the society passed at the last examination of the Sanitary Inspectors' Board.

MR. W. G. OAKLEY has been awarded a Tancred Studentship in Physic at Gonville and Caius College, Cambridge.

A MEETING of Rotarian pharmacists was held recently at the Hotel Great Central, London, during Conference week. Dr. Thomas Stephenson of Edinburgh occupied the chair, and the meeting was representative of all parts of the country. The chairman opened a brief discussion on Rotarianism as applied to pharmacy. He pointed out that as the section was a professional one and included the allied professions of medicine, dentistry, veterinary surgery, and chemistry, one of the first objects of the section should be the promotion of friendly relations between these professions. Whether or not that should be done by the drafting of a code for submission to the representative bodies—the Pharmaceutical Society and the British Medical Association—remained to be seen, but he felt very strongly that the establishment of such relations should be their first object. The chairman further pointed out that the governing principle of Rotary—namely, service to the community—should be the basis of all work in pharmacy, and if this principle were applied to many controversial questions it would be found that these questions were capable of easy solution. It was only when the question of profit arose that difficulties were encountered. In the discussion which followed the opinion was expressed that until a joint meeting with the medical portion of the section could be held it would be futile to discuss the question of relations between physicians and pharmacists. The meeting, however, endorsed the chairman's view that such should be one of the principal objects of the section.

AN English translation of *The Internal Secretions of the Sex Gland*, by Dr. A. Lipschütz, professor of physiology in the University of Dorpat, Esthonia, will shortly be issued by Messrs. Heffer and Sons, Cambridge. Dr. F. H. A. Marshall, F.R.S., of Christ's College, Cambridge, has written a foreword.

AN ordinary medical post-graduate course will begin in Vienna on September 1st; a course of the kind is now in progress. A special course will be given from September 17th to 29th. Copies of the programme and further particulars can be obtained on application to the Secretary of the Austrian Embassy, 18, Beaulieu Square, London, S.W.1.

THE travelling scholarship of the People's League of Health has been awarded to Miss Alice Gloyn, who has been in charge of the Camberwell Day Sanatorium since 1917. She will attend Dr. Rollier's course on heliotherapy at Leysin in Switzerland, and will also visit the Grancher and other institutions in France for the treatment of tuberculosis in children.

AS a memorial to the late Dr. Philip Hicks (a brother of Sir William Joynson Hicks), senior medical officer of the Royal Midland Counties Home for Incurables, Leamington, a handsome shelter was dedicated and opened at the home on July 15th, by Sir Ernest Pollock. The shelter was erected by subscriptions from friends and patients of Dr. Hicks, and bears a memorial tablet.

FROM June 4th to 10th 54 cases of plague occurred in Egypt, including 3 in Alexandria, 2 in Port Said, and 1 in Suez.

THE fifth Carlsbad International Post-graduate Course, in which special attention will be given to medical hydrology and balneotherapy, will be held at Carlsbad from September 9th to 15th. Further information can be obtained from Dr. Edgar Ganz, Carlsbad.

WE regret to have to record the death of Dr. W. Ford Robertson, pathologist to the Scottish asylums. We hope to publish some account of his career in a later issue.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

TRAINING OF A PARALYTIC.

DR. F. E. TAYLER (Trowbridge, Wilts) is concerned about the case of a young man aged 21, partially paralysed by an accident when 10 years of age, but able to walk, though with some difficulty. There is some slight inco-ordination of the hands, which, however, is said to be improving. Our correspondent wishes to hear of an institution where instruction in some such occupation as basket-making or bookbinding could be obtained. His mother is able to pay a small premium or make some contribution towards the cost of education.

COST OF SMALL MATERNITY HOSPITAL.

DR. E. S. ROBINSON (Stourport) asks for information as to the cost of (*a*) establishing and (*b*) running a small maternity home—say of four beds—in a small country town.

important, in the interests of the patient as well as of others, that a diagnosis should be made as early as possible, and under the tuberculosis schemes of local authorities facilities are available for assistance in diagnosis, including the services of the tuberculosis officer for consultation. The object of the regulation is stated to be to make it possible to take steps to prevent the spread of infection, to discover other possible cases among those who have been in contact with the patient, and to ensure that the patient receives to the fullest possible extent the treatment best suited to his condition.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

We announced recently (July 14th, p. 76) that the committee of British ophthalmologists formed to arrange for an international congress of ophthalmology to be held in London, 1925, had decided that it must be postponed on the ground that French and Belgian ophthalmological societies had passed resolutions to the effect that they felt themselves unable to participate in a congress if Germans were admitted. We have now received a letter from the General Secretary of the Société française d'Ophtalmologie stating that the French and Belgian societies fully agree that German, which is used for scientific communications by several nations, should be one of the official languages at the proposed congress in London, and that they are ready to co-operate with ophthalmologists in Austria-Hungary, Bulgaria, and Turkey; but they adhere to their decision not to take part in the congress if Germans are invited to attend. They consider that in taking this course they are acting in accord with the resolutions adopted at the conference arranged in London by the Royal Society in [illegible]ber, 1918. The resolutions then adopted were con[illegible]d by the Conseil International de Recherches held in [illegible]els in July, 1922. The reasons given on these two [illegible]sions still apply, in the opinion of our French and Bel[illegible]n colleagues, to the attitude assumed by Germany and the German medical profession. From the wording of the communication we gather that French and Belgian ophthalmologists think that the question of holding an international ophthalmological congress in London in 1925 is still open, but we have not received any communication from British ophthalmologists since that published on July 14th.

ROCKEFELLER MEDICAL FELLOWSHIPS.

The Medical Research Council announces that it has awarded Rockefeller Medical Fellowships, tenable in the United States of America during the academic year 1923-1924, to John Crighton Bramwell, M.D.Cantab., M.R.C.P., Medical Registrar and Registrar to the Cardiographic Department, Manchester Royal Infirmary; Norman McOmish Dott, M.B., Ch.B.Edin., F.R.C.S.Ed., Assistant in the Physiological Department, University of Edinburgh; Helen Ingleby, M.B., B.S.Lond., M.R.C.P., Assistant Physician Victoria Hospital for Children and South London Hospital for Women; Hugh Kingsley Ward, M.B.Sydney, D.P.H.Oxon., member of the scientific staff of the Medical Research Council working in the Department of Pathology, University of Oxford. Further awards may be made during the coming academic year.

The Dinner in celebration of the hundredth year of the *Lancet* will be held at the Hotel Victoria, Northumberland Avenue, London, W.C., on Thursday, November 29th, 1923, and not, as previously announced, on November 28th. Mr. Neville Chamberlain, the Minister of Health, has signified his intention to be present.

ANNUAL MEETING NOTES.

The Annual Representative Meeting.

The chief business on Tuesday, July 24th, was the reception and approval of the report of the Dominions Committee and of that section of the Organization Report which dealt with Oversea Branches. The grouping of items from the two reports enhanced the effect, which, as usual, was a happy one, and owed much to the cordial expressions of good-will from the several oversea representatives present. Dr. Morton Mackenzie's introduction of the South African section of his report was particularly effective. He succeeded in conveying a very definite impression of the complex and difficult medical position in the Union, and at the same time vindicated the attitude taken by the Council throughout negotiations with the several parties into which the South African profession is unfortunately divided; Dr. Baumann's tribute to his efforts towards agreement was fully justified. For obvious reasons Dr. Baumann himself refrained from comment on the present position. The resolution expressing regret at the unsatisfactory conclusion of the negotiations with the Colonial Office in respect of the Windward Islands Medical Service, and endorsing the Council's action in inserting an Important Notice with regard to appointments in that service, as well as the other steps taken to bring existing conditions to the notice of prospective candidates, was well received. Unfortunately the representative nominated by the Grenada Branch arrived late, but his subsequent speech had the merit of drawing attention to the gravity of any decision which might cut off from a portion of the Empire, for any reason, the supply of British-qualified practitioners. The Representative Body had also to consider reports from the Irish and Scottish Committees, from the Committee on Notification of Venereal Diseases, and from the Non-Panel Committee. A point of interest arose on the report on notification of venereal diseases. No specific recommendation was made by the Committee, and there was danger on the one hand that the public might receive a false impression of the attitude of the profession to so urgent a matter if the report passed without discussion; on the other, that an ill advised resolution might hinder useful development along the lines of the Trevethin report. The Chichester and Worthing motion, as finally amended after discussion, avoided both dangers. Dr. McGregor-Robertson scored a success by his contribution to the satisfactory solution obtained. The conclusion of the business of the meeting by 3 p.m. was an effective witness to its admirable conduct by the Chairman. Altogether the Representative Body may congratulate itself on the expedition with which it disposed of its long four days' agenda.

The Bishop of Winchester's Sermon.

A religious service for the Association, which was largely attended by members, was held at Portsmouth Parish Church (St. Thomas à Becket) on Tuesday afternoon. The service was conducted by the Rev. W. H. David, and included special prayers for the sick, for the medical profession, for nurses, for students, and for medical missions. The sermon was preached by the Bishop of Winchester, who spoke from the words "With reverence and godly fear" (Hebrews xii, 28). He disclaimed any suggestion that he had chosen this subject of reverence because he thought the man of science an irreverent man, proud of his knowledge, and without the fear of God before his eyes. In his mental gallery some of the noblest types of reverence and faith were surgeons and physicians. But he thought that a few words on this subject might perhaps strike the keynote of the Annual Meeting, and send those present into their discussions with a refreshed sense of the value and dignity of

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

88. Chronic Urticaria and Angeio-Neurotic Oedema.

H. W. BARBER (*Brit. Journ. Derm. and Syph.*, June, 1923, p. 209) considers that the majority of cases of chronic urticaria in adults, whether accompanied or not by angeio-neurotic symptoms, are due to sensitization to bacterial rather than to food proteins, and the same holds for asthma and associated eczematous dermatitis, such conditions being the outward signs of sensitization in which there is hereditary susceptibility and hyperexcitability of the nervous system. In bacterial sensitization the sensitivity generally develops during an acute infection, subsidence of which leaves a local focus in which the infecting organism is still active and likely to give rise to recurring symptoms of sensitization—for example, urticaria or asthma—and such foci are important for that reason, apart from the additional possibility of direct bacterial invasion of the blood stream taking place from them. While the necessity for surgical interference is obvious in the case of abscesses of the teeth, chronic appendicitis, and nasal sinus suppuration, mere enlargement of the tonsils is no indication for their removal, this being necessary only when they are septic, the main indications being injection of the anterior palatal folds and tonsillar tissue, the presence of septic matter, and painful enlargement of the lymphatic glands. Anything short of complete enucleation of the tonsils is useless, previous incomplete operations being responsible for the development of virulent infections. The *Streptococcus longus* appears to be the organism most commonly responsible, but an urticarial eruption may also depend on sensitization to the *Bacillus coli*, or *Staphylococcus aureus*, or other bacteria, and many of the patients give a previous history of rheumatic fever. Notes and comments of six urticarial cases are given illustrating the various sources of infection responsible for the condition.

89. Treatment of Migraine with Peptone.

J. L. MILLER and B. O. RAULSTON (*Journ. Amer. Med. Assoc.*, June 30th, 1923, p. 1894) report the results obtained in twenty-five cases of migraine from the injection of a 5 per cent. solution of peptone. The solution is prepared by dissolving the peptone in 0.9 per cent. sodium chloride solution so as to make a solution of about 6 or 7 per cent. strength, and this is neutralized. The solution is then made up to the volume required to make a 5 per cent. solution, filtered until clear, and then placed in 5 c.cm. ampoules and autoclaved in the usual manner. In order to determine whether the preparation is sterile, the ampoules are incubated, and if they remain clear they are ready to use. The first intravenous injection is 0.5 c.cm., the dose being rapidly increased to 2 c.cm. The interval between injections is relatively unimportant. Miller and Raulston have usually given two injections a week until the headache disappears; then weekly, and, if the improvement continues, once in two weeks, and finally once a month. It has not been determined how frequently the injections must be given in order to prevent a recurrence. This period will probably show individual variation. If the injections are discontinued, sooner or later the migraine will return. The longest period of freedom observed after discontinuance of the treatment was nine months. The total number of injections given varied from six to forty-two. Expressed in [illegible] were much improved, 48 per cent. we[illegible], and 16 per cent. were not benefited. These results correspond quite closely to those reported in the treatment of hay fever by desensitization.

90. Diagnosis of Lead Poisoning.

A. FEIL and R. HEIM DE BALSAC (*Paris méd.*, May 26th, 1923, p. 463), after examination of 179 workmen employed in factories where lead was used, came to the following conclusions with regard to the value of the various clinical signs in the early diagnosis of plumbism: (1) Some signs are of real value, such as the blue line on the gums, which is the most frequent and earliest manifestation. It was present in 65 per cent. of 95 workmen engaged in an accumulator factory, and was also found in 65 per cent. of 83 carriage painters. In 25 per cent. the blue line was very distinct, and in 40 per cent. faint. Most of the workmen with the blue line also showed red cells with basophil granulations, but in about one-tenth of the cases only one of these two signs was present at a time. In 5 to 6 per cent. of the cases lead colic was an initial sign, being found in 7 per cent. of the workmen in the accumulator factory and in 6 per cent. of the carriage painters. Parotitis was found in only 3 out of 97 workmen, and therefore possesses less diagnostic value. (2) The other clinical signs, such as myalgia and arthralgia, rise of blood pressure, and gout, do not possess any specific character, but are late phenomena. The same may be said of nephritis, anaemia, paralysis, and tremors, which all indicate profound and old-standing systemic intoxication. (3) With the exception of the blue line, clinical signs are too often absent at the onset to justify waiting for their appearance before starting prophylactic treatment. Laboratory methods, therefore, such as search for red corpuscles with basophil granulations, and examination of the urine for lead, should be chiefly relied on to prevent plumbism in workmen engaged in factories where lead is employed.

91. The Value of Drugs of the Morphine Group in Relieving Cough.

P. HECHT (*Klinische Wochenschrift*, June 4th, 1923, p. 1069) records the results of clinical observations which he has made in order to determine the value of various derivatives of the morphine group in relieving cough. Codeine is more satisfactory than morphine for the relief of cough, since it is not generally narcotic in its action and does not lead to the formation of a drug habit. It is the most useful of all drugs for the relief of cough and does not produce bad after-effects. Severe paroxysms of coughing are often arrested by a sufficiently large dose of codeine (0.05 gram), and the drug can be discontinued without difficulty. The author has tried to find a more powerful and cheaper substitute for codeine. He describes the precautions necessary in testing clinically the value of drugs for relieving cough, and the class of cases most suitable for observation. Paracodeine and dionin were found to be less effective than codeine. But from his observations the author considers that "dicodid" is at least as effective as codeine and is more effective than paracodeine and pantopon. It is preferred by the patients and produces a definite feeling of well-being; but in time a drug habit is formed and there is difficulty in getting the patient to return to the use of codeine.

92. Dangers of Intravenous Injections of Oil of Camphor.

J. FABRICIUS-MÖLLER (*Ugeskrift for Laeger*, May 31st, 1923, p. 393) considers the intravenous injection of oil of camphor for collapse and acute pulmonary disease, such as pneumonia, to be very dangerous. It has been argued that, provided the injections are given slowly and not more than 5 c.cm. are given at a time, little or no risk is entailed. In support of these claims both clinical observations and experiments on animals have been quoted, but it is well to remember that healthy experimental animals, and comparatively healthy human beings, are not fairly comparable with moribund patients in this connexion. The author records two cases, in both of which oil of camphor was given by intravenous injection. In both cases the patient's state was alarming, and in one of them, at any rate, death was probably inevitable. But it was significant that the microscopic examination of the lungs after Sudan staining showed in both cases extensive fat embolism. In the first case only 1 c.cm. of oil of camphor had been given by intravenous injection; in the second case 5 c.cm. had been thus given. The author suggests that the physician who has set his heart on giving camphor by intravenous injection should use some other vehicle than oil.

93. Haemorrhage following Treatment by Bismuth Salts.

MARAÑÓN (Anal. de la Acad. Med.-chir. Esp., May 7th, 1923, p. 379, in *Arch. de med., cir. y esp.*, May 19th, 1923), at a meeting of the Spanish Medico-Chirurgical Academy reported four cases of severe haemorrhage, three of which were fatal, in patients who had been treated for syphilis with bismuth salts. Two of the patients showed a predisposition for haemorrhage; one was a boy, aged 14, who had recently had an attack of purpura haemorrhagica, and the other was a man, aged 50, with arterio-sclerosis. Marañón does not think that the bismuth salts were responsible for producing the haemorrhages, but suggests that in persons with a predisposition to haemorrhage special care should be taken in their use. In the subsequent discussion J. Covisa and Bejarano, who had both had considerable experience in the treatment of syphilis by bismuth salts, stated that they had never observed any haemorrhages due to this cause, even in persons liable to develop them, such as arterio-sclerotic subjects.

Sutherland, Dr. Asher's paper was really the most striking contribution to the discussion, for it showed that, in country which even headquarters would be inclined to accept as a sufficient obstacle to corporate activity, the Division is able to exist as a distinct entity, and to bring the local profession into direct contact with the life of the community. Dr. Livingston's paper dealt with an area which might have been thought difficult had not the Caithness and Sutherland comparison been supplied in advance. His suggestion that, whilst a close study of individual members and non-members with constant personal contact is the first essential of successful organization, it is a good policy for the secretary himself to direct rather than carry out the policy adopted in connexion with propaganda, was on a high plane of statesmanship—but it requires a statesman to give it full effect. It was unfortunate that Dr. Farquhar Murray should have been prevented from attending. In his paper he laid particular stress on the necessity and possibility of offering to the newly qualified such a welcome as will ensure their membership at the outset of their professional career, and indicated his methods of providing them with material help as well as general good fellowship. Mr. Webber gave a clear and stimulating sketch of the manner in which Nottingham is meeting the definite, though admittedly limited, demand for facilities for local post-graduate work in the Divisions and Branches. The discussion that followed showed the wisdom exercised in the selection of the openers and the preparation of the papers, for the difficulties dealt with, and the questions raised, were those common to the majority of areas, while the practical suggestions made were clearly applicable to many cases. There was general agreement on the importance of social activities, as providing the basis of personal fellowship essential to sound medico-political work; on the importance of the most critical scrutiny and analysis of members' and non-members' lists, and the importance of attracting the newly qualified. The moral of the whole discussion, implicit if not clearly stated in all that was said, was that it is an absolute essential of success in local organization for those responsible for the direction of Association activities to have a definite scheme, based on the particular needs of their areas, and to work to that scheme deliberately and persistently. It was unfortunate that an excellent suggestion for raising the status of the Conference and securing its continuity, by electing the chairman for the next meeting, was not formally proposed, and lapsed, presumably through an oversight. The discussion after tea was ragged. "Consideration of the member and non-member percentages" was too indefinite an item to secure any constructive suggestions, more especially as those present had not had an opportunity of considering the document beforehand. It was, however, the occasion of an extremely useful and interesting statement by Dr. Drever of the manner in which he has analysed and classified the member and non-member lists for Scotland.

Medical Missionary Breakfast.

The Medical Prayer Union held on July 25th what is hoped to be the first of a series of medical missionary breakfasts in connexion with the Annual Meeting of the British Medical Association. A large number of guests were present at the Queen's Hotel, Southsea, where they were welcomed by the President, Mrs. Scharlieb, who was supported by the Bishop of Winchester, Bishop Ingham, the President of the Association (Mr. C. P. Childe), and the Medical Secretary (Dr. Cox). Greetings from the Association of Medical Missionaries in China were conveyed by Dr. Duncan Whyte, who emphasized the satisfaction of medical work abroad, and ascribed it to the absence of any fear of competition, the ability to treat poor patients freely, and the opportunity of taking up any specialty with certainty of abundant material for investigation. The meeting was addressed by Dr. G. E. Dodson of South-Eastern Central Persia, and Dr. C. C. Chesterman of the Congo. Dr. Dodson drew a vivid picture of the Persian plateau, with its extremes of climate, and its intelligent Aryan population, debarred by the influence of the Koran from progress along Western lines. He contrasted the conditions of public health twenty years ago with those brought about by the patient labours of medical missionaries, and spoke particularly of the ravages of rickets, due to the custom of putting little children, at the age of 5 or 6, to work at the carpet looms. They sit on planks in sunless, airless hovels from sunrise to sunset, with half a day's holiday in the week, and their pay allows only of a diet of dry bread and dried skimmed milk. Many hundreds of cripples had been relieved by transverse osteotomies, but for the girl wives the pelvic deformity means certain death at the first pregnancy. Dr. Clement Chesterman approached his subject from the psychological aspect, and suggested that the mentality of the African native might be compared with that of the paranoiac in its suspicions and terrors of persecution. The difference between the native and the civilized mind and physique he ascribed rather to an endocrine problem than to a different stage of evolution, and believed the psychological condition to result from an inhibition of love. He described the medical work in Africa as a process of combating great scourges that sweep the country rather than treating "cases" of disease, and spoke of the successful results now being obtained with tryparsamide injections for sleeping sickness. A brief speech by the Rev. Dr. J. G. James, and benediction pronounced by the Bishop of Winchester, closed a very successful meeting.

The Temperance Breakfast.

A public breakfast was held at the Town Hall on Thursday morning, by invitation of the National Temperance League. The President of the British Medical Association (Mr. C. P. Childe) took the chair, and the hostess was Dame Sophia Wintz, successor to the late Dame Agnes Weston in the work of the Royal Sailors' Rests. The principal address was given by Mr. C. J. Bond of Leicester, who repeated some of the statements made in his presidential address to the Society for the Study of Inebriety (British Medical Journal, July 22nd, 1922, p. 142) on the expenditure on alcohol of certain large voluntary hospitals over a period of more than a century. He showed that the expenditure rose and fell very much in accordance with national expenditure under the same head, and that the hospitals, in respect to alcohol consumption, had not led public opinion but had followed it. The records also showed the result of the influence of individual teachers at the medical schools who happened to have strong views, one way or the other, on the subject of alcohol. He had something further to say about the salvage work which these institutions performed. To an unrealized extent the voluntary hospitals of this country, at great cost to themselves, were rescuing people from the results of their own anti-social indulgence. The present was a very important time in temperance progress, and it was very necessary that the members of the medical profession should inform themselves of the latest results of scientific inquiry with regard to alcohol. Sir Robert Armstrong-Jones proposed a vote of thanks to Dame Wintz and the President; this was seconded in an amusing speech by Sir StClair Thomson, who spoke of the pleasure with which he found himself side by side with his fellow-student, the President. Even in those days Mr. Childe had a calm and judicious mind, that right judgement in all things for which we prayed every Sunday, and he was also a good sportsman.

101. A Condition Simulating Dislocation of the Head of the Femur.

R. VOIGT (*Deut. med. Woch.*, June 8th, 1923, p. 761) confesses to a mistake which is liable to have serious consequences for the patient. It is the diagnosis of a sciatic dislocation of the head of the femur when the signs and symptoms are actually due to detachment of a fragment of bone from the upper margin of the acetabulum, the detached bone being driven into the joint. The case illustrating this accident was that of a middle-aged workman who, while he was stooping down on the railway line, was struck violently over the left hip by a railway carriage. He fell and could not get up again without help. Examination in hospital a few hours later showed great swelling of the left hip and thigh. The limb was flexed and adducted, being fixed in a position of internal rotation. The end of the great trochanter was approximately in Nélaton's line, and there was no shortening of the left leg. A sciatic dislocation was diagnosed, and the fact that the head of the femur could not be felt in the position it was supposed to occupy was explained away on the assumption that the great swelling of the affected parts masked the new position of the bone. When, however, attempts were made to reduce the hypothetical dislocation, slight crepitation was detected. An *x*-ray examination revealed the true state of affairs. Had not the crepitation been detected serious injury might have been inflicted.

102. The Late Results of Operations for Mastoiditis.

SCHOUSBOE (*Hospitalstidende*, May 30th, 1923, p. 31) has, in conjunction with his colleague Dr. Henius, investigated the after-histories of the patients whose mastoids were freely opened for mastoiditis in the period 1901–20 at the St. Josef's Hospital in Odense. There were 301 patients, on 19 of whom the operation had been performed on both mastoids. There were 13 deaths in hospital, 12 of them being due to intracranial complications present at the time of operation. The remaining death was due to post-operative meningitis. Thus 288 patients came to be discharged from hospital, and 234 of them were subsequently traced. It was found that 11 of them had died, but in no case was the cause of death associated with the middle-ear disease or the operation on the mastoid. These figures suggest that when a radical operation is performed on the mastoid process for acute suppuration, and the patient survives the period of convalescence in hospital, the chances of the subsequent development of serious complications connected with the old mastoid disease are negligible. Of the 135 ex-patients who presented themselves for re-examination there were 15 on whom a radical mastoid operation had been performed on both sides. It was found that the wound had healed completely in 67 cases and incompletely in 83; in the latter class there was usually some discharge. These findings point to the wisdom of keeping this class of patient under observation, at any rate for the first few years after the operation.

103. Ligature of the Common Carotid.

P. HARDOUIN (*Bull. et Mém. Soc. Chir. de Paris*, May 29th, 1923, p. 774) records four cases of ligature of the common carotid artery. The first case was ligatured for an ophthalmic aneurysm, the second for a traumatic aneurysm of the internal carotid, the third for haemorrhage from the common carotid near the bifurcation, and the last for deep arterial bleeding in the submaxillary region due to a malignant growth. The following accidents occurred in these cases: In one there was cessation of respiration coinciding with the tying of the ligature; in another the patient suddenly collapsed and died two hours after the operation, probably owing to an embolus, as similar cases have been noted previously; in a third case the patient had hemiplegia, and this persisted after the operation. In only one case was the operation performed without any untoward incident. Opinions differ as to the gravity of this procedure. Teller reports seventy-six cases of ligature of the common carotid for pulsating exophthalmos with only four deaths. De Fourmestraux shows that the mortality is generally the result of cerebral complications and particularly of hemiplegia. In one of the author's cases a ligature was placed on the artery for only half a minute, yet it occasioned the disappearance of the signs of an ophthalmic aneurysm—a result of remarkable interest.

104. Congenital Epithelial Cysts of the Prepuce.

ACCORDING to G. ROELLO (*Il Policlinico*, Sez. Chir., April 15th, 1923, p. 220), who records a case in a child aged 9 months, epithelial cysts of the prepuce resemble anatomically congenital cysts in other situations. Their clinical interest is merely due to their rarity, as their symptoms and treatment are the same as those of cysts elsewhere. In 1910 Veau and Rehaud collected 19 cases, and Denucé published the only case he had met with in his practice; and in 1911 Mouchet and Pizon recorded 3 original cases. The present case resembled the great majority of preputial cysts on record in being single and being situated on the under surface of the prepuce in the subcutaneous tissue of the raphe without being adherent to the skin, which preserved its normal appearance. The cyst was spherical in shape, had a smooth surface, and was freely movable. In the exceptional cases described by Caubet and Griffon and Segall the cysts were situated on the dorsal surface of the penis. In Fano's case there were two cysts, and in Jannel's case they were multiple. Treatment consists in excision of the cyst, but owing to the possible absence or deficiency of a fibrous capsule separating it from the connective tissue, and especially on account of the exuberance of the prepuce which is often associated with it, it may be advisable to remove the extremity of the prepuce at the same time. When the preputial orifice is narrow circumcision is required, as in the author's case.

Obstetrics and Gynaecology.

105. Heart Disease in Pregnancy.

W. B. BREED and P. D. WHITE (*Boston Med. and Surg. Journ.*, June 21st, 1923, p. 984) discuss heart disease in pregnancy from end-result observations in 102 consecutive cases, mainly as to whether the individual patient will continue normally through pregnancy and labour without cardiac damage. Of these 102 cases the cardiac condition was not organic in 48 per cent., none showing diastolic murmurs, and there being no evidence of structural change or impairment of function, the main symptoms being palpitation, tachycardia, non-progressive weakness, etc., associated with presystolic murmurs, premature ventricular beats and sinus arrhythmia. Upon the diagnosis of effort syndrome, irritable or normal heart, labour was allowed to proceed normally, and resulted in routine delivery without any signs of cardiac damage. The remaining 52 per cent. gave evidence of organic mischief rheumatic in type, and two were fatal—one from acute endocarditis superimposed upon chronic mitral stenosis and aortic regurgitation, and the other from auricular fibrillation in mitral stenosis. Individual prognosis rests rather upon the functional capacity than upon the structural change. B. E. HAMILTON (Ibid., p. 987) calls attention to the fact that there is an appreciable risk in patients with rheumatic cardiac disease of either maternal death, prolonged or permanent disability, loss of the child, or the possibility of a living child developing a rheumatic heart. Although the cases can be divided into those of poor or good prognosis, several of the latter developed heart failure even when they appeared to be favourable risks, so that it is impossible to predict with accuracy which of those cases of rheumatic heart disease complicating pregnancy should go through successfully. Heart failure may arise from strain, intercurrent infections, sudden disorder of the heart beat, or intracardial emboli, while pregnancy itself may complicate these cardiac conditions owing to labour being difficult, or from puerperal infections or toxaemias.

106. The Influence of Typhus and Relapsing Fevers on Menstruation, Pregnancy, and Labour.

S. WEISSENBERG (*Zentralbl. f. Gynäk.*, June 9th, 1923, p. 904), from a large experience of such cases in the Ukraine, comes to the conclusions that neither typhus nor relapsing fever influences menstruation, although in some cases, especially when the woman is suffering from relapsing fever, floodings may occur—but that is rare. During convalescence, however, about one-third of the women suffer from a short period of amenorrhoea. Both fevers seem to act as a stimulant to the sexual organs, so that conception occurs quickly. Pregnancy is often interrupted by both these fevers, but of the two relapsing fever is the most likely to cause abortion. It is in the early and late months of pregnancy that interruption is most likely, pregnancies of four to seven months' duration being not so liable to interruption. The author states that abortion in the earlier months is due chiefly to bleeding causing detachment of the ovum and death of the foetus, the death of the foetus being primary and the pains secondary, but in the later months labour pains are produced by direct excitation and not by the death of the foetus. The pains are of normal intensity and the labour or abortion usually runs a normal course, as also does the puerperium with lactation. Neither pregnancy nor labour has any deleterious effect on the course of the fever, and thus the prognosis is not adversely affected and the mortality is small. If the woman is near term a living child is usual, and the child does not seem to be affected by the disease. The author concludes by stating that the height of the temperature and severity of the attack are not connected in any way with any affection of menstruation, pregnancy, or labour.

in blood sugar occurred. There was a slight fall during the first twenty minutes, and then either no decline or a very gradual decline for hours. The glucose injected did not automatically leave the blood stream, but fell only when an active pancreas was present, presumably due to the excretion of insulin. This was also suggested by the drop in the normal curve to a subnormal level. Insulin in an active form disappeared rapidly from the blood after pancreatectomy. In blood taken from dogs after large doses of glucose insulin had not been demonstrated. The response to glucose injection was essentially the same, though slightly delayed in a dog with a large denervated pancreatic graft.

Dr. J. R. MURLIN (Rochester, New York) read a joint paper by himself, Mattill, Piper, and Kimball on the chemical and physical properties of insulin. It was stated that a rapid method of preparing insulin had been worked out based upon the following properties: thermo-stability to boiling point as shown by Murlin and Kramer, 1913-16, solubility in water, precipitation by complete saturation with sodium chloride, solubility in 70 per cent. ethyl alcohol, and precipitation by means of amyl or butyl alcohol.

Fresh pancreas, of beef preferably, was macerated in 4 volumes of 0.2 NHCl and brought rapidly to the boiling point. After cooling it was neutralized to a *p*H of 4 and filtered overnight. The first filtrate, when given by the stomach to dogs made diabetic by the removal of the pancreas, controlled the diabetic symptoms. It therefore resisted peptic digestion. Precipitation of extraneous proteins with sodium chloride seemed to offer some advantages over ammonium sulphate, as suggested by Shaffer. The entire precipitate was soluble in 70 per cent. ethyl alcohol, from which the potency might be precipitated by 3 to 5 volumes of amyl or butyl alcohol. The final precipitate was readily separated by centrifuging, and, after the amyl alcohol had been removed by vacuum distillation, it was then dissolved in sterile water to make an extract of any desired concentration. In final form it gave a very faint biuret reaction which appeared to be due to traces of protein as impurity. Each step must be carried out at a definite hydrogen ion concentration. For thermo-stability the reaction might be at a *p*H of 6.7 to 7.2, or below a *p*H of 4. Between these limits the potency seemed to be regularly destroyed by heating to 80° C. for half an hour. For stability in final form the reaction might be from a *p*H of 4 to a *p*H of 2. Preparations had been kept for four months without loss of potency.

Potency did not seem to depend upon nitrogen content, and its thermo-stability and survival in acid reaction up to 0.5 NHCl indicated that insulin could not be an enzyme, but was properly called a hormone.

In a paper on the part played by insulin in carbohydrate metabolism Dr. GUNNAR AHLGREN (Lund) said that respiration in tissues from normal and from depancreatized animals had been studied both with and without the addition of insulin. The power of the tissue to reduce methylene blue (Thunberg's method) had been used as a measure of the tissue respiration. When glucose and insulin were present in suitable concentrations the glucose was split into products able to serve as substrate for the oxidizing enzymes, as was indicated by the accelerated decolorization of methylene blue. Fructose and galactose were split by the tissues without the aid of insulin. Insulin did not accelerate the oxidation of β-oxybutyric acid, lactic acid, and glycerophosphoric acid.

Functional Activity of the Suprarenals.

Dr. W. CRAMER (London) described some experiments demonstrating the functional activity of the suprarenals. By the histo-chemical method the granules of adrenaline could be rendered visible both within the cells of the medulla and in the process of secretion into the blood. In this way direct and conclusive evidence could be obtained concerning the conditions under which secretion of adrenaline occurred. The method had the further advantage that the animal could be kept under perfectly normal conditions, so that the factors determining secretion were studied without the interference of anaesthetics or surgical procedures which of themselves excited the secretion of adrenaline. In this way experiments on mice had demonstrated a very distinct secretion of adrenaline under a number of conditions. The observations showed: (1) That in response to specific stimuli the adrenal medulla was capable of an autonomous vigorous secretion as definite as the secretion of the pancreas or salivary glands. (2) That one of the most important functions of the gland which it exercised through the secretion of adrenaline was a metabolic one connected with the heat regulation of the body. Both the physical and the chemical heat regulation of the body were under the influence of the sympathetic system. Thus general sympathetic stimulation produced mobilization of the liver glycogen; the body cells responded by increased oxidation to this inflow of carbohydrate into the blood stream under the influence of sympathetic stimulation. Increased heat production resulted. The physical heat regulation depended on the calibre of the cutaneous vessels, and in some species of animals on the activity of the sweat glands, in others on the erection of the hairs of the fur. These three factors were also under the influence of the sympathetic. Thus hyperactivity of the adrenal medulla with massive secretion of adrenaline produced a fever due to increased heat production and diminished heat loss—"sympathetic fever." Conversely, adrenal insufficiency due to exhaustion of the gland or to other causes led to a subnormal body temperature. The thyroid gland had a synergetic action. The action of the thyroid hormone was slower and more prolonged than that of adrenaline. Its direct action on metabolism and on the heat regulation of the body was effected mainly by continued mobilization of the liver glycogen. Climatic conditions produced their effect on metabolism and on the nervous system generally in virtue of the fact that increasing the loss of heat from the body acted as a powerful stimulus to the functional activity of the adrenal and thyroid glands.

Internal Secretion of the Testicle.

Drs. E. RETTERER and S. VORONOFF (Paris) read a paper on the relation of physiological phenomena with the structure of the grafted testicles. Histological examinations practised every month for nearly two years by Professor Retterer upon testicles grafted by Dr. Serge Voronoff clearly proved that from the moment when the testicular cell is transformed at a certain age to a specific element, notwithstanding morphological changes produced by the graft, that cell continued to possess the property of elaborating products of internal secretion which determined the physiological phenomena.

The Thyroid and the Autonomic Nerves.

Dr. HENRY DRYERRE (Edinburgh) said that in an attempt to relate the different views as to the action of thyroid preparations upon the autonomic nerves, he had investigated such effects resulting from the injection of thyroid extracts and of thyroxin upon these nerves, as might be manifest in experiments lasting several hours. To allow for individual idiosyncrasies a large number of animals were used and inquiry was made also into modifications caused by the anaesthetics used. The experiments had been conducted at such intervals that any seasonal variations in the responses might be noted. The results were not consistent and similar results could be obtained by the injection of extracts of spleen, of liver, and even of simple Ringer's solution. It was also demonstrable that such variations in the responses could occur without any injections having been made. The conclusion was formed that injections of extracts of thyroid gland or of thyroxin had no specific action upon the sensitiveness of the cardiac fibres of the vagus, or on the depressor nerve, which could be demonstrated in the course of an "acute" experiment.

Antidromic Action.

Professor J. N. LANGLEY (Cambridge), in a paper on antidromic action, said that the brilliant flush normally produced in the pad and toe cushion in decerebrated cats by stimulating the peripheral ends of the posterior roots of the seventh lumbar nerve ceased on section of the superficial plantar nerves a little proximally of the pad, and there were only slight and variable effects. From a consideration of this result and of the results of varied observations on stimulation after nerve section he concluded that antidromic impulses did not cause appreciable dilatation of arterial trunks in any part of their course down to the digital arteries.

If the abdominal aorta were clamped, stimulation of the

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The Scientific Grants Committee of the British Medical Association instituted a research into the treatment of anæmia and chlorosis, under the supervision of a well-known physician. In his report the following appears: "So far as these observations go they show that carbonate of iron in the form of the bi-palatinoid or Blaud Pills gave the best results compared with other preparations of iron containing an equivalent amount of the metal.

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THE MANCHESTER AND DISTRICT RADIUM INSTITUTE.

THE annual report of the Manchester and District Radium Institute for the year 1922 relates the result of the first complete year's work of the Institute in its new building. The number of cases registered for treatment was 799, a slight increase over the number for the previous year; 514 emanation plates and 1,281 emanation tubes were made during the year, which represented practically the full capacity of the emanation plant. The total number of malignant cases treated was 584, and of these 59 were rendered free from sign and symptoms of disease during the year. Thus the percentage of perfect immediate results following radium treatment was slightly over 10. The best results were still obtained with carcinoma of the cervix uteri; 29 cases were apparently cured. With improvement in the technique in the treatment of carcinoma of the mouth and tongue with unscreened emanation tubes the number of successful cases showed a gratifying increase to 10. The number of cases of rodent ulcer that came up for treatment was 85, and 41 were apparently cured.

The total number of out-patient attendances during the year was 4,900; the in-patient attendances numbered 912. The increased number of in-patients was made possible by the accommodation now provided at the new Radium Hospital. During the year considerable improvements have been made in respect of the protection of the workers at the Institute. A lead box with walls one inch thick for the holding of emanation tubes has been constructed and so arranged that the door opens downwards, and thus gives considerable protection. A second device has been adopted with the object of protecting the nurses' fingers when making up plates for application of radium from the surface, whilst the emanation plant has been completely covered by adequate lead protection. Investigations are in progress for the treatment of cases of inoperable carcinoma by means of a combination of radium and diathermy, and a new diathermy apparatus has been installed at the Institute for this purpose. At the same time the application of deep x-ray therapy combined with radium is being carried out with the aid of the two new intensive x-ray outfits at the Royal Infirmary. It is too early yet to speak of the late results of this form of treatment, but the initial response is said to be satisfactory. Reference has already been made in a previous issue of the JOURNAL (June 2nd, 1923, p. 949) to the special research which has been conducted into the effects of radium on blood serum in health and disease, further work on which subject has still to be done. The report shows that the work of the Radium Institute is being actively carried on, and that the results of the treatment in a number of cases is encouraging.

NURSES' HOME AT THE LIVERPOOL ROYAL INFIRMARY.

On July 24th the Duke of York laid the corner stone of the new Nurses' Home of the Royal Infirmary, Liverpool. Addresses of welcome to the Duke (who was accompanied by the Duchess) were read by the Lord Mayor of the City, and the President, Mr. Thomas H. Bickerton, consulting ophthalmic surgeon of the Royal Infirmary, who reviewed the history of nursing in relation to the sick. The name of William Rathbone will be for ever associated with the institution of a trained nursing staff for the sick poor of Liverpool. The present building, erected 63 years ago, has been enlarged from time to time as the demands of the Royal Infirmary increased, by the addition of houses in the immediate vicinity. The new building would have been begun long ago but for the war. The original estimate was between £40,000 and £50,000, but costs have increased so much that the money suffices only for the erection of one-third of what is necessary. Between £4,000 and £5,000 is required to complete and furnish this portion; with this object the Duchess of York had consented to receive purses, each containing £25. In this manner £2,085 15s. 6d. was presented. In his reply the Duke of York expressed his pleasure at being present to promote so good a cause and made mention of his own personal indebtedness to the trained nurse's services. He presented a bronze medallion awarded by the Carnegie Hero Trust Fund to Mr. Charles B. Wood, who had been x-ray operator in the Royal Infirmary since 1903 and had become a victim of x-ray dermatitis necessitating several operations and now totally incapacitating him from performing his duties. A new gynaecological operating theatre was formally opened by the Duke, and finally the corner stone was laid. The consulting honorary staff and the senior members of the acting staff were presented to the Duke of York. An unfortunate event, due to the plunging of two startled carriage horses into the crowd just as the Duke was about to enter the Royal Infirmary, resulted in the injury (fortunately not serious) of some fourteen persons. They were immediately taken into the Infirmary and received the attention of Mr. Frank Jeans, one of the honorary surgeons. The Duke visited the sufferers before leaving the hospital.

Scotland.

SCOTTISH NATIONAL LIBRARY.

THE generosity of the Faculty of Advocates in Edinburgh and the munificence of a private donor, Mr. Alexander Grant, have combined to provide Scotland with a valuable National Library. Some months ago the extensive library in charge of the Faculty of Advocates was offered to the Government, so that it might be managed on national lines in Scotland, similar to those of the British Museum in London. An obstacle in the way of the acceptance of this offer was the absence of any fund to provide accommodation for the books. Within the past three weeks this difficulty has been removed by an Edinburgh citizen, Mr. Alexander Grant, who has provided £100,000 necessary for the permanent endowment of the library. This library has had an interesting history. It was founded in 1680, and the first catalogue, printed in 1692, contained no fewer than 3,140 entries. It was then valued at £14,400 Scots or £1,200 sterling, and included not only legal volumes but books in all departments of learning. In 1709 the Copyright Act of Queen Anne conferred on the library the right to claim a copy of every book entered at Stationers' Hall. This privilege has been confirmed in all subsequent copyright Acts, and applies to every book published in the United Kingdom. The library also has received from time to time numerous presents of books and manuscripts. Many of the latter especially are of great interest and importance. The number of volumes in the library is now well over 700,000. Among the most recent acquisitions is the letter written by Mary Queen of Scots to her brother on the morning of her execution. It is a beautiful specimen of sixteenth-century handwriting as well as a document of the first historical importance; it describes how, after having passed nearly twenty years in the captivity of Queen Elizabeth, the writer is ordered to be executed as a criminal. There are also in the library some twenty-one ancient Gaelic medical MSS. Of these sixteen are entirely medical and five or six partly medical. For their preservation we are indebted in the first place to two Celtic families who practised medicine in the Highlands of Scotland for several centuries. These were the family of McBeath or Beaton and that of McConacher of Lorn. The substance of these MSS. is taken largely from the ancient Greek and Arabic writers, and this fact shows a high standard of learning among the native Highland population of the Middle Ages. One of the MSS. is a treatise on materia medica, of which several copies are to be found in the British Museum and other places. Acknowledgements are made in it to the researches of the doctors in Salerno and Montpellier, but it is largely of native Scottish origin. It is to be hoped that, now that the MSS. are more accessible, some scholar may be found with sufficient knowledge of medicine, botany, and Gaelic to undertake the publication, especially of the last mentioned work.

SOME APPLICATIONS OF PHYSIOLOGY TO MEDICINE.

II.—VENTRICULAR FIBRILLATION AND SUDDEN DEATH.*

BY

J. A. MacWILLIAM, M.D., F.R.S.,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF ABERDEEN.

(From the Physiological Laboratory.)

IT may be permissible to recall that in the pages of this JOURNAL[1] thirty-four years ago I brought forward a new view as to the causation of sudden death by a previously unrecognized form of failure of the heart's action in man—a view fundamentally different from those entertained up to that time. In the course of a long series of experiments on the mammalian heart, sudden deaths, occurring under varied experimental conditions, were found to be invariably associated with a very definite mechanism of failure entirely different in character from what had hitherto been believed to be present in cases of sudden dissolution in man depending on cardiac failure. Little attention was given to the new view for many years. At that time the current conception of the relations of the experimental physiology of the heart to practical medicine was widely removed from what it now is, thanks very largely to the work of Sir James Mackenzie and his associates and followers; it was not then recognized that most of the disturbances that have been experimentally induced in the mammalian heart (for example, fibrillation, flutter, heart-block, extra-systoles of various types, rhythms of abnormal origin, alternation of the heart beat, etc.) have their clinical counterparts in the manifold derangements of function in diseased conditions in man.

In more recent times the view that ventricular fibrillation is a cause of sudden death in man has been accepted by numerous observers. Sir James Mackenzie[2] writes of sudden death in auricular fibrillation: "It has appeared to me probable that in these cases the ventricle has passed into fibrillation as MacWilliam suggested." Again, referring to sudden death from heart failure: "The cause of sudden death is almost certainly due to the onset of an abnormal rhythm, probably ventricular fibrillation." Sir Thomas Lewis[3] states that "We have now the strongest *a priori* reasons for believing that sudden and unexpected death comes to many patients in a manner suggested by MacWilliam in 1889." The causation of death in this way has also been recognized by Hering[4] and many other observers.

Direct electrocardiographic curves indicative of ventricular fibrillation at the moment of death have been recorded, notably by an American observer, Halsey.[5] Opportunities for the gaining of such direct evidence are naturally scanty, but the indirect evidence that has accumulated is sufficient to show that this is, in all probability, not only a common cause but the usual cause of sudden and unexpected death of cardiac origin.

Relation of Death from Fibrillation to Ordinary Myocardial Failure.

The mode of death described in this article is a failure of the heart's action essentially different from cardiac (or myocardial) failure in the sense of exhaustion of the contractile power of the cardiac muscle; a verdict in the latter sense would usually be, in cases of sudden death, fallacious. While such exhaustion of contractility is, of course, of common occurrence in disease, it is a gradual process, leading to more and more marked impairment of the pumping power necessary to maintain a good circulation and to respond to the increased demands of muscular exercise, etc. There is no ground for the assumption that a *sudden* loss of power can occur—that is, that muscular fibres endowed with contractility adequate for a tolerably good blood pressure and blood flow should abruptly become enfeebled or paralysed, apart, of course, from the sudden action of violent poisons or such gross causes as asphyxia, obstruction of coronary supply, haemorrhage, etc. What really happens in the supervention of ventricular fibrillation is a misapplication of contractile energy thrown away in a turmoil of fruitless activity, a disastrous change occurring in muscle that may be already more or less limited in power, or that may, on the other hand, be possessed of vigour more than sufficient for the ordinary needs of the circulation. This often occurs in a heart showing no failure of rhythmicity, excitability, or contractility.

The inadequacy of former explanations of sudden death by failure of the heart to contract and expel its contents, asystole, etc., need hardly be emphasized; such explanations assumed a failure of rhythm or a sudden loss of muscular power for which there is no warrant. Before the experimental investigation of the mammalian heart had shown the actual mode of abrupt and complete failure of the ventricular pump by the occurrence of fibrillation, the observed phenomena of sudden death by syncope—the sudden abolition of pulsation and all other manifestations of the beating of the heart—naturally led to the belief that the end had come through a simple failure of contractility. It was not realized how extraordinarily resistant and enduring the contractile power of the heart is, even under experimental conditions of exposure, manipulation, and severe strain of various kinds.

Sudden Death and the Pathological Changes found post Mortem.

It is well known that in many cases where death is believed to have resulted from cardiac failure the heart has been found *post mortem* to present structural characters apparently little if at all removed from the normal. An elaborate study of sudden death and the pathological conditions associated with it was made by Brouardel and Benham.[6] In this book, extending to more than 500 pages, a great deal is to be found as to numerous and varied morbid conditions and structural changes in various organs, etc., in cases where death has occurred suddenly, while it is stated that in some cases no lesion is found. Elaborate details of dead-house anatomy are presented, but no explanation is given, or indeed attempted, as to how vital function has suddenly broken down, when up to that point in many cases, in spite of pathological conditions that have often been present, the individual has been able to go about his affairs with fair or good activity of body and mind. It is obvious that such structural alterations (coronary lesions, myocardial degenerative changes, etc.) as were found after death were, up to the sudden catastrophe, quite compatible with tolerable efficiency of the functions necessary for the maintenance of a more or less active life; to determine death an abrupt change must have occurred—a process fundamentally different from such slow impairment or limitation of function as may have been present up to the final disaster.

Some Characters of Ventricular Fibrillation.

The inception of ventricular fibrillation is a sudden event, though very often preceded by more or less complex disturbances in the normal action. There is an abrupt replacement of the effective systole by a continuous turmoil of inco-ordinated activity in the muscular bundles, excessively rapid small contractions, each of short duration, coursing over the intercommunicating muscular fasciculi, so that, while some portions are contracted, others are relaxed; the result is mere oscillation or inco-ordinated quivering of the ventricular walls, with complete loss of the expulsive power normally brought to bear on the contained blood by the strong and simultaneous state of mechanical tension present in all the muscular fibres during the normal systole. The effect on the circulation resembles that of absolute stoppage of the ventricular beat with complete cessation of its muscular activity, such as may be caused by the introduction of certain poisonous agents, etc. While fibrillation is of universal occurrence, under certain conditions, in all warm-blooded animals—both mammals and birds—its tendency to persist when once established varies greatly, being much greater in the higher mammalian types. In some animals among the lower mammals (rat, rabbit, etc.), as well as in

* Part I was published in the BRITISH MEDICAL JOURNAL of January 13th, 1923 (p. 51).

of the proposed transference are numerous and obvious, but a strongly entrenched conservatism still stands in the way.

THE UNIVERSITY.

The many friends of the Dean of the Faculty of Medicine, Professor Sir Harry Allen, will regret to hear that he has been given extended leave of absence on account of ill health. He has, however, made such rapid progress that it is hoped he may be enabled to resume active duty at an earlier period than was originally anticipated. Dr. F. L. Apperly, a Victorian Rhodes Scholar, has been appointed acting professor of pathology, and the duties of Dean are being temporarily undertaken by Professor Berry.

Dr. J. H. Anderson, Senior Lecturer in Anatomy, has resigned his position and will proceed to England. He has performed his manifold duties with such singular ability and conspicuous success as to make it certain that his loss will be severely felt. Dr. L. E. Hurley has been appointed to the vacancy.

The Director of the Walter and Eliza Hall Clinical Research Laboratory, Dr. S. W. Patterson, having received an important research appointment in England, has resigned. He is to be succeeded by Dr. C. H. Kellaway. Until the arrival of the latter the duties are being temporarily discharged by Mr. H. R. Dew, F.R.C.S.

THE AUSTRALASIAN CONGRESS OF THE BRITISH MEDICAL ASSOCIATION.

The arrangements for the first Australasian Congress of the British Medical Association are in an advanced stage and give every indication of a successful meeting. Visitors from overseas will be particularly welcome. They should communicate with Dr. A. L. Kenny, 13, Collins Street, Melbourne. Trade exhibitors should communicate with Dr. B. L. Stanton, Children's Hospital, Pelham Street, Carlton, Melbourne.

Correspondence.

THE PRESIDENT'S ADDRESS.

SIR,—One of the best editorials I have read for years in the BRITISH MEDICAL JOURNAL is that of to-day. In it you state: "The President would rather have healthy dwellings to prevent tuberculosis than sanatoriums in which to treat it." And you ask, "What, then, is to be the remedy? More houses, and better houses, of course. But how are they to be provided?"

The answer, in my opinion, is easy, and it is this: The purchase of agricultural land, for building purposes, at double its agricultural value. It is not so much a question of houses—it is a question of sites! Thousands in this country could build houses, but houses cannot be built upon air. And agricultural land is the one thing, for building purposes, that cannot be obtained at market value.

If a Land Act were passed so that the individual could buy a sixth of an acre for £20 or less, the housing question would, in my opinion, solve itself. Strips of land, half a mile deep, on either side of the King's highway, should be purchasable at double the agricultural value—that is, for £60 to £120 an acre. And then the individual should be allowed to purchase one-sixth, and only six houses should be allowed to the acre. If this were done the ideal of a sixth of an acre, a cottage, and a goat (as a non-tuberculous milk supply) would become a reality. The capital cost would be only £350 to £450, or a rental of 6s. to 9s. a week, and this rental could be reduced by the sale of vegetables or milk. The other assets would be evening occupation, sunlight, fresh air, and fresh milk and vegetables—in other words, health.

If these sites were purchasable, water could be supplied by road mains, and the trams run out and electric lighting provided. The main road would take the place of costly streets; the sewage would go back to its natural place—the soil, and 20 to 30 per cent. of town dwellers would return to the land. This would leave more air space and better habitations in the cities, and workers living by the roadside could reach their work by tram, especially if assisted by starting work at a reasonable hour in the morning. Every thrifty citizen, in my opinion, should have the chance of such a site, and I believe the response would enlighten the pessimists.

The best cottage or house would probably be one of "Redruf" bricks, with hollow walls, castellated top, and flat roof. The flat roof has many advantages, and could become a home sanatorium for a tuberculous inmate in the summer months.—I am, etc.,

T. M. ALLISON.

Newcastle-on-Tyne, July 28th.

SIR,—Mr. Charles P. Childe's Presidential Address on Environment and Health at the recent Annual Meeting of the British Medical Association at Portsmouth, as reported in the BRITISH MEDICAL JOURNAL of July 28th, 1923, is, if I may say so, a survey of the greatest interest and value, but I am greatly disappointed to see in the section on tuberculosis the President's statement of the conditions of cure of this disease. Mr. Childe states that fresh air and sunlight are the essential conditions, not only essential but almost the sole conditions, and says that the cures at Alton are fresh air and sunlight. I venture to suggest that the feature of treatment at Alton is Sir Henry Gauvain's efficient system of splinting of various types, and that fresh air and sunlight are only adjuvants, though very valuable ones, but possibly preceded in value by abundance of wholesome food.

In other words, surely the basis of successful treatment of tuberculosis is rest. If the children with active tuberculous foci at Alton and elsewhere took full advantage of fresh air and sunlight and yet maintained the unrestricted use of the affected parts, then I think there would be few, if any, good results from treatment.

The same in pulmonary tuberculosis—the sufferer must rest if symptoms of systemic disturbance are to be relieved. Repeatedly I have heard of patients with active pulmonary tuberculosis being advised to seek "fresh air," and who have sought it with much exercise often in hilly country, with steady decline in health, when it was rest in bed for which their organisms were calling. For a long time in this sanatorium I have preached to my patients and others the value of rest in treatment, and have curtailed considerably in winter the free open-air conditions which cause such discomfort, discontent, and even harm in this country, and the results of treatment have not been impaired.

Fresh air is, of course, of importance in the treatment of tuberculosis, but, like graduated labour for pulmonary cases, it can be overdone. I submit that the essential conditions for the satisfactory treatment of tuberculosis in order of merit are rest, good and plentiful food, fresh air and sunlight.—I am, etc.,

CECIL G. R. GOODWIN.

Barrasford Sanatorium, Northumberland, July 29th.

SIR,—The President in his address alludes to cancer, tuberculosis, venereal disease, and alcoholism as scourges responsible for many deaths. We can protect ourselves against the last three—is there no means of protecting ourselves against cancer?

Without going into the pros and cons of the many theories of the cause of the disease, it seems to me that there is more evidence in favour of the organismal hypothesis than of any other. It is very probable that the organism is a protozoon similar to the *Coccidium oviforme* in the liver of rabbits, and that it is a parasite which spends part of its life cycle in another host, from which we become infected. It is possible, too, that the parasite is present in the blood of most individuals, and that it requires some previous susceptibility of the tissues to attract it and cause the epithelial cells of the part to cross the border-line and become malignant. For have we not a somewhat analogous condition in trypanosomiasis? Trypanosomes have been discovered in the blood of individuals not suffering from manifestations of the disease, and are not trypanosomes attracted to tissues irritated by the injection of turpentine, producing a fixation abscess?

I suggest, therefore, that we should endeavour to anticipate the onset of malignant disease by giving, after the

Such is probably the explanation of such a case as that described by Robinson and Bredeck[12] in which there were repeated syncopal attacks simulating those of the Adams-Stokes syndrome; in one of these attacks an electrocardiographic record was obtained and showed characters apparently resembling in some measure those of ventricular fibrillation—followed by recovery. In another case F. M. Smith[13] obtained an electrical record suggestive of fibrillation, the attack being recovered from within a minute. Hoffmann[14] has also published an electrical curve of a temporary condition evidently approximating to, but not reaching, the fully developed condition of fibrillation. There is also a case reported by Kerr and Bender[15] of temporary fibrillation or a closely allied condition (under quinidine therapy) where records were obtained.

The Question of Recovery from True Fibrillation.

As has been already stated, spontaneous recovery from ventricular fibrillation is very frequently seen in the hearts of the lower mammals—for example, rat—but recovery is increasingly difficult and rare in the higher forms. In the cat and rabbit, after true fibrillation has lasted for periods of considerable duration (minutes), the ventricles may, without treatment, sometimes show cessation of the fibrillation movement and "spontaneous" recovery of the power to execute weak co-ordinated beats, with more or less definite pumping out of blood from their chambers into the arteries. This recovery occurs too late as a rule, if not invariably, to provide for continuance of the life of the animal, for the collapse of the circulation has lasted too long for restoration of the vital functions. Most instances of true fibrillation do not show this sort of ventricular "recovery"; the fibrillation movement usually becomes slower and feebler and gradually flickers out in the dying muscular fibres.

In the human subject it is probable that true fibrillation is (apart from treatment by cardiac massage, etc.) usually if not invariably fatal, though it seems possible that such recovery of separate though feeble ventricular beats too late for the survival of the individual may occur—if one may put this interpretation on the phenomena of some cases that have been recorded by Sir William Osler,[16] cases presenting in striking fashion the external features associated with the occurrence of fibrillation. Referring to sudden death in some anginal subjects, he writes:

"Possibly in some act combining intense emotion with muscular effort there is a rapid change, a sudden unconsciousness, a stony stare, a slight change in the facial expression, and then with two or three gasps all is over; no pulse is felt at the wrist; the respiration stops; but even when the patient is apparently dead a feeble heart impulse may be felt or faint heart sounds heard."

In one of these cases where slowly recurring respiratory gasps occurred over some minutes, cardio-puncture with a long thin aspirator needle showed movements indicating heart beats at gradually diminishing rates—52, 44, 32 per minute—ceasing fifty minutes after collapse and forty-five minutes after the last inspiratory gasp. (It may be remarked that the phenomena here described by Osler were not such as to be suggestive of reflex vagus inhibition.)

Osler's description of such deaths may be compared with what Sir Thomas Lewis[17] says of deaths from ventricular fibrillation, occurring in subjects of auricular fibrillation:

"From time to time a sudden and unexpected catastrophe happens; regarded as convalescent, the patient is sitting in bed, chatting or feeding maybe. A nurse in charge, or perhaps a neighbouring patient, hears a cry or choking sound; the patient falls back on the pillows intensely pale, there are a few gasping respirations, a little convulsive movement, and the pulseless patient, rapidly becoming livid, is still."

Relation of the A-V Junctional Tissues to Ventricular Fibrillation.

Unlike auricular fibrillation, which, as is well known, may go on over a long term of years, ventricular fibrillation is promptly fatal, involving as it does an abrupt and complete abolition of the pumping action of the ventricles and a speedy cessation of the circulation. The effect of auricular fibrillation is to impose a more or less extensive limitation to the efficiency of the heart in two ways—by the absence of the normal action of auricular systole in completing the filling of the ventricular force-pump, and still more by the rapid and disorderly lead given to the ventricles by the rapid and irregular excitations transmitted from the fibrillating auricles to the ventricles; the latter involves a wasteful and exhausting expenditure of the energy of the ventricular muscle, attended by relatively poor results in the way of maintaining the circulation.

Fortunately the structure and properties of the junctional tissues between auricles and ventricles are such as to afford a most important protection against transmission of the fibrillation from the auricles to the ventricles. In default of such protection the onset of auricular fibrillation would necessarily be fatal by extension to the ventricles. It is known from experiment that in the auricular and ventricular muscle, with their complexly arranged bundles of fibres, fibrillation can be propagated across an artificial isthmus, made by incision, connecting portions of the musculature, only as long as the isthmus is of sufficient breadth; in the junctional mechanism, comprising the A-V node with its special properties, and the narrow A-V bundle with its longitudinally arranged fibres terminating in the Purkinje network on the inner surface of the ventricles, the fibrillation process fails to be transmitted (as such) either from auricles to ventricles or from ventricles to auricles. The junctional mechanism, while able to conduct impulses sufficiently fast to give ventricular beats at rates much above those of the normal heart under resting conditions or in moderate exercise, is not able to transmit the vastly more rapid and characteristic series of excitations of fibrillation. It is only under certain very special conditions, where the susceptibility of the ventricles to fibrillation (at relatively slow rates of excitation) is extraordinarily great, that the writer has in rare instances seen any experimental evidence of the possibility of ventricular fibrillation being excited from the auricles by impulses passing through the A-V bundle. The possibility of such occurring under pathological conditions in man is worthy of consideration.

The Purkinje network formed in the interior of the ventricular walls by the arborizations of the fibres of the A-V bundle form a sort of distributing board over which the normal impulses descending the bundle spread swiftly so as to be delivered almost simultaneously to the myocardium at the various parts of the ventricular cavities, bringing about the normal co-ordinated contraction of the ventricular fibres at each beat. Such mode of excitation is obviously unfavourable to the development of the fibrillation mechanism, but the latter might under certain conditions be promoted by an abnormal delivery of irregular and aberrant exciting impulses, dependent on defects in the branches of the bundle or its terminal arborizations, such partially interrupted or distorted impulses impinging upon the myocardium at different points in abnormal fashion—alterations in timing or direction of the impulses as might readily be determined by morbid conditions in some parts of the conducting network. An exaggeration of these functional aberrations may easily be favoured by circumstances making an extra call on the heart, such as emotion or muscular effort, or by the succeeding phase of reaction with its increase of vagus control and other changes.

There is some clinical and pathological evidence that points to the operation of such causes, resulting in ventricular fibrillation and sudden death in the human subject, though the particular mode of causation indicated above does not seem to have been suggested. Thus Nuzum[18] described a case of sudden death in a man, aged 38, who had shown no definite signs of ill health and where there were no adequate microscopic *post-mortem* findings to account for the fatal issue, apart from marked alterations present in the branches of the A-V bundle in the shape of fatty infiltration or replacement, the Purkinje fibres being beset with fatty droplets, etc.

Sapegno,[19] from a study of seventy-two cases, inferred that rapid unexpected death may be due to acute or chronic lesion of the bundle fibres, the acute changes being predominant in these fibres when both they and the ventricular myocardium were affected. He cites an instance of sudden death in a girl twelve days after recovery from typhoid fever, not associated with the acute changes sometimes seen in the myocardium after typhoid, but with lipomatosis in the bundle fibres—the cell substance being largely replaced

other towns, proves that there are other factors besides the presence or absence of infantile vaccination which determine the severity of small-pox. It is too soon yet to pronounce a final verdict as to the lessons of the Gloucester epidemic, but in the meantime I cannot think that Dr. Croley's suggestion is either fair or expedient.—I am, etc.,

C. KILLICK MILLARD.

Leicester, July 26th.

SIR,—There is much that is very disturbing about the present small-pox epidemic; it makes many of us look foolish who have been preaching for years to the public on the dangers of small-pox; and it appears to justify some of the contentions of the antivaccinators.

For thirty-five years as medical officer of health here I have been urging vaccination and prophesying regularly that when infection was introduced and a real epidemic started people would have an eye-opener and a terrible reminder of what small-pox means in unvaccinated children, instancing the last Gloucester epidemic with its 413 deaths. Now we have had an epidemic running up to about one thousand cases with practically no mortality, and the majority of these cases is said to have been among unvaccinated persons.

One of the chief arguments of the antivaccinators has long been that small-pox, like typhoid and typhus, has tended to become less severe by reason of ordinary sanitation. Another claim of our "anti" friends is that we beg the question by calling a case small-pox if a child is unvaccinated, and chicken-pox if vaccination marks are clear. In this connexion let me give one instance. A colleague in the public health service, being liable to be called on for an opinion, went to Gloucester and received full instruction about distribution of rash on face and limbs, umbilicated vesicles, initial malaise, lumbar pain, etc., and was finally told, "If you find vesicles on the palms of hands and soles of feet you may call it small-pox." Shortly after he was called in consultation to a case presenting all these features. He gave his opinion "small-pox." As there was still doubt, a medical referee from the Ministry of Health was summoned, and he pronounced it "chicken-pox." When I asked what the reason was for this decision, my friend replied, "Well, the chief thing was that the child had good vaccination scars"!

Undoubtedly much chicken-pox has been, and still is, about. Over six months ago, before the present epidemic in Gloucester, we had a sharp outbreak here, and in the case of some of the children I remarked at the time: "If small-pox were about this child would probably have been sent to the small-pox hospital," but they were unquestionably chicken-pox, with successive crops of vesicles in the same patient.

One recent report I noticed to the effect that out of some 300 cases in one hospital only about 30 had been vaccinated, and yet no fatal case had occurred. If small-pox has become so mild that even in unvaccinated children it does not cause any mortality, we shall surely have to revise all our opinions about the necessity for early vaccination; but does not the whole thing look as if this widespread epidemic had been chicken-pox from first to last?—I am, etc.,

H. CAMERON KIDD.

Bromsgrove, July 29th.

SIR,—In a note on the differential diagnosis of small-pox and chicken-pox, Dr. Brand (July 28th, page 160) mentions two signs which he considers are pathognomonic and are "invariably seen in varicella and never observed in variola." He refers to the early vesiculation and crusting of the papules, and the contemporaneous presence of papules, vesicles, and crusts. As an embarkation medical officer in a Mediterranean port, I saw cases of small-pox modified and atypical in which the differential diagnosis tables of the textbook seemed of little use, and also in which the two signs mentioned were not infallible. That an eruption is heterogeneous will not carry great weight, since it may be heterogeneous in small-pox. In cases of small-pox incompletely modified, cases in which the lesions differ considerably in size will differ equally in rapidity of evolution. For this reason want of uniformity among the lesions of some cases of modified small-pox is conspicuous. Ricketts and Byles (*The Diagnosis of Small-Pox*, page 51) state, in discussing modified small-pox, that "papules arrested in development, vesicles, pustules and crusts may all lie together on the same square inch of surface."

The two signs mentioned by Dr. Brand are of the greatest importance, but they are not infallible. Whatever the characters of the skin lesion in small-pox, the distribution is characteristic.—I am, etc.,

E. BAYLIS ASH, M.B., M.R.C.P.

Birmingham, July 30th.

ACTIVE IMMUNIZATION IN TUBERCULOSIS.

SIR,—Those who advocate so strongly the use of Spahlinger's methods fail to realize the results obtainable by active immunization with antigens of the tubercle bacillus and of the accompanying infections, reactions being controlled by the exhibition of iodine. The results are remarkable. In my own hands I am accustomed to obtain arrest in over 90 per cent. Turban I, 60 to 75 per cent. Turban II, and 30 to 40 per cent. Turban III. I have several cases of acute pneumonic phthisis alive after four to ten years. I am quite prepared to demonstrate the methods in any suitable institution, under any observation, provided I can nominate my own man to carry out the treatment and keep the patients under treatment as long as I wish. No capital expenditure will be necessary to carry out this demonstration—merely the salaries of the executant doctor and the laboratory expenses for the manufacture of the material. The tubercle bacillus antigen I propose to use is my solution of the tubercle bacillus in benzoyl chloride, preferably made from the patient's own bacilli.—I am, etc.,

W. M. CROFTON.

University College, Dublin, July 30th.

EARLIER NOTIFICATION OF TUBERCULOSIS.

SIR,—The opportunity of following the life history of the patient diagnosed as, or suspected of, tubercle for a number of years in a large industrial area like Leeds in sanatorium, dispensary, and domiciliary consultation work confirms the opinion that our present system of tuberculosis notification is totally inadequate in controlling tuberculosis.

So far notification has only served the purpose of providing a haphazard form of treatment in established disease causing systemic disturbance. Even with modern methods of treatment only in a very small number of cases has the expectation of the life of such consumptives been prolonged for a period of five to seven years in an industrial area. The press and the public clamour for treatment. The aim of notification should be to trace the beginning of the disease and to educate the patient to maintain his resistance, that his expectations of life may be as good as that of a normal individual, and thereby prevent the spread of the disease individually and socially. One has only to glance at the illuminating report of the Chief Medical Officer of the Ministry of Health for facts and figures that cry aloud for radical reforms in our system of notification and diagnosis of tuberculosis. The statistics for 1921 cannot but arouse us from our lethargy.

Tuberculosis of all forms—number of new cases notified to the Ministry	71,7[illegible]
Tuberculosis of all forms—deaths registered in England and Wales (1921)	42,6[illegible]
Of these, death from tuberculosis of the respiratory system (73 per 1,000 deaths of all causes)	33,5[illegible]
Death from bronchitis (73 per 1,000 deaths of all causes)...	33,6[illegible]
Diarrhoea and enteritis ... ... 37 per 1,000 deaths of all caus[illegible]	

The actual causation is not therefore established in t[illegible] two latter groups, and every practical diagnostician cann[illegible] but admit that a fair proportion of these cases in industr[illegible] areas are tuberculous, more so than cases wrongly diagnos[illegible] as tuberculous. These missed cases and the contacts ne[illegible] come under the vigilance of the tuberculosis staff.

The inference from the facts as to sickness and invalid[illegible] in the Ministry's report is equally conclusive. Of 36,[illegible] cases of illness collected by the Regional Medical Offi[illegible] from 226 insurance practices of 116 towns, tuberculosis [illegible] only diagnosed in 505 cases (13.9 per 1,000 of total cas[illegible] bronchitis and bronchial catarrh in 7,739 (213 per 1,0[illegible] The ratio per 1,000 total cases for pneumonia and o[illegible] respiratory diseases was 14.8; digestive system 13[illegible] debility, neuralgia, and headache 55. Here again

extra-systolic irregularities, tachycardia, etc. Thus fibrillation can occur without apparent exciting cause and quite apart from the sequence commonly observed—extra-systoles, tachycardia, and fibrillation—when death suddenly comes as an early event after coronary ligation. In other cases, at a much later time, disturbances of rhythm and evidences of heart failure present themselves, increasing in intensity and eventuating in fibrillation. Or temporary irregularities may have developed at varying periods after ligation—to give place later to regular rhythm, and then after weeks or months to fibrillation and sudden death.

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(To be continued.)

NINETY-FIRST ANNUAL MEETING

OF THE

British Medical Association.

Held at Portsmouth, July, 1923.

PROCEEDINGS OF SECTIONS.

SECTION OF MEDICAL SOCIOLOGY.

Dr. H. B. BRACKENBURY, President.

PRESIDENT'S OPENING REMARKS.

THE PRESIDENT, in opening the proceedings, said that the Section had at least one exceptional feature in that, alone among the Sections of the Annual Meeting, it was attended by a very considerable proportion of people who were not members of the medical profession. The medical members welcomed these lay visitors and their contributions to the discussion, because in the case of such a subject as this much that was of value could be contributed by experts other than medical. He read apologies for inability to be present from Sir Leslie Scott, K.C., M.P., a Vice-President of the Section, and from Sir Bryan Donkin, and announced that in the course of the day Miss Evelyn Fox (honorary secretary of the Central Association for Mental Welfare) would exhibit at a neighbouring picture-house a film illustrating the education of mentally defective children; apparatus for mental tests and an exhibit of work done by mental deficients were also to be seen in the Pathological Museum.

DISCUSSION ON MENTAL DEFICIENCY IN ITS SOCIAL ASPECTS.

INTRODUCTORY PAPERS.

I.—WILLIAM A. POTTS, M.A., M.D.,

Medical Officer to the Birmingham Committee for the Care of the Mentally Defective; Psychological Expert to the Birmingham Justices; Visiting Physician, Great Barr Hall, etc.

THE importance of the subject of mental defect is not fully realized. The number of mental defectives is large, and their problem intimately interwoven with most social difficulties. In Birmingham, with its population of about a million, the local authority is dealing with 440 defectives by maintaining them in institutions or under guardianship, while 36 more are temporarily or permanently transferred to asylums: there are 261 on the waiting list for institutions, and 550 more are under observation. The Education Committee is dealing with 1,119 in special schools, and has 435 more waiting for examination, who have been reported as probably mentally defective. The guardians are dealing with many additional cases, some of whom are not classified as defectives at all. Further, there are a number of defective children under 7, not yet causing trouble anywhere, except possibly at home, with whom the Education Committee and the local authority will have to deal later. Nor does this complete the tale. Those responsible for the working of the Act know from the way in which fresh cases of all ages under 40 are continually cropping up that the lists are far from complete.

The number, then, is large. So far from the estimate of the investigators for the Royal Commission on the Feeble-minded in 1906, of one in every two hundred of the population, erring on the side of excess, the mistake may have been in the other direction. The American army tests, introduced when America came into the war, were instrumental in excluding many defectives. Investigation showed that many, who were useless for the army, had been carrying on satisfactorily as hewers of wood and drawers of water. As you know, a mental defective can often manage in a simple environment to which he has gradually became adapted. A change, however, may disturb his equilibrium so much that he is never able to adjust again. But it must be remembered that all mental defectives at large are a potential danger to the community, and that the potential danger increases as modern industry becomes more complicated and the opportunities for going wrong more frequent.

Before the passing of the Mental Deficiency Act it was said that the nation which first had such an Act would benefit enormously, and that nations which ignored the problem would inevitably go under. We were the first to have an Act applicable to the whole country, and not merely to a particular province, as in the State of New York. But are we making proper use of the Act? Are we not inclined to pat ourselves on the back for having passed the Act, and to say that we know it is there if we want to use it, and then forget all about it? This is the attitude of many of those responsible for our municipal government, many of whom have never even taken the trouble to inquire what mental defect is, and still labour under the illusion that mental defect is synonymous with idiocy, and can be recognized at a glance by anyone who has shown such capacity as to secure a seat on the Bench. The truth, however, is that the majority of defectives can only be detected by careful investigation, their diagnosis requiring thorough and sometimes repeated examinations by those who have made a special study.

Nothing is of more importance to this Section than the relationship of mental defect to other problems. Take venereal disease: here mental defectives constitute one of the great difficulties, for they neither protect themselves against disease, nor realize the importance of treatment, and especially of continuing it until the disease is cured. Investigations in infirmary lock wards have shown the presence of a large proportion of feeble-minded women. Not infrequently the local authority for defectives has to delay placing a feeble-minded girl in an institution for defectives till the syphilis from which she is suffering has been cured.

Chronic drunkenness, again, though not pathognomonic of mental defect, often claims as victims men and women whose judgement and self-control are so poorly developed as to constitute a form of feeble-mindedness.

Illegitimacy also is a problem that cannot be considered regardless of mental defect: 30 per cent. of defectives is a proportion often found in rescue homes where the feeble-minded are not carefully excluded, and a specially qualified medical officer appointed to enforce this regulation. Many experienced workers would welcome a thorough medical and psychological examination of the young women coming under their care, not in the narrow spirit of attempting to rake as many as possible into the mentally defective institution net, but on the broad principle that every human

up (representing ventricular diastole) and *down* the ladder (representing ventricular systole); normally (i.e. normal ventricular cycle) the bucket goes up to the top and down to the bottom of the ladder; but abnormally (i.e. Fractional Heart EXPANSION and CONTRACTION) the bucket may only go up 3 or 5 or 7 or 8 etc. rungs and then come sharply down to the bottom again. On the other hand the bucket may go up to the top (20th rung) of the ladder (i.e. full ventricular diastole) and then only come down to the 15th or 14th or 12th etc. rung (representing Fractional ventricular Systole) before going up to the top again. These "bottom" Fractional beats e.g. (1st to 5th rung) and "top" Fractional beats e.g. (20th to 15th rung) represent two types of Fractional contractions at either end of the Cardiac cycle scale, occur more or less indiscriminately in Cardiac failure, are irregular and mixed with occasional complete ventricular systole and diastole. Fractional contractions are in my opinion Nature's far-seeing efforts to rest the Heart muscle for the complete heart-contraction which it wants to give every time. I disagree with many other assertions of Dr. Meakin about the Heart but I don't like 5 minutes letter writing to put my views into what it took me 5 years' study of the Heart to find out. Perhaps if Dr. Meakin studies my booklet it may shed new light on the heart for him.—Yours sincerely,

MICHAEL BERCHMANS SHIPSEY, M.B., B.Ch.

403, Slade Road, Erdington,
Birmingham, 25.6.23.

THE EXPERIMENTAL INQUIRY INTO THE CAUSES OF CANCER.

SIR,—I have read with the greatest interest the very able article on cancer by Dr. Leitch of the Cancer Hospital Research Institute (July 7th, p. 1).

It displays the broadest and most searching induction I have come across for a long time. It is bound to be of great service to those whose time and opportunities do not permit them to pursue such experiments as fall to the lot of Dr. Leitch and his colleagues.

There is one point throughout all the experiments with externally applied irritants which strikes me forcibly—namely, that they produce only epitheliomatous conditions. Do those locally produced epitheliomata later on produce constitutional cancer which may become diffused independently of the locally induced cancer?

I can quite understand locally induced cancer spreading and producing poisonous effects, but not in the same manner as other cancers. In my opinion, locally induced cancer is caused by the long continued exclusion of the air and the enclosure of epithelial excretion which destroys the cells and is bound to produce a backward tendency of the poison produced. This is shown by the influence produced by the irritant continuing to travel after the irritant has ceased to be applied. In my opinion its method of attack is similar to syphilis, which takes a definite time to reach the germ plasm before it expresses itself on the skin, and it is rather curious that syphilis first attacks the same part of the germ plasm which is associated with all cancers. They seem to reach the germ plasm by something like a retrogressive contiguity. In my opinion all cancers are a reversion towards an embryonic condition. The nearer the cancer cells are to embryonic cells the more rapid the progress of the disease.—I am, etc.,

Bolton, July 16th. A. W. CRAWFORD, M.B., C.M.

THE Accademia Medico-Fisica of Florence is preparing to celebrate next year the hundredth anniversary of its foundation; it is proposing to publish a souvenir volume giving the history of the progress of medicine as reflected in the proceedings of the society.

APPLICATION has been made by the State attorney-general of Richmond, Virginia, U.S.A., for revocation of the charter of the "Oriental University" of Cherrydale, Virginia. It is said that the federal authorities of the United States have had this "school" under observation for some time, and that if its charter is revoked the institution will be prosecuted for using the Post Office mails to defraud. Apparently degrees of all kinds are being sold both in the United States and abroad, and the names of prominent men now dead have been included in the university staff. The head of the "school" claimed, it is said, that by virtue of his ability as a medium he could get into touch with these dead members of the staff.

Universities and Colleges.

CONJOINT BOARD IN ENGLAND.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.

THE following regulations for the Diploma in Laryngology and Otology (D.L.O.R.C.P. and S.Eng.), drawn up by the Committee of Management of the Examining Board of the Royal College of Physicians of London and Royal College of Surgeons of England, after conference with various teachers in the subjects, have been approved by both Colleges and have now come into effect.

REGULATIONS.

I. Both parts of the examination will be held in the months of June and December.

II. The examination shall comprise:

Part I. (*a*) The anatomy, embryology, and physiology of the ear, nose, pharynx and larynx. (Candidates will be expected to be acquainted with the vascular, lymphatic, and nervous connexions of these parts and with the central nervous system in so far as it relates to the special regions concerned.) (*b*) Elementary acoustics.

Part II. (*a*) The recognition and use of special instruments and appliances. (*b*) The medicine, surgery, and pathology of the ear, nose, pharynx, and larynx.

III. The examination will be written, oral, and practical in Part I, and written, oral, practical, and clinical in Part II.

IV. Candidates may enter for Part I of the examination at any time after a registrable qualification in medicine, surgery, and midwifery has been obtained. (Candidates must present themselves for the whole of Part I. In the event of failure in one division only, candidates will be allowed to present themselves for re-examination in that division.)

V. Candidates may enter for Part II of the examination on the completion of one year of special study of diseases of the ear, nose, pharynx and larynx, after a registrable qualification in medicine, surgery, and midwifery has been obtained, provided that Part I has been previously passed, and on production of the following certificates:

(*a*) Of having attended the laryngological and aural clinical practice of a recognized hospital or of the laryngological and otological departments of a recognized general hospital for twelve months. (The conditions of this certificate (*a*) will be fulfilled by holding the appointment as house-surgeon or house-physician or as clinical assistant at one of the above hospitals or departments, provided that in the case of a clinical assistant the certificate shows that he has attended for at least three hours a day on two days of the week.)

(*b*) Of having attended operations to the satisfaction of the surgeons in charge.

(*c*) Of having received instruction in pathology and bacteriology with special reference to laryngological and otological medicine and surgery.

VI. The fee for admission or readmission to each part of the examination is £6 6s.

VII. Candidates must give fourteen days' notice in writing of their intention to present themselves for examination, to the Secretary at the Examination Hall, 8–11, Queen Square, Bloomsbury, London, W.C.1. In the case of Part II the necessary certificates of study must be produced with the notice.

VIII. Graduates in medicine or surgery of Indian, Colonial, and foreign universities recognized by the Examining Board in England, but whose degrees are not registrable in this country, may enter for the examination for the Diploma in Laryngology and Otology on fulfilling the same conditions in regard to study.

IX. The above conditions of study may be modified at the discretion of the Committee of Management in the case of a candidate (*a*) who has carried out original investigations, or has written a thesis on some subject in laryngology or otology; (*b*) whose studies have extended over a prolonged period of time without fulfilling the exact conditions; but exemption will not be granted from any part of the Examination.

Syllabus of the Examination.

The Ear.—Congenital deformities. Wounds and injuries. Foreign bodies and parasites. Acute and chronic inflammations and their complications. Simple and malignant new growth deaf-mutism—vertigo—tinnitus. Tu[illegible]gering.

The Nose and Pharynx.—Congenital deformities. Injuries and foreign bodies. Acute and chronic inflammation; vasomotor rhinitis; retro-pharyngeal abscess. Nasal obstruction; adenoid growths. Acute and chronic inflammation of the nasal sinuses. Diseases of the tonsils. Tuberculosis; syphilis. Simple and malignant new growths.

The Larynx.—Congenital deformities. Injuries and foreign bodies. Acute and chronic inflammation. Disorders of innervation, sensory and motor. Tuberculosis; syphilis. Simple and malignant new growths.

Note to Syllabus.—Candidates will be examined on radiograms; and also will be expected to recognize under the microscope and growing in or on nutrient media the organisms common to infections of the above regions.

For Part I two examiners will be appointed by the Royal College of Surgeons; for Part II one examiner will be appointed by each College.

The Committee will, subject to an annual report to the Colleges, determine the courses to be specially recognized as fulfilling the conditions of the Regulations.

to hold their hands for lack of funds either to build, or to board out their cases. This seems likely to continue for some years. The Guardians, however, often have accommodation available and sometimes the funds too. When that is so, every encouragement should be given them. It is absurd to try and stifle their efforts, if they are the only people who can act. Even if they did not deal with defectives well, it is something to deal with them at all. But no one can visit Darenth, Monyhull, Great Barr Hall, and Prudhoe Hall, among other institutions, without being forced to admit that the Guardians are as efficient in this matter as any other body. The problem is so urgent and so vital that we must act.

As regards segregation, we need not be unduly pessimistic: the number of those to be segregated is large, but experience both in this country and in America has shown that good training and control in an institution for a sufficient length of time (seven to twelve years) during the plastic and dangerous years of adolescence and early adult life often develops such capacity to behave properly that the defective may return to his home, if it is fit and willing to receive him. Many high-grade defective girls, who must be segregated at 17 for the good of the race, behave well on discharge at 30 or a little later.

But the burden of segregation is so heavy at the present crisis that many are seeking a substitute, and are beginning to ask whether sterilization would be as efficient and less expensive. Others will enlarge on this question. I will merely say now that sterilization has always appeared to me an irrational procedure; it is irrational because in nearly every case in which it could be justified the unfortunate defective must still be segregated, because he is a menace to society in other ways than the breeding of other degenerates. The sterilized delinquent will go on stealing and giving trouble to the police. Feeble-minded young women could not be sterilized and then turned loose to spread venereal disease broadcast. Possibly applicable in a few cases, it can never be a solution of our problem. If defectives have a right to live, they have a right to live as unmutilated individuals. A lethal chamber is at least a rational proposition, because it does mean economy; but the time has not yet come when our administrators can insist on anything so drastic, even though the defective is an idiot, without relations or friends, who can only drag out a miserable existence, a burden to those in charge of it, not even an object of scientific interest.

The problem of the mentally defective which I have outlined is very urgent. I will leave it to others to fill in the details.

II.—MRS. ELLEN F. PINSENT,

Commissioner of the Board of Control.

THE Mental Deficiency Act has now been in existence nearly ten years, and it may be interesting to give some account of the work which has been accomplished under its provisions.

This Act was based to a large extent on the findings of the Royal Commission on the Care and Control of the Feeble-minded, and it will be helpful towards understanding the problem to quote one or two passages from their report. The Commissioners stated that they were compelled by the evidence to come to the conclusion

"that there are numbers of mentally defective persons whose training is neglected, over whom no sufficient control is exercised, and whose wayward and irresponsible lives are productive of crime and misery, of much injury and mischief to themselves and to others, and of much continuous expenditure wasteful to the community and to individual families."

The report says:

"We find a local and 'permissive' system of public education, which is available, here and there, for a limited section of mentally defective children, and which, even if it be useful during the years of training, is supplemented by no subsequent supervision and control, and is, in consequence, often misdirected and unserviceable. . . . We find large numbers of persons who are committed to prisons for repeated offences, which, being the manifestations of a permanent defect of mind, there is no hope of repressing, much less of stopping, by short punitive sentences. We find lunatic asylums crowded with patients who do not require the careful hospital treatment that well equipped asylums now afford, and who might be treated in many other ways more economically and as efficiently. We find, also, at large in the population many defective persons, adults, young persons and children, who are, some in one way, some in another, incapable of self-control, and who are, therefore, exposed to constant moral danger themselves, and become the source of lasting injury to the community."

The number of mentally defective persons in England and Wales (apart from certified lunatics) was estimated at 149,628, or 0.46 per cent. of the population. Of these, 66,509, or 44.45 per cent., were estimated to be urgently in need of provision either in their own interest or for the public safety. Only such cases were included as were "improperly, unsuitably, or unkindly cared for, or who by reason of particular habits and characteristics are a source of danger to the community in which they live."

It may be useful to consider the underlying principles which dominated the recommendations of the Commission and to discuss how far they were carried out by the Act of 1913. These principles can be stated as follows:

1. That those persons who by reason of mental defect cannot take part in the struggle of life should be afforded State protection suited to their needs. This principle had already been adopted in English law with regard to idiots and lunatics, and the Royal Commission proposed to extend it to all grades of mental defect.
2. That the mental condition of these persons, and neither their poverty nor their crime, is the real ground of their claim for State protection. Many mentally defective persons are dealt with as paupers or criminals, but before the Mental Deficiency Act there was no means of dealing with them primarily as mentally defective.
3. That if the mentally defective are to be dealt with as suggested above it is necessary to ascertain who they are and where they are. It was anticipated that this would be done chiefly through the local education authorities, who already had this knowledge concerning children in all districts where special schools existed.
4. That the protection of the mentally defective person should continue as long as it is necessary both in his own interest and in the interests of the community. It was shown that this principle involved the power to segregate and detain mentally defective persons under proper conditions and limitations, and that this was an extension to the whole group of the mentally defective of the advantages already given to lunatics and idiots. It was fully recognized that mental defect, amentia, was a permanent condition and one that called for continuous care and control either at home, if the home circumstances were favourable, or under guardianship or in suitable colonies or institutions.
5. Lastly, it was strongly recommended that, in order to supervise the local administration dealing with the protection and control of the mentally defective, a single central authority was indispensable. Unity of care and control may be said to be the keynote of the whole report.

Speaking of the evidence before them, the Commissioners say:

"This evidence suggests for our consideration as a main issue how far it is possible to create a system by which these mentally defective persons could, at an early age, be brought into touch with some friendly authority, trained and, as far as need be, supervised during their lives, in co-operation with their relations, when that is to their advantage, or, when it is desirable, detained and treated in some measure as wards of the State. The evidence also suggests that, as so many authorities are brought into contact with these persons—the Poor Law, prisons, schools and the like—in some way a settled plan of action should be established between the various agencies, so that some one supervising authority should see that they did not pass from one authority or institution to another, helped or detained a little in each but permanently cared for by none."

It is seen, therefore, that the main principle which stands out prominently in the report and recommendations of the Royal Commission is that to secure adequate treatment of the mentally deficient there must be unity and continuity of care and control. The object of this paper is to show how far it is possible to carry out this policy under the provisions of the Mental Deficiency Act.

Except in a small percentage of cases it cannot be said that the Mental Deficiency Act is at present exercising unity or continuity of control, though it undoubtedly aimed at creating the machinery by which these conditions could be secured. It established one central authority, the Board of Control, for the "general superintendence of matters relating to the supervision, protection and control of defectives," but the Act did not hand over all defectives to the Board's care. Children up to the age of 7 can be dealt with under the provisions of the Mental Deficiency Act; from 7 to 16 the Board of Education is responsible for feeble-minded children; after 16 those needing further care can be dealt with by the Board of Control. The Home Office is responsible for those dealt with under the Children's Act and also through the prison service for adult mentally defective

of those great French physiologists Bernard, Pasteur, Marey, and Chauveau. His researches on the physiology of muscle and nerve, on respiration, on the mechanism of the flight of birds, on immunity, fermentation, and numerous other subjects would, in any case, have placed him in the first rank of experimental physiologists. But the crowning discovery of his physiological career was the production of anaphylaxis. Professor Richet's original experiment might be described as of quite a humble nature. He had made an extract from the tentacles of a sea anemone and injected a small amount of this extract into mammals. The effect of the first injection had been almost *nil*, but on repeating the dose some weeks later a condition of profound shock had resulted, followed in many cases by death. Such an effect had been known to occur after the injection of serums in the prophylactic treatment of disease, and although the causation of anaphylaxis was not yet completely understood, Richet's experiments had greatly helped towards its elucidation and had opened up an entirely new field to the pathological physiologist.

There was no more famous name in modern physiology than that of IVAN PETROVICH PAVLOV. His investigations upon the digestive organs and the conditions under which the secretions act upon the food were poured out marked an epoch in the physiology of this subject. Previous to his work little or nothing was known of the nervous mechanism regulating the secretion of gastric and pancreatic juice. Pavlov's investigations threw a flood of light upon a hitherto obscure subject and formed the starting point for all future work upon it. A still more remarkable series of researches were those dealing with the so-called "conditioned reflexes." Pavlov had shown in his earlier researches that psychical influences had an important and strictly measurable effect upon the flow of both saliva and gastric juice, but his experiments penetrated a long way further into the obscure region which connected physiology and psychology.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THE following fifteen successful candidates, out of forty-six entered, who passed the requisite examinations, have been admitted Fellows:

T. Ahmed, R. C. Begg, W. E. R. Coad, A. Denham-White, M. J. Gibson, C. Gill-Carey, H. M. Godfrey, A. W. Harley, F. Harvey, A. T. Hawley, N. E. Kendall, J. S. Lloyd, D. M. MacLeod, Gladys H. Marchant, L. D. Mercer.

D. N. Bhaduri and H. C. van Dort have been admitted Licentiates.

Obituary.

G. I. THOMPSON STEWART, M.A., M.D.,

M.O.H. East Suffolk.

WE regret to announce the death, which took place suddenly on July 15th, of Dr. George Irvine Thompson Stewart, second surviving son of the late Sir David Stewart of Banchory-Devenick.

Dr. Stewart, who was 51 years of age, graduated M.A. Aberdeen in 1893, M.B., C.M. in 1896, B.Sc. with highest honours in medical sciences in 1899, and M.D. in 1912. After holding the appointment of senior house-physician under the late Dr. Angus Fraser Dr. Stewart went in for surgical work in the hospitals in London, Berlin and Vienna; he took the F.R.C.S.Eng. in 1906. He was the chief assistant for three years in the throat department of St. Thomas's Hospital, and senior clinical assistant at the Throat Hospital, Golden Square. As house-surgeon and surgical registrar at the Great Ormond Street Hospital for Sick Children Dr. Stewart became interested in children, and was appointed in 1908 school medical officer for East Suffolk. His work there received special commendation from the Board of Education, and his annual reports have been extensively quoted in the Blue Books issued by the Chief Medical Officer of the Board. In 1911, after taking the D.P.H., he was appointed county medical officer of health as well. He threw himself with characteristic energy into the work of his departments. He was genuinely admired by his staff and colleagues not alone for his outstanding abilities as a public administrator but as a man of generous heart and disposition, ever ready to spend himself in the interests of others and to promote and foster good fellowship among the staff engaged in the service of the county.

As secretary of the South Suffolk Division of the British Medical Association he put the branch on a firm footing and his loss will be greatly felt. In 1917 he became adjutant of the local unit of the R.A.M.C. (Vol.), and later when the Defence Force was created he assumed charge of the R.A.M.C. sanitary section.

FLORA MURRAY, C.B.E., M.D., D.P.H.

THE death of Dr. Flora Murray on July 28th, in her 54th year, removed one who will long be held in grateful remembrance by the sick and wounded who were under her care during the great war. Dr. Murray was a student at the London (Royal Free Hospital) School of Medicine for Women, and at the Royal Infirmary, Newcastle. She qualified in 1903 with the M.B., B.S. degrees of Durham University, proceeded M.D. in 1905, and she obtained the D.P.H.Cambridge in 1906. Dr. Murray was especially interested in children and held the appointment of physician to the Harrow Road Children's Hospital, and was also clinical assistant at the Belgrave Hospital for Children. She wrote an article on ethyl chloride as an anaesthetic for infants, in the *Lancet*, 1905, and was anaesthetist at the Chelsea Hospital for Women. In 1912 she was one of a group of eager women who started the little Hospital for Children in Harrow Road.

As soon as war was declared Dr. Flora Murray, together with Dr. Louisa Garrett Anderson organized plans for helping, and gathered round them other enthusiastic women. The immediate result of these plans was the formation of the Women's Hospital Corps, which was the first of the women's voluntary units. Although the corps consisted originally of only twenty members—doctors, orderlies, and nurses—their offer of help was readily accepted by the French Government and work was immediately started in Paris. Later, the corps was asked to start a hospital of 200 beds at Wimereux; this hospital was afterwards taken over by the R.A.M.C. Sir Alfred Keogh then proposed to the corps the organization of a women's military hospital of 550 beds in London. The old St. Giles's Union Workhouse in Endell Street was taken over and equipped, Dr. Flora Murray being placed in charge. The medical staff were graded for pay as members of the R.A.M.C., women orderlies were employed, nurses being attached to the Q.A.I.N.S. The work which was achieved by this hospital and by the corps previously is recorded in Dr. Flora Murray's book published in November, 1920, entitled, *Women as Army Surgeons: being the History of the Women's Hospital Corps in Paris, Wimereux, and Endell Street, September, 1914, to October, 1919.* The official recognition of her services was the award of the C.B.E. The affectionate gratitude of the sick and wounded soldiers who passed through her hands is a great testimony to Dr. Murray's work.

Medical News.

THE Rockefeller Foundation has arranged to present to the German universities five copies each of the principal British and American medical journals. One copy will be given to the State library of Berlin or Munich and the other four will be distributed among four groups in the north, south, east, and west of Germany, each of which contains five or six universities. A journal will remain in the library of each university for two months.

A NEW medical periodical, the *British Journal of Anaesthesia*, appeared at the end of last month. It is conducted by an editorial board of twelve anaesthetists in various centres in Great Britain and is edited by Dr. H. M. Cohen, anaesthetist St. Mary's Hospitals, Manchester. It is to be published quarterly by Messrs. Sherratt and Hughes of Manchester. The annual subscription is £2, post free; the price of single copies is 10s. 6d. The first number contains 54 pages, and consists of original articles and abstracts, and a bibliography of current literature; there are also some notes on societies. One of the papers is by Drs. Gwathmey and E. P. Donovan of New York. It deals with painless childbirth by synergistic methods. By "synergistic anaesthesia" is meant "the reciprocal augmentation of the action of one or more drugs upon one another with unconciousness." "Synergistic analgesia" is the term employed when consciousness is present. Dr. Gwathmey states that when the agents are properly selected and used the "effect is much greater than the simple summation of their pharmacological action." The aim appears to be the diminution of pain without loss of consciousness. The solution is administered by the rectum and is believed to reach the colon. A number of formulas are given. That which appears to be preferred contains urea 1 per cent.,

has at present been made of this section. The mental hospitals still contain large numbers of congenital cases who could be better dealt with in colonies for the feeble-minded. This is partly due to the want of such accommodation, but not wholly, as there are still vacancies in certified institutions approved under Section 37 of the Act. It is also due to visiting committees not appreciating their powers under this section and to lack of complete co-operation between the visiting committees and the local authority. Consequently a number of congenital defectives are discharged from mental hospitals, and, though probably all do not require further institutional care, it would be an immense advantage if they could be brought into touch with the local authority and placed under friendly observation or supervision—a procedure which would tend to prevent a return to the mental hospital. In order, then, to link up the means of affording such cases help and care and to secure continuity, the medical superintendent or the visiting committee of the mental hospital should inform the local authority of the discharge of mental defectives from mental hospitals.

A valuable amount of protection and care can be afforded to defectives by Sections 8 and 9. These establish a procedure whereby mentally defective persons proved guilty of offences may, in lieu of sentence, be sent to an institution or placed under guardianship, and whereby defectives detained in a reformatory or industrial school or undergoing sentence in prison may be transferred to a certified institution. Action taken under these sections is unfortunately often too late to prevent young persons from contracting anti-social and vicious habits, but it may be in time to prevent them from becoming habitual criminals, and in the case of youthful offenders it affords an early starting point for the continuous care for which their mental condition calls.

At the close of 1922 the number of cases remaining in institutions who had been dealt with under Sections 8 and 9 was 1,312. This figure represents a gradual accumulation since the year 1914, but no particulars are available of the total number of such cases admitted since that date. It is difficult to form an idea as to the proportion this number (1,312) bears to the actual number of mentally defective criminals, but it is interesting to observe that the medical investigators appointed by the Royal Commission estimated that at least 10 per cent. of the prison population were mentally defective.

Dr. Tredgold approaches the matter from a different standpoint, and concludes that at the date of his investigation in 1906 there were probably between 12,000 and 13,000 aments with pronounced criminal and anti-social tendencies in England and Wales. It may fairly be concluded that there are still a large number of mentally defective persons who are discharged from time to time from prison without the protection afforded by the Mental Deficiency Act. Here again a great deal might be done by further co-operation between the medical officers of the prisons and the medical officers of the local authorities. If for any reason an order under Section 9 is not made it would be a great advantage if the local authority could be informed of the discharge so that the defective could be kept under supervision and prevented if possible from a return to criminal courses.

Under Section 30 (*a*) of the Mental Deficiency Act it is the duty of the local authority to ascertain what persons within their area are defectives subject to be dealt with. The returns of the local authorities as to numbers vary greatly. Some authorities have not ascertained a single case, while the greatest proportion ascertained in one area is 3.50 per thousand. It is probable that in some districts the search for defectives has either not been made, or made in a perfunctory manner. Though no reliable estimate can be given for the whole population, the following figures are of interest.

Five urban and five rural areas were selected in which the largest proportion of defectives have been found. The five urban areas have a combined population of 3,500,681. The total number of defectives ascertained is 5,793, or a ratio of 1.65 per thousand. The five rural areas have a combined population of 1,214,730. The total number of defectives ascertained is 2,286, or a ratio of 1.88 per thousand. If similar proportions obtain in the whole of England and Wales as in the above ten areas the estimated number of defectives to be ascertained works out at 64,783.

This is still far below the figures given by the Royal Commission, who estimated that there were 149,628 defectives, 66,509 of whom were in urgent need of further provision. But it is difficult to compare these figures, for the following reasons: (1) The Royal Commission's estimate included all defective children, whereas feeble-minded children between the ages of 7 and 16 do not come within the jurisdiction of the local authorities. As has been stated above, the report of the Board of Education shows that 31,000 school children have been ascertained to be mentally defective, and this is undoubtedly far below the number that actually exist. (2) The Royal Commission's findings included a large number of defectives in Poor Law institutions. These are not ascertainable under the Mental Deficiency Act, and it is not possible to obtain accurate figures, but it is known that a very large number of the inmates are mentally defective, and to those must be added those in receipt of outdoor relief.

The total number ascertained by local authorities on January 1st, 1922, was 25,470, or 0.67 per thousand of the population. It is therefore highly probable that a very large number of defectives exist for whom the Mental Deficiency Act has not yet provided any measure of care, training, and protection.

Section 30 (*b*) imposes on local authorities the duty of providing "suitable supervision" for defectives who have been ascertained to be subject to be dealt with under the Act. The manner in which, and the extent to which, this duty has been carried out leave much to be desired. Some local authorities have actually no cases under supervision, while others are making great use of this method of protection and care.

The latest available figures show that 9,854 defectives were under statutory supervision on January 1st, 1922. It is difficult to determine how far this supervision is effective in affording adequate protection, and there is reason to believe that its usefulness varies enormously with the personal equation of the supervisor. The usual method is to secure periodic visits to the defective at home, and reports of these visits are presented to the local authority. Sometimes the local authority employs a visitor engaged directly for the purpose, and sometimes delegates the whole of the supervision of defectives to a voluntary association. Both methods, if wisely carried out, are successful. In other instances we find that local authorities rely on visits made by relieving officers or the police or by sanitary inspectors. Better results would be obtained if the visits were paid by women, who should be specially selected as likely to have a sympathetic understanding of the conditions of the homes and a knowledge of the mentally defective. Whenever possible, these women should be given a short course of training such as that organized by the Central Association for Mental Welfare. The importance of obtaining for this work persons of good judgement and with the requisite experience cannot be overestimated, particularly when we remember that it becomes their duty to report to the local authority whenever "supervision affords insufficient protection," and therefore guardianship or institutional care is advisable. It is of primary importance that the confidence of the parents should be gained, and to do this visits must be frequent and conducted with the greatest tact and sympathy.

Section 30 (*d*) imposes on local authorities the duty of making provision for the guardianship of defectives. This is a means of protection and care for those under order but whose condition does not call for institutional treatment. At the close of 1922 there were only 370 under guardianship, showing that comparatively little use had been made of this form of treatment. The reasons which deter local authorities from taking this course appear to be, first, the difficulty of finding suitable guardians, and, secondly, the belief that if a defective is suitable for family life, supervision at home will afford sufficient protection. There is much evidence to show that this is incorrect. There are a number of defectives who have no home, and many others whose homes are most unsuitable and whose parents are unable to exercise adequate control. It is a pity that there has been no organized effort to increase the number of cases dealt with by guardianship. It would be possible for a large

INCOME TAX.

"R. A. B.," New Zealand, arrived in England in April intending to return. What is his position as regards income tax?

*** He becomes liable as from the time he reached the United Kingdom if he remains here for six months of the financial year ending April 5th. His liability would include tax on his earnings and on income brought to or received in the United Kingdom, subject, of course, to the usual allowances.

"Y. Z. X." inquires up to what date, from April 5th, in the financial year may a person reside in England and not be liable to tax, where the present residence is in England but the intention is to reside permanently abroad.

*** There is no such date. A person residing in the United Kingdom is liable up to the date of his departure. "Y. Z. X." has been misled by the different case of a person *coming* to this country for a temporary purpose only.

"J. P. M." is resident abroad, having a Colonial salary and income from this country consisting of (*a*) War Loan interest received untaxed and (*b*) income taxed before receipt from other investments.

*** He can claim repayment—assuming he is a British subject—on a *proportion* of the allowances, according to the ratio of his taxed British income to his total income. The claim can be made to the Chief Inspector (Claims), Cecil Chambers, 86, Strand, W.C.2, to whom preliminary application should be made for the appropriate form of declaration.

"PERPLEXED" has attended a retired medical practitioner and his family constantly; he has never sent in an account for professional services, but has received a cheque from the retired practitioner with the remark that it is sent "as a gift." Is he liable to tax on it?

*** The view of the courts, as brought out in the case of Cooper *v.* Blakiston, appears to be that the liability depends on whether or not the payment is made for services rendered, with whatever expressions it may be attended. If our correspondent had been put to any expense—for example, petrol or drugs—in attending this retired practitioner and his family, would he not have excluded such expenses in making up his statement for taxation? Our correspondent may be able to decide the question for himself in the light of the foregoing.

"FORMOSA" asks: If the value of a purchased practice increases during the first year of the buyer's tenure, can the Inland Revenue demand figures and assess the buyer on his figures in place of the predecessor's average for the previous three years?

*** No; where one person succeeds to a practice the successor is liable on the three years' average profits of the practice. This would not necessarily cover the case of appointments held by the buyer but not by the seller. If the Revenue authorities rely on any special circumstances of the case perhaps "Formosa" will explain their nature.

HOMES FOR MENTAL CASES.

"J. R. L." asks what steps should be taken to regularize the position of the case of an old lady suffering from bodily weakness and delusions of suspicion; she is without means, but has been placed by friends in a nursing home where the matron receives her at a reduced fee. Our correspondent asks whether, if certifiable as of unsound mind, she can remain in a nursing home.

*** A patient who is certifiable as of unsound mind can be treated in a nursing home only if she is certified as a private patient in the usual way. The conditions under which a "single patient" may be received in a private house not licensed for the reception of lunatics are fully explained in Archbold's *Lunacy and Mental Deficiency*, fifth edition, pp. 578-586. Without lunacy certificates it is illegal for a person certifiable as of unsound mind to be treated in a nursing home, and the matron renders herself liable to prosecution even though she has taken her at reduced fees for charitable reasons. A patient in a nursing home who becomes certifiable should either be removed to the care of her relatives, certified and sent to a mental hospital, or certified as a "single patient" and the treatment continued in the home.

"INQUIRER" wishes to hear of a charitable institution where a certifiable insane gentlewoman can be received for a payment not exceeding £30 a year.

*** We do not know of any charitable institution taking mental cases certifiably insane for the sum indicated. Many county and borough mental hospitals take private cases, but since the cost of the pauper patients is greatly in excess of £30 per annum, the private patients could not be taken for a sum less than the pauper maintenance rate.

LETTERS, NOTES, ETC.

THE editors of the *Medical Directory* (7, Great Marlborough Street, London, W.) write: "The annual circular has been posted to every member of the medical profession. Most of the returns have already been received." They state that if any practitioner has not yet sent them the latest information they will be glad to receive it by an early post.

THE RADIOGRAPHIC LOCALIZATION OF SPINAL LESIONS BY SICARD'S METHOD.

MR. PERCY SARGENT, in the interesting note on the mechanical method for localization of spinal lesions devised by Professor Sicard published at page 174, states that the oily fluid used consists of "huile d'oeillette," containing 40 per cent. of iodine and remarkably opaque to the *x* rays. "Huile d'oeillette" is official in the *French Pharmacopoeia;* it is used as the basis of a number of preparations described therein. It is made from the seeds of *Papaver somniferum*. An examination of the oil by Martindale (*Extra Pharmacopoeia*) showed that it contained no narcotic nor alkaloidal constituents. It is in fact so largely used for mixing with olive oil to produce a salad oil that it has almost ceased to be regarded as an adulterant. The maximum amount of iodine that can be dissolved in the oil depends upon the "iodine number" of the oil; 40 per cent. is quite feasible in some instances, but the preparation must be carefully made. It is an additive compound of poppy-seed oil and iodine.

EPITHELIOMA CONTAGIOSUM OF FOWLS.

COLONEL MCCARRISON, in relating the experiment which forms the basis of his interesting paper published at page 172, mentions the constitutents of the diet upon which pigeons at Coonoor can be maintained in perfect health in captivity, but he does not explain the meaning of the terms he uses. We have, therefore, made some inquiries of Colonel D. G. Crawford, who informs us that *dal* is the name given in India to all sorts of pulses. *Mung dal* is a regular item of jail dietaries, and as served out is very like the split peas sold in this country. Green *mung dal* probably means green lentils. *Ragi* is a coarse millet. *Cholum* is probably the same thing as *chola* or *gram;* it is another variety of pulse, *Cicer arietinum*. It is generally used in India for feeding horses, but is sometimes eaten by man. It is the *cicer* or chickpea which Horace speaks of.

SKIN DISEASES IN ARMIES IN THE FIELD.

"CITIZEN SOLDIER" writes to take exception to a statement in the review of the second volume of the *Medical History of the War: Diseases of the War*, published in the JOURNAL of July 14th, page 66. The statement was to the effect that skin diseases as a cause of wastage did not gain the notice demanded until Colonel Soltau drew up in 1917 his memorandum on the classification of admissions to hospitals in the Second Army in France. Classification of causes of all admissions to hospitals was, our correspondent states, carried out systematically in that army from the first week of its formation by instruction of the D.M.S., Major-General Sir R. Porter, K.C.B., and was the subject of a weekly routine return which was circulated for information. The importance of preventable skin disease as a major cause of wastage was recognized and practical steps for repression considered by conferences held under the presidency of the D.M.S. This policy had been carried out even before Colonel Soltau's predecessor, the late Sir James Galloway, had been appointed consulting physician. The fact that wastage due to skin diseases was mainly preventable was recognized by the general staff, and the suitable technical measures recommended by the medical branch were carried out by the quartermaster-general's branch. Save for a few quiet periods the Second Army was a continually expanding force, with a narrow front of only twelve miles, behind which at the battle of Passchendaele lay over 800,000 men. The organization concurrently developed in the field for combating disease, preventable skin diseases among others, therefore involved a vast organization.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 26, 27, 30, 31, and 32 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 28 and 29.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 92.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

the subject further. We may now consider the value or otherwise of segregation from the eugenic point of view, and briefly discuss Mrs. Pinsent's question as to how far complete segregation of large numbers of varying types is practicable, and if rigorously carried out how far it would cut off the supply.

Without attempting to discuss the complex laws of heredity, we may make the general statement that the most frequent and potent cause of degeneracy is some kind of mental weakness in the progenitors. The question to be considered, therefore, is how far it is possible to segregate individuals with mental weakness with a view to preventing the propagation of the unfit. The case of the intellectually inferior may be first considered, because we know that if a moron gives birth to a child it will probably be inferior, and if the child be the product of two morons it will certainly be so. At the present time we aim to segregate (in the main) morons (children or adults) who give trouble to the community. It is those who exhibit intellectual weakness *plus* bad behaviour that we feel justified in placing under control. Now bad behaviour is not *necessarily* an inherent tendency of the feeble-minded person; it is often a product of a faulty environment, and sometimes I believe it to be a kind of neurosis engrafted on a feeble-minded soil. Now may there not be a large number of individuals whose intelligence level will be found as low as those we describe as feeble-minded, but who do not become social problems? They manage to earn a living at pursuits which demand very little intelligence, and lead tranquil and harmless lives. No one remarks upon them or thinks it desirable to place them in institutions; they even marry and have children. Such cases we should certainly diagnose as feeble-minded if they behaved antisocially or if they came into prominence in other ways. During the war I observed a number of cases of this kind. They had led useful and harmless lives in agricultural districts, but when they had to adjust to war service they became bewildered and frightened and wandered away, and perhaps developed a "situation" psychosis. It was only this accident which led them to be regarded as feeble-minded. An interesting eugenic question therefore arises as to whether the good and harmless moron, whom we should not dream of segregating or even recognize as defective apart from unusual circumstances, is likely to produce biologically *superior children to the vicious moron* whom we do segregate. It is thus a moot point whether by segregating the vicious moron we do more than touch the fringe of defectives who are liable to bring into existence inferior types.

It may next be observed that if all mental defectives were prevented from propagating, a large number of degenerate individuals would still be produced as a result of mental weakness in the parents. In so far as degeneracy is due to hereditary factors we know, of course, that only a small proportion of degenerates are the product of feeble-minded persons. It must be remembered that the term "degeneracy," used in a wide sense, does not only include the intellectually inferior but also many forms of inherent emotional instability. Thus an unstable ancestry is a strong *predisposing factor in actual psychoses* such as dementia praecox, paraphrenia, paranoia, and the epileptic, manic-depressive, and alcoholic insanities. Individuals suffering from these forms of disorder are, of course, segregated and thus prevented from propagating, but they are only kept in institutions as long as they are ill. As physicians we rejoice when these cases are restored to health and reason, and they are able to return to their homes; whereas, as eugenists, we ought, perhaps, to mourn, in view of the fact that some of them will most certainly be responsible for bringing more degenerate children into the world. At the present time there is a strong social trend against the segregation of psychotics, and if this is carried to an extreme it may react unfavourably on the mentality of the coming generation. An undue sentimentalism in regard to the liberty of the individual may also result in allowing freedom to a number of individuals who are a definite menace to the community and a serious anxiety to their family. We must not only think of the individual but also of the family group, and in many cases the social efficiency of those who have to live with an abnormal personality and adjust to his or her whims is diminished by at the very least 25 per cent.

A great number of insane persons are, however, segregated, and thus the propagation of the unfit is, as in the case of the vicious feeble-minded, controlled. There are still, however, a large number of abnormal personalities who do not exhibit behaviour so abnormal as to be regarded as insane, but who nevertheless are just as likely to produce degenerate offspring as individuals who exhibit severe psychotic episodes or who become permanently deteriorated. Thus there is that imperfectly delimited group of psychopathic personalities who, though not certifiable, give the community no end of trouble; then there are the eccentric, cranks, misfits, cyclothymics, psychoneurotics, and alcoholic and drug addicts. Many of these types inherit a "sensitivity" which is liable to be transmitted to their offspring, who may be either intellectually deficient or emotionally unstable.

There are, again, a large number of biologically inferior persons in whom the hereditary taint was indirect—that is to say, the parents were perfectly normal but the collateral relatives were mentally weak in some way or another. By no system of segregation, however stringent, could the birth of such individuals be avoided. Indeed, in these indirect and atavistic forms of heredity, if the parents had consulted us as physicians in regard to their fitness for bringing children into the world, we should have hesitated to take the responsibility of suggesting that marriage would be inadvisable.

Lastly, there are quite a number of cases in which there is no evidence of abnormal heredity at all and the parents are perfectly healthy. This I have found more frequently in the case of mental defectives than of the insane. In such instances we simply cannot account for the deficiency.

I feel, therefore, that just as we certify the insane because they behave abnormally, so we should content ourselves with segregating those defectives who are unable to care for themselves or who exhibit antisocial propensities. We do not segregate, and obviously cannot segregate, the psychotic or the feeble-minded because they may produce inferior offspring, but because of their behaviour. Everyone who has to deal with these cases will agree that a great deal more of these cases require institution care than can at present be accommodated, and it is much to be hoped that further *provision will be made. If we attempted to segregate for* eugenic reasons there would really be no limit to the number of institutions required. This must be so if the calculation made by the Eugenic Record Office that about one-third of the population in the United States is capable of conveying mental deficiency, the insane tendency, epilepsy or some other defect, is a correct one.

In so far, then, as mental weakness is due to inherent factors, I think segregation can only diminish to a partial extent the supply of those bearing this taint. It seems hardly possible to control the birth of human beings as one can animals; so many emotional factors are involved in the mating of humanity, and any measures adopted by the community to control birth must appeal to our sentiments as well as to our reason. We do not really know whether there is more degeneracy now than in former ages—though, fortunately, we have become more conscious of its importance and extent—but it is at any rate satisfactory to know that the silent processes of Nature do tend towards the elimination of the unfit. By his biological researches Sir Frederick Mott has shown that there is a tendency for insanity not to proceed beyond three generations, and degenerate stock is eliminated by disease processes. In my own work I have often observed the almost total extinction of families by mental disease and consequent segregation; in one case both parents and three children were confined in the same asylum.

The argument contained in these few observations may be stated briefly as follows: By segregation of the insane, epileptics, delinquents, and mentally deficient we remove a large number of persons who are a potential or actual menace to the community; and by so doing we prevent in some degree the propagation of the unfit, though unfortunately those whom it is easiest to segregate are often those who are most unlikely to propagate. There remain,

94. The Minimum Fatal Dose of Veronal.

B. FELDEN (*Deut. med. Woch.*, June 22nd, 1923, p. 822) reviews the literature of veronal fatalities, and draws attention to a case reported by Bofinger in which a man, aged 25, died after taking only 4.5 grams. In 1922 Renner collected 26 published cases, all of which terminated fatally, and in none of which the dose was less than 10 grams. In his textbook of pharmacology Poulsson states that doses of 8 to 10 grams are necessary to prove fatal, and Tappeiner has found only doses of 6 grams or more to prove fatal. The author himself records the case of a perfectly healthy woman, aged 24, who took 5 grams with a view to committing suicide, and who suffered no ill effects therefrom. If this case be contrasted with that of Bofinger's fatal case, the conclusion is inevitable that idiosyncrasy or susceptibility on the part of the individual greatly affects the issue, the reactions of various persons to one andthe same dose of veronal differing greatly.

95. Nephritis in Enteric Fever.

J. CHALIER and R. DESJACQUES (*Paris méd.*, June 2nd, 1923, p. 503), who report a personal case, remark that in a considerable number of cases (Murchison 25 per cent., Griesinger 1 per cent., Gubler and Robin, Trotter 100 per cent., Chalier and Desjacques 35 per cent.) albuminuria may occur in enteric fever at the height of the disease without any other signs of renal involvement, and disappear in convalescence without leaving any trace. Typhoid nephritis properly so called is that which occurs either as an initial symptom in the rare cases of nephrotyphoid described by Lesieur, Gouget, Ourschmann, and others, or, much more frequently, in the course of a definite attack of enteric fever, as in the authors' case. Most authors are agreed that uraemic symptoms and oedema are very rare in typhoid nephritis. The prognosis is favourable in the great majority of cases. The albuminuria disappears completely in convalescence, and no trace of the renal lesion persists. Chronic nephritis is very rare. The present case occurred in a woman aged 21, who developed nephritis in the second week of paratyphoid B fever, accompanied by oedema, casts and haemoglobin in the urine, and retention of chlorides. The nephritis lasted twenty days, and cleared up completely without any sequelae.

96. The Abortive Treatment of Syphilis with Salvarsan.

U. MÜLLERN-ASPEGREN (*Hygiea*, May 31st, 1923, p. 421) publishes numerous statistics in support of his opinion that the best treatment for early syphilis consists of giving several large doses of salvarsan, and that one of the worst things the patient may suffer is to be given small doses of salvarsan, which favour, rather than check, the development of syphilis of the central nervous system. The author refers to the investigations of Gennerich in this connexion. His own statistics are as follows: Of 141 cases of primary Wassermann-negative syphilis given abortive treatment with salvarsan, only 4 showed a relapse, and in all 4 cases the salvarsan treatment had been timid. In other words, when at least three large injections of salvarsan are given in the Wassermann-negative phase of the first stage of the infection, 100 per cent. may be cured. It remains, however, to be seen whether, from twenty to forty years later, all these cures will be maintained. The author traced 81 of the 89 cases of primary syphilis treated with salvarsan after the Wassermann reaction had become positive. Eight were found to have relapsed, but only in 2 of these 8 relapses had the salvarsan been pushed vigorously. Of the 48 cases of early secondary syphilis treated with salvarsan, 7, or 15 per cent., were found to have relapsed, but among the cases treated with several large doses of salvarsan the incidence of relapse was only 9 per cent. The author's advice may thus be summarized: Give several large doses of salvarsan or abstain from it altogether.

97. "Tuberculous Rheumatism."

S. MAGNUSSON (*Hospitalstidende*, June 6th, 1923, p. 409) criticizes as exaggerated and misleading the teaching of Poncet and his followers that many cases of polyarthritis, and most cases of chronic polyarthritis, are due to the tubercle bacillus; but although tuberculous articular rheumatism may be comparatively rare, the author has recently seen two very characteristic cases at his sanatorium in Iceland. The clinical picture is fairly well defined, but the disease does not run a uniform course. Its onset is often more or less acute, and its subsequent course is milder and more protracted than that of true rheumatic fever. The temperature is but little or not at all raised, the general health is but slightly affected, and the heart is seldom involved. It is characteristic of this form of acute polyarthritis that it is refractory to salicylates. There may or may not be an effusion into the joints, and while the disease may clear up in some joints, it tends to settle in others, giving rise to fibrous ankylosis with the clinical picture of arthritis deformans. In the author's cases sanatorium treatment, supplemented by natural and artificial heliotherapy, effected considerable improvement.

Surgery.

98. Localized Peritonitis in Paratyphoid Fever.

A. E. MORTIMER WOOLF (*Brit. Journ. Child. Dis.*, April–June, 1923, p. 91) reports a case of localized peritonitis due to intestinal perforation in paratyphoid fever B. The patient was a boy, aged 15, who developed acute abdominal pain on the fifteenth day of disease with tenderness in the right loin and right iliac region, where a mass could be felt. Operation was performed and a perforation was found in the lower end of the ileum walled off from the general peritoneal cavity by the great omentum. The perforation was closed and recovery was uneventful. Commenting on the case the author remarks that intestinal perforation in paratyphoid fever is rare. Of 1,038 cases of paratyphoid B in Webb-Johnson's statistics there were only three instances of perforation, or 0.29 per cent.; whereas in paratyphoid A perforation was commoner, there being two instances among 344 cases, or 0.85 per cent. On the other hand, Vincent and Muratet maintain that the infrequency of perforation in paratyphoid is only true in civil practice, as during the war both intestinal haemorrhage and perforation were almost as frequent in paratyphoid as in typhoid fever. The literature shows that when perforation occurs in typhoid or paratyphoid general peritonitis almost always results. Although there are a few cases on record of localized peritonitis due to typhoid, Woolf's case is apparently the first example of the kind occurring in paratyphoid fever.

99. Peptic Ulcer following Gastro-enterostomy.

HENRI BÉCLÈRE (*Journ. de Radiol. et d'Électrol.*, April, 1923, p. 161) points out that radiologists in many countries have been able to demonstrate in cases of peptic ulcer the presence of a diverticulum. In France this does not appear to have been shown so frequently, and he records a case where a diverticulum, only visible after repeated *x*-ray examination, was confirmed at operation. The patient, aged 39 years, suffered from constant pain and vomiting after food. Radiographic examination showed that pyloric stenosis was present, due to an ulcer. This was confirmed at operation and a gastro-enterostomy was performed. The patient improved and put on weight. Six months later examination showed a little fluid present in the fasting stomach and the anastomosis functioning well. There was a point of increased irritability on the jejunal loop with some delay and dilatation at this spot at certain times. Clinically there was persistent pain to the left of the mid-line, which increased after food, and vomiting. On palpation some thickening was detected to the left of the umbilicus. *X*-ray examination some months later showed increased irritability at the opening of the gastro-enterostomy and the contents passed less easily through the stoma. A diagnosis of peptic ulcer near the stoma was made. A series of plates were taken with an exposure of a fifth of a second, and a diverticulum in this position was clearly demonstrated. At the subsequent operation a peptic ulcer was found on the posterior lip of the stoma and a diverticulum was present. A partial gastrectomy was performed for this condition.

100. High Frequency in the Treatment of Fissures and Haemorrhoids.

C. SCHMITT (*Bull. Soc. de Thér.*, May 9th, 1923, p. 152) states that high-frequency currents possess anaesthetic, antispasmodic, haemostatic, and destructive properties which have been used with success in the treatment of fissure of the anus and haemorrhoids, as was first shown by Professor Doumer of Lille. Provided that fulguration is not employed, high-frequency currents are perfectly safe and do not require an anaesthetic. They also possess the advantage of not causing any interruption of the patient's occupation, as the application lasts only a few minutes and does not produce any disagreeable sensations necessitating rest in bed. In some cases improvement is immediate, and as a rule recovery takes place after four to eight applications, while in obstinate cases twenty to twenty-five are needed. Failures are rare if the treatment is properly carried out. Most of Schmitt's patients were persons of nervous disposition, and mostly colonials who had contracted dysentery and other affections of the large intestine during their stay in the tropics, their piles being accompanied by proliferation of the rectal mucosa. Schmitt also records a case of an enormous inoperable prolapse of the rectum in a man aged 83 which was successfully treated by high-frequency currents.

indication that the child can ever be looked upon as normal, or approaching to normal, then, in my opinion, and in that of many others, especially in America, steps ought to be taken to prevent that child ever becoming a parent, for it is certain that the offspring would be defective.

Although this simple operation should be carried out, care would not be relaxed in treatment, which would be carried on as usual.

With a number of these mental defectives segregation must be resorted to, and it is of the utmost importance that both males and females should be closely watched, so that they may not escape from control, for a girl runs the risk of conception, to be followed by an illegitimate child. It is quite extraordinary how prolific these mental defectives are, and they reproduce their kind from two to six times more rapidly than those who are normal. It may be thought such supervision is exercised that girls cannot escape from it, but we know that they do, and in those defective supposed to be well enough to be looked after by their relatives opportunities will easily occur for evading observation, with the result that the girl may repeatedly conceive, and bring forth many illegitimate children, who will in turn be mentally defective. In addition, they run the risk of venereal infection, and of spreading it indefinitely. In those girls who are slightly defective, and in the opinion of the mother or relative well enough to contemplate matrimony, the marriage is followed by the birth of mentally defective children. In my opinion there is only one way of doing really permanent good, and that is by sterilization of the mentally defective. This must be considered under (*a*) sterilization of children, and (*b*) sterilization of adults.

(*a*) *Sterilization of Children.*

If a child be found to be a mental defective it will have the care necessary, either from a private or public institution, for the Act referred to is responsible, and, after the age of 7, Section 1 of the Elementary Education Act, 1914, provides for education. But supposing the child reaches the age of 16 to which I have referred, and in spite of all the time spent in its education and the attention devoted to its welfare proves to be mentally defective, with no hope of permanent improvement, in my view the child ought to be prevented later on from becoming a parent, and of being the means of bringing into the world children more or less defective.

Let me say at once that my suggestion is only intended for those upon whom every possible means of treatment has been tried, whether by education or segregation, so that it does not exclude treatment from the earliest moment by mental hygiene, the National Council for which is already doing so much good, and from whom so much is hoped. Needless to say, this sterilization would only be carried out after the subject had been passed by one or more alienists, and in any case with the least chance of improvement the age could be extended beyond 16.

In the American States there are said to be 250,000 mentally affected in hospitals, with 50,000 admissions every year. Every precaution is taken when sterilization is carried out. In this country it would only be necessary to add a section to the present Mental Deficiency Act, making strict regulations to ensure the safeguarding of the subject.

Now, having said that there is no question of sterilization in those cases in which there is any chance of the individual becoming normal, I maintain that sterilization is a perfectly humane method of treatment, for while still endeavouring, after the operation, to do all in our power medically for the unfortunate subject, we also wish, for the sake of the State, to prevent the propagation of the unfit. This, from a State point of view, is of the greatest importance.

(*b*) *The Sterilization of Adults.*

For this a State certificate of marriage must be the first step, because, until a defective contemplates marriage, the necessity for sterilization does not arise, and it is evident that it would only be necessary in dealing with adults for a certain time, for if legislation is brought about there would be no need to discuss it, for the reason that all defective children would have been previously done. A State certificate of marriage only means a medical certificate of health given to each about to marry. In the event of the *Spirochaeta pallida*, gonococcus, or tubercle bacillus being discovered, postponement of marriage could be adopted. But in the case of a feeble-minded man or woman, or those having such a family history of insanity as would render in the highest degree probable mentally defective children, one or both could be sterilized before granting a certificate. This prevents the unhappiness which forbidding marriage might cause, while at the same time guarding against the advent of children who might be a burden to the State. It would not increase illegitimacy, for the percentage of women who would voluntarily risk illegitimate children, when marriage could take place, is small.

It is important to bear in mind, with reference to marriage, that all defectives do not want segregation or special control, and that it is not always easy to say at once that a man or woman desiring marriage is defective. Time does not permit me to go into this more fully now, but I would say that the only ones who can speak with authority on mentally defective children and the results of treatment are those who are continually working with them or the superintendents of institutions for the feeble-minded, and the latter assure us that, notwithstanding all that is done, the majority are never really cured. Dr. Paul Bowers, the superintendent of the Northern Hospital for the Insane, Indiana, says that the degenerate, the feeble-minded, and the imbecile, will remain as they are, no matter how much we do for them, and that "this is the experience of all superintendents of institutions for feeble-minded."

Again, some people believe that modern civilization, by its Poor Law system and its treatment of the unfit during childhood, tends to foster the growth of this class. I maintain, however, that by sterilization, which does not change the life of the individual in the slightest degree, we can get rid of this class almost entirely, and as the years roll by there would be, as compared with the present day, little need for the operation, because we should have the advent of healthy children. It is certainly the safest and most effective course.

It so happens that the vast majority of those with whom I have discussed this subject are in favour of sterilization of the unfit, but naturally we all know well the difficulties which would have to be overcome, and perhaps those in opposition to the suggestion base their opinion on sentimental grounds, and "interference with the liberty of the subject." But it is right for that liberty to be encroached upon when it is a matter of health and the protection of the community, for when these defectives grow up they may become a danger to others, and the enormous advantage to the State of doing away with all these mental defectives cannot be weighed in the balance with any such arguments. We cannot get away from the fact that there are two-thirds of defectives whom we shall never benefit, but who have the power of rapidly reproducing their kind, who in turn become a burden and expense to the State. It is perfectly true that those who are segregated, and who are a danger to others, must still be guarded, but it is evident that in the end the vast majority of defectives would die out.

I do not propose to sterilize the parents of mental defectives, for that would be retrospective, and those living at the time of legislation would in a few years have ceased to bring defectives into the world. I cannot see that if, amongst the many thousands of these defectives, occasionally one turns out to be a genius, it is any argument against endeavouring to prevent the propagation of the mentally deficient.

It may be said that the Mental Deficiency Act requires amendment in various ways, and that if this Act and the Defective and Epileptic Children Act were more effectively operated, improvement might occur; but the fact remains that, notwithstanding these Acts, the proportion of mentally defective children to the entire population is undergoing steady increase, and it cannot be denied that this is a serious social problem.

Again, it may be argued that if segregation be efficiently carried out, it will be as effective as sterilization, and although we know that this would be true in the case of

107. Treatment of Pernicious Vomiting in Pregnancy.

C. L. URRIOLA (*Paris méd.*, June 16th, 1923, p. 544), during the last four years, has successfully treated all the cases of uncontrollable vomiting in pregnancy occurring in the Panama Maternity Hospital and in his private practice by subcutaneous injection of serum from the umbilical cord. The blood is taken from the umbilical cord after separation of the foetus and before detachment of the placenta, collected in a sterilized vessel, and placed in a refrigerator. Two drops of a mixture of formol and ammonia are added to each 5 c.cm. to keep it sterile, and its sterility is subsequently tested by repeated cultures and by injecting a few cubic centimetres into the ear of a rabbit. Urriola records eight illustrative cases in which the hitherto uncontrollable vomiting of pregnancy was cured by from one to three injections of serum from the umbilical cord in doses ranging from 2 to 6 c.cm.

108. Disadvantages of High Caesarean Section.

MARINACCI, in a report to the Accademia Medica di Roma (*Archivio di Ostetricia e Ginecologia*, May, 1923), relates the case of a woman whose previous pregnancy had been terminated during the ninth month by classical Caesarean section, and who during the fourth month of the ensuing gestation suffered from slight pyrexia and subacute dysenteric symptoms. Shortly afterwards acute abdominal pain and sudden collapse were noted, with contracted and tender uterus and exaggerated intestinal peristalsis; a diagnosis of rupture of the uterus and incomplete intestinal obstruction was made. At laparotomy it was found that a loop of small intestine was adherent to the uterus in the neighbourhood of the old hysterotomy scar; chorionic tissue had eroded the scar and penetrated the wall of the gut (this probably accounted for the dysenteric symptoms) and there was an extensive rupture of the uterus. The patient recovered after subtotal hysterectomy and enterectomy. The case is cited as an argument in favour of Caesarean section of the lower uterine segment.

Pathology.

109. The Titration of Antidiphtherial Serum by Flocculation.

ACCORDING to E. RENAUX (*C. R. Soc. de Biologie*, June 9th, 1923, p. 92) Ramon's method of titration of antidiphtheritic serum by flocculation gives results differing by only 3 or 4 per cent. from those obtained by titration on the guinea-pig. The technique he employs is as follows: A standard toxin is used which has been filtered through paper and preserved under toluol. Its strength is such that it kills a guinea-pig of 250 grams in a dose of 1/300 to 1/400 c.cm. The serum and toxin are mixed in varying dilutions in tubes, which are placed in a water-bath at 37° C., care being taken to secure partial immersion only. The titre of the serum is judged from the first tube in which flocculation occurs. Using unheated serum this may be expected to appear after fifty minutes, but with serum previously raised to 56° C. for thirty minutes it is delayed for about four hours. The presence of 0.3 per cent. phenol in the serum makes no difference to the reaction. Filtration of the serum through a candle likewise has no effect on the reaction, but filtration of the toxin through a candle renders it more susceptible to flocculation.

110. The Etiology of Tuberculosis of the Kidneys.

G. EKEHORN (*Tubercle*, May, June, and July, pp. 337, 393, and 444) discusses in the Lennander lecture the etiology of renal tuberculosis. As he points out, it has for long been assumed that renal tuberculosis is a so-called "elimination" disease. According to this teaching, infection of the kidneys occurs because the tuberculous virus circulating in the blood has been excreted from the blood, through the kidneys, into the urine. The more this elimination theory is scrutinized the less plausible does it seem. It is common knowledge that the whole kidney is not infected simultaneously; gradually and over a long period the ulceration extends from one papilla to another. If the elimination theory is correct, what happens after nephrectomy to the bacilli supposed to be still circulating in the blood; whence do they go and where are they now eliminated? It is established that patients usually recover completely after nephrectomy for unilateral renal disease; after the operation neither bacteria nor other abnormal structures can be found in the urine. It is impossible to conceive how an elimination tuberculosis could be confined to one kidney, and if the elimination theory were correct, nephrectomy would not only be irrational, but directly injurious to the patient. In opposition to the elimination theory, which implies an indirect haematogenous infection of the kidney, there is a theory according to which direct haematogenous infection is responsible for tuberculosis of the kidney, tubercle bacilli being deposited direct from the blood in a renal capillary. According to this theory, which the author endorses, tubercle bacilli are not first eliminated by the kidney and passed into the urine before they infect the kidney. They are deposited as a small embolus in a capillary of the renal parenchyma in which a tuberculous focus forms. This process is analogous to that which occurs when tuberculosis develops in the epiphysis of a bone; it is impossible to believe that the disease spreads in the bone because new infections from the blood give rise to new emboli. It is more natural to assume that the whole tuberculous process develops in both kidney and bone from a single primary focus of infection. As the author points out, the controversy over these two theories possesses much more than academic interest; according to the one theory operative treatment must be irrational, according to the other it is most rational.

111. Endemic Plague in Russia.

FURTHER evidence of the relation between human plague and the plague of rodents has been brought forward by D. ZABOLOTNY (*Ann. de l'Inst. Pasteur*, June, 1923, p. 618). In areas where plague is endemic, such as Mongolia, Transbaikalia, and the Kirghiz Steppes, extensive epidemics have been found to affect certain wild rodents—"tarabagans," ground-squirrels, and mice. The tarabagan (*Arctomys bobax s. sibirica*) is an animal which has a wide area of distribution; it lives in holes about three yards deep in the ground, and hibernates from September to April. In 1921 there was an epizoötic amongst these animals, which was shortly followed by an epidemic amongst the people living in the country, starting with the hunters who seek the fur of these rodents. Similarly human epidemics have followed closely on epizoötics occurring amongst mice and ground-squirrels. During the summer months it is the ground-squirrels which are responsible for the propagation of plague; during the winter, when these animals are in hibernation, it is mice which, taking refuge in human dwellings, form the source of infection. Camels likewise have been found to suffer from plague, and have been incriminated for the spread of disease amongst the population. Bubonic plague depends largely on the flea for its transmission; pneumonic plague on droplet infection.

112. Rate of Sedimentation of Red Blood Corpuscles in Acute Infections.

T. MIRONESCO (*Bull. et Mém. Soc. Méd. des Hôpitaux de Paris*, July 5th, 1923, p. 1022) has conducted some fresh studies on the old question of the significance of the varying rates of sedimentation of the red blood cells in patients suffering from acute infections. The tubes he used were 30 cm. long and 2.5 mm. in diameter; into these was placed the blood, which had been collected in a 3.8 per cent. solution of sodium citrate. The experiments were conducted at room temperature. In typhus, in typhoid fever, and in measles (the three diseases studied) an acceleration of the rate of deposit of the red cells was found, especially noticeable in the first. It was observed that not only in different cases of the same malady, but also in the individual case, fluctuations occurred which were in relation with the gravity of the disease. Further, a positive correlation was noted between the rate of sedimentation and the quantity of urea in the blood. There is apparently no specificity in the reaction; the changes in sedimentation do not depend on the nature of the disease; they coincide with other alterations, such as the degree of azotaemia.

113. The Nature of the Bacteriophage.

A FRESH experiment is recorded by F. D'HERELLE (*C. R. Soc. de Biologie*, June 23rd, 1923, p. 231) in support of the corpuscular nature of the lytic principle: 0.1 c.cm. of a 10^{-7} dilution of a very active filtrate was mixed with an emulsion of Shiga bacilli in agar and poured into a Petri dish. After incubation the number of plaques which could be counted was 39. It is clear that if the bacteriophage exists in a corpuscular condition, and if each plaque represents the action of one corpuscle, then a 10^{-9} dilution should contain 4 corpuscles. To verify this 10 c.cm. were taken and 1 c.cm. was put into each of ten tubes of bouillon, which were then seeded with young Shiga bacilli. As a result it was found that five of the tubes were clear and contained a very active principle, whereas the other five were turbid and showed a perfectly normal culture of dysentery bacilli. It appears, then, that if a single corpuscle gains access to a tube it is able to prevent the growth of the organisms in that tube; if, on the contrary, no corpuscles are introduced, there is no inhibition of growth. This experiment, according to the author, demonstrates without any possible doubt that the bacteriophage is of a corpuscular nature.

a crime associated with defect, occurs comparatively rarely, only five times in a series of 200 consecutive criminal aments examined by me. It has shown that every class of crime—except, in my experience, the rare crime of treason—is committed by defectives, and that the largest number are crimes of acquisition, sex, and vagrancy. I have mentioned frequently elsewhere the ease with which a defective, having committed a criminal offence, forms a criminal habit; indeed, in certain cases it can be definitely stated that the offence will be repeated unless adequate treatment is adopted, but I mention it in this connexion once again, for by early diagnosis and certification the criminal ament is prevented from becoming a recidivist; and when it is remembered what a large class such cases form in prison it becomes manifest that the influence of the Mental Deficiency Act on crime will increase as time passes, and is being felt, indeed, already. In fact the amount of crime prevented by the Act is much greater than the actual figures suggest.

It is in the prevention of crime by the early diagnosis and treatment of mental disease, disorder, and defect that the alienist can assist most usefully in attacking the criminal problem, and the importance of this cannot be exaggerated. Quite recently, of six men under my observation at the same time awaiting trial for murder, three were insane, and early diagnosis and treatment would have prevented the murders. And of those cases of defectives who have been under my observation charged with murder none presented difficulties in diagnosis to the expert examiner, and similarly with the majority of defectives who commit lesser offences.

The growing importunity of medical men to secure that the mental aspect of offenders is taken into account can only be fruitful if reliable results follow their recommendations. This requires an accurate perspective to be preserved, and it is essential not to expect results which are unobtainable. The Mental Deficiency Act was referred to at the Annual Conference on Mental Deficiency at Caxton Hall last year by Mr. Stuart Deacon, the stipendiary magistrate of Liverpool, as "one of the greatest boons which the British Parliament has ever conferred upon His Majesty's subjects, and more particularly upon the poorer members of the nation." Medical men whose work lies in criminal courts will be in entire agreement with this. So convinced am I of it myself that the burden of my remarks to-day has been the expression of a hope that over-enthusiasm should not endanger its constant application in the criminal courts.

C. MACFIE CAMPBELL, M.D.,
Director, Boston Psychopathic Hospital, U.S.A.

Organization for the Supervision of Mental Defectives.

Dr. C. Macfie Campbell said that the hospital with which he was associated was somewhat similar to the Maudsley Hospital in London, and had 110 beds. Part of its responsibility, as in the case of all the State hospitals in Massachusetts, was to supervise the school population of a certain district and to see that all the children in that population, if there was any suspicion of mental defect, were systematically examined. It was part of the responsibility of his hospital service to go to the schools in a township of about 40,000 people, with a school population of rather more than 5,000. The children were brought forward by the teachers, and an opinion passed upon them. This work was not limited to the one township, but was now Statewide over the whole of Massachusetts. It had only lately been put into operation, and what the later social effects would be, how far they would be utilized, and what modifications might be necessary, was, of course, a matter for further experience to determine.

It might interest the Section to know what the procedure was. The diagnosis of mental defect was an important matter, although, as Dr. Potts had said, many judges on the bench felt that the natural common sense of the judicial mind was adequate for a diagnosis. In Massachusetts a somewhat elaborate investigation was made, in the first place, into the family history of each of the children and the stock from which the child had come, also the environmental factors and the school history. The medical man made a physical examination, and the teacher a special investigation into the general information of the child. The psychologist also made a standard psychometric examination. On the basis of such an investigation a summary of the case was drawn up and the mental equipment of the child considered, and certain advice given. He showed the dossier of one child as a sample. This was a girl of 14, whose mental age was 8.8 and whose intelligence quotient, therefore, was 62 per cent. The child had reached the limit of her scholastic ability, and it was very doubtful whether she would profit by ordinary grade work. It was found that she had congenital syphilis. She was already in touch with a hospital for treatment. Her home situation was extremely poor; they therefore had to see that it was modified so far as it could be modified, and it was recommended that her training should be along special manual and industrial lines.

What was the use of this sort of work? How were they going to translate it into practical terms? Was it worth while? It was a time-consuming affair. It meant that the physician spent several hours with each child, first on the physical examination and then on the correlation of various data; that the psychologist spent at least an hour with the child in going over the standard test; that the social worker had to have at least one interview with the parents; and that the school teacher devoted some time to the individualized study of the child. For each child there was formed a little clinic of six persons—on the hospital side, the physician, the psychologist, and the social worker; and on the school side, the school doctor, the school nurse, and the teacher. A certain number of the pupils brought forward were of such a grade of mentality or were constitutionally endowed so meagrely that obviously they required special care and attention. Up to now it had generally happened that those who had got special attention and care were not those separated out by systematic examination, but those who were a nuisance. The nuisance in life was always the one who got special attention, if not as a mental defective then as a spoilt child. If he was a mental defective he got an education which had some sort of relation to his mental equipment; he got, what perhaps in time all children would get, an education which had reference to his endowment and to what he was going to do afterwards. That principle might spread from the defectives until presently it reached the universities! Perhaps most of what educationists had learned with regard to general education of recent years came from the defective child, so that in all this matter of special care they were merely returning something to him to which he was well entitled.

If these mental defectives had certain tendencies so had we. If the mental defective was a potential criminal, so were we all. "There, but for the grace of God, goes John Bradford." And the grace of God in this instance was translated into terms of nutrition, education, and social opportunity. What was it that made the child with poor opportunities drift into delinquent habits, the girl become an unmarried mother, the man a vagrant or an alcoholic? Take the history of the neglected defective child, grinding through the pedagogic mill, scolded because he could not learn what he was never meant to learn, disheartened because he could not keep up with the others, therefore escaping at every opportunity from school routine, becoming a truant, associating with all the undisciplined members of the school, and because of his defective mentality being made the tool of the unscrupulous and the ethically inferior—there one had the defective delinquent in the making. In his teens, guilty perhaps of repeated delinquency, he passed from the pedagogic into the judicial mill, and there was judged according to the statutes, and, having committed a certain crime, suffered its adequate punishment. The community was only just beginning to think that here was a human being whose circumstances and behaviour ought to be carefully studied before any course of action with regard to him was decided on at all. By the time such an individual had had several experiences with the courts one had the confirmed criminal, but this later career of his was along the grooves which had been determined by the social management of the case, not by the original endowment of the child.

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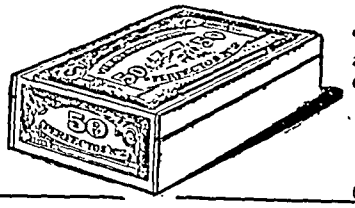

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and there were very few cases of intense poverty and neglect. There was a very striking contrast in the dependence on parish and charitable assistance among the families of the normal group on the one hand and of the insane and mentally defective groups on the other. The normals not only applied less often to the parish, but they were also less well known to charitable agencies. There was also, on the whole, a distinct difference in the degree of relief they received. The normal cases more often than not applied on account of temporary sickness only, while in the other two groups relief was frequently sought for maintenance as well. It seemed, therefore, that not only the insane and mentally defective persons themselves, but very generally their immediate relatives also, were less capable of maintaining an independent existence than the relatives of the normal cases. Very complete pedigree charts of three or four generations of these groups of cases were made by Miss Kelley, and a typical pedigree chart was exhibited by Sir Frederick Mott.

Nearly ten years had elapsed since the results of this investigation were published. He hoped that either the Board of Control or the Eugenic Society would appoint some competent person to take up again the investigation of these same pedigrees; for he believed very much useful information might thus be acquired concerning the fate of mentally defective children during and after a great and prolonged war.

The question arose, Could certain of these mental deficiency cases be uplifted, and how were such cases to be selected? The closest investigation would be necessary. It did not suffice for the social worker to undertake this unaided. The efforts of the social worker must be correlated with those of the medical man, who would devote attention to the child and to the conditions which had given rise to the deficiency. He had been very much interested in the relation of syphilis to degeneracy. He had occasion to examine in one of the pedigrees taken for the purpose of this investigation a child who had died, and he found the spirochaete of syphilis in every organ of the body. He had no doubt that a great many others would be found similarly affected. It was only by a close investigation on the medical as well as on the social side that this problem could be elucidated further.

Personally he was not disposed to think that sterilization was advisable—for this reason, that the people who were sterilized were not made in any respect better able to compete with their fellows. They would still want care and supervision just the same after sterilization as before. He agreed with what Dr. Campbell had said, that many of these persons could be made useful members of the community if taught properly to use their hands. A very important point emphasized by Dr. Campbell, with which the speaker thoroughly agreed, was the need for teaching in the medical schools a knowledge of human character. Some time ago the dean of the Manchester medical school wrote and asked him what he would advise with regard to the teaching of psychiatry, and he replied that he would advise a course of lectures on psychology applied to medicine at the end of the physiological course. After the war many men went into the practice of medicine utterly ignorant of the fundamental facts of human nature. He was sure that the airing of the whole subject at that Sectional meeting would do a great amount of good. Such facts as Dr. Campbell from the other side of the Atlantic had stated really went to the root of the matter.

GENERAL DISCUSSION.

Miss EVELYN FOX (Honorary Secretary, Central Association for Mental Welfare) said that there must be a very large proportion of defectives the greater part of whose lives would be passed, not in institutions, but in the free community, and these people must be protected and assisted because they especially would be subject to stress and strain. As early as possible in the life of the defective child it would be necessary for those concerned for his supervision to put to themselves the question, "Is this child going to be able to take a place in the community where he can compete with others in ordinary industrial life with systematized production, or have we to train this child for life in an institution?" The standard test for entry into the special schools should not be, "Is this child capable of benefiting by education in a special school?" It would be a reflection upon any school to suggest that a child attending it could not receive benefit. It was true that there were children who were capable of receiving far greater benefits than others. But the special school was conducted on lines which should make it possible for the child to take its place afterwards in the community, and the admission of children must be regarded from this point of view. The simple measure of institutional accommodation would not go far towards solving this problem. Institutions and colonies were necessary for conduct cases, for low grades, for the unstable and erratic, but for the majority of defectives there must be a constructive and well-thought-out system of care whilst in the community. The question of suitable education and training for community life then became of paramount importance. The untrained and uneducated defective was an economic waste; in the higher grades he was unfit for even the simplest mechanical operation, and in the lower grades a still more helpless burden. In all such cases, along with the maximum of economic unfitness, there went—a fact too little realized—the maximum of mental strain on the family. If defectives came, as they frequently did, from families of bad stock, with members predisposed to instability and mental trouble, this was all the more reason why an uncontrolled and undisciplined defective should not be added to the family burden. Some experience of cases in all classes, rich and poor, had brought home to the speaker the waste of the efficient in the care of the absolutely inefficient. To meet the problem the first necessity was a reasonably uniform standard as to what was meant by children who required special training. At present the standard was variable, dependent more upon the point of view of the individual examiner than upon anything else. There should be some machinery for the discussion of such cases by groups—groups not confined to school medical officers, but including also general practitioners, teachers, and social workers. Through such groups a practical working rule might be evolved, so that at any rate they would learn the size and bearing of the problem they were tackling. Then it was necessary to arrive at a simple working knowledge of what training could mean and could do for the defective. The common sense of training the defective could be acquired even by people who never practised it. Experts, both medical and educational, must be available to help in deciding what type of training a child required and what its future possibilities were. A certain standard capacity for taking a place in the community should entitle a child to a highly specialized form of teaching. Training must begin early in the home or school and might continue for many years, right into adult age. It must be continuous, and if the strain of life in the community was too great for the defective there must be some means of recalling him into a hostel or half-way house. A great deal of care was needed also in the provision of handicraft classes and suitable mechanical work for each case. The organization of suitable work for defectives ought to be undertaken experimentally as soon as labour conditions became normal.

Dr. JOSEPH F. E. PRIDEAUX (Mental and Neurological Inspector, Ministry of Pensions) put forward certain objections to the policy of sterilization which had been advocated by Dr. Gibbons. His first objection was that there would be enormous difficulties in deciding who was to be sterilized. The present difficulties in deciding who was to be segregated were great enough. Moreover, the only persons whom they could with any absolute certainty at the present time decide to be fit cases for sterilization were just those persons who would need segregation also on account of their antisocial tendencies. Further, if the figure for mental deficients in the population be taken as 3 or 4 per 1,000, it had been computed that on that basis some 10 per cent. of the population, who were carriers of mental defect, would have to be sterilized. Moreover, no really good result would be forthcoming until a very long period had elapsed. In the meantime, therefore, it was necessary to consider educational methods, and these must

some birds, spontaneous recovery from fibrillation frequently occurs, but in the higher mammals, and probably in man, the condition of true fibrillation seems to be invariably fatal —in the absence of the remedial measure of cardiac "massage," which may, in animals at least, be supplemented by the administration of certain drugs, while artificial respiration is maintained. Some instances of assumed spontaneous recovery in the higher mammals and in man are probably not cases where true fibrillation had been fully established, but a related though essentially different condition, which may easily be mistaken for true fibrillation.

The essential feature of fibrillation is the establishment of a mechanism of circulating excitation in the musculature, depending on a derangement of the normal relations of (1) the time taken for conduction of the excitation wave over the ventricular muscle, and (2) the refractory period of the individual fibres. If the conduction time is unduly prolonged, or the refractory period is relatively too short, re-excitation is apt to occur when the excitation wave reaches fibres that have already recovered sufficiently after the previous excitation to respond again; the excitation wave can then circulate through the complexly arranged intercommunicating fasciculi; after a time it becomes feebler and slower as exhaustion develops, until in a few minutes all visible movement becomes extinguished. If rhythmical compression (massage) of the ventricles is employed (while artificial respiration is kept up) the fibrillation may be maintained for prolonged periods (an hour or longer), with ultimate recovery under favourable conditions; and such a heart may show regular and vigorous action for the remainder of a long experiment extending over hours.

So long ago as 1887[7] I described this mechanism as a peristaltic contraction wave along the complexly arranged and intercommunicating muscular bundles, in contradistinction to the normal beat.

"The peristaltic contraction travelling along such a structure as the ventricular wall must reach adjacent muscle bundles at different points of time, and since these bundles are connected with one another by anastomosing branches, the contraction would naturally be propagated from one contracting fibre to another over which the contraction wave had already passed. Hence, if the fibres are sufficiently excitable and ready to respond to contraction waves reaching them, there would evidently be a more or less rapid series of contractions in each muscular bundle in consequence of the successive contraction waves reaching that bundle from different directions along its fibres of anastomosis with other bundles. Hence the movement would tend to go on until the excitability of the muscular tissue had been lowered so that it failed to respond with a rapid series of contractions. Then there might be some isolated peristaltic contractions, such as I have often seen after the cessation of the fibrillar movement."

These conclusions were confirmed and extended in a paper in 1918,[8] while in the interval similar views had been advanced and supported by experimental evidence — by Mines[9] (1913) in the case of the frog heart and by Garrey[10] (1914) in the mammalian heart. Suggestive experiments had been made by Mayer[11] (1908) on medusa, etc.

Relations of Refractory Period and Conduction Time.

If the fundamental importance of the relation between the duration of the refractory period and the conduction time of the muscle is kept in view it is easy to understand how the mechanism of circulating excitation may come into operation under very diverse conditions affecting the ventricles. Any influence cutting down the refractory period or lengthening the conduction time disproportionately must naturally tend to favour the process of re-excitation; a combination of such changes is, of course, still more effective. Hence the development of fibrillation is witnessed at one time as an apparently "spontaneous" event in a vigorous heart manifesting signs of extreme irritability (for example, from chloroform, digitalis, etc.) or in a normal heart subjected to stimulation —excessive rapidity of excitation playing an essential part by shortening the refractory period and slowing the conduction time. At another time fibrillation appears in a heart that presents features of grave depression, diminished contraction force, loss of tone, lessened excitability, and—what is the determining factor in this case—pronounced slowing of the propagation of the excitatory wave, relatively to the duration of the refractory period; such may be seen in poisoning by potassium salts, extreme cooling, etc.; thus it is often a terminal, or approximately terminal, phase in the dying heart. In some depressed hearts there is a decided liability to fibrillation from mechanical disturbance, external pressure on the ventricles, incising the pericardium so as to remove its support from a relaxed ventricular wall, etc. In either case, whether fibrillation is a manifestation of perverted irritability or of abnormal depression, the same explanation of disturbed relationship between the processes named holds good.

In accordance with this conception it is readily intelligible that the *absolute* values of refractory period and conduction time may undergo extensive variation without fibrillation being set up; if both of these factors vary proportionately the conditions of circulating excitation do not arise. Thus artificial cooling of the heart, stopping short of a certain extreme point (about 23° C. in the perfused cat's heart), does not induce fibrillation, there being a concurrent lengthening of refractory period and conduction time as the cooling goes on—within the limit stated.

Conversely there may be, as results of a rise of temperature, etc., a marked shortening of the refractory period without fibrillation occurring, the rate of conduction of the excitatory impulse being also accelerated. The essential dependence of the mechanism of fibrillation on the factors named makes it clear why there should be no constant or necessary relation between the incidence of fibrillation, and even great alterations in contractile force, tone, etc. Dilatation of the ventricles is credited by Levy with a protective influence; this view is negatived by various observed facts—among others the proneness to fibrillation seen in ventricles weakened, relaxed, and distended as a result of potassium poisoning; and conversely, the marked resistance or insusceptibility to fibrillation in ventricles that are of small volume, acting strongly and rapidly and well emptied at each beat, in sequence to a large dose of adrenaline, etc. So long as the essential relationship, described above, is not upset a heart may be profoundly influenced in many ways without fibrillating: it may beat very rapidly or very slowly, regularly or very irregularly, powerfully or feebly; it may be well emptied or imperfectly emptied at each beat—with consequent distension in the latter case; it may be very sensitive or very dull to direct stimulation, and its muscle may be lax or firm, etc.

Pseudo-Fibrillation.

Apart from the disastrous event of true fibrillation there is also to be observed under certain experimental conditions (for example, rapid artificial excitation by a series of electrical shocks, mechanical stimulation, etc.) a temporary condition in the ventricles presenting many points of resemblance to true fibrillation—a degree of inco-ordination or asynchronous contraction of the musculature, recognizable on inspection and on palpation of the ventricular substance, attended by great reduction in the range of contraction movement and very little expulsion of blood at each beat, a great fall in arterial pressure, and a failure of recognizable pulsation in the peripheral arteries, etc. It is impossible to distinguish this condition from true fibrillation by examination of the arterial pulse.

Usually this condition is soon recovered from when the artificial stimulation is discontinued, though it may persist for variable periods. It apparently differs essentially from true fibrillation in its dependence on a rapid series of excitatory impulses emanating from a stimulated area or "spontaneously" from one or more irritable foci, these impulses forcing a succession of ventricular beats at a rate incompatible with their normal characters; cessation of these excitatory impulses is speedily followed by a reversion to the more moderate rates that are compatible with the normal type of beat. The non-persistence of the abnormal condition is due to the fact that the mechanism of circulating excitation, characteristic of true fibrillation, has not been fully established. To this condition I have applied the term "pseudo-fibrillation." It is probable that most, if not all, the alleged instances of transient fibrillation in man where recovery occurred—apart from the application of cardiac massage—were examples of pseudo-fibrillation as recognized experimentally; this would account for the features observed in man during the brief attack, and for the subsequent recovery.

replace that slow silent process of nature which certainly was no longer acting in a beneficial direction. With regard to sterilization Dr. Prideaux had suggested as a reason why sterilization should not be thought of seriously that to-day 10 per cent. of the community would require to be sterilized. She did not think that was really a sound argument. If to-day we were preserving and propagating mental defectives and in order to purify the race the sterilization or segregation of 10 per cent. of the community was necessary, what percentage of the community would require to be sterilized or segregated two generations hence? If the disease was very grave and the cure also very grave as well as difficult, we had either to grapple with the difficulty of the cure, involving the segregation of a large part of the community, or to succumb.

Dr. R. A. GIBBONS, in reply to questions, said that it was absolutely wrong to affirm that the sexual feeling was in any way affected by sterilization, but sterilization must not be confounded with asexualization, in which the reproductive organs were removed, when, of course, sexual feeling disappeared. Sterilization in the manner he advocated meant not the slightest difference in any way to the feeling of the individual. To a member of the audience who challenged the statement that the number of feeble-minded persons was on the increase, Dr. Gibbons could only give the number of notified insane persons in England and Wales, which on January 1st, 1922, showed an increase of 3,370 on the figure for January 1st, 1921, and this again showed an increase of 3,580 on the corresponding figure for 1920.

The PRESIDENT said that these figures related to insane persons; there were really no satisfactory statistics of mental deficients. But it could be stated as a fact that the fecundity of mentally deficient persons was from two to six times the normal.

THE PRESIDENT'S SUMMARY OF THE DISCUSSION.

The PRESIDENT (Dr. H. B. Brackenbury) said that, according to the practice in the Section in former years, it now fell to his lot to sum up the discussion. He doubted whether such a task was at all possible; all that he could hope to do was to indicate one or two of the facts which the discussion had elicited. Mental deficiency was mixed up with other social problems, and it had been borne in upon their minds that there were very many cases of crime and intemperance and antisocial behaviour with which mental deficiency had nothing to do, and it was quite possible that they had tended in the past to overestimate mental deficiency as a causal factor in antisocial conduct. No doubt mental deficiency was at the back of all the social evils to some extent, but there were also many other causes which brought those evils about, and, correspondingly, by no means all feeble-minded persons were likely to behave antisocially. Some of them were so very feeble-minded that they were not capable even of so acting, while others were in such a favourable environment that antisocial action was almost ruled out. Therefore, while antisocial behaviour had many other causes besides mental defect, a good deal of mental defect existed without antisocial behaviour.

If they went on to classify mental defectives from the point of view of community control, and not from the scientific view as to the nature of the defect, he thought it could be said that there were a considerable number of defectives who did not require such control at all. They were those who were placed in such favourable social and economic conditions that they could be properly cared for without any intervention on the part of the community. Mental deficiency was not necessarily confined to any one class, and there were mental defectives who could be looked after without community control, provided that the parents or guardians were properly instructed in such supervision and knew where to get help when necessary.

Then there were the defectives with regard to whom the community must step in, but who, nevertheless, might continue their lives as members of the community, not necessarily segregated therefrom, and there were those others for whom segregation in an institution or a colony was the only course. The defectives in both these classes required from first to last some degree of supervision. How was this to be provided? With regard to supervision in the home or the community he thought that more use should be made of guardianship. Guardianship under the Acts had been used very lightly indeed, and perhaps that was because a local authority, desiring to place a child under guardianship, could not be sure that the proper guardianship for the child was obtainable. If by instruction and training a body of persons who could properly be guardians in the strict sense of the word were got together the result would be to advance the administration of the Mental Deficiency Act. The Central Association for Mental Welfare was providing various sorts of training in short courses; here was an opportunity of providing a short course for potential guardians, and the number of suitable persons for such an office might thereby be increased.

As one who had had a good deal to do with educational administration he felt that there was some danger of the special school being used wrongly and uneconomically. The special school ought to be kept mainly for one class of case, and in a subsidiary way for another class. It ought to be kept mainly for the higher grade mental defectives, and secondly for those doubtful cases which had to be observed for six months or a year before it was quite certain what their possibilities were. Unless the special schools were used in that way certain dangers would be run. One danger was becoming very evident. On account of the economic situation new special schools could not be obtained, and the Board of Control and the Board of Education could not by a combination of pressure get the local authorities to provide such schools at the present time. If, however, all those who did not come within the categories he had named could be got out of the special schools, a considerable number of places could be released in which to put properly classified persons. The definition of ineducability in the Act ("unable to profit by the teaching of the special school") was a worse than useless definition. Imagine the responsibility of any teacher or medical officer having to certify that a certain child was unable to profit by remaining in that school! Of course the child was able to profit by remaining in that school. The criterion he would like to apply was that the child to be instructed in a special school was one who was likely, as a result of the institutional care, to take a place afterwards in the community with some economic result. If the special schools could be used in this way then it was worth while spending money on those children, and giving to the schools the best equipment and the most highly educated and skilled teachers. But this equipment and teaching ought not to be wasted on people who were going, after all, to remain always in an institution. For them there ought to be some more suitable and economic provision.

Another question which had come out in the discussion was whether mentally defective persons ought to be segregated from the community for the sake of the race. He was bound to say that Dr. Devine was a little too optimistic, and that there was a case to be made out for the complete and permanent segregation of anybody who had been discovered to be mentally defective. At the same time this was not practicable. For the present there would be numbers of these persons placed out, under competent supervision, in the industrial world. But, speaking from the point of view of heredity only, he thought a greater effect would be produced by segregating completely those who had been discovered to have this defect which was ineradicable. The more this subject was looked into the more certain aspects of it appeared to be disappointing. Although it was perfectly true that the offspring of two mentally defective persons were always mental defectives, and that when one of the parents was a mental defective the offspring were very likely to be defectives or mental deficiency carriers into the next generation, yet, having eliminated all these, it would be found that only a small proportion of the whole mentally defective population had been accounted for. Formerly it was hoped that with complete segregation—or, as an alternative, sterilization, but he would prefer segregation—of mentally deficient people, so that they were prevented from becoming ancestors, the mentally defective

by fat—from the point of division of the main stem to the point where the two main divisions decrease rapidly in size. Monckeberg[20] described two cases of sudden death associated with lesions of the Purkinje fibres. One was a diphtheria case, where no gross changes were found in the myocardium, but fatty changes were shown by staining with Scharlach R in the main stem, branches, and subdivisions; the myocardium was fat-free. In the other case (trephining of skull, etc.) there were more pronounced fatty changes in the bundle fibres than in the myocardium, though some of the Purkinje fibres seemed to have remained normal.

It need hardly be recalled that several observers have described certain abnormal features in electrical records from the heart as being indicative of defective conduction in the main branches, bundle block (Lewis and others), or in the intraventricular Purkinje network (arborization block)—bizarre ventricular complexes with notching or splintering of the deflections, prolongation of the duration of the Q R S group oscillations, inversion of the T wave, etc., in addition to a remarkably low altitude of the curves in arborization block. (Oppenheimer and Rothschild,[21] Carter,[22] Willius,[23] and others.)

Exciting Causes of Ventricular Fibrillation.

In the many observed cases where all the facts point to ventricular fibrillation as the immediate cause of sudden death the common association of muscular exertion or emotional excitement is notable. The ever-recurring reports of sudden deaths during or shortly after exertion, in persons who up to the fatal issue had been able to pursue their usual avocations, emphasize the importance of the conditions attendant on muscular effort—those involving an increased demand on the powers of the heart and more or less stress on the organ. This is brought about in various ways: by the augmentation of rate and force and irritability through the agency of the cardiac nerves (diminution or suspension of vagus control and excitation of the cardiac sympathetic augmentor fibres), increased arterial pressure presenting greater resistance to the pumping out of the ventricular contents, increased diastolic filling due to more rapid inflow from the venae cavae, etc. Similar changes attend emotional excitement, with the exception of the greatly increased venous return to the heart depending on the pumping action of the working muscles during exertion driving on the blood in the veins.

While the normal heart is not injured by such changes, and in virtue of its great reserve power easily responds to increased demands on it, a heart that is temporarily or permanently in an abnormal condition of excessive susceptibility is apt to be thrown into fibrillation.

Susceptibility to Ventricular Fibrillation.

Both in healthy and diseased animals notable differences in the ease with which fibrillation may be induced were seen under experimental conditions that were apparently similar. And a heart may sometimes be seen, under altered conditions, to pass from the susceptible condition to a stable one, which may be exceedingly resistant to the induction of fibrillation by various forms of stimulation that are usually very effective. Or a change in the opposite sense may take place; or there may be variation from one phase to another more than once in the course of a single experiment in the case of a healthy heart subjected to certain abnormal influences. On the other hand, there are many cases where the abnormal susceptibility is a persistent one associated with altered nutritive conditions, toxic agencies, etc., in the muscle.

In healthy animals, cats particularly, a great susceptibility to fibrillation may be established by the administration of chloroform; the relation of this condition to the phase of light chloroform anaesthesia has been specially worked out by Levy, most (though not the whole) of whose results are in agreement with those obtained by the present writer over a long series of years. It is after a deeper phase of chloroform anaesthesia that the lighter phase is apt to be attended by the marked susceptibility referred to.

In the latter condition fibrillation is often readily induced by stimulation of afferent nerves in various ways—resulting in reflex contraction of skeletal muscles, disturbance of respiration, rise of blood pressure, increased rate and force of the heart with increased return of blood through the great veins, etc.—in short, the same group of changes that occur in muscular effort, and brought about in similar fashion through the instrumentality of the vagus and cardiac augmentor nerves, excitation of the respiratory and vasomotor centres, and the mechanical action of the skeletal muscles in propelling blood more rapidly back to the heart by the veins—increasing the rate of its diastolic filling and its output and work per minute very largely.

It is plain that it is through these changes that the sudden fibrillation of the ventricles is determined in a susceptible heart under chloroform, and there is a strong *a priori* case for the presence of a similar mechanism in the occurrence of fibrillation and sudden death (apart from chloroform) during or shortly after muscular effort—granted a condition of abnormal susceptibility in the ventricular muscle.

In addition to chloroform there are various other toxic agencies capable of establishing the hypersensitive state. Referring to drugs, it is well known from experimental evidence (adduced by Cushny and others) that bodies of the digitalis series have a powerful influence in this direction—as also have barium salts, etc.—and when pushed to extremity kill by causing fibrillation. A whole series of chemical substances might be cited as having well defined effects in this direction. And some abnormal metabolic products may well exercise a similar influence in this respect on the cardiac muscle. The development of the hypersensitive condition is not necessarily attended by any recognizable structural alteration. A prominent part in the setting up of abnormal susceptibility to fibrillation must be assigned to defective coronary blood supply.

Some Effects of Experimental Coronary Obstruction.

It is unnecessary to recall in detail the long series of experimental investigations at the hands of many workers which have demonstrated the frequent occurrence of fibrillation as a result of ligation of a coronary artery or one of its larger branches. The evidence available leaves little, if any, room for doubt that death from sudden coronary obstruction in man is due to fibrillation; the clinical features of many recorded cases are very significant, taken in conjunction with the very definite facts established by experiment in animals. The reason of the difference between non-fatal and suddenly fatal coronary obstruction is usually to be found in the non-occurrence or occurrence of ventricular fibrillation in the different cases.

It has been found experimentally that coronary occlusion, if sufficient to prove fatal, may do so in more than one way: (1) it may kill rapidly (minutes) from acute ischaemia causing ventricular fibrillation, or (2) failing this, it leads to damaged nutrition with degenerative changes (anaemic necrosis, fibrosis, etc.); these changes, apart from leading in rare instances to rupture of the heart, naturally diminish the contractile efficiency in degrees varying according to the severity of the anaemia and its distribution. Recovery may occur and life be prolonged indefinitely; or death may be suddenly caused by the supervention of fibrillation. It is easy to understand how altered functional relations in the tissues of the damaged area may lend themselves under certain conditions to the decisive upset of the normal relations of refractory period and conduction time in the ventricular walls. It remains to be seen whether the tendency to fibrillation after coronary ligation is dependent mainly on the conditions induced in the Purkinje system or in the ordinary myocardium or in both of these.

The significance of some of these results of experimental physiology does not seem to have been fully realized in relation to their bearing on the human subject. In this connexion the convincing researches of W. T. Porter[24] (1896), Baumgarten[25] (1899), Miller and Matthews[26] (1909), and F. M. Smith[27] (1918) are specially relevant. Numerous observations show that in presence of the defective blood supply following ligation the abnormal conditions that develop in the anaemic areas can not only predispose and lead up—often after months—to fibrillation, either during muscular exertion or during rest, but that the abrupt onset of fatal fibrillation may come without preceding signs of cardiac failure, as tested by exercise, or without immediately premonitory evidences of cardiac disturbance in the shape of

all infection was over and where the heart already damaged might be trained to effort. Dr. Carey Coombs (Bristol) differed from Dr. Emanuel as to the efficacy of salicylate in reducing the severity of cardiac rheumatism. The programme before any committee that would be set up might be divided into prevention, propaganda, and treatment; of these prevention should come first. An examination of the conditions predisposing to infection should take a foremost place. Dr. W. Attlee (Eton) said that in public schools practically no acute rheumatism or chorea was seen, and so hearts crippled by rheumatism were very rare. But there were large numbers of functional hearts in which abnormal signs were found accidentally or in the course of routine examination, but which give no symptoms. Departure from the normal physical signs in the heart of a rapidly growing boy meant very little in the absence of symptoms. It was very doubtful if restriction of games in these cases was of any value, and it certainly did harm to the patient generally. Dr. Raven (Broadstairs) said that fresh air was very necessary for the rheumatic case, but the ordinary convalescent home was too noisy. In a rest home the question arose how long the child was to be kept to prevent recrudescence. Every child should stay six to eight months. He deprecated any routine rest; rest was necessary because of infection in the heart muscle. Dr. Layton (Walsall) said that when patients were ordered by an out-patient physician at a hospital to go home to bed for a month, the general practitioner should be written to and asked to supervise the administration of salicylate.

Dr. C. O. Hawthorne (London) emphasized the importance of prophylactic efforts, but did not approve of leaving propaganda to a special committee; it should be done through general practitioners. He submitted that the adult heart escaped rheumatic infection because the arthritic pain in the adult enforced rest, and for purposes of prevention rest must be secured. This could not be done in the case of a child until the parents were aware of the danger which slight illness might entail. Dr. A. P. Thomson reviewed his experience in dealing with the problem at the Barberville Institution in Birmingham. The outstanding clinical difficulties were to determine when the infection giving rise to carditis had become quiescent, and to discover when a child had become free from the danger of reinfection. He described the methods he adopted to obtain an answer to these questions, but added that simple reliable tests had not yet been evolved. Dr. Moffett (Birmingham) as a school medical inspector said the type of case had very much altered in recent years. There was urgent need for more hospital beds. Sir Thomas Horder agreed with Dr. Raven about the significance of a diastolic bruit as a premonitory sign of mitral stenosis. Mitral stenosis differed in its evolution from mitral regurgitation; most cases of the latter resulted from acute rheumatic endocarditis, whereas most cases of mitral stenosis resulted from chronic inflammatory process, often afebrile—not a vegetative affair of the cusps, but a slow infiltration of the valve.

Dr. Langley (Manchester) remarked on the similarity between the course of tuberculosis and rheumatism. Both improved on graduated exercises, but the response of effort to the streptococcus of rheumatism and to the bacillus of tuberculosis was not the same; one was easy of recognition and the other not. Dr. Routh (Southsea) commented on the great difficulty of tracing the origin of valvular defects in adults who had not known they had organic heart disease. The recuperative power of the child's heart was extraordinary. In private practice acute rheumatism was very rare, and the subacute and chronic cases were very difficult to deal with. Dr. Whittington (Hove) stressed Dr. Attlee's opinion that properly regulated exercises were much better than depriving schoolboys of games. Dr. Miller, in reply, thought the meeting was in general agreement as to the necessity of rest in the treatment of cardiac disease, but that too prolonged bed might be a drawback. He was glad they felt that the time had come for investigation.

Friday, July 27th.

At the final session the Section discussed the subject of chronic bronchitis, with Dr. G. A. Allan (Glasgow) in the chair. Dr. J. J. Perkins said that chronic bronchitis was usually secondary to some chronic pre-existing disease, especially of the upper respiratory tract, the treatment of which was the essential factor for success. The health and activity of the lungs must be maintained by fresh air, exercise, and special respiratory exercises. Dr. J. O. Symes (Bristol) discussed the bacteriology and vaccine treatment. He took a very optimistic view and maintained that improvement was usual, cure frequent, and the patients were never made worse. Chronic bronchitis being due to a mixed infection, autogenous vaccine was desirable. The exciting organisms were constantly present in the nose, and details for the collection of material for bacteriological examination were given. The dose of vaccine must be sufficient to excite a reaction and treatment must be continued for at least three months. Dr. M. G. Foster (Harrogate) maintained that in early cases climatic treatment enabled habits of coddling to be set aside. Dry air, lessened secretion, and diminished air pressure of the Alps might be of great value in the winter, but at high altitudes insomnia was often aggravated; the chest wall must not be rigid. Spa treatment was of value in early cases. When bronchitis was firmly established the aim was to diminish secretion. With hard cough and scanty expectoration, a moister atmosphere was advisable; asthma cases should be above sea level. Mr. G. Seccombe Hett said that all cases which he as a throat surgeon saw were descending infections from the upper respiratory tract—in children a poor airway and infected tonsils were common predisposing causes of bronchitis. A deflected septum induced nasal catarrh, and served to infect and reinfect the bronchi. Tonsillar infection in adults was less likely to produce bronchitis than was a nasal infection; infected teeth should always be removed. Removal of polypi might relieve chronic bronchitis and asthma by permitting drainage of infected ethmoidal cells. Dr. A. C. Inman had been disappointed with results of vaccine treatment. It was of the utmost importance to overhaul the patient thoroughly. Tubercle and syphilis should always be borne in mind in investigating the cause of chronic bronchitis. Cases from the bacteriological point of view might be divided into two classes: (1) Streptococcal, in which the results of vaccine treatment were intensely disappointing; and (2) Friedländer bacillus, the one type curable by vaccine. Prophylactic inoculation should be carried out during periods free from catarrh. Dr. Edgar Collis (Cardiff), in a written communication read in his absence, said that chronic bronchitis caused more deaths than any other disease, especially in later life. Predisposing causes were wintry weather and atmospheric pollution; a chronic traumatic origin was commoner than an infective process and prevention should be attempted by clearing the atmosphere. Dr. Florence Stoney (Bournemouth) spoke of dental sepsis as a very common cause of bronchitis; it might give rise to no local signs and only be detected by an x-ray photograph.

Dr. Aston Key (Portsmouth) said that one of the great troubles was that the bronchial mucous membrane was incapable of complete repair; he asked for more light on this subject. He agreed that many cases arose from obstruction to the nose, and these always succumbed to bronchitis whether the nose was operated on or not. Dr. G. B. Batten (Dulwich), from thirty-seven years' experience as a general practitioner, said that the gradual weaning of chronic bronchitics from stuffy rooms and overclothing to habits of fresh air and rational clothing had practically eliminated cases of habitual chronic bronchitis, and this line of treatment was of more importance than vaccines or surgical procedure in the upper air passages. Dr. Hyla Greves (Bournemouth) drew attention to the fact that chronic bronchitis was a secondary affection and that often underlying it was a constitutional disease—namely, gout, alcoholism, arterio-sclerosis, heart disease, or peribronchial tuberculosis. In treatment it was of the utmost importance to cultivate gradually the resistance to cold. Sir Thomas Horder also emphasized the importance of associated constitutional conditions. Should all cases of bronchial catarrh be grouped as chronic bronchitis? All cases were not infective; in some the infective agent was dominant, in others it played but a minor part, and this explained the success of vaccine in one class and its failure in the other. Intermediate between

being is capable of being helped, if he is normal, and that all who fail in life should be studied to see how far they require help, and what kind of help is essential, alike in their own interest and that of the community. At the same time all social workers should understand that mental defect, being a definite clinical entity, not uncommon among social failures, should always be thought of first, and not last.

In work with criminals and delinquents the same spirit should prevail. Punishment cannot help those who require treatment or re-education. So many delinquents—at any rate so many of those who are caught by the police—do require such treatment that the public would welcome a thorough preliminary medical investigation to determine how far the offender is a deliberate wrong-doer, and how far a victim of his environment. Such ideas are sometimes not appreciated by the legal element, who think they alone are competent to deal with such cases, despite the unsatisfactory results they often obtain; they sometimes regard the medical psychologist as a dangerous and unbalanced crank, who wants to segregate every mental defective he can find, and to explain away or gloss over the wrong-doing of all other delinquents. But the judicial authorities must understand that the psychologist believes above everything in the gospel of hard work, and wants to help those who can be helped, with due regard to the safety of the community, and to segregate the impossible, as long as they remain impossible.

Again, take the problem of the unemployed, many of whom are said to be unemployable. One of the first steps should be to sort out the mentally defective; the dole never deals with their problem. It is an extravagant way of treating them, and leaves them free to reproduce other degenerates.

So too with war pensions and "shell shock" cases: some of these are, always have been, and always will be, mentally defective; the sooner those are weeded out the better for them, and the better for those who, both by their past record and their future possibilities, are entitled to skilled and expensive treatment.

In some of these groups will be found many borderland cases, who might be classified in other ways. When they are taken into account—for they cannot be ignored—and when there are recognized also the incipient, but as yet undeveloped, cases of adolescent insanity which are in many ways closely associated with mental defect, it becomes clear that the group which primarily or secondarily, owing to their mental condition, requires care is far from insignificant. Only one in every two hundred of the population may be a well marked mental defective, but the number of those who require a good deal of help, in part at least because of their psychological inferiority, is larger. Dr. Clarke of Toronto in his Maudsley lecture told us that out of 3,442 cases under 16 met with in their clinic 8 per cent. were classed as suffering from mental disease or psychopathic inferiority. Although it is possible to recognize in many such cases definite nutritional, endocrine, or other important failure, to class them in any other way than as psychopathic is only evading the issue. There is no reason for thinking that in our older country with its large cities, and correspondingly large slums, the psychologically inferior are less numerous.

In dealing with this problem we must adopt a broad outlook, and not attempt to pigeon-hole different varieties of one group, the essential feature of which is inability to adjust psychologically to their environment. If the number of the psychologically inferior seems to be greater than we had realized, it does not follow that we need be pessimistic. Once we recognize the group, study its development and deal with it, we can be optimistic. We must not be so blindly optimistic as to think we can eliminate the type. Defectives always have existed, and always will exist. It is not certain that there is a bigger percentage than there used to be. It may only be that the circumstances and conditions of our present civilization make them more obvious. The principal cause is heredity; therefore segregation, even if only partial, will reduce the number. But heredity, although the outstanding cause, is not the only cause. The statistics which seemed at one time to lead almost inevitably to the conclusion that heredity was the only factor that mattered have been shown to have been unduly stressed. In some cases this was due to the fact that what was likely to be inherited was not mental defect, but a psychopathic make-up; in others, notably some of the American records, the figures were based not on scientific investigation, but on hearsay evidence obtained long after the unsatisfactory ancestor was dead. Clarence Darrow is responsible for saying that the alarmist record of the so-called Kallikak family was partly obtained in this way, and therefore is not necessarily correct. This we can easily believe, because we know that a satisfactory member of society is not always followed by equally satisfactory descendants, while the progeny of the less desirable sometimes reverts to the normal. This does not belittle the importance of heredity and segregation of the defective, but will remind you that segregation alone will not solve the problem; in addition all unfavourable factors must be eliminated as far as possible. If both these principles receive attention a degree of success well worth attaining will be achieved. Those who have the care of the mentally defective and all other social workers must join hands to combat the racial poisons, syphilis and alcohol. Other known unfavourable agencies must not be forgotten, such as infectious disease of the mother during pregnancy. Toxins and bad environment must contribute in some cases to the incidence of mental defect. It has been established that at the time when the determiners separate out of the germ cells, healthy influences promote variation of a good type, while unfavourable ones tend towards a bad type.

Once mental defect is established little can be done to eradicate it. The great opportunity is at the ante-natal clinic, where disease must be dealt with, and failure of endocrine and other organs receive attention. But it is only those who come very early to that clinic who can expect much help. Highly skilled medical practitioners are essential there; in addition a high standard of national health, especially among married women, must be achieved. Once a child is born defective the opportunity has usually gone. But even then much may be done by careful home training in the early years to develop a capacity for some service to the community, and to diminish the potentiality for harm. It is in the school clinic that the opportunity occurs for recognizing and scheduling the pathological or asocial child. All such require careful supervision, not with the object, as some cranks think, of shutting them up for life the first time they fail ever so little, but in the hope of preventing failure, and of training and building up character so that they may contribute something, in however humble a capacity, to the work of the world. The more efficient the supervision, the more thorough the early investigation, the fewer will have to be segregated later. The public must be taught that those who are segregated are being treated and not punished; that it is the only way in which they can lead happy and useful lives. The institutional life essential for them is arranged not only for their benefit, but also in the interests of their normal brothers and sisters, who are often seriously handicapped by the presence of a defective in the home or the school.

You will see that I attach great importance both to the ante-natal clinic and the school clinic, which should deal not only with the physical make-up but also with the psychological make-up of every child. Their medical officers should have knowledge and experience, and not be merely recently qualified practitioners taking up the work as a stop-gap. We require larger vision in such matters, such vision as will prevent our grudging the necessary expenditure at the only times when expenditure can do much good. We want the vision, also, which will enable us to see that all social workers are working for the same end, and must pull together. So, too, we must not cavil over which authority cares for the feeble-minded. What does it matter whether it is the Guardians, the Mental Deficiency Committee, or the Education Authority which acts, provided care is given, the defective helped, and the community protected?

At the present moment many local authorities are forced

Mrs. Dickinson Berry strongly advocated in goitre cases the combination of anaesthetics with light general anaesthesia by ether. Mr. Basil Hall (Bradford) had had the good fortune of doing practically all his work with one anaesthetist, upon whom he depended and to whom he attributed in great measure his success. He deprecated the multiplication of apparatus by anaesthetists. He regarded ether as the most satisfactory anaesthetic for general use, preceded by hypodermic injection of heroin or morphine, or by a few whiffs of chloroform for induction. Sir Crisp English spoke in favour of ethanesal and of the employment of ethyl chloride for induction. The discussion was also taken part in by Dr. A. L. Flemming (Bristol), Mr. A. A. McConnell (Dublin), Mr. Cuthbert (Gloucester), and Mr. Pannett (London), and the results of the debate were summed up by Mr. Trotter. Mr. A. Clifford Morson (London) concluded the work of the Section by reading a paper on the division of the vas deferens in prostatectomy. Sir Henry M. W. Gray conveyed the thanks of the Section to the secretaries, Messrs. B. C. Maybury and Harold Burrows, for the success of its meetings. Thanks to the President were accorded on the motion of Mr. Burgess, who expressed the hope that Sir Henry Gray would achieve success and happiness in his work in Canada.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Thursday, July 26th.

THE morning session was devoted to a discussion on the use and abuse of forceps. There was a very crowded attendance. In calling upon Mr. Comyns Berkeley, the President asked everyone present who had any experience of forceps to state his views. In the opening paper Mr. Comyns Berkeley expressed the opinion that the unsatisfactory position of the forceps operation to-day was due to inefficient teaching. The blame rested more upon the shoulders of the teachers than on the family doctor. But while the teachers must bear their full share, they were not entirely at fault, as the proper teaching of midwifery even now was not insisted upon by most of the examining bodies, while adequate facilities for the proper teaching of the subject had not yet been provided. The number of cases was insufficient and there were not enough obstetric beds in either the general or the lying-in hospitals. Yet the importance of proper teaching could not be exaggerated, for without it a man would often experience difficulty in determining whether a particular case was normal or otherwise. The true conduct of labour commenced with ante-natal treatment. There were occasions when the forceps had to be used, but the less frequently they were employed the better. The only way to bring about such a reduction was by efficient ante-natal supervision. The opportunities students had for acquiring knowledge of ante-natal conditions were still very limited, yet this knowledge would easily prevent the abuse of forceps. The forceps operation must be regarded as a surgical operation, yet how rarely was it carried out in the surroundings and with the technique which should accompany a surgical operation. In the case of the ordinary surgical operation the practitioner was able to call in skilled assistance, and whatever was done was done deliberately and with proper preparation. In the case of obstetric emergencies the doctor was expected by the patient to be able to carry out all necessary measures himself without assistance and without delay. This position was quite untenable. It was impossible to pass anything—fingers or forceps—into the uterus without the potential risk of infecting it. It was not unfair to say that many men took infinitely more trouble over the smallest so-called surgical operation than they did over the forceps operation. In the absence of sufficient hospital accommodation for lying-in women, the local authorities should be responsible for providing the proper aids to childbirth. His experience as an examiner to most of the examining bodies in England had taught him that less attention was paid by students to the mechanism of labour than to any other subject in midwifery. The operation of forceps extraction must always interfere with the normal mechanism, and in many cases it did so disastrously. That the forceps were often used unskilfully was due to the fact that a large number of men had never seen them used before going into practice. In his opinion the only warrantable use of the forceps was for traction. To use them as a lever, as a compressor, as a rotator, or as a stimulator was absolutely wrong. In using as a traction instrument the force employed should be strictly limited. It was an abuse of forceps to use them too early or too late. Those who sought to justify the frequent use of forceps were apt to lay stress on three essentials—perfect application, slow extraction, the use of only the smallest amount of force. Very wise, but in how many cases were these essentials maintained? Severe injury to mother and child was far too frequent with forceps. The forceps when indicated was a safe instrument if properly used; when not indicated it was difficult to mention a more dangerous one. Mr. Berkeley proceeded to outline the indications for the use of forceps, with the reservation that, taking into consideration every case in which instrumental assistance appeared desirable, there would still be more danger in using forceps than in dispensing with their aid. He urged strongly that in the absence of serious complications delay in the first and second stages was less harmful than rapid delivery by forceps. He regarded the high forceps operation as an extremely dangerous and often most difficult operation, which should be avoided and should never be an operation of choice. In many cases of delay due to disproportion between the head and the pelvis, labour terminated spontaneously and safely after a second stage of six or even more hours, though it would have ended disastrously had forceps been used. If there were the least doubt as to the head being able to pass the brim forceps should not be used, as this only increased the danger if Caesarean section were decided upon. Dr. Fairbairn, who followed, emphasized the importance of properly directed ante-natal supervision as the surest means of preventing the haphazard use of forceps. A very lively discussion followed, in which Dr. Hendry (Glasgow), Dr. Forde (Portsmouth), Mr. Rivett (London), Dr. McAskie, Colonel Buchanan, I.M.S., Dr. Campbell (Belfast), Professor Johnstone (Belfast), Dr. Douglas (Cupar), Dr. Evans (Beckington), Dr. Grove, Dr. Buchan (Catford), Dr. Lewis (Southport), Sir Gerald Giffard, I.M.S., and the President took part. Mr. Comyns Berkeley dealt trenchantly with his critics in his reply. The large attendance at the meeting of the Section made the proceedings exceedingly interesting. In the afternoon a demonstration of models explaining the mechanism of labour was given by Lieut.-Colonel Andrew Buchanan, I.M.S.

Friday, July 27th.

The proceedings opened with a paper by Mr. Beckwith Whitehouse and Dr. Henry Featherstone upon certain observations on the innervation of the uterus. Their interest in the problem had been stimulated by the observation of the extraordinary power of contraction possessed by the uterus in cases of Caesarean section performed under lumbar spinal anaesthesia with tropacocaine. They had made observations upon the uterus at all stages of pregnancy under spinal anaesthesia, but they did not desire their deductions yet to be considered in any way final; they might require modification as the work proceeded. The nervous mechanism controlling the uterus was constituted by three systems—local, sympathetic, lumbo-sacral autonomic. The "local" mechanism was capable of producing rhythmical uterine contractions and was independent of the sympathetic and autonomic systems as in the case of other involuntary muscle. The sympathetic stimuli were motor to the circular muscle fibres and inhibitory to the longitudinal bundles. The lumbar cord stimuli were motor to the longitudinal fibres and inhibitory to the circular fibres. In regard to the practical application of these results, the advantages of lumbar anaesthesia, either alone or combined with general anaesthesia, in classical Caesarean section were very evident in securing a firm contraction of the uterus and reduction of haemorrhage to a negligible amount. In cases where the uterus was exhausted, spinal anaesthesia should certainly diminish the tendency to *post-partum* haemorrhage. For the same reason, spinal anaesthesia was to be preferred when it was necessary to evacuate the uterus by the vaginal route in the earlier

criminals, while the Ministry of Health, through the Poor Law, deals with very large numbers and all types and ages of the mentally defective. These central authorities have corresponding local authorities, and although the Mental Deficiency Act created an elaborate system whereby a defective could be transferred from the care of one authority to that of another, it is found in practice that it is most difficult to secure complete co-operation between the various local authorities and that the procedure is far too complicated. It is still to a large extent true that "mentally defective persons pass from one authority or institution to another, helped or detained a little in each, but permanently cared for by none."

The fundamental idea of continuity of control was the prevention of personal degradation and disaster to the individual defective and of the attendant social evils. It was seen that by early recognition and protection defectives could receive sufficient training and care to prevent them becoming drunkards, criminals, "in and out" paupers, and the parents of children whom they could not support and whom they often neglect and ill treat. But the provisions of the Mental Deficiency Act, except in one instance, are insufficient to carry out this idea. Section 2, which sets out the classes of defectives "subject to be dealt with," shows that only those are eligible for care and protection in whose case some personal disaster has already taken place—for example, neglected, abandoned, or cruelly treated, found guilty of any criminal offence, undergoing imprisonment, habitual drunkard, in receipt of Poor Law relief when pregnant or at the time of giving birth to an illegitimate child, etc. The single exception is Section 2 (*b*), v, which gives the local education authorities power to notify to the committees for the care of defectives those children who would benefit by institution care or guardianship. This is the one provision of the Act which seems to have been framed with the idea of preventing disaster and securing continuity of care for those who need it, and if thoroughly carried into effect it would go far towards solving the whole problem.

Immediately after the passing of the Mental Deficiency Act the Elementary Education (Epileptic and Defective Children) Act was amended and its adoption by local education authorities made compulsory, and it would not be too much to say that the success of the former depends greatly on the thoroughness and efficiency with which the latter is administered. The early recognition through the local education authorities of all defective children, and their appropriate treatment, constitutes a first line of defence for the individual and the community. If defective children are scientifically studied and carefully trained, it is found possible to distinguish those who will need further care and protection from those who will benefit sufficiently by special training to become self-standing and able to manage themselves and their affairs.

Unfortunately the war and the consequent financial restrictions have prevented the Elementary Education (Epileptic and Defective Children) Act from being brought into complete operation. The last available figures in the annual report of the chief medical officer of the Board of Education show that some 16,000 mentally defective children are being dealt with in special schools out of an ascertained number of 31,000. The statistics of the After-care Committee which has been the longest time at work (twenty years), and has followed up 2,600 cases, show that only 28 per cent. of children who pass through special schools become self-supporting, and that all the others need some measure of support and protection and care.

It will be observed that the other 15,000 mentally defective children for whom no special schools have been provided will drift out from ordinary elementary schools into the general population without being notified under the Mental Deficiency Act, and are therefore, however much in need of care, not "subject to be dealt with" until some disaster brings them within its provisions. The restrictions on public expenditure seem likely to prevent any increase of the number of children admitted to special schools, and as the local education authorities do not notify feeble-minded children leaving ordinary elementary schools, numbers of defectives will leave at 14 without a chance of further help and care.

It is clear, therefore, that the chief means of making the Mental Deficiency Act really effective in the prevention of degradation and disaster to the feeble-minded, and expense to the community, is the thorough and scientific working of the Elementary Education (Epileptic and Defective Children) Act. If for financial reasons the work of this Act has to be curtailed, it is highly desirable that some temporary arrangement should be made whereby defective children needing control between the ages of 7 and 16 could be brought under the protection of the Mental Deficiency Act and properly supervised. Co-operation between the school medical officer and the medical officers of the statutory committees for the care of defectives might do much towards continuous care, but in order to secure full protection it should be the ordinary practice of the local education authority to report to the local authority any defective child leaving or excluded from an elementary school.

The next effort to obtain continuity of care by the provisions of the Mental Deficiency Act occurs in relation to cases who are constantly drifting in and out of Poor Law institutions. Section 30, Proviso ii, provides a means whereby a defective who needs continuous care may be transferred to the local authority and sent to a suitable institution. But the procedure set up has proved complicated and lengthy. It involves correspondence between two central and two local bodies, and it has, moreover, an element of uncertainty which discourages Poor Law guardians from putting it into effect. The local authority is sometimes unable, through want of accommodation, and sometimes unwilling, to assume responsibility, and it is not infrequently found that before all the formalities are completed defectives whom it is desired to protect have taken their discharge from the Poor Law institution. As an illustration of the great need for a better link between the two local bodies concerned, the following quotations are given from *A Review of the Conditions of Defectives in Poor Law Institutions*, which was published by the Board of Control in 1919.

"In twelve workhouses in one part of England forty-two mentally defective women were noted as cases in urgent need of control—twenty-three of these have had between them at least fifty-one children, two being pregnant at the time of the report; nineteen had not at present had children."

At another time the Commissioners say:

"One woman was reported to us as having had nine illegitimate children, six of whom were born in the house. We noted three cases of girls only 17 years of age with illegitimate children. One of these was pregnant for the second time, and one was certainly a certifiable imbecile, so defective that she could not wash and dress her baby. The powers of the Poor Law authorities have hitherto proved entirely insufficient for the protection of these mentally defective women. The treatment extended to them has been spasmodic and not continuous. It does not prevent them from becoming morally and physically degenerate, neither can it always secure the adequate and continuous care of their children."

Instances of the above description might be given from a very large number of Poor Law institutions, and, combined with the knowledge that numerous defectives come in touch with the Poor Law at an early period in their lives, show the desirability of trying at this stage to secure continuity of care and control. Even without further legislation much might be effected by the complete co-operation of the medical officer of the Statutory Committee for the Care of Defectives with the medical officer of the Poor Law institution. A routine procedure could be established whereby the local authority should always be informed when defectives leave a Poor Law institution; they could then be kept under supervision in order that help might be forthcoming if necessary. But to secure real continuity of care the transference of responsibility to the local authority should be made as simple as possible.

It is important to remember that the administrative difficulties referred to are such as must necessarily follow the initial stages of carrying out the provisions of the Mental Deficiency Act, and that the public owe a debt of gratitude to a large number of boards of guardians for consenting to receive mentally defective cases from local authorities.

The idea of continuity of care may be traced again in Section 16, which provides for transferring a defective who has recovered from an attack of insanity from a mental hospital to an institution for defectives. Very little use

had been noted in three cases, in one with goitre. The Parkinsonian syndrome was relatively common, and often progressive. Adiposity was also a common sequel, and pain in the limbs not uncommon. Dr. Hinds Howell (London) discussed the results which had followed in 34 cases under his own observation. Of these 6 died and 11 recovered completely. Nine had residual symptoms. Three cases of the Parkinsonian syndrome had made good recoveries, but others were progressive. The commonest symptoms were alterations in personality, especially a loss of emotional response. Such mental changes showed little tendency to improve. Of ocular defects the commonest sequel was a loss of power of convergence and accommodation. He went on to discuss the disorders of sleep, the curious disorders of respiration, and certain interesting relapsing cases. Dr. Feiling (London) confined his remarks to the ocular palsies as a sequel to the Parkinsonian syndrome. He quoted a case showing the strong resemblance of cases with residual ocular palsies to myasthenia gravis, and went on to contrast the features of the post-encephalitic Parkinsonian syndrome with the ordinary form of paralysis agitans. He concluded by emphasizing the serious prognosis in these cases, many of which were steadily progressive. Dr. McAlpine (London), in discussing the pathology, mentioned that he had found reports of 14 cases of Parkinsonism following epidemic encephalitis in which careful histological examinations had been made. In all of these changes in the substantia nigra in the mid-brain had been found. He discussed the calcification of the blood vessels, which he had found in the form of globules, chiefly in the anterior parts of the globus pallidus. His remarks were illustrated by a series of excellent lantern slides.

Dr. Symonds (London) remarked that in dealing with the sequelae the diagnosis must often be made in retrospect. The importance of ambulatory cases was discussed and two interesting cases quoted. The possible latent interval between the acute phase and the occurrence of any sequelae was a very important practical point, and it might extend to three years. He had been especially interested in the sensory disturbances of the disease, especially those of visceral sensibility, and thought that they might perhaps account for some of the curious attacks of respiratory and other disorders which occurred. Dr. McBride (London) raised the question as to whether most of the so-called sequelae were not really a persistence of the disease. Dr. Devine (Portsmouth), President of the Section, thought that perhaps some cases had been overlooked by psychiatrists, especially the ambulatory ones. The correlation between mental disorders and physical changes found in this disease might be called an epoch-making discovery.

Dr. Macfie Campbell (Boston) also mentioned the real practical importance of the latent interval, and discussed whether some of the sequelae were really recrudescences or mere residuum. He agreed that many ambulatory cases could be overlooked. There was a wide field for investigations into the psychology of these cases, especially in the different reactions shown by adults and children. Drs. Morris, Potts, Charnock Smith, and Hardcastle aslo spoke, and Dr. Buzzard briefly replied.

In the afternoon Dr. Da Fano gave an admirable demonstration of the microscopic changes occurring in epidemic encephalitis and in the herpetic encephalitis of experimental rabbits. A series of beautiful preparations were exhibited, and studied with the greatest interest by those present. Dr. McAlpine also showed specimens illustrating the changes in the basal ganglia and the calcification of blood vessels in human epidemic encephalitis. A most successful day's proceedings were concluded by a demonstration by Mr. Inman at the Eye and Ear Hospital of cases of squint and left-handedness in nervous children.

Friday, July 27th.

The proceedings at the closing session took the form of a discussion on the prognosis of psychoses occurring during adolescence. The chair was taken by Dr. Riddoch, Vice-President. A very good discussion was held, introduced by a paper full of interest and practical value, which was much appreciated. Dr. D. K. Henderson (Glasgow), after touching on the magnitude of the subject, went on to say how important it was that all connected with the training of the young—parents, teachers, and doctors alike—should realize what a critical period that of adolescence was. Early changes in behaviour and character should be carefully noted, as they might indicate the beginning of a serious mental breakdown. Cases could be classified on the basis of organic visceral disease or on the broader biological conceptions of adaptation and adjustment. Kraepelin's well known differentiation by symptoms with the two large groups of manic-depressive psychosis and dementia praecox had been useful, but he thought such a basis was unsafe, and one which tended to retard treatment and induce an unnecessarily pessimistic outlook. Attempts to regard and treat such cases from the organic visceral or toxic side had, it was true, met with a certain measure of success, but many cases were quite untouched by such methods. He believed that a wider conception was necessary, and the symptoms of the illness must be brought into line with the whole personality of the patient. In every case, therefore, the question would be asked, How has this patient failed to adapt himself, and what shape have his or her reactions taken? Details of cases were then given, illustrating forcibly and graphically the author's meaning.

Sir Frederick Mott said that though his own attention had been mainly fixed on the pathological side, he was much interested in the psychogenic factors, especially in their relation to the endocrine systems. He emphasized strongly the factor of genetic inadequacy as a predisposing factor of insanity. Each case was a biological problem of its own, and too much classification was a mistake. He discussed briefly his own work on the changes in the reproductive organs in dementia praecox, especially in regard to nuclear degenerations. Dr. Stokes (Portsmouth) discussed the question of the recovery rate in the dementia praecox type of case, and recalled the fact that Clouston had 15 per cent. of recoveries in five and a half years' work. The figures he gave showed a higher recovery rate among the manic-depressive type than in the dementia praecox type.

Dr. Devine, President of the Section, said that the most important thing was the study of the reaction type of the soil in which the psychosis appeared. If it was a "shut in" type a deteriorating psychosis was probably present. The greater the exogenous stresses present in any case the greater were the chances of recovery. This dictum was well exemplified during the war. He quoted two very interesting cases, and concluded by pointing out the value of finding the right environment for the patient. Dr. Symonds (London) said that behaviour reactions were the most important study. Cases failed to come under care in the early stages, a fact which was probably due to the inadequate opportunities of training afforded to the medical student. He was strongly in favour of establishing in every large general hospital a mental ward which could be used for observation and treatment. Economic factors unfortunately interfered, and prevented endeavours to place cases in really suitable environments. Dr. Jackson (Portsmouth) asked for more guidance in treatment, especially as regards occupational training, in which he was a great believer. Dr. Stone (Northampton) spoke of the question from the point of view of the general practitioner. Dr. Baird thought it impracticable to have mental patients in a general hospital. Many cases labelled dementia praecox were in reality examples of an exhaustion psychosis. Dr. Matthew referred to the occupational treatment he had seen practised at Zürich. Dr. Riddoch agreed with Dr. Symonds as to the value of opening a ward for mental cases in a general hospital. He also emphasized the importance of a study of the reaction types of the individuals. Dr. Henderson replied, and further interested the meeting by an account of the occupational treatment and training as practised in his own institution.

SECTION OF OPHTHALMOLOGY.

Friday, July 27th.

THE President, Sir John Parsons, said the subject, "Ophthalmology in its relation to the Navy, Army, or Air Force," was in many of its aspects new, in none was it unimportant. Air Commodore David Munro, in his opening paper, said that "eye" determined success in games as in

local authority, either through its own officers or through a local voluntary association, to organize a guardianship scheme somewhat on the lines of the Brighton Guardianship Association. The essential features would be a wise choice of homes, of suitable cases, and of trained visitors who would keep in close touch with the defectives and report on their progress, mental and physical condition, and on any change in their surroundings or behaviour which might indicate the advisability of a transfer to an institution. Transfer from guardianship to a certified institution is a simple matter and can be effected under Section 7 by a variation of the order.

The provision of institutional accommodation is at once the most onerous and most valuable of the duties imposed on local authorities by the Act, and it is, unfortunately, one which it is impossible for the present to carry out efficiently owing to the severe financial restrictions consequent on the war. Even if full use is made of less expensive forms of care and treatment, such as supervision and guardianship, there will always remain large numbers of defectives whose condition calls urgently for institutional treatment, both in their own interests and in the interests of the community.

The existing accommodation for defectives at the present time is about 19,200 beds, and shows an increase of about 16,000 since the passing of the Mental Deficiency Act. But nearly 7,000 of these beds are in Poor Law institutions, and therefore do not represent the actual number available. Many of these places have already been filled up by ordinary paupers, while some of the Poor Law institutions limit the defectives they will receive to those belonging to their own union, with the result that, even if vacancies exist, they cannot be filled.

It must also be remembered that Poor Law institutions are, with a few exceptions, only approved for adults, and are only suitable for a certain limited class of defectives. They can seldom provide sufficient training and employment, and life in them for long periods is exceedingly confined and monotonous. A large proportion of this accommodation, therefore, can only be regarded as a temporary provision pending the establishment of suitable colonies. When we turn to the ordinary certified institutions, we find that vacancies are very difficult to obtain, and that most of the institutions have a long waiting list. The accommodation therein available on January 1st, 1923, was for 11,232 cases, and there were resident at that date 7,891, dealt with under the Mental Deficiency Act, and 2,126 other cases—totalling 10,017 in all, thus leaving only 1,215 vacancies. These are nearly all confined to one or two large and recently opened institutions, and are, generally speaking, only available for cases from the surrounding district. Only fourteen of the existing 126 local authorities have institutions of their own; the others are dependent on charitable and philanthropic efforts or on Poor Law institutions. No new institutions have been opened by local authorities during 1922. The number of mentally defective cases in institutions on January 1st, 1923, was 15,327.

In the foregoing pages an attempt has been made to show how far the Mental Deficiency Act has met the difficulties experienced by the community in adequately protecting the mentally defective. Twenty-five thousand cases have been ascertained, and 9,854 of them placed under supervision. Some 16,000 beds have been provided for those needing institutional care. Compared with the numbers needing protection, these figures cannot be said to constitute more than a beginning. There is no doubt that a much greater advance would have been made if it had not been for the war and the consequent financial restrictions. How long these restrictions will continue and what will be the future rate of advance it is impossible to foretell, but taking into consideration the high cost of building and of maintenance it may safely be assumed that progress will be very slow. This being so, thoughtful people are more and more inclined to consider whether there is any possibility of action on other and different lines.

Is there any method of community control outside institutions which would ensure the safety of the defective and the protection of the interests of the community?

How far is complete segregation of large numbers and varying types practicable, and if rigorously carried out how far would it cut off the supply?

If the community decides that the segregation of defectives is essential for its welfare, what steps can be taken to render it less irksome for the individual?

Is it possible to promote scientific research which may reveal the causes of congenital mental deficiency and suggest its prevention?

The answers to these questions will require many years of patient, untiring experimental work—the humane and scientific treatment of the mentally defective is yet in its infancy—but enough has been done to show that in the solution of this problem lies a hope for the gradual improvement of social conditions. Something has already been accomplished, and if the two Acts now in existence were brought into complete operation and thoroughly administered it would lead to an immediate reduction in drunkenness, pauperism, crime, illegitimate births, and venereal disease.

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SEGREGATION OF MENTAL DEFECTIVES.

WE all realize how difficult it is to deal effectively with the problem created by the presence of so many mental defectives in the community. In some respects segregation seems to be the most practical method of attacking the problem. It is not merely custody or imprisonment, but a method of treatment; it protects the community from what may be and often is a socially harmful person; and it effectually prevents propagation. At the same time segregation presents both sentimental and practical difficulties, and more especially so in those cases where it is perhaps most desirable from a social point of view. We feel no hesitation in recommending institution care in the case of low-grade defectives. We know that it is best for the child to be under skilled care—best for the parents in the long run, and certainly best for other members of the family group. Apart from the fact, however, that these cases are unproductive and an expense to the community, they do not constitute a very serious social problem, as they are harmless and unlikely to propagate. It is the high-grade cases which give rise to a social problem, and we may limit our discussion to these.

As mental deficiency has here to be considered in its social aspects there is no need to discuss segregation as a form of treatment—that is, from the individual point of view. The sociological reasons for placing the feeble-minded in institutions may be included under two headings: (1) The prevention of delinquency, vagrancy, prostitution, etc.; (2) the prevention of propagation by persons who will probably produce inferior children.

Dr. Potts, in his opening address, showed the relationship between mental deficiency and venereal disease, chronic drunkenness, illegitimacy, delinquency, and unemployment. There is, of course, not the least doubt that many defectives are a misery to themselves and a menace to others, and, this being so, it is both humane and socially necessary that they should be segregated in colonies or elsewhere. If such steps are taken, not only will these individuals cease to be destructive social units, but they will probably become useful members of the community in which they are placed, and almost self-supporting. In thus advocating segregation for certain defectives there is no suggestion of "attempting to rake as many as possible into the mentally defective institution net," as Dr. Potts aptly puts it. I do not think there is likely to be any abuse of segregation in this country. Apart from the practical difficulties involved in the segregation of all mental defectives, we all feel a profound aversion to depriving an individual of his liberty unless it is clearly necessary. In practice magistrates and medical men devote the most careful attention to the difficult high-grade cases, and only commit them to institutions after every other possibility has been explored. I do not think it necessary to add anything more as to the value of segregation as an instrument in the prevention of delinquency by irresponsible persons. Both Mrs. Pinsent and Dr. Potts have spoken so clearly, temperately, and humanely on this aspect of the question that I feel it unnecessary to expand

cases or groups of cases were extraordinarily variable, and the morphological characters of the same bacillus were observed to undergo considerable variations. It was evident that no one particular organism was the cause of summer diarrhoea; in fact he had come to the conclusion that the disease was not infective in the strict sense of the word. The primary cause was not bacteriological, but nutritional or metabolic. Resistance was lowered by such causes as improper feeding and prolonged exposure to heat, which led to secondary infection by bacteria. He hoped that in time summer diarrhoea would become a thing of the past. Welfare centres were educating mothers in the proper clothing and feeding of their children. The use of dried milk and the reduction in the number of flies in cities had eliminated important sources of infection.

The President, Dr. Cautley, could not agree that summer diarrhoea was not an infective disease. In his hospital infantile diarrhoea was nursed in the same way as typhoid, and yet cases of infection occasionally occurred in a ward; he was inclined to attribute this to flies. Some of the worst toxaemic cases began in well nourished children; in them a predisposing state of nutrition appeared to have nothing to do with it. He considered the disease infective, but many different organisms were involved. Dr. D. H. Paterson said that true "summer diarrhoea" occurred in only a small proportion of children who suffered from diarrhoea in summer. In his series of cases at Great Ormond Street there had been a history of unsatisfactory feeding in 50 per cent.; the other half were in an extraordinarily good state of nutrition—they were in fact overfed. In hot weather these children might easily get an acute intestinal upset. If treated by being taken off all food, they passed rapidly into a state of acidosis, and acute fatty degeneration of the liver would be found at necropsy. Fermentation in the intestine was one of the chief causes of diarrhoea; the proof of this was that the most successful treatment was a diet in which fermentation was reduced to a minimum. Dr. Bernard Myers (London) had been astonished to find so many cases of summer diarrhoea in which nothing pathological was found at necropsy. He thought Finkelstein's classification more helpful than any other. A diet with too much carbohydrate and fat appeared to be specially prone to produce the disease; protein was usually well tolerated. Some cases, he thought, were due to nutritional disorder, and some infective; treatment varied according to the cause. Dr. Catherine Chisholm (Manchester) confirmed the value of Finkelstein's work in treatment. There was undoubtedly an infective group of cases. The decline in the disease was due to welfare centres and to the care taken in cities to prevent sources of infection. Dr. Baumann (Johannesburg) said that in the past a mistake had been made in considering all cases as of infective rather than of nutritional origin. But it would not do to go to the other extreme. Both types were seen. Finkelstein seldom starved his cases, and never for more than six hours; he gave buttermilk, which was a food rich in water and salts. Dr. G. B. Sweet (New Zealand) had used skimmed milk powder extensively in cases of summer diarrhoea and found it entirely satisfactory. It was simple to use, which Finkelstein's protein milk was not. After the first few days he added lactose, and later fats were gradually introduced. Dr. Eric Pritchard (London) thought enough stress had not been laid on the character of the stools. Where there was proteolytic decomposition they were alkaline, in fermentative diarrhoea they were acid. Buttermilk was merely a coarse method of introducing lactic acid bacilli; he preferred lactose with lactic acid bacilli in proteolytic fermentation. High irrigation of the colon was also useful. In acid fermentation the indications were the reverse; protein administration was more scientific and successful. Indiscriminate use of protein milk or sugar solutions was unsatisfactory. Dr. Nabarro and Dr. Paterson replied.

Dr. H. T. Ashby (Manchester) read a paper on the after-results of abdominal tuberculosis in children, based on the study of 250 cases. He insisted on the difficulty of diagnosis and the care needed to exclude cases of rickets or dyspepsia which might resemble tuberculosis. He thought the human source of infection was commoner than the bovine. As to prognosis, if a case remained free of symptoms for two years the outlook was good; under one year the cases were almost invariably fatal, but the prognosis improved as the child grew older. Most recoveries were complete. In some cases a mass of calcified glands could be felt many years later in the same situation as the former enlarged glands, but these old glands seemed to cause no trouble. Dr. E. A. Cockayne (London) agreed with Dr. Ashby on the absence of after-effects; calcified nodules and glands in the omentum produced no symptoms. Dr. Eric Pritchard did not regard abdominal tuberculosis under one year of age as necessarily fatal. For early diagnosis he injected old tuberculin; if the child was infected there was a local and focal reaction; on clinical evidence alone it was very difficult to say whether tuberculosis was present or not. Treatment by tuberculin had been very successful. Dr. Sweet said that most cases of abdominal tubercle in New Zealand were bovine. He had obtained very good results from treatment by tuberculin.

Dr. Molyneux read a paper on radium for tuberculous cervical adenitis. The treatment was painless and safe provided the technique was carefully carried out, and he had obtained apparent cure whenever it was properly followed. Caseating masses of glands, suppuration, and secondary infection and old sinuses were no contraindication to the method.

SECTION OF LARYNGOLOGY AND OTOLOGY.

Friday, July 27th.

In opening the discussion on spasm of the larynx, Sir StClair Thomson (London), after a definition of terms, briefly reviewed the anatomy and physiology of the parts concerned and began by classifying the known causes of spasm. He emphasized throughout the importance of the psychological factor in intensifying and even originating spasm, and mentioned that in his long experience he had not had occasion to perform tracheotomy, though he was far from condemning the procedure where the strain on the heart was obviously too great. He was convinced that whooping-cough in adults sometimes was the cause of spasm [an original observation, this], and quoted cases due to gout, morphine habit, and tabes. Like most of his hearers he had found difficulty on occasion in distinguishing between abductor paralysis and adductor spasm, but was able to indicate clinical methods of solving the problem. Having touched upon Semon's law, and spasm in anaesthesia, laryngismus stridulus, hiccup, and epilepsy, he concluded by summing up the lines of treatment at our disposal. The problem, as ever, depended upon diagnosis, and in each case a most exhaustive examination was necessary to ensure that we were not treating a case of paresis by sedative methods. Sir James Dundas-Grant drew a definite distinction between laryngismus stridulus and laryngitis stridulosa—the latter being the same as croup and occurring in rickety children. Perhaps the deficiency of calcium led to a relatively hyper-excitability of the nervous system, and such irritations as adenoids supplied the necessary stimulus. He discussed the laryngeal crises of tabes and their relief by local anaesthetization of the larynx, and the relief of functional aphonia by faradizing the lingual tonsil. Dr. W. H. Kelson (London) emphasized the fact that the ventricular bands formed a false glottis which at times became spasmodically closed. He discussed the difficulty of distinguishing between spasm of the adductors and paralysis of the abductors. The muscles which closed the airway happened to be stronger than those which opened it, and therefore the tendency of any nerve irritation was to cause closure. The excitability of the reflex mechanism was greater in children and especially in sleep, when the cortical centres were depressed. Dr. Peter Macdonald, the President, Mr. William Hill, Dr. A. J. Wright, Dr. Dan McKenzie, Mr. Somerville Hastings, Dr. Davidson (Queensland), and Mr. Mark Hovell all spoke.

Mr. William J. Leighton (Manchester) read a paper on organotherapy in diseases of the ear, nose, and throat. In many conditions organotherapy formed a useful adjuvant to other treatment, but it was difficult to lay down rules. He mentioned McCarrison's work on the relation between sepsis in the tonsil and other organs and thyroid activity.

however, a large number of mentally unstable and intellectually deficient people who for various reasons cannot be segregated, but who, nevertheless, are a source of anxiety and need help and guidance. We can do much for such individuals by supervision from childhood onwards, by extending our social welfare organizations, by finding work fitted to their abilities, by protecting them from adverse influences, by creating out-patient clinics, and by organizing hospitals for uncertified cases. We cannot, however, "change a leopard's spots," and the psychiatrist always feels that behind his work the sinister shadow of heredity looms large. How, then, can these persons be prevented from propagating? I think educational methods would do much. If the youth of the country and people generally were taught some of the general principles of mental hygiene, and were instructed more especially as to the importance of marriage and child-bearing, many thoughtless unions would perhaps be prevented. I certainly think that definite knowledge would do something to lessen the birth of the unfit. Too much reliance, however, must not be placed on reason where the sex impulse is concerned, because the blindness of love is notorious.

I have the feeling that my observations terminate somewhat inconclusively. Perhaps they could scarcely do otherwise as our problem concerns human beings, and each case we deal with is a complex personality which cannot be treated by cut-and-dried methods. Each case is unique and demands individual consideration. It is something to recognize that mental disorder is a problem worthy of attention, and I think that the community as a whole is beginning to realize that those who are condemned to go limping through life through no fault of their own are deserving of sympathy and consideration.

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STERILIZATION OF MENTAL DEFECTIVES.

THE fact that in this Section of Medical Sociology there is a discussion on mental deficiency to-day speaks volumes for the increasing interest which is surely being taken by those who are earnestly endeavouring to do whatever may be in their power to improve the condition of the mentally unfit; who take a serious view as to the necessity of preventing the advent of any but healthy children, and who have at heart the well-being of our race.

As the time at our disposal is very short, I must confine my remarks to showing briefly that, according to statistics, mental deficiency is on the increase; to emphasizing the cause of this increase; and especially to attempting to discover whether, in the opinion of those present, the time has arrived for the adoption of radical measures to limit the number of mentally deficient children brought into the world, and thus gradually reducing their number to a minimum.

In Great Britain and Ireland, according to the most recent figures collected, there were over 178,000 mentally affected, and without burdening you with actual figures I may say there has been a steady increase over former numbers. Such figures cannot, of course, include many who are taken care of by their relatives or friends at home. With such appalling numbers, it is imperative that everything in our power should be done to ameliorate this state of affairs, and the sooner radical means are taken seriously to endeavour to effect an improvement, the better it will be for our country. It is certainly remarkable that, notwithstanding the large increase in these numbers, so much hesitation concerning the adoption of drastic measures for their reduction exists. I need not refer to the numbers affected in years previous to those I have quoted, but as it is evident that there is a distinct increase in the figures the question must be asked, To what is this to be attributed? Without hesitation, the answer must be "Heredity." Doubtless many cases are the offspring of parents showing signs of a breakdown even before marriage, owing to continued anxiety, coupled with the wear and tear of modern life, etc. But even in the case of parents both of whom appear well and strong, it will be found in the vast majority of cases that there is a neuropathic strain traceable in the family history of the father or mother. Heredity is the most wonderful sequence of the fusion of the sexual pronuclei, for the resulting germ contains the images of two individuals, and is therefore capable of transmitting their characteristics to the individual developed from it. This being so, we know that nothing we can do will alter the result of a marriage between two individuals with a serious neuropathic history, for it has never been known for two mentally defective individuals to become the parents of a normal child. It is stated that no less than two-thirds of all feeble-mindedness is due to heredity.

It may be said that much may be done by the upbringing of a child in a satisfactory environment, and although it is true that heredity and environment cannot be studied apart with reference to the development of children, yet, however carefully a child may be brought up from infancy, environment cannot do everything when the child is mentally defective. I have known children brought up in the most satisfactory environment, who have been well enough to go to school, have been sent away for misbehaviour, and who in spite of everything which care and wealth could do, have turned out to be liars and thieves.

Although heredity has such a profound influence in the causation of mental defectives, there are two classes of mentally defective children whose condition may be brought about by other causes. One is that of a child brought into the world after a long or difficult labour, when the mental development seems very prone to be interfered with; and the other that of the last child of a large family, when the mother may have been worn out by repeated labours. In both these classes there may be no neuropathic history on either the mother's or the father's side.

The Mental Deficiency Act of 1913, which does not extend to Scotland or Ireland, includes under the term "mentally defective" idiots, imbeciles, feeble-minded persons, and moral imbeciles, or those who from an early age display some prominent mental defect, coupled with vicious or criminal propensities, on which punishment has little or no deterrent effect.

The desire of all who seriously consider this matter must be not only to do what is best for these defectives, but to stop their propagation. In this Act defective children are included over the age of 7 and up to the age of 16. By the age of 16 there is ample time to be reasonably certain how much benefit can be effected by treatment, by segregation, mental hygiene, or any method deemed advisable in any individual case. The Act mentioned is an elaborate one, drawn up with the view of taking every care of the mentally deficient. On careful reading it will be seen that the Government has spared no expense in endeavouring to carry out treatment, whether by giving to the Board of Control authority for establishing and maintaining institutions, or, with the approval of the Treasury, acquiring any land or erecting any building. Moreover, careful regulations are drawn up as to the management of institutions for defectives, including—and this is important—the study of improved methods of treating mental deficiency. Therefore it may be safely stated that at the present time in this country mental defectives have as much care bestowed on them as is possible in any public or private institutions, and, of course, the cost to the State is enormous, although it is provided that, unless Parliament otherwise determines, the aggregate amounts so paid shall not exceed £150,000 in any financial year. Since this Act has been in force experience may suggest improvements. It is possible there may be still defectives existing for whom the Act does not provide sufficient care or training; nevertheless it has been carefully drawn up, giving full authority to the Board of Control, and yet, notwithstanding these methods of treatment, the number of cases is on the increase.

Now although I have mentioned what the cost may be, I feel sure that no one would wish to diminish that amount if benefit accrues from the treatment adopted. I consider it highly desirable that any amount of money should be spent where there is any chance of doing permanent good, and by the time a girl or boy arrives at the age of 16 sufficient evidence has been gained of the mental state to see whether any real benefit has been effected by the amount of care and attention bestowed. If there be no

school. There was an attendance of more than 100, including the Commander-in-Chief, Admiral Sir Sydney R. Fremantle, and other naval officers.

Surgeon Commander K. Digby Bell, R.N., first gave an outline of the course of instruction for students, and described the scope and requirements of physical and recreational training in the Royal Navy. He explained that the school was the headquarters of education for officers and petty officers wishing to take up this speciality in the Service, and added that the demonstration was arranged mainly to be of educational value to those attending. Physical education, he said, was a science requiring much study, and only those qualified ought to be allowed to give instruction. Since in a school dealing with picked recruits this subject was large and difficult, how much greater must be the need for a school of instruction for teachers who had to deal with the child and the ordinary type of physique encountered in civil life.

Practical demonstrations were then given under the direction of Commander T. M. Barrett, R.N., assisted by the staff and instructors of the school, illustrating the subjects taught and the methods of teaching employed. Swedish free-standing exercises were demonstrated to show the arrangement of various movements into groups which exercise all parts of the body in order, gradually increasing in physical effort to a high pitch of activity and then calming down to quieter finishing exercises. Other demonstrations included "activity exercises," fencing with sabre and bayonet, bar work, leaping and vaulting, methods of self-defence, trapeze work, and methods of teaching swimming.

At the close of the practical display, Surgeon Commander Digby Bell outlined some points for medical discussion arising out of the demonstration. He suggested that physical education, being obviously a branch of preventive medicine, needed more comprehensive organization, and he urged the British Medical Association to use its efforts towards concentrating medical attention on the matter. He indicated three chief requirements: (1) The setting up of an authoritative body of control, or recognized central committee; (2) a professorial chair of physical education at one or more of the universities; (3) the formation of a central gymnastic institute where directors, inspectors, and teachers of physical training must obtain a recognized qualification before being allowed to practise. Lastly, he expressed the hope that the demonstration had succeeded in showing his colleagues that physical training, as dealt with in the Navy and the sister services, was a large subject comprising a vast number of highly technical details which needed careful study and thorough practical application before a student was competent to instruct others. In asking for the active support of the British Medical Association, he mentioned the injury done to the cause of scientific physical training by the advertisements of so-called "experts in physical culture" who professed themselves able to cure almost every known ailment. Great harm was also done to the cause by the number of inexperienced teachers who, though keen and willing, had not received the training necessary to enable them to teach others.

Dr. Lockhart Stephens expressed appreciation of the fine display that had been given, and referred to the valuable work being done by the Navy for the improvement of the national physique. Surgeon Rear-Admiral Sir Percy Bassett-Smith (President of the Section) said how gratified the members were at the presence of the Commander-in-Chief, the Commodore of the Naval Barracks, and other naval officers, who by their attendance had shown interest in the discussions of medical men. The members were then entertained to tea at the officers' mess by Commodore Cyril Townsend and officers of the Royal Naval Barracks.

SECTION OF TUBERCULOSIS.

Thursday, July 26th.

THE second day's discussion, with Dr. R. A. Young in the chair, was devoted to the social aspects of tuberculosis, with special reference to its infectivity. Dr. Jane Walker said that the mortality rate of tuberculosis was certainly falling in this country; but it had been steadily going down for the past one hundred and fifty years and the recent decline could not be fairly ascribed to the extra work done. No doubt in the past we had paid too much attention to the seed of the disease without paying enough to the soil. Tuberculosis was without doubt largely an industrial disease. Dr. Walker then spoke of the good work carried out in sanatoriums where patients learnt a great deal, chiefly by small talks and advice given individually as well as the more general sensible outlook maintained. She mentioned the great importance of a really effective after-care machinery. The sanatorium should be linked up with the dispensary, which in turn should be in touch with employers of labour, and with organizations for helping the tuberculous person to supplement his earnings until he could support himself. Dr. Batty Shaw (London) said that the main point of this discussion was how tuberculous infection affected behaviour. A point, largely ignored by those who in this country had given the most time and thought to the subject of tuberculosis, was the importance of the varying pathogenic companions of the tubercle bacillus. There was no infection from pure tuberculosis; it had been shown to be impossible to produce excavation in lungs of animals by experimental inoculation of the tubercle bacillus. To stamp out tuberculosis was to attack the sources of infection and segregate those infected. Dr. Brookes Dixon (Birmingham) discussed the modes of infection from human sources: (1) sputum; (2) intestinal excreta; (3) urine of tuberculous patients; (4) milk of nursing mothers; (5) living carriers. He then dealt with how infection from human sources might be controlled: (1) By the adoption of measures designed to protect individuals who are exposed during the period when they are most susceptible—that is, during infancy and early childhood; and (2) by activities directed to the supervision and control of known sources of infection. Dr. J. E. Chapman (London) spoke of the after-care of tuberculous patients and instanced many cases in which care committees had done excellent work. He pointed out that poverty was an important factor in the causation of tuberculosis and that tuberculosis was itself in turn a cause of poverty. He held that the vicious circle thus formed could be broken by action on sociological lines as well as by appropriate medical treatment. Dr. Muthu (Mendip Hills) maintained that attention had been concentrated on the microbe rather than on man, who after all, was the chief factor in the drama. Tuberculosis was to a great extent a social, economic, and industrial disease. Facts observed from all parts of the world showed a positive correlation between density of population and the death rate from tuberculosis. Dr. Vere Pearson (Mundesley) said that notification of tuberculosis was largely ineffective in that it was incompletely carried out. It should mean more frequent examination of contacts and of home conditions. Dr. R. A. Young emphasized the importance of the social aspects of the disease—namely, infectivity, home conditions, family care, after-care, and occupation. He maintained, however, that the last word would be with the bacteriologist regarding the control of the spread of the disease.

THE first Dutch Congress of Public Health will be held in Amsterdam in the second half of September, when the following subjects will be discussed: (1) Milk supervision in large towns; (2) instruction of social workers.

THE twelfth Italian Congress of Stomatology will be held at Turin from September 19th to 22nd, when the following subjects will be discussed: Surgical treatment of radicular cysts, introduced by Dr. A. Campiglio; social value of dental prosthesis for workmen, introduced by Dr. A. Brusotti; and modern views on pyorrhoea alveolaris, introduced by Professor S. Palazzi and Dr. G. Tomasi.

THE sixth congress of the German Society of Urology will be held in Berlin from September 26th to 29th, when the following subjects will be discussed: Urology and the constitution, introduced by Dr. Posner; twenty-five years' ureteral catheterization, introduced by Dr. Casper; the ureter and renal pelvis, introduced by Drs. Du Bois Reymond and Blum; surgical treatment of nephritis, introduced by Drs. Kümmell and Volhard; colloid chemistry of the urine, introduced by Dr. Roma; and surgery of the vas deferens, introduced by Dr. von Lichtenberg.

those segregated, we have to remember that we must deal with many who are not segregated, and never will be. Careful regulations for sterilization would be drawn up, and the operation never performed except, as already stated, with the sanction of one or more alienists.

Let me say in conclusion that if there be any more effective methods of treatment, by all means let them be adopted, but considering the perfectly appalling increase in these cases, and the fact that whatever treatment has hitherto been carried out has been insufficient to lessen these numbers, in my opinion it is time to try something which may prove to be more radical, and that therefore sterilization should be given a fair trial—one which must naturally extend over many years.

It may be that even this treatment may not be the final solution of the problem, and I am sure that if found wanting the members of our profession have too much good sense to allow it to continue. The laws of inheritance and the most careful statistics alone would prove whether sterilization of the unfit is really effective, and, if adopted, ought to continue, or whether it should be banished as a failure.

W. NORWOOD EAST, M.D.,
Senior Medical Officer, Brixton Prison.

THE INCIDENCE OF CRIME AND MENTAL DEFECT.

THE practical working of the Mental Deficiency Act has now been effective for a sufficient time probably to enable a fair estimate to be made as to the incidence of crime and mental defect.

In my view it is of first importance to be correctly orientated on this matter. Hyperenthusiasts are liable not only themselves to expect impossible benefits from the Act, but to lead others also to share their views, and unless it is clearly recognized from practical experience what the Act can, and cannot, do in the prevention and treatment of crime, an unfortunate reaction may ultimately set in, and the beneficial results actually obtained become disregarded. For it is obvious that those sections of the Mental Deficiency Act dealing with crime will only be utilized by the judicial and administrative authorities so long as they, and the public, are satisfied with the results. Such satisfaction cannot in the long run be gained and maintained if we anticipate greater achievements than actual facts permit.

It would appear from the writings of some authors that the majority of prisoners are insane, defective, or psychopathic. Darrow of Chicago, for instance, in his recent work on crime, says, "There is no longer any question that a large number, say probably from 10 to 20 per cent., of the convicted are in fact insane at the time the act was committed, and that the demented, the imbecile, and the clearly subnormal constitute more than half the inmates of prisons." Dr. May of the Boston State Hospital, in his recent valuable book on mental disease, records that "27.5 per cent. of the prison population as a whole have been found to be mentally defective."

I do not presume to criticize these American figures, but similar statements are made from time to time as applying to this country—statements the Mental Deficiency Act has shown to be erroneous if we accept the statutory definitions of defect as embracing the various forms of amentia, and statements, moreover, which are liable to be injurious, for they suggest that our present methods of treatment can prevent a larger amount of crime than is in fact possible at the present time.

It is essential in dealing with crime to discriminate between mental deficiency and inefficiency. The Mental Deficiency and Lunacy Acts provide for the rational treatment of the defective and insane criminal, but a large group of mental inefficients, consisting of subnormals, cases of undeveloped psychoses, psychoneuroses, and neuroses, remain outside the scope of these Acts. At the present time the scientific treatment of this group of criminals is unfortunately prevented by economical considerations, but it is important to bear this in mind constantly, and not attempt to stretch the definitions of mental deficiency to include any of them; otherwise the true defective may suffer from the consequent administrative and judicial difficulties and complexities that will arise. Moreover, as further progress in the treatment of the mentally inefficient criminal lies in the direction of this border-line and psychopathic group, its existence should be insisted upon at all times, and clearly distinguished from the defective and insane, both in the witness-box and elsewhere.

We are only concerned here with amentia, and the number of criminal defectives in England and Wales (that is, defectives who reach prison) is considerably less than is often supposed. During the year 1921-22 of 66,715 prisoners of all kinds received into prison 223 were certified as mental defectives. In the year 1922-23 of some 60,983 prisoners received the number of defectives certified was 246.

Brixton is a remand prison, and to us are sent all the male remand and before trial prisoners in London, Middlesex, Surrey, and portions of Kent, Hertford, and Essex. Therefore we receive our cases from several million of the population, and deal with considerably more insane and defective prisoners than any other prison, a large number being remanded solely for a psychological examination. In this work I am assisted by two skilled whole-time colleagues. During the two years April 1st, 1921, to March 31st, 1922, and April 1st, 1922, to March 31st, 1923, respectively, 8,277 and 7,740 remand and trial prisoners were received. Of these, during the first year 792 were remanded for special psychological examination, of whom 72 were certifiable as mental defectives under the Act. In the second year 725 were remanded for a similar examination, and of these 67 were certifiable. This comparatively small number may be taken, I believe, as an accurate estimate, for our cases are examined also by the county medical officers, with whom we find ourselves in entire agreement as to diagnosis. The county medical officer and prison medical officer are liable to regard the cases from somewhat different angles, and some disagreement might be expected, perhaps, but the fact that there is none is, I think, reasonable testimony that the figures quoted may be relied upon as fairly representing the facts.

Rarely a case in whom no report by the court is called for and in whom nothing indicative of defect has been noted on the reception examination or during detention may escape diagnosis, and a certain number of elderly prisoners are met with in both remand and convicted prisons who would be certifiable under the Mental Deficiency Act if any history as to early age was available. But such cases, although to some extent increasing the figures I have given, would not alter the end-result—namely, that the mental defective is not met with in prison in the large numbers which some accepted before precision and standardization in diagnosis were acquired by the passing of the Act.

The individual psychological study of prisoners has been conducted for very many years in certain prisons, unrecognized outside official circles; but the Act has brought the necessity for such study forcibly to all those dealing with crime, and it is reasonable to suppose that some slight increase in the total number of prison defectives may be found in future, as the influence of the Act in preventing crime becomes more fully appreciated generally.

The defective is less frequently met with in prison than the insane. This is so not only in Brixton, but is shown by the total figures of the last five years referring to the prisons throughout England and Wales; the fact is noteworthy, for the number of defectives in the country is said by Dr. Tredgold to be slightly in excess of the insane. A gratifying feature in the general prison figures is that the proportion of defectives certified under Section 9 of the Act (after conviction) is steadily falling, whereas the number certified under Section 8 (before conviction) is steadily increasing.

A mere consideration of figures such as I have given fails to represent the amount of benefit arising from the Mental Deficiency Act in its relation to crime. It has amongst other things demonstrated the relative value of intelligence tests, and shown that certification in criminal cases ultimately depends upon a capacity to earn a living and abstain from crime. It has demonstrated more clearly the difference between deficiency and inefficiency, between the defective and the subnormal. It has shown that no criminal offence is pathognomonic of defect; that, for instance, arson, which was at one time regarded as being particularly

It was a happy idea of M. TERRIEN's to bring out a book on ocular semeiology,[3] the pathology of symptoms, for, so far as we know, the only other work with a similar title is that of Beard, which was published in the United States more than ten years ago. The author insists that to do justice to this segment of the eye a work of five divisions is necessary; these he names as follows: the corneo-scleral cap, conjunctiva, and anterior chamber; the ciliary body, iris diaphragm, and pupil; the lens and its suspensory ligament, glaucoma, and sympathetic ophthalmitis; the external ocular muscles; and lastly, variations in position of the eye in the orbit, exophthalmos, and enophthalmos. The present volume deals with the first of these sections. It is divided into two parts. In the first, treating of anatomy, physiology, and clinical examination in the living subject, stress is laid on the importance of using such more modern aids to examination as the corneal microscope and slit lamp. In the second part the diseases of the corneo-scleral hull, infiltrations, ulcerations, cicatrices, and degenerations of the cornea and inflammation of the sclerotic, conjunctivitis and affections of the conjunctiva are considered. The last part is devoted to contusions, ruptures, and perforating wounds of the globe. It will be seen that the table of contents is sufficiently comprehensive; the illustrations are good. We congratulate the author on his work, and shall look forward to receiving a further instalment, in which the rest of ocular semeiology will be reviewed.

METABOLISM AND DERMATOLOGY.

WHILE some dermatologists are striving to explain the phenomena of eczema and urticaria in terms of anaphylaxis or acquired sensitiveness to certain proteins either in food or in substances with which the patient is brought somehow into contact, another school is trying to correlate these and other dermatoses with definite chemical changes in the blood and tissues. Of the latter class of investigators Dr. ERWIN PULAY is a distinguished member, and his recent book[4] *Stoffwechsel und Haut* forms a very interesting contribution to the study of blood chemistry, especially in its relation to dermatology. There can be little doubt that work on these lines must sooner or later yield valuable results. It is the effort to find a scientific basis for the popular explanation so often given by sorely tried physicians to their unfortunate patients who constantly demand to know the cause of their condition, that there is "something the matter with the blood." Frequently this is no doubt, strictly speaking, quite true, but in the present state of our knowledge of biochemistry it is usually impossible to state with any degree of scientific accuracy what biochemical fault is really present. There is singularly little real scientific truth in the common phrase often accepted as an adequate explanation by many who might be expected to know better: "too much acid in the blood." As a matter of fact modern research tends to show that the reaction of the blood is singularly constant, and it is only in the most profound pathological changes that it varies at all. The variations in the chemistry of the blood and tissue fluids which are correlated with such affections of the skin as eczema, urticaria, lichen planus, psoriasis, etc., are far too delicate and difficult to detect with a piece of litmus paper.

Dr. Pulay has concentrated his attention on the estimation in the blood of sugar, cholesterin, uric acid, calcium, chlorine, and the residual nitrogen after removal of protein. He also lays stress on the importance of estimating the concentration or water content, which is a difficult and laborious investigation in itself, and on the estimation of the volume of the blood corpuscles. All these difficult estimations and investigations Dr. Pulay succeeded in getting carried out for him on numerous patients in the laboratories of Vienna. The amount of work and time necessary for their completion in each case is obvious to anyone who has even a nodding acquaintance with the methods of biochemistry. It may be permissible to inquire whether there is any dermatologist in London at the present time, where conditions in general are far superior to those existing in Vienna, who would be able to command facilities for such extensive and laborious researches unless he founded and subsidized his own laboratory. As regards the results obtained, it is too early to draw any definite conclusions, but in some diseases Dr. Pulay has provided interesting data. Patients suffering from eczema appear to show excess of uric acid, cholesterin, and sugar in the blood. Excess of uric acid and cholesterin is also present in urticaria. Another interesting point which emerges from the blood investigation of urticaria is that in all cases there is an excess of calcium. It will be remembered that some years ago Sir Almroth Wright advised the exhibition of calcium salts in urticaria with the idea of increasing the viscosity of the blood and thus hindering exudation into the tissues and the production of wheals. According to Dr. Pulay, to give calcium salts to a sufferer from urticaria is comparable to the transport of coals to Newcastle; this may explain the many clinical disappointments experienced by those who have followed Sir Almroth Wright's advice in this matter. One of the conditions Dr. Pulay has studied in some detail is lupus erythematosus; he comes to the conclusion that in the chronic discoid form of that puzzling disease abnormal intermediate products of metabolism allied to uric acid are acted upon by light as a catalysing agent.

The author is a pioneer in a field where the work is difficult and laborious. It may easily be that present methods are still inadequate to the task of elucidating the chemical problems of dermatoses associated with errors of metabolism, but it must be conceded that he is trying to advance in the right direction, and his book deserves study both by dermatologists and biochemists.

MEDICAL CHRONOLOGY.

WE welcome the appearance of the *Chronologia Medica*[5] compiled by Sir D'ARCY POWER and Mr. THOMPSON, because books of that class are often the means of widening the circle of those who take an interest in the important subject of the history of medicine. The book will also appeal to the more instructed in the subject, for in the handy form in which it is issued it affords a ready means of verifying dates and other facts connected with the history of medicine and science generally. Other books, it is true, have been written which give full and accurate information concerning medical writers and their works, but they are unwieldy, occupy many volumes, and do not carry the chronology of medicine and science down to our own times. Hutchinson and Munk have done more for medical biography than most men, but the extent of those works renders them not very accessible for the purpose of rapid reference.

In the book before us the attempt has been made to give in chronological order a brief biography of all those who have advanced the subjects of medicine and science. But in the small compass in which the book is contained it was obviously impossible to do more than indicate briefly the most important works and the discoveries made by each man. The chronological form in which the work is written necessitates a reference to the index at the end of the volume if information be desired concerning any particular person, but the index is accurate and may be trusted. Besides biographies, the book contains excellent lists of the dates of the discovery of drugs and the foundations of universities.

Works of this kind which deal with dates, periods, and names must conform to two cardinal principles: they must be accurate, and they must be complete. One fact stated inaccurately may become the genesis of an error which may be perpetuated for ages. Then again absence of important names in a book of this kind may prejudice the reader should he fail to find an account of the particular person concerning whom he desires information. We find the book accurate and trustworthy, but we do not find it as complete as we could wish. Names have been omitted which we feel sure will be supplied in the further edition the excellence of the book most certainly deserves. To this end we venture to call the attention of the authors to some of the names we have failed to find, but which are worthy of

[3] *Sémiologie Oculaire. La Calotte Cornéo-Sclérale: Anatomie—Physiologie—Pathologie.* By F. Terrien. Paris: Masson et Cie. 1923. (Roy. 8vo, pp. 260; 141 figures. Fr. 25 net.)

[4] *Stoffwechsel und Haut.* Von Dr. Erwin Pulay. Berlin and Vienna: Urban and Schwarzenberg. 1923. (Sup. roy. 8vo, pp. x+240.)

[5] *Chronologia Medica.* By Sir D'Arcy Power, K.B.E., F.R.C.S., and C. J. Thompson, M.B.E. London: John Bale, Sons and Danielsson. (8vo, pp. 4+278. 10s. 6d. net.)

On the other hand, take the truant child, disheartened, mischievous, backward, and examine his endowment, find out what would interest him, and what he could do, what his powers of attention were, how long he could attend without undue fatigue, and what special ability he had; then give him an environment in which he could develop his abilities, such as they were, not trying to grow figs on thistles, but giving the thistle as good a soil as it could utilize, and one would have a happy, contented, docile, productive individual, doing work, manual and not of a high grade, but such as was very useful to society and to himself. After all, the personal comfort of the other members of society was to a large extent dependent upon those who had not enough initiative and outlook to be discontented with the small manual tasks.

The speaker supposed it was not as necessary to mention to that audience as to audiences on the "other side" the danger of applying in a rigid way any schematic psychometric standards to individuals—of saying, for example, that because a child had an intelligence quotient of 70 or 75 per cent., therefore it was necessary to do this or that. Experts had told them that, applying these tests in a certain factory, they had found half the operatives mentally deficient, greatly to the astonishment and dismay of the manager, who said that these men were his best workers, contented, loyal, and steady, and that he could not run his factory without them. In all these estimates attention must be paid to the environment and to the individual's adjustment thereto, as well as to the individual considered as a person apart.

With regard to segregation, he thought that one of the psychological motives which made the public eager for measures of segregation had been omitted by Dr. Devine. People were impatient of the atypical in their midst because the presence of these people hindered the smoothness of their own lives. People did not wish to be bothered with these defectives, and if they were bothered they wrote to the newspapers or rung the municipal authorities up on the telephone. These defectives annoyed us, they upset our arrangements, and therefore we wanted them segregated in some place where they would not interfere with our garden parties. The speaker thought it very necessary to emphasize the responsibility of the community for its mental defectives. If the number of mental defectives were taken at 0.5 per cent., and were multiplied by the millions of the population, the total would certainly appear appalling, and institutional maintenance impossible. But if, on the other hand, they thought of that 0.5 per cent. being assimilated by each hundred, the problem was reduced to its true proportions. It was not too much to expect 200 people to look after a weak brother or sister with consideration, or those interested in the education of the children of such a community to see that the individual who was mentally retarded was given special opportunities, that his environment was taken into the educational purview, and that when this child left school some liaison would be maintained between the school and his industrial environment, so that the school might know where an adolescent of limited mentality might be placed, and a certain amount of supervision might be continued. Was it too much to look forward to the time when teachers, judges, and physicians would have some interest in these problems, and in every community people would join together in care for the mentally defective? In reading Keith's *Antiquity of Man* he noticed that in every part of England where any remains of the palaeolithic or neolithic period were to be found there appeared to be some local antiquary keenly interested in the subject. He wished that there might be in every community a group similarly interested sympathetically in the man of the steel age. There was a tremendous fund of goodwill and intelligence available in every community if it could only be organized.

It was part of the responsibility of the medical profession to see that these problems were faced. The patient had gone somewhat out of fashion for the last twenty years, owing to the advent of the laboratory animal, who was so much easier to handle. But in the study of neuroses the patient had been reintroduced. They had found that in treating a neurosis they had to treat a sick person at grips with destiny. These studies should be placed in the medical course at the very beginning. In the medical school it should be possible for the class to be transferred from the study of the individual organs to the study of the individual organism and the problems it had to meet. At the universities psychology was still being taught along purely metaphysical lines, forgetful of the fact that Aristotle, who was a great metaphysician, was also a great biologist. He wished such teachers would remember that the proper study of mankind was man—not merely the reaction times in the laboratory—and man, moreover, in relation to environmental conditions. When that was better realized, medical students would get an outlook on life which would be most helpful to the community, and the professions of law and teaching, and indeed every cultured person, would in consequence get a certain new insight into the responsibilities of individual citizenship.

SIR FREDERICK MOTT, K.B.E., M.D., F.R.S.

HEREDITY AND SOCIAL CONDITIONS AMONG THE MENTALLY DEFECTIVE.

SIR F. W. MOTT gave an account of a comparative inquiry on the heredity and social conditions among certain insane, mentally defective, and normal persons which he had initiated and controlled. The investigation was commenced some ten years ago by Miss Agnes Kelley in Haggerston. In 1915, under a research grant of £300 from the Board of Control, she continued the investigation in a more systematic manner in Bethnal Green. Sixty cases in each of three groups were examined, the first group comprising adult patients from the London County Council Mental Hospitals; the second, high-grade mentally defective children from special schools; and the third, normal children from ordinary elementary schools. The investigation was carried out, under the speaker's direction, at the Pathological Laboratory at Claybury. He could only state briefly the conclusions. A certain dissociation was seen between the types of stock that gave rise to insanity and those that gave rise to mental deficiency. Pedigrees of asylum patients showed considerably more insanity than mental deficiency among the relatives. Conversely, mental deficiency was very much more prevalent than insanity in the family histories of the special school children. There was more mental deficiency among the asylum cases than there was insanity among the mental defectives. The general level of intelligence and health among the brothers and sisters of special school children was poor, and distinctly below that of normal children. The intelligence of the children of asylum patients appeared to be more uneven, and though many were bright and intelligent, children who were erratic, unstable, dull, or backward were frequently reported. A great variety was seen in the type of stock in the asylum group. There were some pedigrees in which the individuals were living independent, useful lives, working at good trades, earning good wages, and intermarrying with respectable families; the patients themselves earning their own living and supporting their families before the mental breakdown occurred. There were at the other end of the scale families of a degraded type, the whole family low wage-earners, frequently of loose morals, living in poverty-stricken homes, and intermarrying with equally poor stocks. Such families had weakly, uncared-for children, and were intermittently on the parish. Good trades and high wages were even less common, and were, in fact, rare in the mentally defective group. Though there were some exceptions, the general level was poor, and there were many unskilled workers and casuals. There was a corresponding dead level of poverty in the home conditions of the majority of these cases, and the incapable (though often well-meaning) mother was very conspicuous in this group. In few of the asylum cases, and among still fewer of the mental defectives, could the home conditions be described as good, while one-third of the homes in each of these two groups were classed as "homes in which the food was quite inadequate, the clothing very poor, and bare necessities were lacking." The normal group showed a decided improvement in industrial conditions and in the care of the home and children,

expenses of participants were defrayed and the whole expenses charged to public funds. Similar arrangements have been made for post-graduate instruction in the early diagnosis and treatment of cancer, in tuberculosis and in welfare work. Special provision is made for refresher courses for the district surgeons (Bezirksärzte). The existing arrangement is that 50 per cent. of the district surgeons receive ten days' study leave every four years, which is devoted to public health and welfare work. Instruction is given alternately in Dresden and Leipzig. There is also an official system of post-graduate clinical assistantships, tenable in most of the great hospitals of Saxony.

The various institutes of the University of Leipzig are described. It may be hoped that the Rockefeller gift will provide London with a hygienic institute not inferior to that of Leipzig. Whether anything comparable to Professor Sudhoff's historical-medical institute, with its printed library of 16,000 volumes and manuscript collection of more than 20,000 examples, is a probability of the near future, is a much more doubtful question. A perusal of this volume will convince the reader that much is to be learned from Germany. Probably he will regret that circumstances still seem to prevent full scientific co-operation and frank exchange of ideas with the medical profession of Germany.

HOSPITAL REPRINTS.

THE first volume of *The Clinics and Collected Papers of St. Elizabeth's Hospital*, Richmond, Virginia,[9] is a record of great activity displayed by the staff of a private unendowed paying hospital with 50 beds, which in 1921 dealt with 841 patients and had 20 deaths (2.4 per cent.). The price of a room is from 4.50 dollars a day, but the question of medical and surgical fees is not mentioned. The volume contains sixty-four papers including three short accounts of the management of the hospital, records of interesting cases, four of which have been previously published in the *Surgical Clinics of North America*, and collected papers published elsewhere. There are forty contributions by Dr. J. Shelton Horsley on surgical and gynaecological subjects, among which are addresses on the ideals of the surgeon and on biological principles in surgical practice; in the first of these he follows R. C. Cabot in advising that a patient if told anything should be told the truth, and that when this is done tactfully it upsets the patient much less than is usually believed; he adds that if a doctor deliberately deceives a patient, he cannot expect any more confidence than would be given to a chiropractor or an osteopath, for there is little to choose between honest ignorance and knowledge combined with deliberate intent to deceive. This author's other papers touch on nearly every branch of surgery; the alimentary canal naturally receives much attention, and experimental investigations are related on reconstruction of the common bile duct and on reversal of the circulation in the lower extremity or arterio-venous anastomosis which has been employed in cases of thromboangeitis obliterans. Among Dr. Warren T. Vaughan's eleven papers on internal medicine that on the "Philosophy of Medical Diagnosis" compares the process to the work of a detective, and insists that the study of functional pathology has succeeded the structural pathology of the last quarter of the nineteenth century. In their article on "Post-operative Dietotherapy" Dr. Warren T. Vaughan and Miss N. H. Van Dyke, dietitian to the hospital, show the futility of albumin water as a food, and point out that patients should leave the hospital weighing at least as much as before operation and that this can best be effected by a diet relatively high in calorie value and in carbohydrates. Miss Helen Lorraine's account of "Medical Illustrating" contains a condensed history of the subject. The concluding paper by Dr. J. S. Horsley, jun., on the anatomy of a six-legged dog, a duplicate monster designated "dipygus dibranchius tetrapus," is, like the rest of this finely produced volume, admirably illustrated.

[9] *Clinics and Collected Papers of St. Elizabeth's Hospital*, Richmond, Virginia. Vol. I. London: Henry Kimpton. 1923. (Med. 8vo, pp. 560; 218 figures. 37s. 6d.)

The Collected Papers from the Washington University School of Medicine,[10] St. Louis, is also the first of a series of annual volumes and its contents are selected from a number of published papers which would have occupied four times the space of the present instalment. As it is there are sixty-three papers chosen on the ground of predominant clinical interest and occupying over 1,000 pages. Professor George Dock, who has now given up his post, opens the ball with an address given in 1919 on the social trend of medicine and speaks plainly and in far from optimistic terms about the position of the medical profession. His account of a visit to a chiropractic school is equally outspoken. His third article is on focal infection and arthritis. Dr. Evarts Graham contributes papers on some surgical aspects of asphyxia, on the association of hepatitis with experimental cholecystitis and its bearing on the pathogenesis of cholecystitis in the human subject, on the treatment of empyema, and on the influence of respiratory movements on the formation of pleural exudates. Professor Leo Loeb of the department of comparative pathology writes on the effect of undernutrition on the mammalian ovary and the sexual cycle, and reviews our knowledge of the causes of cancer. In three articles Dr. P. A. Shaffer deals with the subject of ketogenesis and the mechanism of antiketogenesis. From the department of pediatrics papers are provided by Dr. W. McKim Marriott on some phases of nutrition in infants and by Dr. Kirsten Utheim on metabolism in athrepsic infants. Six cases of camphor oil tumours due to hypodermic injection in cases of collapse are described by Drs. Mook and Wander with a coloured plate; in none of them did necrosis follow, as may occur in paraffinomas which resemble them in their slow development. In the addresses on the neurological dilemma, a title suggested by William James's "Present Dilemma in Philosophy," Dr. S. I. Schwab insists that there is no psychiatric method of thinking or approach which logically can be divorced from the neurological.

NOTES ON BOOKS.

IN the seventh edition of Sir WILLIAM WHITLA'S *Dictionary of Treatment*[11] the surgical sections have been revised by Mr. T. S. Irwin, and Professor R. J. Johnstone has brought up to date his original articles in the gynaecological section. The work as a whole has been well brought up to date so as to include some account of botulism, Epstein's diet in Bright's disease, the intracardiac injection of adrenaline in collapse, the insulin treatment of diabetes. The only error which we have been able to detect after a fairly close scrutiny of this excellent work is the attribution of the paternity of the "fourth disease" to the late Mr. Clement Lucas instead of to Dr. Clement Dukes (p. 887). A medical work which has reached its seventh edition requires no further recommendation, but we may point out to those not familiar with it that this volume possesses the great advantage of including articles on obstetrical and gynaecological subjects which are omitted in at least two other well known dictionaries.

With its July number the *British Journal of Surgery* enters upon its eleventh year of issue. It may be congratulated on the high standard it persistently attains both in its articles and in its production. It may fairly be said that the *British Journal of Surgery* is the most beautifully produced scientific journal in the world, and its coloured illustrations attain a technical standard which is unsurpassed even by the best art periodicals. The long continuance of the war greatly handicapped the production of the journal by doubling, and at one time actually trebling, its cost, but by the support of its subscribers it was able to weather the storm. With the commencement of the present volume the publishers announce that they find themselves able practically to return to pre-war conditions; the type has been improved, and the pages increased to 200 in each number.

[10] *Collected Papers from the Washington University School of Medicine*, Vol I. 1921. London: Henry Kimpton. 1923. (Med. 8vo, pp. 1079; 347 illustrations. 60s.)

[11] *A Dictionary of Treatment, including Medical and Surgical Therapeutics*. By Sir William Whitla, M.D., D.Sc., LL.D., M.P. Seventh edition. London: Baillière, Tindall, and Cox. 1923. (Demy 8vo, pp. viii + 1100. 25s. net.)

be regarded from the point of view of the child, of the State, and of the race.

From the standpoint of the individual there could be no question whatever that it was the duty of the community to go ahead and do all it could for all defective children, but from the standpoint of the State and the race the question arose as to whether the education of the mental defective could be justified on the ground of expense. The expense was stated to be £75 per annum for each child in a residential school, and £25 per annum for each child in a day school. His experience as medical officer for a residential special school had convinced him that the education of the higher grade child was more than justified. From the race point of view, of course, it was possible to urge that education was not only a waste of time and money, but was actually harmful. There were at present in England and Wales 201 special schools, with accommodation for 16,266. As the number of children ascertained to be defective by the Board of Education was 31,000, some 15,000 at least had to be provided for, and he believed this figure to be much too low. In the London special schools there was accommodation for 1½ per cent. of the total number of school children, and if this were taken as a guide in estimating the number of defective children in England and Wales the figure would be 80,000 defective children, for only 20 per cent. of whom there was accommodation in special schools.

The first of the causes for this lack of provision was an absence of co-ordination between the different local authorities, and the second the ignorance of the medical profession. The medical student went through his curriculum—certainly in the speaker's own time—without hearing of mental deficiency or knowing what it meant or how to diagnose it. He quoted some remarks by Sir George Newman in *Medical Education in England* to the effect that although the general practitioner stood in somewhat peculiar need of knowledge of mental conditions, yet at present the student was taught nothing of the make-up of the normal mind, and that the medical student ought to be given a clear account of the content of modern psychology in language free from the mere technicalities of provisional hypothesis. Therefore (said the speaker) it was evidently the opinion of the Ministry of Health that what was wanted was something in the way of education in psychological medicine for the medical student. This was still more important when it was remembered that there were some 2,000 medical officers, whole or part time, engaged in the school medical service. The third cause for the present lack of provision was absence of accommodation, and the fourth the difficulty of getting and training teachers, for it was impossible to educate these children without a specially trained teaching staff. Next came the vagueness of the definitions in the Act and the lack of uniformity in the standard of educability. He reminded the Section of the duties of the local education authorities under the 1899 Act, with its definition of defectives, but said that at present it was not known where to draw the line between the dull and backward child and the mentally defective child, or between the defective child who was educable and the imbecile. The first point, before dealing with any question of methods of education, was to determine what children were to be educated. Dr. Campbell in his admirable speech that morning had passed a little too much ridicule on the definite demarcations that had been laid down for different grades of mental defect. The speaker thought that the failures that Dr. Campbell got in America were possibly due to the fact that the standards there were higher than those in common use for children in this country. It was necessary to have a uniform standard of educability well laid down to pertain to every area in the country. Another point was that education was of no use whatever unless the child was going to be provided for when the education was finished. It was the usual practice in London not to notify any child unless that child's mental defect was very marked; this meant that many children went out from school without any supervision or any provision of employment or assistance. Under the Trade Boards Act it was possible to employ mental defectives at a lower wage, but the difficulty at present was the fear of exploitation of the mental defective. Some method of placing children in employment, in addition to notification and supervision, must be applied, with possibilities of graduated payment, and safeguards against exploitation of the defective.

The speaker was unable, owing to the time-limit for speeches, to cover all his points, but he urged in conclusion that in order to arrive at the accurate diagnosis and classification of types of defectives it was necessary to educate medical students and to institute post-graduate courses.

Dr. E. LEWYS-LLOYD (Towyn, Merionethshire) congratulated the officers of the Section on their splendid programme and on the very high quality of the papers. The expression had frequently been used in the discussion, "the education of the medical man." He feared that the medical man needed educating so far as mental deficiency was concerned. On taking up his present appointment as a medical officer of health he had to confess that, although he knew something of lunacy, he knew so little of mental deficiency that he felt it necessary to attend special courses, and he thought the same thing must be true of the average medical practitioner. Too often an effort was made by some visitors to obtain the discharge of cases who were certified for antisocial conduct, especially sexual offences, on the ground that in the institutions they were performing very useful work and should be earning their living in, say, domestic service, and so save expense to the State. He did not think that this was a sound policy.

Sir JOSEPH VERCO (South Australia) referred to the number of mental defectives in the population, not merely those of school age, but those who had left school, and who would remain mental defectives all their lives, also to the various degrees of mental defect, from absolute idiocy to a slightly subnormal mentality. These two circumstances constituted the great difficulty in dealing with them, first, as regards their education, which demanded separate classes and perhaps separate teachers, even in comparatively small schools; secondly, after leaving school, as regards their vocational training, which would require special institutions; thirdly, after they were full-grown and fully taught, when they were still mentally defective and required supervision, either by segregation in an institution or by special and continuous oversight in their homes or their workshops or both. This was necessarily a costly undertaking, but would probably be the cheapest and the best and most humanitarian method of caring for them. He was not persuaded as to the desirability of sterilization, and he thought this method should not be performed until such continuous care and supervision as he had spoken of had been given a full trial.

Mrs. HODSON (Eugenics Education Society) considered that Dr. Macfie Campbell's remarks about the slow, silent work of nature in removing by the third generation or so the mentally defective offspring were rather misleading. The researches to which Sir F. W. Mott had drawn attention showed rather a different state of things. In working out the heredities of families quite a number of pedigrees had been found in which four generations had shown quite clearly, if not the same type of mental defect, at all events some abnormality which made public assistance necessary. In many stocks mental disorder was singularly richly scattered. The processes which held good in past times whereby, through apparently cruel means, the race was kept pure, no longer operated to-day. For how long this natural law had been set aside it was not possible to say, but undoubtedly it was set aside now. Not only had families been found in which there was a strong mental defect persisting through four generations, but a number of families of high mental quality, individuals attaining to the level of genius, had been known to disappear or nearly disappear by the third generation. Sociologists everywhere should urge that the most careful records be kept so that the hidden factors at work might be better discovered, and some factor of selection be called in to

British Medical Journal.

SATURDAY, AUGUST 11TH, 1923.

THE SOCIAL ASPECTS OF MENTAL DEFECT.

IN this issue we publish a full report of the proceedings of the Section on Medical Sociology at the Portsmouth Meeting. The subject under discussion was "Mental deficiency in its social aspects." The national importance of this subject is very great; but is not by any means fully realized either by legislators and administrators generally or by the medical profession itself. The medical and social problems involved in mental deficiency are closely inter-related. They are of extreme interest and ramify into many fields of thought and of activity. The eugenist, the social worker, the teacher, the doctor (whether general practitioner or specialist), may each contribute to their elucidation, and must, indeed, all join hands if the practical steps necessary to deal with them are to be intelligently and successfully taken. A careful reading of our report will enable these problems to be appreciated and will suggest solutions on some points which require immediate or very early attention.

It is not necessary to exaggerate in order to emphasize the importance of the matter. It is true, as was stated in the course of the discussion, that there are many causes of social delinquency other than mental defect, and that there are many aments of various types who are so happily placed with regard to their environment that they do not behave anti-socially to any greater extent than does the normal person. It may be true also that the present state of the law is relatively satisfactory in this regard, and that with some minor amendments it could be made adequate to allow of the situation being dealt with as far as the necessities of the immediate future can be foreseen. Knowledge and vision are, however, lacking. Scientific inquiry, social realization, administrative zeal, financial provision, lag behind the needs. A very small monetary help would allow certain profitable lines of research to be carried further. A wider missionary effort by those who themselves appreciate it would bring home the reality and importance of the question to our public men and to the public generally. In this the medical profession has a special duty. Such knowledge would stimulate administrative action, now almost wholly in abeyance over large parts of the country, and would enable the economist to see that to save money one year by neglecting mentally defective children is to spend fourfold a few years later on the consequences of this neglect.

The problem presented to society by mentally defective persons is three-fold: first, so to deal with them as to make their individual lives as healthy, happy, and full as may be; second, to protect the community as far as possible from the economic, social, and hygienic consequences of their almost inevitable failure to meet the conditions of life; third, to prevent them from becoming progenitors of like-minded descendants. Since modern society will not permit the extermination of even idiots and imbeciles, much less of high-grade morons, it owes them all that care and help which are required to give them safe and tolerable lives. The conditions for this will usually best be found in institutions or colonies. The great majority of defectives are, in fact, much happier in suitable institutions, associating with their mental equals and having a congenial occupation, than in the midst of the difficulties of the outside world, to which they feel themselves unequal. Sentimentalism with regard to the "liberty" of such individuals is out of accord with the facts. As was well said at Portsmouth, too, "We must think not only of the individual but also of the family group, and in many cases the social efficiency of those who have to live with an abnormal personality and adjust to his or her whims is diminished by at the very least 25 per cent." There is in all classes of homes "the waste of the efficient in the care of the absolutely inefficient." The sufficient provision of proper institutions and colonies is also a duty which society owes to itself. In them a proportion of the inmates become to some extent economically helpful or even self-supporting. The economic dead-weight on society is lessened; an appreciable proportion of the inebriety, prostitution, pauperism, and crime into which these defectives so often drift is prevented; and the spread of disease by means of dirty inefficient homes and of venereal infection is certainly diminished. Such a method helps society also to discharge its duty to posterity. The fecundity of the mentally defective appears to be much greater than that of the normal population, and the offspring are exceedingly likely to be themselves mentally defective. Though it is now agreed that mentally defective persons are not alone the procreators of mentally defective children, it is obvious that the segregation of such persons during the reproductive age would tend materially to lessen the inferior stock in succeeding generations. If some means are not adopted in this direction the problem becomes more formidable the longer it is left.

The case for sterilization as an alternative to segregation was presented at Portsmouth, and, as will be seen from our report, it received full attention. The conclusion seems to be that, however applicable sterilization may be to some individual cases, as a public policy and routine practice it is unenforceable and has no advantage over adequate segregation. This subject is admirably stated in a small pamphlet entitled "Sterilization and Mental Deficiency," which has been sent to us by the Central Association for Mental Welfare, 24, Buckingham Palace Road. It contains a considered statement by the Medical Committee of that association, and is well worth the attention of the profession.

Nevertheless, even with increased institutional provision of the kind required, it is inevitable that some aments of all types, and relatively large numbers of those with the higher grade of feeble-mindedness, will continue to live in the general community. For these some degree of supervision in a selected environment is essential, and for a modest success even in these conditions previous training in a special school is necessary. It is becoming increasingly evident, and should now be recognized by all those concerned, that the main business of the special school is to deal with those high-graded morons who may be reasonably expected to achieve such moderate success. On them the money is well spent; by them the laborious care may be repaid; whereas the considerable expenditure entailed is wasted on other types, and is diverted from channels in which it could be put to much more profitable use. Such lower types would not be neglected but could be dealt with in other less costly and more appropriate ways.

population would be rapidly eliminated. But this was not so. The mentally unstable and excitable, the eccentric, and all those persons who could not properly be called mentally deficient, were liable to become the progenitors of mentally deficient children. A considerable proportion of the people who were apparently normal did produce mentally deficient offspring. Thus there was a good deal of the unknown about this matter. The more such inquiries as that to which Sir Frederick Mott had directed attention were pursued the better, and it was well worth the while of the Board of Control or the Government to subsidize through some channel or other similar researches.

There was a discrepancy between Dr. Devine and Sir Frederick Mott. Dr. Devine argued that insanity and all minor degrees of mental instability were almost equally liable to result in the production of mental deficiency in the next generation. Sir Frederick Mott, however, showed that there was a differentiation between the ancestry of the insane and the unstable and the ancestry of the mentally deficient. All they could say at present was that these inquiries ought to be pursued, and that they held out a promising field by which they could get to know a great deal more about heredity in this connexion than they knew at present.

Personally he was of opinion that segregation was the proper method of control rather than sterilization. But it was worth while clearing up certain points with regard to the latter method. Dr. Gibbons had said—and the words so impressed him that he took them down—that sterilization did not alter the life of the individual in the slightest degree. This brought them at once to the difference between the methods of sterilization. The complete removal of the essential sexual organs would make a difference to sexual desire, but the more usual method of sterilization would not make any such difference. If, therefore, the sexual desire remained unaltered, the large proportion of sexual offences committed by these mentally defectives would remain. What, therefore, was gained by sterilization so far as the immediate case was concerned? Even with sterilization there would have to be just as much segregation as before, possibly more, because nobody knew what the effect might be upon the internal secretions which appeared to govern these matters. Therefore one had not really helped matters economically by sterilization, and one had perhaps given a false sense of security amongst the people immediately concerned and amongst society at large which might easily lead to the increase rather than the diminution of venereal disease among this class. When, therefore, it was remembered how little was known about heredity in this connexion, when it was realized that the effects of sterilization must in any case be limited and could not cover the whole ground, and when it was seen to be necessary to take the same communal means of segregation after sterilization as before, it seemed that the case for sterilization was as yet by no means proved.

These were some of the impressions which the day's discussions had left upon his mind. He thought it had been well worth while to hold a Medical Sociology Section again this year as part of the Annual Meeting, and that the choice of the subject had justified itself. A good deal of missionary work was required to make the public understand the reality and the importance of this question. A good deal of work was needed also to make the medical profession appreciate the same thing. He was not one of those who believed it necessary that the medical student when he graduated should have been taught all about these matters. Given the right kind of medical education, especially following upon the right kind of preliminary education, the graduate would have sufficient knowledge and quickness through a post-graduate course and through the experience of life to adapt himself to what was required of him in some special branch. But many who were in middle age felt that they did not yet understand human nature, and the young man or young woman in the early twenties could not be expected to have achieved much in that direction.

He desired to close the proceedings of the Section by calling attention to a very wise remark uttered by Dr. Macfie Campbell earlier in the day. Dr. Campbell had said that they must not be alarmed by the numbers of these people in their midst. It sounded a dreadful thing that one in some 250 of the population should be a mentally deficient person. It was an appalling thing in bulk, but if it were put the other way round he was sure it would appeal to a people like the English. Here were 250 normal persons charged collectively with the care of just one unfortunate individual. Were they not prepared to take it up? It would do good to the community which gave as well as to the individual who received. He was quite sure that the English people would give it an adequate and sympathetic response.

An adjournment was made during the meeting of the Section to see a film illustrating the education of mentally defective children, shown by Miss Evelyn Fox, of the Central Association for Mental Welfare.

The Sections.

BRIEF SUMMARY OF PROCEEDINGS.

(Continued from page 181.)

SECTION OF MEDICINE.

Thursday, July 26th.

ON July 26th the Section discussed "Heart disease in early life—etiology, prevention, and treatment," with Dr. J. Odery Symes in the chair. Dr. Reginald Miller (London) said the subject resolved itself largely into the consideration of acute rheumatism. The chief change in the last fifty years appeared to be a reduction in the frequency of the severer manifestations. This progress was due to clinical work rather than to public health administration, earlier diagnosis and more efficient treatment being in the main responsible. But rheumatism still remained one of the serious affections of this country. Dr. Miller considered the factors hindering progress under three heads: (1) The problem of rheumatic infection—the most important; (2) the problem of heart disease in rheumatic subjects; (3) the problem of cardiac crippling in rheumatic heart disease. He enumerated the most urgent questions awaiting solution: (1) What is the underlying connexion between rheumatism and poverty? (2) What is the origin of repeated relapse, and how can it be prevented? (3) How can we give long courses of treatment to our many heart cripples? Dr. G. A. Allan (Glasgow) emphasized the magnitude of the problem. Forty to fifty thousand school children in England and Wales had organic heart disease, and the percentage doubled during the compulsory school age. He discussed the relationship of tonsillitis to rheumatic infection. Was the tonsil the site of entry, or the home of the organism? Did scarlet fever ever produce heart disease, or did it predispose to rheumatic infection? Chorea demanded a special inquiry. He laid stress upon the education of students in the points of differentiation between rheumatism in the adult and in the child; treating rheumatism by pharmacological doses of salicylate was playing with it. If the results of work in different parts of the country could be correlated and sifted much useful information might be obtained. Dr. Allan proposed the following motion, which was seconded by Dr. Reginald Miller and carried unanimously at the conclusion of the meeting:

> That the Council of the Association be recommended to appoint a special committee to consider the best steps to be taken to combat the grave menace to the community arising from chronic cardiac disease.

Dr. J. G. Emanuel (Birmingham) said that active infection of the heart demanded rest in bed; if no active infection was present a damaged heart required exercise. Physical signs, with the exception of pericardial friction, yielded evidence of past infection, but did not help in the recognition of active disease. Recent infection was shown by pyrexia, anaemia, and loss of weight. Salicylate had not diminished the incidence of rheumatic carditis; it was not a specific. There was a danger in its administration in that by relieving pain and pyrexia the child might be allowed up too soon. Hospitals, auxiliary to existing general hospitals, were badly required where children might lie until

are still believers in the doctrine of signatures. He relates many instances given to him by a village herbalist, who said, for instance, that pine-cone gargle was good for toothache because the scales of the cone resemble teeth. At the end of the interview, however, the herbalist seems to have given himself away by claiming "wonderful cures, if they have faith." But Mr. Kipling will not let us off altogether. He seems to regret that we have not the simple and courageous faith of our fathers, exclaiming—

> We are afflicted by what we can prove,
> We are distracted by what we know.

Perhaps the modern herbalist does little positive harm, although, as in the Croydon case, by preventing prompt treatment he may be the indirect cause of harm. There is no evidence that he employs deadly plants, of which there are not a few in this country, for criminal purposes. We should almost be sorry if he and his stock of dried plants disappeared from the humbler walks of life in which he moves, whether his disappearance came by suppression or by evolution into Membership of the College of Herbalists proposed to be established under the egregious lieutenant-commander's Act.

THE PARLIAMENTARY SESSION.

THE parliamentary session, which began on February 13th and on August 2nd was adjourned to November 13th, has been more important than eventful. Apart from the anxieties attendant on foreign affairs, its proceedings have lacked striking interest, for no large measures of far-reaching change were introduced. But after-war conditions have continued to place grave responsibility upon administration and have made demands for legislation which, although unheroic, has had to be framed with much care and considered with deliberation. This remark applies especially to such matters as unemployment, housing, and agriculture.

All these subjects concern medical men, but for the most part indirectly. As to the first named, some credit may fairly be assigned to the Ministry of Health and its forerunner—the Local Government Board—that the physical condition of children does not appear to have suffered in the industrial depression. In regard to housing, the scheme which Mr. Chamberlain formulated and carried through was rather useful than grandiose; it was conceived with the object of encouraging local authorities, by the aid of money voted by Parliament, to erect dwellings economically in limited number where most needed, and of helping rather than hindering private enterprise—the lesson of harm from heavy subsidies in tending to raise expense having been learned. A wise precaution has been the establishment of a committee to watch the rise in the cost of material. In reference to rent restriction, Mr. Chamberlain, threatened by agitation on all sides, steered a middle course, to maintain until 1925 the existing restriction subject to modification, which should be useful in opening up property for occupation. By another neat adjustment the Minister extricated landlords in Glasgow, and in some other parts of Scotland, from the "no rents" entanglement. To meet the conditions of agriculture the Government has reduced the proportion of rates to be paid and, in another measure has authorized the setting up of agricultural credit societies and the grant of loans in certain cases to meet the exigencies of farmers holding heavily mortgaged land. In all these matters whatever desires the Government may have had were necessarily limited by the financial circumstances of the country. Thus again a middle policy was pursued in the Budget, a reduction of sixpence being made in the Income Tax and a substantial sum allocated to lighten, in a small degree, the National Debt.

Mr. Neville Chamberlain became Minister of Health early in the session, and much of his time was occupied with matters not immediately connected with health. But our record of questions and answers will have been sufficient to show how wide has been his survey and how sedulous his administration of the various services. His speech on the principal vote made clear that although the estimate was brought down he had taken care in dealing with the Treasury that economy should not be carried to the point of diminishing the services themselves. He claimed that the efficiency of the different agencies, such as maternity and child welfare, would not be impaired. The improved figures of mortality he was able to present in several respects will not, it is evident, tend to any slackening of effort. On the contrary, Mr. Chamberlain referred to some matters of detail to be dealt with shortly; he alluded, for instance, to the increase in the number of deaths which occurred in London from diseases of the respiratory organs after a fog, and said that he was framing a more stringent smoke abatement measure, since introduced in the Lords.

The small-pox outbreak was taken in hand very seriously by the Ministry. Mr. Chamberlain in his answers to questions has demonstrated that he is thoroughly alive to the danger. He pronounced himself unequivocally for vaccination, and he has recently taken a step which may determine the balance in favour of vaccination for a good percentage of children. Hitherto there has been issued with registration certificates a form to facilitate conscientious objection. In future, parents will be required either to obtain a form from the vaccination officer or to make a declaration in similar terms. It should be added that in the frequent references to Health Insurance across the floor of the House, Mr. Chamberlain has, as the lawyers say, shown himself fully "seized of the subject."

There is no need to dwell upon the continued responsibilities pertaining to the Pensions Department. They are being gradually reduced by final awards, but Major Tryon's annual statement must have struck the imagination of the public by making plain the vastness of the medical and surgical work still carried on. One departure of the year is the establishment of a small mental hospital exclusively for ex-service men. Major Tryon has frequently rebutted the utterly unwarranted insinuation that medical boards have sought to reduce allowances. He has given facts and figures to prove that, on the contrary, the reductions have been slight in comparison with the gains in health under treatment, and that the assessment of patients suffering a set-back have been revised accordingly. His fine tribute to the medical profession in its application of science to the relief and cure of those broken by the great war has been greatly appreciated.

The passage of the Dangerous Drugs (Amendment) Bill was made smooth by Mr. Bridgeman in consultation with the Medical Committee acting in conjunction with the British Medical Association. The measure imposes drastic maximum penalties for offences, and at the same time avoids interference with doctors requiring such drugs, either in emergency

the paroxysmal types—asthma—and the true infective type was the mucous diathesis in which vaccine also was disappointing; this group, including mucous colitis, was very difficult to treat: the cardio-vascular, nervous, and digestive systems must also receive attention. Old bronchitics might be killed by too robust attempts to upset their habits. Dr. Donald Hall (Brighton) said he had found autogenous vaccine of value. Dr. Perkins, in reply, said the discussion appeared to have emphasized the fact that chronic bronchitis was secondary, the importance of educating people to an open-air life, the necessity for removing underlying conditions, and for treating the patient as well as his lungs.

SECTION OF SURGERY.

Thursday, July 26th.

WHEN Sir Henry Gray, President of the Section, took the chair at the second session he found a large audience gathered to hear the discussion on the treatment of acute primary infections of the hand. It was obvious as the discussion proceeded that it provided a very considerable amount of interest, although apparently a subject of minor importance. Mr. Wilkie (Edinburgh), who introduced the discussion, pointed out the importance of the subject from both a pathological and an economic point of view. The anatomical considerations were, first, that the lymphatic network was so very full and free; secondly, that the cellular tissue, especially in the pulp of the digits, was divided into spaces by dense fibrous septa, and that infection of the tissue led to great tension, often with necrosis. In addition, in the palm of the hand there existed two large cellular spaces. Further, the arrangement of the tendon sheaths in relation to these spaces demanded accurate anatomical knowledge. The two main types of infection were the lymphatic and the suppurative. The lymphatic were those as a rule from a minor, almost insignificant, prick or scratch, and rapidly fulminating generalized streptococcal infection took place. It was an incorrect thing to incise such a finger, as a free opening invariably led to a more rapid spread in the opened-up tissues. In regard to the treatment of suppurative cellulitis freedom of incision, rest in the initial stages, dressings of the nature of hot antiseptic wet dressings, and at a later stage a certain amount of freedom of movement, followed closely Nature's methods. He advocated strongly the use of Bier's elastic bandage in the acute lymphatic infections, along with a large dose of polyvalent antistreptococcic serum. In operating on these cases it was essential to apply a tourniquet and administer a general anaesthetic. Early accurate diagnosis was the crux of the management of hand infection; for lymph infection without suppuration the treatment should be on essentially conservative lines; for suppurative infection in tissue spaces or tendon sheaths prompt and free drainage with early systematic functional exercises should be the guiding principles. The discussion was continued by Mr. Max Page (London), Mr. Saner (London), Mr. J. E. H. Roberts (London), Mr. Mullally (London), Mr. Handfield Jones (London), Mr. Burrows (Portsmouth), Mr. Mamourian (Ashton-under-Lyne), Mr. Cuthbert (Gloucester), Mr. Begg (New Zealand), and the President. Some variety of opinion in regard to situation of incisions and the application of moist or dry dressings was expressed. All the speakers agreed with the introducer of the subject in the essentially conservative treatment of the streptococcic infection, and on the necessity for operating in a bloodless field under a general anaesthetic in the suppurative types of infection.

Mr. A. A. McConnell (Dublin) read a short paper on the diagnosis of brain tumours with the assistance of x-ray photographs, taken after the ventricles of the brain had been aspirated and filled with air. He had to admit that ventriculography was a difficult operation and was attended with danger; but it had its uses in demonstrating varieties of hydrocephalus and the situation of pressure with obliteration of the anterior or posterior horns of the ventricles of the brain. Mr. Geoffrey Jefferson (Manchester) gave an account of six cases with only one death; it was his opinion that the method was only applicable where the diagnosis of tumour was certain, but its localization uncertain. Mr. Percy Sargent (London) said that his experience of this method was that the difficulty lay in the interpretation of the radiograms. He went on to describe a method of localizing pressure on the spinal cord by tumours by the injection into the spinal theca of an oily substance called "lipiodol," which was impervious to the x rays. This method was of value in delimiting the lower part of a tumour, an important point from the operative aspect, because the neurologist could only define the upper limit of the tumour.

The surgeons of the Royal Hospital, Portsmouth, followed the lead given them by surgeons in the other cities in which the Association had met by operating in the mornings before the meeting of Sections, and also by giving demonstrations of cases in the afternoons. On Wednesday Mr. Munro Forde performed the operations of the day before an appreciative and numerous audience, and Mr. Childe demonstrated a series of cases on the same afternoon. Mr. Burrows demonstrated cases on the afternoon of Thursday, and Mr. Childe performed operations on the morning of Friday. At all of these supplementary meetings there were good attendances of keenly interested members.

Friday, July 27th.

"Anaesthetics from the surgeon's point of view," at the third session of the Surgical Section, while discursive, led to diversity of opinion in materials and methods and to uniformity of opinion in regard to the relationship of the surgeon and the anaesthetist and the welfare of the patient. Mr. Wilfred Trotter, who introduced the subject, showed how the sympathetic understanding of one another's work was indispensable between surgeon and anaesthetist if the full advantages of modern surgery were to be available to the patient. A surgical operation demanded for its complete success something more than the mere exercise of special aptitude and knowledge. The successful management of anaesthesia needed so full a knowledge of the actual surgical conditions that there might well be in the future a closer and closer approximation of the training of the anaesthetist to that of the surgeon and a more and more complete assimilation of the anaesthetist into the surgical team. Many of the most valuable methods of inducing anaesthesia were definite surgical operations in themselves, and seemed to ensure the inclusion of the anaesthetist in a share of the operation. In certain operations, such as those of the mouth, nose, pharynx, the relation of anaesthetist and surgeon had tended to be rather confused and difficult to regulate. It was in these specially that the anaesthetist would be likeliest to be found joining the surgical group of participants. Mr. Trotter discussed the various methods of inducing anaesthesia known and practised by himself. He regarded ether as the nearest approach to an anaesthetic of general use; chloroform as a drug which had its own proper field and for some uses of which no effective substitute had been found.

Sir W. de C. Wheeler (Dublin) thought that various factors operated in promoting a perfect anaesthesia, and both surgeon and anaesthetist should exercise wise judgement in considering the nature of the operation, the type and temperament of the patient; even the temperament and habits of the surgeon must be considered. He dwelt on two practical points—one in relation to cases of sudden collapse, where ordinary means of artificial respiration failed, but where he thought (in at least 12 cases) he had saved the patient by inflating the lungs by blowing through the facepiece of an ether apparatus closely applied to the mouth. This was a plan of ancient usage and he commended it in certain desperate cases. He thought that the so-called ether pneumonia was not due to the ether itself, but to the imperfect descent of the diaphragm. He advocated also local anaesthetics in conjunction with general anaesthetics. Dr. A. E. Boyd (Dublin) favoured colonic ether anaesthesia; he had practised with great success the injection into the rectum of a certain quantity (1 oz. to every 20 lb. of the patient's weight) of a solution of olive oil and ether, in equal parts, sometimes with the addition of a drachm or two of paraldehyde.

It was estimated that £2,000 a year would be required, and it was found that the financial position of the hospital would not warrant the expenditure. The Board made an appeal for financial help to commence the work to the directors of the Prudential Assurance Company, basing it upon the facts that the proposed research work would undoubtedly promote longevity and the development of a healthier and more virile race, and was thus of distinct value to a great assurance company. As a result, the directors of the Prudential Company agreed to provide the money required for the first year. This, so far as we are aware, is the first occasion on which an insurance company in this country has contributed to the cost of investigations which, if we regard the matter merely from a financial point of view, nearly touch its interests. We shall not be far wrong if we say that the trend of much of the observation and research in medicine during the last decade has been to show that the seeds of much disease in later life and premature death in the working years are sown in childhood. If we can keep away the man with the tares we may look forward to a better expectation of life in the future.

THE ROCKEFELLER FOUNDATION.

THE review of the world-wide activities of the Rockefeller Foundation during 1922[1] by its President, Mr. George E. Vincent, is of special interest because it contains a summary of the work done in its first decade. The Foundation was incorporated on May 14th, 1913, under a special charter granted by the State of New York and with an initial endowment of one hundred million dollars by Mr. John D. Rockefeller. During the last ten years this Foundation has received no less than one hundred and eighty-two million dollars from Mr. Rockefeller, has expended 76,800,000 dollars, and has pledged its future income to the extent of 15,600,000 dollars. A few weeks after the establishment of the foundation the Rockefeller Sanitary Commission, which since 1910 had been fighting hookworm disease in the Southern States, was reorganized as the International Health Board, and became a department of the Rockefeller Foundation. In 1914 the China Medical Board was created to further medical education in the new Oriental Republic; and in 1919 a Division of Medical Education was set up. By means of these agencies the Foundation has during its first ten years co-operated, chiefly in public health projects and the improvement of medical education, with the governments and institutions of sixty countries. In accordance with the object of the Foundation—the prevention of disease—for which an efficient general medical education is essential, the trustees have concentrated attention upon the closely related subjects of public health and medical education. During the war the Foundation spent nearly twenty-two and a half million dollars on various forms of activity—beneficent and in the interests of research; for example, the Public Health Service efficiently protected from malaria 43 areas in the vicinity of army camps in 15 States. The international exchange of information between workers was interrupted by the war and to restore this commerce in ideas to something like its normal state the Foundation is taking a vigorous share by distributing medical periodicals in Europe. A summary of the development of modern medicine is followed by copiously illustrated descriptions of what the Foundation is doing for medical education and for public health. Two million dollars have been allotted to provide a site, building, and equipment for the School of Hygiene near the British Museum, which our Government has undertaken to maintain; similar institutions at Baltimore, Harvard, Prague, Warsaw, and in Brazil have been assisted in recent years. No reader of this report can fail to be impressed and indeed to feel whole-hearted admiration for the manner in which the trustees are carrying out the Foundation's purpose of "promoting the well-being of mankind throughout the world." In conclusion it may be mentioned that the annual report of the Foundation, to be issued later, will be sent in due course to libraries and that other institutions or individuals may receive a copy on application.

[1] *The Rockefeller Foundation: A Review for 1922; A Summary for the First Decade.* By George E. Vincent, President of the Foundation, New York, 1923. (Pp. 59; 28 illustrations.)

VITAL STATISTICS OF NON-NATIVE OFFICERS IN WEST AFRICA.

THE vital statistics for 1922 of non-native officers in West Africa show a relatively favourable record.[1] The average personnel of the services through the year was 3,220, and the total number of deaths 26, or 8.0 per 1,000; the average length of service at death was six and a half years, which is only six months short of the seven years required for pension. This death rate shows a decrease of 33.3 per cent. on that recorded for last year, and constitutes a record. It is worth noting that it compares not unfavourably with the rate of 6.8 per 1,000 obtaining in East Africa in 1920, the last year for which East African records are available. The improvement is mainly due to a reduction of 50 per cent. in the rate for the Gold Coast. The rate of invaliding is less favourable: 67 officers, or 20.8 per 1,000, were invalided, after an average service of 7.66 years, as against 16.6 per 1,000 in 1921, whilst 32 out of a total of 76 officers pensioned were pensioned on account of ill health. The corresponding number for 1921 was 21 out of a total of 62. Of the total deaths 5, and of the invalidings 18, are recorded in the age group with the central age of 35, the highest combined figure in other age groups being 6 deaths and 15 invalidings in the group with the central age of 50. The greatest total number of deaths for one group is 7, with the central age of 40, but the high mortality is balanced in this case by a lower invaliding rate. It is suggested in the remarks on these statistics that the figures indicate that the longer tours of service under the new regulations, which have been in force throughout the year, are not having any adverse effect on the general standard of health of Government officers in West Africa; but it must be remembered that the longer tour of service might well produce a more immediate effect upon the invaliding rate than upon the death rate, and it seems premature to advance any opinion upon this point.

PREVENTION OF DENTAL CARIES.

FROM the Society of Medical Officers of Health we have received a copy of a leaflet for the use of parents entitled *Prevention of Decay of Teeth.* It is concise and clearly worded; and the instructions are such as can be carried out in daily life. Perhaps stale bread might be advised in place of "crisp toast" or "twice-baked bread," and we may be allowed to point out a misprint—"delay" for "decay." The point, however, we have in mind is that we have seen several such leaflets, and doubtless there are many others we have not seen, issued by different bodies; the substance of all is very much the same, yet in detail and in diction they differ considerably. The daily hygiene of the teeth is an important matter, and we suggest that greater weight would attach to these leaflets if all bodies interested in such propaganda issued one and the same set of instructions.

[1] *West Africa: Vital Statistics of Non-Native Officials in West Africa: Returns for 1922.* Published by the Crown Agents for the Colonies, 4, Millbank, London, S.W.1. Price 6d.

months of pregnancy. A note of warning was necessary in connexion with the employment of spinal anaesthesia in cases of normal labour: the expulsive power of the uterus was diminished and forceps delivery would probably be required. The paper was discussed by the President. Dr. Sidney Forsdike then read a communication on the treatment of uncontrollable uterine haemorrhage by radium. He had treated forty-five cases who had all undergone various previous operations for severe haemorrhage. He emphasized the fact that all his cases had been treated by radium *in utero* after preliminary curettage. The sole contraindication to the employment of radium was the presence of chronic pelvic peritonitis. One exposure was generally sufficient. Radium produced a menopause, but without any of the ordinary symptoms attending that condition. Radium produced its results purely by its action on the endometrium. Slides were shown to illustrate the changes produced—namely, atrophy of the glands of the endometrium and great increase of fibrous tissue. On the other hand, the ovarian tissue showed no signs of irradiation unless the ovary was in actual proximity to the radium. The paper was discussed by the President, Mr. Whitehouse, Dr. Grove, Dr. John Campbell, Dr. Hendry, and Dr. Russell Green. Dr. Louisa Martindale next contributed a paper on the treatment of fibroids by Erlangen methods. The paper was discussed by the President, Dr. Forsdike, and Mr. Beckwith Whitehouse. None of these speakers could find anything favourable to say concerning this method of treatment. Mr. Lane Roberts followed with a paper on syphilis in its relation to obstetrics. The proceedings of the Section were concluded by Dr. W. R. MacKenzie, who read a paper on roentgenographic pelvimetry. He said that the short exposure necessary was not sufficient to produce any ill effect either on mother or child. The paper was briefly discussed by the President, Dr. Louisa Martindale, Dr. Hendry, Mr. Lane Roberts, and Dr. John Campbell.

SECTION OF PATHOLOGY.

Friday, July 27th.

IN a historical review of the origin of the science of medical mycology Dr. Castellani drew attention to the fact that medical mycology came into existence long before bacteriology, but in recent times the study of bacteria has absorbed the attention of medical pathology. But more than 25 per cent. of tropical diseases were due to fungi and the part they played in morbid processes in this country was becoming more and more widely recognized. Fungi might be defined as filamentous organisms not possessing chlorophyll and reproducing either asexually by division and spore formation or sexually after conjugation by oöspores. They consisted of a vegetative part devoted to the acquisition of food and a reproductive part. Dr. Castellani defined the different types of reproductive organs—namely, gonidia or endospores, conidia or exospores, thallospores, hemispores, zygospores, and oöspores. The difficulties encountered in the accurate scientific classification of fungi were enormous, and could not well be overcome without an extensive knowledge of botany. Classification was founded chiefly on the shape, colour, and character of the spores. Dr. Castellani then considered the biological and biochemical characteristics of fungi and showed that they behave similarly to bacteria in producing specific agglutinins and toxins, but unfortunately in many cases a large amount of non-specific agglutinin for other species was also present. He described a mycological method for the identification of various sugar and other carbon compounds. Turning to the higher fungi as agents in the causation of disease he declared that statements in textbooks that thrush was due to *Oidium albicans* were misleading, for the disease clinically recognized as thrush might be caused by many different types of fungi; most of these belonged to the genus monilia, but ascomycetes and saccharomycetes and other fungi might be responsible for this infection. He showed six fungi collected from cases of thrush and pointed out that clinically there were many different varieties of this disease. Until a few years ago ringworm was considered to be caused by only one type of fungus, but it was now known that there were different types of ringworm caused by different organisms. The two principal types of thrush to be distinguished clinically were the white or grey-white type, extremely common, and the yellow-brownish type of rarer occurrence. In the tropics bronchial affections due to the higher fungi were quite common, but they might also be met with in temperate climates. The severity of these diseases depended a great deal on the variety of fungus present, the prognosis being most unfavourable in nocardial infections, more hopeful if of monilic or oidium origin, and comparatively good if caused by a sporotrichum, a hemispore, or fungi which were rapidly influenced by potassium iodide. The severe chronic forms of broncho-mycosis had all the customary appearances of advanced tuberculosis, for which they might be easily mistaken. Broncho-moniliasis might be a primary disease or a secondary infection grafted on to tuberculous disease. In true broncho-moniliasis when the patient got better the fungus disappeared, the administration of potassium iodide caused great relief, and the monilia isolated were pathogenic for rabbits. He classified the urethritis of hyphomycetic origin into three types: (1) with a white or yellowish discharge due to saccharomyces, monilia or oidium; (2) with a brownish or black discharge due to aspergillus or penicillium; (3) with a red or pink discharge due to pigment-producing fungi or yeasts and bacteria in symbiosis. Dr. Castellani completed his lecture by showing a large number of slides illustrating different types of dermatomycosis. Dr. Carvadias, Professor Haswell Wilson, Dr. Dukes, Dr. MacKeddie, and Dr. Mackenzie Wallis took part in the subsequent discussion.

Owing to the pressure of other matter it is necessary to postpone publication of the full report of the discussion on diseases of the stomach.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

Thursday, July 26th.

THE second day's proceedings opened with a discussion on the sequelae of epidemic encephalitis, with Dr. Hinds Howell (London), Vice-President, in the chair. An excellent discussion followed the opening paper, read by Dr. Farquhar Buzzard (London). He said that an experience of five years had enabled us to be more or less familiar with the ravages of the disease, but it was still not easy to separate clearly between the active phases of the disease and its sequelae. Such sequelae could be broadly divided into disorders of function appearing after the disease was spent and those which appeared to follow progressively upon the acute phase. He mentioned the following sequelae, discussing each in turn: (1) Mental after-effects; (2) involuntary movements; (3) the Parkinsonian syndrome; (4) disturbances of respiration; (5) hiccup and vomiting; (6) optic neuritis; (7) lethargy. The pathogenesis of the sequelae was an interesting question, but all could not be due to recurrent attacks of inflammation. Remarkable hyaline and calcareous changes had been found in the vessels, which might account for some of these sequelae. Such changes in the blood vessels were often found in the basal ganglia. In some cases of focal epilepsy localized meningeal changes had been found and treated surgically. No specific treatment was yet known. It was important to insist on a really adequate period of rest and convalescence.

Dr. G. Riddoch (London) related the case of a relapse occurring at the end of five years, and went on to give an analysis of the sequelae found in a series of cases at the London Hospital over a period of three and a half years; 83 cases had been traced and followed up; in most some defect remained. Mental defects were found in about seven-tenths of the cases, but the severer forms of defect were uncommon. Marked behaviour changes and intense outbursts of temper occurred, especially in children. On the physical side permanent cranial nerve palsies were common, chiefly affecting the ocular muscles. Tachycardia

Germany, where infant vaccination was well observed. Mr. Chamberlain said he had no definite information as to American practice, but he understood that in most of the States which enforced vaccination the law provided that every child must present a certificate of successful vaccination before admission to school. He had no information which would enable the comparison suggested, but the American statistics showed that in those States where vaccination was enforced before admission to school the incidence of small-pox in the community generally was markedly lower than in those in which vaccination was not compulsory.

In reply to Mr. Paling, Mr. Chamberlain said that the number of cases of small-pox which had occurred in England and Wales during the eighteen months ended June 30th was 2,200, of which 27 cases were fatal. The number of cases in South Yorkshire during the same period was 423, with one death. The figures included in these statistics for the first six months of the present year were subject to revision. The new Order as to statutory declaration was that from and after September 1st any parent wishing to make a statutory declaration of conscientious objection to vaccination might obtain a form of declaration from the vaccination officer; or might make a declaration in the form prescribed by the Vaccination Act, 1907, or in a form to the like effect. This arrangement superseded the provision of a copy of the usual objection form with birth registration form.

Mr. Chamberlain stated, on August 2nd, that he had not complete information as to the vaccination law throughout the United States. But he was advised provisionally that the States in which there was no penalty for neglecting vaccination were Illinois (excluding Chicago), Kansas, Minnesota, Ohio, Michigan, Alabama, Vermont. There was exemption on account of conscientious objection in California. The States in which penalties were imposed for neglect of vaccination included New York, New Jersey, Connecticut, Maryland, District of Columbia, South Carolina, Louisiana, Virginia, Wisconsin, Mississippi, Indiana, Washington, North Dakota, Texas, Iowa, Arkansas, Massachusetts, Pennsylvania.

Some remarkable figures as to vaccination in the registration districts of Liverpool, Toxteth Park and West Derby taken collectively, have been given by Mr. Chamberlain. They dealt with a period of twenty years, and showed that resort to vaccination had been much more extensive in those areas than was generally the case in the country, though there had been a large decline in the years 1915, 1916, 1917, 1918, and 1919. In the year 1920, during which there were 28,982 births, the number of vaccinations was 20,853, the number of exemptions 2,289, and 1,520 cases were postponed. In the year 1921, when the number of births was 25,390, the number of vaccinations was 18,233, the number of exemptions 2,175, and the number of postponements 1,061.

Chicken-pox in Birmingham.—Lord E. Percy informed Mr. Leach, on August 2nd, that under the provisions of local Acts in force in Birmingham the parent or guardian of a child at school was required to notify the head master if chicken-pox occurred in any member of the family. The number of cases notified under these provisions during the eight weeks ended July 28th was 623, while three cases of small-pox were notified to the medical officer at the same period.

Tuberculosis: Village Settlements.—Mr. Baldwin announced, on August 2nd, in answer to Mr. Pease, that the Minister of Health and the Minister of Pensions had investigated the work of the two village settlements started in this country for the benefit of tuberculous persons. They were satisfied that much useful work had been accomplished, but as these settlements were still in the experimental stage it was too early to say whether they would be permanently successful. In the circumstances the Government were of opinion that there was a good case for some financial assistance from the Exchequer for their extension, so as to provide additional accommodation and enable the experiment to be tried on a somewhat larger scale. When the House reassembled a supplementary estimate of £20,000 would be submitted for the purpose of grants to provide twenty-five additional cottages for ex-service men and their families at each of the settlements.

Tuberculosis in the Navy.—Major Boyd-Carpenter stated, on August 2nd, in answer to Lieut.-Colonel Moore-Brabazon, that no statistics of tuberculosis in the Navy were prepared for the year 1920, and none were yet available for 1922. The figures for 1921 were as follows:

Classes.	No. of Cases.	Ratio per 1,000 of average No. borne.
Commissioned officers	10	1.77
Warrant officers	2	0.69
Seamen	103	2.46
Boys	14	1.69
Engine room ratings	75	2.50
Marines	24	3.20
Stewards and cooks	5	1.33
Sick berth staff	6	4.27
Writers	8	8.77
Victualling ratings	3	4.49
Ships' cooks	3	1.71
Other artisans	3	0.83
Telegraphists	8	2.76

Mining Accidents and Disabilities.—On the vote for the Mines Department of the Board of Trade, on July 24th, Colonel Lane-Fox said that there had been a decrease in fatal and serious accidents during recent years. There had also been a decrease, especially in the last year or two, in cases of nystagmus. There had, however, been an increase in the number of slight accidents. The Miners' Welfare Fund, which was founded on the rate of a penny per ton on every ton of coal raised under the Mining Industry Act, was administered by a committee under Lord Chelmsford, and was proving very valuable. District schemes—the majority were for recreation—had been passed. There were 59 schemes dealing with health at a cost of £284,000. In Ayrshire one had been adopted for a convalescent home at the cost of £50,000. There were schemes also for medical and nursing services, and in some places for the development of pit head baths, in regard to which we were very much behind every European country. Mr. Duffy Gavin raised the case of the iron ore miners. He quoted from Dr. Arlidge's work on diseases of occupation to show that iron mining caused severer bronchitis and asthma than coal mining and was a more unhealthy occupation. He urged that a separate inspector was required for Cumberland, and claimed that he was supported in this view by the report of the Royal Commission. He complained also that in one mine where dynamite was exploded in a comparatively contracted area men were forced to go in amongst the fumes with the result that there had been an excessive amount of illness. Mr. Robert Jones afterwards touched upon quarry work in Wales to say that the industry had been neglected by the Mines Department. In North Wales there was very little protection for people engaged near the crusher, and they came away as if they had just emerged from a flour sack. It was generally admitted that if the dust did not bring about phthisis it produced silicosis.

Mental Institutions.—Mr. Chamberlain, replying to a lengthy question of innuendo by Mr. R. Richardson, on August 1st, said he could find no evidence that the existing voluntary boarder system in mental institutions was open to abuse. He knew of no grounds for a further inquiry into its working. Mr. Rawlinson asked whether, in the cases of those patients who were received into private mental institutions in 1922 without being seen by a magistrate and without the provisions of Section 8 of the Lunacy Act, 1890, having been adhered to, such patients had since been discharged, or, if not, under what power they had respectively been detained. Mr. Chamberlain said he was advised that failure to comply fully with requirements of the Section mentioned did not invalidate the reception orders authorizing the detention of patients. Steps had been taken to remedy the defect as to the giving of notice. In reply to Mr. Ritson, Mr. Chamberlain said the Board of Control had suggested to authorities of all institutions receiving private patients the desirability of requesting patients to whom a notice under Subsection (2) of the Section had been given to acknowledge its receipt in writing. The authorities were further advised that if the signature of any such patient were unobtainable, the notice should be endorsed to that effect.

Prestwich Mental Hospital.—Major M. Wood asked, on August 1st, whether the Minister of Health had received any protest from the medical profession in Lancashire in regard to the appointment of the superintendent of Prestwich Asylum, Manchester. Mr. Chamberlain said that the Board of Control had received no official information of the appointment of a medical superintendent at Prestwich Mental Hospital; but understood that an appointment, to which strong exception was taken, was made last week by the Lancashire Asylums Board. The appointment rested with that body alone, but the Board of Control, in January last, suggested that it would be of advantage if it were consulted in regard to it. He did not know why this advice had not been acted upon, but the Board of Control proposed to make some inquiry about the appointment.

Inebriates' Institution, Langho.—In reply to Sir John Leigh on August 2nd, Mr. Chamberlain said that the Government grants for the inebriates' institution at Langho from April, 1904, to May, 1920, amounted to £59,524. At the date of the armistice there were 55 inmates, but during the year 1919 the average number was 32. The institution was now used for mental defectives by the Lancashire Asylums Board and was certified by the Board of Control. Some blocks were used for mental defectives in 1915 and since the spring of 1920 the whole of the institution had been so used. The total cost of maintaining defectives there since 1915 to March 31st in the present year was £87,378.

Grants for Combating Venereal Disease.—Mr. A. Bennett asked, on August 2nd, whether the Minister of Health would consider the allocation of the annual grant of £12,000 for combating venereal disease between the Society for the Prevention of Venereal Disease and the National Council for Combating Venereal Diseases; whether the Minister was aware that the latter organization was the only one in receipt of any State assistance; and why, seeing that the Trevethin report had been unconditionally accepted by both, any differentiation was made in Government assistance. Mr. Chamberlain replied that the maximum grant paid from the Ministry direct to voluntary organizations in aid of their work in combating these diseases was £7,500. He was aware that only one society received State assistance. The question of Government aid for the work of such organizations would come up for review in connexion with the recommendations in the Trevethin report which was now under consideration.

Deaths Under Anaesthetics.—Mr. Barnes asked Mr. Chamberlain whether he had seen that at an inquest on a person who died under an anaesthetic in Poplar Hospital the coroner said that that was the third inquiry he had held that day upon persons who had died after the administration of an anaesthetic, and expressed the opinion that further investigation was necessary. Mr. Chamberlain promised to make inquiry with a view to considering whether further action was needed.

Hospital Accommodation.—Mr. Rhys Davies asked, on July 25th, whether, in view of the fact that the voluntary hospitals of the country were crowded and subject to long waiting lists and that a large number of beds were unused in the Poor Law hospitals,

flying. The judgement of the approach of a cricket ball was similar to the judgement of the flying officer in landing. They had learned to insist upon something near perfection in the whole ocular arrangements: emmetropia, good muscle balance (that is, an accurate adjustment of external and internal ocular muscles), optic tracts which faithfully reported impressions, and cortical areas which received and analysed these impressions accurately. A "master eye" went with a poorer eye capable of giving false impressions, the reception of which might cause disastrous actions. In practice a wholly one-eyed man was safer in the constancy of his limitation than the two-eyed man whose disability was variable. Glare was particularly disturbing to binocular conditions and aggravated any latent defect. Wing Commander Cecil Clements said he had found defects of muscle balance of importance in certain civilian occupations—for example, amongst engineers. At a flying station similar disabilities produced serious accidents. No less than 80 per cent. of crashes occurred during landing—that is, when judgement was most involved, eye judgement particularly—and amongst the officers who were the subjects of the accidents ocular imbalance was frequent. Landsmen did not realize the immense disturbance of ocular conditions produced by an aeroplane spin, by side-slipping, and the approach to earth in landing. The strain was great on normal eyes—much greater in abnormal eyes. He thereupon detailed the tests used in these examinations. Amongst all tests the one he found of greatest service as a standard was Bishop Harman's diaphragm test. Major-General Sir William Macpherson said that the problem of the army was different: keen visual acuity was the prime necessity; provided the nature of the work allowed their use, glasses could be made use of to improve acuity. Major J. H. Gurley said that by the rearrangement of visual standards a great reduction in wastage had been obtained. Colonel Ransom Pickard commented upon the occurrence of night-blindness in conditions of uncorrected errors of refraction and the exhaustion caused by the strain of these errors. Surgeon Commander Breton said a successful gunlayer must have first-class vision; 6/6 was not enough; 6/4 should be the normal for these high-grade ratings. Further, there should be perfect imbalance for most purposes.

Major E. B. Spaeth (U.S.A. Army) spoke upon development of plastic operations for the restoration of lost eyelids and showed a number of photographs of cases. Mr. M. W. B. Oliver commented on the plastic operations. The occurrence of night-blindness in war conditions was important; occasionally it was simulated by malingerers. Protection of the eyes was also important. Mr. Bishop Harman referred to the disclosure of muscle imbalance during periods of ill health due to abdominal trouble and thought that this was a parallel to the disturbances set up by the severe and sudden stresses of flying. Dr. W. Maddox thought near vision tests were not so good as distance tests, which more approached natural conditions. Major Carruthers said he had worked with Commander Clements for some months and was convinced of the importance of the work done by him, and the effectiveness of the ocular training devised by him. Mr. H. Caiger, Major A. E. Wright, and Mr. J. A. Valentine put questions on certain points; Air Commodore Munro and Wing Commander Clements replied. The President commented upon the high value of the research work done by Commander Clements and the influence this would have upon research in industrial fatigue. A paper on the lighting of battleships was read for Surgeon Lieutenant Commander R. J. Hanson, R.N.V.R. At the conclusion a resolution was passed urging the Government to carry on research in these ocular problems, which was carried unanimously.

SECTION OF PUBLIC HEALTH.

Friday, July 27th.

THE chair was taken by Dr. Lockhart Stephens, and a discussion on the effect on health of sewer air and drain air was opened by Professor Wynne, M.O.H. Sheffield. Dr. Wynne said he believed the recent enforced economy in public health departments had not been an unmitigated evil, as it had compelled a more careful and critical examination of the comparative value of various branches of public health work. The same care should be taken in compelling expenditure by private individuals as in dealing with the public funds at the disposal of the M.O.H. Reconstruction of drains was often expensive, and it was necessary to consider how far the generally accepted view of the danger of inhaling drain air was justified. In face of the appalling sanitary conditions with which they were confronted, sanitarians in the last century and the framers of the Public Health Act of 1875 concentrated on the abolition of "nuisances" generally, and especially on the efficient removal of excreta. In those days faulty drainage came to be looked upon as the principal cause of nearly all epidemic disease. More recent research had shown that these diseases were not generally, and probably could not be, caused in this way, and the medical profession then fell back on the theory that the inhalation of polluted air in some way reduced the resistance to these diseases, "by lowering the vitality of the tissues." He did not understand this phrase, and all the available evidence pointed in the opposite direction. Chemically sewer air under ordinary conditions had been shown to be free from deleterious gases, and bacteriologically purer than air from adjoining streets. Men working in sewers were at least as healthy as the average, and had no special liability to the diseases under consideration. Numerous experiments had proved that animals kept in an atmosphere consisting entirely of sewer air were not harmfully affected by it. He drew a distinction between sewers merely pervious to smoke under pressure and those so defective as to permit the escape of liquid sewage into the soil. Pollution of the soil adjacent to houses with liquid sewage containing putrescible organic matter and with an enormously high bacterial content might easily become a cause of disease, but experiments showed that the discharge of bacteria into the air only took place as a result of splashing, and that their presence in the air was localized and very temporary. It was therefore important to avoid waste of money in this direction and to concentrate expenditure on the remedy of conditions that were proved to be a danger to health.

Dr. Mearns Fraser (Portsmouth) agreed that the danger of sewer air might be exaggerated, but thought it might be difficult to draw the line beyond which defects became dangerous. It was certainly necessary to prevent pollution of the soil by liquid sewage. He thought it might be dangerous to assert the harmlessness of drain air in houses. Dr. Wynter Blyth said that many of these experiments in the past had been made by people who were quite hazy as to the chemico-physical conditions with which they were dealing. The whole matter was a question of frothing or bubbles, and he had been experimenting on the power of bursting bubbles to disperse bacteria. Dr. H. Scurfield hoped that further researches would be carried out by Dr. Wynter Blyth on these very interesting lines. He had always taught that sewer air did not cause diphtheria or other infectious diseases, but might predispose to them. Without water-tight and gas-tight drains it was difficult to guard against leakage or to recognize an obstruction when this occurred. Dr. Glennie emphasized the importance from a health point of view of rats gaining access to the house and possibly conveying infection to the inhabitants. Dr. Wynne replied to the various points raised.

Dr. Hazleton (Sheffield) in a short paper called attention to the frequency of leakages from gas brackets and the consequent inhalation of CO and other constituents of coal gas as a possible predisposing cause of tuberculosis. He explained by diagrams the construction of the ordinary gas-tap, and how wear tended to cause leakage. By reversing the position of the tap this could be prevented. In the discussion which followed Drs. Fraser, Scurfield, and Wynne agreed that even apart from tuberculosis the conditions to which Dr. Hazleton had called attention were likely to be a serious source of ill health, and one not generally recognized.

SECTION OF DISEASES OF CHILDREN.

Friday, July 27th.

DR. DAVID NABARRO (London) gave a review of the work of different observers on summer diarrhœa and described his own findings in 150 cases which he had investigated with Dr. Paterson in 1921. The organisms isolated in different

the conditioned stimulus acts alone without being accompanied by an unconditioned one. For instance, we have in our laboratory a dog, which, if it has not been fed for about twenty hours, is always very hungry for food. After fifteen seconds the conditioned stimulus alone, before the actual feeding, invariably produced the feeding reaction, motor and secretory, and the dog always remained wide awake. If the interval between the application of the conditioned stimulus (in the absence of feeding) was made longer, say thirty seconds, after a few repetitions (3 to 5) the dog became drowsy and in the end fell so soundly asleep that he must be forcibly awakened to take food.

This fact may be most easily understood in the following way. The isolated, concentrated stimulation of cells of the hemispheres soon leads to their exhaustion and to sleep, if not accompanied with the stimulation of other cells. Normal sleep comes as a result of a general exhaustion of the cerebral hemispheres. In this particular instance the only point which is not quite clear concerns the manner of spread of the inactive state from the exhausted cells to those elements which have not been involved in the work. It may be assumed that the exhaustion of given cells leads in some way unknown to the formation of some substance or process which produces the inactive state of the exhausted cells and spreads to other cells which have not been fatigued. This sleep-inducing action of the conditioned stimuli under special conditions is paralleled by the well known fact that uniform and monotonous surroundings usually predispose to sleep in persons who are not tired. This state, which in the case of conditioned reflexes leads to sleep, is exactly the same as that which leads to the development of inhibition. When the conditioned is not accompanied by an unconditioned stimulus, it is gradually inhibited, as has already been pointed out. Further, whenever the inhibition is developed in a definite phase sleep usually follows, if special precautions are not taken. Finally, cases constantly occur in which either inhibition or sleep may develop, or inhibition may pass into sleep, or *vice versa*. All these facts led us to the conclusion that inhibition and sleep are identical processes.

But how is the fact to be explained, that inhibition is a constant and essential element of the active state of the hemispheres and sleep is their rest? The answer does not seem to be difficult. Inhibition is partial sleep, or sleep distributed in small parts, within narrow limits; sleep is diffused and continuous inhibition of the hemispheres.

The theory that the processes of inhibition and sleep spread over the area of the hemispheres can be verified by direct experiment. If we place on the skin of the animal a series of instruments, producing mechanical stimulation of the skin, and so arrange all these mechanical conditioned stimuli that the same quantity of saliva is secreted for each of them, we can differentiate one of these points at one end of the series. Using the procedure described we can make the corresponding stimulus inactive—that is to say, we produce inhibition in the corresponding point of the brain. Then by observing the effects which are produced at different intervals following the stimulation, we easily recognize that the inhibition from the initial point first radiates at a definite rate over the active points and afterwards concentrates itself in the initial point again. It is of great interest that this movement of the inhibitory process is very slow—it is measured in minutes. In our daily experience we encounter exactly the same fact concerning sleep, which gradually takes possession of the hemispheres and then after a certain period of time leaves them. Of no less interest is the fact that the rate of irradiation of the inhibitory process varies very widely among different animals. It may be ten times greater in one than another. Again we see the full analogy with the fact that different persons fall asleep and awake at different rates. I regard all the facts mentioned as proving conclusively the identity of inhibition and sleep.

From this point of view the phenomenon of hypnosis may easily be explained. It is a step in the process of radiation of inhibition over the mass of the hemispheres—the partial sleep of the hemispheres. We have frequently observed the following striking phenomenon in the dog. We produce inhibition by any method and give time for it to radiate till a stage is reached when a chosen conditioned stimulus still affects the secretory reaction—the saliva flows, but the animal does not take food which is offered to it. This means that inhibition has taken possession of the motor area of the hemispheres, but has not yet radiated to other parts of them, which are, for instance, in connexion with eyes and ears. This is an obvious analogy to a special phase of human hypnosis, when the hypnotized person hears and understands, but cannot make any voluntary motion. Thus the cerebral hemispheres in an active state show the enormous mosaic of the points stimulated and inhibited, or chronically sleeping; they are very close to each other and mixed up.

Hypnosis is inhibition spread over the usually active points in special areas of the great hemispheres. Sleep is inhibition radiated over the whole area of active points of the great hemispheres and even over some parts of the brain which lie below the great hemispheres. But even while the inhibition is widespread there still remain some isolated active points, watching, so to speak, and capable of being stimulated. We know this from daily life: a miller is awakened by the cessation of his mill, a mother is roused by movement of her sick child. Similar facts may be observed and artificially produced in dogs. The development of inhibition is to a great extent dependent upon practice. This may supply the foundation for a hygiene of inhibition in both active and sleeping states.

A question of the greatest importance is whether the highest nervous activity—that is to say, individual attainment—is hereditary. We have tried to find an answer to this question. We established the conditioned food reflex in white mice, using the sound of an electric bell. With the first set of wild white mice it was necessary to repeat the combination of ringing of the bell and feeding three hundred times in order to form a well established reflex. The next generation (second) formed the same reflex after one hundred repetitions. The third generation acquired this reflex after thirty repetitions, the fourth after ten, and the fifth after five only. The experiments had reached this point when I left Petrograd this summer. On the basis of these results I anticipate that one of the next generations of our mice will show the food reaction on hearing the sound of the electric bell for the first time. This result would be quite analogous to the well known fact that a chicken newly hatched immediately tries to pick up any small objects or spots which it sees on the floor. If the stimulation of an eye, as in this case, leads to the food reaction, why, then, may not the stimulation of the ear in the former case produce the same effect?

PAPERS AND DEMONSTRATIONS.

The following are notes of some of the papers and demonstrations which could not be reported in our last issue.

The Syndromes of Experimental Pituitary Derangements.

DR. NORMAN M. DOTT (Edinburgh) said that he had produced various lesions of the hypophysis in the dog by using Paulesco's intracranial, subtemporal exposure of the organ. Total destruction in every instance in cats, and total excision in one dog, proved fatal within three to fourteen days. Death seemed due to abolition of the respiratory reflex mechanism. Two dogs survived, for more than a year, what appeared both grossly and microscopically to be total hypophysectomies. Lesions involving removal or degeneration of large portions of the anterior lobe were followed by a definite syndrome. The anterior lobe was remarkably tolerant of more limited resections, and at least one-half could be surgically removed with impunity. The function most readily disturbed was that of sexual activity. Thus one dog, with no external appearance of abnormality, had remained quite anaphrodisiac after resection of about two-thirds of his anterior lobe; and a bitch in similar circumstances had remained sterile. In well marked cases of deficiency from more extensive resections, growth was affected, and radiographic studies of the skeleton showed that it was greatly retarded or permanently arrested; the embryonic cells of the epiphyseal cartilages degenerated. The generative organs atrophied in both sexes; the germinal epithelium degenerated. The

The pituitary had become increasingly important, and headaches due to a derangement of the pituitary had to be diagnosed from sphenoidal disease. Diabetes, abnormal blood pressure, climacteric deafness, neuroses, hypothyroidism were all common causes of ear trouble, and were alike amenable to organotherapy. Dr. J. A. Gibb (Maidstone) read a paper on the referred pain of nasal sinus disease. The site to which pain was referred was often disregarded. Other viscera sometimes chose the same areas as did the nasal sinuses, and therefore observation should be backed by a thorough overhaul of the sinuses. The position and severity of the pain did not always depend on the severity of sinusitis. He detailed the areas for the various sinuses and gave cases illustrative of his thesis. Mr. Wright (Bristol), Mr. Woodman (Birmingham), and Dr. Jobson (Guildford) cited cases from their own experience. In the afternoon Mr. V. E. Negus read his paper upon a newly described function of the vocal cords in fixing the thorax during independent use of the fore limbs. He used facts from comparative anatomy in support of his argument. Sir J. Dundas-Grant read a short paper upon Canfield's operation upon the antrum. Mr. William Hill (London) read a paper upon butyn as a local anaesthetic in nose and throat work. He had found it capable of replacing cocaine in some cases, though not in all. It was two and a half times as expensive and less reliable. After the last paper Dr. Eastman Sheehan of the New York Post-graduate Hospital showed animated photographs of naso-plastic operations.

SECTION OF RADIOLOGY AND ELECTROLOGY.

Thursday, July 26th.

THE meeting of the Section was devoted to a discussion on medical diathermy, Dr. W. J. Turrell (Vice-President) taking the chair. The discussion was opened by Dr. E. P. Cumberbatch with a few words on the design of the present diathermy machines. He believed that larger and more powerful machines were needed; the machines at present made had often to be used "all out," and to give their maximum output of current. This left no reserve of power for use on occasions when the sensitive part of the machine—the spark-gap—was not in its best possible condition. The spark-gap also needed further improvement. Dr. Cumberbatch then spoke of the uses of diathermy in certain diseases, leaving infections by the gonococcus to be dealt with by a later speaker. One disease in which excellent results had been claimed for diathermy was angina pectoris; Nagelschmidt stated that after courses of treatment some of the patients remained free from attacks for months or years. Bordier spoke of the value of diathermy for the treatment of cold paralysed limbs in anterior poliomyelitis. Diathermy, in the speaker's own experience, was most valuable in the treatment of the pain and spasms accompanying haemorrhoids. Diathermy should be an efficient method of treatment of dysmenorrhoea by reason of its power to relieve congestion and painful spasmodic contraction. It should also be given a trial in cases of chronic para- and peri-metritis. Bordier recommended diathermy for coccygodynia. A few workers in the United States and Germany had tried diathermy for pulmonary tuberculosis. If diathermy possessed therapeutic action in pulmonary tuberculosis the benefit derived was likely to be due to the increase of blood and lymph supply to the affected parts, and perhaps to the increased secretion of mucus, not to a direct germicidal action, because a temperature high enough for this purpose could not be safely produced in the lungs. Dr. C. A. Robinson gave a brief account of some work which he had carried out on the treatment of gonorrhoeal affections by diathermy currents. He said that gonococcal infections of joints, of the cervix and urethra in females, and of the prostate and epididymis in males, were amenable to treatment by diathermy because by this means these parts could be heated to a temperature which for the gonococcus in these situations was lethal within the time of a treatment. Dr. Agnes Savill spoke of her experience with local diathermy for the treatment of gonorrhoea in women. Dr. Howard Humphris, in a further paper, touched upon the value of diathermy in cases of high blood pressure. High blood pressure might evidence itself in a variety of ways, none of them pathognomonic. This was a condition in which diathermy could do very much. The therapeutics of the current in lowering the blood pressure were twofold, one the general and constitutional effect on the metabolism and the other the local effect on the vasomotor system. Other conditions in which this current could be used were gout, anaemia, and wasting diseases. Dr. Turrell considered that the way to look at this question of medical diathermy was to have regard to the mode of action of diathermy and the manner in which it would apply to the particular case under treatment. Dr. G. B. Batten described his use of intensive high frequency in the treatment of haemorrhoids; he had used this method for twenty-five years, and the more he used it the better he liked it. Dr. C. B. Heald had found diathermy useful in gonorrhoeal infections. Professor Sidney Russ dealt with a number of points on the physical side, and other members of the Section asked questions to which Dr. Cumberbatch and Dr. Robinson made brief replies.

SECTION OF NAVAL AND MILITARY HYGIENE.

Thursday, July 26th.

AT the morning session Major M. Sinclair, R.A.M.C., read a paper on recent changes in fracture treatment, illustrated by lantern slides showing appliances *in situ*, result of *x*-ray examination, etc. In the discussion which followed Surgeon Captain D. W. Hewitt asked whether the opener advocated a pull from screws below the knee-joint in every case, and whether the age of the patient made any difference to the method used. The opener replied that callipers below the knee-joint were used when the skin was affected, but he would apply screws in all cases with marked displacement and irrespective of age. The stretching of the ligaments of the knee-joint, said to occur thereby, he did not consider of any importance. Captain Hewitt read a paper entitled "Some general remarks on naval surgery"; in the subsequent discussion the President pointed out the need for specialization to keep abreast of modern knowledge. Dr. J. Graeme Anderson read a paper on aeroplane accidents. This was illustrated by lantern slides showing photographs of the accidents described. Surgeon Commander Digby Bell remarked on the value of such a paper in co-ordinating the medical branches of the fighting forces. Dr. Stone (Northampton) inquired whether atmospheric pressure had much effect at high altitudes. The opener replied that the scope of the question was too wide for a reply in detail. He described some of the measures taken by pilots to avoid these ill effects; the process of becoming immunized was gradual.

In the afternoon Major Sinclair gave a demonstration of special appliances for the treatment of fractures. A ward in Haslar Hospital was placed at the disposal of the Section through the courtesy of Surgeon Rear-Admiral Alexander Maclean. The demonstration included (*a*) special instruments used; (*b*) a mobile *x*-ray plant with power furnished from a dynamo run from the wheel of an R.A.S.C. lorry, with which *x*-ray photographs were taken in the ward; (*c*) various modifications and adaptations of Thomas's splint, with which fourteen patients were fitted for demonstration purposes; (*d*) an extension exhibit of *x*-ray plates showing fractures before and after treatment; (*e*) net bed; (*f*) set of models; (*g*) other modifications of splints for allowing movements of fingers or joints of affected limb. After the demonstrations the members of the Section were shown over the Haslar Hospital and joined up with the garden party in the grounds, where tea was given by the medical officers attached to the hospital.

Demonstration of Physical Training.

On the afternoon of July 25th the Section of Naval and Military Hygiene assembled at the Royal Naval School of Physical and Recreational Training, Portsmouth, for a demonstration of the methods employed at the

tion with the Infirmary. When this is done a large amount of room will be liberated and this, or some of it, may be utilized in improving the accommodation for the rapidly developing department of radiography. The developments have been so great in it that some account must be given of them in a separate communication.

MEDICAL CHARITABLE SOCIETY FOR THE WEST RIDING.

The annual meeting of the Medical Charitable Society for the West Riding of the County of York was held at Ilkley under the chairmanship of Dr. W. R. Bates, who presided in the absence of Dr. Cheetham, the President for the year. The report for the year ending June 30th, 1923, was most satisfactory. It was recorded that at the former annual meeting, held in Doncaster in July, 1922, no fewer than 63 new members had been elected, which brought the membership up to 879. During the year the Society had to regret the deaths of nine of its members. One of these was Dr. John Irving of Huddersfield, who joined the Society in 1876 and had for many years been one of its most enthusiastic stewards and Dr. J. Young of Sheffield, whose membership dated from 1867. There were four resignations and three names were removed under Rule X, which provides for this in the case of any member whose subscription is three years in arrear and under certain conditions. At the annual meeting just held, 34 new members were elected, so the Society begins the year 1923-24 with a membership of 897. The grants made at the last annual meeting at Doncaster amounted to £1,760, and with the exception of one small grant of £10 which it was found was not required, had been distributed by the stewards of the various districts, bringing the amount distributed in grants since the founding of the Society in 1828 to £70,929 7s. The progress of this Society is really very remarkable. Founded in the year 1828 by a few enthusiastic members of the profession and growing from small things to greater it has carried on its work at a minimum of expense, for it has no paid officials except the auditor, and with everyone—stewards and secretary and treasurer—it is a labour of love. The annual subscription is one guinea, but so carefully and economically has the work been carried on that the Society now possesses investments of a nominal value of £43,374 purchased at a cost of £35,956 2s. 2d., and, as noted above, it has given in grants nearly £80,000. At the annual meeting held at Ilkley grants were made for the year now current for £1,880, and this sum will be distributed by the stewards to the recipients. Great though the work of this Society is it really ought to be much greater. No one is admitted who is over forty years of age and no one is admitted who has been in practice in the West Riding for fifteen years without subscribing to the Society. On all grounds, whether altruistic or politic, everyone who is eligible ought to join this Society; it is either a duty or an act of wisdom, and it may be both. It is right to mention that there are a few medical men who, though not eligible as members, are annual subscribers of one guinea, and some members of the lay public also subscribe annually. From time to time legacies and donations are received by the Society. Thus Mrs. Major, the widow of the late Dr. Major, formerly of Bradford, and well known as the superintendent of the West Riding Asylum at Wakefield in past years, has given the sum of £100 in memory of her husband. Particulars of the work of the Society may be obtained by those desirous of joining from the Treasurer or Secretary of the Society, Park Square, Leeds.

Scotland.

APPEAL FOR EDINBURGH MATERNITY HOSPITAL.

In an appeal issued by the physicians to the Edinburgh Maternity Hospital in Edinburgh, they call attention to the urgency for providing a new maternity hospital if the high traditions of the Edinburgh School of Midwifery are to be maintained. They also point out the importance of the question in the interest of the public and of the steadily increasing numbers of women who are availing themselves of maternity hospital treatment. Although the present hospital possesses the same accommodation as when it was erected, 1,672 patients were delivered in 1922 as against only 199 in 1870. Owing to this great increase it had been necessary to curtail the period of residence in the hospital during convalescence, although it is fully recognized that a longer period would be to the advantage of both mother and child. As indicating the very large part played by this hospital in the life of the community, it is mentioned that over 30 per cent. of all the births in Edinburgh and Leith either take place in the hospital or are attended by nurses from it at the patients' homes. The hospital is no longer, as it used to be, merely a haven for unmarried mothers; for in 1922 there were 1,345 married women delivered in its wards as against 327 unmarried. The out-patient department for the treatment of expectant mothers was a recent addition to the work of the hospital. This special branch of treatment, now so universally recognized, was inaugurated by the late Dr. J. W. Ballantyne, who was for many years one of the physicians to the hospital. In 1922 there were no fewer than 3,224 attendances at this department. Further, the services of the hospital are not purely local, since complicated and difficult cases are sent in, not merely from the immediately surrounding districts, but from all parts of Scotland. The object of the present appeal is to build a completely new and modern maternity hospital.

CONDENSED MILK REGULATIONS FOR SCOTLAND.

A statutory order has been issued by the Scottish Board of Health dealing with the standard and conditions of sale of condensed milk. "Condensed milk" is defined as milk or skimmed milk which has been concentrated by the removal of part of its water, whether with or without the addition of sugar. Four varieties of condensed milk are recognized—namely, condensed full cream milk, unsweetened; condensed full cream milk, sweetened; condensed skimmed milk, unsweetened; and condensed skimmed milk, sweetened. The last two varieties, in addition to being designated as above, must be labelled "Unfit for Babies." In each case the label must further state to how many pints of milk or skimmed milk, as the case may be, the contents of the tin are equivalent. For the purposes of these rules "milk" is defined to mean milk which contains not less than 12.4 per cent. of milk solids (including not less than 3.6 per cent. of milk fat; and "skimmed milk" to mean milk which contains not less than 9 per cent. of milk solids other than milk fat. No comment on the statement of equivalence is permitted; not any instructions as to dilution which would produce a fluid weaker than natural milk, unless these instructions clearly state that the diluted fluid is not equivalent to milk. Further, a certain degree of concentration in the condensed milk is demanded, so that the condensed full cream milk must contain not less than 9 per cent. of milk fat and 31 per cent. of all milk solids including fat. Powers are also given in the Regulations to Medical Officers of Health and local authorities to procure at any time samples of condensed milk for analysis. When it is desired to test the quantity of milk to which the contents of the tin are equivalent the tin is to be sent unopened to a public analyst; but when the intention is to test the quality, the contents of the tin must be divided into three parts in the same manner as is used for the analysis of fresh milk. The regulations have also been adopted by the Commissioners of Customs and Excise so as to prevent the importation into Scotland of any condensed milk not properly labelled or not containing the requisite amounts of milk fat and milk solids.

Ireland.

PUBLIC HEALTH LEGISLATION IN THE IRISH FREE STATE.

A DEPUTATION from the Irish Medical Committee, consisting of Dr. J. M. Day, Senator W. O'Sullivan, M.D., Dr. R. J. Rowlette, Dr. J. P. Shanly, Dr. T. Hennessy, Medical Secretary, and Mr. C. H. Gick, Secretary, waited on the Minister of Local Government (Mr. E. Blythe) Irish Free State. The deputation was accompanied by Dr. J. Casey, Dr. P. J. Greene, and Mr. M. P. O'Maille, T.D., who attended to make special representations in connexion with the salaries of the Connemara medical officers.

Reviews.

BRITISH PHARMACEUTICAL CODEX, 1923.

THE appearance of the new edition of the *British Pharmaceutical Codex* will be welcomed by all those interested in the use of drugs, either as medical practitioners or pharmacists. Its general character is indicated in its full title, *The British Pharmaceutical Codex, 1923; an Imperial Dispensatory for the Use of Medical Practitioners and Pharmacists.*[1] The book is published by direction of the Council of the Pharmaceutical Society of Great Britain, and has been prepared by a committee composed of pure chemists, pharmacists, manufacturing chemists, and pharmacologists. Hence the origin, mode of preparation, mode of dispensing, and the actions, of drugs are all described by experts. The first edition of the *Codex* was published in 1907, and the second in 1911; supplements were published in 1915 and 1922; the present volume is the third edition.

The object with which the compilation was made is stated in the preface to the first edition:

"The scope of this work may well be defined by describing the book as an imperial dispensatory for the use of medical practitioners and pharmacists, since it contains information respecting all drugs and medicines in common use throughout the British Empire, including the principal substances and preparations which are official in the pharmacopoeias of France, Germany, and the United States, as well as those described in the *British Pharmacopoeia*. The chief aim of the work is the provision of accurate information for prescribers and dispensers, special attention being given to the requirements of those practising in the British Dominions beyond the seas."

The new edition is only slightly larger than the last and follows the same general arrangement. Short monographs on the various drugs fill about three-fourths of the space, and the British Pharmaceutical Codex Formulary, which gives many hundred standard formulae together with directions for their preparation, occupies the remainder. The book also contains various useful tables of constants, and a new feature appearing in this edition is a table of the coefficients of expansion of various liquids.

Medical practitioners will find the formulary of value [illegible] convenience, for it contains convenient formulas for [illegible]rations for the most diverse purposes. They range [illegible] hair lotions and corn paints to mystic compounds [illegible]s Warburg's tincture, which, we believe, is the last [illegible]aining relic of the famous old mediaeval theriac.

The monographs on drugs form, however, the most impor[illegible]nt portion of the book. In the case of each drug the monograph gives an account of the raw materials from which it is prepared, a description of the chemical and physical properties of the drug and the recognized tests for its purity, and finally the pharmacological actions and therapeutic uses of the drug are described. The account of the actions and uses of the drugs have been very carefully prepared, and all the most recent information has been incorporated, so that the *Codex* is, amongst other things, practically a textbook of pharmacology and therapeutics.

As an example of the scope of the work the case of quinine may be taken. Three pages are given to the description of cinchona bark and its preparations, and nearly three more to the chemical, physical, and pharmacological actions of quinine; in addition, short accounts are given of the properties of twenty-two salts of quinine, and there are monographs also on quinoidine, cinchonine, cinchonidine, and quinidine. The description of quinine includes a short account of the properties of the quinine derivatives described by Morgenroth, and there is a separate monograph on one of these—namely, ethylhydrocupreine hydrochloride, or optochin.

A comparison between the present edition and the last shows that the whole work has been carefully revised, and that many monographs have been completely rewritten. The number of entirely new monographs is, however, small. The chief drugs which did not appear in the edition of 1911 or supplement of 1915 are acriflavine, emetine bismuth iodide, colloidal solutions, oil of chaulmoogra, dried parathyroid, quinidine, radium, and antibotulinus serum.

The reason why so few new drugs of importance have appeared in the past eight years is, we believe, that pharmacological advance has been chiefly along the lines of finding new uses for old drugs, and also towards finding new and more powerful derivatives of existing compounds. The number of new monographs in the *Codex* does not of course give any indication of the changes in pharmacology that have occurred—for example, insulin is described in the new edition, but is placed under the old heading of pancreatin. Similarly the account of the action and uses of the organic arsenic derivatives, of antimony compounds, and of emetine have all been rewritten.

We have given an indication of a few of the salient features of this very valuable book of reference. We feel that the committee which prepared the work is to be congratulated on the very thorough manner in which it has been revised and brought up to date. The only criticism that we venture to make is that the work would be improved by the deletion of some of the drugs described—for example, nine pages are occupied by the description of fourteen different salts of lithium, and in each case it is stated quite correctly that the action is the same as that of the corresponding salt of potassium or sodium. The need for these compounds, therefore, does not appear obvious. Perhaps such a censorship is impossible, but it seems a pity that a useful book of reference should be encumbered with the débris of forgotten superstitions.

The general value of the *Codex* is evident to anyone who has used it. In the preface to the first edition the editors pointed out that the official pharmacopoeias only contained an account of a portion of the drugs in general use. This statement is even truer to-day, and is particularly true of the *British Pharmacopoeia*, which contains no account of many of the most important drugs we possess. It is true that various excellent supplements to the pharmacopoeias have been published, but these do not lessen the value of a book like the *Codex*, which gives a critical and authoritative account of the value of most of the newer materia medica.

[1] *British Pharmaceutical Codex, 1923.* An Imperial Dispensatory for the Use of Medical Practitioners and Pharmacists. New and revised edition. Published by direction of the Council of the Pharmaceutical Society of Great Britain. London: The Pharmaceutical Press. 1923. (Demy 8vo, pp. vii+1669. 30s. net.)

OCULAR NEUROLOGY AND PHYSIOLOGY.

AFTER the nine large volumes on the neurology of the eye by Willbrand and Saenger which we owe to the German publishers, it comes as a relief to find that in the small volume by DE LAPERSONNE and CANTONNET, of which a second edition[2] has appeared, we have an adequate exposition of the subject. It is ten years since the first edition was published, and so many new facts have been discovered in these fateful ten years that it has necessitated a complete revision as well as a recasting of the text. It is a pity that there is no similar work of the same size and price in the English tongue, for there is a distinct need of one; meanwhile the book now under review will fill the gap in the library of the ophthalmic surgeon admirably. The first part deals with the motor apparatus, the visual apparatus, the sensorium, and the vasomotor and secretory functions; each chapter discusses its subject under the familiar headings of anatomy, physiology, clinical examination, symptoms of lesions, and semeiology. The second part of the book deals with ocular neurology in diverse conditions. This part forms roughly two-thirds of the book, and at its termination is given a very convenient schema for the examination of a neurological eye case. The second part deals with local affections in the neighbourhood of the eye, and with the nervous, digestive, respiratory, circulatory, renal, and genital systems; the final chapters are on autointoxications, intoxications, and infectious diseases. An excellent index completes a work which reflects great credit on authors and publishers; the illustrations are most helpful; the whole book forms a very compact and up-to-date manual of ocular neurology, and as such is very welcome.

[2] *Manuel de Neurologie Oculaire.* By F. de Lapersonne and A. Cantonnet. Second edition. Paris: Masson et Cie. 1923. (Med. 8vo, pp. 416; 113 figures, 4 plates. Fr. 20 net.)

Correspondence.

SMALL-POX, THE VACCINATION PROPAGANDA, AND MALARIA.

SIR,—May I describe an experiment which, taken in conjunction with Captain Gelston Atkins's experience (BRITISH MEDICAL JOURNAL, December 2nd, 1922, p. 1097), may be significant. I have wished to ascertain the effect on small-pox of the treatment described by Surgeon Commander Bastian (BRITISH MEDICAL JOURNAL, July 21st, p. 130), but have lacked opportunity. However, vaccinia is modified small-pox. Recently, after an interval of twenty years, I vaccinated myself; the lesions developed very rapidly; in a few days I had a widening area of inflammation and felt unwell; the vesicular stage was at hand; but as yet I had no fever. Thereupon, one evening, I began the treatment described by Bastian. I slept soundly, and as far as I know, did not sweat. Next day I had no malaise, the inflammation was subsiding, and I enjoyed a game of golf. Treatment was continued for two days more. As far as I am able to judge, I shall have no scars. About the same time I vaccinated a boy of 16. Towards the end of the week his mother brought him to me saying he was "very ill." He had "taken" savagely. The area of inflammation was from shoulder to elbow; vesicles had developed, and he had a temperature of 100°. He was put under treatment, and the next day told me he felt "topping, but I *did* sweat." These two cases are typical of several others. As anyone who cares to try the experiment may observe for himself, it is possible to abort vaccinia at any stage, and, if vaccinia, doubtless small-pox also. Apparently Captain Gelston Atkins did abort small-pox, just as Dr. Djanian aborted pneumonia (BRITISH MEDICAL JOURNAL, July 21st, p. 129).

It may be doubted whether aborted vaccinia is effective as a prevention of smallpox. But, here, as in virulent small-pox, we have two consecutive diseases—the initial malady which ends with vesication (or, in effect, in small-pox with the primary fall of temperature), and against which immunity is by then achieved; and septic infection, which is the cause of nearly all the danger and all the disfigurement, and which would not occur in the absence of the initial disease. Experience of sepsis, therefore, is of no advantage, and should by all means be prevented. By way of test, I revaccinated myself a fortnight later. The lesions itched a good deal during the second day and then subsided without treatment. Anyone may repeat my very simple experiments, and, I think, obtain similar results. In fact I believe they are already in process of repetition on a more extended scale. Of course, I do not suggest that cure (abortion) shall replace prevention (vaccination), but I do suggest that when small-pox has been contracted it is possible to mitigate its severity very greatly, and that the vaccination propaganda would be aided were it known that the sufferings caused by vaccination may be made trivial. Again, I hope that gentlemen who repeat my simple experiments will perceive that here we have a treatment of wide application, which will abort many conditions of fever, inflammation, and pain—for example, pneumonia, erysipelas, herpes zoster, and carbuncle.

As indicated by Commander Bastian, the idea underlying the treatment is that toxins are the weapons used by the organisms of acute disease against the cells of the body and their weapons. The constant accompaniment of a moist skin with recovery from acute disease, and the occurrence of heavy sweating during crises (as in pneumonia and malaria), is presumptive evidence that toxins are eliminated by the sweat. Presumably the toxins paralyse the sweat centre, and so, becoming concentrated, put the intrusive organisms in a position of advantage. The treatment deparalyses the centre, the toxins are eliminated, and the cells are placed at advantage. It has been suggested that the treatment is, in effect, one which was tried and found wanting many years ago. But the agents formerly used, especially pilocarpine the chief of them, were often sudorifics which caused sweating in health and disease, and usually the resultant fall of temperature was less than a degree. They stimulated the sweat centre or paralysed its inhibitory mechanism. The formula described by Commander Bastian causes no sweating nor fall of temperature unless fever (toxaemia) be present, and then the effect is strictly proportionate to the degree of fever. I have seen a fall of 6° in acute phthisis without injury to the patient. In phthisis one does not get cure, for the fever results from sepsis, which is constantly renewed, but one often gets temporary improvement.

May I make another appeal. Biologically speaking it is certain that the organisms of malaria excrete their toxins when they are required for defence—that is, during the stage of schizogony when the organisms, leaving the red corpuscles, are probably most susceptible to attack. If the treatment were tried at the earliest hint of the hot stage it ought to prove beneficial by ending that stage very quickly and leaving the merozoites more or less defenceless. Aspirin has already been found useful. Of course, the ordinary treatment by quinine may be employed at the same time. I should be most grateful if those who have opportunities made the experiment and published their results. Without publication, nothing is gained but private experience.—I am, etc.,

Southsea, July 30th. G. ARCHDALL REID.

THE IMPERIAL CANCER RESEARCH CAMPAIGN AND THE CANCER PROBLEM.

SIR,—The labours of the Medical Research Council and of the administrators of the Imperial Cancer Research Fund have been distinctly disappointing, and I fear unless the promoters of the British Empire Cancer Campaign exercise their functions as to the use of the moneys they secure very wisely and very well, the knowledge gained may be equally disheartening and disappointing.

Before going to the public for the large sum of money they require to put cancer research on a hopeful basis, it would be well to ensure that the administrative side of the scheme should be worked out, not by a committee of scientists and medical experts alone, but that men of proved administrative and business capacity should be added to it, and that when the scheme is decided upon its operation should be in the hands of such a hybrid committee, and that it should have such powers of control conferred upon it as would ensure efficient co-ordination and co-operation, the avoidance of overlapping, and the strictest economy in the carrying out of research in all its varied departments. This committee should have power to afford pecuniary aid and special facilities for using the resources of any or all institutions subsidized from their funds to individuals who in their opinion displayed unusual ability, originality, and initiative in research.

The subsidy granted by the Treasury to the Imperial Cancer Research Fund is utterly inadequate, and during the debate on the Ministry of Health Vote on June 28th, in response to my appeal, the Ministry admitted this; but unless the public shows decidedly that it is behind the Minister in this connexion, I fear the Treasury will not find the necessary funds. In virtue of any subsidy granted by the House of Commons, the Minister of Health, officials of his department, and members of the House should be represented on the committee.

In my view, however, the Minister can assist research in other ways than by subsidy, and that, too, to an extent and with an efficiency which he alone can bring to bear. I refer to the clinical side of research. He alone can procure and collate that mass of clinical and other information possessed by the medical practitioners throughout the country. Through his medical officers of health and their staffs and the Registrar-General's Department every case of death from cancer notified might be investigated, not by a lay official, but by the medical officer of health himself or his tuberculosis officer, and a questionnaire drawn up that might include all matters bearing upon possible cancer causation. Cancer areas—and there are such—might be mapped out. Cancer houses—and it is suspected there are such—might be located. Information might be gleaned from meteorological, geological, water and food supply experts, *et hoc genus omne*. No possible avenue of approach of

inclusion. They are as follows: Auenbrugger, the father of the method of percussion; Willan and Bateman, the founders of modern dermatology; Sir James McGrigor, the father of modern military medicine; James Lind and Gilbert Blane, the founders of modern naval medicine; Ray, who did so much for botany; and Stephen Hales, whose labours in connexion with physiology and physics were so successful. Besides these we think the names of Sir William Jenner, Sir Thomas Watson, Sir George Baker, William Prout, Wollaston, Blackall, Galileo, and Connolly should find a place in the work.

But apart from this criticism we commend the book for its excellence, and we hope that it will meet with such success that another and more amplified edition will soon be required.

HEREDITARY HAEMOLYTIC JAUNDICE.

THE book by Dr. E. MEULENGRACHT of Copenhagen on chronic hereditary haemolytic jaundice[6] is a valuable monograph on a rare but interesting familial disease. Claude Wilson in 1890 published an account of six cases occurring in three generations of one family, describing the condition as "hereditary enlargement of the spleen"; Murchison had indeed previously recorded incomplete notes of three cases in 1875. Minkowski in 1900 greatly extended our knowledge, both clinical and pathological, of the condition. In an account of eight cases in one family he emphasized its main clinical features—the enlarged spleen, the jaundice with bile absent from the urine but present in the stool, the excess of urobilin in the urine, and the chronic course. In one case examined *post mortem* he found that the splenic change consisted in hyperaemia and hyperplasia of the stroma. In succeeding years other cases were described, and knowledge of the condition was extended. The observations of Chauffard were the most important, demonstrating microcytosis of the red cells, the presence in them of peculiar granules, and their lowered resistance to haemolysis in hypotonic saline (*fragilité globulaire*). Chauffard insisted that the disease was one of the blood and spleen, and not of the liver. The condition became known as Minkowski-Chauffard's disease. In later years cases have been described in the British journals as congenital family jaundice or acholuric jaundice; and occasionally in America associated jaundice. Dr. Meulengracht has collected cases since 1914; thirty-four of them he had under and prolonged observation; of these, twelve have submitted to splenectomy with good results. He gives most complete and detailed account of these cases—their medical and family history, and the condition of the blood cells (in the operated cases both before and after operation). This large number of cases, their careful examination by modern haematological methods, and the thorough study of the literature, combine to make this book a standard contribution to the subject.

THE CLINICAL LABORATORY.

FIVE-AND-TWENTY years ago the general practitioner was shy at calling in the laboratory worker to aid him in completing a diagnosis, and even in the large hospitals there was very inadequate provision for rendering this assistance. Nowadays it is a daily occurrence to postpone a definite diagnosis until a laboratory report has been received, and if he would derive the maximum amount of information from that report the practitioner must be acquainted with the methods adopted in its production. For this there could be no better guide than Dr. CHARLES E. SIMON'S *Manual of Clinical Diagnosis by means of Laboratory Methods*, the tenth edition[7] of which with its 1,100 pages—or double the number of the first edition, published in 1896—is evidence of the great advances which have been made in clinical pathology as an aid to diagnosis. Great as these advances have been, Dr. Simon considers they are insignificant in comparison to actual possibilities, and he looks forward to the day when at every hospital of first rank there will be a real clinical laboratory, in charge of a real clinical pathologist ranking equally with the surgeon and physician. In the section devoted to the diagnosis of syphilis the Wassermann reaction is very concisely and clearly described, and a study of the details of the author's modification of the technique leads to the conclusion that his method of procedure has been well thought out. A very practical point is dealt with in the few pages devoted to the behaviour of the blood serums of different individuals and to the categorizing or grouping of different types. The importance of this grouping becomes evident when a donor for the purpose of blood transfusion has to be selected. In the past, writes Dr. Simon on page 246, surgeons have largely been in the habit of accepting donors whose blood gave rise to agglutination only but not to haemolysis when brought together with the recipient's blood.

The arrangement of the book does not differ materially from that of the immediately preceding editions. The first part is concerned with general principles and technique, and the second part—nearly one-third of the volume—with the essential factors in the laboratory diagnosis of various diseases. In this second part the author deals in alphabetical sequence and in more or less detail with a very large number of diseases in their relation to laboratory diagnosis. Dr. Simon is lecturer in medical zoology in the School of Hygiene and Public Health of the Johns Hopkins University, and in this capacity appears to have acquired a facility of expression which is noticeable throughout the volume. There is an utter absence of pedantry, and he is so seriously impressed with the importance of his subject that his enthusiasm is passed on to his readers. A great injustice would be done to the publishers if no reference were made to the excellence of the illustrations. The twenty-three coloured plates call for special commendation.

PUBLIC HEALTH AND MEDICAL INSTITUTIONS IN SAXONY.

WE have received a copy of a sumptuously produced volume on the public health and welfare system of Saxony,[8] which has been compiled to commemorate the centenary of the first meeting of the German Society of Naturalists and Physicians, held at Leipzig in 1822.

The volume contains a well illustrated account of all institutions directly or indirectly concerned in the study or administration of public health, and does not lend itself to summarization. In view of the topical interest of schemes of post-graduate instruction, we may, however, summarize the summary of activities under this heading.

The earliest foundation with this character was the Medical and Surgical Academy, which dates back to 1815. It was for long the only institution in Germany giving post-graduate instruction in midwifery and gynaecology, and to this day four-weekly courses in spring and summer are largely attended at Dresden. The next foundation was the Pathological Institute of the Dresden-Friedrichstadt Hospital (1850), where Professor Schmorl now gives post-graduate courses in pathology.

Since 1901 there has also been a special association under whose auspices combined classes are held by the staff of the various hospitals and institutions of Dresden, which cover the whole field of practical medicine. Under the auspices of a national committee, formed in 1907, courses were also given in Leipzig, Chemnitz, Zwickau, and Zittau. The various committees were affiliated to a central committee at Berlin in 1908.

The war-time spread of venereal diseases led to the institution of special courses of instruction in early diagnosis and treatment, held, in 1922, in six cities by various experts. No fees were charged, but the travelling

[6] *Der chronische hereditäre hämolytische Ikterus.* Von E. Meulengracht. Leipzig: Dr. Werner Klinkhardt. 1922. (Roy. 8vo, pp. vi+226; 5 plates.)

[7] *A Manual of Clinical Diagnosis by means of Laboratory Methods.* By Charles E. Simon, B.A., M.D. Tenth edition, enlarged and thoroughly revised. London: Henry Kimpton. 1922. (Medium 8vo, pp. xxiv + 1125; 233 figures, 23 plates. 42s. net.)

[8] *Einrichtungen auf dem Gebiete der Volksgesundheits- und Volkswohlfahrtspflege im Freistaat Sachsen.* Dresden and Leipzig: T. Steinkopff. 1922. (Cr. 4to, pp. viii+403; illustrated. 8s. 5d.)

due to the apathy of the profession and not to the slackness of the Committee of Management or its Executive.—I am, etc.,

CHARTERS J. SYMONDS,
Honorary Treasurer, Royal Medical Benevolent Fund.

Chandos Street, W., Aug. 7th.

SIR,—Dr. Haslip, Treasurer, British Medical Association, when speaking of the lack of support of the Royal Medical Benevolent Fund, stated that "the fund was still run in the same way as it was ten, twenty, and perhaps thirty years ago. There was no progress, no new ideas, in the management of those charities."

This may be correct with respect to the administration of the fund, probably necessarily so having regard to the limited sums at the disposal of the Committee; but I venture to think that a new idea of a progressive nature was introduced when the medical practitioners on the panel in Leicester consented unanimously to subscribe annually towards medical and allied charities a farthing for each State-insured person on their lists.

This yields over £100 per annum, and £50 has been given to the Royal Medical Benevolent Fund for each of the last two years, and in all probability a similar sum will be sent this year. The remainder of the amount raised is distributed locally to medical and allied charities.

I would suggest that steps be taken to urge every State Insurance area in the country to follow this example.

If this were effected, the "disgrace to the profession" would be quickly removed as the sum accruing on, say, ten million insured persons would be upwards of £10,400 per annum. This would enable the Committee to deal with a more generous hand, and the stigma of "miserable doles" would be a thing of the past.—I am, etc.,

ASTLEY V. CLARKE,
Treasurer, Leicester Subdivision of Union of Medical Practitioners.

Leicester, July 27th.

TREATMENT OF VENEREAL DISEASE.

SIR,—The Merchant Shipping Act (Amendments) Bill received the Royal Assent on August 2nd, and is now law. I was fortunate in being twenty-fifth in the ballot for private members' bills. I promoted this bill, the object of which is to remove a disability with regard to the treatment of masters and sailors of the Mercantile Marine Service.

Subsection 1 of Section 34 of the Merchant Shipping Act of 1906, whilst it provides for the free treatment of injuries and illnesses of masters and men both on board ship and in hospital, excluded the treatment of venereal disease. The result was that sailors were not only denied treatment but were liable to be left friendless and without funds whilst in foreign hospitals. Foreign doctors and irregular practitioners charged excessive sums for treatment, and the treatment must have been of the worst possible, inasmuch as it was incomplete.

The Royal Commission which sat between 1913 and 1915, of which I was a member, advised free treatment in the British Isles for venereal disease. In answer to a question in the House of Commons the Minister of Health informed the House that 162,000 persons had applied last year for treatment in the various venereal clinics in this country; British sailors in British ships were denied this privilege. The object of the bill, therefore, was to do a simple act of justice to a very brave type—the British seaman.

I have been at a very great deal of trouble over the bill, and although it only consisted of one clause it has given me a great deal of hard work. I have had the hearty support of the Minister of Health, and of Lord Wolmer, the Parliamentary Secretary of the Board of Trade (who has been most sympathetic and helpful). Both the Shipping Federation and the Seafarers' Joint Council have supported me; indeed, the bill has had the support of every section of both the Lords and Commons.

From the public health point of view, this small bill is one of very considerable importance, for the perfunctory treatment which these cases have received, and the concealment which the law encouraged, must have had a material effect in spreading disease when the sailors returned to this country. In 1921, 8,313 infants became blind from ophthalmia neonatorum, and it is well known that 15 per cent. of the inmates of our mental hospitals owe their condition to the etiological factors which this bill has done something to mitigate.

Several years ago I had the curiosity to take specimens of the blood of 500 apparently healthy men and had the blood examined by Sir Frederick Mott, with the result that 10 per cent. showed evidence that at one time they had syphilis (see report of Royal Commission on Venereal Disease).

This bill will relieve the mental and physical disability of the men, and prevent their being a danger. This is the only Act passed by my party this session.—I am, etc.,

JOHN COLLIE.

London, W.2, Aug. 2nd.

THE PRESIDENT'S ADDRESS.

SIR,—I should like to draw attention to one or two points in the President's address at Portsmouth, to which I had the privilege of listening.

1. Want of fresh air and sunlight, as Dr. Goodwin observed in your last issue, cannot be the sole cause of tuberculosis, as it is prevalent in many tropical countries like India where the people live in plenty of sunlight and fresh air. That deficient nutrition is an important factor is proved on a large scale by the great prevalence of the disease in Germany and other mid-European countries during and after the great war. Even at Hayling Island Sanatorium and at Alton regular feeding, bathing, rest, and exercise to improve metabolism are insisted upon in the arrest of surgical tuberculosis. In fact, deficiency of social and sanitary conditions often go together as causative factors, and it is because sanatorium treatment has attempted to supply these deficiencies that it has its value in the arrest of tuberculosis.

2. My recent and extensive travel in India has not confirmed Dr. Hutchison's observation that rickets is a disease of the rich in that country. The disease is found both among the wealthy and the poor. If it is more prevalent among the rich it is due to the dislike or inability of many mothers of the well-to-do classes to nurse their children and to the more extensive substitution of patent and artificial foods. If rickets is not so commonly found among the poor it is because they nurse their children more than the rich, though their living conditions in the huts and slums are often very unhygienic and insanitary. So that faulty nutrition is a factor as important—if not more—as faulty hygiene in the causation of rickets in India, and when both are present, as they often are, they make for metabolic disturbance and pathological changes which bring about, as Dr. Robert McCarrison has pointed out, many a diseased condition in India—including tuberculosis and rickets.—I am, etc.,

C. MUTHU.

Mendip Hills Sanatorium, Aug. 6th.

TUBERCLE VACCINES.

SIR,—The term lipoid has given rise to much confusion in the past, and at the present time, in the numerous statements which have appeared in connexion with Professor G. Dreyer's new work, it is by no means clear what it is intended to indicate.

In the preparation of his vaccines and antigens Professor Dreyer, as is well known, removes the waxy or fatty coat of the tubercle bacillus by formalin and acetone extraction *in vitro*. The substances are collectively spoken of by him as "lipoid and lipoidal." The question of this removal raised in Dreyer's work is specially interesting to me because it may be remembered that in the BRITISH MEDICAL JOURNAL and elsewhere I have suggested that the lipoids might be of considerable use and that "in tuberculosis preparations of the bacillus should yield fruitful results." I have, however, employed the terms "phosphorized fats (lipoids or lipins)" also and not solely of the tubercle bacillus but of normal organs, and of other pathological tissues. It seems desirable to point out that the lipoids as recognized and described in Professor Halliburton's well known textbook include fat-like substances differing from the normal fats in containing nitrogen

The "*Queen*" *Book of Travel*,[12] which has been compiled by Mr. M. HORNSBY, the travel editor of the *Queen* newspaper, is a compact little annual which has now reached its sixteenth year. In addition to a concise account of the principal British and foreign resorts it contains a large quantity of miscellaneous information, including a description of spas in Great Britain, practical hints on travelling in various countries, the names of English doctors practising abroad, and a list of books suitable for the traveller's library. The volume has fifteen excellent maps and numerous photographs of British and foreign resorts.

The volume entitled *The Older Universities of England: Oxford and Cambridge*[13] gives a fascinating account of their development and activities. It is based on a course of lectures delivered on the Lowell Foundation in March, 1922, by Mr. ALBERT MANSBRIDGE, who, though not educated on the banks of either the Isis or the Cam, shows a profound knowledge of his subject, and must therefore have been an unbiased and most efficient member of the Universities Commission (1919–22) appointed to consider the condition and wants of the two universities and make recommendations. The volume contains much interesting biographical material and many stories illustrative of the attitude and life of university dons; on this account alone it will be much appreciated by the sons of the universities. But this is only a minor feature in a book primarily concerned with the future of Oxford and Cambridge and how best they can fulfil their high educational mission. The line of their past development has been in the direction of becoming efficient post-graduate institutions, and the author's opinion coincides with that of Sir E. Rutherford, who has said that "the future of the universities and the reputation of the countries to which they belong will ultimately depend to a large extent on the development of post-graduate teaching." Medical matters are only mentioned incidentally, and the main reference is to Sir William Osler's appeal in his address to the Classical Association (1919) for the closer union of humanism and modern science.

Messrs. E. and S. Livingstone (16 and 17, Teviot Place, Edinburgh) have published in a small volume (2s. 6d., by post 2s. 9d.) the papers set in 1920–23 for the medical degrees of the University of Edinburgh, and the diplomas of the Royal College of Surgeons and the Royal College of Physicians of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow, including the D.P.H. The same firm has published in a separate volume (price 2s., by post 2s. 2d.) the papers set in 1919–23 for the Fellowship of the Royal College of Surgeons of Edinburgh.

[12] *The "Queen" Newspaper Book of Travel: A Guide to Home and Foreign Resorts.* Compiled by the Travel Editor (M. Hornsby, F.R.G.S.). Sixteenth year. London: The Field Press, Ltd. 1923. (4 × 7¼, pp. xii + 493; with 15 maps and 80 illustrations. 4s. net.)

[13] *The Older Universities of England: Oxford and Cambridge.* By Mansbridge, Hon. M.A.Oxon., Hon. LL.D.Manchester. With drawings by J. Mansbridge. London: Longmans, Green, and Co. 1923. (Demy 8vo, pp. xxiv + 296; 9 plates. 7s. 6d. net.)

THE DIETING OF THE INSANE.

CONSEQUENT upon the report of the Departmental Committee on the Administration of Public Mental Hospitals, which recommended that an attempt should be made to relieve the monotony of the diet at these institutions, the Mental Hospitals Committee of the London County Council has been considering possible improvements in the dietary with a view to more appetizing meals and an increase in food value. The dietary scale which has obtained hitherto at the London mental hospitals provides for *per capita* issues of the principal articles of food, such as bread, meat, and vegetables, for each meal. The medical superintendents believe that if the dietary scale were expressed in terms of weekly quantities for every 100 patients, and not *per capita* for each meal, with fixed formulae, it would afford them the opportunity of arranging the meals differently and of introducing more variation.

In a special report to the Committee of the Council the medical superintendents point out that the problem of dieting the insane stands apart from that of the dieting of the general population. On the one hand, the insane live under sheltered conditions, they are not subjected to the same mental and physical strain of the struggle for existence, they are under close medical and nursing supervision, and they are specially dieted on any sign of physical deterioration or disease. On the other hand, certain special precautions have to be taken: the proteins, especially those of meat, have to be restricted because they tend to overstimulate the metabolism and produce restlessness and excitement, but at the same time their undue restriction has to be guarded against because it would mean the lessening of the patient's ability to resist infections; again, the insane commonly suffer from intestinal stasis, and therefore fresh food, especially garden produce, is indicated; few of the insane take or can take really healthy exercise, and plenty of readily digested carbohydrates are essential to maintain warmth and avoid chills; vitamins also are specially important in view of the frequently lowered physical vitality of these patients and the fact that they are specially subject to auto-intoxications.

The Committee has worked out a new scale under which the daily *per capita* calorie value of the issues (including an allowance of 10 per cent. for waste) averaged over one week is not to fall below a minimum of 3,200 calories for men and 3,000 for women, presuming that these patients are on ordinary diet. It has also been decided to increase the diet in respect of fats and improve it as regards vitamins. The cooked ration of meat is, therefore, to be increased by 1 oz. per head per meal, and green vegetables are to be increased from 4 oz. to 6 oz. per issue per patient. These two modifications will increase the cost by 4¾d. a head a week, or a total of £9,700 for the six months for which it is proposed the new dietary should be tried. Otherwise the adoption of the new scale, although it provides for greater elasticity in application than the present scale, should not lead to any increase of cost. The medical superintendents had asked that margarine be substituted by good Danish butter, but the Committee finds itself unable to agree to this proposal, though it is considering the possibility of obtaining supplies of better-class margarine. The revised weekly dietary for each 100 patients is to be as follows:

	Males. lb.		Females. lb.
Bread	771–816	.....	646–693
Fats (including suet)	65¼	.....	65¼
Tea	17½	.....	21
Sugar	84	.....	93
Milk	383½ pints	.....	425½ pints
Cheese	43¾	.....	43¾
Meat (cooked without bone) ...	140¾–142¾	.....	131–133
Bacon (cooked without bone) ...	15⅜	.....	12¼
Vegetables (prepared and uncooked)	588¼–592¼	.....	511¼–517¼
Fish (uncooked)	64¼	.....	53
Cereals	47¾	.....	47¾
Flour	56	.....	56
Jam, honey, or treacle ...	40¾–63	.....	40¾–63
Pulses	17¼	.....	17¼
Dried fruit	7½	.....	7½
Cake	131	.....	131

The medical superintendents have power to make certain variations as between the amounts of the different items as the result of experience, and there are regulations for substitute diets to be allowed in the case of patients unable to take the ordinary dinner. For non-working patients the scale is to be reduced by the following quantities:

Males: Bread 131¼ lb., cheese 43¾ lb., tea 3½ lb., sugar 14 lb., milk 42 pts.

Females: Bread 131¼ lb., cheese 43¾ lb., tea 7 lb., sugar 23 lb., milk 84 pts.

All articles of food not included in the dietary are deemed to be "medical comforts," and are to be accounted for accordingly.

THE thirty-second French Congress of Surgery will be held in Paris from October 8th to 13th under the presidency of Dr. Témoin. The following questions will be discussed: (1) Transfusion of blood, introduced by MM. Jeanbrau, of Montpellier, and Victor Pauchet, of Paris; (2) critical study of operations for genital prolapse, introduced by MM. Bégouin, of Bordeaux, and Savariaud, of Paris; (3) treatment of non-calculous obliteration of the principal bile ducts, introduced by MM. P. Matthieu, of Paris, and Villaret, of Lyons. Further information can be obtained from the General Secretary, 12, Rue de Seine, Paris.

Laboratory comprised, in addition to the prosecution of original researches by the pathologist, the giving of courses of instruction on special pathological methods to the medical staffs of the contributing asylums, visits to the various asylum laboratories to advise on questions of equipment and methods, the preparation of standard sets of microscopical specimens showing the tissue changes in insanity, the provision of a reference and circulating library of neurological and psychiatrical literature, the collection from the asylums of special material required for any particular investigation undertaken by any member of the medical staffs, and the furnishing of reports with microscopical specimens, on material of special interest sent for examination from the contributing asylums. Ford Robertson devoted himself to these multifarious duties most conscientiously, and from the first he threw himself wholeheartedly into the chief purpose of the scheme, the prosecution of original research. He completed the enterprise on which he had started in 1894, and, as this occupied seven years, he had to re-write the earlier chapters in order to bring them up-to-date. His *Pathology of Mental Diseases* was published in 1900. It incorporated the results not only of his own patient and independent laboratory investigations and beautiful technique, but also of his wide reading of the vast literature on the subject in English, French, Italian, and German, any contribution of importance in these languages up to 1900 receiving due and appropriate notice, after careful abstraction (in shorthand) and digestion.

In 1899 Ford Robertson urged the importance of equipping the laboratory for bacteriological and chemical as well as histological researches and appealed for increased financial support in order that a biochemist might be appointed. Facilities were provided for bacteriological work, but the funds did not permit the appointment of a biochemist. Ford Robertson at once embarked on a long series of researches on the relation of infections to the insanities, as well as other diseases; they occupied the remainder of his life. At first he concentrated on the pathogenesis of general paralysis, and embodied his results in the Morison Lectures (1906). Subsequently the discovery of the spirochaete of syphilis in the central nervous system in general paralysis and tabes rendered it probable that the diphtheroid infections of the genito-urinary, respiratory, and alimentary tracts found in these diseases, and to which Ford Robertson and his colleagues were inclined to attach a causal significance, played a secondary part, being of importance in the final deterioration of the patient's health. In 1912 Ford Robertson concentrated on the bacteriological investigations of dementia praecox and the acute insanities, and in 1921 published his book on *Therapeutic Immunization in Asylum and General Practice*. His researches indicate that the more fully the pathogenesis of insanity, as of other bodily diseases, is investigated, the more extensive becomes the group in which infection is seen to be an essential factor, and that by the method of focal reaction can be demonstrated the pathogenic importance of many of the organisms inhabiting the body, among which he drew special attention to anaerobic forms which had hitherto been much neglected. By means of specific immunization with autogenous vaccines, derived from the individual patient in each case, and rendered more potent by sensitization with antiserum obtained from immunized sheep, and by means of his gravimetric method of preparing vaccines, in order to secure more accurate dosage, he demonstrated that many of these pathogenic infections in the insanities and other diseases could be effectually controlled and eliminated.

Photograph by [*Moffat, Edinburgh.*

DR. FORD ROBERTSON.

Many of these infections, aerobic and anaerobic, are neurotoxic, and in neurotic individuals they attack the vulnerable higher brain cells which fix the toxins, and give rise to various forms of insanity; and in the course of time, according to Ford Robertson's later work, they paralyse the nervous mechanism of the intestine, producing a condition of intestinal stasis with resultant secondary putrefactive auto-intoxication, under the stress of which the brain cells finally break down, this being the course of events when dementia or permanent mental enfeeblement supervenes.

Ford Robertson held a high opinion of Italian research work in insanity, and in 1904 he visited various neurological and psychiatrical laboratories in Italy. In 1908 he and Dr. T. C. Mackenzie published their translation of Tanzi's standard *Textbook of Mental Diseases*, and at the time of his death he was planning the translation of the last edition. He was greatly interested also in the etiology of cancer, and in 1905 published, jointly with Dr. Henry Wade, a paper stating that a protozoan parasite resembling the *Plasmodiophora brassica*, known to be the cause of tumours of certain plants, could be cultivated from carcinoma. He published further papers on this subject in 1907 and 1908, and shortly before his lamented death he had arranged for a demonstration of his last findings on the parasitic origin of cancer—which fate ordained should be given by his medical son and namesake—at the recent Annual Meeting of the British Medical Association in Portsmouth.

Dr. Ford Robertson married in 1897 and is survived by his widow and three sons, one of whom has nearly completed his studies in medicine at the University of Edinburgh.

We are indebted to Dr. W. Russell for the following tribute to Dr. Robertson's memory: I knew Ford Robertson first when as a senior student he worked in the pathological department of the Edinburgh Royal Infirmary with the same enthusiasm, a like manipulative dexterity and originality as characterized his work in the years which succeeded. In the domain of bacteriology he laboured with unflagging industry, with high enthusiasm, with striking originality and unbounded optimism. He applied all his gifts to the elucidation of certain brain disorders common in asylums, and prepared vaccines at a time when their use was in its infancy. He investigated the bacteriology of and prepared vaccines for many maladies associated with the presence of micro-organisms, and his skill in that department was widely recognized. He had an unshakeable faith in the efficacy of vaccines when properly and courageously adminstered, and his latest published work testified to this. He had early been attracted to the etiology of cancer, and whenever he could snatch time he swung back to that great problem. He displayed great originality in the means he used to find the causative factor; and his work in that direction was always interesting if not convincing. Failure never daunted him or robbed him of the great optimism which was essentially his. He was confident that the malady was of micro-organismal origin, and from that he easily stepped to a settled belief that he would ultimately make an efficient vaccine. Shortly before his last illness he was full of his latest methods of investigation and confident of the successful outcome of his work. Under more favourable conditions in his earlier years of work his talents and gifts would assuredly have carried him far in the field he so assiduously cultivated; indeed, but for his early death, he might have reached great distinction in spite of those disadvantages. Such a life can ill be spared.

Apart from the questions of heredity, of diagnosis and classification, and of clinical treatment, in which they are naturally interested, there are at any rate two ways in which members of the medical profession may give immediate and practical administrative help. Certifying medical officers vary in their knowledge of mental deficiency and in their idea of the sphere of the special school. If such officers would adopt a relatively high standard, and as far as possible a uniform standard, of "educability" for admission to, or for continuance in, the special school it would allow of the school places, which are far below the number required, being put to the best possible use. There are difficulties in the definition given in the Act and in the form of certificate, but a wise officer can overcome these. Again, medical officers could themselves supply much of the co-operation which is lacking between the various authorities concerned in one way or another with mentally deficient children or persons. The object is to secure unity and continuity of control of the mentally deficient with a view to the prevention of personal degradation and disaster to the individual defective and of the attendant social evils. In each county and county borough there is a statutory committee for the care of defectives, and each of these has, or should have, its medical officer. Such committees cannot exercise care over defectives of whose existence they are unaware, and the discovery of defectives is left mainly to others. The Education Authorities have them in their schools or on their schedules, the Poor Law Authorities find them in their institutions, the Asylum Authorities find them in their mental hospitals, the Police Authorities find them in their courts and prisons. They are found also in inebriate and rescue homes. All these authorities or institutions have their medical officers, and if these officers would in every case, when a mentally defective person is leaving their care, communicate with the medical officer of the Statutory Committee into whose area he or she is going, a continuity of supervision and help would be secured in a large number of cases where it is now prevented by the difficulty of regulations, or by the lax or less direct methods of the authorities themselves. In all cases where more than supervision is required the necessary official steps could then be taken before it is too late. In these and in other ways the medical profession can render the most valuable help and can take its due share in the attempt to solve one of the most difficult and important problems of medical sociology, a problem the solution of which in the national interest is becoming more and more urgent day by day.

HERBALISTS AND HERBALISM.

THAT lively legislator Lieut.-Commander Kenworthy has added to his claims to distinction by fathering a bill in Parliament "to provide for the registration of medical herbalists." The bill appears to be a kind of parody of the Medical Acts, and in the unimaginable event of its passing into law the herbalists at present in business would become legally qualified. We learn from the schedule that there is a body called the National Association of Medical Herbalists of Great Britain, Limited, and the council of this association would form the majority of the proposed "General Medical Herbalist Council for England and Wales."

We have been apt to assume that herbalists were persons in humble circumstances whose obscure lives did not often come into the limelight of publicity, and who did little harm even if they did no good, but now and again a coroner's court lights up other aspects of their activity. For instance, at Croydon recently a boy who had been treated by one of them died of diphtheria five minutes after a doctor was called in. The herbalist, who said he had been in "practice" for fifteen years, and had previously been a bootmaker, gave evidence that he treated the boy for a common cold, and gave him something to make him perspire. It seems in this case a pity that the cobbler did not stick to his last. The report which we have seen does not tell us what sudorific herb was administered, nor how the ex-bootmaker obtained his knowledge of its virtues. Our fathers of old started from the assumption that a beneficent Providence provided all herbs for our good; every herb must, they argued, be good for some disease, and it remained only to discover the special property of each species. One way was to relate herbs with stars and to "look at the stars when a patient is ill," as Mr. Kipling has said in *Rewards and Fairies*, where in five stanzas he has given an epitome of the history of therapeutics. But, as is to be read in that poem—

> Wonderful little, when all is said,
> Wonderful little our fathers knew . . .
> Whence enormous and manifold
> Errors were made by our fathers of old.

The epitome would have been more complete had the doctrine of signatures been included, but the omission may be excused on the ground that the doctrine is not very ancient when compared with the age-long belief in the therapeutic value of herbs. It appears to have been first promulgated in the sixteenth century by that extraordinary man Philippus Aureolus Theophrastus Bombastus of Hohenheim, who called himself Paracelsus and enriched the English and other languages by adding to them, unintentionally, the word "bombast." Although he was a doctor and a professor at Basle, who made great advances in chemistry and therapeutics, yet he was a very notorious quack. The doctrine of signatures may be stated in the words of Robert Turner, who wrote: "God hath imprinted upon the Plants, Herbs, and Flowers, as it were in Hieroglyphicks, the very signature of their Vertues." The doctrine of signatures professed to do this by finding either resemblances between the plant and the part of the body affected or between the plant and the cause of the disease. Thus, a plant with heart-shaped leaves is good for heart disease; the plant known from the shape of its leaves as the adder's tongue will cure the bite of an adder. William Cole, a Fellow of New College, Oxford, and a resident of Putney, carried this doctrine to great lengths. We owe to Mrs. Arber's book on herbals the following quotation from Cole, in which a most elaborate application of the doctrine occurs: "*Wall-nuts* have the perfect signature of the Head: The outer husk or green Covering, represent the *Pericranium*, or outward skin of the skull; whereon the hair groweth, and therefore salt made of those husks or barks, are exceeding good for wounds in the head. The inner woody shell hath the Signature of the Skull; and the little yellow skin, or Peel, that covereth the Kernell of the hard *Meninga* and *Pia-mater*, which are the thin scarfes that envelope the brain. The *Kernel* hath the very figure of the Brain, and therefore it is very profitable for the Brain and resists poysons; for if the Kernel be bruised, and moystened with the quintessence of Wine, and laid upon the Crown of the Head it comforts the brain and head mightily."

According to an article by Mr. L. F. Ramsey, published recently in the *Morning Post*, some herbalists

ST. THOMAS'S HOSPITAL MEDICAL SCHOOL.

The following entrance scholarships for the year 1923 have been awarded:

Entrance Arts Scholarship (value £50): Mr. D. H. Le Good. Entrance Science Scholarship: Mr. H. C. Trowell (value £150), Mr. I. J. Jones (value £60). William Tite Scholarship (value £45): Mr. J. B. George.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The Museum.

THE National War Collection has now been assembled, to the number of over 3,000 specimens, in the new quarters provided for it, and the work of arranging it into groups will be proceeded with by Mr. Cecil Beadles, who is in charge. Considerable progress has been made in the cataloguing of the collection, and descriptions of nearly all the specimens, with an abstract of the history of the case, have been prepared. Sir George Makins is arranging and cataloguing the drawings, which form a valuable part of the collection, and recently a series of fifty, prepared to illustrate injuries of the vascular system and others to illustrate gunshot injuries of the spine, drawn for articles written by the late Sir William Thorburn, have been presented by Messrs. John Wright of Bristol on behalf of the editors of the *British Journal of Surgery*. When the army medical collection was committed to the custody of the Royal College of Surgeons of England to form the National War Collection it was arranged that the specimens left in store should be available for distribution. The President of the Royal College of Surgeons of Edinburgh has now been given leave to make a selection for the museum of that College.

The Conservator, Sir Arthur Keith, F.R.S., says that a noteworthy event in the history of the museum in the past year was the completion of the series which illustrates the principles of pathology. The work was commenced in 1910 by Professor Shattock and Mr. Cecil Beadles; it was interrupted by the war but was resumed, and now, to quote the words of the Conservator, for the first time in Room 3 of the museum "a complete and systematic treatise has been written not in words but in illustrative specimens." The series of specimens of human osteology has been increased by a number of gifts. A very large proportion of the prehistoric remains found in Britain during the last century are preserved in the museum, and Miss L. Tildesley was last October reappointed by the Council of Scientific and Industrial Research to continue her task of preparing a new catalogue; it has been a very laborious undertaking, involving a search of published private records preserved in the college and in the library of the British Museum. During the year Sir Arthur Keith examined a large number of specimens of human remains, or remains supposed to be human, found in England, Wales, Jersey, and Gibraltar. Mr. Alban Doran has almost completed the descriptive catalogue [illegible] instruments in the possession of the [illegible] to his home during the winter, owing [illegible] he has persevered in his task and is now engaged on the last section of the collection—the surgical instruments used by barbarous and semi-civilized people. He has also written an introduction to the whole collection. Under the supervision of the honorary curator, Sir Frank Colyer, the odontological section has been put into excellent order for the use of students. The museum will be closed during September, but on Monday, October 8th, the specimens recently added to the museum will be on view and the exhibition will remain open until Monday, November 5th.

AN ordinary Council was held on July 31st, when Sir John Bland-Sutton, President, was in the chair.

Issue of Diplomas.

One hundred and eighty-nine diplomas of membership were granted to candidates found qualified at the recent examinations; and sixteen diplomas in tropical medicine and hygiene and eleven in ophthalmic medicine and surgery were granted jointly with the Royal College of Physicians. (The names were included in the report of the Comitia of the Royal College of Physicians of London, published August 4th, p. 211.)

Court of Examiners.

Mr. Thomas Percy Legg, King's College Hospital, was elected in the vacancy occasioned by the retirement of Mr. Burghard. Mr. A. B. G. Underwood was elected a member of the dental section of the Board of Examiners in Dental Surgery in the vacancy occasioned by the retirement of Mr. Norman G. Bennett. Messrs. C. H. Fagge, L. B. Rawling, and H. S. Clogg were elected members of the section in dental surgery of the Court of Examiners in the vacancies occasioned by the retirement of Mr. F. F. Burghard and of two additional members of that section of the Board, in pursuance of a resolution of the Council regarding the enlargement of the Board.

The regulation with regard to examinations in anatomy and physiology recommended by the Conjoint Board, as noted on August 4th, p. 211, was adopted.

A letter was read from the general secretaries of the sixth triennial congress of the International Society of Surgery transmitting from the congress a hearty vote of thanks for the reception given at the College on July 19th.

The next meeting of the Council will be held on Thursday, October 18th.

CONJOINT BOARD IN SCOTLAND.

THE following have passed the final examination and have been admitted L.R.C.P.E., L.R.C.S.E., and L.R.F.P.S.Glasg.:

Eileen M. M. Macdonald, Annie D. Allen, M. Kahn, J. L. Connacher, C. D. Wickramasinghe, M. N. Gelb, E. T. Hale, L. A. Moody, D. G. Coutts, H. M. Jamieson, C. A. Paulusz, Martha D. Devon, D. R. Nicol, H. S. N. Menko, W. E. Haydon, F. N. Spittel, P. M'D. Millard, Ruby S. Beveridge, Eliazer Gelfer, J. Reid.

Medical News.

FOUNDER'S DAY at Epsom College was celebrated on the afternoon of July 30th, when the prizes were distributed by the Master of the Temple, the Rev. W. H. Draper. The head master, in the course of his annual statement, said that the building of the war memorial chapel had been begun; it would cost £12,000, and towards that amount £7,000 had been received. In the evening there was a concert in Big School.

THE old students' dinner of the London Hospital will be held at the Trocadero Restaurant on Wednesday, October 3rd, at 7.30 for 8 p.m., and the Schorstein memorial lecture in clinical medicine will be delivered by Dr. Gordon Holmes, C.M.G., C.B.E., in the medical college of the hospital during the winter term.

DR. W. MCCONNEL WANKLYN (Principal Assistant M.O.H., L.C.C.) will give a lecture on the value of accurate small-pox diagnosis in the anatomical theatre of the London Hospital Medical School, Mile End, on Wednesday, August 15th, at 4.15 p.m. The lecture is intended for senior students and post-graduates, to all of whom a cordial invitation is given.

IN the list of Birthday Honours published in our issue of June 9th (p. 937) the appointment of Dr. Thomas R. St. Johnston, Colonial Secretary of the Leeward Islands and late Brevet Lieutenant Colonel, R.A.M.C., to the Companionship of the Order of St. Michael and St. George, was *inadvertently omitted.*

THE Central Midwives Board for England and Wales held a special meeting and the ordinary monthly meeting on July 25th, Sir Francis Champneys presiding. At the former the names of four midwives were struck off the Roll. At the latter the Standing Committee reported a letter from the Nottingham Midwives Association asking if under Rule E. 14 midwives had to enter on their pulse and temperature charts the hour and minute at which pulse and temperature were taken. The Board replied that in ordinary cases it is a sufficient compliance with the requirements if a midwife enter "a.m." or "p.m.," as the case may be, in her notebook or chart. Should, however, the case be one which requires the detailing of the exact times, this should be carried out, preferably on four-hourly charts.

THE KING has appointed Dr. David J. Galloway to be a member of the Executive Council of the Straits Settlements and Dr. Albert L. Hoops, principal civil medical officer, to be an official member of Legislative Council of the same colony.

DR. W. A. PUSEY, President-elect of the American Medical Association for 1924–25, is emeritus professor of dermatology in the University of Illinois, Chicago, and is perhaps best known among dermatologists in this country for the part he took in encouraging the use of carbon dioxide snow in the treatment of diseases of the skin. From 1911 to 1922 he was treasurer of the American Medical Association, and he is one of the editors of the *Archives of Dermatology and Syphilology.*

PROFESSOR EHLERS of Copenhagen, the well known authority on leprosy, has been nominated honorary professor of Strasbourg University.

THE Council of the Institution of Heating and Ventilating Engineers has appointed a committee including representatives from the Admiralty and the Office of Works to report on a standard method of testing ventilating fans. It is hoped that the committee will be able to define a standard method of fan testing and to issue a standard list of terms.

MESSRS. BAILLIÈRE, TINDALL, AND COX announce the approaching publication of a new edition, the seventh, of Stedman's *Practical Medical Dictionary.* The same firm has in the press a book on *Emergency Operations* by Mr. H. C. Orrin.

M. CHARLES GODOU, founder of the Paris School of Dentistry in 1880, and organizer of dental instruction in Paris, has recently died at the age of 63.

THE twenty-third congress of the French Association of Urology will be held at the Paris Faculty of Medicine on October 10th, under the presidency of Professor André of Nancy, when the treatment of gonococcal infection by serums and vaccines will be discussed, introduced by MM. Minet and Debains of Paris. Further information can be obtained from the general secretary, M. O. Pasteau, 13, Avenue de Villars, Paris.

A GERMAN Society for Dental Anatomy and Pathology has recently been founded under the presidency of Professor Römer, director of the Leipzig University Dental Institute.

THE number of medical students in the German universities fell by 10 per cent. in the winter of 1922–23.

SURGEON LIEUT.-COLONEL EVAN EVANS, T.D., has been promoted to be a Knight of Grace of the Order of St. John of Jerusalem.

or in the ordinary course of treatment. Mr. Bridgeman acknowledged his indebtedness to the profession for its good counsel, and the bill went through Committee practically as an agreed measure. Being now Home Secretary, he no longer has responsibility for seeing what can be done to minimize disease and accident amongst miners, but Colonel Lane-Fox, who has become Minister of Mines, is encouraging the same policy of investigation and research.

The adjournment, of course, leaves a variety of matters for consideration in the autumn session. Amongst these is the Mental Treatment Bill, happily through all its stages in the Upper House and ready to be taken in the Commons. Its object is to enable persons at an early stage of mental disorder to submit themselves voluntarily to treatment for a limited period.

The lamented illness of Mr. Bonar Law brought Mr. Baldwin to the Premiership early in the session. It is agreed that he has established himself not only as the leader of a party but as a Leader of the House. In him are combined the qualifications of a business man and of a lover of literature and the arts. His speeches have thus had a particular fascination on account of their accuracy in detailed statement of facts, and their literary form. It is too soon yet to judge the strength of the new Premier, but it may be said without hesitation that he has won the good-will of all sections of the House.

Any attempt to estimate the part taken by private members in the work of the session is impracticable in the short space available here. But the House generally has recognized the great value of what has been done quietly, actively, and unostentatiously by members of the Medical Parliamentary Committee, of which Dr. F. E. Fremantle is chairman.

SIR HAVELOCK CHARLES.

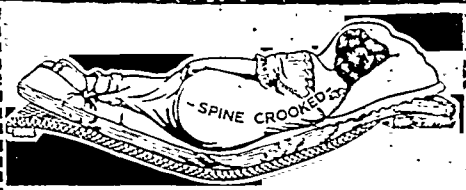
MAJOR-GENERAL SIR RICHARD HAVELOCK CHARLES, G.C.V.O., K.C.S.I., has vacated office as President of the India Office Medical Board and Medical Adviser to the Secretary of State in Council, and has been succeeded by Major-General J. B. Smith, C.B.E., C.I.E., I.M.S. (ret.). He will be succeeded as representative of the Government of India on the Permanent Committee of the International Bureau of Public Health by Major-General Sir W. R. Edwards, K.C.B., K.C.I.E., C.M.G., lately Director-General I.M.S. Viscount Peel has expressed his appreciation of the distinguished services Sir Havelock Charles has rendered to India during his tenure of these appointments, and has conveyed his thanks as Secretary of State in Council for the manner in which Sir Havelock has discharged duties, that during the war were particularly important and arduous. How arduous in certain respects these duties have been is well known to members of the British Medical Association. During the last ten years or more the Indian Medical Service has passed through a very trying period, and in every difficulty and emergency Sir Havelock Charles has shown himself its true friend. The early difficulties were in the main due to the dilatoriness of the Government of India in dealing with the situation produced by the change in the financial prospects of officers of the Service. When, owing mainly to the persistent representations made by Sir Havelock Charles to the India Office, the Indian Government at length tackled the matter, the war raised new difficulties and imposed fresh responsibilities. The prospects of the Service have also been seriously and permanently affected by the constitutional reforms recently introduced. The discussions which preceded their adoption very plainly indicated the direction they would take, so that their effect in checking recruiting in this country was obvious some years ago. But, the policy having been adopted by Parliament, there was nothing to be done. Finally, the report of the Retrenchment Committee dealt a further blow to the Service, and although the Government of India has been dissuaded from abolishing the appointment of Director of Public Health, the research grants have been greatly reduced. We have said sufficient to show that Sir Havelock Charles during his term of service has had no bed of roses. In spite of the fact that on many occasions he has had to take a course not always agreeable to the authorities, the honesty and sincerity of his services have been appreciated; he received the K.C.S.I. at the beginning of this year, and the *Gazette* now announces that he has been granted the honorary rank of Major-General.

TRANSFER OF THE SPECIAL SURGICAL HOSPITAL, SHEPHERD'S BUSH, TO ROEHAMPTON.

WE observe, from an incidental mention in an account sent to us of the work done at the Queen Mary's Convalescent Auxiliary Hospitals, Roehampton, between 1915 and 1923, that the Special Surgical Hospital, Shepherd's Bush, is to be closed at the end of this year, and that from 500 to 600 general medical and surgical cases are then to be transferred to Roehampton. It is pointed out that this will necessitate a large capital expenditure for the alteration of existing huts and the erection of new semi-permanent wards, operating theatres, etc. It will be remembered that last year (JOURNAL, April 1st, 1922, p. 530) a dispute arose between the Ministry of Pensions and the Hammersmith Guardians (from whom the special hospital at Shepherd's Bush is rented by the Ministry), and after the Ministry had suggested removing the patients under its care at Shepherd's Bush to huts in Richmond Park, an agreement to prolong the tenancy was happily arrived at. It seems evident that the tenancy of the hospital at Shepherd's Bush, which was formerly a Poor Law infirmary, must sooner or later come to an end. In 1921 (the figures for 1922 are not available) nearly 4,000 officers and men were under treatment at the hospital, nearly 2,500 operations were performed, and there was a total of over 101,000 out-patient attendances. An elaborate equipment of baths, gymnasiums, workshops, and departments for electrical treatment and massage has been built up at Shepherd's Bush, and this it is proposed eventually to transfer to the grounds which are available at Roehampton. It is, however, to be remembered that a large out-patient department, fully equipped for the different forms of special treatment, is needed. It can hardly be suggested that Roehampton is a place easily accessible from other parts of the London area, and apparently this problem still requires consideration. The report of the work at Roehampton goes on to say that it is hoped further to extend the benefits of the hospital there to a limited number of railway employees and others who have had the misfortune to lose their limbs in the course of their employment, and the committee hopes for financial support by donations and by the endowment of beds. Apparently the intention is to place the hospital at Roehampton on a permanent basis and to extend its facilities to the general public. This intention in regard to a Ministry of Pensions hospital, which was organized on a temporary basis for the reparative treatment of mutilated soldiers, will be observed with interest.

A GOOD EXAMPLE.

THE Board of Management of the Hospital for Sick Children, Great Ormond Street, has decided to establish a research department, and also to appoint a biochemist.



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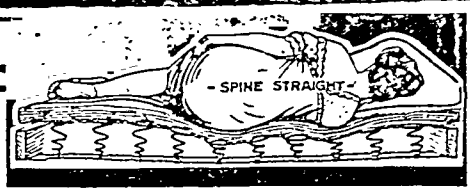

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"BY GIVING equal support at all points of the recumbent figure, it ensures relaxation of the muscles."

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Staples Mattress *cannot sag*—digestive organs undistorted—Result: Better health, nerves soothed, better sleep.

"By prevention of sagging, distortion of organs, spine and limbs is avoided."

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SPECIAL REQUEST.—Every Doctor is specially requested to send us a postcard for the interesting little treatise from which the above is quoted, written specially for us by a doctor for doctors—post free from Staples & Co., Ltd., Chitty St., London, W. 1.

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Note last syllable—

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42, Barrack Street, DUNDEE.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

PUBLIC HEALTH MATTERS.

Hospitals and Poor Law Infirmaries: The Spahlinger Treatment.

ON the Appropriation Bill, on August 1st, Mr. Rhys Davies referred to the limited hospital accommodation and to the fact that there were in the Poor Law infirmaries of the country 30,000 empty beds, while not very many short of 100,000 people were waiting for admission to the beds of ordinary hospitals. In the case of one hospital in London at that time, there were 300 persons on the waiting list for 15 beds, an average of 20 for a single bed. He next touched upon the position at Gloucester, mentioning that employers had given notice of dismissal to those of their staffs who were unwilling to be vaccinated. He complained bitterly that such a course should be tolerated. Mr. Davies then alluded to the appeal made to the Minister by a deputation from the Lancashire Insurance Committee, suggesting that an arrangement should be made between the Ministry of Health and M. Spahlinger in regard to the use of his method of treating consumptives. He understood that the Minister of Health did not see his way financially to back a proposal which would allow of separate institutional treatment on these lines for 40 or 50 patients. The Lancashire Insurance Committee had asked to be allowed to spend part of its money in trying to secure this treatment for Lancashire patients.

Lieut.-Colonel Hodge asked the Minister to reconsider his decision. M. Spahlinger had, he said, obtained cures in 80 per cent. of the cases treated under his system. But he was not a good financier, and was in debt to the amount of £100,000 on account of the work he had done. The undertaking might be commercialized, but M. Spahlinger knew that if his method were dealt with in that manner the possibility of obtaining a cure for poor people would be minimized seriously. If the sum of £100,000 were provided those who furnished it might secure the inventor's laboratory, the whole of his estate and his father's estate. These properties would be handed over for a period of ten years. M. Spahlinger also needed money to continue his research. He asked for £10,000. He was willing that a committee should be appointed to record how the money would be spent. His wife, who acted as his secretary, and his father, mother, and sister were dependent upon him. All he sought was £2,000 a year for joint maintenance. The question was whether the Minister would find £100,000 and a subsidy of £10,000 a year for three years, with a possibility that a cure for tuberculosis would be provided. For such financial aid M. Spahlinger would give 50 per cent. of his serum and vaccine. The Minister had expressed his sympathy, but had said that he could not advise the Ministry to liquidate the debts, nor could he advise nor allow the Lancashire Insurance Committee or any other insurance committee to spend money in this way. The answer to that surely was that it was a case for courage. He asked the Minister to send out a man to Geneva to ascertain the facts and make the best possible arrangements.

Ministerial Reply.

Lord Eustace Percy, replying for the Government, dealt first with the assertion that while hospitals could not provide for the sick there were 30,000 empty beds in Poor Law infirmaries. The figure was quite incorrect, for it represented the highest number at the slackest season of the year, and covered a class of institutions broader than were commonly classed as Poor Law infirmaries. The actual number of empty beds in these on January 1st was just over 6,000, or about 18 per cent., and steps were being taken for a better utilization of the space in such infirmaries. He begged to be excused from entering into a discussion on the action of certain employers in Gloucester. All he could say was that if he were in Gloucester he should certainly claim the right to protect his household from what he should consider was a risk, and to do this by refusing to take into his private employment any person not vaccinated. He should regard it as a rather gross form of tyranny if the State were to tell him he was not at liberty to do so. To what extent that principle was applicable to various forms of business or industry he would not discuss at the moment. It was not quite true that no grant was given by local authorities for extra nourishment to persons suffering from tuberculosis. There was a grant in certain cases and in certain areas. It was true there was no grant given for bedding, but he protested against the assumption that it was outside the power of local authorities to take on any new activities for the prevention or cure of disease unless they had a grant from the central Government. Coming next to the question as to the Spahlinger treatment, Lord E. Percy said it was not for want of knowledge of the interest throughout the country and the distressing need there was for an adequate and efficient cure for tuberculosis that the Ministry did not yield to the request. Nor was it because it was afraid to spend the money. M. Spahlinger had received every consideration at the hands, not only of Mr. Chamberlain, but of his predecessor, Sir Alfred Mond. Last year the Ministry sent out to Switzerland a specially qualified officer to acquaint himself with the methods, and on this officer's report the Ministry, in August, 1922, made a proposal to M. Spahlinger, which that gentleman, though unable to accept it, said he would have been very glad to accept under normal conditions. Arrangements between M. Spahlinger and the Red Cross Society also fell through. The position of the Government in this matter now was quite simple. They were interested in what was commonly known as the Spahlinger treatment. They were satisfied that there was a *prima facie* case for such further scientific inquiry as would enable medical authorities and the world in general to form a definite and final opinion as to its efficiency. But, if there was to be any question of the expenditure of public funds, Parliamentary sanction for such expenditure would be necessary, and the Government would not be justified in coming to Parliament to ask for such sanction except on the basis of adequate information and reasonable security. In the opinion of Mr. Chamberlain these conditions would best be satisfied by asking M. Spahlinger to take an early opportunity of making a full statement of his process and result to a body competent to pass expert opinion upon it. Such an opportunity was being afforded, and when M. Spahlinger had taken advantage of it they could arrive at a decision as to what action, if any, could be taken by the Government. Meanwhile, Mr. Chamberlain hoped that the appeal which he understood was now being made for funds from private sources might be successful in meeting the immediate difficulties of M. Spahlinger's position. The country might feel assured that the Ministry was watching this question with very great interest and would do everything in its power to give that assistance which trustees of the public funds could give in such cases.

Small-pox and Vaccination.

On the request of Mr. Bromfield, the Minister of Health, on July 31st, gave the following statistics as to percentages of small-pox cases in England and Wales for different age periods:

Small-pox—England and Wales.

Year.	No. of Cases.	No. of Deaths.	Mortality per Cent. of Cases.	Percentage of Total Cases at Age Periods.				
				1–15	15–30	30–40	40–50	50 and upwards
1918	63	2	3.2	31.8	23.8	23.8	6.3	14.3
1919*	311	28	9.0	17.7	29.6	17.4	18.6	15.8
1920	280	30	10.7	33.6	23.6	12.5	19.6	10.7
1921	336	5	1.5	47.0	20.6	8.9	10.7	12.8
1922	973	27	2.8	47.6	22.1	7.9	10.7	11.7
1923 (January—June inclusive)	1,227†		Information not yet available.					

* No information received as to age of three cases in 1919.
† Subject to revision.

The Minister has also supplied the following particulars of deaths from small-pox in Berlin and Paris:

Small-pox in Berlin and Paris, 1913–1922.

	1913.	1914.	1915.	1916.	1917.	1918.	1919	1920.	1921.	1922.
Berlin:										
Cases ...	4	8	26	3	288	1	22	7	1	0
Deaths ...	0	0	1	0	39	0	6	*	*	0
Paris:										
Cases ..	33	39	4	2	3	53	132	11	8	4
Deaths ...	1	3	0	1	0	20	32	1	1	1

* Figures not yet available.

Mr. Leach asked, on August 1st, whether the Minister of Health had any official information that it was the practice in the United States to carry out vaccination by means of a single insertion only, and that this method was as protective against small-pox as the official four-marks method adopted in this country. Mr. Chamberlain said he had no official information as to American methods. The Royal Commission on Vaccination concluded that vaccination in four places, giving a total vaccination area of half of a square inch, was more effectual and gave better protection against small-pox than was afforded by one place or a less vaccinated area. Mr. Leach asked whether it was the practice in the United States to defer vaccination until children entered the public schools at about the age of 5 years; and whether the incidence of small-pox there in the case of children under 5 was any greater than during that age period in other countries, such as

NINETY-FIRST ANNUAL MEETING

OF THE

British Medical Association.

Held at Portsmouth, July, 1923.

PROCEEDINGS OF SECTIONS.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

HUGH MACLEAN, M.D., D.Sc., President.

DISCUSSION ON EASES OF THE STOMACH, WITH SPECIAL REFERENCE TO MODERN METHODS OF INVESTIGATION.

OPENING PAPER

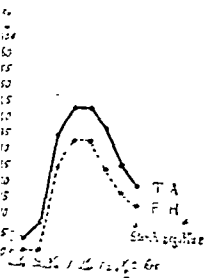
BY

ARLES BOLTON, M.D., D.Sc., F.R.C.P., F.R.S.,
Physician, University College Hospital.

tudy of the pathological processes occurring in the ch in functional disorder and in organic disease some ears ago received a decided impetus in the investiga- of disordered motor function by the employment of rays; and more recently also the study of the secre- alterations has been similarly advanced by the intro- n of the fractional test meal. The *x*-ray method has e firmly established and the value of the findings l by it definitely assessed. The fractional test meal lso eventually take its place as an important method accurate study of gastric maladies; but since there veral points of fundamental importance relating to it admit of debate, and since a good deal of fractional is now being done in this country, the present time most opportune for a discussion on the results so far ied by this method. The method of the estimation alveolar CO_2 tension during digestion as an index of itput of acid or alkali from the blood has been found odds, who introduced it, to furnish information con- tory in many ways of that obtained by the fractional neal. This method will no doubt be fully referred to, ularly in connexion with the secretion of pancreatic

The Curves of Free HCl and Total Acidity Described by Rehfuss.

1914 Rehfuss in America introduced the method of cting small fractions of the stomach contents every er of an hour after a test meal for the estimation of the percentages of the free HCl and the total acidity, the percentages of which could thus be plotted out as curves. It was found that the average normal curve rises gradually to a maximum and drops again, forming a single peak as the stomach empties, the apex of which is reached at different periods during digestion in different cases, and the descending limb of which may or may not have reached the base line when the stomach is empty. The height reached by the apex of the peak varies between about 50 60. Such curves are regarded as representing the e of gastric secretion and are known as iso-secretory s. (Fig. X.) Hypersecretory and hyposecretory curves hose which reach higher than or fail to reach the iso- ory level. Sometimes the curve never descends, or



3. X.—Normal iso-secretory e (Crohn and Reiss). T.A., l acidity. F.H., Free HCl.

may continue to rise so that its highest point occurs when the stomach is empty. Such curves, which are regarded as variants of the hypersecretory type, have been called by Bennett and Ryle the "climbing type" of curve.

A large amount of work has been done in America and England in the study of these curves in different physiological and pathological conditions of the body, and as modified by drugs. From the purely clinical point of view these observations have proved of considerable value in diagnosis. The method is simple and the estimations easily and quickly done. It gives information with regard to the amount and character of the fasting contents—in some cases the duration of the secretory activity of the stomach, the percentages of free HCl and total acidity at different periods of digestion, the time of emptying of the stomach, and the presence and time of appearance in it of bile and mucus. This method is, however, not sufficiently accurate for the scientific investigation of the chain of pathological events taking place in the stomach, because it deals only with the free HCl and neglects the protein HCl, and, more important still, the HCl which has been neutralized by alkaline salts and transformed into inorganic chloride. It is true that the percentage of protein HCl may be assumed more or less from that of the total acidity, but no account whatever is taken of the neutralized HCl in the form of inorganic chloride. We have thus no idea of the percentage of total HCl secreted, since the inorganic chlorides commonly form a considerable proportion of this total, and these curves of free acidity cannot therefore be spoken of as secretory curves at all. They merely represent the excess of acid which is unneutralized in the stomach contents. This neutralization process cannot be left out of account, because it normally regulates the acidity of the stomach contents, and in morbid processes this self-regulative mechanism is interfered with by definite causes and with the production of well defined results. It is the chief factor in modifying the curve of acidity.

The Self-regulation of the Acidity of the Stomach Contents.

In 1915 Boldyreff advanced this hypothesis. His evidence was based upon animal experiments. He found that when acid solutions were introduced into the fasting stomach of the dog they were rapidly neutralized down to a fixed level of 0.15 to 0.2 per cent. HCl, the total chlorides remaining always at the same level. By a series of careful experiments Boldyreff proved that this neutralization was due to regurgitation of pancreatic juice from the duodenum, and he foretold that such would be found to be the case in the digesting stomach.

Bolton and Goodhart in 1922 took up this point and, by making complete chloride estimations every quarter of an hour, definitely proved that, when the percentage acidity in the digesting stomach contents reaches a certain average height, regurgitation of duodenal contents occurs and brings down the acid curve by neutralization. It is, therefore, a function of the pylorus to regulate the acidity of the gastric contents.

Interpretation of the so-called Secretory Curve of Rehfuss.

When the ordinary gruel meal is used the percentage of total chlorides present (that is, free HCl + protein HCl + inorganic chlorides) represents as nearly as possible the percentage of total HCl secreted. There is a small percentage of chlorine in the other digestive juices which amounts to about 0.1, so that these fluids merely act as diluents and lower the total and inorganic curves rather less than distilled water would. The curve of total chlorides is the real secretory curve as nearly as can be obtained. It rises up with varying degrees of rapidity and remains at its high level as the stomach empties.

The rise in the acid curve undoubtedly indicates addition of HCl to the stomach contents, and it corresponds with the rise in the total chloride curve: it means that secretion of gastric juice is in progress. The fall in the acid curve does not, however, mean that secretion has stopped, because in this event the percentage of HCl would remain constant

some steps could be taken to remove this state of things. Mr. Chamberlain did not think he could usefully undertake any general action, but would be glad to consider any proposals which might be put forward by boards of guardians and the authorities of hospitals for the general use of any surplus accommodation in Poor Law infirmaries.

Nurses' Registration.—Replying to Dr. Chapple, on July 25th, Mr. Chamberlain said he had not taken the advice of the law officers of the Crown upon the power of the General Nursing Council to exclude from the register existing nurses who, "being otherwise qualified," made application for admission within two years from the date on which the rule, made on July 7th, came into operation.

Oxford and Cambridge Universities.—On inquiry by Mr. Charles Buxton, on August 2nd, Sir W. Joynson-Hicks said he had requested the University Grants Committee to take such steps as appeared practicable to obtain from the University authorities at Oxford and Cambridge returns which would be as nearly comparable as circumstances permitted with those annually supplied by other grant-aided universities. The conditions at Oxford and Cambridge, however, differed materially from those at the other universities, and as the records and accounts had not hitherto been kept with a view to such returns being made a little time must elapse before they were available.

Insurance Medical Certificate Forms.—Mr. Neville Chamberlain, on July 30th, informed Sir Ellis Hume-Williams that he could not undertake to withdraw books of certificates on the back of which advertisements appeared; but the issue would be exhausted at an early date.

Therapeutic Substances Bill.—The Therapeutic Substances Bill, having passed all its stages in the Lords, was read a first time in the Commons on August 2nd.

Ministry of Pensions.

The number of service patients at present in county or borough asylums for whose treatment and maintenance the Ministry accepts responsibility is 5,800.

A number of the cases examined after the final award had been set aside by the tribunal had been found to have deteriorated and had consequently received further compensation.

Approximately 1,500,000 courses of treatment had been provided by the Pensions Ministry for officers and men who were disabled in the great war.

Apart from the general provision of Section 5 of the War Pensions t, 1921, there is no time limit affecting a claim to compensation a disabled man in respect of aneurysm.

here were only four pensioners under treatment at the orthoaedic clinic at Burnham-on-Crouch at the cost of the Ministry, but the clinic is under the control of the British Red Cross Society. The Minister could not deal with the question whether it could be made available to the other medical men in Burnham or utilized as a local hospital.

It is proposed to vacate the hospital premises at Neath in the autumn, when a suitable institution at Chepstow will be available. There are at present 169 in-patients and 78 out-patients.

The Minister of Pensions has stated that full consideration is given to opinions expressed by county and other tuberculosis officers and medical superintendents of sanatoriums with regard to the question whether the tuberculosis from which an ex-service man may be suffering is due to war service, but the decisions on the question of entitlement must rest with the Ministry, which had the advantage of the services of a sufficient number of medical men with expert knowledge of the disease to advise on this matter.

The report of the committee appointed to inquire into the cause of the fire at Highbury Pensions Hospital, Birmingham, will be published.

Answers in Brief.

Owing to the expense that would be incurred it is not proposed to publish the report of the Joint Committee set up by the Scottish Board of Health in 1920 to consider the relation of maternity benefit under the Insurance Act and the maternity and child welfare schemes of local authorities. The committee was composed of representatives from the consultative committee on local health administration and general health questions and of the consultative committee on national health insurance (approved societies' work).

The Minister of Health informed Sir Robert Newman there had not been an increase in deaths resulting from measles since the compulsory notification of that complaint had been abolished. The average number of deaths during the past three years had been 5,042 per annum, as compared with 7,318 per annum for the four years 1916–19 during which notification was compulsory.

The annual cost per head for the year ended March 31st, 1921, for England and Wales of the inmates of the several classes of Poor Law institutions was as follows: Homes for children, £73 18s. 7d.; Poor Law infirmaries and other Poor Law institutions for persons suffering from infirmity of body or mind, £148 12s. 1½d.; general Poor Law institutions, £78 14s. 7½d.; all classes of Poor Law institutions, £88 5s. 3½d.

Mr. Chamberlain has promised to consider a suggestion by Sir Charles Oman that in the draft order for casual paupers about to be issued, provision would be made for notices to be placed in casual wards advising that casuals should apply to see the doctor in cases of indisposition; and if unfit to travel should apply for admission to the workhouse.

The collection of information as to cancer areas in this country, or on the Continent, is receiving the attention of the Committee advising the Ministry of Health on cancer problems.

In reply to a question as to the death of a painter at West Norwood from lead poisoning, the Home Secretary said that the whole subject was receiving careful consideration, and he hoped soon to be in a position to announce the decision of the Government.

The Home Secretary has declined to introduce legislation to amend the law so as to give magistrates power to place inebriates upon the black list without their own consent.

The Home Secretary has stated that only one prison governor holds the necessary qualifications to act as a medical officer. No change in the present practice of making appointments was contemplated.

INTERNATIONAL PHYSIOLOGICAL CONGRESS.

(*Concluded from page 203.*)

The eleventh International Physiological Congress held in Edinburgh under the presidency of Sir Edward Sharpey Schafer, Professor of Physiology in the University, came to an end on Friday, July 27th.

Inhibition, Hypnosis, and Sleep.

Professor I. P. Pavlov (Petrograd), who was present at the Congress, had prepared a lecture on the identity of inhibition, as a constant factor in the waking state, with hypnosis and sleep, which was read for him by his son.

In some introductory paragraphs Professor Pavlov said that the highest nervous activity of the dog had been studied by himself and his numerous collaborators for the last twenty years, and that the investigation had always been conducted on a purely physiological basis; psychological conceptions or words were never used. The highest nervous activity consisted of analysis and synthesis of the external and inner worlds—of stimuli which reached the cerebral hemispheres from without and from within. The so-called reflexes or instincts, the latter being complex reflexes, formed the chief basis of nervous activity. Reflexes were the inborn connexion between definite outside agencies and corresponding definite activities of the organism. This reflex activity was the function of the lowest parts of the central nervous system. During life temporary connexions were formed under special conditions in the cerebral hemispheres. To the inborn reflexes he applied the term "unconditioned reflexes"; those individually acquired he called "conditioned reflexes." If some external stimulus was made repeatedly to coincide with some inborn reflex it acquired the powers of producing the same reaction as the unconditioned reflex. For example, food produced a food reaction; the animal performed certain movements with respect to the food, and saliva and gastric juice were secreted. If the feeding of the animal coincided several times with a certain sound then this sound, previously entirely indifferent, evoked the same food reaction as the food itself. The amount of saliva secreted was a measure of the intensity of the reaction. A similar principle applied to the formation of conditioned reflexes in the case of any other agent of the external world and in the case of other instincts—for instance, self-protection or the sexual instinct. The great synthesis between the outer world and the organism was accomplished in this way. A conditioned stimulus, if not accompanied by the unconditioned, was temporarily suspended; for instance, if in the example already given the sounds were not accompanied by feeding the food reaction it had produced would be lost, but after several minutes, or in some cases hours, it returned. It appeared, therefore, that there was an inhibition, but not destruction, of the reflex. Any stimulus, after it had become a conditioned stimulus, was generalized—that is to say, the conditioned reaction was provoked not only by the specially chosen stimulus, but by any other of the same type. After this introduction Professor Pavlov continued with the main subject of his address, as follows:

As a result of many preliminary guesses and tests we arrived at the following thesis: the inhibition already referred to, and ordinary sleep and hypnosis also, are one and the same process. Every conditioned stimulus, as soon as it is used alone, without being accompanied by an unconditioned one, sooner or later always leads to a drowsy state, or to sleep. Some conditioned stimuli produce sleep in a shorter time than others. In a similar way some animals develop this property more easily than others. As a general rule, sleep is induced the more quickly the longer

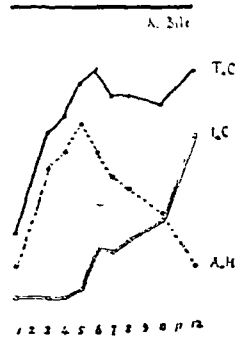


FIG. 1.—Normal curve of total loride (T.C.), inorganic chloride C.), and active HCl (A.H.) protein HCl + free HCl).

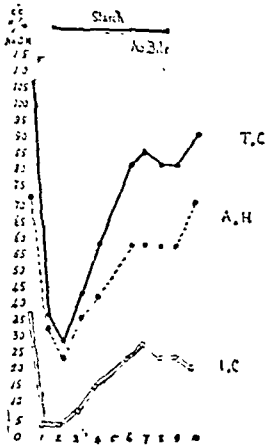


FIG. 2.—Functional disorder: Symptoms of hyperchlorhydria.

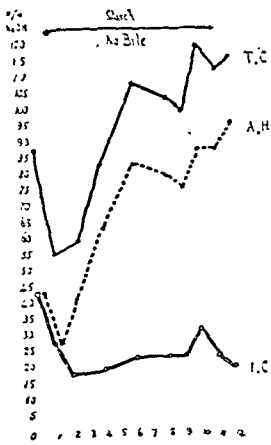


FIG. 3.—Duodenal ulcer.

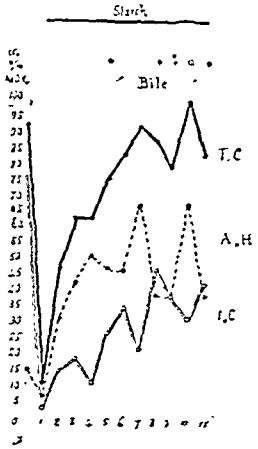


FIG. 4.—Pyloric ulcer.

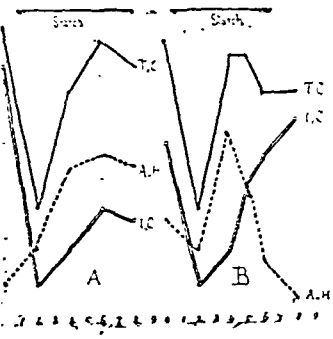


FIG. 5.—A, Before atropine. B, Atropine /50 FF. a quarter of an hour before each ueal for three days before curve taken.

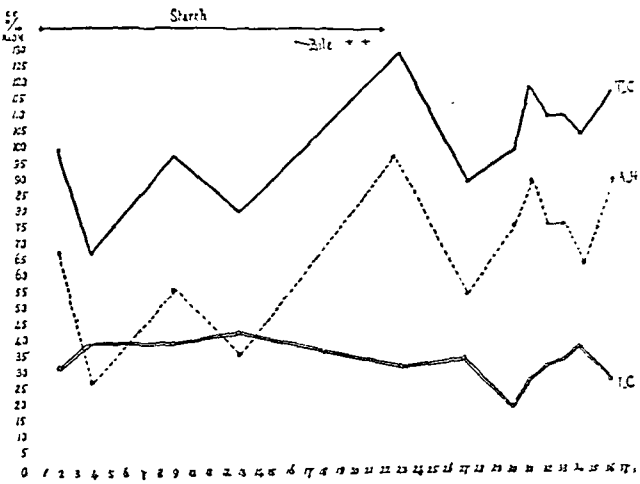


FIG. 6.—Hour-glass stomach (ulcer). proximal sac: Hypersecretion.

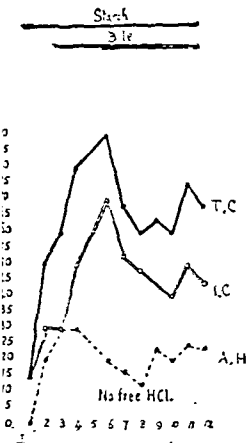


FIG. 7.—Excessive neutralization: Functional disorder. (A. H., entire protein HCl.)

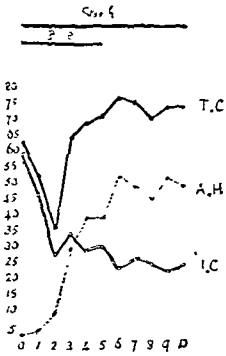


FIG. 8.—Pyloric obstruction (ulcer).

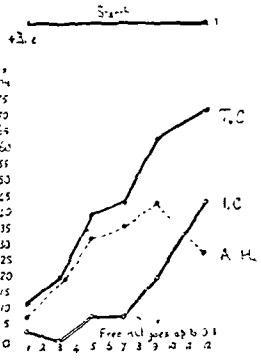


FIG. 9.—Hyposecretion: Functional disorder.

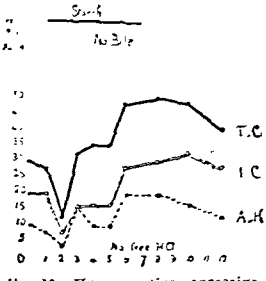


FIG. 10.—Hyposecretion, excessive neutralization: Functional disorder.

metabolic rate was depressed from the first, as evidenced by subnormal temperature, lethargy, and adiposity. The thyroid gland showed an extreme (?) compensatory hyperplasia during the first ten days; this was followed by permanent hypoplasia.

Feeding with anterior lobe caused both in dogs and cats a moderate (average 25 per cent.) acceleration of growth, as mathematically determined by radiography of the skeleton. The temperature of these animals had averaged slightly higher than that of controls. Administration of the anterior lobe raised the subnormal temperature and relieved the lethargy. It did not influence the failure in growth, nor had it altered the histological appearances of the degenerated epiphyseal cartilages. Injections of extracts of the anterior lobe raised the subnormal temperature of thyroidectomized animals just as thyroid extract did; this indicated a possible independent metabolic activator from the anterior lobe of the pituitary body.

Total excisions of the posterior lobe had given rise to no observable consequences. One animal so treated appeared perfectly normal eighteen months after the operation and had two normal pregnancies and parturitions. Mechanical stimulation of the posterior lobe by operative manipulations had caused an extreme, evanescent polyuria. The polyuria following continued irritation by the contact of a platinum plate was still greater and of longer druation. The operations were conducted with care, and no interpeduncular cerebral lesion could be found *post mortem* by microscopical examination. The conclusion drawn was that the anterior lobe exerted an influence (probably independently of the thyroid) on the activity of the cells of the entire organism, and a special "trophic influence" upon cells of an embryonic type, such as were found in germinal epithelium in both the young and mature, and in the epiphyseal cartilages of the adolescent. In spite of the well known physiological effects of posterior lobe extract, extirpation of this portion of the organ gave no indication of its physiological action in terms of the consequences of its deficiency.

Circulation in the Spleen.

Mr. J. BARCROFT (Cambridge) gave a demonstration upon the circulation in the spleen, showing how small was the quantity of carboxyhaemoglobin in the spleen of an animal which had breathed CO. If rats were placed in 0.1 per cent. CO, the blood in the general circulation became saturated up to 50 per cent. in twenty-four minutes, and blood taken from the liver was indistinguishable from that in the general circulation; but the haemoglobin in the spleen required at least another twenty-five minutes to become saturated to the same extent. Conversely, if rats had been in 0.1 per cent. CO till the haemoglobin of their blood and the haemoglobin of their spleen pulp were saturated to over 60 per cent. saturation, and were then exposed to ordinary air, the blood would in forty-five minutes be only 30 per cent. saturated, whilst another hour elapsed before the haemoglobin of the spleen reached that figure. It appeared, therefore, that the spleen pulp contained large numbers of corpuscles which were not circulating in the ordinary sense, and was, in fact, a sort of backwater in the circulation.

Phagocytic Cells of the Omentum.

Drs. J. C. ARMOUR and JOHN TAIT (Toronto), in a communication on phagocytosis by the omentum, said that, as was originally shown by Buxton and Torrey in 1906, there are clusters of phagocytic cells in the omentum of the rabbit and guinea-pig—the so-called "taches laiteuses" of Ranvier. By intraperitoneal injections of Indian ink the distribution and arrangement of the phagocytic cells of the omentum of the cat, dog, rabbit, guinea-pig, woodchuck, squirrel, chipmunk, rat, mouse, and bat had been examined, and it had been found that each kind of animal had its own characteristic and distinctive arrangement of phagocytic cell groups. In the dog, cat, and rabbit the arrangement in the adult was different from that in the newly born. As a rule the phagocytic cells were in clumps or clusters, which might or might not have a special blood supply. Individual phagocytic cells also occurred in the ground substance of the omentum. It was by means of these adhesive phagocytic cell clusters that the omentum attached itself to or wrapped itself around foreign bodies. Tubercle bacilli introduced into the peritoneum became ingested by omental phagocytic cells.

Pernicious Anaemia.

Drs. A. v. SZENT-GYÖRGYI and R. BRINKMAN (Groningen) gave a demonstration on the pathogenesis of pernicious anaemia showing that the haemolytic substances which could be extracted from normal blood consisted of higher fatty acids. In plasma these were inactivated as calcium compounds, but the calcium salts of the higher unsaturated fatty acids preserved their capillary action and were haemolytic. Injection of small amounts of linolenic acid in the rabbit caused a severe haemolytic anaemia. The fraction of higher unsaturated fatty acids was in normal blood very small; in pernicious anaemia it was distinctly increased.

Action of the Diaphragm.

Drs. J. M. W. MORISON and B. A. MCSWINEY (Manchester) read a communication upon the action of the diaphragm in relation to movements of the chest wall. Their investigations were carried out on normal subjects and patients with unilateral paralysis of the diaphragm, congenital and acquired, in order to compare the action of the diaphragm with the movements of the chest wall. X-ray examination in cases of unilateral paralysis showed reversed action of the diaphragn on the paralysed side. The movements of the chest wall were recorded by means of a respiratory waistcoat. No movements were observed in the lower part of the chest wall on the affected side. In the upper region there was diminished movement, but otherwise no abnormal change.

England and Wales.

THE GENERAL INFIRMARY AT LEEDS.

THE scheme for the redistribution of beds and cots throughout the Leeds General Infirmary which was adopted some time ago has not had full expression until the recent opening of the remaining large ward for the accommodation of children. Old students of the Infirmary will remember the wards numbered 6, 8, and 10 which form the upper story of the three back pavilions. These have recently been connected by balconies at their northern ends, and in this way an emergency exit is provided in case of fire as well as excellent accommodation for the open-air treatment of the children in suitable weather. Each ward has accommodation for 33 cots. One ward is for medical cases. Surgical cases absorb one ward and 19 cots in another, and the remaining 14 cots are divided between the ophthalmic and aural departments. Between wards 6 and 8 is situated the newly opened Princess Mary ward for infants which can be approached from the square of No. 8 ward as well as from the terrace. There has thus been accomplished what has been aimed at for some years, namely, the provision of "A complete children's hospital within the walls of the General Infirmary" by the segregation of the children and by the extension and improvement of the accommodation for them.

Without further extension the Infirmary is now working to the limit of its capacity. Including a few emergency beds and cots there are now 432 beds for adults, and 112 cots for children. But in a large hospital things must never stand still and there are schemes for the enlargement of the nurses' home, for the development of the instructional block for the students and for the possible formation of a great receiving room department, which it is believed will greatly improve the out-patient department, and make the general working of the Infirmary smoother and more efficient. The large and progressive dental school has its clinical department within the walls of the Infirmary, for the large hall which was used as a waiting room for the out-patient department before the recent extensions, has been modified to meet the requirements of the dental school, which also has the use of a portion of the old operating department. The time will come, and it is hoped that it will come soon, when a fully equipped dental hospital will be built in close rela-

stomach, but when it forms a tight constriction the same mechanical effect is seen as in pyloric obstruction. The effect of duodenal regurgitation is not felt in the proximal sac. No typical fall in the acid curve due to neutralization is seen; the total chloride and acid curves maintain their heights and the inorganic chloride curve remains low. The delayed emptying of the proximal sac may lead to hypersecretion. (Fig. 6.)

The effects of stricture at the outlet or in the body of the stomach are therefore purely mechanical; the emptying of the stomach is delayed and hypersecretion set up, whilst neutralization is prevented.

Subacidity: Hypochlorhydria, Achlorhydria, Achylia.

The value of a complete chloride analysis is nowhere more strikingly exhibited than in the condition of subacidity, because if the free HCl and total acidity curves are alone considered one may conclude that very little or no gastric juice is being secreted, whereas it may be normal or merely diminished in quantity. As the result of our observations we recognize the following conditions as constituting subacidity:

1. Excessive neutralization of the gastric juice, which may be in normal or diminished quantity.
2. Simple diminution in the amount of gastric juice secreted—hyposecretion.
3. Absence of gastric juice—achylia gastrica.

1. *Excessive neutralization* of the gastric juice is demonstrated by the large increase in the amount of inorganic chloride present as compared with the diminution in the amount of protein HCl, free HCl being absent. A characteristic feature of the curves is that the inorganic chloride curve is higher than the acid curve usually during the whole of digestion, and it is uncommon for these two curves to cross as is normally the case. When the gastric juice is being secreted in normal quantity, but is excessively neutralized, the total chloride curve rises to from 60 to 90. The rise occurs in the normal fashion, and is accompanied by a corresponding rise in the inorganic chloride curve. The protein HCl curve is below the inorganic curve, but the two may cross as in normal cases. Free HCl is absent. Bile may be constantly present or appear very early. Normal amounts of fluid are extracted. (Fig. 7.) The cause of this excessive neutralization is to be found in increased duodenal regurgitation owing to the pylorus being hypotonic. A definite relaxation does not usually occur at a given point, but excessive regurgitation appears constantly to occur from the beginning. The stomach is commonly found atonic with diminished peristalsis.

2. *Simple diminution in the amount* of gastric juice secreted is demonstrated by the total chloride curve standing at 60 or below while the stomach contains food; otherwise the curves are like the normal but lower, and free HCl may be present or absent. (Fig. 9.) If the diminution be considerable, curves indicating excessive neutralization appear, as a normal duodenal regurgitation will produce this effect. The total chloride curve stands below 60 when the stomach contains food and the amounts extracted are small. The total and inorganic chloride curves in this case rise very slowly to the end; the protein HCl curve is similar and the lowest of the three. Free HCl is absent. (Fig. 10.) In cases of hyposecretion with absence of free HCl the gastric glands may sometimes be stimulated into increased activity by giving a meat meal.

3. *Achylia Gastrica.*—Free HCl is absent in all cases, but a total absence of protein HCl is uncommon in our experience. There is usually present a small amount, perhaps 15 or so—a mere trace. The stomach usually empties rapidly in three-quarters of an hour to an hour, the quantity extracted is small, and the total chlorides low in percentage—under 30—the curve practically drawing a straight line. After the stomach has emptied there may be no residue or small amounts may be obtained. If there is sufficient for analysis this residue may show a high total chloride content, sometimes almost within normal limits. In such cases small amounts of gastric juice are being secreted. (Fig. 11.) The term "achylia" should, speaking strictly, be limited to an entire absence of gastric juice, which, as an acquired abnormality, must be rare, and probably most of such cases are congenital.

The three well known diseases in which subacidity of the gastric contents occurs are cancer of the stomach, gastritis, and pernicious anaemia.

Cancer.—Both the current views with regard to the effects of cancer are undoubtedly correct. It diminishes the secretion and in addition excessive neutralization occurs in some cases, but our curves do not show whether this is due to duodenal regurgitation or discharge from the growth. Some cases show a normal secretion with or without duodenal neutralization. (Figs. 12, 15.)

Gastritis.—In all cases, acute or chronic, the effect is a diminution in the amount of gastric juice secreted. It is true that in some cases of chronic gastritis there is an increase in the percentage of HCl in the contents and also hypersecretion of the gastric juice. Such cases have been called "acid gastritis," and are supposed to be an early irritative stage of chronic gastritis. Such a condition is commonly seen in chronic gastric ulcer. In 1915 I was able to demonstrate that the administration of HCl in strengths of 0.28 per cent. and upwards produced gastritis and follicular ulcers in the monkey's stomach. It appears to me that the relationship of hyperacid gastric contents or hypersecretion to gastritis is twofold: (1) the HCl is the cause of the gastritis; (2) the two are the result of a common irritant. There is no evidence whatever to show that gastritis is able to increase the amount of gastric juice secreted.

Pernicious Anaemia.—The secretion in this disease is practically absent and it is not a question of neutralization. (Fig. 11.)

A *functional hyposecretion* appears to be a secondary result of some general bodily and nervous debility often associated with the voluntary cutting off of food, as there is no definite evidence that hyposecretion is a primary functional derangement of the stomach.

Gastric Acidity following Gastro-enterostomy and Allied Operations.

Following gastro-enterostomy the secretion of gastric juice remains unchanged, any alteration in the acidity curves being due to neutralization by regurgitation of intestinal contents through the stoma, as Willcox showed in 1909. Two types of curves are recognized:

1. In a successful gastro-enterostomy practically complete neutralization occurs. This is shown by the height of the total chloride and inorganic curves. Except for a slight rise in the beginning of digestion the HCl curve is at zero. (Fig. 13.)

2. In other cases the acid curve is practically of the same type as it was before the operation—these cases are those which develop jejunal ulcers owing to the presence of free HCl in the jejunum, and are more particularly seen after gastro-enterostomy for duodenal ulcer. This condition is due to deficient regurgitation through the stoma. The total chloride curve keeps uniformly high and the inorganic chloride curve low. If the acid curve does not fall the inorganic chloride curve is low the whole time, but if the acid curve falls the inorganic chloride curve rises and crosses it. The fault is in the stoma, which acts as a sphincter and prevents regurgitation and neutralization. (Fig. 14.)

Gastro-enterostomy, therefore, relieves the patient not only by facilitating the emptying of the stomach in pyloric obstruction, but also by allowing free regurgitation of intestinal contents, thereby neutralizing the HCl in the stomach, as Paterson has maintained since 1909. Excision of the pylorus will probably prove eventually to be the better operation for this reason.

Hypersecretion of Gastric Juice.

A general consensus of opinion has not yet been arrived at with regard to what actually constitutes hypersecretion. It is generally assumed that if an amount of resting juice (that is, that present before breakfast) above the normal is extracted, a continuous hypersecretion is present. The point in dispute is what amount should be regarded as the normal.

The deputation was introduced to the Minister by Professor M. Hayes, T.D., National University (Speaker in the Dail); Sir James Craig, M.D., T.D. (Dublin University), sent a message expressing his regret that he was unable to be present owing to his absence from home on a holiday. The main object of the deputation was to make certain representations to the Minister of Local Government with regard to the announcement that a Public Health Bill was to be brought forward in the Dail at an early date.

Statement by the Deputation.

Dr. Rowlette, speaking on behalf of the deputation, said that it was understood that the Local Government Department had been at work on a draft for a Public Health Bill, but the Irish Medical Committee had no knowledge of what it might contain. Their view was that no measure would be adequate unless it was thorough-going. The need for thorough and thoughtful attention to public health must be admitted, and the Irish Medical Committee was of opinion that no activity of Government, maintenance of law, development of industry, and defence against enemies, was more essential to the welfare of the nation than the care of the public health. The condition in Ireland gave cause for anxiety. The death rate in other civilized countries had fallen greatly in the past sixty years; in Ireland it had been practically stationary. The mortality from tuberculosis had fallen in Great Britain by a half, in Ireland by only a third. Infant mortality in Ireland as a whole was not high—a fact observed in all pastoral countries. But in the cities of Ireland it was alarmingly high, and Dublin had the highest infant mortality in the British Isles—134 per 1,000 as compared with 80 per 1,000 in London. Less care was paid to public health in Ireland than in any civilized country. In other countries every city and county and every considerable town had its expert whose entire duty was to safeguard the health of the people. In the whole of the Free State there was only one whole-time medical officer of health; the officer for Dublin. In country districts sanitary work, in the modern sense, hardly existed. The dispensary doctor was medical officer of health for his district as well as dispensary doctor. For the duties of this added office he was paid a separate salary, which varied from £5 a year to £30. The salary was, no doubt, fixed contemptuously to emphasize the fact that the authorities did not wish that the duties should be taken seriously. As the dispensary doctor had to make his living as a private practitioner in dependence on the people who were most likely to offend against the sanitary laws, it was clear that a rigorous attention to preventive work was impossible.

The deputation wished to urge the Minister to adopt in its entirety the programme of the Irish Public Health Council which had been accepted by the medical profession, welcomed by the press, and recently had, in its essentials, been put forward by the General Council of County Councils, a body thoroughly representative of the ratepayers of the country. The central features of the programme were the establishment of a Ministry of Health and of a National Medical Service. The mere naming of a ministry as "Ministry of Health" would impress on the Minister and on his staff the predominant importance of their duties regarding health. At present there was nothing to suggest that, among the multifarious activities which came under the supervision of the Ministry of Local Government, health was more important than the care of roads or the control of markets.

The establishment of a national medical service had been recommended in 1906 by the Vice-Regal Commission on Poor Law Reform; it had subsequently received the approval of the medical profession by a plebiscite; the Commission to consider the extension of medical benefits to Ireland, in 1913, advocated it; the Irish Public Health Council, in 1920, discussed the alternative proposal for a county medical service, and unanimously reported in favour of a National Medical Service. The proposal was recently adopted by the General Council of County Councils. The Irish Medical Committee saw no hope of making the public medical services attractive to the best class of young Irish medical men and women by any other means than by the establishment of a National Medical Service.

The profession had welcomed the reforms made during the past few years both by the first Dail and recently on the proposals of the Minister. They were in the right direction but they did not go far enough. The making the county the health unit was a great advance. In one particular, however, they went too far—in the abolition of district hospitals. While the principle of centralization in one hospital in each county was good, there was danger in applying it too rigorously. Patients were averse to travelling too far from their homes, and in many cases of illness the long journey added a great risk. The result was that many patients refused to go to hospital and had to be treated in unsuitable conditions. The Irish Medical Committee did not know whether the Minister had considered the advisability of setting up a body such as the Irish Public Health Council had been, or a health council such as was recommended in the report of the Irish Public Health Council, but thought such a body would be helpful to him.

The Minister of Local Government, in reply, stated that it was his intention to introduce immediately a Public Health Bill but, in view of the early dissolution of the Dail and the general election within the next two weeks, it would be impossible for him to adhere to his programme. He, however, hoped that it would be one of the first measures to be introduced in the Dail after the election. He fully realized the unsatisfactory condition in the Free State of questions relating to public health and the public medical services. It was his intention to have dealt with public health before undertaking the reform of the medical services. He proposed that a county medical officer of health should be appointed to look after each county in the Free State and under him there would be school medical inspectors and tuberculosis medical officers. He hoped that such salaries would be paid as would attract the best young doctors in the profession in Ireland. He did not favour the establishment of a Ministry of Health apart from local government; it was only a difference in nomenclature which in practice meant very little. He favoured the formation of an advisory body similar in functions to the existing Irish Public Health Council. The Minister regretted that owing to an urgent meeting of the Cabinet to which he was summoned he could not wait to discuss many other medical matters with the deputation, but suggested that the deputation should continue the discussion with Mr. McCarron, Secretary of Local Government, and Dr. E. F. Stephenson, Medical Administrator, who were present.

Further Discussion.

Mr. O'Maille, T.D., spoke of the case of doctors in county Galway, especially those in the Connemara district, and protested against the action of the Local Government Department in refusing to sanction the full amount of £300 per annum for the dispensary doctors. Dr. Casey and Dr. Greene, who practise in Connemara, stated that their districts were twenty miles in length and fifteen miles in breadth. Dr. Greene said that the population of his district was over 8,000 and 80 per cent. were treated gratuitously under the Medical Charities Acts. Owing to the inadequacy of his salary he was unable to give sufficient attendance to the sick in his district, as if he were to do so he would have to be paid more than double his present remuneration to cover the travelling expenses. The refusal of the Local Government Department to approve the full amount of the increased salaries passed by the Kinsale Board of Guardians was also the subject of a warm discussion, the deputation pointing out that it was impossible for the doctors in these districts to give an adequate medical service in the circumstances. The deputation brought to the notice also the unsatisfactory conditions of holidays for medical officers in certain counties where unsympathetic local authorities nullified the holiday regulations granting an annual holiday not exceeding one month. Owing to the faulty wording of that regulation it was open to a local authority to give only a few days' holiday and to fix the remuneration at such a low weekly rate that no substitute could be found to accept it. Dr. Stephenson stated, on behalf of the Local Government Department, that such action would be impossible in the future as the revised regulations provided that the doctor going on leave should be allowed a full month's holidays, and that a sufficient remuneration for the substitute would be mandatory on the local authority. The Department, however, would not undertake to go further than treating each case of refusal, in any respect, as it occurred, but promised to act promptly so that the doctor going on leave might take his holidays at the time arranged to suit him, and to urge upon the local authorities to appoint as locumtenent, so far as practicable, the substitute nominated by the doctor going on leave. The question of local authorities including illegal conditions of service in the advertisements for medical vaccines, was also discussed and the deputation suggested that, in accordance with the regulations, notice of each medical vacancy and the terms of the advertisement therefor should be submitted to the Local Government. This suggestion was agreed to. Other matters having been considered the deputation thanked the Local Government officials for their patient hearing of the different questions brought to their notice.

MESSRS. LONGMANS, GREEN AND CO. announce that the new edition of Sir Edward Thorpe's *Dictionary of Applied Chemistry* will extend to seven volumes, a great part of the last volume being devoted to a complete index of the work.

gastrogenous diarrhoea, only a few cubic centimetres of mucoid juice like white of egg might be obtained. The presence of blood in leucocytes in chronic gastritis, and food débris in pyloric growth obstruction, afforded further useful information. The rate of emptying might be very accurately ascertained by the fractional method, and was closely comparable with the rate of emptying as estimated radiographically. The amount of the supernatant fluid and the regurgitation of bile in subsequent specimens were further simple macroscopic observations of contributory importance. The fractional test meal could really be regarded as a diagnostic test in one condition, and that was pyloric obstruction. In this condition it might give definite evidence as to the cause of the obstruction. Nevertheless as a gastric efficiency test it was of distinct value in duodenal ulcer, Addison's anaemia, and chronic gastrogenous diarrhoea. In other reflex dyspepsias, due to disease of the gall bladder and appendix, hyperchlorhydria and achlorhydria both occurred more frequently than in normal series, and probably depended respectively on reflex pyloric hypertonus and chronic infection in the upper gastro-intestinal tract. It should be clearly understood that the fractional test meal was a rough test and that it could only be regarded as accessory to careful clinical investigations. With these provisos it was a test of real utility.

Dr. IZOD BENNETT made remarks which are embodied in the paper printed below.

Dr. H. C. H. BULL said that the researches of Gorham and of Paul White had somewhat altered opinions as to the value of the interpretations put upon fractional test meals. These independent observers obtained similar curves by giving a test meal and withdrawing the meal fifteen minutes later in 10 c.cm. samples, the whole operation occupying only twenty minutes. Their work supported the conclusion that the tube only gave information of the area of the stomach in which it lay, and therefore, as the stomach emptied, the acidity apparently rose. The symptoms of cancer, in which the pathological change was very great, were most insidious in their onset, whereas the reflex dyspepsias, which were most distressing during life, showed little or no change after death. In this latter group of cases the fractional method gave very little help, while in the organic diseases the percentage of error was very high. On the other hand, where there was organic disease, the x ray was reliable in over 90 per cent. of cases, and in certain of the reflex disorders also great accuracy of diagnosis could be obtained. At the present time it seemed that the fractional tube was a valuable aid in research, and in the hands of Drs. Bolton, Ryle, and Bennett in this country, and Drs. Rehfuss, Lyon, and others in America, would shed more and more light on the obscure disorders of the stomach; as a clinical aid its usefulness was limited.

Dr. MACKEDDIE was glad to find emphasis laid on what might be called macroscopic gastric tests, such as the residuum, occult blood, aspect, smell, consistency, and so on. Too great a price would be paid for modern clinical laboratory tests if the common special sense education were lost. This should go hand-in-hand with the advanced methods described by Dr. Bolton. The ability to distinguish between the achlorhydria of pernicious anaemia and carcinoma of the stomach was striking, but of little practical value. Could a distinction be made in the large group of non-malignant cases (gout, neurasthenia, and so on) that have no free acid? The method of ascertaining the rapidity with which the stomach emptied by the combined use of x rays and fractional test meals was, he believed, very valuable.

Dr. MACKENZIE WALLIS (London) said that so far the discussion had been confined to the use of the fractional method of gastric analysis. The detection of occult blood in the stools had, in his own experience, proved a most valuable individual test as an aid to diagnosis of carcinoma of the stomach. The scheme of investigation he had carried out for some time was as follows: The patient was taken into hospital for a short period and given a diet free from meat and meat products. The stools were examined on several occasions for occult blood, and if the benzidine and pyramidin tests were positive the existence of a bleeding ulcerated surface in the gastro-intestinal tract was no longer in doubt. The analysis of the gastric contents after a test meal provided a means of differential diagnosis between a simple and a malignant ulcer. In cases where doubt existed after a one-hour test meal, then a fractional test meal might prove useful. A combined investigation from every point of view appeared to be warranted in any case of dyspepsia occurring in a previously healthy individual who had passed the age of 40 years.

Dr. HUGH MACLEAN thought that previous speakers had overestimated the value of x rays in diagnosis of stomach diseases, for in his experience radiographic examination had often failed to throw any light on obscure cases. He asked whether in pernicious anaemia the secretory changes which often preceded the anaemia were to be regarded in any way as contributing causes to the disease itself. His experience led him to think that surgeons overestimated the frequency with which cancer followed ulceration of the stomach.

Reply.

Dr. BOLTON, in his reply, emphasized the fact that pathological findings must be co-ordinated with clinical observations in order to arrive at a correct diagnosis. He pointed out that the object of research was to investigate the course of disease, and only secondarily to supply tests by means of which disease could be diagnosed. In reply to comments made by contributors to the discussion, he remarked that in pernicious anaemia the secretory disturbances were not necessarily the results of the anaemia, for in some cases the disease might exist in a most pronounced form without any disturbance of gastric secretion. With regard to the frequency with which cancer followed gastric ulcer, he declared that he thought that a generous estimate would be that cancer followed in 7 to 8 per cent. of the cases. The occult blood test was a valuable aid to diagnosis of cancer and ulcer of the stomach, and there was, as a rule, insufficient blood in the stools of a patient with chronic gastritis to give a positive test. In reply to the criticism that the specimens withdrawn by the fractional test method were not fair samples, he reminded his audience that the churning action of the stomach movements must ensure thorough mixing. He agreed that if the stomach be washed out free HCl would be found in the contents of a carcinomatous stomach. The difficulty with regard to the ordinary test meal was to determine the right moment to withdraw the fluid to be tested; it did not arise in analysis by the fractional method, which had already been very useful in the study of gastric diseases; further research would undoubtedly extend the sphere of its utility.

THE EARLY DIAGNOSIS OF CANCER OF THE STOMACH BY MEANS OF GASTRIC ANALYSIS.*

BY

T. IZOD BENNETT, M.D., M.R.C.P.,

Assistant Physician, and Assistant to the Professor of Physiology, Middlesex Hospital; Beit Memorial Fellow for Medical Research.

DURING the past three years I have had the opportunity of performing gastric analysis, by the fractional method, on some three hundred cases, including diseases of many types, at the Middlesex Hospital.

As is always the case when a new method of investigation is introduced, fractional gastric analysis has encountered severe criticism, chiefly at the hands of those experienced in older methods. These criticisms depend chiefly on the fact that the gastric contents are not homogeneous, and if a small sample be removed and analysed it cannot be expected accurately to represent the contents of the

*A contribution to the discussion on diseases of the stomach in the Section of Pathology.

cancer should be left unexplored, and this could best be done through the health departments of the various local authorities under the guidance of the Minister. We are so utterly ignorant of the causes and sources of cancer that we never know at what moment or from what direction illuminating knowledge may arrive.—I am, etc.,

Blackpool, Aug. 1st. LEONARD MOLLOY.

CONGENITAL HYPERTROPHY OF THE PYLORUS.

SIR,—I have read with the greatest interest Dr. G. F. Still's instructive account of his experience in the treatment of congenital hypertrophy of the pylorus, which appeared in your issue of April 7th. To me, Dr. Still's apology for broaching a subject about which so much has been written in recent years seemed quite unnecessary, as it is most important to stress the high proportion of cures which can be brought about by early operation in a condition so easy to diagnose. Such diagnosis is only easy, however, when the existence of the condition is realized and search made for its distinctive signs.

It is a surprise to me to notice the low proportion of recoveries after the Rammstedt operation in Dr. Still's series. In the last three years I have performed this operation, which I first saw done by Mr. Tyrrell Gray at Great Ormond Street, in eighteen cases with two deaths. Of these, fifteen were cases at the Children's Hospital, Melbourne. This series is small compared with those of some American surgeons whose mortality rate is lower than mine, but I see no reason why, with further experience, especially as regards earlier diagnosis, these results should not be improved. Notwithstanding the extraordinarily good results of forcible dilatation in Dr. Still's private cases, it would appear that the simple muscle division of the Rammstedt operation, which can be carried out comfortably in ten to fifteen minutes, is more suitable for general use than the modified Loreta's operation, which theoretically is more severe, but of which I have had no experience.

On this point I should like to have the benefit of Dr. Still's large experience. Has he noticed any indications which would lead him to advise the Rammstedt or Loreta method of operation in individual cases, or does the choice entirely depend on the preference of the surgeon?

To my mind, speed is essential to a successful result, especially since delayed diagnosis is so often responsible for exhausted patients. Even more important is warmth during and after operation; a hot bed in which the heating is by electric light bulbs is very satisfactory. Such details as these make all the difference in an enfeebled baby.—I am, etc.,

Melbourne, June 10th. RUPERT M. DOWNES.

MEDICAL CHARITIES.

SIR,—The question put by Dr. Macdonald, the well deserved reflection on the scant support accorded by the profession made by Dr. Dearden, and the reply by the Treasurer at the Annual Meeting will, I hope, bring home to the profession the needs of the Royal Medical Benevolent Fund.

Dr. Haslip's remarks call for some reply, and especially for information as to the efforts that are being made by the Committee of Management to increase the income of the Fund. Dr. Haslip is (as he stated) a member of this Committee and as such has a voice in the management. It is a matter of regret that owing to his many engagements and his recent illness he has not been able to attend as often as we could wish.

The Medical Agency, of which Dr. Haslip is chairman, has contributed most handsomely to the Fund. These gifts have been acknowledged with gratitude not only by the Committee of Management and in the medical press, but by special letters from the Treasurer.

The subscriptions collected through the medium of the Association amounted last year to £800. Moreover, through the kindness of the Editor of the *Lancet* and the Editor of the *British Medical Journal* a summary of grants is published monthly. Those who read their journals cannot but be informed of the existence and the needs of the Fund.

The conference to which Dr. Haslip refers took place in 1922 at the request of the officials of the British Medical Association, and was attended by representatives of Epsom College and of the Royal Medical Benevolent Fund. Dr. Haslip proposed that the two bodies should be amalgamated and that there should be a central bureau for the collection of subscriptions. This proposal did not meet with the approval of either body, as it involved the abandonment of organizations, metropolitan and provincial, for the collection of funds that had been built up by years of patient endeavour, without any sufficient assurance of their adequate replacement; and in the case of Epsom College there was the additional objection that such action would tend to restore to the college as a whole, which is a general public school of the ordinary type, a charitable aspect that had been proven to be harmful to the College, as well as to the Medical Foundation incorporate in it, and which some thirty years ago was an important factor in inducing the Council of Epsom College to obtain an amending Act of Parliament. It was felt also that the aims of Epsom College and the Royal Medical Benevolent Fund were essentially distinct, in that the former existed primarily for educational, the latter exclusively for charitable, purposes.

Seeing that so far as the Fund was concerned some 20,000 members of the profession do not belong to the British Medical Association, it was considered wiser to remain free to appeal from one centre to the profession as a whole. This proposal would, moreover, entirely disorganize the present system of collecting subscriptions through local secretaries, which adds a personal and sympathetic touch of no little value.

Dr. Haslip's effort in the cause of education and of charity was cordially appreciated by both bodies, and I hope will not be lost upon the profession.

That the executive have not been idle in developing new ideas and methods during the last few years the following brief account will indicate, and will go some way, I hope, to remove the impression of apathy conveyed in Dr. Haslip's remarks. It is an error into which he could not have fallen had he been in closer touch with the management.

During the last two years special appeals have been issued in the following districts: Bath, Birmingham, Bolton, Bristol, Bromley, Birkenhead, Bury, Cambridge, Cornwall, South Wales and Monmouthshire, Surrey, Devonshire, Bootle, Manchester, Portsmouth, Buxton, Burnley, Weybridge, Watford, Sutton, Enfield, Blackburn, Altrincham, and similar appeals are being prepared for other towns this autumn.

Realizing that printed matter is often thrown in the waste-paper basket unread, the various local secretaries have been asked to write out an appeal, which has been reproduced. A stamped envelope is addressed to every non-subscriber and sent to the local secretary, who completes the letter by inserting the name. The reply is returned to the office or the local secretary, as the latter desires. In some cases an addressed stamped envelope is enclosed for reply. Up to the time of writing over £400 in new subscriptions, largely in banker's orders, have been received this year, and replies are still coming in. Not only have these undertakings been initiated by the honorary secretary, Dr. Newton Pitt, but owing to the illness of the secretary the bulk of the work has fallen upon him. The festival dinner in 1913, at which £3,197 was raised, at least informed the profession, the entire body being circularized of the existence and needs of the Fund.

Taking the last two decennial periods, the income from investments and subscriptions mounted in 1902 to £3,946, in 1912 to £6,222, and in 1922 to £8,080. The amounts distributed were respectively £3,795, £5,497, £8,397. The number of grantees has increased from 140 in 1902 to 304 in 1922, and annuitants from 140 to 168. The progress of the Guild, a branch of the Fund, is shown by the increase in income from £1,725 in 1912 to £2,536 in 1922. The progressive character and successful results of the Guild's work are well known. Notwithstanding all that is being done the income is far below what is needed, and it must, I fear, be recognized that the lack of support is

Great harm has, I believe, been done by endeavours to interpret results of gastric analysis on empirical or on purely chemical grounds. I am not aware that anyone has yet been able to demonstrate any specific chemical substance secreted by readily accessible tumours such as malignant growths of the breast or tongue; certainly no such specific substance has been discovered in the blood, and yet one still encounters attempts to found diagnostic tests for cancer of the stomach on the presence of some unusual substance in the gastric contents being supposedly a product of the actual tumour. I would repeat my belief that these substances are effects of the tumour only in so far that gastric neoplasms produce partial or complete gastric obstructions.

The detection of early cancer of the stomach becomes possible if steps are taken to make stagnation easily demonstrable; this can be done by giving some finely divided charcoal in milk overnight—two teaspoonfuls in a tumbler of milk is sufficient, but it is perhaps well to give a charcoal biscuit in addition. The next step is to evacuate the fasting stomach content with great care; Rehfuss has shown that this can be done far more securely with one of the small modern tubes than with the large ones formerly employed.

In a total series of 53 cases in which the clinical diagnosis of gastric carcinoma was definitely made, charcoal was visible in the fasting content next morning in 30; but other signs of stagnation—a foul odour, lactic acid, and a relatively high concentration of acids other than hydrochloric—were present in 20 out of the remaining 23 cases. Blood was present, either fresh or partially broken up, in 35 cases.

A Summary of Proven Cases.

Under existing conditions it is difficult to secure accurate notes of the after-history of many hospital cases, and for this reason I am unable to describe all the cases referred to as proven cases of malignant disease. In 20 cases laparotomy, or a full history of the case, allows me to speak with certainty, and analysis of these is not without interest. They are divisible into three groups.

GROUP 1: *Cases with Pyloric Obstruction.*—Nine cases fall within this group: in 4 of them free HCl was present in the fasting stomach content as well as after the test meal, in 3 it was present only after the meal, and in 2 it was absent throughout. In all these cases the diagnosis was evident from the test meal; in 5 it was made independently by the radiographer; in 4 the *x*-ray report merely recorded gastric stasis or gastric atony. All were operated on, and it is significant that in 5 of the 9 gastrectomy was performed without difficulty and no metastases were visible. In 3 of these recurrence is known to have taken place; but it is, I think, worthy of close attention that in so large a number the surgeon was almost within reach of securing complete removal of the malignant tissue. The 4 cases in whom gastrectomy was not indicated were treated by gastro-enterostomy, with considerable immediate relief. A typical gastric analysis chart from a case in this group is shown in Fig. 2; it illustrates the relatively high total acidity compared with the low free HCl, the tendency to haemorrhage, and the marked delay in gastric emptying. All of these are characteristic of the group; haemorrhage is not infrequently absent, but the picture of partial obstruction is typical by itself.

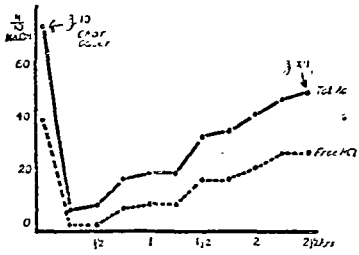


FIG. 2.—Fractional gastric analysis, carcinoma ventriculi. The high total acidity with charcoal in fasting content and the obvious obstruction leading to 12 ounces of the meal being still in stomach at two and a half hours, are characteristic.

GROUP 2: *Cases without Pyloric Obstruction but with Signs of some Stagnation.*—Nine cases fall in this group also; in 3 there was free HCl in the fasting stomach, in 1 it was only present after a meal, and in 5 there was complete achlorhydria. In none of them was there any delay in the emptying time after a meal, and in several the stomach emptied very rapidly. This may be due to several causes—in some cases there is an invasion of the pyloric region with neoplastic tissue which seems to prevent closure, in others the tumour in the body of the stomach appears to stimulate peristalsis and cause rapid emptying. The cases secreting HCl give a picture which is at first sight one of normal secretion—an example is given in Fig. 3, but it will be observed that here, too, there is a relatively high proportion of organic acid, as opposed to free HCl in the fasting stomach content, and this, together with its characteristic odour, traces of charcoal, and sometimes obvious blood, makes diagnosis easy. Cases with complete achlorhydria were similar to that illustrated in Fig. 1. This group differs from Group 1 in that surgical interference was seldom indicated. In the majority of cases a palpable tumour made it clear that the possibility of excision was remote. Only two were operated on; in at least two others marked temporary amelioration of symptoms was obtained by deep *x*-ray therapy.

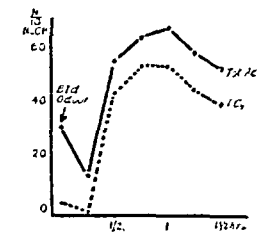


FIG. 3.—Fractional gastric analysis, carcinoma ventriculi. Fasting stomach content gives clear evidence of stagnation, even though later specimens show free secretion of HCl.

GROUP 3: *Cases whose Clinical Picture was one of Obscure Anaemia.*—Two examples of this well recognized type are included in the series. Both showed complete achlorhydria with rapid emptying. In both a foul-smelling "resting juice" with recent blood in it made the diagnosis apparent, and in both this was subsequently confirmed radiographically.

The cases I have detailed are selected only in so far that they are the proven ones amongst a much larger number: in some 30 others the diagnosis was clinically definite, but I have excluded them on account of their final history being unknown. As far as I know I have not seen a case of malignant disease of the stomach which did not give a positive diagnostic picture on gastric analysis, and the only condition with which this can be confused is that of gastric syphilis. In syphilis of the stomach there may be tumour formation with pyloric obstruction which is indistinguishable from cancer by any means save histological examination; the Wassermann reaction is positive in such cases, but we have at present no means of knowing whether this may not be a sign of old infection with concurrent malignant disease.

I have already commented on the fact that the incomplete descriptions of the textbooks do not necessarily represent the opinion of those with a special personal experience of gastric analysis. An example of the latter type of opinion may be found in the recent paper[1] by Donald Hunter; his findings agree substantially with my own, the less definite picture which he obtained being accounted for by the fact that he did not give charcoal before his examination, and did not perform such extensive gastric lavage in obstructed cases. A. F. Hurst has also, in recent communications, drawn attention to the relative frequency of free HCl in these cases when examined by the fractional method.

Gastric analysis should be regarded as a clinical and not as a laboratory procedure; if this were recognized, and if the observer would seek for the evidence I have outlined, the early diagnosis of cancer of the stomach would be enormously improved, and the percentage of operable cases notably increased.

In conclusion I would express my indebtedness to my colleagues at the Middlesex Hospital and its medical school for the facilities they have afforded me in this work. The expenses incurred in performing it have been partially defrayed by a Government grant made on the recommendation of the Royal Society.

REFERENCE.

[1] Donald Hunter: *Quarterly Journal of Medicine*, 1923, xvi, 113.

or phosphorus or both. The latter are called the phosphatides, and are soluble in, or extracted from, organs and tissues by ether and alcohol. The term lipin as defined by Professor Maclean, including the phosphatides, are "substances of a fat-like nature yielding on hydrolysis fatty acids or derivatives of fatty acids and containing in their molecule either nitrogen or nitrogen and phosphorus." Generally speaking, the phosphatides are soluble in the majority of ordinary solvents for fat with the exception of acetone, in which they are practically insoluble. Professor Dreyer repeats and emphasizes that "it was by no means intended to imply that all fatty and lipoidal substances present in the micro-organisms had been removed. Only some of the lipoidal substances are taken away in this mode of preparation by washing with acetone after formalin treatment." This view accords, therefore, with the above-mentioned fact that acetone does not extract this group of substances. The acid-fast properties are usually attributed to the waxy substances which, however desirable to remove *in vitro*, are not included in the lipoid, phosphatide or lipin group of substances.

In the interesting description of Dr. David Thomson's method of defatting bacilli the conclusion is that lipoids are not of much antigenic value. For this reason he practically uses the protein fraction. He notes, however, the work of others who claim antigenic properties for the lipoids and the waxes.

It may be useful to workers in this field to point out a third method to which I have drawn attention and employed in dealing with the tubercle bacillus. It is preliminary to digest or split the fats and lipoids of killed tubercle bacilli by lipase—the natural fat and lipoid-splitting agent. In this way saponified extracts were prepared and indicated for therapeutic use. Preparations were made also by extracting tuberculous material with the usual fat and lipoid solvents (alcohol, ether and chloroform) successively in the cold, or in a Soxhlet's apparatus in the usual way, and after evaporation saponifying or emulsifying the extracted material.

The method in the main differs from others in that the products of the fats and lipoids are utilized, together with the proteins, phosphates and other constituents or derivatives of the bacillus. By means of ether the fatty acids and protein fraction can be separated and thus used either together or separately.

I have preferred to adopt the current nomenclature, namely "activators" or "co-enzymes" of lipase rather than "antigens" because the former more correctly indicate the part played by these and allied substances after injection in the stimulation of lipolytic activity in the blood and tissues, and thus attacking the fats and lipoids of the bacillus in the infected organism.

I have been using the same method of preparation in dealing with the fats and lipoids of the cancer cell and tissues. In this case acid-meta-proteins (hydrochloric and acetic acid) preparations have been made and used also, on the basis that similar preparations from normal tissues were found in my former experiments to markedly act as stimulants of lypolytic activity in the blood and tissues.—I am, etc.,

J. A. SHAW-MACKENZIE, M.D.Lond.

London, July 16th.

AN association for the study of hay fever, asthma, and allergic diseases, limited to 100 members, has been formed, with Dr. Grant L. Selfridge, of San Francisco, as president.

THE number of cases of small-pox notified in Germany during 1922 was 215, as compared with 688 in 1921 and 2,042 in 1920. Most of the cases during these years occurred in the Oppeln district in Upper Silesia. In 1922 an epidemic of 135 cases was apparently caused by the burial of a child from Poland who had died of small-pox and by a newspaper carrier continuing his occupation while suffering from the disease.

A NATIONAL Congress of Physical Education will be held at Bordeaux from September 24th to 26th, under the presidency of Professor Sigalas, Dean of the Bordeaux Faculty of Medicine. The work of the Congress will be divided into three sections: (1) Physiology, circulation and respiration during exercise; (2) physical education, the dosage of exercise for the child; (3) choice of sports according to age.

Obituary.

WILLIAM FORD ROBERTSON, M.D.,

Pathologist to the Scottish Asylums.

BY the untimely death of Dr. William Ford Robertson, cut off by illness in his 56th year, in the midst of his all-absorbing and invaluable researches and his illuminating and highly important discoveries, Scotland has lost one of her most gifted and devoted workers in the field of pathology and medicine, and the world has been deprived of one who throughout his life was predominantly imbued and impelled both by an altruistic desire to do something to alleviate pain and suffering, and by the true spirit of research, the pursuit of truth for its own sake.

He was born on July 28th, 1867, at the farm of Nottylees, on the south bank of the Tweed, but just within the Scottish border. His father died in 1870, and the son, after a short period at Eskbank Academy, went to George Watson's College, Edinburgh where he received his main school education. Afterwards he had two years' business training in a lawyer's office, and then entered as a medical student at the University of Edinburgh. During the later years of his undergraduate course he undertook to do extra work in the pathological department of the Edinburgh Royal Infirmary, which was then under the charge of Dr. William Russell, now Emeritus Professor of Clinical Medicine; here he displayed his innate powers of enthusiasm, originality, and manipulative dexterity. Certain improvements which he devised in histological methods were deemed worthy of publication in the *Journal of Anatomy and Physiology*—an exceptional distinction for an undergraduate. He graduated M.B., C.M.Edinburgh in 1891; afterwards he held the appointment of house-physician at the Edinburgh Royal Infirmary under the late Dr. Wyllie, and at the Royal Hospital for Sick Children, Edinburgh, under Dr. T. M. Burn-Murdoch. After a short experience of general practice he determined to devote himself to medical research as a speciality and end in itself and not merely as a stepping-stone to some senior hospital or university appointment, and Sir Thomas (then Dr.) Clouston secured his services as pathologist to the Royal Edinburgh Asylum in succession to the late Dr. James Middlemass, who in 1893 had been appointed assistant physician.

In 1894 Ford Robertson—for a year, in collaboration with Middlemass—commenced a series of papers planned systematically to elucidate the pathology of the nervous system in relation to mental diseases. The joint papers, on the morbid changes met with among the insane in the scalp, skull, and membranes, and on the weight and other characters of the brain, as well as those by Ford Robertson himself on the changes in the vessels of the brain, first appeared serially in the *Edinburgh Medical Journal* from 1894 to 1896. He continued to carry out the original scheme single-handed by a series of brilliant researches on the changes in the neuroglia, nerve cells, and nerve fibres of the brain, the results of which were published later in various medical and scientific journals. Ford Robertson's splendid work had now attracted much attention both at home and abroad, and those who realized its value felt that it would be a lasting gain if the services of such a gifted and enthusiastic researcher could be permanently retained. In this way arose the "Scottish Asylums' Pathological Scheme" with its Conjoint Laboratory, and by the unanimous consent of its supporters Dr. Ford Robertson was appointed its first pathologist in 1897. The scheme owed its initiation to the foresight of the late Sir Thomas Clouston, its development to the co-operation of the majority of the other medical superintendents of the Scottish Asylums, and its final establishment to the backing and financial support of the contributing Asylums Boards, supplemented in later years by occasional grants from the Carnegie Trust, or from the Treasury or Medical Research Council through the General Board of Control for Scotland.

Ford Robertson's record as pathologist to the Scottish Asylums from 1897 till his death was one of incessant and exacting labour. The routine work of the Conjoint

Evidence of the occasional presence of strong contraction of large arteries (brachial, etc.) in diseased conditions in man was obtained by the present writer, in conjunction with Professor G. Spencer Melvin[21] and Dr. J. E. Kesson,[22] in an investigation of blood pressure a number of years ago, and surviving sclerosed arteries from the legs of old horses were found to show extraordinarily intense contraction, causing complete obliteration of their lumen and an enormous resistance to attempts to force blood through them.

In relation to the question of arterial spasm, doubt as to the existence, at least in effective degree, of vasomotor innervation of the coronary arteries is not a consideration of decisive moment. For there is no proof that the forms of excessive contraction now under discussion—for example, in the brachial artery or the horse's leg, etc.—are vasomotor phenomena; it is more probable that they are directly dependent on morbid conditions present in the arterial muscle at the time.

It may be argued that the foregoing considerations point to the feasibility of the hypothesis of coronary spasm, in view of there being no sufficient reason to assume that the coronary vessels—specially prone as they are to sclerotic changes—should in diseased states be immune from such functional disturbances as seem to occur in other arteries. But the question is far from being closed.

Fatal and Non-Fatal Angina.

It is necessary to discriminate clearly between the separate questions of (1) the mechanism of pain production in anginal attacks, and (2) the mechanism of death occurring during or between attacks, sometimes without warning.

The striking tendency of the graver forms of angina to terminate in sudden death need not be emphasized. There is every reason to believe that, in many cases at least, the end comes by ventricular fibrillation, and that the different issue in fatal and non-fatal cases hangs on the supervention of fibrillation in the former and its absence in the latter. The development of fibrillation as a frequent and characteristic result of defective coronary blood supply, as demonstrated experimentally, has already been described; and we know, from abundant pathological evidence in man, the association of coronary and myocardial impairment with fatal angina. Further, the clinical features of many recorded anginal cases, where sudden death took place either in an attack of pain or apart from such, are very noteworthy in their similarity to those attendant on death by ventricular fibrillation. The significance of these facts taken together need not be enlarged upon.

If we accept the view, which has commended itself to many observers, that an important factor in the production of pain in angina is to be found in the heart muscle working with a defective blood supply, it becomes plain how increased demands on the organ by muscular effort or emotional stress may excite an attack by leading to a relative anaemia, the blood supply, which was sufficient during rest to ensure the absence of pain, now becoming inadequate for the muscle. Such a conception might be brought into relation with the results obtained in an ischaemic limb where, on working a muscle, acute pain is caused long before the fatigue point (as indicated by inability to raise the weight in ergograph experiments) is reached—a mechanism of pain production apparently different from that present in a muscle working to fatigue while its normal circulation is going on (MacWilliam and Webster[23]).

It may be conceived that in the close and striking association of angina and sudden death we see the working of distinct but related mechanisms, based in part at least on a common underlying process, essentially similar in character but differing in intensity and in the fatal or non-fatal issues, these issues being no doubt also influenced by other conditions which affect the results of the fundamental process. A conception of this kind would include two categories of dangerous anginal conditions—one with more or less transient attacks of pain of varying grades of severity, the other with the process, common to the two categories, going further in some directions, attaining greater intensity, and culminating in ventricular fibrillation. But the pros and cons of the vexed question of pain production in angina are beyond the scope of this paper.

In connexion with the well known fact that pronounced coronary sclerosis very frequently exists without angina, it has to be borne in mind that an essential point is, not the structural change in the arterial wall, but the amount of actual defect of blood supply through the sclerosed vessels from greater or less narrowing of their channels, the presence or absence of contraction in their muscular coats, the state of the capillary field, etc. Much depends no doubt on the more or less gradual development of obstructive change, the establishment of more or less efficient collateral circulation, etc. It is known that life may go on after the gradual development of complete occlusion of one coronary while the other may be found to be very greatly reduced in calibre; also after complete blocking of a large branch. Collateral circulation obviously plays an important part; it is now well known that the coronary branches are not end arteries, as was at one time believed, but have numerous anastomotic connexions. Further, as described by Gross,[24] the blood vessels (arteriae telae adiposae) of the subepicardial fat, which increases in amount as life advances, can in some measure exercise a compensating influence, supplying a considerable amount of blood to the subjacent muscle. Belonging to this system are delicate parallel vessels accompanying (at some distance) the main coronary branches, as well as a feltwork of vessels in the fat of the auriculo-ventricular groove. Gross emphasizes the importance of a relative anaemia of the muscular walls of the right heart in old age, as bearing on failure in pneumonia, etc.; he suggests a variation of the adage that a man is "as old as his arteries" to "as old as his right coronary artery."

It is noteworthy that when the main trunks and large branches of the coronaries are the seat of pronounced sclerotic changes the intramuscular twigs and finer ramifications may remain practically unaffected. The extent and efficiency of the capillary system are obviously of prime importance.

Syncope from Ventricular Standstill due to Heart-block.

In cases of heart-block, Adams-Stokes syndrome, etc., where death occurs suddenly, it is uncertain whether simple stoppage of the ventricular beat in the state of diastolic relaxation always lasts long enough to kill by paralysis of the nerve centres, following the phases of unconsciousness and convulsive phenomena. The time needed in man for irretrievable damage of these centres by acute anaemia is not known; in the ordinary experimental animals it is relatively long—a number of minutes. Of course, there may sometimes be morbid conditions present in man which would shorten the time that circulatory arrest can be survived. But in view of the associated structural damage present in the Adams-Stokes syndrome, the possibility of the ventricular standstill terminating in fibrillation in some instances must not be overlooked, though there seems to be at present no actual evidence of this happening in man. On the other hand, it is true that a fall of blood pressure, such as accompanies ventricular standstill, exercises a restraining influence on the development of fibrillation under certain conditions; but this does not always hold good under other conditions—for example, fibrillation sometimes develops in the gravely depressed or dying heart, notwithstanding the fact of excessively low blood pressure. In any case it must be concluded that only a fraction of cases of sudden death can possibly be attributed to ventricular standstill depending on the relatively rare condition of heart-block.

Syncope during Tachycardia.

There is strong reason to believe that the fibrillation mechanism is operative in many cases of sudden death associated with ventricular tachycardia. The myocardial conditions underlying tachycardia are closely related to those on which fibrillation is dependent, and there is abundant evidence that the former may develop into the latter. The excessive rate of beat—whatever be the origin of the tachycardia—is in itself favourable to this development, since it involves shortening of the refractory period and lengthening of the conduction time. The rapidity of succession of contractions—whether arising in the ventricles

ANDREW STEWART, L.R.C.P. AND S.EDIN.,

Consulting Surgeon, Birkenhead Borough Hospital.

DR. ANDREW STEWART died on July 30th, aged 69. He was educated at Liverpool and St. Bartholomew's Hospital, and took the diplomas of L.R.C.P. and S. and L.M.Edin. in 1881. After serving for fifteen years as honorary acting surgeon to the Birkenhead Borough Hospital he was appointed consulting surgeon to that institution.

Sir James Barr (Liverpool) writes: By the death of Dr. Andrew Stewart, Birkenhead has lost a very notable medical man and one who will be long remembered by all who knew him. For the last ten years or more he suffered from the incapacitating effects of chronic myocarditis, but he did not allow his disability to interfere with his work or pleasure. Although he long recognized that his terminus would be abrupt, and he spoke freely of it with the greatest amount of sang-froid, he was ever one of the cheeriest of mortals, and it did not require to be long in his company to feel that whatever might be the condition of his heart his alert mind would serve him to the last. His end came very suddenly in the presence of his devoted wife, while sitting at his desk writing a letter. For Andrew Stewart death had no terrors, and he died as he lived, beloved and respected by all who knew him. He took great interest in his professional work, was a diligent reader of the medical journals, a man of wide general culture, and fond of sport—devoted to boating and golf. In many respects he would have made a fair Sherlock Holmes. He leaves a widow, son, and daughter to mourn their loss. His son is in the army, and at present serving his country on the frontier of India. His brother, Mr. Gershom Stewart, is a well known Member of Parliament, and one ever ready to throw his weight into the service of the medical profession.

FREDERIC J. KNOWLES, M.R.C.S., L.R.C.P.,

Honorary Secretary, St. Helens Division.

BY the death on July 27th of Dr. Frederic Joseph Knowles the profession and the citizens of St. Helens and district have suffered a grievous loss. Dr. Knowles was born in St. Helens and received his medical education in the University College of Liverpool, and London. After obtaining the M.R.C.S.Eng. and the L.R.C.P.Lond. in 1885, he commenced practice in his native town. He had been honorary secretary to the St. Helens Division of the British Medical Association since 1913.

Dr. Knowles was a keen volunteer and retired in 1910 as lieutenant-colonel. He was honorary colonel R.A.M.C., and had received the Territorial Decoration. For thirty years he had been an examiner to the St. John Ambulance. He took an active interest in athletics—swimming, tennis, and cricket—and was a freemason.

His funeral, which was of a military character, was attended by almost every doctor in the district, and the streets of the town were lined by sympathetic crowds. The death of Dr. Knowles has removed an outstanding figure from the professional and social life of St. Helens.

DR. ALEXANDER MACKAY of Crook, co. Durham, who died on June 23rd, aged 78, was educated at the Universities of Edinburgh and Glasgow; he graduated M.B., C.M. at the latter in 1870, and M.D. in 1874. After serving as assistant surgeon to the Glasgow Ophthalmic Institute and to the Glasgow Royal Infirmary, he took over, at the age of 22, the practice of the late Dr. Kelby of Crook, which grew to very large dimensions. Dr. Mackay was medical officer of the Crook District of the Auckland Union and physician to Ushaw College. He was a great sportsman and hunted regularly, until two years ago, with the South Durham and the Marquess of Zetland's hounds; he was also a keen farmer, and until recently owned and managed a farm. He was an old member of the Bishop Auckland Division of the British Medical Association and a justice of the peace for the county of Durham. He is survived by two sons and a daughter, one of his sons having succeeded him in his practice.

DR. LOT ALBERT TAYLOR, who died suddenly at Kidderminster on July 20th, practised until a short time ago at Kinver, Stourbridge. He was educated at Queen's and Mason Colleges, Birmingham, and took the diplomas of M.R.C.S.Eng. in 1886 and L.R.C.P.Edin. in 1887; he took the D.P.H. in 1889. After holding house appointments at the General Hospital and Queen's Hospital, Birmingham, he went into practice at Kinver, where he was medical officer and public vaccinator for Kinver District of Seisdon Union. Dr. Taylor was indefatigable in the work which he did for the Dudley Division of the British Medical Association, of which he was honorary secretary and formerly chairman; he did valuable work also on the Panel Committee. During the war he had charge of fifty beds at the Wordsley Military Hospital, and he undoubtedly suffered from the strain of this in conjunction with his practice. He was a justice of the peace for the county of Stafford, and everywhere earned respect and affection.

DR. ALEXANDER BRODIE SETON STEWART, O.B.E., who died suddenly at Watford on July 3rd, was educated at the Leeds Medical School; he took the L.S.A. in 1894, and became L.M.S.S.A. in 1907. He was given a commission in the R.A.M.C.(T.F.) as lieutenant in the 1st West Riding (Leeds) Field Ambulance, becoming captain in 1910, major in October, 1914, and lieutenant-colonel in June, 1916. For his services in the war he received the O.B.E. in 1919, and also the third class of the Serbian Order of St. Sava; the Territorial Decoration was conferred upon him in 1920.

Universities and Colleges.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on July 18th.

The following were recognized as teachers of the University in the subjects and at the institutions indicated:

St. Thomas's Hospital Medical School.—Dr. S. E. Dore (Dermatology), Colonel L. W. Harrison (Venereal Diseases), Dr. R. C. Jewesbury (Pediatrics).

University College Hospital Medical School.—Mr. H. D. Wright (Bacteriology).

St. Mary's Hospital Medical School.—Mr. G. W. Ellis (Chemistry).

The title of Emeritus Professor was conferred on Dr. W. D. Halliburton, F.R.S., on his retirement from the chair of physiology at King's College, which he had held since 1890. The title of Assistant Professor of Anatomy at University College was conferred on Dr. Herbert H. Woollard.

Regulations for the academic diploma in psychology were approved and will be obtainable from the Academic Registrar in September.

It was resolved that the regulations for the M.D. examination for internal students be emended by the addition of the following before the first complete paragraph on page 276 of the Red Book, 1922-23:

> Any exemption granted to a candidate under the foregoing paragraph will hold good only at the M.D. examination immediately following the acceptance of his thesis. At any subsequent entry for the M.D. examination he must either take the whole examination or submit the same or another thesis for consideration in connexion with such subsequent entry.

The regulations for the M.S. examination for internal students (Red Book, 1922-23, p. 282) were directed to be similarly emended and corresponding amendments were made to the regulations for external students.

Mr. C. C. Choyce, C.M.G., was appointed an examiner in surgery for the year 1923-24.

Mr. H. J. Waring was appointed a governor of East London College, and Mr. Raymond Johnson was nominated as a member of the Westminster Hospital Medical School Committee.

The following have been elected chairmen for 1923-24 of the committees indicated: *Council for External Students*, Dr. E. Graham Little; *Co-ordination and Developments Committee*, the Vice-Chancellor (Mr. H. J. Waring).

The Semon lecture for 1922-23 on the Advancement of Laryngology will be delivered by Dr. A. Logan Turner in the rooms of the Royal Society of Medicine, on Thursday, November 1st, at 5 p.m.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

The following scholarships have been awarded for session 1923-24:

Fishmongers Exhibition for Girls: Winifred Harris. Postock Scholarship: Alice Hodge. St. Dunstan's Medical Exhibition: Joyce Woods. Mrs. George M. Smith Scholarship: Kathleen Gambroll. Dr. Margaret Todd Scholarship: Dorothy Wilkins, B.Sc. Mabel Sharman Crawford Scholarship: Marguerite Penn. Sarah Holborn Scholarship: Ivy Varley. Isabel Thorne Scholarship: Decima Tracey. Dr. Edith Pooley Phipson Post-graduate Scholarship: Gladys Webster, M.B., B.S.

good blood pressure—vastly higher than what is necessary for the continuance of life. Pronounced slowing (without danger to life as a rule) is, of course, familiar in some forms of violent pain—for example, in biliary and renal colic, etc.

The conditions under which sudden death most commonly occurs—namely, muscular exertion—are not favourable to prolonged vagus inhibition, but on the contrary are associated with reduction of the normal vagus control over the heart and concomitant activity of the augmentor nerves, leading to acceleration with increased force of the beats, etc.—conditions favouring the development of fibrillation in predisposed subjects. The same holds good generally in emotional excitement, apart from the very brief standstill (or prolongation of diastole) which may be caused by sudden fright.

Vagus Inhibition succeeded by Fibrillation.

There is another possibility with reference to the effects of vagal inhibition. Experiment has shown that attacks of auricular fibrillation of varying duration sometimes develop after a period of inhibition, sometimes after one or more recommencing auricular beats have occurred. The development of fibrillation in these instances is definitely related to the occurrence of the preceding phase of inhibition induced by vagus stimulation.

Fibrillation of the ventricles has also been seen following vagus standstill, but this is a rare phenomenon as compared with the development of auricular fibrillation in similar circumstances. In the course of researches over a great many years I have obtained records of only a very few examples. Still these are enough to indicate that, in presence of undue ventricular susceptibility, fibrillation may sometimes be determined in this way in some of the manifold varieties of abnormal conditions that can occur in man. Thus vagus inhibition, much too brief to be dangerous through the standstill induced, may possibly involve a mortal issue through a succeeding fibrillation.

Fibrillation or Reflex Inhibition in Sudden Death in Anginal Subjects.

The following considerations may be cited in favour of the fibrillation view of death in angina.

1. The presence of coronary and myocardial conditions which are known in certain circumstances to predispose to fibrillation. The invariable or almost invariable occurrence of coronary lesions in cases of *fatal* angina is a matter of general agreement. Sir Clifford Allbutt has adduced a wealth of facts and considerations marshalled with his usual skill, in favour of his view of the aortic origin—as contrasted with coronary and myocardial origin—of anginal *pain*. But this veteran clinician at the same time recognizes that the question of a *fatal issue* to an anginal attack is essentially associated with the condition of the myocardium.

2. The recognition by numerous observers, in some anginal attacks, of acceleration of the heart's action with irregularities, extra-systoles, etc.; such are known in many conditions to herald the onset of fibrillation. Among others, Windle recorded a fatal attack of angina in which the heart rate rose from 75 to 150 and became very irregular.

3. Though some slight slowing of the heart may occur in an anginal attack, there seems to be no direct evidence of the occurrence of pronounced inhibition, such as might, if somewhat intensified, threaten a suddenly fatal issue; the degrees of inhibitory slowing observed have been far removed from determining circulatory failure or even causing any considerable fall of blood pressure. There seems to be no relation between the severity and duration of the pain and the tendency to die in the paroxysm.

4. Death often occurring at the beginning of an anginal attack or in one that is relatively slight as regards pain, etc., is probably of the same mechanism as absolutely sudden death occurring between attacks or in persons who are not subjects of angina; the considerations bearing on such deaths are probably applicable to deaths *during* anginal attacks.

5. In the case of death between attacks or during relatively slight pain there is no evidence of such powerful afferent excitation as might be supposed to produce cardiac inhibition of such intensity and duration as to be fatal.

Of course it would be rash to dogmatize at the present time on an exclusive application of one mechanism as being the only one operative in all instances of anginal death; it may be that one or other form is present under different conditions. But there is a strong case for fibrillation as a common mode of death in anginal subjects, whatever the precise mechanism of *pain* production in angina may be.

Conclusions as to Sudden and Unexpected Death of Cardiac Origin.

Rupture of the heart is a very rare accident. Simple standstill of the ventricles in complete heart-block can only be a rare cause—assuming that such standstill may sometimes kill without fibrillation as the terminal event. As has been stated, it is open to grave doubt whether reflex vagal inhibition *per se*—that is, without the supervention of fibrillation—is responsible for many deaths. Blocking of the mitral orifice by a thrombus and embolism of the pulmonary artery are known to be of very rare occurrence. (Thrombosis and embolism of the coronary arteries kill, as has been already stated, by fibrillation.)

The old idea of a heart that is working with fair efficiency abruptly "failing to contract" against excessive resistance may be set aside as untenable, in the absence of the sudden action of violent poisons, etc.

There remains the conclusion that the great majority of absolutely sudden deaths are to be ascribed to ventricular fibrillation.

Symptoms of Ventricular Fibrillation in Man and Animals.

The similarity between the group of symptoms associated with many cases of sudden death in man and those attendant on ventricular fibrillation experimentally induced in animals is indeed striking. The abrupt abolition of pulse, cardiac impulse, and heart sounds, the sudden fall of blood pressure, unconsciousness, muscular relaxation often preceded by a brief phase of rigidity or convulsive movement, dilatation of the pupils, and the continuance of slow deep respiratory movements, are identical in animals and in the human subject, while in the latter the speedy replacement of the initial intense pallor by lividity or marked cyanosis is a notable feature. The amount of colour in the face, together with the occurrence of several respirations after the collapse, have sometimes made onlookers somewhat incredulous that death has taken place. The occurrence in some cases of premonitory features such as extra-systolic irregularities, bouts of tachycardia, etc., is significant. It is important that, in the collection of evidence as to unexpected and unexplained death, special attention should be devoted to ascertaining the occurrence of the group of associated features just stated: these have been very definitely recognized in many cases of sudden death where accurate observations have been made. Some such cases have come under the direct observation of the writer.

No doubt some of these phenomena are common to certain other forms of sudden circulatory failure—for example, from heart-block, collapse induced by violent afferent impulses (blow on epigastrium, etc.), or in certain cases of auricular flutter, etc. But there are special features in some of these—for instance, as regards the behaviour of the respiratory centre, etc.

Protective and Remedial Agencies.

In animal experimentation—on cats, which are remarkably liable to ventricular fibrillation—the use of certain drugs has been found by the present writer[11] (working in conjunction with Professor Spencer Melvin and Dr. J. R. Murray) to have decidedly beneficial effects, both in the way of protection against the onset of persistent fibrillation (for example, against faradic currents one hundred times as strong as are usually effective) and—in combination with cardiac massage—as regards recovery from the actual attack. These methods are at present only applicable under experimental conditions. But they give some ground for hope that, with fuller knowledge of the conditions that influence the inception and persistence of fibrillation, much may be possible in the future as regards the warding off of such catastrophic happenings as often bring life to an unexpected

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

VACCINATION.

DR. D. W. SAMWAYS (Clyst St. George, Devon) writes: Now that vaccination is being so generally performed it seems to me desirable that definite instructions regarding treatment are necessary. Should the arm be first cleaned with an antiseptic, or with, say, boiled water? Should boric lint, which appears so commonly employed, be fixed over the part afterwards, or replaced by a shield? If the boric lint be meant as an antiseptic to restrain the pustule, its employment appears unscientific if the pustule be intended to develop. In any case, the lint generally works and breaks the pustule, to which it afterwards adheres, and presumably disinfects. If the vaccination be completed by the entry of the vaccine into the system, say, in half an hour, and the local reaction be neither necessary nor desirable, even more active disinfection might be profitable; but if the pustulation be essential, a disinfecting pad seems out of place and a protecting shield appears indicated. I think my ignorance on the subject is shared by many, who would appreciate enlightenment in your columns.

MASTICATION.

"FLETCHERISM" writes: Many of your readers must have been interested in the recent letter from Mr. Morley Roberts (June 23rd, p. 1077) regarding mastication. Can anyone inform me: (1) What recorded confirmations have there been of Fletcher's theory? I know *Diet and Endurance*, the book where Professor Irving Fisher recounts an experiment where a number of American students put in practice Fletcher's advice of a diet largely, though not wholly, vegetarian, coupled with very thorough mastication. The results in endurance are almost unbelievable, except that Dr. Irving Fisher is a man of standing and reliability. (2) Are Horace Fletcher and his British co-worker, Van Somern, alive or dead? If dead, did they live to a good old age, practising their special masticatory habits, and was their bodily vigour unusually maintained because of this?

INCOME TAX.

Car Transactions.

"B. K. N." replaced a 13.9-h.p. V car, which he had bought second-hand for £210, by a new 13.9 F car costing £667, the then cost of a new 13.9-h.p. V car being £450. The old V car was sold for £102, so that "B. K. N.'s" total net expenditure was £667 − £102 = £565, and he claims to deduct £450 − £102 = £348 as the cost of replacement.

*** There were two elements of improvement in the transaction; the new car was of a superior standard, and it was new as compared with the one which "B. K. N." bought second-hand; both elements have to be eliminated in ascertaining the replacement cost, but he has eliminated the former only. The calculation requires knowledge of the cost of a new 13.9-h.p. V car at the time when the old one was bought. Suppose it to have been £x, then the cost of a similar second-hand car at the time when the F car was purchased would have been $£210 \times \frac{450}{x}$ and the amount allowable as replacement is that sum less the £102 received.

LETTERS, NOTES, ETC.

FREEDOM OF NEGRO RACES FROM CANCER.

DR. J. BELL WALKER (Ayr) reports that he saw a case of epithelioma of the penis in a negro in Nyasaland in 1904. This, it was said at the time, was the first known case of cancer in a native in those regions. The patient was sent by the medical officer at Chiromo and transferred to Dr. Walker's care at the Livingstone Memorial Hospital, Zanzibar, for operation. Chiromo, Dr. Walker continues, in those days when the railway was only being planned, was the station on the river Shiré for passengers from and to the various European centres in Nyasaland, and the patient, no doubt, would come a good deal into contact with European civilization. The contention (Dr. Bell Walker adds) that no "unsophisticated" negro contracts this disease would seem to be at least not negatived by this case.

DR. AGNES SAVILL (London) suggests that the immunity of negroes points to the existence of some factor in common for all simple living races. She asks for facts as to the main diet of these races.

TUBERCULOSIS, NOTIFICATION, AND HOUSING.

"M.R.C.S., L.R.C.P." writes: Being a general practitioner I read with due respect the statement of some "tuberculosis specialist" that there is much less tuberculosis than there was some years ago. The proof given was that far fewer cases were notified. This sort of reasoning is fallacious. Chronic cases all over the country have been notified and live on to a ripe old age and only the new developments are notified and so the public are told that there is less tuberculosis. The absurd expense of keeping up an army of tuberculosis officers is obvious to the general medical practitioner who sees the amount of actual treatment meted out by them. The tuberculosis officer keeps records and makes statistics and now and again a case is sent to a sanatorium, but for one case sent there are ninety-and-nine who get no treatment, but then they have the pleasure of being notified and their illness made public property—if anything is done. Personally I have notified one case in the last twelve months: the patient has never seen nor heard of the tuberculosis officer nor the medical officer of health. My firm opinion is that the money spent on tuberculosis officers and the tuberculosis scheme should go direct to the building of houses. More houses and less statistics seems to me to be the common-sense method of treatment.

"POISONOUS PLANTS OF ALL COUNTRIES."

DR. A. BERNHARD-SMITH (London) writes: Your reviewer (July 21st, p. 110) is good enough to suggest a botanical classification of the plants I describe in this work rather than that which I have adopted. I stated, however, in the preface to the first edition, that my classification was based on that given by Drs. Guy and Ferrier in their textbook on medical jurisprudence, and see no reason to alter it now. If in error, I flatter myself that I am in good company. With regard to the poet cal quotations, I am afraid that the one selected for adverse criticism is somewhat unfortunate. Swinburne, in the poem, "The Garden of Proserpine," puts a comma after his line mentioning poppies; and I shall maintain that the stanzas following, which I quote—

> "Green grapes of Proserpine
> Where no leaf blooms or blushes
> Save this whereout she crushes
> For dead men deadly wine"—

are an approximately adequate illustration for *Tamus communis*.

TOPONOMY SIMPLIFIED.

THE "Ignorant Student" to whose theory of a white or wight element in many place names reference was made recently has been so obliging as to send us another pamphlet bearing the same general title *Origins in Place Names*, but with the subtitle Sounds. Here he would carry us very far—out of all whooping—to the origin of languages. He would have us believe, or so we understand him, that all place names mean the same. Gutturals, he argues, would come first, when man began to try to communicate with man by sound, and the first word would be *gha*. "It has been computed," the Student says, "that there are no less than thirty-seven different values of the *a*-sound in English alone;" starting with this liberal allowance he finds little difficulty in reducing "all place names to a single common unit of sound for their origin and to a single common meaning, such as light, white, shining." We may account thus for the bys through which Tennyson's brook ran, but how about the thorpes? It is a long way from that to gaga or even ghaga. There is, however, this to be said for the Student's theory, that to-day the infant's first attempt at speech is something like gha-gha, and the mother's first lesson is to transform it into a polite expression of thanks.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 34, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *104*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
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Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

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Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Reviews.

MAGIC AND MEDICINE.

As readers of fiction are well aware, a chance encounter at a wayside inn is often the prelude to an exciting romance. If rumour speaks the truth, as in this case we believe she does, it was just such a chance encounter which led to the Mackie Ethnological Expedition and to the publication of these harvests of facts which Canon Roscoe gleaned all alone in the heart of Africa and which are now being issued by the Cambridge Press. We do not know the inn nor the month of the year, but we do know that the great war was raging when the author of the *Golden Bough* sat down to an evening meal and that the stranger who sat by him was Sir Peter Mackie of Glenreasdell. As conversation proceeded, Sir Peter soon guessed that his neighbour was none other than the modest but industrious student who, seeking for an explanation of the strange behaviour which legend ascribed to the ancient Italian King of the Woods, had threaded his way to a great discovery—the discovery that, at a certain stage of evolution, the conduct of even the highest races of mankind was regulated by magic. As the conversation went on Sir Peter Mackie's sympathy became enlisted in a very practical way. He learned that there still survive in many parts of the world communities and kingdoms which are swayed and governed by the rules of magic, and that in a few years these ancient survivals will pass beyond recall. Had not Dr. Charles Seligman found among the Shilluks of the White Nile just that magic rule of priest-kings which the author of the *Golden Bough* had been led to postulate? What, then, might not be found amongst the peoples at the source of the Nile—in Western Uganda? There might survive there beliefs and customs which would throw a flood of light on the civilization of Ancient Egypt.

The art of gaining the confidence of a native people and of eliciting their secret beliefs and customs needs not only an inborn tact but a prolonged apprenticeship. John Roscoe, who for ten years had been rector of a country parish in Norfolk, had all these qualifications. As a missionary he had spent twenty-five years of his earlier life in Uganda, teaching the natives the ways of Christians and studying closely the beliefs and customs which had hitherto regulated their conduct. He found that the *Golden Bough* served him in all his inquiries as a most reliable guide and textbook. And so it came about, as a result of this after-dinner conversation, that Sir Peter Mackie placed a sum at the disposal of the Royal Society, and in the summer of 1919 the rector of Ovington signed on as a supernumerary sailor on board the *Clan MacArthur* and set sail for Central Africa. We do not believe that money was ever better spent, in the furtherance of knowledge, than was Sir Peter Mackie's bounty.

For over a year Canon Roscoe sojourned amongst the western tribes of Uganda, and the two volumes now issued by the Cambridge Press contain part of his harvest.

The first volume[1] deals with the dominant people of the province of Bunyoro, the second[2] with the chief tribe of the province of Ankole. In both cases these ruling peoples are a pastoral folk, dark as negroes in colouring but with features tending to the Egyptian type. They pasture their herds in countries occupied by true negro tribes, who cultivate the land. Amongst these dominant pastoral people our author found all the customs which mark the magic rule of priest-kings. One infers that the codes of belief and of conduct, which are now dying out in Uganda, may very well be survivals from the ceremonials and customs which prevailed amongst the founders of the civilization of ancient Egypt.

Medical men will turn to Canon Roscoe's pages for light on the ancient history of their own profession. They will find that the early practice of medicine was founded on a knowledge of magic; more especially was it based upon an intimate acquaintance with the nature and ways of ghosts. The medicine man in Uganda has to know how to distinguish between the illness caused by a friendly ghost and that caused by one of a malevolent nature, for in the one case the cause of the illness has to be coaxed out of the patient; in the other it has to be driven out. A medical man in Uganda has to be practised in all the arts of divination and augury, and if we are to judge of the correctness of treatment by the results which follow its application, our contemporaries in Uganda can claim long lists of successful cases. Even in England the belief in magical cures is by no means dead—at least in a section of the English public.

A belief in magic does not prevent the medicine man of Central Africa from applying means which we of the West regard as rational. He applies splints to fractured limbs in the same manner as did the ancient Egyptians; he cauterizes purulent open wounds with a red-hot iron; he removes foreign bodies, he applies pressure to stop bleeding, he cups, blisters, purges, gives emetics, and has a wide knowledge of abortifacients. He demands his fee in advance, for he knows that the death of his patient wipes out his account.

Particularly interesting are the observations here published relating to the methods of helping the mother when she is in labour. After the child is born the mother leaves the husband for three years, suckling her child for this length of time. At the age of 9 every girl amongst these pastoral tribes is secluded and embarks upon a process of fattening—for the value of a bride depends on the response her body makes to this treatment. Herein we get light on a matter which has puzzled students of early man. In many parts of Europe there have been discovered ancient figures of very fat women, and most of these figures have been made by peoples living in Europe during the later phases of the ice period. We may legitimately infer that these ancient ancestors of ours, like some of the modern tribes of Central Africa, had a weakness for fat brides.

No praise is too high for the author of these volumes. He sacrificed his ease and risked his health and life to save from extinction a large and valuable fragment of human experience.

ARTHUR KEITH.

[1] *The Bakitara or Banyoro. The first part of the Report of the Mackie Ethnological Expedition to Central Africa.* By John Roscoe, M.A., Honorary Canon of Norwich and Rector of Ovington, Norfolk, formerly of the Church Missionary Society. London: Cambridge University Press. 1923. (Demy 8vo, pp. xvi+370; 42 plates, map and plan. 25s. net.)

[2] *The Banyankole.* The second part of the above report. (Pp. xii+176; 31 plates and map. 15s. net.)

DIAGNOSIS OF GASTRIC DISEASE.

DR. WALTER ZWEIG's textbook of diseases of the stomach and intestines, which has reached the third edition,[3] is written for practitioners, and accordingly much space has been allotted to diagnosis and treatment. The special part of the work, dealing with individual diseases, is preceded by a general consideration of the physiology of digestion, and the methods of diagnosis and treatment. Such matters are discussed as the analysis of the stomach contents and faeces, the radiography of the stomach and intestines, special physical therapy, such as massage, and the use of drugs and kindred subjects. There is a useful chapter on drugs, in which their mode of action and rational application are explained at greater length than is usual in textbooks. The special part of the work deals with the several diseases under the usual subheadings of etiology, symptomatology, and treatment. The author denies the existence of a clinical hyperacidity, while recognizing a chemical hyperacidity caused by hypersecretion or related to chronic ulcer. Many cases of chemical hyperacidity are met with in which symptoms are absent, and in those cases where symptoms are present they may, he says, often be relieved without any concomitant diminution in the hyperacidity. It is stated that haemorrhage in acute gastric ulcer is arrested in 93 to 97 per cent. of the cases within twenty-four hours on adopting the usual methods of absolute rest and abstention from food. If these measures fail, various haemostatics are recommended, special mention being made of a 5 to 10 per cent. solution of gelatin to produce thrombosis in

[3] *Lehrbuch der Magen- und Darmkrankheiten.* By Dr. Walter Zweig. Berlin: Urban and Schwarzenberg. 1923. (Sup. roy. 8vo, pp. xiii – 531; 81 figures, 4 coloured plates.)

"PHILKUT"

The Stopping that stops there

(Regd.)

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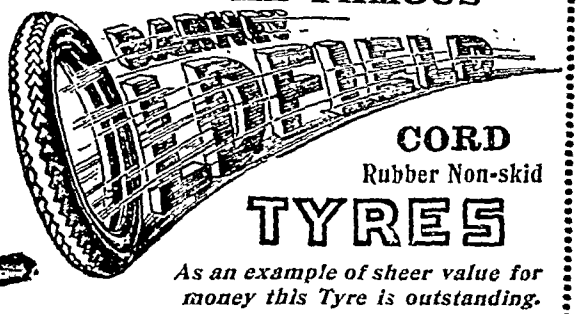

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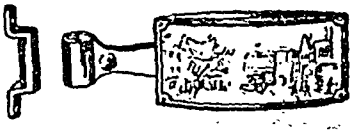

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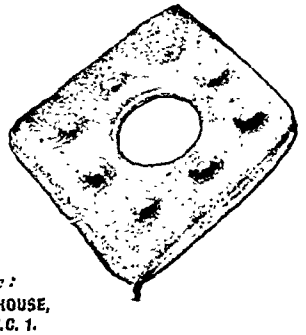

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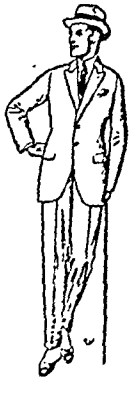

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ontaining this material is scattered through numerous eriodicals. It has been the object of the author to collect his scattered material into a single volume and present it n a concise form. The article on the stomach may be taken o illustrate the author's method of handling this material. fter a fairly complete account of the normal physiology, he pathological changes in gastric motility are considered, pecial attention being given to vomiting, and, on the basis f the considerations adduced, the question of vomiting uring and after anaesthesia is discussed and the proposed emedies examined. Gastric pain is next dealt with—its rigin generally, its relation to gastric ulcer and gastric ontractions, and its diagnostic significance. In this conexion gastric crises and the effects of nerve section are onsidered. Dilatation of the stomach from pylorospasm nd atony are then dealt with and the pathology of acute ilatation discussed at length. Under the heading of normal epair the histology of the healing of wounds of the gastric ucous membrane is described and its bearing on choice of utures. Much space is devoted to gastro-enterostomy and he modifications of the gastric functions resulting from it, ogether with the complications that are liable to follow, uch as gastric ileus and jejunal ulcer. The effects of yloric, transverse, and total resection are considered in imilar detail. The chapter closes with a long discussion of he etiology of gastric, duodenal, and jejunal ulcers and the anner in which gastro-enterostomy promotes their healing.

Other chapters treat of the mouth, salivary glands, tongue nd oesophagus, abdominal organs, peritoneum, pelvic rgans and male genitalia, thyroid gland, chest cavity, brain nd spinal cord, and the extremities. Each chapter is ollowed by a copious bibliography, that on the stomach onsisting of two hundred and sixty references. These are lmost exclusively from German sources.

ANNALS OF MEDICAL HISTORY.

THE first number of the fifth volume of the *Annals of Medical History*[1] has been delayed some three months. Edward Jenner's portrait appears on the cover, and the frontispiece shows another and less pleasing representation of the discoverer of vaccination, whose life is briefly sketched in an editorial article. Otherwise this instalment is very wanting in the fine illustrations which the reader has become accustomed to look for in this valuable periodical. Dr. Horace Manchester Brown's scholarly Mayo Foundation Lecture for 1921 on the anatomical habitat of the soul traces opinions on this subject from Hammurabi to Jean Paul Marat, the physician-revolutionist of the French Terror, who was probably the last medical writer to give the soul a local habitation in the body—namely, in the meninges. In 1596 Descartes, who at one time believed that the soul occupied the pineal gland, subsequently considered that it pervaded the whole body, and rejected all materialistic ideas of the soul. Dr. H. Viets contributes a note on the eponymic history of the ganglion semilunare (Gasseri), showing that it was first described in 1765 by A. B. R. Hirsch, a pupil of Lorenz Gasser of Vienna. The dead but significant controversy between Riolan and Harvey is briefly described by Dr. John Donley. A very interesting account of William Edmonds Horner (1793-1853), Professor of Anatomy in the University of Pennsylvania for twenty-two years and the describer of the tensor tarsi muscle and the cartilages at the bronchial subdivisions, is given by Dr. W. S. Middleton. Since 1919, when the 256 incunabula in the library of the College of Physicians of Philadelphia were catalogued in the *Annals*, such notable additions have been made that Mr. C. P. Fisher now publishes the descriptions of the whole, which now totals 332. Dr. J. E. Sands, in a review of an early paper on malaria, shows that twelve years before Laveran's discovery Meigs, Rhoad, and William Pepper recorded a malarial parasite in the first volume of the Pennsylvania Hospital Reports.

[1] *Annals of Medical History.* (Spring Number, 1923.) Vol. v, No. 1. Edited by Francis R. Packard, M.D. New York: Paul B. Hoeber; London: Baillière, Tindall and Cox. 1923. (Pp. 94; illustrated. Subscription in Great Britain £2 2s.)

FAMINE AND PESTILENCE IN RUSSIA.

IN a recent pamphlet[1] Dr. P. MÜHLENS, bacteriologist of the Tropical Institute at Hamburg, gives an account of the conditions he met with in Russia when as director of the German Red Cross Expedition he visited that country in September, 1921. There appears to be little doubt that the extent of the famine and epidemic disease which devastated Russia in the years 1921 and 1922 was unparalleled in the modern history of Europe, although periods of starvation followed by pestilence have been frequent in Russia since the earliest times. As the result of the failure of the harvest in 1921 it was estimated that by April, 1922, the number of starving persons in Russia, including the Ukraine, was 40 millions. The mortality was highest among children; the death rate in the first year of life was put at 80 to 100 per cent., and in older children at 30 to 40 per cent. Substitutes for bread were made from bark, acorns, grass, straw, and even clay. Numerous cases of coprophagia were reported, particularly among children. Well authenticated instances of necrophagia and cannibalism occurred, as in previous periods of the history of Russia, especially in the famine years of 1230-31 and 1601-2. The diseases following in the train of famine were hunger, oedema, scurvy, noma, intestinal diseases, dysentery, enteric, and, most important of all, typhus and relapsing fever. The last two diseases were spread in the crowded railway carriages and waiting rooms, and homes and camps for refugees, whose lousiness beggared all description, as well as in common lodging houses in the large towns, and also in the hospitals. Whole families fell ill during the railway journey and many died in the carriages or on their arrival. Owing to the disorganization of the sanitary service the number of notifications did not represent the actual number of cases, but in the Ukraine alone it was estimated that during the first four months of 1922 there were 137,083 cases of typhus, 53,578 of relapsing fever, and 42,388 of enteric. In 1921 alone there were 176,886 cases of cholera in Russia, as compared with not more than 50,000 cases during the whole course of the war. No reliable statistics were available concerning malaria. Owing to the exhaustion of the population by famine and disease the carrying out of effective sanitary measures was practically impossible; but Dr. Mühlens pays a high tribute to the Russian medical practitioners and men of science, who, with the most primitive equipment and in unheated laboratories and often without gas or electricity, were able to carry on work of the highest order.

A TEXTBOOK OF OTOLOGY.

SIR WILLIAM MILLIGAN and Dr. WYATT WINGRAVE have produced a *Practical Handbook of Diseases of the Ear*,[2] which has some resemblance in style and appearance to their much larger work on diseases of the ear. The new volume, whilst covering the essentials of the subject, is less than half the size of the other, and should prove useful to senior students. The authors write with experience gained from both the clinical and pathological aspects, so that the features which have made the larger volume so valuable as a book of reference and a permanent contribution to medical literature are again to be discovered here. The most important part, which refers to examination of the ear and nose, is well and sufficiently done, and if the student will read this section with care and put the directions into practice he will soon acquire a good and systematic method of examining patients.

The most serious criticism which must be offered is the lack of balance in apportioning space to the various subjects. Thus, although the book only contains 191 pages including the index, the reader must reach page 108 before penetrating as far as the outer surface of the membrana tympani. The space given to diseases of the middle ear, internal ear, and intracranial complications seems therefore unduly limited, whilst many rare conditions of the auricle

[1] *Die Russische Hunger- und Seuchenkatastrophe in der Jahren 1921-1922.* Von Professor Dr. P. Mühlens. Sonderabdruck aus *Zeitschrift fur Hygiene*, Band 99. Berlin: J. Springer. 1923. (Med. 8vo, pp. 43; 24 figures. 2s. 6d.)

[2] *A Practical Handbook of Diseases of the Ear for Students.* By William Milligan, M.D., and Wyatt Wingrave, M.D. London: William Heinemann. 1923. (Demy 8vo, pp. 191; 72 figures. 12s. 6d. net.)

and the rest of the curve would draw a horizontal line as the stomach empties. It means that the percentage of HCl is decreasing owing to neutralization by an alkali, because as the acid curve descends the inorganic chloride curve rises and the two cross one another. (Fig. 1.) Sodium chloride has been formed by neutralization and increases in amount as the acid decreases; the sodium chloride curve thus represents the curve of neutralization, which in its turn depends upon relaxation of the pyloric sphincter. The fall in the HCl curve and the concomitant rise in the NaCl curve thus result from pyloric relaxation and duodenal regurgitation and are a measure of the degree of pyloric tonus. In those cases in which the acid curve does not fall the inorganic curve remains low during the whole period of digestion, showing that in these people pyloric tone is abnormally maintained. (Fig. 2.) It must not be supposed that duodenal regurgitation occurs at the same time and to the same extent in all individuals with the normal type of curve, because this is not the case, as the great variations in the curves demonstrate. We can, however, state, using Bennett and Ryle's figures, that in about 90 per cent. of normal individuals the amount of gastric juice secreted and the degree of duodenal regurgitation vary within certain limits, but that they all conform to a common type: in about 5 per cent. duodenal regurgitation is abnormally defective; and in a few people congenital achylia is present, which condition has been recognized for some years.

There are great difficulties in the way of the investigation of disorders of function of the stomach, because the deviation from the normal and the return to it must vary in accordance with the type to which the patient normally belongs and of which we are ignorant. We must also remember that we investigate our cases with a comparatively non-irritating standard fluid and that this is a very imperfect test of the manner in which the stomach reacts to ordinary food of different kinds. Neither is our method of collection of the gastric contents during digestion an ideal procedure.

Acid Dyspepsia: Hyperacidity of the Gastric Juice: Hyperchlorhydria.

The functional disorder of the stomach to which the above names have been given is a well defined and easily recognizable malady. It is the commonest form of irritability of the stomach. It was formerly thought that the percentage of HCl in the human gastric juice was about 0.2, and this statement may still be occasionally found in recent textbooks. It was, and is at the present time by many, considered that a percentage of 0.25 total HCl and above in the gastric contents indicates a pathological excess of HCl in the gastric juice, and that this excess is the primary and essential cause of hyperchlorhydria. The fact is, however, that the human gastric juice contains the same percentage of HCl as that of animals—namely, 0.4 to 0.5—and that the percentage of HCl in the gastric contents represents the percentage of this acid in a mixture of gastric juice and food. In a series of unpublished experiments by E. K. Martin and myself it was found that after feeding on Glaxo the percentage of HCl in the gastric contents of cats never rose above a maximum of 0.12, although the pure juice obtained from a Pavlov fistula at the same time was constantly in the region of 0.4. The only primary alteration in the gastric juice which affects the percentage of HCl in the stomach contents is that in the quantity secreted. In the condition of hypersecretion there may be an increase in the average percentage in the stomach contents, but this is not necessarily so. If the gastric contents leave the stomach more rapidly than usual the HCl percentage also tends to rise above the normal average, but neither of these two factors is the common cause of the functional disturbance under discussion, because there is hypersecretion only in a certain number of cases and the food does not usually leave the stomach more rapidly than normal. Neither is the high acidity maintained in these two conditions unless there is pyloric hypertension. The essential cause of hyperacidity of the gastric contents is a deficiency in the neutralizing process which regulates the acidity of the contents and keeps the percentage of HCl at about 0.2. Duodenal regurgitation of the intestinal contents fails to occur during digestion in the normal fashion, with the result that the HCl curve continues to climb till the stomach is empty; or it may draw a more or less horizontal line, or it may show one or more dips owing to partial neutralization attempts. (Figs. 2, 3, 4.) The cause of this deficient regurgitation is irritability of the pyloric sphincter leading to deficient relaxation or spasm. The actual height of the HCl curve is not a matter of great significance. The important point to note is that the condition "hyperchlorhydria" is the result of neuro-muscular irritability of the stomach in which the pylorus plays the chief part.

The Cause of Pyloric Hypertension.

The irritability of the pylorus varies in normal individuals to some extent, so that there is a considerable latitude in the normal degree of pyloric tone, and hence the variations in the normal type of curve which are acknowledged to occur by all.

This irritability of the pylorus may be increased by one of two causes: (1) local disease in the vicinity—for example, ulcer; (2) irritability of the central nervous system, often produced reflexly. Even when either of these conditions is present it does not follow that the pylorus is unable to perform its functions normally, because it is one of the facts of medicine that in such diseases the disturbances of gastric function calling attention to them commonly appear only from time to time, and it is quite easy to relieve the patient although the diseased condition is still present. In 1920 Crohn and Reiss found that improvement in the symptoms of patients of this type depended upon the relief of pyloric spasm, and not upon alterations in the acidity of the contents or hypersecretion alone. Whether one is dealing with (*a*) a normal individual in the first instance, or (*b*) a person the subject of one of the two above pathological conditions, the exciting cause of the excessive pyloric hypertension is twofold; (1) food irritation, mechanical or chemical; (2) HCl. In proportion as the pylorus is irritable there is need of a smaller exciting cause: (1) The pylorus has a remarkable selective power. It is the regulator of the output of the stomach and holds up imperfectly disintegrated food and hard and irritating substances, whilst it lets pass finely divided and non-irritating materials and fluids. When such food is present in the stomach, the pylorus being particularly sensitive to it, the emptying of the stomach is delayed, and duodenal regurgitation necessary to neutralize the acid contents is prevented. Peristalsis increases and the intragastric pressure rises, regurgitation of the acid contents occurring into the lower end of the oesophagus or into the mouth. Our methods are unable to demonstrate all these changes, which vary from day to day according to the fatigue of the patient, the state of the nervous system, and the quality of the food eaten. (2) The part played by the HCl is not so simple. Normally the pylorus responds to the HCl in the stomach contents, relaxing in the presence of acid in the stomach and contracting when the duodenal contents are acid. In diseased conditions, however, it is perfectly well able to function normally either in the entire absence of HCl or in the condition of hypersecretion. The pylorus has therefore adapted itself to the new secretory conditions, but this only applies to a pylorus which is not in an irritable condition, for in this state of irritability its adaptability disappears and it reacts to free HCl as to other irritants. HCl in weak solution is a powerful irritant to living tissues. Nervous hypersecretion is thus likely to cause pyloric spasm and hyperacidity of the contents, and hyperacidity resulting from food irritation materially assists in keeping up the pyloric hypertension.

There are two methods of drug treatment of this condition of hyperchlorhydria which are interesting. (1) By the administration of alkalis one and a half to two hours after meals, which replaces the deficiency in duodenal regurgitation and relieves the symptoms. Crohn has shown that this is the correct time to give alkalis, because if taken at an earlier stage, when the acid curve is rising and secretion very active, alkalis simply cause a drop in the

the principal legal decisions affecting public health and local government, are amongst the new features included in this year's edition.

Stories founded on medical practice are common enough, but in *The Adventures of a Private Nurse*,[17] by Miss EVA RIDDOCK, we have an example of a similar work written by a nurse. The book consists of fourteen chapters dealing with her life with various patients. Though the style is somewhat pedestrian, the stories are vivid and convey an air of sincerity.

The last edition of the *Financial Times Investors' Guide* was issued towards the close of 1913. Since that date the war and the subsequent unstable state of affairs have made it impossible to prepare a new edition which would fulfil anything like its original purpose. The new edition (price 3s. 6d.) contains information that should be possessed by everyone who has dealings in money matters. It is given in a form that can be readily understood by those who have no technical knowledge. Separate chapters are devoted to the various classes of securities. The book appears to be a reliable guide for those who plan their investments on non-speculative lines. Present holders of the old railway stocks will find a useful table giving the names and amounts of stock in the new companies to be given in exchange for each £100 of stock of the old companies.

[17] *The Adventures of a Private Nurse.* By Eva Riddock. London: The Scientific Press, Ltd. 1923. (Cr 8vo. pp. 240. 3s. 6d. net.)

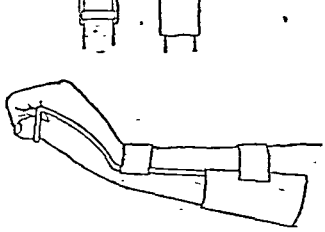
MEDICAL AND SURGICAL APPLIANCES.

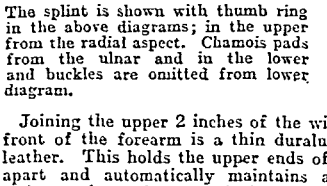
COCK-UP WRIST SPLINT OF DURALUMIN WIRE.

MR. A. WILFRID ADAMS, M.S., F.R.C.S., Assistant Surgeon, Bristol Royal Infirmary, writes: The purpose of the splint is to secure dorsiflexion of the wrist. This is the posture naturally assumed by the hand in grasping an object, and is recognized as the optimum position for ankylosis, since the grip is ineffectual if the wrist is not dorsiflexed. When ankylosis is a possible sequel it is imperative during healing that the joint should be maintained in this optimum position.

The splint consists of two side wires with cross bars ventrally at palm and upper forearm, with dorsal strap over the wrist. The framework is made of duralumin wire 4 mm. in diameter. For an average man a continuous length of 26 in. is adapted to the sides of the forearm crossing the front of the palm.

On the outer aspect the wire commences at the junction of the upper and middle thirds of the forearm and passes in contact with the latter straight to the wrist-joint. There it is bent outwards and dorsally to adapt it to the back of the first interosseous space till it reaches the cleft between thumb and forefinger, leaving the thumb free. This angle should be determined by placing the hand in the position which it normally assumes in making a fist. With the necessary slight obliquity the wire is next carried across in front of the heads of the metacarpal bones to the ulnar margin of the hand along which it proceeds to the wrist; and following the inner aspect of the forearm finishes on a level with the outer wire. It should be noted that painful pressure results if the wire is not bent well away from the base of the first metacarpal.





The splint is shown with thumb ring in the above diagrams; in the upper from the radial aspect. Chamois pads from the ulnar and in the lower and buckles are omitted from lower diagram.

If the splint be used to regain extension in a partly ankylosed wrist the wire is adapted to the flexed position and can be bent up later as the deformity yields to the steady pressure of the dorsal strap.

Joining the upper 2 inches of the wires and curving round in front of the forearm is a thin duralumin trough covered with leather. This holds the upper ends of the lateral wires rigidly apart and automatically maintains apposition with the arm owing to the tendency of the hand to flex and so tilt the trough dorsally. A strap and buckle pass over the back of the forearm at this level. To the ulnar wire at the wrist is attached a second strap with buckle. This passes over the back of the lowest inch of the forearm, round the radial wire, and then doubles back again to the buckle on the inner side; on the tightness of this depends the degree of dorsiflexion of the wrist. Where greater security is desired at this point, as in Colles's fracture, the strap completely encircles the limb. Small chamois leather pads are attached to the straps where they press on the limb, also leather-covered padding surrounds the oblique palmar bar. When used for nerve lesions of the extensors the outer end of the palmar wire is bent into a half-circle in which the thumb rests and is kept extended, so relaxing the extensor longus pollicis. It is desirable in all and essential in some cases that the splint be made to measure. For this Messrs. Ferris and Co., Bristol, require an outline of the hand and forearm traced on paper, palm downwards.

The dorsal wrist strap is adjustable and presses the wrist forward, causing the required degree of dorsiflexion at the joint, the palm and forearm being fixed where they rest against the unyielding frame ends.

Indications for Use.

A. To support the wrist dorsiflexed during some healing process, as for instance—

1. Sprains and injuries to bones about the wrist as in Colles's fracture, fractured carpal or metacarpal.
2. During healing of wounds, either accidental or surgical, such as tendon transplantations or ganglionectomy.
3. Inflammatory affections such as occupational tenosynovitis, painful rheumatoid affections, and tuberculous or septic infections.

B. To correct the deformity of a dropped wrist—

1. Paralytic dropped wrist—when a splint is needed for months or years.
2. Partial fibrous ankylosis of the wrist in a dropped position following paralysis or inflammatory lesions.

Special Advantages claimed for the Splint.

1. It is comfortable to wear and inconspicuous.
2. It is lighter than other forms of cock-up splints and yet is of adequate strength. The weight of a splint made for a man is only 6 oz., which is so distributed as to be scarcely perceptible to the wearer.
3. It does not prevent the use of the digits for grasping and the wearer can dress himself, feed himself, write, shake hands, etc. A minimum of worry from splinting is entailed. These are important factors when the patient is undergoing treatment lasting for months and where intermission would be disastrous.
4. The need for removal of the splint is greatly reduced in cases where dressings have to be changed, as the surface of the part is almost entirely exposed.

AN IMPROVED ANTRUM EXPLORING TROCAR AND CANNULA.

MR. H. MORTIMER WHERRY, F.R.C.S., Laryngologist to the Mount Vernon Hospital for Diseases of the Chest, writes: In the antrum trocar described below I believe I have been able to combine the simplicity and directness of the ordinary straight trocar and cannula with two points of safety and convenience which have not hitherto been obtained without unnecessarily complicating the instrument. First, in puncturing the medial wall of the antrum below the inferior turbinate I prevent the instrument from penetrating or hitting any of the further walls by means of a small ring placed round the cannula at a distance of 1/2 inch from its distal end, and 5/8 inch from the point of the trocar; this ring is very small and inconspicuous, in no way adding to any difficulty in manipulating the instrument inside the nose, but is quite sufficient to check the instrument. The

second point is one of convenience, and consists in an improved joint between the nozzle of the syringe and the cannula. It sometimes happens with the ordinary joint that when extra pressure is required from the syringe, the nozzle flies out and the lotion is squirted everywhere. The improved joint can be held together by the finger and thumb with the utmost security. Provided that the antrum is punctured in the right place, and the Higginson's syringe tied firmly to the nozzle, I believe this to be an "accident-proof" instrument. It was recently shown at the Laryngological Section of the Royal Society of Medicine. This instrument is not safe for sphenoidal puncture as the guard is too far back, but an instrument made by the same makers has a guard 3/8 inch from the point of the trocar, and is suitable for the sphenoid. I am indebted to Messrs. Mayer and Phelps for the excellent way they have carried out my design.

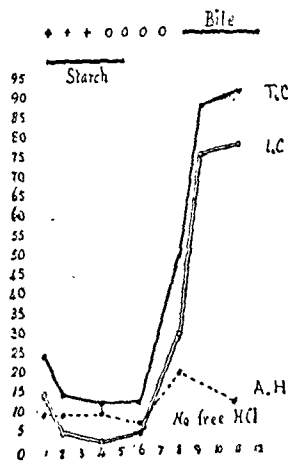


FIG. 11.—Achylia gastrica; Pernicious anaemia.

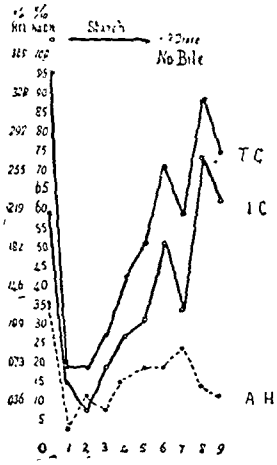


FIG. 12.—*Cancer of stomach*; diminished secretion; excessive neutralization.

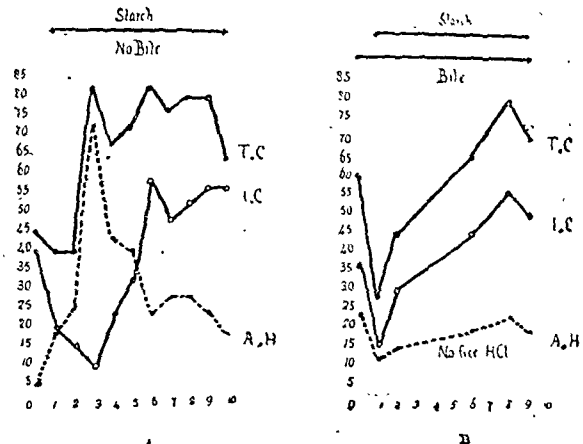


FIG. 13.—A, Slight hour-glass stomach, before operation. B, After partial gastrectomy; jejunum joined to stomach.

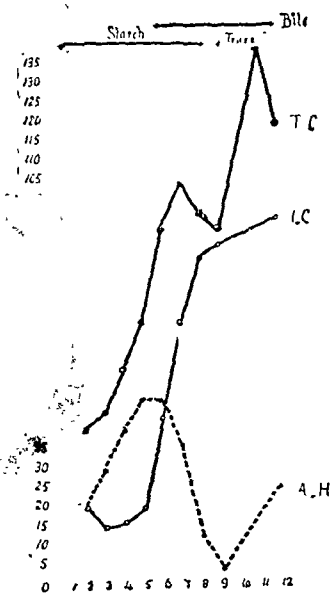


FIG. 14.—Unsuccessful gastro-jejunostomy; imperfect neutralization.

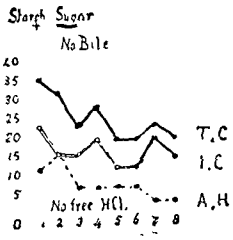


FIG. 15. — Cancer of stomach; secretion practically absent.

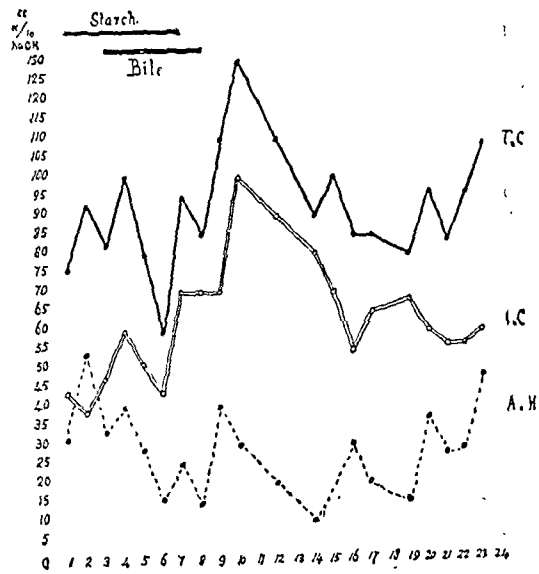


FIG. 16.—Duodenal ulcer; hypersecretion; no hyperacidity; excessive neutralization; rapid emptying.

curve, which usually rises a trifle higher subsequently. Digestion is thus delayed. (2) By the administration of atropine, which relaxes the pylorus and brings down the acid curve by neutralization, in addition to diminishing the secretion.

Action of Atropine.

Since the introduction of the fractional meal many observations have been made with this drug and conflicting results obtained. Unfortunately most observers have taken a diminution in acidity of the gastric contents to indicate a diminished secretion, but, as we have seen, this view is erroneous. We have to consider two distinct points: (1) whether the acidity of the gastric contents is diminished by atropine, and (2) whether the amount of gastric juice secreted after the stomach is empty is also diminished. With regard to the first point, there is no doubt whatever that atropine is able to modify the acidity curve of the gastric contents. A complete chloride analysis will show that a rising curve may be converted into a single peak curve which falls in the normal manner. As the HCl curve falls the NaCl curve rises, showing that the fall in acidity is due to neutralization by pyloric relaxation and duodenal regurgitation. An abnormal acid curve has been converted into a normal curve by relaxation of the pyloric spasm by the atropine. (Fig. 5.) The total chloride curve is frequently lowered by about 10 or 20, showing that the secretion is also diminished. The correct method of estimating whether or not the gastric juice secreted in the *fasting* stomach is diminished by atropine is to continue the collection of the secretion after the stomach has emptied. Crohn was the first observer who found that this secretion could be stopped by giving very large doses of atropine. We may conclude that atropine diminishes the gastric secretion more particularly in the fasting stomach, but the benefit it produces during digestion is perhaps rather due to its power of relaxing the pylorus and restoring the normal duodenal regurgitation. Uniform results are not obtained in all cases, neither does atropine invariably relieve the patient.

Pyloric Obstruction.

Very little need be said about pyloric obstruction except that it exhibits in a striking way the effects upon the various curves of the limitation of duodenal regurgitation, its effect being a purely mechanical one. When the stricture is marked the total chloride curve tends to reach its height fairly early, as in cases of hypersecretion, and also to maintain its high level. The acid curve remains parallel with it more or less. The NaCl curve is usually low from the first. Duodenal regurgitation occurs to a slight extent, but it is irregular and spasmodic. The curves indicate a steady output of secretion with small irregular neutralizations. The fasting stomach contains mixed pancreatic and gastric juices with food remnants, the amount of each depending on the degree of stenosis. All degrees of neutralization occur in slighter cases. (*Fig. 8.*)

Hour-glass Stomach.

A slight degree of hour-glass contraction shows a perfectly normal curve like that of an ulcer of the body of the

The Committee has now issued a second report[1] treating of "incapacity resulting from miners' nystagmus and the relative importance of errors of refraction in miners' nystagmus." Both sections are by Mr. G. H. Pooley, F.R.C.S., of Sheffield; the introduction states that Dr. T. L. Llewellyn has given his help, and that the Committee is in entire agreement with the views expressed.

The report makes it clear that a distinction must be drawn between the presence of physical signs distinctive of miners' nystagmus and the existence of incapacity arising therefrom. Many observers in various countries have found that a large proportion of underground miners while still at work exhibit signs of miners' nystagmus, which, *if complained of*, might establish a claim for compensation. In America, where no compensation is given, little is heard of the existence of the disease. In Germany the incidence of claims was 0.3 per cent. to 1913, but on limiting compensation to the serious cases it has fallen to 0.03. In Belgium, with a uniform method of compensation the incidence has remained at 0.2 to 0.4 per cent. In England the admission of cases of psychoneurosis to compensation increased the incidence of claims; the rise and fall of wages (whilst compensation remained unaltered) was reflected in the number of claims: as the number of claims for incapacity increased, the duration of the cases extended, so that the percentage of claims in each year which lasted for four weeks and over grew larger. It is such factors as these that increase the claims, for "there is no sound evidence of increase in the clinical entity, miners' nystagmus."

Definite visible oscillation of the eyes, permanently present when the eyes are above the horizontal level, is the common Continental standard of incapacity. In England compensation may be awarded on a claim "whether the symptom of oscillation of the eyeballs be present or not"; the definition does not distinguish between incapacity due solely to miners' nystagmus and incapacity due to other causes, such as hysteria, etc., in miners who attribute their incapacity to miners' nystagmus.

On the Continent miners only stop work for severe attacks; the great majority return to work in a few weeks; anything like a year's absence is quite abnormal. The Committee visited Belgium, where miners' nystagmus is looked upon as a benign affection, recovery from which is expected in a short time; yet the cases observed presented the same clinical features as those in this country, while men were seen working happily with well marked signs of the disease. When the British and Continental standards were similar our miners worked much as they do now abroad; with the altered British definition, to-day a large and ever-increasing number claim and obtain compensation, many for long periods. Figures are given upon which these conclusions are based.

"The contrast between the length of incapacity on the Continent and in this country challenges attention, and indicates that the economic problem of nystagmus lies far more in an undue protraction of disability claims than in the number of original claims."

"We have ourselves known miners drawing compensation for nystagmus who were incapacitated by such conditions as melancholia, general paralysis of the insane, valvular disease of the heart, hemiplegia, paralysis agitans, bronchitis, and an injured knee. These men had been able to work notwithstanding the oscillation of their eyes until other troubles appeared."

"The standard for certification in vogue in this country undoubtedly lends itself to misuse, and we consider it should be altered.

"We recommend that miners should be considered to have nystagmus sufficiently severely to be certified for compensation if oscillation of the eyes is constantly present even when the miner is looking at or below the horizontal level in daylight, or if it persists for five minutes in a good light with the eyes at the horizontal level, after it has been induced by darkening the room and using suitable exercises."

In the second part of this report are given the refractions in 130 cases of miners' nystagmus and of normal miners. The analysis discloses no relation between errors of refraction and nystagmus: the "errors of refraction in themselves have no effect whatever either on the incidence of miners' nystagmus or on the age at which incapacity commences from miners' nystagmus." This conclusion corresponds to that of earlier investigators, such as Snell, Dransart, Stassen, and Coppez, and is in conflict with Anderson, who in 1920 contended that errors of refraction are the principal cause.

[1] Second Report of the Miners' Nystagmus Committee. Privy Council. Medical Research Council. London: His Majesty's Stationery Office. 1923. Pp. 35. Price 9d. net.

THE FELLOWSHIP OF MEDICINE AND POST-GRADUATE EDUCATION.

THE report presented to the annual meeting of the Fellowship of Medicine and Post-Graduate Association by the honorary secretaries, Mr. Herbert J. Paterson and Dr. Henry MacCormac, was as follows:

"Since the period covered by the last report of your honorary secretaries, 160 post-graduates have been enrolled. Of these 50 were resident in Great Britain, 61 from the Colonies, and the remainder from the United States, the Continent of Europe and such distant lands as China, Syria, South America, and Barbados. Special courses have again been given by the following hospitals: The Prince of Wales's Hospital, the Infants' Hospital, the 'Children's Clinic'—Western General Dispensary, National Hospital for Diseases of the Heart, the London Lock Hospital. In September last a very successful course in General Medicine was given by several of the post-graduate hospitals combined with Middlesex and St. George's Hospitals. Thirteen post-graduates were enrolled for the course. By the kind permission of the Royal Society of Medicine the series of weekly lectures has been continued at intervals. Many well-known physicians and surgeons have been good enough to deliver lectures, and the average attendance has been thirty.

"Since January 1st, 65 new members of the Fellowship have been enrolled, and the number of regular annual subscribers is now 150. That the work of the Fellowship of Medicine continues to fill a definite want is evident from the large number of appreciatory letters received from those who have availed themselves of the facilities provided.

"Towards the close of the year, representatives of the various Post-Graduate Hospitals put forward some valuable suggestions to the Fellowship of Medicine for closer co-operation between the Fellowship and the various hospitals. These suggestions were warmly welcomed and adopted by your Council, a special committee being appointed to carry them into effect, and as a result vigorous efforts for the furtherance of the aims of the Fellowship are being made. The constitution and by-laws have been revised by the same committee for submission to the annual meeting according to the resolution passed by your Council. We are particularly gratified to be able to report that various refresher and special courses have been arranged right up to June of next year, so that throughout the whole year one or more courses will be available for those who desire to do post-graduate work. There is every hope that as a result of what is being done, London will become a live centre of post-graduate teaching. Perhaps we may be allowed to quote from an article by Dr. Emmet F. Horine of Louisville, who spent some months in this country investigating the facilities for post-graduate teaching. 'As to the future of post-graduate work in London I consider it very bright . . . I am certain from what I have seen that it is only a question of time when a wonderful institution will be opened.'

"Once again we must express the great debt owed by the Fellowship to the Royal Society of Medicine for their continued support and generosity in placing an office at our disposal. The President of the Society, Sir William Hale-White, has taken a keen and personal interest in the new efforts which are being made and his valuable help has been given to us in many ways. In conclusion, we desire to place on record the appreciation of the honorary officers of the valuable and devoted service which the honorary, Miss Willis, and her assistant, Miss Roy, have rendered to the Fellowship of Medicine."

Great regret was expressed by the members attending the meeting that Sir George Makins had decided to retire from the office of President; a cordial vote of thanks to him was adopted. Sir Arbuthnot Lane was elected President in his place. The new constitution of the Post-Graduate Association of the Fellowship was unanimously approved. The constitution provided that the General Council should consist of twenty members, and they were accordingly elected. At a subsequent meeting the Executive Committee was also appointed, consisting of the honorary officers and seven members elected by the General Council.

If the figures of Rehfuss be accepted about 40 per cent. of normal people have hypersecretion, for he found amounts varying from 20 to 120 c.cm. with an average of 50 c.cm. In 1921 Crohn disputed these results, and stated that in the normal the amount was rarely over 30 c.cm., regarding anything above this as constituting hypersecretion, and with this we agree. In the absence of hypersecretion after the stomach is empty very little can be extracted from it, because only a very slow and small secretion occurs in the fasting stomach. This is added to by swallowed saliva and duodenal regurgitation of intestinal contents in unknown amounts, which partially neutralize it. The pylorus allows this to pass out from time to time. Some hours after a meal the resting stomach may thus contain variable amounts of mixed secretions, depending in quantity and composition very largely on the gastric movements, and it may be roughly taken that amounts over about 30 c.cm. indicate hypersecretion. If, however, we simply trust to the amount of resting juice we shall fall into error, because the hypersecretion may not be continuous, but only occur during digestion and for a variable number of hours afterwards; and hence the importance of leaving the tube *in situ* for collection of the juice after the stomach is empty.

With regard to the type of curve during digestion there is only one feature that is suggestive of hypersecretion, and that is a rapid rise in the total chloride curve, with or without a similar rise in the HCl curve in the early stage of digestion when the stomach is full, provided that the organ not emptying rapidly. The height of the curve later, or ether it falls or rises or remains horizontal, is of no ificance for the recognition of hypersecretion. In other ords, one is not justified in speaking of a hypersecretory curve; the shape of the curve is determined by the degree of tone of the pylorus. A rapid rise in the HCl curve may occur at the beginning, and a fall as rapid occur due to neutralization, or the curve may be of the climbing type. The contents are watery-looking and copious, the proportion of gruel being smaller than normal. When all the starch has left the stomach the secretion continues in the same amount with the same watery appearance. The analysis of this fluid is interesting. The total chloride curve keeps more or less constantly high. The actual height of the acid curve varies in different cases, but tends to keep constant for the same individual, as the secretion of gastric juice is constant, and the neutralizing process, owing to pyloric relaxation, is also constant for the same person. (Figs. 6, 16.)

During digestion the acid curve may never rise to a high level at all whatever its shape. This is due to a steady regurgitation through the pylorus keeping down the acidity. The hypersecretion is, however, proved by the continued secretion after the stomach is empty or by removing a large amount at this period. In other words, hypersecretion may or may not be accompanied by hyperacidity of the gastric contents. The emptying time is not necessarily altered in either direction by hypersecretion, but depends upon the type of case in which it is occurring. (Fig. 16.)

The gastric juice is normally secreted in response to stimuli transmitted from the central nervous system through the vagi and also to chemical stimuli as the result of the presence of digesting food in the stomach. Hypersecretion originates as an exaggeration of one or other of these two mechanisms. It occurs in irritable conditions of the central nervous system, either primary or induced by abnormal stimulation of the afferent fibres from some portion of the digestive tract. In this case the secretion is characteristically continuous and the fasting juice excessive in amount. If the central nervous system is affected primarily the hypersecretion is liable to occur in spasmodic attacks—so-called periodic secretion.

Hypersecretion also originates during the digestive process as the result of retention of food in the stomach. In these cases the secretion outlasts the emptying of the stomach for a varying number of hours, when it falls off and the resting juice may or may not be present in normal quantity.

The relation of gastric and duodenal ulcer to hypersecretion is not a simple one. The chief effect of an ulcer is to produce a local spasm in its vicinity; at the pylorus it produces pyloric spasm, in the body of the stomach a ring spasm, and finally obstruction at either point. (Figs. 3, 4, 6, 8.) The effect of this is deficient neutralization and the condition of hyperacidity of the stomach contents in pyloric obstruction, and a similar state of affairs in the proximal sac of an hour-glass stomach. Hypersecretion is finally set up. It is held by some that the ulcer produces a reflex hypersecretion, but if this were so it should occur whether spasm were excited or not and especially in acute ulcer, but this is not the case. When hypersecretion occurs in gastric or duodenal ulcer in the absence of food retention it may equally well be asserted that an ulcer has occurred in a person suffering from gastric irritability and hypersecretion, the latter being a factor in the production of the ulcer. I am inclined to this view, which I expressed in 1915, as the result of my experiments demonstrating the marked influence of HCl in facilitating the formation and delaying the healing of ulcers.

DISCUSSION.

Mr. HERBERT J. PATERSON confessed to a strong belief in the value of the old-fashioned test meal. After all, what was needed was a comparison of the working of one stomach with another, and if the test meal was given properly—that is, if the amount and quality of the test meal were uniform, and if it were drawn off at the exact time—it was a most valuable help in diagnosis. He thought the value of test meals was underrated because it was forgotten that chemistry was an aid to but not a substitute for clinical observation. It was useless to send a test meal to a pathologist and expect him to make a diagnosis as the result of his examination. A test meal result must be read in conjunction with the history and clinical examination of the patient. Much more would be learnt if the physician or surgeon examined the test meal himself. The smell and appearance were often such as to suggest carcinoma. Great as was the value of the test meal in diagnosis, it was of even greater value in controlling the diet of a patient after gastro-jejunostomy. It was the only means of determining how far the acidity of the gastric contents had been reduced, and so the only guide as to the nature of the diet which should be allowed. Dr. Bolton's experiments confirmed the view he had advocated for many years—that gastro-jejunostomy was a "physiological" operation. Gastro-jejunostomy reduced the acidity of the gastric contents by allowing the entrance of pancreatic juice into the stomach through the anastomosis. This neutralization might not occur if the stoma were too small or wrongly placed. He was in favour of anterior gastro-jejunostomy because it allowed greater regurgitation of pancreatic juice in the early days after operation; this greater regurgitation occurred, he thought, because in the anterior operation the circular muscular fibres of the stomach were divided to a greater extent than in the posterior operation, and therefore there was less likely to be a sphincteric action at the stoma. If it were true that gastro-jejunostomy was a physiological operation, then excision of the pylorus as a routine measure, as suggested by Dr. Bolton, was unnecessary.

Dr. J. A. RYLE drew attention to certain observations, other than purely chemical observations, which might and should be made in specimens withdrawn for purposes of gastric analysis. These would be particularly of value if the physician or surgeon was able himself to inspect the specimens from his own cases. The resting secretion provided not a little valuable information. In addition to its chemistry, which was subject to great variations, observations might be made in regard to its amount, consistency, naked-eye appearance, odour, and cytology. A clear, limpid, highly acid resting juice in amounts above 50 c.cm., and sometimes above 100 c.cm., was more commonly encountered in duodenal ulcer than in any other condition, and was frequently associated with a clear and copious after-secretion. In conditions of complete achlorhydria, such as occurred in Addison's anaemia, subacute combined degeneration of the cord, and chronic

in each case, we find that a 57 per cent. increase on 7s. is 4s., and that this exactly gives the actual award. Professor Bowley's corresponding percentage to-day is 48, which gives a capitation fee of 10s. 4d. It is difficult, if not impossible, to discover any justification for a fee lower than this.

The Committee wisely claims that the medical remuneration, when properly arrived at, shall be a statutory first charge on the National Health Insurance Fund, and points out that in existing circumstances this need entail no additional charge whatever upon the employed person, the employer, or the taxpayer. This main proposition must surely be regarded as axiomatic; and with regard to the capacity of the Fund we need do no more than refer to the expert review of its financial position published in the SUPPLEMENT of May 26th last, to our leading article thereon, and to the official statement of accounts for the year ended December 31st, 1921, published on June 6th by His Majesty's Stationery Office. The claim of the Committee is amply justified by the official figures.

For such an insurance medical service as may be obtained, improved as it can be not only with the goodwill but largely at the behest of the profession, the nation will, within the limits of its insurance scheme, be prepared to see that adequate remuneration is forthcoming. There is no reason why the Government and approved societies, whose interest alike it is to secure the best possible service, and assured as they are that the profession is anxious to provide it, should be unwilling that this provision should be made. The decision of the Government and such consequent legislation as may be necessary during the autumn session of Parliament will be regarded by the whole profession, and not merely by insurance practitioners, as of the utmost importance. For the facts of the case clearly show that any reduction in the remuneration of insurance practitioners must have an early reaction on the status and emoluments of other branches of the profession.

THE INVESTIGATION OF DISEASES OF THE STOMACH.

THE discussion in the Section of Pathology at Portsmouth, which is published in this issue, reveals the fact that modern methods of investigation of diseases of the stomach, particularly by means of the fractional test meal, have done much to advance our knowledge both of the physiology and pathology of the organ.

In the fractional method small fractions of the stomach contents are extracted every quarter of an hour after a test meal, and the percentages of free hydrochloric acid and the total acidity estimated, the percentages being plotted as curves. Dr. Bolton has shown that such curves cannot be looked on as a correct index of the gastric secretion, since they fail to take account of the hydrochloric acid neutralized and present as inorganic chloride. This neutralization normally regulates the acidity of the stomach contents, and is due to regurgitation of the pancreatic juice from the duodenum. When this is allowed for, and the total chlorides of the gastric contents estimated, the figures give the true secretory curve of the stomach. It has been argued that specimens so obtained are not consistent samples of the stomach contents, and that the manipulation necessary may disturb the secretory activity; but if precautions are taken to ensure a tranquil environment, and the method is skilfully carried out, little difficulty arises on this score. The general direction taken by the curves representing the total acidity, free hydrochloric acid, and total chlorides is fundamentally different in various pathological conditions of the stomach, as Bolton and Goodhart have shown. Characteristic curves are often of great diagnostic assistance, but their chief value at present is the light they throw on the behaviour of the stomach in different types of disease. Perhaps the best example is the condition known as acid dyspepsia or hyperchlorhydria. This was at one time thought to be due to an excess of hydrochloric acid in the gastric juice, but the fractional test meal has shown that the essential cause is not a secretory abnormality but a deficiency in the neutralizing process which regulates the acidity of the gastric contents, due to irritability of the pyloric sphincter. The hydrochloric acid curve does not show the normal ascending and descending limb, but continues to climb till the stomach is empty, showing that duodenal regurgitation has not occurred. The curve may also show other irregularities due to partial neutralization. Hyperchlorhydria is the result, therefore, of a neuromuscular irritability of the pylorus. This accurate picture of the mechanism by which acid dyspepsia is produced enables us to understand the method of action of two drugs which have long been known to relieve the symptoms of this disease. Alkalis given one and a half to two hours after meals replace the deficiency in duodenal regurgitation, and atropine relaxes the pylorus, thereby allowing the normal process of neutralization to be effected.

Much light has been thrown also on the opposite set of symptoms of gastric secretion; fractional test meals have enabled us to distinguish three separate varieties of subacidity. When the stomach is atonic and peristalsis diminished, the pylorus also is often hypotonic, and allows excessive regurgitation to take place, thereby leading to excessive neutralization. In such cases the secretion of gastric juice may be normal. The fractional test meal method distinguishes this pyloric default from a second possible cause of subacidity, due to a simple diminution in the amount of gastric juice secreted; the curves then obtained are altogether different. Thirdly, it brings into relief that rare but interesting disease, achylia gastrica, in which there is an entire absence of gastric juice. The newer methods have confirmed the previously established generalizations that subacidity occurs in malignant disease of the stomach, pernicious anaemia, and gastritis, and further researches will probably elucidate the manner of action in each of these different conditions.

As will be seen from a study of Dr. Bennett's paper, the fractional test method is of great assistance in the diagnosis of cancer, for he says that it is exceedingly rare for a case of carcinoma of the stomach to present itself for examination without the diagnosis being definitely established the moment gastric analysis is performed. Here special attention is directed to the contents of the fasting stomach; analysis almost invariably reveals evidence of stagnation of the gastric contents, or of haemorrhage with aberrant secretion, signs which are not likely to be confused with those given by other diseases. He recommends as an indicator for stagnation the overnight administration of charcoal in milk; the extraction of the gastric contents must be performed next day with care to avoid any damage to the mucous membrane which might give rise to bleeding. In all but 3 out of 53 cases in which the clinical diagnosis of

stomach as a whole. There is a measure of truth in this, but the criticism loses force if care is taken to remove a large specimen from time to time, and it must be further recognized that any method, such as the fractional one, in which the whole of the fasting stomach content is removed before the test meal is given must be far more accurate than the ordinary Ewald technique, in which at the end of one hour a mixture of meal with old and recent secretions is removed and examined, without the observer having any information as to what was in the stomach to begin with.

Even if it be claimed and admitted that the fractional method is the most useful of the present means of performing gastric analysis, it must be acknowledged that cases of serious organic disease of the stomach still occur which baffle detection in this way; the explanation is simple: it lies in the fact that serious organic disease of the stomach may occur without any gross alteration in gastric secretion.

There are, however, certain conditions which are almost invariably demonstrable by careful gastric analysis, and it is my purpose in this paper to deal with one, perhaps the most important, of them—namely, carcinoma of the stomach. My experience leads me to believe that it is exceedingly rare for a case of carcinoma of the stomach to present itself for examination without the diagnosis being definitely established as soon as gastric analysis is performed.

Everyone engaged in the practice of medicine is aware of the importance of early diagnosis in this disease, but it is certain that very few appreciate the value of gastric analysis in this connexion.

On referring to a number of the most popular textbooks I have been much impressed with the vagueness of much current medical teaching on the subject. There is a lack of agreement between the various writers, and a hesitancy on the part of most of them, that cannot but make the critical reader doubt whether chemical examination is of real value.

Hurst, writing in Price's *Textbook of Medicine*, says: "The absence of free hydrochloric acid (in cancer of the stomach) is of less value, as achylia may also occur with chronic ulcers of the lesser curvature." Poulton, in Taylor's *Practice of Medicine*, says: "In carcinoma of the stomach there is a great diminution in the 'active HCl' and in the amount of 'free HCl'; but this also occurs in some normal people as well as in the group known as achylia gastrica and in pernicious anaemia and acne rosacea." The last edition of Osler's textbook states: "It may be said that free HCl is absent from a large proportion of all cases of cancer of the stomach. Of 94 cases in which the contents were examined, in 84 free HCl was absent. . . . HCl may be absent in chronic gastritis and in atrophy of the gastric mucosa. The presence of lactic acid is regarded as a valuable sign."

These three statements are fairly representative of the teaching accessible to the average English medical student; they cannot be said to foster a belief that there is any great utility in gastric analysis, and the main impressions they convey are, first, that in most, but not all, cases of gastric cancer, there is no free HCl in the gastric contents; and secondly, that this is similar to what is seen in cases of chronic gastritis, pernicious anaemia, and achylia gastrica.

I believe that I have stated this fairly, and it is certainly the impression that is left after reading accounts in a large number of textbooks, both English and American. I do not, however, believe that it at all conveys the opinion of those who have actual personal experience of gastric analysis, and I can myself state, as the result of prolonged personal investigation, that free HCl is secreted by the stomachs of the majority of patients suffering from gastric carcinoma, and that, even when a patient with gastric carcinoma has complete achlorhydria, the gastric analysis is rarely identical with that given by a patient with pernicious anaemia, chronic gastritis, or any other form of "benign" achylia. Two examples will illustrate this.

CASE I.

J. L., male, aged 58, was admitted to Middlesex Hospital in January, 1923, under the care of Dr. A. F. Voelcker, by whom I was asked to perform gastric analysis. The patient gave a five weeks' history of dyspepsia, unrelated to food; he had on six occasions vomited profusely; visible peristalsis was present. There was a history of syphilis, but the Wassermann reaction was negative. A glass of milk containing 1½ drachms of powdered charcoal was given overnight, and a modified Einhorn tube was swallowed at 9.30 on the following morning. Over a pint and a half of sour-smelling fluid, containing much charcoal, was recovered; no free HCl was present in this; the total acidity was 50. The stomach was then repeatedly washed with water, and the washings at the end of a quarter of an hour contained free HCl 10, total acid 35. It being clear that pyloric obstruction was present, laparotomy was performed three days later by Mr. C. H. S. Webb; a small early carcinoma was found, causing such obstruction that when water was placed in the stomach after excision drops only could be made to traverse the pylorus, though a finger could be readily introduced from the duodenal side. Histological examination confirmed the diagnosis of carcinoma; the main surface of the stomach was normal.

This case illustrates (1) the rapid onset of pyloric obstruction in many cases of gastric carcinoma; (2) the operability of many such growths; (3) that the inhibition of normal secretion may be due mainly to coating of the mucosa with retained products; (4) the production of free organic acids by fermentative bacteria above an obstruction. An Ewald test meal or an ordinary fractional gastric analysis would certainly have shown in this case (1) an absence of HCl just as in a non-secreting achylia gastrica; or (2) a high total acidity quite different from the low total acidity of pernicious anaemia and achylia gastrica.

CASE II.

C. G., a man aged 60, [illegible] Hospital under the care of Dr. Essex Wynter [illegible] October, 1922. For two months he had had vague dyspeptic symptoms recently enhanced by shooting pains radiating towards the lumbar region some two hours after food. He had never vomited; the appetite was very poor; no tumour was palpable; he was somewhat pale and wasted.

The fractional gastric analysis is shown in Fig. 1, and at first sight suggests the picture of achylia gastrica, such as is seen in pernicious anaemia, chronic gastritis, etc. It differs from such a picture in the following essential particulars: the fasting stomach contained 15 c.cm. only, but there was a faint sour smell, traces of charcoal taken the previous evening were visible, as well as very definite amounts of blood, both fresh and "coffee-ground." The specimens removed from the stomach at one hour and one and a half hours also showed blood. No free HCl was discoverable at any time, but though the total acidity was low, that of the fasting content was 18, which is higher than is seen in benign achylia. These findings pointed clearly to a lesion producing some stagnation, though it could hardly be called partial obstruction, together with haemorrhage from the stomach, and diagnosis of carcinoma was made, which was fully confirmed by the subsequent history of the case.

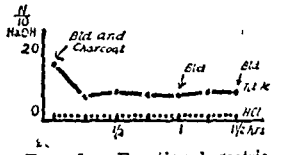


FIG. 1.—Fractional gastric analysis, carcinoma ventriculi. The blood, charcoal, and relatively high total acidity of fasting content distinguish it from cases of benign achylia gastrica.

The Positive Diagnostic Picture.

My protest against current teaching would have very little value if more positive evidence were not obtainable; that such evidence is forthcoming has been shown in the cases cited and may be summarized in the following statement:

> If the patient be suitably prepared overnight, and if careful examination of the contents of the fasting stomach be made the following morning, evidence either of stagnation, or of haemorrhage with aberrant secretion, or of both, will be found in the vast majority of cases of gastric carcinoma, and these signs are not likely to be confused with those given by other diseases.

I have tried to express this in terms commonly used by clinicians, for much of the confusion existing on this subject is, I believe, due to results being stated in purely chemical terms. The biochemist is too often asked to make a report on a specimen removed from a patient whom he has never seen and of whose clinical state he is entirely ignorant; his reports in consequence tend to become technical statements written from a point of view very different from that of the clinician, and omitting data which are of small chemical importance but possibly of immense significance in a clinical inquiry. For example, reports of gastric analyses often contain the information that little or no free HCl was present, but much lactic or organic acid; the fact that this is evidence of stagnation, of bacillary fermentation above a partial obstruction, is not alluded to; the chemist is not always aware of the deduction, the clinician fails to make it.

must be the introduction of reasonably sufficient water supplies where these have been deficient.

Farmers and their employees have not been distinguished by any special receptivity of new ideas, and the reader of Mr. Mattick's little treatise may speculate as to what a country cowkeeper who died twenty or thirty years ago would, if he could now revisit the earth, think of all the wonderful developments that have taken place since his departure. The terminology would confound him—bacteria, coliform bacilli, agar plates, Petri dishes, the counting of colonies, and so forth! Having puzzled and groaned over these, he would probably be glad to creep back into his coffin.

The very nature of the criteria by which success or failure in milk competitions is determined ought to commend them to all concerned. In judging a cow or a horse, and in awarding or withholding a prize, the individuality of the judges and their views about points of excellence may presumably vary, so that their verdict may not always be approved by the losers, or even by spectators. But in milk competitions there are accepted standards of value; tables in which the points to be allowed for every detail are published for general information, so that there should be much less room for difference of opinion than in the verdict of the referee at a boxing match which has not been decided by a knock-out. In milk competitions the score card system, introduced by the National Clean Milk Society, was expanded and adopted by the Local Government Board during the war, and is now well established and understood. In a total of 125 possible marks, which would be a "perfect score," a minimum number of colonies of bacteria per cubic centimetre counts 39, the absence of coliform bacilli 18. In food value fat is assessed at 29, solids not fat 8, flavour and odour 20, while the best figure for the absence of visible dirt is 6, and for the condition of the container 5. In this summation it is good to observe the place held by food value. The assessors have not been carried off their feet by the bacteriologists, but have thought of sustenance as well as of purity, so that the slimmest of dairymen cannot in this competition make purity a substitute for substance, whatever he may risk doing in his daily rounds. In this fashion the most modern of sciences has invaded the sphere of the morning milkman, and it is safe to say that the children of the country are reaping a daily benefit.

THE SCOTTISH BOARD OF HEALTH: A RETROGRADE STEP.

OUR review of the parliamentary session in last week's issue may be supplemented by some reference to a matter which is of considerable importance to the medical profession in Scotland. This was the introduction in the closing days of the session of the Reorganization of Offices (Scotland) Bill, which was ordered to be printed on July 30th. The Scottish Board of Health Act, 1919, provided for the appointment of a Parliamentary Under Secretary for Health and for the constitution of a Board of Health of six members, one of whom must be a registered medical practitioner. The bill now introduced proposes to abolish the former office and to appoint a Parliamentary Under Secretary for Scotland, and it proposes further to limit the number of members of the Board to three, and, most important of all, it abolishes altogether the qualifications of members. The result will be that health matters in Scotland will be administered by a Board none of the members of which need have any medical qualification, and instead of having a Parliamentary Under Secretary to deal solely with health Scotland is to have an official who will give only a portion of his time and attention to this most important duty. At the time of the creation of the Board of Health the Scottish Committee of the British Medical Association had a good deal of negotiation with the then Secretary for Scotland, and the above-mentioned points were conceded as a result of the representations made. Their withdrawal now comes near to being a breach of faith, and is certainly a rebuff to the profession and a lowering of the status of medical service. The Scottish Committee will no doubt protest, and will probably join with other bodies in doing so.

HUMAN WELFARE AND MODERN MEDICINE.

THE objects of the American Medical Association, like those of its elder sister, the British Medical Association, are the promotion of the science and art of medicine and the betterment of the public health; upon this text Dr. Ray Lyman Wilbur, of Leland Stanford University, California, president of the American Medical Association, delivered an eloquent address at its seventy-fourth annual meeting, held at San Francisco this summer. The history of the art and science of medicine, he said, had run more or less parallel with human advance. In general it had reflected the mental attitude of those it served. Medicine was as old as man. Its aims had always been the relief of human suffering and the release of human power from physical and mental handicaps. The individual and his life and happiness were basic factors in any scheme of human welfare. Methods changed, but the aims did not. They still revolved around the individual relation of a physician to his patient. The touch of sympathy and the need of personal helpfulness were as important as ever. The voluntary association of two men, one giving and the other seeking relief, was at the heart of the art of medicine. Laws must be so framed and so carried out that while the public welfare was protected this bond was not destroyed. The success of a race was dependent on the strong and the reproduction of the strong. In the control of the human germ-plasm lay man's future. Bringing science into medicine had brought a great flood of workers who lacked full medical training into the broad domains of physical health. They were appreciative of much of the science of medicine, but they lacked that deeper professional insight which came from medicine as an art. The general practitioner—that real disciple, interpreter, and practical exponent of medical science—had been pushed aside in many parts of America, but while the primary object of medical education was and must always be the training of medical men and women for the general practice of medicine, it must develop specialists also. At every step the teacher had a double function. He was the teacher, with all that the term implied, and the personal medical attendant of a fellow human being. If he failed in the second he was worse than a failure in the first. His real success as a physician depended largely on his capacity to view his patient as a social unit. He must combine treatment and prevention of disease. When every school child received some training in biology (Dr. Wilbur continued) the quack, the "patent medicine" cheat, the aggrandized rubber and manipulator, and the knotted string faddist would have a less fertile soil for their mushroom activities. Medicine, in its foundations and in its applications, was based on research. The most sacred heritage of medicine came through the transcendent genius of a comparatively few men. The protection and advancement of research was our greatest opportunity, but it was as important to apply the results of research as to foster it.

SOME APPLICATIONS OF PHYSIOLOGY TO MEDICINE.

II.—VENTRICULAR FIBRILLATION AND SUDDEN DEATH.

BY

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PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF ABERDEEN.

(From the Physiological Laboratory.)

(*Concluded from page 219.*)

Sudden and Unexpected Death during Rest.

THE difficulty of explanation of such deaths has long been felt, in the absence of recognized conditions (effort and excitement) tending to make an extra call on the heart and of such powerful afferent excitation as might be assumed to be provocative of reflex inhibition of intensity and duration sufficient to be fatal. Recourse has constantly been had to the verdict of "failure of the heart's action," though the sudden collapse in cardiac efficiency remains unaccounted for, *post-mortem* examination often affording no explanation of the abrupt ending of life. Sir Clifford Allbutt,[27] while suggesting vagus inhibition as a mode of death during anginal attacks, writes with regard to the class of deaths now under consideration—during conditions of rest, apart from anginal attacks, and where no exciting cause is apparent:

"But the riddle, which I have done so little to read, is the frequent suddenness of death in one who, having scarcely known illness, expires under no extraordinary effort; or in the peace of his own bed or chair passes silently away. The reading of this riddle is not yet."

In this relationship the facts that have been stated with regard to the more or less remote effects of experimental interference with the coronary blood supply by ligation of a branch are obviously of profound significance, showing as they do that ordinary life can go on for prolonged periods (months), either with or without signs of cardiac disturbance, until a sudden ending comes by fibrillation, sometimes during muscular effort, but often apart from this, in the absence of recognizable exciting cause or in presence of causes too trivial to have any effect under ordinary conditions. And, apart from sudden obstruction, there is no reason to doubt that a gradual interference with the blood supply as a result of coronary disease can, by damaging the nutrition and altering the properties of the muscle, lead to an abnormal susceptibility to fibrillation.

The applicability to man of these results is naturally easy in view of the widespread tendency to serious impoverishment of the blood supply (local or general) of the cardiac muscle in the later half of life, the period when deaths of the class under consideration usually occur. In the light of these facts we have a rational basis for many unexplained disasters—fatal events that otherwise remain shrouded in mystery.

While the effects of limitation of the blood supply are proved by abundant and convincing evidence, other agencies, such as perverted nutrition, toxic influences, generative changes, etc., can be effective causes. Interference with normal functioning of the Purkinje fibres on the inside of the ventricles comes into question as well as alterations in the ordinary myocardium. Fibrillation may be determined at a certain point of time by a sudden aggravation or cumulation of the toxic condition, etc., aided, it may be, by the incidence of some disturbance of the vascular system too slight to produce any serious effects except in the specially predisposed condition.

It is to be borne in mind that the conditions disposing to and leading up to fibrillation need not pervade the whole of the ventricular musculature, but may be limited to a certain amount of that tissue, as after obstruction of a coronary branch and in other conditions; changes in restricted areas can set up fibrillation, which involves the rest of the muscle, healthy as the great bulk of it may be. It is readily intelligible that such limited changes may naturally be associated with little or no recognizable alteration in the force of the ventricular beat or its general efficiency. Thus there may be little or no warning of the impending catastrophe, even at a time when the mine has been laid and only a spark is needed to precipitate the explosion.

Abnormal Cardio-vascular Variations of Obscure Origin.

Under certain conditions of cardio-vascular instability—usually occurring in association with morbid states of the arterial system—irregular tides of circulatory change, often obscure as regards their exciting causes, are sometimes recognizable; one manifestation of these is found in the extensive variations of arterial pressure as measured under similar conditions from day to day or at shorter intervals. These variations are sometimes, but not necessarily, associated with discrepancies in the sphygmomanometer readings from different limbs, depending on local causes—the presence or absence of strong contraction in the large arteries of the respective limbs. Actual rises of general arterial pressure involve cardiac changes in addition to vascular constriction, etc. It is evident that disturbances of this kind may be influential with regard to the onset of anginal attacks or of sudden death in subjects where a special predisposition exists.

The Question of Coronary Spasm.

With regard to sudden interference with coronary blood supply, apart from the rare accident of embolism and the less rare occurrence of thrombosis, there arises the question of spasmodic contraction—an old hypothesis as applied to the explanation of anginal attacks. The obscure cardio-vascular disturbances already referred to might be invoked to account for the onset of some anginal attacks during rest; the attack might be determined by antecedent unrecognized changes in blood pressure and heart action. But there are on record cases in which such attacks during a period of rest are found to be unattended by elevation of the blood pressure or recognizable changes in the heart's action. Again, there are instances among anginal subjects who have varying periods of relatively low and high pressures, where no greater tendency to angina has been found in the phases of high pressure; a notable example of this has been recorded by Sir James Mackenzie. In such cases the idea of coronary spasm has commended itself to many observers, supported by such analogies as the extreme arterial constriction of Raynaud's disease, the thickening and narrowing of the temporal artery on the same side as the pain in migraine and the occasional association of Raynaud's disease and migraine, the occurrence (sometimes in relatively youthful subjects) of transitory aphasias, hemiplegias, etc., attributed to an acute temporary anaemia or ischaemia from extreme constriction of a cerebral artery, and sometimes associated with migraine. Again, there is the so-called "abdominal angina," which has been correlated with spasmodic contraction of sclerosed mesenteric arteries. Sir William Osler,[28] referring to arteries in general, states that in a certain stage of sclerosis arteries are very prone to spasm—a view repeatedly urged by Professor W. Russell[29] and supported by Pal[30] and many others.

It is evident that a temporarily excessive contraction of some part of the coronary system (especially in cases where the blood supply is already reduced or minimal) would induce an ischaemic condition which might be responsible for the onset of fibrillation or of an anginal attack; in this way an apparently unprovoked paroxysm of pain during rest might be accounted for and also its equally unexplained passing off after variable periods. It might also be surmised that amyl nitrite may relax a constricted coronary as part of its general vascular effect, with relief of pain which may last after the general blood pressure has again risen to its former level. The spasm hypothesis has been subjected to searching criticism by Sir Clifford Allbutt, who among many other considerations states that amyl nitrite gives no relief in transitory hemiplegias and aphasias. There is also the occurrence of dyspnoea in coronary obstruction from sudden thrombosis or embolism (as established *post mortem*) and its absence as a necessary feature of typical angina; but a possible explanation of this difference can be suggested.

THE LOOMIS SANATORIUM, NEW YORK.

THE twenty-sixth annual report of the Loomis Sanatorium, New York, affords a comprehensive account of the year's work. Complete tables are given relating to the number of patients, their stage of disease, the complications encountered, the cause of death, their place of birth, their place of residence, their sex, age, occupation, social condition, religious denomination, and state on discharge, but no information as to the presence or absence of tubercle bacilli in the sputum, or of any specific treatment —such as artificial pneumothorax or tuberculin—which may have been adopted. Of the 199 patients considered 8 per cent. on admission were in the incipient stage of the disease, 50 per cent. in a moderately advanced stage, and 42 per cent. in a far advanced stage. Of these 3 per cent. were discharged arrested, 4 per cent. apparently arrested, 34 per cent. quiescent, 23 per cent. improved, and 20 per cent. unimproved; 16 per cent. dead. These results, however interesting in themselves, are hardly to be compared with such figures as those in the Adirondack or Midhurst reports, as the proportion of advanced cases is so very much higher in the Loomis Sanatorium, which, as is stated in the prospectus, is designed "for the care of tuberculous invalids presenting a fair prospect of recovery," not, as in the case of most sanatoriums, for the treatment of patients with incipient disease. Several pages of the report are devoted to a record of the patients treated since the foundation of the sanatorium in 1896, with tables showing the number of inquiries sent out, the number of replies received, and the state of health of those patients who are still living. As, however, no data are provided giving the number of patients who have died in the meantime, the value of the figures is small. It is of little interest, for example, to know that of the former patients reported to be alive, 85.45 per cent. are in a satisfactory condition of health, if we do not know at the same time what percentage of patients has survived at all. Attached to the sanatorium is a research laboratory in which work has been undertaken on problems connected with tuberculosis. It has been found that there is an inverse correlation between the blood lipase content of the patient and the excellency of the prognosis. Those cases with a low lipase content present but poor chances of recovery. More and more reliance is being placed upon the Roentgen rays, and especially on stereographic photography—a method, we believe, destined to play a part of increasing importance in the assessment of the extent of disease and of its alterations during the course of treatment. The report, as regards its production and illustration, upholds the best traditions of the Americans, and we would recommend it to all who are interested in the sanatorium treatment of tuberculosis.

INTERNATIONAL UNION AGAINST TUBERCULOSIS.

THE Council of Directors of the International Union against Tuberculosis held its annual meeting in Paris on July 26th last, at the headquarters of the League of Red Cross Societies. Twenty members of the council from different countries met under the presidency of Dr. Dewez of Brussels. Professor Léon Bernard, Secretary-General of the Union, gave an account of the development of the Union since the Brussels conference. It was decided that the following questions should be placed on the agenda of the conference to be held at Lausanne in September, 1924: (1) What are the relations between pregnancy and tuberculosis? To be reported on by Professor Forssner (Stockholm). (2) Do there exist naturally or can there be produced artificially saprophytic forms of Koch's bacillus which might become virulent tuberculosis bacilli? Report by Professor Calmette (Paris). (3) What are the effects of the organization of the antituberculosis campaign in different countries on the decrease in tuberculosis mortality? Report by Sir Robert Philip (Edinburgh). During the recent meeting in Paris a report by Professor Besançon on the respective value of techniques for research of Koch's bacillus for diagnosis of lesions in human tuberculosis gave rise to an interesting discussion. This report will appear in the next number of the *Bulletin* of the International Union against Tuberculosis.

NARCOTIC ADDICTION IN EGYPT.

THE introductory note to the Annual Report of the Egyptian Department of Public Health for 1921[1] states that during the past few years there has been evidence of a progressive and serious increase in the number of persons in that country who are gradually becoming addicted to the habitual use of narcotic and stupefacient drugs. This appears to be particularly the case in regard to cocaine, and proposals have been put forward by the public health authorities for dealing with the evil. As a first step in this direction it has been considered advisable to institute a more stringent control over the importation and exportation of narcotic drugs. Legal enactments have been drafted and are now under consideration prohibiting all importation and exportation of drugs of this nature, except by special licence for each consignment, which will only be granted when the health authorities have satisfied themselves that such drugs are required for legitimate medicinal purposes. This, together with certain readjustments of the measures of control over the internal traffic in these drugs, will, it is hoped, do something to improve the position. The whole question can, however, only be dealt with adequately when the political and other circumstances of Egypt permit of the enactment of laws, applicable equally to foreigners and natives, which will provide a sufficiently deterrent punishment for illicit trafficking in narcotics. During the year under review a non-Egyptian doctor was deported for abusing his privileged position to facilitate traffic in cocaine.

THE MEDICAL REGISTER: UNTRACEABLE PRACTITIONERS.

WE publish in the SUPPLEMENT this week (pp. 110-111), at the request of the Registrar of the General Medical Council, a list of the names of those medical practitioners who have not replied to his inquiries as to the accuracy of their addresses. The list now published includes all untraceable names from H to O in the body of the *Medical Register*, as it is only this section that has come under review in the present year; since it was prepared many further inquiries have been made by the Registrar. Any medical practitioner who finds his or her name included in this list should communicate at once with the Registrar of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1.

WE much regret to learn of the death, on August 10th, of George Edward Rennie, M.D., F.R.C.P., physician to the Royal Prince Alfred Hospital, Sydney. Dr. Rennie was at one time Editor of the *Australian Medical Gazette*, and for some years was a valued contributor to our columns. We hope to publish an obituary notice in a future issue.

[1] Government Publications Office, Cairo, 1923, price P.T. 20.

THE usual half-yearly indexes to the JOURNAL and to the SUPPLEMENT and EPITOME are now published; they will be issued only to those readers who ask for them. Any member or subscriber who desires to have one or all of the indexes can obtain what he wants, post free, by sending a post-card notifying his desire to the Financial Secretary and Business Manager, British Medical Association, 429, Strand, W.C.2.

themselves or transmitted with abnormal frequency from the auricles as in auricular flutter—that the ventricles can stand without fibrillating varies much in different conditions; when the conductivity is already depressed and the conduction time long, a much lower grade of acceleration naturally suffices to establish fibrillation, as can be demonstrated experimentally.

From the work of many observers we know that in certain hearts (for instance, after coronary ligation, etc.) there is often a characteristic sequence of events illustrative of the close relations of tachycardia and fibrillation—extra-systoles, first singly, then in irregular runs, more or less continuous tachycardia, and finally fibrillation. Apart from the supervention of fibrillation it is known that the fall of blood pressure attendant on tachycardia is compatible with life for very considerable periods; there have been recoveries after periods of excessively low blood pressure attended by unconsciousness, etc., for hours. It remains to be seen whether the fall of blood pressure is often or ever sufficient *per se* to kill, or whether the fatal issue is always determined by the occurrence of fibrillation. There are no grounds for accepting vagus inhibition as a mode of sudden death during tachycardia. The vagus is known to lose effectiveness in this condition. Auricular flutter, etc., may induce unconsciousness lasting for hours without causing death; a very small blood supply can suffice to keep the nerve centres alive, as Leonard Hill showed many years ago. The absence of fibrillation is an essential feature in the recovery from ordinary cases of fainting due to temporary vascular relaxation due to vasomotor failure or to vagal inhibition, etc.

Status Lymphaticus, Electrical Shock, Digitalis.

A possible development of the mechanism of fibrillation is worthy of consideration in connexion with the sudden and unexplained deaths of the status lymphaticus, occurring, as they often do, in the absence of any recognized causation. The features of some recorded examples would fit in with the known phenomena of fibrillation—for example, such cases as have shown an abrupt abolition of the signs of heart action while the respiratory movements persisted for some little time, in marked contrast to the order of events in death by asphyxia.

Fibrillation is one of the modes of death in electrical shock, and according to Jex-Blake[35] it is operative in death from lightning. There is convincing evidence—experimental and clinical—that the same mechanism is responsible for sudden death during overdosing with bodies of the digitalis series.

Sudden Death in Aortic Regurgitation.

The frequency of absolutely sudden death in this condition has long been recognized. In view of the usual coronary and myocardial involvements, the causation of the fatal issue—sometimes occurring without antecedent signs of cardiac failure—may naturally be ascribed to ventricular fibrillation. There seem to be no good grounds for the assumption of protracted vagus inhibition as an effective cause.

Reflex Cardiac Inhibition.

Reflex vagus inhibition has in the past been freely invoked to account for sudden death in many diseased conditions and even in healthy persons—for example, from a violent blow on the epigastrium, etc. On the experimental side extended investigations on a great number of healthy animals and a considerable number of diseased ones have failed to lend support to the hypothesis: it has usually been found impossible to stop the heart long enough to kill by reflex inhibition or even by strong direct stimulation of the vagus, escape of the heart or the ventricles usually occurring much too soon for death to be caused by circulatory arrest. The conclusion has been reached by different observers that the possibilities of a fatal issue in this way have, to say the least, been greatly exaggerated, and that there is no sufficient ground for assuming reflex inhibition *per se* to be a frequent or important mode of death.* In some instances where the vagal hypothesis had met with a large measure of acceptance—for example, in cases of sudden death during an early phase of ordinary chloroform anaesthesia—the view has not proved to be tenable, since such deaths have been shown to be essentially due to an altogether different mechanism—ventricular fibrillation.

On the other hand, the possibility of increased susceptibility to vagus inhibition under certain abnormal conditions must be borne in mind. In Embley's[36] work on chloroform it was found that under special conditions, in dogs after a large dose of morphine, the inhalation of strong chloroform vapour may cause great slowing of the heart, fall of blood pressure, and stoppage of respiration—consequences evidently depending on excessive vagus action, and obviated or removed by exclusion of such action by section of the vagi or by atropine. But the conditions present in these experiments differ widely from those of simple chloroform anaesthesia as ordinarily conducted in man. It is well known that in dogs morphine tends to exaggerate the controlling influence exercised by the vagus centre over the heart.

In Laslett's[37] well known case it was clear that vagus inhibition induced repeated syncopic attacks, causing cardiac standstill of the whole heart, sometimes lasting for periods of six to eight seconds, but not long enough to cause death; atropine was found to be effective as a counteracting agent.

In this connexion certain observations by Sir Hugh Anderson, cited by Sir Clifford Allbutt,[38] are very noteworthy. These were on cats in which the cardiac augmentor nerves were cut, by the stellate ganglia being excised some time previously. It was found that swinging the animal in the air caused pronounced slowing of the heart—for example, from 120 down to 40 in the case of *old* cats.* (It may be remarked that such degrees of slowing were not at all dangerous, and probably did not even cause much lowering of the systolic blood pressure.) But a remarkable tendency to sudden death was observed in these animals. No evidence is stated to show whether such deaths were actually due to extraordinarily prolonged cardiac standstill, or to the supervention of some other change—for example, ventricular fibrillation, to which cats are known to be specially prone under various conditions. So far as the available evidence goes, there is nothing to indicate that the observed slowing was more threatening to life than similar slowing as seen often in common cases of non-fatal syncope in man.

With reference to possible applications of indications afforded by such experiments to the human subject it has to be remarked that we know of no clinical condition in man where there is reason to believe that conditions at all resembling those stated above are ever present—consequences of an interruption of the various paths that traverse the stellate ganglia, loss of the nerve cells contained in them, etc.† Experimental investigation shows that the cardiac augmentor nerves are very persistent in their action, extremely resistant against drugs and various abnormal conditions, and demonstrably capable of strikingly effective action in many gravely depressed states of the cardiac muscle—in contrast to the vagus functions, which are well known to be readily diminished or cut out altogether by various chemical agencies, etc.

In many cases of common syncope vagus slowing of the heart down to 50, 40, etc., a minute is a feature, but such slowing is wholly insufficient to account for the fall of blood pressure and the loss of consciousness; there are other factors concerned. Such cases do not have a fatal issue. Some instances of this condition were described by Lewis[39] a few years ago in subjects of "irritable heart." Pretty extensive cardiac slowing is quite compatible with a fairly

* Sudden death during operative procedures in the thoracic cavity (thoracocentesis, etc.) seems, in the light of the work of Capps and D. D. Lewis, to depend on fall of blood pressure due to vasomotor changes rather than to reflex cardiac inhibition (*Arch. of Int. Medicine*, 1907, cxxxiv, 868).

* Sir Clifford Allbutt predicated an increased potency of the vagus in old and damaged hearts. Gilbert (*Arch. of Int. Med.*, 1923, xxxi, 423) has recently found in old people a more ready response of the vagus to digital compression—an age effect, apart from pathological cause. The mechanism of digital pressure is undecided—whether it acts directly by stimulation of efferent (inhibitory) fibres or reflexly by excitation of afferent fibres. There seems to be no proof of actual danger to life in this way.

† Jonnesco's operation for angina pectoris is an example, resection of the lower cervical and the first thoracic sympathetic ganglion being done with the object of interrupting afferent paths from the heart. Jonnesco recommends the bilateral operation, regarding it as harmless; he does not seem to have recognized any such dangers as were noted in Anderson's experiments. (Jonnesco, *Bull. de l'Acad. de Méd.*, Paris, 1920, lxxx, 93; *Presse Méd.*, 1921, xxix, 193; *Ibid.*, 1922, xxx, 353.)

self. Thermophilic bacteria are widely distributed in condensed milk, both good and bad. They probably represent survivals from the original milk. Since none produce any gas they are not a cause of tins becoming blown.

Significance of Yeasts.

Yeasts are constantly present in sweetened condensed milk and the "blowing" of tins is invariably due to the growth and chemical activities of yeasts. A higher proportion of yeasts was found in freshly canned factory samples than in shop samples. Many different types may be present, but from the practical point of view the important points are the ability to ferment sugars and to grow in strong solutions of saccharose. Rejected blown tins almost invariably contained yeasts of the fermenting type, and such organisms were found to produce gas when inoculated into sound tins. But the mere presence of yeasts, even of the fermenting type, will not necessarily result in fermentation and unsound tins. Another factor is of primary importance—namely, the ability to multiply sufficiently in sweetened condensed milk under the conditions of anaerobiosis which prevail. Experiments showed that yeasts do not readily multiply in sweetened condensed milk. This is not due to the high percentage of saccharose, since this is not inhibitory to them—it is due in part to the fact that condensed milk is a medium not very suitable to their growth, but chiefly to the restricted supply of oxygen. In tins of condensed milk the supply of oxygen available is very limited and soon becomes exhausted. If yeasts are present in sufficient numbers, or if they can multiply sufficiently with the little oxygen available, they will be able to produce enough enzymes to break down the saccharose and produce gas. If, therefore, only a few fermenting yeasts gain access they are unlikely to produce gas and cause the tin to become blown, because they will not increase sufficiently before anaerobic conditions become established in the tin and cause their multiplication to cease. Probably in such conditions they gradually die out and this is the explanation why so few shop samples contain living yeasts.

The yeasts may be derived from the original milk, the added sugar, the air of the factory, or a deposit in the pipes beyond the vacuum pans. After the milk has been pasteurized it is never again heated to a temperature high enough to ensure destruction of yeast cells.

Changes which occur on Keeping.

While all fresh samples of sweetened condensed milk contain living bacteria, the combined conditions of a comparatively unsuitable medium and the absence of oxygen are so unfavourable to multiplication that the general tendency is for a decrease rather than an increase to take place in the initial number of bacteria. Should oxygen become available a material increase invariably takes place. This is of importance from the point of view of infant feeding, since tins of sweetened condensed milk contain more milk than is consumed by an infant in several days, especially if used, as so often is the case, as a supplementary source of food. Although the initial bacterial content may be low the mere fact of opening, quite apart from any bacterial additions from outside, induces a vast increase of the bacteria already there. The increase is mainly of micrococci, which may be perfectly harmless, but the group includes many pathogenic streptococci, and it is not justifiable to assume that the vulnerable infant intestinal tract may not be damaged or that fatal infection may not result from their admission. Sweetened condensed milk, if used for infant feeding at all, should only be put up in tins small enough to contain one day's supply. The darkening in colour of sweetened condensed milk which takes place with time is probably due to the caramelizing of some of the saccharose and has no relation to bacterial action. The alteration in consistence which is shown by the milk becoming more thick and viscous is due to the same general physical changes as occur in colloids generally, and are spoken of under the term "ageing of colloids." It is not dependent on bacterial action.

Practical Considerations.

There is no suggestion that the fermenting yeasts which produce unsoundness of tins are harmful to the human body; the contents are merely unsaleable, but may be used for confectionery after proper boiling. The essential requirements to prevent unsoundness are that the heating before condensation shall be sufficient to kill yeasts; that in cooling aerial contamination is avoided; that the pipes conveying condensed milk are unscrewed and cleaned with hot soda water each day; that the milk is canned as soon as possible; and that only airtight tins are used. Each batch of tins ought to be kept in a warm special room for several weeks before being released for distribution.

Although no hard and fast bacteriological standard is possible, the report states that the presence of lactose fermenters of the *B. coli* type or of fermenting yeasts in 0.5 gram or less suggests unsatisfactory conditions which might fittingly warrant the rejection of an individual tin and would serve to direct attention to the methods of manufacture with a view to their critical inspection.

II. UNSWEETENED CONDENSED MILK.

Methods of Manufacture.

The essential features of the methods of manufacture of unsweetened condensed milk are that fresh cow's milk is evaporated in a partial vacuum till reduced to rather less than half its bulk; it is then run into tins, sealed down, and kept from decomposition by sterilization in the tin.

Nothing is added and water is the only constituent removed. The milk must be fresh, for if the acidity of the evaporated milk is much above normal the subsequent sterilization may cause it to clot and become unsaleable. Before condensation the milk is often pasteurized or boiled to prevent further bacterial growth and increase of acidity, and to allow the milk to be supplied hot to the vacuum pans. During condensation the milk is boiled under reduced pressure until the desired consistence is reached, then cooled and passed into tanks from which the evaporated milk is passed to filling machines which automatically deliver the requisite quantity to each can. The tops are put on by hand and rendered airtight by a machine. The sealed tins are then placed in retorts and heated to temperatures of 110° to 116° C. for thirty to forty minutes. Heat penetration is facilitated if the tins are rotated during sterilization. They are cooled rapidly by the admission of water to the retorts. Processed tins are usually stored for several weeks and passed for labelling and marketing only after careful examination.

Methods of Trade Examination and their Reliability.

The methods of trade examination used are similar to those employed for other classes of canned food, attention being directed chiefly to visible evidence of bulging and the sound produced on shaking. If the contents are liquid the sound will indicate this: if milk is partially or wholly clotted it gives a different sound. The results of laboratory tests recorded in this report showed a fairly close correspondence between external physical defects and the condition of the contents. The present methods of examination are satisfactory and reliable, and the opening of a few tins will usually clear up any doubtful points.

Bacteriology of Unsweetened Condensed Milk.

Examination of sound shop and factory samples showed about 80 per cent. sterile: the non-sterile tins contained chiefly spore-bearing aerobes in small numbers, but there was no evidence that the contents were decomposing.

Examination of 47 samples rejected either because blown or contents clotted showed 9 sterile, micrococci only in 16, definite gas-producing bacilli in 6, coccoidal bacilli in 5, gas-producing yeasts in 1, anaerobes in 4, other bacteria in 7.

Sporing aerobes are probably never a cause of gas production and very rarely of unsoundness of contents. The colloidal changes resultant upon concentration and sterilization materially alter the milk, so that while sporing aerobes can multiply in it they do not do so very readily and do not clot or peptonize. When present in small numbers as spores they do not usually multiply but remain comparatively harmless. Similarly with anaerobes—if spores of anaerobes alone are present they do not necessarily multiply or cause any changes in milk, but if they can increase they will decompose the contents.

Probably the presence of other organisms is of assistance to anaerobes. Gas-forming aerobic bacilli were not found in any sound samples. *B. coli* and *B. cloacae* can grow in and decompose unsweetened milk, causing the tins to become blown and the contents clotted. These organisms are therefore a definite cause of unsoundness and gas development in unsweetened milk tins. Yeasts are rarely present. Non-fermenting yeasts are of no consequence, but fermenting types may cause blowing of tins. Thermophilic bacteria are rarely present and of no significance. Micrococci may cause acid, clotting, and gas production. Coccoidal bacilli (small, capsulated, non-motile, non-sporing Gram-positive bacilli) are

and sudden close from failure of cardiac function, occurring often in persons whose hearts are far from being worn out, but on the contrary are endowed with myocardial power amply sufficient not only for quiet existence but not infrequently for the demands of considerable bodily and mental activity.

There is reason to believe that in man, as in animals, an undue susceptibility to fibrillation is sometimes a temporary phenomenon depending on circumstances that may be more or less markedly transitory, though no doubt it is very often a persistent condition depending on abnormal changes in the ventricular musculature; in the latter case immunity from sudden death must in large measure depend on avoidance of the directly provocative causes of fibrillation in a predisposed heart, such as sudden muscular exertion, especially when accompanied by emotional stress, etc.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

UNUSUAL VARIETY OF "SORE THROAT."

are frequently met with in which sensations of or discomfort in the pharynx are complained of but cause can be found on physical examination. It has been recognized that the styloid process may project to the tonsil even to such an extent as to form a projection in the lateral wall of the pharynx. This elongation is probably due to ossification extending down the stylo-hyoid ligament, but has been regarded as an anatomical curiosity rather than as of clinical importance. I have recently met with two cases in which this condition gave rise to symptoms which were entirely relieved by removal of a portion of the bony process.

A woman, aged 30, had for two weeks suffered discomfort and dragging sensation in the left side of the throat, especially on swallowing. There had been no previous throat symptoms. An ill defined projection of the lower pole of the left tonsil could be seen, and the patient had herself discovered this hard "knob" with her finger, and ascribed her sensations to this situation. Under a general anaesthetic an incision was made through the anterior pillar of the fauces, the bony process freed, and three-quarters of an inch removed with bone forceps. The wound was sutured and recovery uneventful.

A woman, aged 37, had had pain in the left side of the throat for three months. On examination a similar condition was found to that existing in the previous case, and here also the patient had herself discovered the hard swelling. A similar operation was performed, during which it was found that the styloid process on the right side was also elongated and palpable, but to a less degree. This was not interfered with.

In addition to these two cases, I have collected eight others from the literature. Of the total of 10 cases, 7 were females, only 3 males. The ages ranged from 23 to 55. In 7 of the cases the left side was involved, and in 2 an elongated process could be felt on both sides, but only gave rise to symptoms on one. The period during which symptoms had been noticed varied from a fortnight to ten years, with an average of three years. In all cases the symptoms were very similar, consisting of discomfort and dragging sensation in one side of the throat, most marked on swallowing and sometimes on talking. In some of the cases there was a history of previous attacks of tonsillitis. Trauma as a possible factor was present in one case, symptoms being first noticed after a violent blow on the head. Nine of the 10 cases were submitted to operation, with relief of symptoms in every case. In some of the cases the tonsil was removed in addition to the portion of the styloid process, but the results seem to have been equally good where this was not done.

Details of the various cases are given in the *Journal of Laryngology*, 1915, pp. 116, 176, and 303; the *Laryngoscope*, November, 1915, November, 1918, and May, 1920; and in the *Journal of Ophthalmology, Otology, and Laryngology*, May, 1917.

Bristol. A. J. WRIGHT, M.B., F.R.C.S.

THE CAUSE OF "STITCH."

"STITCH" is a very common condition among adolescents; it is a very severe pain, felt generally at the costal margin on one side; it is brought on by running or riding, and ceases at once when the pace is reduced to a walk. There is another "stitch," which is felt above the clavicle on one side, in the same circumstances; this is much less common than the subcostal type.

There are two possible causes for "stitch": stretching of pleural or peritoneal adhesions, or interference with the action of the diaphragm by gas in the stomach or colon. The condition seems to me to be too frequently met with to be due to pleural adhesions, since these are not very common in young subjects.

I recently saw a boy, aged 12, who, when he ran, always got "stitch," generally below the left costal margin; he had become so much worse that he had lately been compelled to sit down after walking a few hundred yards. He had had tuberculous glands in the neck, so that the existence of pleural adhesions was quite a reasonable assumption in his case; but I was struck by finding extreme tympany in the splenic region. He was habitually constipated, as many boys of his age are. Thinking that the gas was probably in the splenic flexure I gave him a short course of grey powder, and a prolonged course of dimol. In three days he was able to walk and run without any suspicion of "stitch"—a thing he had never been able to do before. But he gets recurrences if he leaves off the dimol for more than a few days.

Westgate-on-Sea. FREWEN MOOR, M.D.

ACTINOMYCOSIS OF THE RIGHT ILIAC FOSSA.

THE case here reported is of interest, not only owing to its rarity, but also because it demonstrates how few symptoms may be present in such cases.

A boy, aged 12, was admitted to the Southend Victoria Hospital at the end of March with a large swelling in the right iliac fossa. He stated that a week previously he had been kicked in this region whilst playing football. Three days later he noticed a swelling, which later on became tender. He felt unwell. There had been no vomiting nor acute pain. He was not constipated. The boy was pale, thin, and looked ill; the temperature was 99.4°, and the pulse 94. There was a large fluctuant, tender swelling in the right iliac region, and the diagnosis of an abscess resulting from infection of a haematoma of the anterior abdominal wall was made. The abscess was incised and packed with flavine gauze; during the next month it healed, leaving a small sinus. The boy put on weight rapidly; the temperature, however, remained persistently high (103° at night, 99° in the morning) and was not affected by vaccine therapy.

Mr. Maingot found that a probe could be passed down the sinus into the right iliac fossa; its passage was followed by escape of offensive pus showing typical sulphur granules, which microscopically proved to be actinomyces. For the next month intensive treatment with potassium iodide was employed; the sinuses were also excised. The temperature was quite unaffected, however, and after a month it was again considered advisable to explore the right iliac fossa, as the condition of the boy had become very serious. At the time of operation a hard mass was found in the right iliac fossa, but there was no evidence of the pus having tracked towards the kidney or diaphragm. The boy unfortunately was in such a weak condition that he died under the anaesthetic. No *post-mortem* examination could be made. It is of interest that the temperature was not affected by potassium iodide; this was possibly due to a secondary infection being present.

I am indebted to Dr. Cleveland Smith for permission to publish this case.

ROBERT R. FOOTE, M.R.C.S., L.R.C.P.Lond.

Southend-on-Sea.

England and Wales.

MATERNITY DEPARTMENTS IN MANCHESTER.

A CLINICAL report of the Maternity Department of the St. Mary's Hospitals, Manchester, for 1921 has been prepared by Dr. John W. Bride, the honorary assistant obstetric surgeon and registrar, and Mr. Frank S. Horrocks, M.B., Ch.B., the resident obstetric officer.

It appears that the total number of cases treated by the hospitals during the year was 2,990; of these 1,446 were treated in their own homes; the number treated in the wards was 1,544, a decrease of 216 on the preceding year; owing to an epidemic of scarlet fever in the early part of the year the hospital was closed for a month on the advice of the local authority. All cases, whether normal or abnormal, in the district are seen by the medical officers. It does not state whether the early examinations are carried out in the homes of the patients or whether ante-natal clinics are held which the patients are invited to attend. The maternal mortality for the 1,544 patients admitted was 45 (2.9 per cent.). The hospital admits serious cases from outlying districts and no one is refused if room can be made. Many of the cases are sent in by practitioners after attempts at delivery have failed. The maternal morbidity was 97 (6.3 per cent.). The standard adopted for the estimation of morbidity is as follows:

> A rise of temperature (during the first eight days of the puerperium) exceeding 100° occurring twice within 24 hours, irrespective of the pulse rate, and excluding the first 24 hours after delivery.

Among the 1,544 cases admitted there were 17 cases of twins, 37 occipito-posterior positions, 42 breech presentations, 28 transverse, 24 prolapse or presentation of funis, and 13 brow and face; abortions complete and incomplete numbered 276, and there were 4 cases of hydatidiform mole. There were 43 cases of placenta praevia, 2 mothers died and 26 children were stillborn; there were 27 cases of accidental haemorrhage, one only of the concealed type; 19 of the children were stillborn; there were 8 cases of severe *post-partum* haemorrhage, with 3 maternal deaths. Out of 119 cases of contracted pelvis treated in the hospital 4 were delivered by forceps, 7 by craniotomy, 99 by Caesarean section, and in 9 cases labour was induced. Of the cases in which Caesarean section was performed 9 were sterilized. Thirty-seven cases of eclampsia were admitted; of these 11 died. Twenty-three cases of ectopic pregnancy were operated upon and all made good recoveries. The deaths among children in the hospital, including premature children, numbered 216; of these, 95 full-term children and 90 premature were born dead; the remainder died after birth.

A considerable amount of teaching is given at the hospital; during the year 81 students, 11 post-graduates, and 67 pupil midwives attended.

THE MINISTER OF HEALTH AT STOKE.

The Right Hon. Neville Chamberlain, M.P., Minister of Health, visited Stoke-on-Trent on July 28th, when he opened the new cubicle block of the Bucknall Isolation Hospital, which is the first stage in the development of a large scheme of additions to that institution. Mr. Dale, the Chairman of the Joint Hospital Board, said that Mr. Chamberlain had one advantage which was not generally possessed, he believed, by heads of Government departments: he had had previous experience of the work he was now called upon to administer. He had been chairman of the Housing and Planning Committee of Birmingham City Council, and he was a member of its Health Committee until he became Lord Mayor in 1915. Since that time he had presided over the housing inquiry, which had important results. Mr. Chamberlain said that even if the Minister of Health had ten times his present staff he would still have to rely for the efficiency of the work he was called upon to administer upon the energy, vigour, and public spirit of the local authorities. What they could do at the centre was to gather together the threads from the different parts of the country, and they could place at the disposal of the local authorities the results of the work of the best scientific men in the country; but for the real hard work, for the efficient administration of the details of the actual labours which produced the results, they had to look to the local authorities and the officers who worked under them. He had always thought that one of the glories of this country was the system of local government. He sometimes wondered whether, with the complexity of local work and the growing demands upon those who were engaged on it, they would be able to go on getting men so willing to give up their time and leisure to them. He thought there was a serious danger in that respect, but he was encouraged by the appearance on every hand of new recruits in the ladies, who were anxious and ready to put their services at the disposal of their own towns. He ventured to say that there was no work for which women were better fitted than this work of health administration.

THE GENERAL INFIRMARY AT LEEDS.

Though it is some time since the annual meeting of the General Infirmary took place, no note has appeared of that occasion in these columns, but as some important business was dealt with a brief reference may be made to the event. This was the second annual meeting presided over by the new chairman, Mr. T. L. Taylor, who has thrown himself into his new duties with great energy and enthusiasm.

The number of patients treated within the walls of the infirmary during the year 1922 was 575 more than during the previous year. Some few more beds and cots had been available during a part of the year, and with the opening of the Princess Mary ward for infants the accommodation which this provided was available for some months of the year. It may be mentioned that the opening during the present year of the remaining large ward, which, as was mentioned in this column on August 11th, is for sick children, will probably result in a still larger number of patients being dealt with during 1923. In all 10,277 patients were dealt with in the wards, of whom 492 had been carried on from 1921. It is interesting to note that the number of accident cases was smaller than in 1921, which was probably due to there being less trade, but which, it may reasonably be hoped, may be the expression of greater precautions on the part of employers and greater care on the part of the workmen. The newly formed orthopaedic department dealt with 428 in-patients, and shows signs of further development. In the out-patient departments a still greater increase seems to have taken place, not so much indeed in the number of out-patients, but in the number of attendances. The number of out-patients is lessened in respect of the transference of the extern maternity department to the maternity hospital, and the number of new cases in the venereal department has fallen from 1,804 to 1,336. An important event during the year was the opening of the Princess Mary ward on October 22nd, 1922. The ceremony was performed by the Princess, who was accompanied by Viscount Lascelles and by the Earl and Countess of Harewood.

The financial condition of the infirmary continues to cause much anxiety to the board of management, and some reference was made to this in the chairman's speech. The deficiency on the working of the year amounted to £20,977. At the end of the year the overdraft due to the bank was, on the general account, £43,418, and on the King Edward Memorial Extension account £11,121, making in all the very serious liability of £54,539. These figures were faced with courage and with a well founded hope by the chairman. From all sources of ordinary income the amount was practically the same as in the former year, and the expenditure had been in many particulars lessened without any impairment of efficiency. After referring to the excellent work of the Workpeople's Hospital Fund, Mr. Taylor spoke of the scheme which had been worked out by Mr. Braime, a member of the board, under which the employers of labour are to contribute a definite sum in proportion to the number of their employees. This scheme has every promise of success; it is under the immediate supervision of Colonel Burdett, who is steadily adding to the number of employers who are associating themselves with the scheme. The claims of the infirmary were also brought before the

the smaller vessels. In the author's experience gastro-enterostomy in the treatment of chronic gastric ulcer gives unsatisfactory results in more than half the cases and compares unfavourably with resection except as regards primary mortality (1.7 to 3 per cent. as compared with 5.6 per cent.). Recurrence of the ulcer is sometimes observed after transverse resection of the stomach, but can, according to Haberer, be avoided by including the pylorus in the excision; in fifty cases treated in this way he had no deaths and the results were good. The primary mortality in resection of the stomach for carcinoma is given as about 20 per cent., and in the majority of cases recurrence, it is said, takes place within two years of the operation. Leriche records freedom from recurrence for three years in 20.8 per cent., Mayr for five years in 25 per cent., and Kocher reported cases of cure after seven, eleven, and sixteen years. The results of resection for carcinoma of the intestine show, in almost all statistics, a mortality of nearly 50 per cent. A considerable number of favourable cases have, however, been recorded. Küttner in 800 cases performed the radical operation in 32 per cent. Of these, 32.5 per cent. lived over three years, 21.6 per cent. over five years, 16.4 per cent. over eight years, and 12.8 per cent. over ten years. In forty-seven cases treated by entero-anastomosis Schloffer had a mortality of 30 per cent. and the duration of life after operation averaged three years. The mortality after excision of the rectum for carcinoma has greatly diminished in recent years, and is now between 5 and 10 per cent. Pichler reckons that the average duration of life after operation is about two and a half years, but in 440 cases operated on by Czerny and Hochenegg, 31 cases lived for over ten years. The author's statistics seem all to be drawn from German sources.

SCHINDLER'S textbook and atlas of gastroscopy[4] is a handy practical volume, the subject matter of which is well arranged and the text concisely written. The atlas consists of 20 coloured plates illustrating 119 gastroscopic observations, and exhibiting the lesions in their several varieties and stages. Thus chronic ulcer is illustrated in figures showing a callous ulcer of the small curvature, the same ulcer showing the apparent alteration in size due to altered position of the gastroscope, hour-glass stomach with a chronic ulcer at the narrowed portion, cicatricial contraction of the mucous membrane, and a healed ulcer. In addition to the normal stomach the following conditions are also represented: spasm, circulatory changes, acute ulcer, the various forms of gastritis, myoma, carcinoma, sarcoma, and gastro-enterostomy. In the text the various forms of gastroscope and their relative merits are discussed. The author speaks strongly in favour of the rigid instrument, and considers that the use of the flexible gastroscope is not free from danger. The central point of interest in gastroscopy is the degree of accessibility of the pylorus to observation; this is discussed at length, and the difficulties of the problem and the best means of overcoming them illustrated in a series of diagrams. A careful description is given of the mode of introduction of the instrument into the stomach, and the contraindications to its use. In a discussion of the difficult subject of orientation within the stomach, the principles that should guide the observer are formulated and twenty-two diagrams given to assist in mapping out the interior of the organ. In the pathological section the several diseases are treated of systematically. A general description is given of each disease, its etiology and symptoms, followed by a detailed description of the gastroscopic picture characterizing it. This is followed by notes of actual cases with the gastroscopic findings as illustrated in the plates. This section has been purposely added by the author in order to render the book of interest to a wider circle than that of the specialist in gastroscopy. At the same time the author gives a warning that gastroscopy is a difficult method and safely adopted in skilled hands only. The author expresses the opinion that if a patient of over 35 years of age is not relieved of gastric symptoms by four to six weeks of general treatment, or shows rapid wasting which cannot be referred to any definite cause, the gastroscope should be used. In this way carcinoma may at times be diagnosed before it can be detected by other means, including x rays.

[4] *Lehrbuch und Atlas der Gastroskopie.* Von Dr. med. Rudolf Schindler. Munich: J. F. Lehmann. 1923. (Roy. 8vo, pp. viii + 132; 45 figures, 20 plates.)

GARROD'S "INBORN ERRORS OF METABOLISM."

IN 1909 Sir ARCHIBALD GARROD published his Croonian Lectures at the Royal College of Physicians of London for the previous year, under the attractive title of *Inborn Errors of Metabolism*, a phrase which has now deservedly passed into medical parlance. After an interval of fourteen years we heartily welcome a second instalment[5] of this work, which in a rather unusual degree combines both learning and fascination, and is what would be expected from the present Regius Professor of Medicine at Oxford. The word instalment rather than second edition is used advisedly, for not only has there been extensive revision and addition to the accounts given of the four conditions—albinism, alcaptonuria, cystinuria, and pentosuria—discussed in 1909, but two new forms—haematoporphyria congenita and congenital steatorrhoea—both of which have been fully brought to notice by his previous papers, are considered.

Of congenital steatorrhoea there are at present only three known cases, the first of which was described in 1911 by the author, who, though he gives the credit for the recognition of haematoporphyria congenita to Hans Günther, began his own well known work on haematoporphyrin more than thirty years ago. With the possible exception of cystinuria the most serious inborn error of metabolism is haematoporphyria congenita, but it is very rare, only eighteen cases being recorded. This pigment greatly exaggerates the sensitiveness of the tissues to light, so that the exposed parts of the body are prone to show a disfiguring hydrea vacciniforme, the attacks recurring with the advent of summer and leading to permanent scarring and even to blindness; the bones become deeply pigmented, and the author's patient had pink teeth. The article on this subject deals exhaustively with the chemistry of the porphyrins, and, indeed, is a condensed monograph. Of pentosuria, the least conspicuous and clearly defined of the six anomalies, less is now certainly known than was supposed in 1911, for points that then seemed to be decided once and for all have now become debatable, and it is possible that several distinct errors of metabolism are included under this heading.

That there are other inborn errors of metabolism to be established is probable, and indeed reference is made to a few possible examples, such as the very rare xanthin calculi described by Alexander Marcet more than a hundred years ago. The two introductory chapters on the chemistry of the species and of the individual and on the incidence and heredity of the inborn errors, in which the application of the Mendelian principles is discussed, contain much interesting matter. The work, dedicated to Professor Gowland Hopkins, "A Friend of Many Years," represents the high-water mark of scientific medicine.

SURGICAL DISEASES.

THE *Pathological Physiology of Surgical Diseases*,[6] translated by Dr. STANLEY REIMANN from the German of Professor ROST of Heidelberg, is intended to supply the need for an exposition of surgical questions from a somewhat generalized pathological point of view, as is done, more or less routinely, in internal medicine. It makes no attempt to indicate the practical technique of surgery, but is devoted to a discussion of the principles underlying diagnosis as well as operative methods. As a guide to the proper surgical measures to be applied in a given case, it aims at presenting the physiological effects of surgery, and explain Nature's method of compensating the effects of surgical intervention. It is often difficult to obtain information on pathological-physiological questions connected with surgery, since the literature

[5] *Inborn Errors of Metabolism.* By Archibald E. Garrod, K.C.M.G., D.M., LL.D., F.R.S., F.R.C.P., Regius Professor of Medicine in the University of Oxford. Second edition. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1923. (Cr. 8vo, pp. 216. 7s. 6d. net.)

[6] *The Pathological Physiology of Surgical Diseases.* By Prof. Dr. F. Rost. Translated by S. P. Reimann, M.D., with a foreword by J. B. Deaver, M.D., LL.D., Sc.D., F.A.C.S. Philadelphia: P. Blakiston's Son and Co. 1923. (Roy. 8vo, pp. xiv+535. 6 dollars.)

service of the nation can be promoted unless stable government and respect for law are assured. Much constructive work awaits the coming Dail. Educational reform, long overdue, must be no longer delayed; no departments more urgently demand improvement than university and secondary education. Hand in hand with educational reform must come a real effort to provide efficient health services for the nation. The committee concludes by stating it confidently expects the vote and support of the voters for the three candidates selected who share the views expressed in the appeal issued on their behalf by the Committee of Graduates.

The three candidates selected were the representatives of the National University in the last Dail. Although none of the candidates selected is a member of the medical profession, nevertheless it must be said all of them showed a very keen interest in medical matters in the last Dail and were always ready to assist the medical profession whenever there was an occasion to approach the Minister of Local Government, who had charge of medical affairs. In the latter respect Mr. M. Hayes was frequently the means of bringing the profession in the Free State in contact with the Minister of Local Government. It was he who arranged for and introduced to the Minister of Local Government the deputation from the Irish Medical Committee, the proceedings of which were reported in the BRITISH MEDICAL JOURNAL (August 11th, 1923, pp. 259 and 260). Professor William Magennis also did excellent work in the last Dail for the profession. He made, on different occasions, eloquent and powerful speeches urging the better treatment of Poor Law medical officers both as regards salaries and pensions, and put himself on every occasion at the disposal of the profession when it was a case of redressing their legitimate grievances. It is hoped that medical graduates of the National University, resident in Great Britain and Ireland, will not fail to record promptly their votes for the candidates whom they have reason to believe will best serve their interests and the interests of public health generally in the new Dail.

At the time of writing, Dublin University has not selected its representative for the Dail. It is, however, almost certain that Sir James Craig, M.D., will be a candidate if there is to be a contest, and it is hoped the electors of the Dublin University will record for Sir James their first votes. Sir James Craig was a most successful and popular member of the last Dail; he did excellent work in enlightening members of that body with regard to all matters of a medical nature, and whenever, in this respect, he made representations to the Government he generally succeeded in getting most of what he wanted.

Warning to University Voters.

University electors should lose no time in returning their ballot papers when signed and with them the identification certificate—either without the other is useless. The poll will be open for *one day only*, MONDAY, August 27th; and as the postal service is still somewhat disorganized, the proper course is to have the necessary papers signed and returned without an hour's delay.

DR. M. J. NOLAN.

The next meeting of the Medico-Psychological Association of Great Britain and Ireland will be held in Belfast in July, 1924. Dr. Michael J. Nolan, resident medical superintendent of Down District Asylum, Downpatrick, Northern Ireland, has been nominated president-elect of the Association. Dr. Nolan is consulting visitor in lunacy to the Lord Chief Justice of Ireland and to the Lord Chief Justice of Northern Ireland, thus having the unusual distinction of simultaneously holding corresponding positions under the Irish Free State and the Government of Northern Ireland. He has had a considerable influence on legislation affecting the insane in Ireland. The permissive power granted to county councils to contribute towards the establishment of a central asylum for the investigation of the pathology of insanity was due to his efforts, as was the extension to Ireland of the provisions of the Asylum Officers' Superannuation Act.

India.

THE CONTROL OF PLAGUE.

THERE has been a recrudescence of plague in Delhi and the Punjab. A correspondent informs us that the first outbreak in the neighbourhood of Delhi began in January at Ghaziabad, a large junction for grain and goods traffic. It shortly extended to the villages just beyond New Delhi. Jats, the farmer caste, fell victims first, and then the lower castes, chamars and sweepers. One of the members of the Cambridge University Mission to Delhi moved into the infected district, and the chamars, who are Christians, were persuaded to leave their houses, to burn rubbish, to kill rats, and to be inoculated. A small mud mission church was turned into a plague hospital; one of the English Mission nursing sisters and an Indian nurse lived in a hut near by, and a woman doctor of the English Mission went out every second day. The authorities sent an Indian hospital assistant with antiplague serum, but except for the Christians few at first consented to be inoculated. The mortality among the jats was very high. The sweepers who applied for help were taught how to clean their houses and not to put healthy babies in plague patients' beds; they also consented to be inoculated. Eventually the value of the serum was generally recognized, and the sister and her volunteer Indian helper were able to take part in the inoculations as the epidemic declined. The plague reached Delhi itself and got a firm grip not only on the grain markets, but on every quarter of the city. A Social Service Committee, including a Parsi doctor, was formed to assist the municipal authorities. The city was divided into districts and social workers visited each house. The students of St. Stephen's College and boy scouts, under the leadership of their professors and scoutmasters, worked untiringly. At St. Stephen's Hospital a doctor was ready every afternoon to inoculate, and a "purdah" woman could be safeguarded. Over a thousand people were inoculated and either escaped altogether or had only a mild attack. Our correspondent praises also the work of the assistant surgeons and of the Indian nurses. The outbreak seems, at least temporarily, to have come to an end.

THE RED CROSS IN INDIA.

The annual general meetings of the St. John Ambulance Association and the Indian Red Cross Society were held at Simla on June 19th, when Lord Reading presided. The Commander-in-Chief, Lord Rawlinson, who presented the report of the Indian branch of the St. John Ambulance Association, said that it showed a record of good work, in which the progress made during the previous year had been maintained and in some respects improved upon. There was infinite scope in India for an extension of the operations of the association, as outside the great cities and the main lines of the railways the field was untouched. Eight hundred courses of instruction in first aid, home nursing, home hygiene, and sanitation had been given to over 16,000 persons, and of these 8,911 passed examinations and won certificates of efficiency. A course of first aid and home hygiene in the schools had been instituted in the United Provinces, an example which he hoped would be followed in the other provinces. The report of the Red Cross Society was presented by Sir Frederick Whyte, who paid a glowing tribute to Sir Malcolm Hailey, the outgoing chairman of the committee of management, who had rendered invaluable services to the society in the critical years of transition from war to peace. There was ample scope for all the sister organizations, but in order to secure the fullest economy of effort an agreement with the other bodies should be reached. He drew special attention to the work in the North-West Frontier, and referred to the work in Hyderabad cantonment as practical proof of the results achieved. There, a large mortality used to occur among British babies, but child welfare work was started under Mrs. Godwin, and within one year the excessive mortality was completely wiped out. In conclusion, Sir Frederick Whyte laid particular emphasis on the need for education. The Viceroy,

and external ear are described at some length: some of these, in fact, are scarcely otological at all and fall more appropriately within the province of general surgery or dermatology. The student will, however, find the help that he is likely to require in any direction and the book can be safely recommended. The illustrations, many of which are already familiar, are excellent.

EPIDEMIC ENCEPHALITIS.

DR. LOUIS REYS's clinical study of the acute stages of epidemic encephalitis and its sequelae[10] is based on his observations of 150 cases of the disease during an epidemic in Strasbourg and Lower Alsace from February, 1919, to 1921. His thesis contains certain additions to knowledge: he describes a labyrinthine form which may occur in association with other signs of encephalitis or independently; he demonstrates the frequency of meningeal reactions in the disease, and gives an account of the late sequelae of epidemic encephalitis. He estimates that while about 30 per cent. of the cases recover more or less completely, 70 per cent. remain invalids for the rest of their lives. The most remarkable and frequent sequel is Parkinsonism, which is almost always progressive. As this sequel may not develop until two and a half years after the acute stages, Dr. Reys urges that every person who has had an attack of epidemic encephalitis should be kept under observation for at least three years. In discussing the prognosis of the different varieties of the disease, he states that the lethargic form is the most serious, as in 76 per cent. of the cases it ends in Parkinsonism. The myoclonic form is the next most important, as in 33 per cent. of the cases Parkinsonism results, and in 25 per cent. other persistent sequelae, such as myoclonus. The prognosis should be guarded also in the pure labyrinthine form, which terminates in Parkinsonism in one out of every three cases. On the other hand, the outlook is much more favourable in the monosymptomatic ocular form. Dr. Reys excuses the absence of a bibliography, which is usually a prominent feature in a French thesis, on the plea that the literature of epidemic encephalitis has grown to such enormous dimensions that the enumeration of even the most essential works is impossible.

The thesis is a valuable contribution to the clinical study of epidemic encephalitis, and is all the more interesting as consisting mainly of the author's original observations.

NOTES ON BOOKS.

THE *First Aid X-ray Atlas of Fractures and Dislocations*,[11] by H. C. ORRIN, is what its title suggests: The numerous illustrations are its essential feature; photographs of the various bones are contrasted with radiographs of typical fractures and dislocations; in addition there are photographs of the cases after the bandages and splints used for first aid have been applied. In the text the skeleton is described, a short account is given of the reasons for the names of many of the bones, each bone and joint is considered separately, and then follow chapters on the various kinds of fractures and dislocations and their suitable treatment. Radiographs are now such a usual feature of books on medicine and surgery that they are almost taken for granted; it is of interest to note that the author of this little manual has recognized their value as illustrations for first-aid teaching; it will be remembered that he had already used radiography for a first-aid atlas of the arteries.

The second part of the second edition of *Grundriss und Atlas der Speziellen Chirurgie*[12] is an improvement on the first, a notice of which was published on May 12th (p. 815). It deals with the surgery of the abdomen and its contents, the uro-genital system, the pelvis, and the surgery of the extremities. More attention should have been directed to modern investigations and methods. For instance, the author in discussing the treatment of congenital hypertrophic stenosis of the pylorus advises dilatation of the pylorus according to Loreta's method, pyloroplasty or gastro-enterostomy, but makes no mention of Rammstedt's operation of simple division of the hypertrophied musculature down to the mucous membrane. In the discussion of gastric analysis no mention is made of the fractional test meal. In addition to the ordinary anterior and posterior methods of performing gastro-enterostomy, it would seem superfluous to describe two others which are never done nowadays. Excision of the stomach is to be done on the lines evolved by Billroth. For the operation of colostomy a small piece of iodoform gauze is to be passed through the mesentery of the colon for securing the spur, and Murphy's button is commended. All the varieties of hernia are fully described and illustrated. Bassini's and Kocher's methods are advocated for the radical cure of inguinal hernia. In the operation for femoral hernia the whole thickness of the pectineus is divided and the upper part stitched to Poupart's ligament to obliterate the crural canal. The chapter on genito-urinary surgery is perhaps the best; most of the recent investigations on the renal function are mentioned. The remainder of the book deals with the extremities, fractures, dislocations, deformities, joints, and a short description of the various amputations and ligature of vessels. The treatment of fractures, according to the diagrams, seems complicated and the splints insecure.

DR. ISABEL EMSLIE HUTTON has written a small book on *The Hygiene of Marriage*,[13] which gives in clear language and in sufficient detail an outline of the physiology of sex functions and much sensible advice on conjugal relationships. As Professor Louise McIlroy observes in an appreciative foreword to the volume, "The medical profession realizes how much has to be learnt by the pure and clean minded before marriage can be successfully undertaken; it is obviously the most moral who are the least experienced." This book, we consider, is one which could with advantage be recommended by medical practitioners as suitable for parents to hand to sons or daughters who are about to marry. The language is quiet but explicit, the taste and tone are unexceptionable, and the information is generally in accordance with scientific knowledge. In the short chapters on birth control and methods of contraception Dr. Hutton handles a difficult subject with common sense and discretion.

The fifth edition of DR. ELIZABETH BUNDY'S *Textbook of Anatomy and Physiology for Training Schools and other Educational Institutions*[14] has been revised by Professor Martha Tracy and Dr. Grace Watson, both of Philadelphia. It is not a book having any medical pretensions, but appears well adapted to the purpose for which it has been compiled.

Green's Manual of Pathology and Morbid Anatomy has been well known to many generations of medical students. The original edition appeared in 1871 and constituted almost the first systematic introduction to English students of the cellular pathology associated with the name of Virchow. It must be a source of gratification to Dr. Thomas Henry Green to see his literary offspring attain its jubilee and to know that it is still appreciated by successive generations of students. The present is the thirteenth edition,[15] revised and enlarged by Dr. W. C. BOSANQUET and Dr. G. S. WILSON. The general features of the book remain unaltered, but a considerable amount of new material has been added and many portions have been practically rewritten. The illustrations now number nearly 250 and there are several new coloured plates. The medical student is supplied in this book with a solid foundation of morbid anatomy and pathology on which to base his clinical and therapeutical practice.

The forty-first issue of the *Empire Municipal Directory and Year Book*[16] affords, like its predecessors, a convenient summary of much useful information not readily accessible elsewhere. The lists of municipal authorities and their chief officers throughout the Empire and the summaries of legislation, orders, regulations, and departmental circulars affecting local authorities have been brought up to date. A list of universities and colleges granting degrees and diplomas in public health, with details of the courses offered, notes of

[10] *L'Encéphalite épidémique. Étude clinique: La période d'état. Les séquelles.* By Dr Louis Reys. Paris: A. Maloine et Fils. 1922. (Roy. 8vo, pp. 146; 10 figures. Fr. 8.50.)

[11] *First Aid X-ray Atlas of Fractures and Dislocations.* By H. C. Orrin, O.B.E., F.R.C.S.Edin. London: Baillière, Tindall, and Cox. 1922. (4½ × 7, pp. viii + 73; 45 figures, 18 plates. 3s. 6d. net.)

[12] *Grundriss und Atlas der Speziellen Chirurgie.* Tiel II. Von Professor Dr. G. Sultan. Zweite umgearbeitete Auflage. Munich: J. F. Lehmann. 1923. (Cr. 8vo, pp. viii + 576; 365 figures, 40 plates. 14s. 6d.)

[13] *The Hygiene of Marriage.* By Isabel Emslie Hutton, M.D. With a Foreword by Professor A. Louise McIlroy, M.D., D.Sc. London: William Heinemann (Medical Books), Ltd. 1923. (Post 8vo, pp. 112. 6s. net.)

[14] *Textbook of Anatomy and Physiology for Training Schools and other Educational Institutions.* By Elizabeth R. Bundy, M.D. Fifth edition, revised and enlarged. London: J. and A. Churchill. (Demy 8vo, pp. xv + 442. 11s. 6d. net.)

[15] *Green's Manual of Pathology and Morbid Anatomy.* Thirteenth edition, revised and enlarged. By W. C. Bosanquet, M.A., M.D.Oxon., F.R.C.P.Lond., and G. S. Wilson, M.D., M.R.C.P., D.P.H.Lond. London: Baillière, Tindall, and Cox. 1923. (Demy 8vo, pp. viii + 621; 7 plates, 241 figures. 21s. net.)

[16] *The Empire Municipal Directory and Year Book for 1923-24.* London: The Sanitary Publishing Company, Ltd., 8, Bream's Buildings, E.C.4. 1923. (7 × 11½, pp. 348. 10s. 6d. net, post free 11s.)

at odd times; in a cottage hospital a whole ward may be shut up for a month for cleaning purposes and the next month another ward may be closed and then every bed may be full for a couple of months. Even under the best management, assuming that the averaging number of unoccupied beds is 27 per cent. there would last year have been only 630 cottage hospital beds that one might call avoidably unoccupied — that is, barely two beds per hospital; and as they would be unoccupied at such irregular times it is doubtful whether they would in practice be available for convalescent or maternity cases which are the two important suggestions made by Sir Napier Burnett.

Two years ago I should have agreed with him as to the use of these beds for convalescent patients from the central hospitals, but in drawing up a scheme for the co-ordination of the hospital work in this county, when we came to consider the proposal in detail, we found the suggestion as to convalescents to be impracticable unless special extra beds could be provided for the purpose.

With regard to maternity beds, I have long looked forward to the time when every cottage hospital should have a maternity ward, but I do not think it would be possible to use odd beds in general wards for this purpose.

I should be sorry if Sir Napier's report did anything to check the growth of general practitioner hospitals which are fast becoming such an important part of the medical service of the country. That they want in very many instances reorganizing and reforming there can be no doubt, but that is not a reason for doing away with them —in fact, experience has shown that an increase in the number of beds in a cottage hospital often means a higher average of occupation.

Reference in the report is made to some hospitals that undertake too much and others that do too little, but there must always be a considerable difference in the quantity and the nature of the work they do. The rôle of a cottage hospital is to provide for those cases that can be treated by the general practitioners of the neighbourhood and which do not require the special skill and equipment found in the central hospital; at present in many of these a large number of beds are occupied by patients who might well be treated in the surrounding general practitioner hospitals.—I am, etc.,

Bradford-on-Avon, Aug. 10th. CHARLES E. S. FLEMMING.

TRACHOMA AND VISUAL STANDARDS DURING THE WAR.

SIR,—The publication in *Guy's Hospital Reports* by Lieut.-Colonel Eason, now Superintendent of Guy's Hospital, of his experiences as an ophthalmic surgeon during the war, raises two most important questions. I have already drawn attention to these in two publications of my own, one entitled *The A.A.M.C. in Egypt*, and the other *A Vision of the Possible*. The wealth of instance now given by Colonel Eason may induce the authorities to take definite action.

In the first place the experience of oculists in Egypt and Palestine makes it certain that trachoma is not readily contagious, and is not indeed contagious at all in the ordinary sense of the term. It is only contagious when associated with crowding and with dirty habits. The fact remains that tens of thousands of British and Australian soldiers were in close contact with a population which is almost universally infected with trachoma, and that very few contracted it. The army explanation, which may be correct, was that infection was stopped by the abolition of the roller towel. In Australia thirty years ago trachoma was very common, and the cases came chiefly from the country districts and especially from dry, hot and sandy districts. As wealth has increased and the conditions of living improved, there has been a most noticeable decrease in the quantity of trachoma, and it would be very difficult to-day to collect a hundred cases. In other words, trachoma is not contagious except when it is associated with very insanitary conditions. An ordinary white population has nothing to fear from it. It is, therefore, obvious that the legislation against the admission of trachomatous patients into different parts of the world is capable of some modification so far as the risk to inhabitants is concerned.

In the second place Colonel Eason shows definitely what we felt acutely in Egypt and Palestine—namely, that the visual standards established prior to the war and in the early part of the war were far too severe, and were illlogical. All wars in the future will be national wars, and if men are to be excluded from service because they have a running ear or their vision is not perfect or their teeth are not good, then the nation that adopts such a course is almost certain to be defeated. If the use of glasses is to be permitted, then it is almost immaterial what the soldier sees without glasses. The standard adopted by Colonel Eason of 6/24 with or without glasses in one eye, and absence of blindness in the other, should work quite satisfactorily considering the work the modern soldier does. Such vision is quite good enough in the majority of cases, as our experience demonstrated. It would be interesting to ascertain how many additional men could have been obtained for the British Army by the adoption of such a standard, and whether they might not have avoided the defeat of the Fifth Army in March, 1918, if they had been available. The point, however, is that both Lieut.-Colonel Eason and I from practical experience in the theatre of war have had our opinions respecting both trachoma and standards of vision completely altered. Those who have not had the same experience may be a little sceptical, and I suggest that they examine the matter from a critical standpoint.

Finally, the appalling damage done by purulent ophthalmia amongst the Turkish prisoners, many of whom were suffering from pellagra, draws attention to the experimental work done in the production of keratomalacia in animals by a pellagrous diet. The diet of the Turkish soldier was evidently insufficient when combined with heavy military work, and notwithstanding the excellent treatment both with regard to food and medical attention, which they received after capture, it was quite impossible to save a number of them.

I should think that there has never been a campaign in history from which there is so much to be learned as from the campaign in Egypt and Palestine. The theatre of war was cut off from all political influences, and was placed under one command, so that the problems to be faced were obvious to anyone interested. I advise those interested in ophthalmology to go through Colonel Eason's publication carefully.—I am, etc.,

JAMES W. BARRETT,
Lieut.-Colonel R.A.M.C. and A.A.M.C.,
Formerly Consulting Oculist and Aurist, Egypt.

Melbourne, June 7th.

EXAMINATION IN OPHTHALMOLOGY.

SIR,—No one, I fancy, will be disposed to quarrel with your contention (BRITISH MEDICAL JOURNAL, August 4th, p. 195) that clinical ophthalmology ought to receive recognition in the final examination for medical degrees and diplomas. But surely neglect of this recognition is not so complete as you suggest. A large area of clinical ophthalmology is an essential part of general medicine and cannot therefore be excluded from the examination in medicine. Obviously this is true of disturbances of the ocular musculature, of alterations in the visual fields, and of the facts to be observed by the ophthalmoscope. Presumably teaching on these subjects is practised in the medical wards, and certainly questions dealing with them are open to the examiners in medicine. How then can "students know they will not be examined" on such topics? In a fairly long experience as a university examiner in medicine I have always felt free to put questions on medical ophthalmology and have found, possibly under the influence of this reputation, an increasing capacity to answer them.

It may, perhaps, be desirable to cultivate a similar development on the topical or surgical aspects of the subject, but to suggest that because there is no "special ophthalmological examination . . . conducted by ophthalmic surgeons" the student "cannot be expected to give much attention" to ophthalmology is a proposition that may

Nova et Vetera.

CHARLES GABRIEL PRAVAZ.

VERY little is heard of orthopaedic practitioners before the time when Stromeyer recalled the attention of surgeons to deformities and their treatment. In this country Chessher's name has survived, thanks among others to George Eliot, but we only have allusions to him and his methods. Shaw and Harrison, especially the former, were pioneers in the treatment of deformities in the first generation of the nineteenth century. A name which arises in one's memory is that of T. Sheldrake, who was consulted by Byron after another man of the same name had failed to cure the poet. Sheldrake bulks large in the early issues of the *Lancet*. In the volume for 1828-29 there are nine communications from this gentleman, some of them of considerable length, with a commendatory note from the editor; yet from all this mass of verbiage it is impossible to gather what means he employed to achieve the cures of club-feet of which he boasted. Sheldrake asserted that he had studied under the Hunters and others, although he had no legal qualifications. Despite the sponsorship of Mr. Wakley, we must conclude that his methods were those of a quack.

A very different personage, and of a later generation than Sheldrake, was the French orthopaedist Pravaz, who is best known as the inventor of the syringe with a hollow needle which has since been known by his name. This was devised by him in order to inject iron perchloride into an aneurysm, and it was the parent of all the needles and ages so widely used for aspiration and injection at the nt day. At first the needle was made in two halves were soldered or brazed together, but after the war 870 the well known surgical instrument maker arrière bought from the French Government its stock f mitrailleuse barrels and drew them out into hypodermic needles, thus affording a striking analogy to the prophecy of Micah. Attention has recently been called to the importance of the work of Pravaz by Dr. Grangée of Aix-les-Bains in the *Revue de Thérapeutique Moderne Illustrée*. This writer gives the credit of having been the first to use subcutaneous injection of a drug to a Scottish surgeon named Wood, whom we are unable to identify.

Pravaz was born in 1791 in the south-east of France, and became Doctor of Medicine at Paris in 1824. Connected by marriage with the proprietress of a girls' school, he attended the pupils professionally and thus had his attention directed to the treatment of scoliosis, and ultimately the girls' school became an orthopaedic institute. He cannot have had a very extensive experience of curvature of the spine when, in 1827, he published his *Méthode Nouvelle pour le traitement des déviations de la Colonne vertébrale*. Nevertheless this book and his clinical work were favourably reported upon by a commission of the Academy of Medicine in 1829. In it he described his progressive extension bed, which figured later in his treatment of congenital dislocation of the hip; he paid tribute to the work of Bampfield, Shaw, and other surgeons of this country, whose foggy sky and damp climate favour (so he says) the production of deformities.

But Pravaz's chief claim to remembrance as an orthopaedic surgeon is the advance he made in the treatment of congenital dislocation of the hip. According to Malgaigne, Humbert de Morley had published in 1835 an account of five cases of this deformity of which the cure was said to be confirmed, but these successes were generally regarded as equivocal. Pravaz then took up the question, and after a much-talked-of successful case which afterwards relapsed, he presented to the Academy of Medicine in 1838 a girl whose cure was vouched for by a commission. The Academy sanctioned the conclusions of the commission, although Dr. Bouvier strongly dissented. Pravaz, who had removed his orthopaedic institute to Lyons, persevered with his method, and in 1847 he published his *Traité théorique et pratique des luxations congénitales du fémur*, in which he gave details of nineteen cases. Between the date of publication of this monograph and his death he treated eight more cases, making twenty-seven in all, with a percentage of success at least as high as that attained nowadays, if we are to credit the testimony of the numerous surgeons who examined a number of his patients some years after their cure.

Pravaz alone in his time seems to have seized upon some at least of the principles by which congenital dislocation of the hip can be cured. He relied on long-continued extension with weights amounting in some cases to more than 40 lb., after which he reduced the dislocation by abduction and pressure on the great trochanter and maintained the reduction in the abducted position by means of a belt. He seems to have realized thoroughly the necessity of re-forming the articulation of active movements of the thigh and consequent pressure and friction of the femoral head in the acetabulum. All these measures, except the first, are now recognized as right and necessary. Pravaz had not the advantage of using plaster-of-Paris, which was then only beginning to be employed by Bouvier in Paris for the treatment of club-foot, and his apparatus appears to have been elaborate and difficult to manage. There can be no doubt of the functional value of his results in many cases, and if, as Professor Nové-Josserand of Lyons has recently suggested (*Revue d'Orthopédie*, May, 1921), his cures were not genuine reductions, but anterior transpositions, his patients were nevertheless immensely benefited thereby.

When Pravaz died his success was still disputed in Paris and elsewhere. Malgaigne in his classical work on fractures and dislocations stated that he had not seen any of the cured cases. Gillebert D'Hercourt, the pupil and successor of Pravaz, continued his practice at Lyons and published a number of pamphlets vindicating the method and its author, but gradually both fell into neglect and oblivion. This neglect is hard to explain. Possibly if the orthopaedic institute had been in or near Paris it would have won greater appreciation and the profession of the capital would have had better opportunities of testing the worth of Bouvier's dicta, that congenital dislocation of the hip was incurable and that no case had been cured. Bouvier was at that time a great authority on orthopaedic surgery and his influence, coupled with the complexity and long duration of Pravaz's treatment, probably retarded progress for forty years, that is until Pacci rediscovered the principles of Pravaz, and Lorenz added to them and improved their application by using plaster-of-Paris. Whatever the cause, it is a tragedy that nearly two generations of hip-luxated cripples should have been deprived of benefits such as they might have enjoyed had the work of Pravaz been carried on.

E. M. L.

MINERS' NYSTAGMUS.

THE Miners' Nystagmus Committee appointed in 1920 by the Medical Research Council was invited by the Home Office, and later by the Secretary for Mines, to give special attention to the great increase which was taking place in the claims for compensation due to miners' nystagmus. The Committee issued a first report about fifteen months ago; it dealt generally with the subject of miners' nystagmus as an occupational disease. Its main conclusions, which were given at some length in our columns of April 22nd, 1922, were that the essential factor in the production of miners' nystagmus is deficient illumination, due to the low illuminating power of the safety lamps generally used; that workers at the coal face are more affected than other underground workers; and that distinct signs of nystagmus are present in a large proportion of coal miners, though only in a small proportion do the symptoms ever become so severe as to cause even temporary incapacity for underground work. The Committee recommended that the standard of illumination should be improved by the use of the electric cap lamp, or some other method which brings the light near the working area without shining directly into the eyes, and by an increase of whitewashing and stone-dusting.

ledge when there exist for small-pox such admirable guides to correct diagnostic methods as are provided by the writings of Ricketts and of Wanklyn.

During the war it fell to me, when attached to the Base Isolation Hospital, Mesopotamia, to act for a considerable period as receiving room officer for the primary purpose of making the differential diagnosis between small-pox, chicken-pox, and "other diseases." Chicken-pox was extraordinarily prevalent and severe amongst Indian troops and followers and was characterized by initial malaise and profuse eruption. Small-pox was endemic amongst the Arabs and was also introduced by sea from India (five days' voyage).

In Mesopotamia, besides the relatively small imported European military population, almost every type of Asiatic—indigenous and introduced—was to be found. In spite of the varying types of the disease (small-pox), diverse nationalities with widely differing skin textures, habits, postures, occupations, and clothing (the lines of pressure from garments differ markedly, of course, in Europeans and Asiatics), the principles of diagnosis originally laid down by Ricketts and so ably expounded by Dr. Wanklyn held good—with the reservation that Ricketts's "sign of the axilla" had not, I thought, so great a value as it possesses in this country. (Most of the Asiatics were infested with lice and the axilla was a site of chronic irritation.)

It cannot be too strongly emphasized that the differential diagnosis of small-pox, as regards distribution, rests not upon the absolute distribution (hence the "soles and palms" misunderstanding), but upon the relative density of distribution of the lesions in different regions of the body. Are the lesions preponderatingly centripetal or centrifugal?

In the absence of material it has been necessary to teach students—however imperfectly—the distribution of small-pox by utilizing cases of chicken-pox and emphasizing with a skin pencil the differences in distribution between the two diseases. It is surprising how often it has been possible to demonstrate—in cases of indubitable chicken-pox—lesions on the palms and soles, and yet to show that the principles of diagnosis of Ricketts and Wanklyn were *not* violated.

With regard to Dr. Kidd's surmise that the whole epidemic may be chicken-pox, I may say, perhaps, that one of the Birmingham cases was an unvaccinated child who had a history, and who showed typical scars, of a previous attack of chicken-pox. The total number of small-pox lesions this child presented was certainly not more than thirty. The distribution of these lesions and the character of the lesions themselves were typical of small-pox. The child was vaccinated in hospital—unsuccessfully.—I am, etc.,

E. H. R. HARRIES, M.D.Lond.,
Medical Superintendent, City Hospital, Little Bromwich.
Clinical Teacher of Infectious Diseases, University of Birmingham.

Aug. 6th.

SIR,—Dr. C. Killick Millard (BRITISH MEDICAL JOURNAL, August 4th), in commenting on my suggestions *re* vaccination propaganda, remarks that I exaggerate and am unfair. As regards the former I would ask him three questions—namely:

1. Do cases of confluent small-pox occur, and are they liable to occur in most epidemics of the disease or not?
2. Does the disease ever cause disfigurement by pitting and opacities of the cornea or not?
3. Do the returns show that vaccination, and only vaccination, is the safeguard against attacks of small-pox or not?

These are well known facts and could not be called exaggerations; it is upon these facts that I have based my suggestions.

As regards the latter part of his letter, I should not be surprised if the Anti-Vaccination League publishes it as an exposition of the doubt that exists (according to Dr. C. Killick Millard) as to the protective power of vaccination against small-pox.

Personally, in spite of Dr. Killick Millard, I am still quite convinced that my suggestions are fair and expedient, and if carried out would go a long way towards convincing the layman of the advisability of being vaccinated against small-pox.—I am, etc.,

V. ST. JOHN CROLEY,
L.R.C.P. and S.Ed., D.T.M. and H.Lond.

Budleigh Salterton, Aug. 6th.

CANCER RESEARCH.

SIR,—Dr. Leonard Molloy's letter in your issue of August 11th requires correction in one or two essentials. The British Empire Cancer Campaign is distinct from the Imperial Cancer Research Fund; the latter has been in existence for twenty years. The British Empire Cancer Campaign is not yet in existence as an organization engaged *in cancer research*. Dr. Molloy says that the Treasury grant to the Imperial Cancer Research Fund is "utterly inadequate." This is an erroneous statement of the case, because the Imperial Cancer Research Fund is not now and never has been in receipt of Government financial support, although several Government departments are represented on its General Committee and Subcommittees.

Permit me to add that I disagree with the implication in Dr. Molloy's letter that the only requirement for success in cancer research is money. It is a libel on men of science in this country to suggest that the trained intellects capable of solving the pathological and therapeutic problems of cancer are here and only waiting for the money to tempt them to engage in these problems.—I am, etc.,

J. A. MURRAY.

Imperial Cancer Research Fund,
8-11, Queen Square, W.C.1.
Aug. 12th.

CHAUFFEUR'S PALM.

SIR,—M. Dupuytren, in his classical lecture on *Contracture de l'aponévrose*, gives the case of a marchand de vin gros, who "à l'instant où il essayait de soulever l'une de ces pièces de vin, qui sont ordinairement fort volumineuses, en plaçant la main gauche au-dessous du rebord saillant formé par l'extrémite des douves, ressenti, au même moment, un craquement et une légère douleur dans la partie interne de la paume de la main." This was followed after a time by a Dupuytren's contraction of the ring finger.

The projecting *douve* or stave of the great cask must have been much like the starting-handle of a car, the sudden strain causing pain much like a back-fire. I have never seen this deformity in a garage attendant or chauffeur, but if there was any teaching in M. Dupuytren's case we may expect to when these men grow older.

The only motor trouble I have seen has been pain, stiffness, and some loss of power in the right leg. It has appeared in those who have lately learnt to drive, who have driven many miles a day, and who use an acceleration pedal. It disappears after a week or ten days' rest, and is no doubt due to the cramped action of the right leg when using this pedal. The pressure is not sufficient to give any useful support to the leg, which has to be held up and used by muscular power alone. The condition may be a little puzzling, if the history of the accelerator is not obtained.—I am, etc.,

O. CLAYTON-JONES, M.B.Oxon.

Silverton, nr Exeter, Aug 6th.

MEDICAL CHARITIES.

SIR,—It was with considerable interest that I read the two contributions which appeared under this heading in last week's JOURNAL.

Sir Charters Symonds certainly gives some useful information, but I do not think anyone would care to assert that his letter makes the position look any brighter or more encouraging. To my mind it appears particularly unfortunate that so important a functionary as the treasurer of the fund should feel constrained to take refuge in the very much overwrought excuse of "apathy of the profession."

I am no believer in this explanation. The average medical man is a busy individual who is compelled by the nature of his work to concentrate his mind on a considerable number of important matters during every day of his existence, and this process quite commonly involves the rapid exclusion from his thoughts of what may casually appear to be minor considerations. In my opinion, therefore, the fault lies in his never having been brought to realize that he has a definite moral obligation towards the poor and distressed of his profession.

If I am correct in this assumption, the remedy must lie

British Medical Journal.

SATURDAY, AUGUST 18TH, 1923.

THE REMUNERATION OF INSURANCE PRACTITIONERS.

THE Minister of Health has undertaken to inform the medical profession, by October 1st next, what his proposals are for the terms and conditions of service of insurance practitioners for the year 1924 onwards. These terms and conditions are a matter not only of professional but of national importance. The national object is to secure for certain large classes of the population medical attendance and treatment of the type contemplated in the insurance scheme, upon conditions such as will obtain for the insured person a wide freedom of choice among practitioners, and service from any practitioner chosen certainly not inferior to that which could be given under any other system. To secure this from the profession it is essential that the extent and character of the services required shall be clearly understood, that the conditions under which these services are to be given are not inconsistent with the honourable traditions of the profession as interpreted by its representative authorities, and that the financial reward of the services shall be such as to justify the expectation that every practitioner will use his highest skill and utmost endeavour in the interest both of his individual patients and of the national health. These three essentials cannot be separated; without any one of them there will be relative failure. Attention must not be concentrated upon the question of money payments to the exclusion of the others, nor should this be regarded as of more or less importance than they.

For many months past the Insurance Acts Committee, on behalf of insurance practitioners and with the authority of the British Medical Association, has been engaged in an investigation with regard to the first two of these points. It has sought information from the Ministry, from Insurance Committees, from approved societies, from all and sundry, as to all those things in which it was alleged, rightly or wrongly, that the insurance service was imperfect or that the work and conduct of practitioners was less satisfactory than it should be. It is acknowledged that, here and there, there are some practitioners who are doing less than may properly be required of them; and that there are a number of imperfections in the service as a whole, though it is found that these are due by no means always to the doctors but mainly to the ignorance or carelessness of insured persons themselves or to difficulty or laxity of administration in other quarters. The Committee has made, or has accepted, a number of suggestions which, it is believed, meet all legitimate criticisms, and which must, if carried out, be to the great advantage of insured persons and of the service generally. They are contained, in the main, in a memorandum published in the SUPPLEMENT to the JOURNAL of May 19th last, though they were amended in some minor details by the Conference of Local Medical and Panel Committees in June and

They have, moreover, been regarded as s by a number of the most influential and repr members of Insurance Committees and of Societies.

There is only one important point on wl misunderstanding still appears to exist in sor It is understood that the range and extent o attendance and treatment to which insure are entitled under the scheme is that whic properly given by general practitioners as and that services of a specialist chara whomsoever given, have to be provided for other way. Any restatement of this n designed to emphasize the width of this service, and to ensure that, while not impug right of any registered medical practitioner to any medical or surgical service which he deem priate, no insured person shall be charged any treatment unless it is proved to be of a s type, and unless any insurance practition himself gives it is judged to have the special ence or skill desirable. It may be that it is fin necessary to maintain at present this limitatio range of service; or it may be that the insuranc are so ample that they could bear the co complete specialist and institutional as well complete general practitioner service. Some of the approved societies appear to believe tl is not improbable that the whole expenditure country on health services might, if more distributed, be capable of meeting the cost unlimited service; and it is certain that th fession is not only willing but anxious that the shall be made as complete as possible under priate conditions. The immediate point to note ever, is that in discussing the remuneration of ance practitioners reference is made now, as it a has been, to a service of the general practitioner t wide, highly skilled, comprehensive as that s must be recognized as being.

More recently the attention of the Insurance Committee has been specifically directed to a cal tion of the capitation fee on the basis of which be formed the Central Practitioners' Fund, on proportionate distribution of which each practitio remuneration depends. The Committee's very im tant memorandum on this subject was publishe the SUPPLEMENT to our last week's issue. The starting-point for such calculation is the arbitra award of 11s. early in 1920. This has to be adjus to the conditions of the immediate future. The m adjustments required are for the cost of living of carrying on practice. An authoritative statem as to the former of these adjustments will be fou in the memorandum by Professor Bowley, publish in connexion with that of the Committee. On th as the finding of an independent scientific economi the Committee is entitled to rely. The arbitrato gave no reasons for their award, but it is permissib to search for some definite calculation that may presumed. There is one such calculation which t Committee has not explicitly set out in its memo randum but which entirely supports the figures which it had arrived. The average original capitatio fee was 7s. 3d., but the minimum available in som areas was only 7s. The percentage increase claime (on the grounds now under consideration) in 1920 wa 60, and though Professor Bowley agreed that thi

ROBERT ANDERSON, M.D.EDIN.,

Gateshead.

ON August 6th, with tragic suddenness, Dr. Robert Anderson of Gateshead passed away. Although in his 80th year Dr. Anderson was well preserved, and was busily occupied until the day of his death. It was the present writer's privilege to have known Dr. Anderson for over forty years, during which nothing ever occurred to mar the friendship. At the early part of the period referred to, Dr. Anderson was a busy colliery doctor at Seaton Delaval, a few miles from Newcastle-upon-Tyne. The death of Dr. Davidson, to whom he had acted as assistant, threw Dr. Anderson when still a comparatively young man into a large practice; he became surgeon to several of the collieries and had sometimes to employ five or six assistants. Dr. Anderson carefully supervised their work, visited the collieries daily and was always at the call of his assistants. He thus knew his patients and their families intimately, entered into the joys and sorrows of their family life, and was looked upon as a friend as well as their medical adviser. Notwithstanding his many duties, Dr. Anderson found time to deliver evening lectures in neighbouring villages on health and social problems, and thus helped to stimulate among the Northumbrian miners that desire for learning which has been so characteristic of them as a class.

Dr. Anderson was in the North of England the first medical man to introduce an organized ambulance service into the collieries. He became one of the most active and inspiring members of the St. John Ambulance Association, and for years he drilled and instructed the miners so that they might be able to deal in the gentlest and safest manner possible with their comrades injured underground. Many honours were bestowed by the central authority of the Order of St. John of Jerusalem upon the late Dr. Anderson in recognition of his important services. Only a few months ago he retired from his position as Assistant Commissioner of the No. 6 District of the St. John Ambulance Brigade. Twenty years ago he retired from the greater part of his active medical duties and came to Gateshead, but only to identify himself with public work. Dr. Anderson was a fine example of straightforwardness and of honourable dealing with his patients and the medical profession. He was a fluent speaker and upon subjects with which he was well acquainted he frequently, years ago, enlivened debates at the meetings of the Northumberland and Durham Medical Society. There was a freshness in his views which appealed, knowledge based upon experience which convinced, but above all an openness of mind which made him receptive to new ideas and methods of treatment. He was educated—as it was his pride to recount—at Edinburgh University during the palmy days when among its medical professors were numbered such men as Syme, Simpson, Hughes Bennett, and Christison. He graduated M.D.Edin. in 1864, and took the diploma of L.R.C.S.Edin. in the same year.

A member of the Established Church of Scotland, Dr. Anderson was for fifty years an elder in the Presbyterian body. During the last twenty years he acted in this capacity in Park Terrace Church, Gateshead, and there, prior to the interment in Saltwell Cemetery, a service was held, attended by the Mayor and Corporation of Gateshead, representatives of the medical profession and of the St. John Ambulance Association, and by a large body of the public, by whom he was held in high esteem. He is survived by his widow, two daughters and three sons.

T. O.

DR. OLIVER SMITH passed away peacefully in his home in Gorleston on August 5th. Though he was only 41 years old, he had already made his mark, and was greatly respected by his fellow practitioners as well as by his many patients. After a distinguished career at Edinburgh University he spent several months at sea as a ship surgeon, and then held the appointment of house-surgeon at the Great Yarmouth Hospital. Here his conscientiousness and professional skill were greatly appreciated, and when his term of office came to an end he was invited by Dr. P. G. Gilmour to join him in a partnership, which lasted fifteen years till Smith's death. It was a matter of regretful wonder to his closest friends that he did not engage in research work, for which his keen intellect seemed to fit him. Though his practice was growing steadily, he managed to read much and keep abreast of the times, and his scientific bent showed itself in his love of instruments of precision. He took infinite pains, and never committed himself to a diagnosis or line of treatment till he had carefully weighed all the available evidence. It follows that he had seldom to retrace his steps. In the R.A.M.C., during the war, he developed his taste for operative surgery, and he continued to perform major operations till his illness at last forced him to give up work. He was confined to bed for about six months. He bore his crushing reverse of fortune with infinite courage—a courage which his wife also showed to a marvellous degree. She nursed him day and night throughout his illness, showing a sublime fortitude and disregard of self. It is no exaggeration to say that all Gorleston was plunged into grief by his death, and his former patients realized that they would no longer be cheered by that kindly smile which used to light up his clean-cut, intellectual features. He was a member of the East Norfolk Division of the British Medical Association.

We regret to record the sudden death, on July 26th, of DR. WALTER WILLIAM CHAMBERLAIN of Rawdon, near Leeds, at the age of 62. Dr. Chamberlain graduated M.B., C.M. at Edinburgh University in 1887, and was afterwards house-surgeon at Birmingham General Hospital and senior house-surgeon at Halifax Infirmary. He settled at Rawdon twenty-seven years ago and built up an extensive general practice there. He was medical officer of health to the Rawdon Urban District Council, and was honorary medical officer to the Mitchell Memorial Home, Rawdon. A few months ago he was decorated by the King of the Belgians for his services to the Belgian and allied troops who were under his care at various institutions at Rawdon during the war. Dr. Chamberlain held a high position in the estimation and affection of the residents of the district. He leaves a widow, two sons and a daughter. Sir Berkeley Moynihan, in the course of an appreciation in the *Yorkshire Post*, writes: "Dr. Chamberlain was one of the best types of general practitioner, and was greatly beloved and trusted by all his patients and by a multitude of friends. He knew his professional subjects well, and he devoted himself with great care and the most painstaking and unremitting attention to all the details of his cases; to the happiness of his patients no less than to their material welfare. His judgement rarely erred, and a long experience had given him the power to foresee the possible developments of an illness, and the knowledge to check or avoid its consequences. . . . He was among the most popular of men; always cheery, considerate for the words and acts of others, willing to undertake another man's difficulties or to listen to his opinions."

DR. EDMUND HARGREAVES of Sheffield, who died on August 9th, was born at Colne, Lancs, in 1846. After serving for a few years in a cotton mill he went to study medicine at Glasgow University, where he graduated M.B., C.M. in 1874 and proceeded M.D. in 1885. He became assistant, and subsequently partner, with Dr. G. Stopford Taylor, and continued the practice after Dr. Taylor's retirement. He was a member of the Sheffield Medico-Chirurgical Society, of which he subsequently became vice-president, and was honorary surgeon to the Prevention and Rescue Society. In 1895 he was elected a member of the city council, and fifteen years later was made an alderman; he had sat on the Sheffield magisterial bench since March, 1906. Dr. Hargreaves was a member of the Sheffield Division of the British Medical Association. He is survived by three daughters and one son, Dr. Robert Hargreaves, who practises at Sheffield.

We regret to record the death on July 13th of DR. JOHN SINCLAIR HOLDEN of Sudbury, Suffolk, at the age of 86. Dr. Holden was educated at Queen's College, Belfast, and

gastric carcinoma was definitely made, stagnation was shown to exist either by the presence of visible charcoal, or the foul odour, or the high concentration of lactic acid. Dr. Ryle drew attention to the valuable information to be derived from an examination of the resting secretion of the stomach. Its amount, consistency, naked-eye appearance, odour, and cytology all supply information of great assistance to the understanding of gastric disorders.

In a discussion such as this, in which physicians, surgeons, and pathologists all took part, it was natural that there should be a certain amount of difference of opinion as to the value of different tests, their interpretation and significance; and evidence of dissension on minor points is provided by a perusal of the printed papers. But two observations were frequently made by different speakers, and seemed to meet with general approval. The lack of intimate co-operation between the laboratory worker and the clinician was deprecated, and more than once the view was expressed that if the physician or surgeon himself performed the gastric analysis he would derive far more information from the result of the test than by merely sending the specimens to a laboratory without any history or account of the symptoms. Should the clinician himself not be able to carry out the test he should give the fullest possible information to the co-operating pathologist, and not regard him as a mechanical oracle, always capable of supplying a satisfactory answer. "Yes" or "No" pathology is of little use in gastric analysis. The lack of consideration for macroscopic characters of gastric samples was frequently deplored. The advances of biochemistry have tended to direct too much attention to the difficult and complicated tests, almost as though it were to be expected that the more intricate analysis would necessarily lead to the more valuable conclusions. In this pursuit of the refinements of chemistry the naked-eye and nose evidences of the specimen to be examined are often neglected. We seem to have forgotten the valuable deductions that were made by our predecessors from the quantity, colour, consistence, and odour of the stomach secretions, and these should always be the first properties to be thoughtfully considered.

CLEAN MILK.

EDUCATION, alike of the milk producer, the milk distributor, and the milk consumer, proceeds apace, each of the three reacting on the others. Three pamphlets just issued almost simultaneously* are of much interest in this connexion. In one of them Dr. J. M. Hamill of the Ministry of Health gives a concise and instructive account of the whole subject of pasteurization. That process is, we presume, admitted by everyone to be merely a short cut to the production of milk which will be safe, and will keep sweet long enough to allow it to be used domestically after distribution from producer to wholesaler, to retailer, and finally to consumer. To the idealist that may seem a lowly aim, but the babies and children of this generation cannot wait through the long years that will elapse before all milch cows are free from tubercle and all dairy premises and processes are brought to perfection. This has been realized on the other side of the Atlantic, where Chicago has made pasteurization of its whole milk supply compulsory.

In this country pasteurization is being more and more resorted to, and the Ministry of Health has done well to issue Dr. Hamill's notes on the subject. After stating exactly what he means by pasteurization, he discusses its effect on bacteria and on the chemical and physical character of the milk. He points out that pasteurized milk requires as much care in subsequent handling as clean raw milk, but at the same time he rebuts the assertion that bacteria grow faster in pasteurized than in raw milk, the rate of growth being about the same in both. Yet pasteurization will not be a substitute for cleanliness. It will reduce the number of bacteria, but the number remaining will not be so low as if the milk had been cleaner to begin with. He discusses the three methods of commercial pasteurization—"Flash Pasteurizers," "Retarders," and "Holder Pasteurizers"—and favours the last named, especially against the first. Throughout his notes Dr. Hamill confines the term "pasteurization" to the process of heating to not less than 145°F. and not more than 150°F. for a period of thirty minutes. So defined it has little or no influence on the flavour of the milk, nor does it practically affect two of the three vitamins—fat-soluble A and water-soluble B—but it does weaken the vitamin C, the antiscorbutic, and towards limitation of this effect air should, as far as practicable, be excluded during the process. Lactic acid bacteria are largely reduced and souring of milk correspondingly prevented. That the rising of the cream to the surface is partly prevented if the pasteurizing temperature is 148° or 150° is of no real consequence, as the amount of fat in the milk is not diminished, though the purchaser's suspicions may be aroused as to the honesty of the seller. The essay is full of useful information and comment, and concludes with some observations on pasteurization of milk in bottles.

In the second pamphlet Mr. A. T. R. Mattick of the National Institute for Research in Dairying at Reading discourses on the whole subject of the production of clean milk; and in the third the National Clean Milk Society describes the method of conducting milk competitions, which are now annual events in several counties. Mr. Mattick deals clearly, tersely, and with obviously intimate knowledge, with every detail of the business as it ought to be conducted. Milking sheds, cowsheds, milk rooms, sterilizing rooms, dairy utensils, churns, the conversion of coppers into steam sterilizers, the milking process, refrigerators, strainers, and bottling, are all considered. He emphasizes the importance of light and water and steam as fundamentals, but urges that these and the most modern appliances will not in themselves bring success in producing clean milk. The human element comes first. He tells all about what constitutes a first-rate cowshed, but gives a photograph of a wooden-walled, thatch-roofed, old shed, in which first-class results were obtained by a cowkeeper who had mastered the fundamental principles of cleanliness. A proper water supply, being of essential importance in respect alike of the condition of the premises, the supply of steam, the cooling of milk, and the toilet both of the cow and the milker, must lay a heavy burden on the occupier of an old-fashioned farmsteading, where the water has to be pumped from a shallow well, and no doubt one effect of the new requirements of proper milk production

* (1) *Notes on the Pasteurization of Milk.* By J. M. Hamill, O.B.E., M.D., D.Sc., Medical Officer of the Ministry of Health. London: H.M. Stationery Office. (8vo, pp. 14; 2d.) (2) *The Production of Clean Milk.* By A. T. R. Mattick, B.Sc., University College, Reading. Published by The Dairyman Ltd., 43, Great Tower Street, E.C.3. (Demy 8vo, pp. 53. 1s. net.) (3) *Milk Competitions.* Published by the National Clean Milk Society (Incorptd.), 3, Bedford Square, W.C.1. (Medium 8vo, pp. 11. 1s. net.)

An extraordinary meeting of the Committee of Management of King's College Hospital was held on August 9th to authorize the establishment of a Dental School under the direction of Dr. Alexander Livingston of Liverpool University. At the same meeting the Committee received the resignation of Mr. F. F. Burghard, senior surgeon, to whose work in connexion with the Hospital and Medical School a tribute was paid by the Chairman, Viscount Hambleden. Mr. Burghard is succeeded on the Committee as senior surgeon by Sir G. Lenthal Cheatle, K.C.B.

The Wellcome Historical Medical Museum will be closed for cleaning from September 1st to 30th inclusive.

The National Association for the Prevention of Infant Mortality and for the Welfare of Infancy (117, Piccadilly, W.1) has arranged a course of lectures on infant care for health visitors, nurses, midwives, school teachers, voluntary infant welfare workers, and committees of nursing associations, to be held in the Lecture Theatre, University College, Nottingham, from September 24th to 28th, 1923, inclusive.

In the paragraph published in our issue of August 4th (p. 213) regarding post-graduate courses in Vienna and stating that full particulars can be obtained on application to the Secretary of the Austrian Embassy, the address was incorrectly given; it should have been 18, Belgrave Square, London, S.W.1. We understand that the office is open to visitors from 11 a.m. till 1 p.m.

Professor Robert Widersheim, the well known comparative anatomist, for many years director of the Anatomical Institute of Freiburg University, has died at the age of 75.

The twenty-second Flemish Medical Congress was held at Antwerp on August 11th and 12th. The following papers were read: *The physiology of the heart*, by Professor H. Zwaardemaker of Utrecht; extracardial influences on the heart, by Professor E. de Somer and Dr. P. Maeyer of Ghent; intracardiac arrhythmia, by Dr. S. de Boer of Amsterdam; pharmacodynamics and clinical administration of cardiac drugs, by Dr. U. G. Bijlsma and Dr. M. J. Roessingh of Utrecht; radiology of the heart, by Dr. M. Peremans of Antwerp; heart disease in pediatrics, by Dr. J. Lebeer of Antwerp.

The Annual Educational Number of the British Medical Journal will be published on September 1st.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.*

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the Journal *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Office, 429, Strand, W.C.2, *on receipt of proof.*

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal.

The postal address of the British Medical Association and British Medical Journal is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the British Medical Journal, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medistera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, *Dublin*), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

Fine or Coarse Tea.

"Ignoramus" (Christchurch, N.Z.) writes: Considerable discussion has taken place in New Zealand lately concerning the quality of tea that is imported and consumed here. Will any of your correspondents advise me whether there is conclusive evidence that "fine" teas, as I understand they are known to tea experts, have advantages from a health point of view over coarse teas.

Mastication.

In reply to the questions asked by "Fletcherism" in our issue of August 11th (p. 268) Mr. Morley Roberts writes: Your correspondent may be interested to know that Horace Fletcher wrote two or three books on diet and worked at Yale with Chittenden and in Cambridge with Michael Foster, both of whom were favourably impressed by his experiments. Van Someren was Fletcher's son-in-law and used to practise in Venice. I regret to say I can at the moment give no references to the authorities mentioned, nor can I remember the titles of Fletcher's books. They should, however, be found in most medical libraries.

Dr. J. R. Keith (Driffield) writes: Dr. E. H. Van Someren, concerning whom "Fletcherism" has made inquiry, died at Syracuse on February 3rd, 1913, at the age of 41, from diabetes, from which he had suffered for two years. An article, "Was Luigi Cornaro right?" which was read by him at the sixty-ninth Annual Meeting of the British Medical Association, appeared in the Journal of October 12th, 1901. He was a son-in-law of the late Horace Fletcher, the other exponent of prolonged insalivation to whom "Fletcherism" refers. Mr. Fletcher died several years ago, at what age I do not know.

Income Tax.

"H. F. V." has claimed to deduct £20 for the expense on medical textbooks, and the local inspector of taxes says that such expenses cannot be allowed.

*** In our view expenditure on maintaining as distinct from improving a practitioner's supply of reference books is admissible, such expenditure being necessary and analogous to the upkeep of "plant and machinery."

LETTERS, NOTES, ETC.

Freedom of Negro Races from Cancer.

In the extracts from Dr. J. Bell Walker's letter on this subject published last week (p. 263) "Zanzibar" was printed in mistake for "Zomba." The sentence should read: "The patient was sent by the medical officer at Chiromo and transferred to Dr. Walker's care at the Livingstone Memorial Hospital, Zomba, for operation." We regret the printer's error which made Dr. Walker seem to place Zanzibar in Nyasaland.

Epithelioma Contagiosum of Fowls.

Dr. J. F. Carruthers (Liphook) writes with reference to the note published on August 4th (p. 214) that *cholum* is the Tamil for Indian corn or maize (*Sorgum vulgaris*).

A Case of Flagellate Dysentery.

Dr. Crawford Lundie (Thaba 'Nchu, Orange Free State) writes: In view of the article by Dr. Whittingham on flagellate dysentery in the British Medical Journal of May 12th the following case may be interesting:

A man, aged 70, was first seen for a neighbouring doctor on May 9th, 1921. He had been ill at that time for two and a half months. The stools were at least half blood, very foul, and contained much mucus. He was put on no new treatment, but told to continue the bismuth and opium mixture prescribed by his own doctor. He was not seen again till August 7th, by which time he had been to at least one other doctor at some distance, and had not had his original doctor to see him for three months. To prevent him going to a quack the case was taken up rather reluctantly.

His condition was unchanged, except that he was much weaker and thinner. Before attempting any new treatment a bacteriological examination was made. The report was negative for amoebae and dysentery bacilli, but positive for *Haemamonas hominis*. As no specific treatment is known for that and no references to it could be found in the literature available a trial was made of various intestinal antiseptics. The first was thymol, as a short reference to its use in lamblia infections was found in one textbook, and it is the recognized treatment for hookworm. No benefit seemed to accrue. Of equally little use were beta-naphthol and creosote, the latter given in capsules of 5 minims each. All the time he was given a mixture of bismuth and magnesia, with an occasional addition of tincture of opium, when the pain was very bad, to soothe the irritation and griping. Starch enemas with an occasional addition of opium were also sometimes tried. Sodium sulphate treatment was also unavailing.

No improvement was noted till chinosol was tried. This was begun on August 18th in doses of 5 grains three times a day in the bismuth mixture and double that dose night and morning by enema. The blood gradually disappeared from the stools, as did the mucus, and the frequency of motions declined from every half-hour to twice a day. The patient left his bed and was able to walk about two miles. He required no medical attention from September 26th to October 31st; he put on a little flesh and regained a fairly good colour in that time. At the end of it, however, symptoms of liver trouble developed and steadily got worse till he died on January 22nd, 1922. He had no recurrence of severe diarrhoea nor of blood and mucus in the stools, however, and it is just a question whether the bismuth emetine treatment used by Dr. Whittingham would not have prevented the fatal complications, at least if he had been a younger man. Unfortunately it was not thought worth while to try emetine

THE CAMBRIDGE CHAIR OF ANIMAL PATHOLOGY.

Early this year, as announced in these columns, the Senate of Cambridge University accepted an offer made by the Ministry of Agriculture and Fisheries of a capital sum of £30,000 to found a Chair of Animal Pathology. The Senate subsequently approved regulations for the professorship, fixing the stipend at £1,200 per annum, and defining the duties of the chair as the advancement of the knowledge of the diseases of animals by teaching and research. Mr. J. Basil Buxton, F.R.C.V.S., who holds the diploma of veterinary hygiene of the University of Liverpool, has now been elected to the chair. He is at present attached to the staff of the National Institute of Medical Research at Hampstead under the Medical Research Council, and has lately taken part in an investigation into the efficacy of the various tuberculin tests in cattle. Together with Professor T. B. Wood, F.R.S., Drapers Professor of Agriculture at Cambridge, he is a member of the Tuberculin Subcommittee of the Medical Research Council. On taking up his duties at Cambridge Professor Buxton will have his headquarters in an extension of the School of Agriculture adjoining the new biochemical laboratory which is being built and presented to the university for Professor Hopkins by Sir William Dunn's trustees. His first task will be to prepare plans for his headquarters laboratory at the School of Agriculture; for a branch laboratory, paddocks, animal houses, etc., at the field laboratories; and for staff and equipment. Although the regulations mention teaching among his duties, it is expected that at the beginning his whole time will be devoted to organization and research. The establishment of a Chair of Animal Pathology in the University of Cambridge, in direct contact with the School of Agriculture and with the hearty co-operation of the School of Medicine, is a departure of the greatest importance which will be watched with close interest by the medical profession.

ARC-LIGHT BATHS FOR TUBERCULOSIS.

Dr. J. G. Moyles, chairman of the Hospitals Committee of the Liverpool City Council, and Dr. C. Rundle, medical superintendent of the Fazakerley Sanatorium, have issued an interesting report on a recent visit to Copenhagen and Stockholm, to study the treatment of tuberculosis with arc-light or artificial sunlight baths. It is claimed for heliotherapy as carried out at Leysin, Switzerland, and for artificial sunlight produced by specially constructed carbon arc lights, that it produces a rapid improvement in the general health and nutrition, disappearance of pain and fever and return of appetite, repair of bone tissue and healing of sinuses and ulcers, a reduction in the size of tuberculous glands and in many cases their ultimate cure. There is no doubt that many such recoveries have taken place where the requisite amount of sunlight is obtainable. In those countries, as in the British Isles, where such conditions do not exist, carbon arc lights are employed, and in Copenhagen and in Stockholm such artificial sunlight has been extensively used in the treatment of all forms of tuberculosis. It would appear that the curative properties are present in the ultra-violet rays, and that the heat rays should be excluded. The carbon arc light is that generally used, and at a distance of one metre. Where the disease is not localized the back, chest, and flank are exposed, at first for thirty minutes; the period of exposure increased to a maximum of two and a half hours may be treatment applied daily. In lupus and tuberculous sinuses the no dressings are worn during the exposure to the artificial light bath. The eyes of the patients are protected with large black spectacles. At Stockholm the effects of artificial sunlight were studied in cases of surgical tuberculosis. Dr. Henning Waldenström, the orthopaedic surgeon, expressed the opinion that surgical measures must continue to be our chief weapon, and that artificial sunlight occupied a position equivalent only to that of fresh air, good food, and tonics, and should be regarded as an important adjuvant to treatment. In discussing the treatment of tuberculous disease of the bones, the writers of the report draw attention to the fact that in the use of natural sunlight, as well as in that of artificial sunlight, complete immobilization of the affected parts is regarded as unnecessary. Cases of caries of the spine are kept only in the recumbent position when pain is present. They arrive at the following conclusions: (1) No injurious effects can result from a proper application of this treatment. (2) The immediate effect is one of exhilaration and a general feeling of well-being. (3) In certain surgical conditions the arc lamp effects a cure in conjunction with surgical measures more rapidly than when the latter alone are used. (4) The treatment is of value in tuberculosis of the larynx, so intractable often to other remedial measures. They are unable to assert that the arc lamp possesses a definite curative value in lung disease beyond those measures already known. In view of its beneficial action in certain types of tuberculosis the authors recommend the installation of one arc-light unit at the Fazakerley Sanatorium.

A NURSERY TRAINING SCHOOL.

Dr. Eric Pritchard contributes to *Country Life* of August 11th an interesting note on the Nursery Training School, Wellgarth Road, Hampstead Garden Suburb, to which he is honorary consulting physician. This institution was established twelve years ago in an East End slum; it moved to its present sylvan quarters in 1915. It was originally founded through the efforts of the Women's Industrial Council, the object being to open up a useful career to women. The girls who come to it as students on probation are drawn from all classes of society; most of them have received a good secondary education and some are the daughters of professional men. Great care is taken in choosing the students, for it is recognized how much little children depend for their own character and manners on the example and precept of those who look after them. As a rule, the girls or their parents pay the fees themselves in advance; but occasionally the fee is paid out of State grants or in the form of a scholarship. The period of training is one year, during which a student serves an apprenticeship in the nurseries, laundry, kindergarten, kitchen, and needle-room. She also attends lectures on mothercraft, elementary hygiene and physiology, and domestic economy, and she has opportunities of visiting the welfare centre in Marylebone. The aim of the committee and staff is to make the training as little like that of a hospital and as much like that of a well conducted nursery as possible. The buildings were designed to combine the maximum of open air and sunshine and isolation at a minimum of cost; the illustrations to Dr. Pritchard's article show how charmingly the architects have carried out the ideas of the committee. Two long open galleries, facing south, one above the other, run from end to end of the building. These galleries communicate with the outside, and with the nurseries and other rooms within, by means of hinged folding windows. Except in very cold weather, or when the children are being bathed or dressed, these folding panels remain open; each nursery is thus practically open on one side and looks out on to the garden and the fields beyond. The housework is done by the nurses themselves. Between twenty and thirty girls pass out of the school each year, ready to take charge of the children and nurseries of middle-class families.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

114. Lupus Erythematosus.

F. GARDINER (*Edinburgh Med. Journ.*, June, 1923, p. 233) considers that lupus erythematosus is on the increase, and from an experience of thirty-four cases (one with *post-mortem* report) tuberculosis, streptococcal infection, rheumatism, and exposure to bright light or heat were among the causative factors. There is no local panacea in treatment, the patient's physique and past history, as in other skin affections, having to be considered as a whole. Exacerbations occur from exposure to bright sunlight, the lesion being on the exposed V-shaped area at the upper part of the sternum as well as on the hands and face, and such cases only improve after treatment with horse serum, being markedly resistant to all other remedies. In treatment all possible septic or irritant foci should be removed, and a vaccine therefrom may be of use in conjunction with the application of older methods—for example, soothing lotions, counter-irritants, or carbon dioxide snow—it being pointed out that the wise practitioner is he who, while alive to present developments, does not forget past remedies.

115. Lupus Leishmaniasis.

J. B. CHRISTOPHERSON (*Brit. Journ. of Dermatol. and Syphilis*, April, 1923, p. 123) describes a hitherto unclassified form of leishmaniasis of the skin resembling lupus vulgaris, in which the virus of leishmania is not present as the Leishman-Donovan bodies. A case of oriental sore, in which Leishman-Donovan bodies were found five months after an insect bite, was cured by the end of nine months, but fifteen months later a small raised lump appeared, to be followed eventually around the original scar by about twenty-three small, very soft, discrete nodules of yellowish-brown colour, and without any pigmentation, induration, or enlargement of the lymphatic glands. Under treatment by intravenous injections of sodium antimony tartrate the nodules disappeared, leaving a scarcely noticeable faint yellow stain. The commencing dose was 1/2 grain, and this was increased by 1/2 grain at each injection until 2 grains per dose was reached, which latter dosage was continued until a total of 30 grains had been given. After an interval a further course of 16½ grains was given, followed after another interval by another of 17½ grains, making a total of 64 grains in all. Beyond an occasional headache, sickness, and colic, and considerable muscular pain, there were no complications or injurious results from the treatment, the curative effects of which negatived a diagnosis of lupus vulgaris, and "blue bodies" so diagnostic of leishmaniasis were constantly present in this form of the disease. While clinically closely resembling lupus vulgaris, this and two other similar cases point to the fact that there is a distinct form of leishmania occurring, after the original sore has been cured, either around its site or at some distant area.

116. Silver Salvarsan in Malaria.

J. JUNGBLUTH (*Deut. med. Woch.*, April 27th, 1923, p. 545) has treated 18 patients suffering from malaria in a hospital in Brazil with intravenous injections of silver salvarsan. His impressions of this treatment are very favourable. The injections were given four to six hours before the rise of temperature was expected, and the character of the temperature curve was appreciably modified. In every case the fever was banished and rapid improvement effected in the patient's general health. The effect of silver salvarsan was particularly beneficial in those cases in which malaria had induced severe anaemia which was refractory to other drugs, such as arsenic and iron. Six of the patients had proved to be quinine-resistant, and they had developed malaria six to twelve months earlier. The temperature curve, which at the beginning of the illness was of the tertian type, became irregular and no longer reached any considerable height. As a rule, after a couple of injections, there was no more fever, and after two more injections there was an improvement in the secondary anaemia from which these patients were suffering. Only one injection out of 360 gave rise to the angio-neurotic symptom-complex of salvarsan.

117. Syphilitic Fever.

A. LANZENBERG (*Paris méd.*, June 9th, 1923, p. 518), who records two illustrative cases, states that fever may be the only indication of active syphilis in the secondary or tertiary stage, without being accompanied by any lesions of the skin, mucous membranes, or viscera. The temperature curve may assume various forms, being continuous, remittent, intermittent, or irregular. Lanzenberg is inclined to attribute the fever in such cases to disturbance of the endocrine glands. In every case, therefore, of fever in which the cause has not been discovered an examination for syphilis should be made. In Lanzenberg's first case, which occurred in a man aged 37, the temperature chart closely resembled that of typhoid fever, and pharyngeal ulceration and periostitis of the first metatarsal were attributed to this cause until a history of syphilitic infection two years previously was obtained, when recovery took place under treatment by injection of mercury cyanide, followed by novarsenobenzol. The second case, which occurred in a woman aged 28, was characterized by an evening pyrexia suggestive of pulmonary tuberculosis, especially as the patient had recently had a severe attack of influenza complicated by bronchopneumonia. As no improvement took place under treatment by rest and in a sea climate, the Wassermann reaction was examined and proved positive. Treatment by injections of novarsenobenzol was then instituted, and rapid recovery took place.

118. Acquired Intolerance to a Diet of Eggs.

E. GRAHE (*Deut. med. Woch.*, May 11th, 1923, p. 614) records two cases in both of which the patients had long lived on a diet rich in eggs. The first patient, a man aged 52, had eaten about nine eggs a day for more than two years. After a breakfast of poached eggs he was seized with violent vomiting, a sense of heat, palpitation and "cramp" of the heart, a rapid pulse, and dyspnoea. An urticarial eruption broke out soon afterwards, and food poisoning was diagnosed. During the following four days his diet was very light and did not include eggs. After he had recovered completely, he tried to eat an egg again, with the result that another attack of vomiting, etc., occurred. From this date onwards he could never eat eggs, and as long as he avoided them he kept perfectly well. Once, some time later, when he ate of a dish, one of the ingredients of which was an egg, he again fell ill. Several years later he again ate part of an egg by accident, and within fifteen minutes he experienced nausea, although the taste of the egg had been masked by brandy. The features of the second case were remarkably similar to those of the first case.

119. Nasal Sporotrichosis simulating Tuberculosis.

M. FERRAND and H. RABEAU (*Ann. de Derm. et de Syph.*, May, 1923, p. 345) describe the case of a cook, aged 45, in good general health, who accidentally pricked the right ala nasi with a thorn. Chronic redness was noticed in the affected part, which gradually became rough, prominent, and warty. One of the submaxillary lymph glands enlarged to the size of a large egg, and a red painful ridge extended along the maxillary border. On admission to hospital, five weeks after the onset, the warty tumour outlined the nasal cartilage and invaded the cheek and the mucous membrane of the nostril; the surface was papillomatous, and pressure emptied some small superficial abscesses. The submaxillary tumour was almost painless on palpation. The clinical aspect of the nasal lesion was that of tuberculosis, but its rapid development and that of the submaxillary tumour suggested recourse to laboratory methods. The enlarged gland, aspirated in several positions, yielded nothing but blood. Sections of the tumour showed no tubercle bacilli when stained with Ziehl's solution. On the contrary, at the end of six days a mixture of Sabouraud's medium and human serum, inoculated with a small portion of the tumour, yielded a growth which was subsequently identified as *Sporotrichum beurmanni*. Lugol's solution (the official compound solution of iodine) was prescribed by mouth and intravenously, and in six weeks the patient made a complete recovery. Seven months afterwards there had been no relapse and the submaxillary mass could not be felt. The authors comment on the close resemblance of these growths to nasal tuberculosis, although the rapid progress and the adenopathy help to distinguish them from the latter disease. Beurmann and Gougerot have stated that clinical diagnosis is impossible and that laboratory methods must be employed to establish the diagnosis, which is of great importance. They draw attention to the rapid action of Lugol's solution, which produced great improvement in the condition of the tumour and of the lymphadenitis after three injections.

BACTERIOLOGY OF CONDENSED MILK.

THE Food Investigation Board has issued a report by Dr. W. G. Savage and Mr. R. F. Hunwicke on condensed milk.[1] It consists of two parts, the first being on sweetened condensed milk and the second on unsweetened, each part representing the results of a separate inquiry.

In an introductory note the Chairman of the Board, Mr. W. B. Hardy, F.R.S., points out that one of the difficulties attaching to the high nutritive qualities of milk is that bacteria and yeasts are able to grow freely in it. As an industrial product, therefore, the utmost circumspection and skill are called for on the part of those who handle it, whether their task be its distribution in the fresh state or the preparation of the canned form. The difficulty of the manufacturer lies in the fact, not peculiar to milk but common to all decomposable foodstuffs, that the process of sterilization if pushed to finality alters the product and may impair its more subtle nutritive properties. He has, therefore, to control the milk from the first so as to keep the bacterial content as low as possible, and to confine his methods of sterilization within certain narrow limits imposed by the chemical instability of milk itself and by the necessity for the destruction of practically all the micro-organisms present. The report naturally concentrates attention upon failures and the causes of failure. Nevertheless, though condensed milk as marketed is rarely sterile in the strict bacteriological sense, the methods of manufacture in up-to-date factories are such as to reduce the number of intrusive organisms to harmless limits.

I. SWEETENED CONDENSED MILK.

Two main varieties of sweetened condensed milk are produced commercially, the full cream and the machine skimmed—differing in the fact that the former consists of concentrated whole milk, whereas in the latter practically all the fat has been removed. The trade in full cream sweetened condensed milk is large and increasing; hundreds of tons are imported annually and there are also many factories in this country.

Methods of Manufacture.

The following are the essential details of the usual methods of manufacture:

Factories are situated near milk producing districts, and the milk, when received, is weighed or measured and either passed into a large tank in which it is heated, or through a flash pasteurizer. The maximum temperature reached is ordinarily between 80° and 90° C., at which it is retained for a few moments. Bacteriologically the point of importance is that the temperature is insufficient to kill many types of bacteria and cannot be relied on for this purpose. After heating the milk, sugar is added, either by mixing direct with milk or by running in concentrated solution which has been boiled. The sweetened liquid now passes into vacuum pans from which the air has been partially exhausted so that the milk boils at a low temperature, about 50° to 60° C. The time taken to evaporate each batch of milk to a suitable consistency is about three hours, the condition being estimated from samples withdrawn periodically and examined for viscosity, or by the hydrometer. The evaporated milk is emptied into cooling vessels and then transferred to tins by machines which deliver a fixed quantity to each tin. The tops are placed on by hand and fixed in position by a machine. The tins of condensed milk are not stored but placed on the market at once.

Though the milk is obtained from the vicinity, and therefore fresh, it is not necessarily clean and commonly contains large numbers of bacteria and a good deal of dirt. Most non-sporing bacteria are killed by the preliminary heating, but the milk may easily be infected from the pipes conveying the condensed milk to the tins, and the ordinary method of cleaning these with live steam is inadequate. Bacterial infection is often attributed by the manufacturers to the sugar, but if stored dry it probably does not introduce many organisms when added to the milk. The air of the factory, disturbed by the constant traffic of the workers, has been shown to be heavily charged with yeasts and large numbers of bacteria and the method of cooling the milk in vessels with open tops invites aerial contamination. Commonly these cooling rooms, instead of being set apart, are found in the middle of a factory, in the line of ordinary traffic. The cooling vessels ought to be placed well above the ground and the floor kept thoroughly wet; overall, should be worn by those who work in the room. The tin receptacles for the milk are not usually sterilized before being filled, and if not made on the premises may be dusty.

Methods of Inspection.

On arrival from abroad tins of condensed milk are inspected for bulging, leaking, excessive rust, or mishandling of tins; the majority of tins rejected are so dealt with because definitely "blown." Suspicion attaches also to a springy condition or evidence of pressure detected by the feel of the can. The judgement of the food inspectors was confirmed by laboratory tests in 87 per cent. of the tins. The difficulty of correct judgement arises chiefly in connexion with tins which are "springy" but which do not show any sign of gas; some are unfit but more are sound.

Bacteriology of Sweetened Condensed Milk.

The report records the bacteriological analysis of thirty-three rejected samples which were "blown" and showed definite evidence of pressure. Yeasts were found in 30 tins, gas-producing aerobes and yeasts in 5, true gas-producing anaerobes in 1, no yeasts or gas-producing bacilli in 2. Thus yeasts were present in 91 per cent., and the evidence demonstrates that the unsound condition is commonly due to yeasts, although yeasts are frequently met with also in sound tins. Examination of tins rejected although not definitely blown showed in some cases yeasts, bacilli and cocci, but the tins were mostly old or slightly defective and there did not appear to be any definite bacterial cause to account for the condition.

Types of Organisms Isolated from Sweetened Condensed Milk.

Sweetened condensed milk is never sterile. Yeasts, moulds, micrococci, anaerobes, gas-producing aerobic bacilli, sporing aerobic bacilli, thermophilic bacteria, and other aerobic organisms are often present. Micrococci are present in every sample of sweetened condensed milk and many are heat resistant, having survived the heating given to the milk before condensation. The chief types are staphylococci, streptococci, and diplococci, capable of multiplying in the condensed sweetened milk. They may be derived from the original milk or represent contamination during the manipulations. The anaerobes isolated did not decompose the sweetened condensed milk. This is not to be attributed to the presence of saccharose, since they behaved similarly in unsweetened condensed milk, but is due to physical changes consequent on concentration which make the final product an unsuitable medium for growth. The gas-producing aerobes isolated were all of the *B. coli* type but were unimportant as causes of decomposition. *B. coli* strains are not inhibited by the percentage of saccharose present, but they will not grow and ultimately die out in sweetened condensed milk, which, either from its viscid nature or from some other cause, is a medium unfavourable to their growth and vitality. Sporing aerobic bacilli were isolated from 92 per cent. of all tins examined and are almost universally present in sweetened condensed milk even when perfectly sound. While probably not a direct cause of tins becoming blown they may cause decomposition changes in milk, for their ability to liquefy blood serum and peptonize milk shows they are capable of decomposing proteins and are, therefore, potential causes of decomposition of milk; 40 per cent. saccharose is probably inhibitory to some extent, but the concentration of the milk is of more importance since even in unsweetened milk under aerobic conditions these sporing aerobes can multiply and produce acid, but they do not peptonize or even clot the condensed milk. The process of concentration of the milk has so altered its condition that the milk is no longer clotted or peptonized. As a cause of decomposition or of other abnormal changes in the milk, they seem to play either a negative, or at most a very insignificant, part. Possibly acting symbiotically with diplococci they may produce changes which neither strain could accomplish by

[1] Department of Scientific and Industrial Research. Food Investigation Board. Special Report, No. 13. Studies in Sweetened and Unsweetened (Evaporated) Condensed Milk. By W. G. Savage, M.D., B.Sc., and R. F. Hunwicke, B.Sc., A.I.C. H.M. Stationery Office. 4s. net.

Obstetrics and Gynaecology.

127. Uterine Cancer without Haemorrhage.

J. W. NAPJUS (*Nederl. Tijdschr. v. Geneesk.*, July 7th, 1923, p. 35) states that the ordinary sequence of events in uterine cancer is leucorrhoea which sooner or later becomes fetid, haemorrhage which is usually irregular and sometimes first appears after coitus, and pain. Undeveloped uterine cancer usually causes no pain, and it is not until the growth has invaded the neighbouring parts that pain is felt. Treub, in his textbook on gynaecology, states that haemorrhage must be regarded as the first sign of cancer of the uterus, and Penzoldt and Stintzing, in their *Handbook of Treatment*, state that haemorrhage after the menopause is almost pathognomonic of uterine cancer. Boersma, in 1918, recorded two cases of extensive cancer of the uterus without haemorrhage, and Napjus now reports the following case. The patient was a woman, aged 52, who had suffered from pain in the left thigh for two months without any relief from salicylates. On vaginal examination a very hard cervix was felt without any haemorrhage after examination, and some tenderness in the left parametrium was detected. Per rectum an extremely tender tumour was found on the posterior wall of the uterus, which was fixed to the pelvis. A diagnosis of inoperable uterine cancer was made and confirmed by a biopsy which showed the appearances of an adeno-carcinoma.

128. Single and Twin Tubal Pregnancy.

ACCORDING to L. B. AREY (*Surg., Gynecol., and Obstet.*, June, 1923, p. 803), tubal pregnancy occurs in women who are about four and a half years older, on the average, than the mean age for motherhood. The patients tend to present one of two types of obstetrical history—about three-fourths, although not recently pregnant, are already mothers, having fairly frequently a history of one or more uterine abortions; one-fourth have been married for a considerable period without becoming pregnant. The average period of sterility since marriage or the last pregnancy was six years in a series of 73 cases of tubal gestation analysed by the author. Rupture ensues in about 58 per cent. of all cases of single tubal pregnancy, in 70 per cent. of tubes with normal embryos, 50 per cent. of those with pathological embryos, and 40 per cent. of those containing degenerating ova without embryos. The average time of rupture does not appear to be earlier in twin than in single tubal gestation. Plural pregnancy involving the Fallopian tubes affects one tube and the uterus, one tube alone, and the tubes of both sides in the order of frequency named. The symptoms of tubal twin pregnancy do not differ from those of single tubal gestation; in 9 of 36 cases the author found the embryos to be of such size as to indicate that at least one menstrual period had occurred after the pregnancy had begun.

129. Pelvic Haematoma originating in the Corpus Luteum.

N. C. LOUROS (*Arch. f. Gynäk.*, March 17th, 1923, p. 194) describes two cases in which patients aged respectively 26 and 33 suffered from pain and uterine haemorrhage following a retardation of the menses; laparotomy appeared to confirm the diagnosis of ectopic pregnancy with retro-uterine haematoma, but further examination of the excised adnexa of one side showed the haemorrhage to have come from a blood-distended and perforated corpus luteum. Since there was no clinical history pointing to acute or chronic pelvic inflammation, and since histological investigation showed an absence of leucocytic infiltration, the conclusion is drawn that in these cases the bleeding arose from the bursting, not of an ordinary corpus luteum cyst, but of a fresh corpus luteum which was cystic in consequence of interior effusion of blood—a "luthaematoma." In support of this view is the fact that the epithelial lining was recognizable microscopically in its entirety and showed but little flattening. The exact source of such retrouterine haemorrhage as is described is not susceptible of clinical diagnosis and is likely always to be confused with ectopic pregnancy.

130. Premature Detachment of the Normally Situated Placenta.

E. FREY and A. ARMBRUSTER (*Schweiz. med. Woch.*, June 21st, 1923, p. 593) point out that other clinicians as well as themselves have noticed that of recent years there has been a remarkable rise in the frequency of cases of premature detachment of the normally situated placenta. The authors cannot explain this rise any more than the cause of the accident itself. At their maternity hospital in Zürich they observed 32 such cases (12 slight and 20 severe) among 3,523 confinements in the period October 1st, 1920, to September 1st, 1922. This gives the remarkably high incidence of 0.85 per cent. In the same period there were only 11 cases of placenta praevia. The former accident must therefore be considered the more important, at any rate numerically, and a study of the age of the patients showed that the frequency of this accident increased uniformly with age. Among women between the ages of 20 and 24 the incidence of this accident was only 0.43 per hundred confinements, whereas among women confined between the ages of 40 and 44 it was as high as 3.3 per cent. Only in a few of the 32 cases could such comparatively simple factors as trauma and shortening of the cord be held responsible for the accident. Among the 12 slight cases there was no maternal fatality, and as many as six of the infants survived; but among the 20 severe cases the infant mortality was as high as 90 per cent., and one of the mothers also died. One of the points on which the authors insist is that in severe cases the mortality among the infants is inevitably high—that is, death of the infant usually occurs before any treatment can be adopted. In severe cases, therefore, the physician should take no great risk with the mother in the hope that he may save the infant.

Pathology.

131. The Flow of Lymph from the Ileo-caecal Angle.

L. R. BRAITHWAITE (*British Journ. of Surgery*, July, 1923, p. 7) points out that there are three gastric stigmata which enable those who have worked with Moynihan to recognize a diseased appendix almost with certainty whilst it is still out of sight. The three stigmata are: pyloric spasm, pyloric congestion, and enlargement of glands on the greater curvature of the stomach towards the pylorus. The normal flow of lymph from the ileo-caecal angle is clearly defined, the main efferent trunks reaching the glands round the inferior mesenteric artery and so the lumbar chain. Experiments were carried out to see whether aberrant paths existed and to ascertain the effect of disease of lymph vessels and glands on the lymph flow. In considering the results of these investigations on the causes of gastric and duodenal ulcers and other forms of dyspepsia, it must be assumed that the right iliac fossa is capable of producing a toxin. This, in normal subjects, has an easy way up to the duodenal border and the large group of glands lying on or near the head of the pancreas. When a chronic lymphangitis or lymphadenitis develops there may be an obstruction in the path of the normal lymph flow. Gradually the whole mechanism is thrown out of gear and an aberrant or retrograde flow of lymph arises. The author considers there are grounds for believing that duodenal and gastric ulcers can arise from the presence of infected lymph in their walls, whilst *B. coli* infection of the gall bladder may be due to a similar phenomenon. He points out that cases showing actual and obvious pathological extension by a direct lymphatic connexion from the ileo-caecal angle to the region of the pyloric end of the stomach have been demonstrated from time to time, and support these opinions.

132. Volvulus of the Small Intestine.

F. J. TEES (*Canadian Med. Assoc. Journ.*, June, 1923, p. 400) records four cases of volvulus of the small intestine, and in considering the etiology of the condition a variety of explanations are given. The volvulus is usually ascribed to the presence of adhesions or abnormalities in the length of the mesentery or the bowel, and it must be admitted that instances do occur where this obtains, but it is doubtful if these structural changes account for the majority of cases. It has been found that a much higher incidence of volvulus exists among races bordering on the Baltic Sea; this may be due to the vegetarian diet of these peoples or it has been suggested that they have longer intestines than English, French, or German subjects. There is no doubt that disturbances in peristalsis play an important part in producing volvulus. In the author's four cases there was not found any undue lengthening of the mesentery or evidence of adhesion, but all four cases seemed to show a distal bowel inactive from one cause or another, while the proximal bowel was thrown into unusual peristaltic activity, thus producing an antagonism which would appear to provide ideal conditions for the development of torsion. Carey has shown that the muscular coat of the bowel is arranged in a spiral manner, which imparts a screw-like action to peristalsis and may aid in the production of volvulus. The conclusions arrived at by the author are that greater emphasis must be placed on disordered peristaltic action leading to a relative antagonism between adjoining segments of bowel, unequally filled, and it is suggested that the teaching must be revised that volvulus can occur only in the presence of adhesions or structural abnormalities.

capable of producing gas and causing blown tins. In the 47 rejected samples of unsweetened condensed milk examined the causes of unsoundness were sporing anaerobes in 3, micrococci in 18, coccoidal bacilli in 5, yeasts in 1, gas-producing aerobic bacilli in 6.

Practical Considerations.

It is pointed out that the changes resulting from concentration are profound and not merely caused by deprivation of water. The milk is so altered that it becomes less suitable for bacterial multiplication. It is doubtful whether the temperature during the process is capable of ensuring a sterile product in every case. What is obtained is not a milk uniformly sterile but one which leaves a variable percentage of tins containing living organisms. In view of the fact that comparatively little differences in the temperature of sterilization and slight changes in acidity may yield a coagulated useless product, the tendency is for manufacturers to under- rather than over-process the milk. Since decomposition is nearly always due to non-sporing types the manufacturer has essentially to guard against the survival of non-sporing bacteria, especially more resistant types of micrococci, and against admission of air through minute leaks which may enable dormant forms to multiply and cause decomposition changes.

STATISTICS OF ANTIRABIC INOCULATIONS IN INDIA.

LIEUT.-COLONEL J. W. CORNWALL, M.D., I.M.S., of the Pasteur Institute of Southern India, Coonoor, Madras, has presented to the Congress in Strasbourg a statement as follows, giving the statistics of the results of antirabic inoculations carried out at the Institute.

The majority of the patients have been given the following treatment: 1 per cent. fixed virus suspension in 0.85 per cent. NaCl with 0.5 per cent. phenol. Each person receives 5 c.cm. once daily for fourteen days, injected subcutaneously over the abdomen, 2½ c.cm. on each side.

The Institute has been working for sixteen years and 28,898 persons have received the full treatment mentioned above:

Total number treated: 28,898.		
Died during treatment	45	= 0.15 per cent.
Died less than fifteen days after the completion of treatment	78	= 0.27 per cent.
Died more than fifteen days after the completion of treatment ...	200	= 0.70 per cent.
Total mortality	323	= 1.11 per cent.
Percentages of failures		0.7

In Madras the bite was inflicted in most instances by dogs (95.4 per cent.), and only rarely by jackals (2.7 per cent.). In other parts of India the proportions are different, a much larger number being inflicted by jackals.

The Infectivity of Rabid Dogs.

Certain dogs, proved rabid by laboratory tests, have bitten many people without infecting any of them. Other dogs, also proved rabid by laboratory tests, have infected the majority of the people whom they bit. Probably different strains of the virus of rabies differ in infectivity.

When the criterion of the infectivity of the biting animal is the death from hydrophobia of one of the persons bitten, the risk run by the other persons bitten by the same animal who have received no treatment can be estimated. A number of such instances has been collected by the Pasteur Institute of Southern India. The bitten persons had received no treatment:

Number of persons bitten	423
Deaths from hydrophobia	148
Mortality per cent.	35

So it may be concluded that in Southern India about 35 per cent. of persons bitten by rabid dogs which are actually infective will, if untreated, develop hydrophobia and die. No account is taken in this estimate of the position, number, or severity of the bites inflicted.

The Influence of Prophylactic Treatment.

The influence of prophylactic treatment in preventing the onset of hydrophobia can be estimated only by collecting a long series of similar groups of persons bitten by rabid dogs, the infectivity of each dog being proved by the death from hydrophobia of at least one of the persons bitten by it. If some of the persons in each group receive preventive treatment and some do not, the value of the treatment can be estimated.

A less accurate but still a useful way of arriving at a valuation of antirabic inoculation is to take only the instances in which a presumably rabid dog has bitten several persons of whom some accept the treatment and some refuse. Both the treated and the untreated are kept under observation for a period of months. The treatment given at the Pasteur Institute of Southern India when this investigated over a number of years shows the following result:

Number of persons observed	2,174
Treated	812
Deaths among treated	2.9 per cent.
Untreated	1,362
Deaths among untreated	6.2 per cent.

So we may conclude that our treatment saves one out of every two persons who would otherwise have developed hydrophobia and died.

The ordinary statistics published by Pasteur Institutes cannot be used for estimating the value of preventive antirabic treatment.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last two meetings of the Committee sixty-one cases were considered and £547 18s. voted to thirty-nine applicants. The following is a summary of some of the cases relieved:

Daughters, aged 51 and 46, of M.D.St. Andrews who died in 1[illegible]. Through the death of a brother, whose pension ceased at his death, they expect that their income will not exceed £30 per annum each. The elder sister received £30 from sewing and the younger £20 as a journalist. Voted £20.

Daughter, aged 54, of M.R.C.S.Eng., 1863, who died in 1871. Applicant was a school nurse, but is now suffering from familial degeneration of the cerebellum. Her brother will allow her 5s. a week and friends have given her £5. She received board and lodging in return for light household duties. Voted £18 in twelve instalments.

Widow, aged 63, of M.R.C.S. who died in 1920, has only earned £[illegible] during the last twelve months. She has had an offer to go abroad to look after some children but has not the means to go. Voted £5.

Widow, aged 49, of M.R.C.S. who died in 1910. A brother-in-law who has helped the applicant to the extent of £15 per annum is unable to continue this assistance. This money was used to pay the child's daughter's travelling expenses to and from school, and the applicant asks the fund for a grant for this purpose. Voted £10 in two instalments.

Daughter, aged 41, of M.R.C.S., L.R.C.P. who died in 1913, is now in a sanatorium and asks the Fund to help with maintenance. Her father died leaving a bankrupt estate. Voted £18 18s. for sanatorium treatment.

Widow, aged 64, of M.D.St. And., F.R.C.S.Eng. who died in 1[illegible]. Applicant has a little house property which brings in about 3[illegible]s. a week. She has been suffering from diabetes for years, and is now in hospital under treatment at £1 1s. a week. Voted £10.

Widow, aged 74, of L.S.A., L.R.C.P. who died after a short illness in February last. House and furniture had to be sold, and after mortgages had been paid and all expenses applicant estimates that her income will not exceed £35 per annum. At present her board and lodging costs £[illegible] a week. Voted £18 in twelve instalments.

Widow, aged 53, of M.B.Lond. who died in 1912. Applicant, owing to physical inability, is unable to do private nursing continually. She has maintained and educated her daughter and is now hoping that her daughter will be able to secure a post. Voted £10 in two instalments.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., M.S., F.R.C.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild receives many applications for coats and skirts for ladies and girls holding secretarial posts, and suits for boys. The Guild appeals for second-hand clothes and household articles for the benefit of the widows and children who in happier times would not [illegible] assistance. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.

[illegible]dvisory Licensing Committee of the Board [illegible] it during July 395 applications for licences [illegible] of Trade had before [illegible] dyestuffs; 70 of the applicants were [illegible] to import drugs and makers of similar products and 50 to [illegible] referred to British [illegible] available. Licences were granted to [illegible] reparation supplies [illegible] 246 applicants.

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West Yorkshire Coalowners' Association, and were sympathetically received. Mr. Braime also has a scheme in hand for approaching the professional and business classes of the community, and this, it is confidently expected, will bring in a large sum annually. Referring to the prospect of the opening of the remaining large ward, which, as has been mentioned above, has now been carried out, Mr. Taylor told the meeting that this would involve an annual expenditure of at least £5,000. He also referred to the pressing necessity for greater accommodation for nurses, whose numbers tended to increase year by year, not only in connexion with the number of patients, but with the increasingly serious nature of the cases and with the development of the work. Though it did not come within the business at the annual meeting, it may be mentioned that at the last meeting of the board estimates were accepted for an extension of the nurses' home at a cost of some £12,500. This extension will provide more bedrooms, and also make more adequate accommodation for the training school. During the present year a bazaar was organized by the nurses and sisters at the infirmary, and realized the sum of upwards of £3,000. No more eloquent appeal could be made to the public than this most timely and unselfish effort.

Scotland.

Medical Attendance in Rural Districts.

The annual conference of the National Federation of Rural Approved Societies was held last week in the Royal Arch Hall, Queen Street, Edinburgh. A number of questions affecting the health of rural communities and village life generally were discussed and an address was delivered to the delegates by Sir James Leishman of the Scottish Board of Health. Sir J. Athelstane Baines, who presided, said that there was a community of feeling in villages, and they must remember that, from the point of view of insurance, neighbourliness tended to a certain laxity of administration. Thus, there might be an occasional tendency on the part of a doctor to keep a patient rather longer on the list than was necessary. The administration of benefit was undoubtedly less strict in the villages than in the towns. Mr. James Falconer, M.P., in moving the adoption of the annual report, congratulated the Federation upon the work it was doing. In regard to the question of unemployment insurance, he said that in Scotland they were out and out opposed to any attempt to bring the rural workers under the present Unemployment Insurance Act. It would be a tax levied on the rural workers of Scotland for which they would receive practically no benefit at all. Continuing, he said that the approved societies had received a definite pledge that they would be consulted before terms were arranged with the doctors. He thought the Insurance Act was a good friend of the doctors. The doctors, as a whole, were doing their work very well; and it was as much in the interests of the doctors, whose reputation as a profession stood very high, to have unreliable certification stamped out as it was in the interests of the societies. Sir James Leishman said they were faced with many industrial, economic, and financial problems, but the Insurance Act had stood not only the stress of this period, but also the terrible test of the war in a way that had surprised a large number of people. The medical referee system had been entirely satisfactory. Of 32,000 doubtful cases disposed of, 45 per cent. were found incapable of work and 55 per cent. were found capable and went back to work. He took it that there would be no increase in contributions and no extra grants, and if there were any proposals to find more money the societies would have to find the money themselves. The sum of 9s. 6d. for capitation fee, *plus* 6d. for Insurance Committee administration, would stand in the Act at the end of this year. He understood that the doctors were asking for a capitation fee of from 10s. 5d. to 10s. 9d., and the question would have to be faced before long. The vast majority of medical men were rendering good and efficient service; and, according to his information, the men out in scattered rural areas had given, on the whole, better service than the town men, and the country practitioner deserved a little better treatment than the men in the towns.

A Reformed Local Health Authority.

The Scottish Board of Health's Consultative Council on local health administration and general health questions has submitted to the Board a report on a reformed local authority for health and public assistance. Unfortunately the chairman of the council, Sir Thomas Munro, county clerk of Lanarkshire, well known for the vast amount of public service he had done in Scotland, has recently died. The council had nineteen members, and the thorny nature of the subject is shown by the fact that five of the nineteen have found it necessary either to make reservations or to dissent from the report. There is little or no question about the need for reform; the difficulty is to get anything serious done where so many diverse views are held, so many interests affected, and local sentiment is so strong, at the same time that Parliament has so much other work to do. There are no less than 201 self-governing burghs in Scotland, 19 of them with a population under 1,000 and 108 more with a population under 5,000. Obviously such areas cannot individually provide the public health services required, in respect, for example, of water, drainage, infectious disease, hospitals, sanatoriums, and expert staffs, at the same time that the difficulties of combination are often insurmountable, especially where financial jealousies are concerned. The reform proposed is sweeping. The town councils of burghs with a population of 50,000 and over should be the public health authority; for the county area the county council containing representatives appointed by the town councils of burghs with less than 50,000 should be the local health authority. This would leave seven municipal authorities and thirty-three county councils. Apart from vested interests, probably the great majority of public health officers will agree that this small number is far better than the present absurd multiplicity, but it seems doubtful whether a bill to give effect to these proposals has much chance to become law, looking to all the influences which would be ranged against it. Perhaps the report, however, may have the effect of leading to some measure of much needed reform.

Edinburgh Hospital Staff Changes.

On his relinquishment of the charge of wards in the Royal Infirmary, Edinburgh, the managers of that institution last week appointed Sir David Wallace, K.B.E., C.M.G., to be one of its consulting surgeons, and on the motion of Dr. George Mackay placed on record their very high appreciation of his services to the institution. Mr. W. J. Stuart has been appointed one of the surgeons-in-ordinary to the Royal Infirmary and Mr. W. Q. Wood one of the assistant surgeons. The Directors of Chalmers Hospital have appointed Mr. Norman M. Dott assistant surgeon to that institution in room of Mr. W. Q. Wood. The Medical Committee of the Church of Scotland Deaconess Hospital has appointed Mr. J. M. Graham surgeon to the Deaconess Hospital, in room of Mr. W. J. Stuart, appointed to the Royal Infirmary, and Mr. Norman M. Dott assistant surgeon.

Ireland.

University Elections in the New Dail.

A meeting of graduates of the National University, Ireland, adopted as candidates for the representation of the University in the new Dail, Mr. Michael Hayes, M.A., Professor John MacNeill, D.Litt., and Professor William Magennis. A committee to secure the election of these candidates was appointed and in the course of an appeal on behalf of the candidates has stated: Under present conditions stability of government and public security are the supreme necessity. Neither education, public health, nor any other vital

NINETY-FIRST ANNUAL MEETING

OF THE

British Medical Association.

Held at Portsmouth, July, 1923.

PROCEEDINGS OF SECTIONS.

SECTION OF RADIOLOGY AND ELECTROLOGY.

S. GILBERT SCOTT, M.R.C.S., L.R.C.P., President.

DISCUSSION ON MEDICAL DIATHERMY.

OPENING PAPER

BY

E. P. CUMBERBATCH, M.A., M.B.OXON., M.R.C.P.LOND.,
Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital.

MEDICAL diathermy is now being used by a considerably larger number of practitioners than was the case two or three years ago, and although the results which follow this form of treatment are possibly less quick and dramatic than those which follow surgical diathermy, they are no less valuable. Medical diathermy can, in fact, produce therapeutic results which no other form of treatment can effect. Little has been written, however, on the subject in the medical journals in this country, but I hope that we shall hear at the present meeting the experience of those who have been using diathermy for non-surgical purposes.

In opening the discussion I propose, first, to say a few words on the design of the present diathermy machines; second, to raise the question of the heating of the interior of the thorax and abdomen; and third, to bring before your notice certain morbid conditions for which the therapeutic properties of diathermy have been less used, although encouraging results have been obtained by certain workers at home and abroad.

With regard to the diathermy apparatus I feel that we need larger and more powerful machines. The machines at present made have often to be used "all out," and give their maximum output of current. This leaves no reserve of power for use on occasions when the sensitive part of the machine—the spark-gap—is not in its best possible condition, but cannot at the time be dissembled for cleaning. But the need for machines of greater power is more urgently felt when electrodes of large area are used. When these electrodes measure, say, 8 by 4 inches, the current density will be very low and the skin in contact with them will be only moderately heated. If, however, we wish to apply diathermy to the abdomen considerably larger electrodes must be used and the skin will be warmed very little, while the contents of the abdomen will probably, for reasons to be given later, undergo no rise of temperature.

The spark-gap also needs further improvement. The original type, working in air with the plates separated by mica washers, becomes too hot with long use, and the current applied to the patient diminishes to a small value. The width of the gap cannot be adjusted without dissembling the parts, and the mica washers are sometimes pierced by the sparks. Gaps in an atmosphere of coal gas do not overheat, and those which can be regulated while the machine is working are preferable. Soot, however, accumulates, and should be removed after the machine has been in operation for ten hours. It would be an improvement if the portions of metal between which the sparks pass could be detached and replaced from time to time. The surface becomes irregular and is gradually lost. I should like to learn the experience of those who have used gaps containing spirit. Does the gap overheat after some hours of continuous use, and does the metal unduly corrode?

When the diathermy current is directed through the abdomen it has little resistance to overcome. Its path is broad and its resistance low, while the abundant blood supply of the abdominal organs tends to conduct away the heat which is generated in them by the current. The statement that it is possible by means of the diathermy current to raise the temperature of any organ at any depth must be critically examined in the case of the abdominal and thoracic organs. On one occasion I placed a thermometer in a sinus that led to the region formerly occupied by the kidney, which had been removed for pyonephritis. The diathermy current was then passed antero-posteriorly through the abdomen along the region containing the bulb of the thermometer. Large electrodes, measuring 8 by 4 inches, were used, and a current of 1.2 ampères was passed for twenty minutes. Although the skin was made as hot as the patient could bear without discomfort the thermometer in the sinus showed no rise. In this connexion must be mentioned, however, certain experiments by Fürstenberg and Schemel. The diathermy current was passed antero-posteriorly through the abdomen, by way of electrodes measuring 8 by 12 inches, so as to include the stomach in its path. The temperature of the stomach was measured by a special instrument which was introduced into its interior. This contained a platinum spiral enclosed in quartz. The resistance of the spiral at different temperatures indicated the degree of heat in the interior of the stomach. The maximum rise obtained was 0.4° C. This was obtained with a current of 0.3 ampère. With a current of 2 ampères a rise of only 0.1° C. was obtained. This apparently paradoxical result was also obtained in animals. If the animal was afterwards killed and the circulation thereby stopped a stronger current produced a higher temperature. It is probable that in the living subject strong heating of the sensory nerve endings in the skin caused a reflex dilatation of the vessels of the stomach, so that the additional heat was more rapidly conducted away.

These results were obtained in normal subjects. In disease the conditions are different, and different results might be obtained. There is clinical evidence, to which I shall refer presently, which shows that diathermy is productive of good in certain morbid conditions of the abdomen. One certain conclusion can, however, be drawn—namely, that dosage is of extreme importance. It must not be assumed that the maximum current and maximum heat produce the best effects.

When the diathermy current is passed through a mucous membrane the relatively low resistance of the latter requires the application of a stronger current to procure the same degree of heat. On one occasion I applied diathermy to the prostate by way of an electrode placed in the rectum. The surface of application of the electrode was not more than one square inch, and although the machine was working at full power and gave a current of 2.5 ampères the patient said that he felt only moderate heat, and the thermometer indicated only 104° F.

I shall now speak on the uses of diathermy in certain diseases. One of these is that due to infection by the gonococcus, and as my co-worker, Dr. Robinson, will speak on this subject later I shall leave the description of the methods and results to him. I may say, however, that I first obtained an indication of the value of diathermy for the treatment of gonococcal infection in two cases of arthritis, in 1913. The results were so good that other cases of gonococcal arthritis were treated by the same method and, later, cases of similar infection of other parts. The treatment of such cases now forms a considerable part of the work of my department at St. Bartholomew's Hospital.

There are other diseases in which good results have been obtained by certain workers by means of diathermy, and I should like to hear the experience of any of those present to-day. Among these diseases may be mentioned angina pectoris. Those who have read Nagelschmidt's work on diathermy may remember the excellent results which he claimed in this disease; after courses of treatment some of the patients remained free from attacks for months or years. I have not had the opportunity of treating a case myself, but I remember one patient who suffered from arterio-sclerosis and precordial pain. The latter was at once relieved by the application of diathermy to the heart.

in reviewing the activities of the two associations, said that there could be no breath of controversy regarding their objects, and there was every reason to expect that they were now established on a permanent footing as a powerful beneficent agent in time of peace.

THE CHEMICAL EXAMINER'S DEPARTMENT IN MADRAS.

The report for 1922 of the chemical examiner to the Government of Madras, Major Clive Newcomb, I.M.S., contains some interesting notes on medico-legal investigations. In 220 cases of suspected human poisoning, poison was detected in 108 (49.1). Mercury was the poison most commonly found (thirty-two cases), arsenic second (twenty-three cases), and opium third (nineteen cases). Of the less common poisons there were two cases of poisoning by cyanide, one by iodine, one by caustic soda, one by carbolic acid, and one by quinine and ergot. In four cases a poisonous alkaloid was extracted from the viscera, the exact nature of which the chemical examiner was unable to determine. The number of articles examined for blood or other stains was 1,583, a larger number than in any previous year. A larger number of bomb cases than usual was received, and in one of these no fewer than 400 bombs made to explode on percussion were sent. The number of general analyses performed during the year was 570, 144 of them for the Customs Department. Major Newcomb notes the regularity with which murder cases occurred throughout the year. The monthly records of murder cases for the past ten years were examined, but no seasonal variation could be detected. The number of cases of poisoning and blood-stains received from 1912 to 1921 was 4,645, an average of 38.7 a month; the month with the highest average number was July, with 43, and the lowest November, with 34.

WOMEN'S HOSPITALS IN INDIA.

A pamphlet on the planning and equipment of women's hospitals in India has been published by the Council of the Countess of Dufferin's Fund. Few of the hospitals staffed by women in India are Government institutions, the only Government hospitals being the Cama Hospital at Bombay, the Dufferin and Lady Lyall Hospitals at Agra, and the Victoria Hospital at Madras. Other hospitals have been built by private generosity, assisted by charitable funds or aided by local authorities, or have been built and are conducted by missionary societies. The importance of creating an endowment fund when establishing hospitals of this type is emphasized, and plans are appended for the construction of different types of hospitals, ranging from a zenana hospital of eighty beds to a dispensary with an emergency ward of four beds.

MINTO NURSING ASSOCIATION.

In the report of the Minto Nursing Association for 1922 the secretary states that subscriptions have fallen off considerably, and that with a view to easing the finances it was decided to restrict as much as possible the expenses incurred on account of passages to Europe, and to engage as many suitable candidates for the nursing staff as could be procured in India. The association was founded in 1906 as the result of an appeal made by Lady Minto both in India and England; the endowment fund has gradually increased, and with the assistance of a Government grant homes for nurses have been established in seven provinces of India and in Burma. The total number of cases attended during 1922 was 1,537, as against 1,463 in 1921.

LADY READING HOSPITAL, SIMLA.

The foundation stone of the Lady Reading Hospital for Women and Children at Simla was laid by the Countess of Reading on June 15th. The hospital is designed to provide fifty to sixty beds, with up-to-date equipment and an efficient staff, to meet the medical needs of Indian women and children particularly in Simla and the surrounding districts, but also in other parts of India. It is well endowed to meet immediate requirements out of the Lady Reading Women of India Fund. Sir Muhamed Shafi paid a tribute to Her Excellency's unceasing care and attention to institutions maintained for the welfare of Indian women; for many years those in authority had been very anxious for the establishment of a separate institution for Indian women, but many difficulties had stood in the way; it had been left to the energy of Lady Reading to carry out the foundation of an institution long overdue. The Viceroy said that the object of establishing the hospital at Simla was that it should be in as healthy a climate as could be found in India; it would provide an admirable training school for Indian nurses. The efforts of Lady Reading had been supplemented by the Simla municipality, who had shown a very commendable interest in the project by undertaking to provide 12,000 rupees annually towards its upkeep.

COMPULSORY VACCINATION IN HYDERABAD.

Hitherto there has been no proper system of registration of births of children in Hyderabad, but it is known that the mortality from small-pox among children is large. The Nizam has now issued firmans commanding that the system of registering births and deaths in the State should be put on a proper basis in consultation with Colonel B. J. Singh, I.M.S., Director-General of the Medical Department, and that the vaccination of children under the age of one year shall be compulsory throughout his dominions.

Correspondence.

THE WORK OF COTTAGE HOSPITALS.

SIR,—In your leading article (July 21st) on the work of the voluntary hospitals, you refer to the phrase in Sir Napier Burnett's report that "The question arises whether the cottage hospital idea has not been rather overdone." There is no question as to the accuracy of Sir Napier's figures or the value of his report, but I regret that he has given the weight of his great authority to such a statement.

There is no doubt that in some places cottage hospitals are not used so effectively or as fully as they might be, but the statement: "No fewer than 1,839 cottage hospital beds (in England and Wales, excluding London) were unoccupied on an average all the year round," requires careful consideration. The decline in the number of beds occupied is not confined to Group C, cottage hospitals, only, although much more marked there.

In Group B, hospitals of 30 to 100 beds, the average dropped in the three years from 76.7 to 73.0, but this period is probably too short a time from which safely to draw any conclusion.

In Group A, hospitals over 100 beds, there is an average of 17.83 beds unoccupied—that is, 3,737 beds.

In Group B, there is an average of 26.99 beds unoccupied—that is, 2,276; so that in Groups A and B together there are over 6,000 beds "unoccupied on the average all the year round."

In Group C, the average of unoccupied beds is 40.77—that is, 1,864 beds.

Now it is admitted that in the large hospitals a percentage of only 18 unoccupied beds indicates a high pressure of work, and it is well known that the causes which necessitate a certain number of unoccupied beds have more effect the smaller the institution, so that in Group B the average is higher than in A, and in Group C higher than in B.

If we allow the same average for hospitals with less than 30 beds as we find in hospitals with less than 100—that is, 27 per cent.— we see that there would be 1,234 cottage hospital beds unoccupied on the average in a year, and it will be admitted that none of these beds is available for other cases than those normally admitted to the hospital; otherwise if our large hospitals have such long waiting lists why do they not use the 6,000 beds that "on an average remained idle throughout the year 1922"?

I have used this phrase "remained idle throughout the year 1922," which occurs in much the same form in various parts of the report, although I do not agree with it. I am quite sure that its author did not intend it to be misleading, but the impression it gives one is that the same beds were empty throughout the whole of the year. The last paragraph but one of Sir Arthur Stanley's introduction supports my contention. The fact is that these beds are only empty

lessened or abolished. There is, in fact, an optimum temperature. In regard to what this optimum temperature is, I have an idea that it is just short of 115° F. In raising the temperature of sensitive tissues a point is reached where the sensation of heat changes to one of pain, and this temperature is about 115° F. Speaking generally, the main object of pain is, I suppose, to prevent damage. So we may assume that any rise of temperature above that causing pain will be detrimental. In treating an insensitive part such as the cervix the temperature can be raised much above that causing pain in a sensitive part without causing destruction of tissues. But we have in the case of the cervix aimed at a temperature just short of that producing pain in the urethra on the assumption that there was an optimum temperature, that it was just short of that producing pain, and was in fact about 112° or 113° F.

It was at first thought that if, in addition to the gonococcus, other organisms were present it was unlikely that the heat produced by diathermy would have any influence on the latter. Later observations, however, seem to show that it will exert its action on other organisms as well as the gonococcus. Cases have occurred in which diathermy treatments applied to the cervix have cleared up a cervicitis and at the same time an arthritis which coexisted with it, when the gonococcus has not been found after repeated examinations. In these cases the arthritis has not been of that type usually associated with gonorrhoea, and it has been in patients in whom it was difficult to suspect gonorrhoeal infection.

After obtaining good results with the treatment in arthritis and epididymitis it was realized that after all not a great deal had been done if the original source of the infection remained active. The problem of treating the infection of the cervix and urethra in the female and the prostate in the male was therefore undertaken. Down to the present time, although quite a large number of cases of vaginal discharge due in all probability to gonorrhoea have been treated, there are only 18 who have come for treatment with a positive diagnosis of gonorrhoea bacteriologically confirmed, either in the cervix or urethra or both, and in whom the result of treatment is shown by the result of bacteriological examination.

Of these 18 all were finally declared free except one. This case had four bi-weekly treatments, the first being on November 17th, 1919. On December 15th no gonococci could be found, also on January 6th, 1920, and February 16th, but on May 15th gonococci were again found in the cervix. She did not attend again, so that the final result was a positive bacteriological finding. Her husband had had gonorrhoea three times before marriage and the probability is that she was reinfected.

The other 17 cases were finally negative in both cervix and urethra: 13 of these received three to five bi-weekly treatments—that is to say, the course lasted over a period of one to two weeks. One of the 17 had six and one had nine treatments. Three of the 17 cases required many treatments. Two of these were due to reinfection, and their husbands were attending the treatment centre for gonorrhoea at the same time as we were treating them. One of them got a separation from her husband. Three treatments after the separation became effective she was declared free bacteriologically, and this result was subsequently confirmed. The husband of the other one was declared free from infection at the centre on June 9th. Our patient was found free on June 23rd, and this was confirmed on July 17th. The third of the three cases requiring many treatments was warded in the hospital during the whole time for which she was under treatment, and therefore reinfection was impossible. Diathermy was first applied to her cervix and urethra on April 1st, 1922, a current of 0.5 ampère being administered. On May 2nd gonococci were present in cervix and urethra. Treatments were continued, and on May 18th the urethra was found free, but gonococci were present in the cervix. The amount of current was now doubled and at the end of June the urethra contained no gonococci and the report of the cervical smear was that it was free from pus and no gonococci or other bacteria were found in it. The apparent resistance to diathermy was due to insufficient current being used in the earlier treatments.

No object will be gained by presenting the results of gonorrhoeal rheumatism by the statistical method, at all events at the present stage. We have done quite a large number now, varying from a mere arthralgia with no objective physical signs of arthritis to cases of the greatest severity, with almost complete destruction of the joints. The work includes treatment of inflammations of fibrous tissues and sciatic neuritis. In some cases the site of the infection has alone been treated, with good effects on the secondary inflammations. The response to treatment of cervix and urethra or prostate is so rapid in most cases that it seems likely that the arthritis is often a reaction to a toxaemia and not to an actual secondary bacterial invasion of the joints and other structures.

Although the action of diathermy to the site of infection and to joints and other local manifestations is immediate and invariable the ultimate restoration of the function of the joint depends upon the amount of destruction or the pathological changes which have taken place. The following two cases are taken to illustrate some of the points in the treatment of gonorrhoeal arthritis:

On March 30th, 1922, a female patient was admitted to hospital. The left elbow-joint had become swollen and painful a few days previously. On admission there was a tense swelling of the soft parts extending a short distance above and below the joint, giving the appearance of acute suppuration. Movement was extremely painful, and the joint was almost fixed in a flexed and pronated position. An application of diathermy was given. On April 4th the swelling of the soft parts had almost subsided, she was sleeping fairly well, and movement of the joint though still very limited was less painful. Smears from cervix and urethra showed a small number of gonococci. A course of diathermy was then given to the urethra and cervix. At the end of June there was almost complete flexion and extension of the elbow-joint and pronation and supination were complete. There was no pain or swelling and the general condition of the patient was good. The cervical and urethral smears were free from gonococci and other bacteria. During the later period of the treatment she had sinusoidal alternating current applications with massage and movements, and in about three months from the commencement of treatment complete functional restoration of the joint resulted.

On June 4th, 1923, a male patient was admitted to hospital with pain and swelling of joints of five weeks' duration. He had had gonorrhoeal urethritis in France in 1917. The right knee was swollen, painful, tender, and hot, and was almost fixed in the extended position. The right shoulder was painful and fixed. He was febrile, and his general condition was bad. Rest at night was much disturbed by pain and he was confined to bed. X-ray examination showed a septic arthritis without cartilage absorption or new bone formation. He had four bi-weekly applications of diathermy to the prostate, with the result that the pain was relieved. Subsequently he had applications to the knee and shoulder. On July 9th he was free from pain, his general condition was good, and he was able to walk fairly well. There was still some stiffness of the knee and shoulders, but I anticipate in a short time to get complete functional restoration of the joints in view of the absence of loss of cartilage and new bone formation, as shown by x rays.

In considering the effects of diathermy on the prostate we have had to reply upon the results as they affect the secondary manifestations rather than upon bacteriological findings. We have, however, had cases in which a positive bacteriological diagnosis has been made previous to the commencement of the treatments and in which no gonococci have been found afterwards.

The following case serves to show the effect of treating the prostate:

The case was one of severe sciatica with great pain preventing sleep at night. There was a history of gonorrhoea and a stricture of the urethra with a fistula immediately behind it. Other remedies having failed to relieve the pain, he was presented for electrical treatment. Diathermy was applied to the prostate, with the result that the sciatic pain began immediately to subside and in one month had nearly disappeared. The patient made a good recovery, being able to walk without pain, though stooping with the knees extended continued to cause slight pain down the legs.

The following is a case of arthritis associated with increased frequency of micturition, treated by applying diathermy to the prostate:

The patient had had pains in the knees for seven weeks. The joints were slightly swollen and he was able to walk only with the help of a stick. He passed water three or four times at night. Diathermy was applied twice a week to the prostate for two weeks. The pain in the knees disappeared, movement became painless, and there was no nocturnal micturition.

The results of diathermy treatment of gonorrhoeal epididymitis are very constant. Most of the cases have been mild with slight swelling, but some have been severe with great swelling of the scrotum and its contents, accompanied by pain, and extremely tender to the touch. In a few cases the cord has been swollen. Pain and tenderness have been invariably reduced by the first treatment, and three treatments have with one exception been sufficient in all cases to abolish pain and tenderness and reduce the swelling to a slight hard enlargement of the epididymis. The exception was a case of chronic inflammation of the epididymis

prove disastrous to a candidate innocent enough to accept it. In so far as it is true it can only mean that examiners in medicine neglect their opportunities and responsibilities, and this, I am sure, you would be reluctant to propose.—I am, etc.,

London, W., Aug. 6th. C. O. HAWTHORNE.

REPRODUCTION AND THE SHEDDING OF ANTLERS IN DEER.

SIR,—Are we fully justified in drawing such a direct and intimate connexion between those two processes as is done by Sir William Macewen in his address to the International Society of Surgery (BRITISH MEDICAL JOURNAL, July 21st, p. 91)? Most animals fight each other almost at any time of the year; still in the breeding season (usually in spring) they are more pugnacious, and are then at their best in fitness, physique, and beauty; but the tegumentary adornments such as the mane of the lion, the clean and glossy skins of other animals, and the beautiful plumage of male birds are there to make the males more attractive to the females, and not for fighting purposes. Why then should the beautiful antlers of the deer be thought of in any other light?

The natural weapons of deer are fleetness, ability to fight with their forelegs and feet, or occasionally with their mouth, and when the velvet permits with their foreheads like oxen. As a fighting machine the antlers are clumsy, and for months annually are out of action. Besides, some stags have no antlers; in some deer they are present in both sexes, and there is an evident connexion between the size of the antlers and the quantity of hair on the bodies of the deer, and as a matter of observation in actual combat the polled stag is often more than a match for the antlered stag.

The peculiarity of the development of the embryo, the duration of gestation, the breeding season being in autumn, instead of spring, are other characteristics of deer, as well as the absence or presence of antlers and their shedding, and are unusual or abnormal.

If, as Sir William suggests, the testes be the *fons et origo* of the antlers it seems most extraordinary that their evolution, growth, and decay should coincide with the most quiescent state of these glands; surely they cannot be active and inactive simultaneously. Do we not hear too much about inhibition and suppression to the exclusion of more natural laws? Might we not more fitly compare the shedding of the antlers to the annual casting of the skins of snakes, the moulting of birds, or loosing of hair, hoof, nail, or other cutaneous appendage in animals, and look on all these phenomena as Nature's effort to assist excretion, continuously or at certain regular periods, by throwing off from the blood certain salines or products of nitrogenous metabolism, many animals having their own particular method?

Physiologically the falling of leaves from trees may reasonably be compared to the shedding of antlers, and in both, when the process is allowed to occur naturally, a beautiful clean scar is left. Here again, in my opinion, both leaves and antlers come and go for the beauty, health, and life of the tree and animal respectively, for self-preservation is more important than either reproduction or the herd instinct.

In recent years too much importance and attention have been assigned to matters reproductive, and a hint from one in the professional position of Sir William Macewen might become an obsession in the mind of a weaker brother.—I am, etc.,

T. JOHNSTONE, M.D., M.R.C.P.

Harrogate, Aug. 6th.

PATHOLOGY OF MALIGNANT DISEASE.

SIR,—The difficulty in obtaining cultures or transplants from malignant tissue is evidence that the conditions of viability of this tissue or of a possible parasite which gives rise to it are narrowly defined. We should be able to determine these conditions more accurately, and vary them in a sense adverse to the disease without waiting for the demonstration of an ultimate cause.

For instance, the chemical reaction of the fluids of a malignant tumour is not usually considered. There is some reason to think that the reaction is acid, and we can neutralize carbonic or other acid by injections of a solution of sodium carbonate as directed by Fischer in his book on oedema and nephritis; possibly an even more effective result may be obtained by using a calcium base.

Again, malignant tumours are anaerobic; repeated injections of oxygen in the tissues near a tumour must produce a powerful effect, both local and constitutional, so that if the injections have to be made some little distance from the growth they will still be active, although the action will be indirect.

These questions are sufficiently practical to deserve the attention of those who have clinical material at their disposal and can work effectively at them.—I am, etc.,

RICHARD KERRY, M.D. (Montreal.)

London, W., Aug. 11th.

DENTISTRY AND MEDICINE.

SIR,—I have read with much interest the article by Sir William Willcox on "The clinical, pathological, and radiological aspects of infection of the teeth and gums" (January 13th, 1923, p. 53). It is well that men like Sir William Willcox are now recognizing the full importance of this subject. Many of us have been preaching the menace of oral sepsis, but presumably it still requires to be preached (though in some quarters the pendulum has swung to the opposite extreme and many ills are credited to quite innocent teeth). From the internal evidence of the paper alluded to I could flatter myself that Sir William Willcox had read the chapter on oral sepsis and its effects in my textbook on *Stomatology*. Whether this is so or not I am satisfied that the necessity for the writing of such papers arises from a weak spot in the medical curriculum. There is no systematic (compulsory) teaching for medical students on those border-line subjects lying between medicine, surgery, and dentistry. There should be a liaison lecturer—and then residents would recognize oral sepsis as "an actual potent factor in the causation of every-day disease."

In this University we have a short Course on Stomatology which it is compulsory for every medical student to attend in his fifth year. The course embraces:

1. Deformities of the teeth and jaws, including cleft palate.
2. Inflammatory conditions of the gums, mucous membranes, caries of the teeth—diagnosis and treatment.
3. Fractures and dislocations of the jaws.
4. Ankyloses of the jaws.
5. Oral sepsis and its effects, and conversely the manifestations of systemic diseases in the mouth.
6. Reflex neuroses and neuralgias.

The results of this class have been eminently satisfactory; the students are keen and take a live interest in the subject. The following are the questions set at the last examination:

1. Enumerate the various methods of treating cleft palate and give the indications for the use of each method.
2. Differentiate between dental myelitis (exposure of the pulp) and periodontitis. Outline palliative treatment for each condition.
3. Oral sepsis: classify secondary infections, and give examples of each.
4. Enumerate fluid swellings of the jaws. From what tissue is each derived? Give the chief diagnostic characteristics and indicate treatment in each case.

My class this year was composed of some seventy students, and I have no hesitation in saying that 80 per cent. of the answers were better than one would expect in a final qualifying dental examination.—I am, etc.,

H. P. PICKERILL, C.B.E., M.D.

Dunedin, New Zealand, May 25th.

THE DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

SIR,—Surely Dr. Cameron Kidd's colleague must have misinterpreted his final "instruction"—"If you find vesicles on the palms of hands and soles of feet you may call it small-pox"? (BRITISH MEDICAL JOURNAL, August 4th, p. 208). As it stands, anything more misleading as a diagnostic criterion for small-pox it would be difficult to find.

It seems such a pity and so unnecessary that these half-truths should still be circulated and pass as current know-

distribution of temperature would be. He did not know whether experimentalists had found it worth while to make any sort of estimate of the way in which the current went. It by no means followed that over large areas covered by electrodes there was an even distribution of the current throughout. He remarked upon the tendency of those practising diathermy to talk about dosage and how the effects of diathermy depended not only on the current but on the time. He thought the effects would also be found to depend on the current density. The question was, how did this current density have its effect? As in every other physical problem, the rise of temperature was dependent not only upon the amount of heat produced along the particular "cylinder," but upon the opportunity which allowed that heat to escape. He thought it might be well worth while for the experimentalists to vary the current density, and once they had arrived at a certain current density to see how the subsequent rise of temperature was modified by the size of the electrode.

Dr. AGNES SAVILL (London) recited her experiences of local diathermy for the treatment of gonorrhoea in women. As long ago as 1911 she treated a case of gonorrhoea, having profuse discharge from the cervix, by Sloan's method of local ionization with copper. In those days she gave too small doses, and hence the cure was delayed and the result took longer to bring about. That patient, however, was cured, and had a perfectly healthy child within a year. Within the last year she had had two cases in her private practice in which profuse gonorrhoeal discharge responded well to a treatment of combined ionization and diathermy.

(1) Mrs. A. had had profuse discharge for five months. She had been curetted and treated by a skilled surgeon. As his skilled methods had not succeeded in removing the gonococcus, he sent her on to the speaker to see what electricity could do. She saw the patient first on January 26th, 1922; the patulous large cervix was full of thick mucous discharge and the womb much enlarged. On that date and on five subsequent dates up to February 20th zinc was applied to the whole womb, 30 milliampères for eighteen minutes. The womb by that date was reduced to normal size, but there was still a considerable degree of mucous discharge. Diathermy was commenced on February 24th and administered also on March 1st and 6th. A copper electrode was passed to the top of the womb and 1 ampère given for ten or twelve minutes. Immediate improvement set in. On March 16th the bacteriological report for the first time was negative. She saw her a year later; there had been no relapse.

(2) A patient who had had considerable treatment for nearly eighteen months came to her in July, 1922. She gave diathermy on July 14th, 17th, and 27th to the cervix only, 1/2 ampère for eight minutes on the first two occasions, and on the third 0.8 ampère for fifteen minutes. The copper electrode fitted into the cervix, and had a small projecting flange externally. She wrapped it round with a thin layer of wool, soaked in salted water. The discharge at once was much diminished. During the treatment the patient said there was a sensation of throbbing internally, but no pain. The slight remaining discharge was treated on five occasions in September and October with zinc ionization. The speaker saw the patient a year later, and there had been no relapse.

Dr. FLORENCE STONEY (Bournemouth) asked whether diathermy had been found altogether satisfactory for the treatment of chilblains. In her experience cases did well for the moment, but the condition recurred, simply because the original cause had not been tackled. Those who practised diathermy were hampered by getting only end-results in a great many cases. With regard to the tonsillar infection mentioned by a previous speaker, she did not think it necessary to remove the tonsils surgically because with the ultra-violet treatment the condition could be dealt with without so much discomfort to the patient.

Mr. DAVID LEES (Edinburgh) said he had listened with great interest to the papers, and especially to that of Dr. Robinson, and he would like to congratulate him on the results which he had obtained by diathermy in chronic gonococcal infections. Such results could only be obtained by very careful technique and close personal attention to detail. In his remarks on the cases of endocervicitis, what impressed one was the very small percentage, 18 out of 120, of cases in which positive bacteriological evidence was found. He would like to ask him if the discharges before commencing treatment were examined by culture and if the blood of all these cases was examined by complement fixation test, as, if not, these methods might possibly improve his figures and give more definite diagnostic information. In the three cases of cervical infection which he quoted as being specially resistant, was it not possible that the recrudescence of the disease was due to tubal and uterine infection which the deep heat had not reached, rather than to extraneous reinfection? In discussing the cases of arthritis, Dr. Robinson had stated that the joint condition was chiefly a toxaemia. While this was so in the arthralgias he (Mr. Lees) could not agree that this was true of the great majority of gonococcal joint conditions, as in many of the acute cases it was possible to isolate the gonococcus from the lining membrane. It was difficult on this account to see how treatment of the original focus only in the cervix or in the prostate was so effective in clearing up the metastatic lesion. Another point which he would like to inquire into was how the local application of diathermy to the prostate cleared up the condition, when it was a recognized fact that the posterior urethra was always involved in these cases, and yet the speaker admitted that the results of diathermy in anterior and posterior urethritis were disappointing. One could quite appreciate how diathermy would act well in epididymitis, but it was quite unusual for this condition not to subside in less than two weeks with much simpler methods of therapy. From the statement of Dr. Cumberbatch that diathermy did not irritate but acted as a mild sedative one would be inclined to think that the field for its use would be greatest in such gross cases as prostatic abscess or vesiculitis associated with frequency of micturition or retention of urine—in cases, say, of salpingitis, and in cases of ophthalmia neonatorum. Had Dr. Robinson tried it in such acute cases, and what had his results been in those cases in which he had tried it? If in these acute processes the application of deep heating to the tissues would kill the gonococcus then it would be a most useful method of handling them before the tissues were destroyed and before other and more resistant organisms complicated the lesions. In chronic fibrotic processes such as chronic prostatitis with closed-in foci of infection it was difficult to be convinced that heat alone would cure the condition, and that applications to the original focus alone would cure the metastatic infection in a joint. As several speakers had mentioned, there must be other factors in the curative process than the heat alone. Before pronouncing judgement he intended to try the methods of Dr. Robinson in both acute and chronic conditions at the earliest opportunity. While the results reported were excellent, it was as yet difficult to be convinced that in diathermy they had a more effective means of clearing up the infection than the present routine methods. The methods outlined by him merited a thorough trial.

OPENERS' REPLIES.

Dr. ROBINSON, in replying on the discussion, said that he had had one case of salpingitis with very definite infection of the cervix, and he had continued to treat that case by the ordinary methods of treatment of the cervix, and eventually the salpingitis cleared up. He had not had occasion to treat an acute case of prostatitis with retention of urine and so on.

Dr. CUMBERBATCH, in his reply, thought there was a danger of regarding high blood pressure as a disease, whereas it was only a symptom. With regard to pneumonia, Grover, in the United States, mentioned very good results following diathermy, particularly in cases of unresolved lysis of the lung. The speaker was bound to say, however, that he looked upon such claims with some suspicion, particularly when he observed the mistakes in other directions, such as physics and technique, in the book in which they appeared. With regard to the rate of oscillation of the current, this was a very important matter indeed, to which Professor Phillipson had referred in his paper before the Royal Society of Medicine. From the work which Phillipson had done it appeared that the rate

in convincing all medical men that their own charities must be brought out of the rut of secondary considerations and made to rank among those which require dealing with. The amount of subscription required should not prove to be anything approaching a deterrent, for it cannot really be assumed that an average subscription of 10s. 6d. would financially complicate anybody's pocket, and, so far as concerns members of the British Medical Association, the forwarding of this need not involve any extra effort as it can be included in the cheque for the annual subscription.

I believe the necessary education of the profession involves organized effort, and that any campaign in this direction can only be successfully undertaken with the help of the British Medical Association. I further believe that the first step to take is to sweep away the differences of opinion respecting the management of the fund, and that this could be effected by resuming the interrupted conference of 1922. In this direction I would make the suggestion that an invitation to recommence the sittings might, on this occasion, very appropriately emanate from the Governors of the fund.

The letter from Dr. Clarke is very practical, and reveals a valuable source of help which promises good results if properly managed and developed. Organized effort would see to this.—I am, etc.,

W. F. DEARDEN.

Manchester, Aug. 14th.

MEDICAL MAGISTRATES.

SIR,—In the important discussion on mental deficiency which took place in the Section of Medical Sociology at Portsmouth last month, and is recorded in this week's JOURNAL, there is a point which is not referred to by any of the speakers to which I wish to call the attention of the public and profession—namely, the desirability of having on every magisterial bench at least one medical man.

There is a considerable number of cases brought before the justices in which medical knowledge and experience are required for the full and just treatment of the person charged.—I am, etc.,

W. J. TYSON, M.D., F.R.C.P.,
Chairman of the Elham Division of Justices for Kent.

Folkestone, Aug. 11th.

TREATMENT OF VENEREAL DISEASE.

SIR,—With reference to the letter from Sir John Collie on this subject in your last issue the National Council for Combating Venereal Diseases wish to express their very grateful thanks to Sir John Collie for all the trouble he took in getting this bill, drafted and promoted by it, through the House of Commons.

The same bill in the last Parliament became an agreed measure, and only failed of becoming law owing to the sudden dissolution. Sir John Collie was kind enough to undertake to father it at its reintroduction in the present Parliament, and as an agreed measure it passed the House of Commons. The thanks of the Council are also due to Lord Muir Mackenzie, who at the request of Sir John Collie undertook to shepherd it through the House of Lords.

The National Council has been working to obtain this legislation since 1919.—I am, etc.,

E. O. GRANT,
Secretary.

National Council for Combating Venereal Diseases,
102, Dean Street, W.1, Aug. 13th.

AN international vacation course will be held at Kissengen from September 3rd to 6th, when lectures will be delivered by Drs. Umber, von Bergmann, von Noorden, and von Romberg.

DURING the ten years 1912-21 there have been released on parole from the Kalihi Hospital, near Honolulu, and on Molokai Island, 242 lepers as being no longer "a menace to the public health." The patients were required to report for examination, when it was found that 31 had relapsed, but 7 of these were discharged again on parole. Ten were released completely. Treatment for those who desire it is by chaulmoogra oil and its derivatives. The parole system has worked well and many lepers now go to the hospital voluntarily, thus obtaining earlier treatment and a consequent greater chance of improvement. About 70 per cent. of those released on parole were segregated for less than two years.

Obituary.

FREDERICK BELL, B.A.Oxon, M.R.C.S., L.R.C.P., Humshaugh.

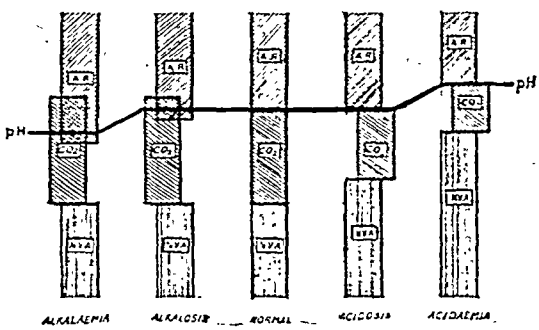
THE death of Dr. Frederick Bell of Humshaugh, which occurred on July 28th, robs North Tynedale of a notable personality. Only a brief sixteen years ago he first came to the district, but the large gathering from far and near which met at his funeral in the quiet churchyard at Humshaugh bore eloquent testimony to the way in which he had entered into the lives and affections of the people among whom he lived and worked.

Dr. Bell came of a medical stock and was the third generation of his family who had practised at Preston in Lancashire. He was the second son of the late Dr. Wm. Bell of that town, and was educated at Preston Grammar School and New College, Oxford, where he graduated B.A. with honours in science. His medical studies were pursued at St. Bartholomew's Hospital, and he took the conjoint diplomas in 1888. He then returned to Preston as house-surgeon to the infirmary, and on the sudden and unexpected death of his father he took over the family practice. For eighteen years he worked strenuously and loyally in that capacity and was greatly respected in the town. Unfortunately his health, which was never robust, proved unequal to the strain and for that reason he sought a quieter sphere in the rather remote country district of Northumberland where Humshaugh is situated. Very soon the stranger from Lancashire became the trusted medical adviser of a wide area, and for years "Bell of Humshaugh" was one of the best known of the country practitioners in Northumberland. Those who know country practice best are well aware that the motor car and the Insurance Act have not really lightened the labour of the doctor, and Bell led a strenuous life, far too strenuous for his poor physique, and he was dogged by a series of grave illnesses, each attended by great anxiety to his family. But he either never would or never could spare himself, and in spite of the advice of his friends he worked "full out" almost to the end. His fatal illness, septic laryngitis, followed by septicaemia, was caught at the bedside of a patient who preceded the doctor to the grave. Bell had a very high sense of his responsibility to his patients, and he constantly strove not only to give them of his very best but to get the very best for them; this was the reason why he so often sent patients to hospital or called friends in consultation. But he was not content merely to hand over a case; he persistently followed his patients, and no practitioner more frequently attended operations or made inquiries about those of his flock who had temporarily left his care. This he did in winter as well as summer, in a district with a wretched train service, and having over twenty miles of the most exposed road (on the line of the Roman Wall) to traverse both going out and coming home. This same anxiety to do the best for his patients made him one of the most regular visitors at the scientific meetings and the post-graduate courses held in Newcastle. It is a sad coincidence that during his fatal illness he was unanimously elected president of the Newcastle-upon-Tyne and Northern Counties Medical Society. The British Medical Association also appealed to him and he threw himself energetically into the work of the Hexham Division, of which he was successively secretary and chairman. Of leisure he had none, but his tastes were literary and the company of books and the fragrance of flowers beguiled odd half-hours and made him content with his arduous lot, while an earnest religious faith consoled him in many a trial.

He leaves a widow, one son—an officer in the Indian Army now with his regiment—and two daughters, the elder of whom has recently graduated with the desire and intention of helping her father in his practice.

No one in North Tynedale was more respected, and the whole countryside bemoans his loss, for everyone feels that men of his stamp can ill be spared. The funeral was very largely attended by representatives of all classes, including numbers of medical friends. Floral tributes, like the congregation, overflowed from the church to the graveside and were a token of the love which his patients bore him.

of acidosis—that is to say, it is a condition in which the alkaline reserve of the body is abnormally increased—while in alkalaemia the excess of bases over acids in the circulation is so considerable that the physico-chemical reaction of the blood is shifted toward the alkaline side. In the following chart I have endeavoured to represent schematically the relation existing between the alkaline reserve, the non-volatile acids, and the carbon dioxide content of the blood in the various conditions we are considering.



A.B., alkaline reserve. CO_2, carbon dioxide. N.V.A. non-volatile acids. pH, acid-base balance, or hydrogen ion concentration.

This diagram also indicates the principles on which the determination and estimation of acidosis or alkalosis are based. The reserve of alkali in the blood is now generally estimated by determining its combining power for carbonic acid under standard conditions, or, indirectly, by ascertaining the tension of carbon dioxide in the alveolar air; for, as will be seen from the diagram, the combining power of the blood for carbonic acid, and therefore the tension, or percentage, of the latter in the air of the lungs, are directly dependent upon the relation existing in the circulation between the non-volatile acids and the alkaline reserve. The carbon dioxide capacity of the blood is usually estimated in the laboratory by Van Slyke and Cullen's method. It is hardly suitable for general clinical work, however, and reliance is more commonly placed upon some method of determining the carbon dioxide tension of the alveolar air. The simplest and most generally useful, in my opinion, is that devised by Marriott.[2] The subject breathes in and out of a rubber bag of about 1,500 c.cm. capacity, into which has been previously introduced about 600 c.cm. of air, about four times in twenty seconds, emptying the bag at each inspiration. The inlet tube is clamped at the end of an expiration and the air in the bag examined, within three minutes, by bubbling a fine stream through a solution of sodium bicarbonate containing a suitable indicator, and comparing the resulting colour with a set of standards marked to indicate the carbon dioxide tension. In the case of infants a smaller bag is used, of about 500 c.cm. capacity, and this is connected with a mask which fits tightly over the face. Crying during the collection of the sample is an advantage rather than a disadvantage, but must be avoided prior to the application of the mask, as it leads to a lowering of the carbon dioxide tension. The carbon dioxide tension in a normal adult at rest, as determined by this method, varies from 40 to 45 mm. Tensions between 30 and 35 mm. are indicative of mild acidosis. When the tension falls to 20 mm. there is serious danger, and in coma values as low as 10 or 8 mm. may be obtained. In infants the normal carbon dioxide tension is from 3 to 5 mm. lower than in adults. Purists may criticize the results obtained with Marriott's method, but if the findings are occasionally standardized, in order to detect deterioration of the solutions, they are of great practical use.

Limitations of time will only permit of my referring to one other test for acidosis—the tolerance for sodium bicarbonate. This depends upon the fact that not more than 0.5 gram of bicarbonate per kilogram of body weight, by the mouth, is required to render the urine of a normal person distinctly alkaline in reaction, whereas 0.8 gram may be needed in mild acidosis, and over 1 gram in more severe cases. This test has the merit of simplicity and is reliable for demonstrating the absence of acidosis, but it is not particularly dependable for showing either the presence or the degree of an acidosis when it exists.

Let us now consider the theoretical conditions under which acidosis and alkalosis may arise. Depletion of the alkaline reserve will result when there is an excessive introduction from without the body of acids, as occurs in mineral acid or carbonic acid poisoning, or when an abnormal formation of acids takes place within the organism, the classical example of which is diabetic acidosis; it may also result from an excessive accumulation of the normal acid products of metabolism in the system owing to deficiency in the excretory functions of the kidneys, as is seen in interstitial nephritis; or it may follow an exceptional drain of bases, from the body, such as may be induced by profuse diarrhoea. Alkalosis, on the other hand, will occur if the intake of alkaline bases is in excess of the excretory capacity of the organism and exceeds the neutralizing power of the non-volatile acids of the blood and tissues, a condition which can be produced by overdosing with sodium bicarbonate; a similar condition would arise should there be an unusually small amount of acid formed in the metabolic cycle, but of this there is no convincing example; an increase in the alkaline reserve may also be caused by the passage into the circulation of the alkaline radicals produced when neutral salts are decomposed and the acid radicals are excreted, as takes place temporarily during the normal formation of hydrochloric acid in the stomach and gives rise to more permanent changes in pyloric stenosis; finally, a diminution in the oxygen of the blood may excite the respiratory centre and lead to an excessive loss of carbon dioxide through the lungs, and, as there is no parallel fall in the bicarbonate content of the serum, alkalosis will ensue—a condition which may be produced by voluntary hyperpnoea or may be induced by breathing air with a diminished oxygen content, as at high altitudes. It is obvious, therefore, that acidosis, and to a less extent alkalosis, may be met with in a large variety of diseases, and that acidosis is not, as was at one time assumed, invariably dependent upon disturbances of carbohydrate metabolism.

Very little experimental work has been done upon the acid-base equilibrium of the blood during the early years of life, and a good deal of what has been published is contradictory. Ylppö[3] has stated that a condition of "physiologic acidosis" exists at birth and that the carbon dioxide dissociation curve is 20 per cent. less than in adults. Marriott[4] found that in children under 1 year of age the reaction of the blood tends more toward the acid side, and that the alveolar carbon dioxide tension is lower than later in life, a reading of 35 mm. not being abnormal. On the other hand, Seham[5] came to the conclusion that there is no constant difference in the carbon dioxide tension, and found that, as a rule, a much smaller dose of sodium bicarbonate in proportion to the weight is required to render the urine alkaline in young children than in adults. The observations of Blatherwick[6] upon calves are of interest in this connexion. It has long been known that cows normally excrete a strongly alkaline urine, owing no doubt to the nature of their diet, which commonly contains a large excess of basic elements; calves, on the other hand, which consume an approximately neutral diet of milk, usually excrete urine which is neutral or amphoteric to litmus. Judging from these facts we should expect calves to have a smaller alkaline reserve than cows, but Blatherwick proved that this was not the case, and that calves actually possess a larger alkaline reserve than grown cattle. He came to the conclusion, therefore, that a fundamentally different regulatory mechanism is functioning in the two cases. Whether there is an analogous difference between children and adults it is impossible to be sure at present, although the well known clinical fact that children are especially susceptible to acidotic conditions is suggestive, and when we consider the more rapid metabolism of the infant, with the constant changes in its tissues and body fluids caused by the need for growth as well as repair, it seems even more probable.

graduated M.D., R.U.I., in 1865; he took the diploma of L.R.C.S.Edin. in the same year. For nearly half a century he practised medicine in Sudbury and the surrounding district, but he had retired from practice some time ago. He was honorary consulting physician to St. Leonard's Hospital, Sudbury, having formerly been for a long period a member of the active medical staff, and at the time of his death he was chairman of the committee of management. For many years he was medical officer of health for the borough of Sudbury, and for Glemsford Urban District Council and Melford and Belchamp Rural District Councils. He was one of the senior members of the Sudbury bench of magistrates. He was an old member of the British Medical Association, an ex-president of the East Anglian Branch, and a representative. He was the contributor of a number of articles in our columns during the eighties. He was also ex-president of the Cambridge Medical Society.

We regret to announce the death, on August 8th, of Dr. MARY K. HELENE NEARY, aged 40, wife of Dr. John F. Neary of Blackheath. She was the eldest daughter of the late Dr. Thomas Griffin, Louisburgh, co. Mayo, and niece of the late Sir Peter Freyer. She received her medical education at the Cecilia School of Medicine, Dublin, and the Royal Infirmary, Edinburgh, and obtained the L.A.H.Dubl. in 1918. Dr. Neary served as resident medical officer at the Jenny Lind Hospital for Children, Norwich, for over two years, and subsequently entered into general practice at Stoke Newington and Blackheath. She was a member of the Lewisham Division of the British Medical Association and took great interest in the infant welfare scheme, for which she will long be remembered in Bermondsey, where she did a large amount of work in connexion with the movement. She greatly endeared herself to her patients by her kind manner and the confidence she inspired, and many will mourn her untimely death.

The death, from appendicitis, of Dr. K. I. S. SMITH, at the early age of 30, occurred at Sunderland on July 20th. Dr. Kirton Ivor Seager Smith was educated at the Newcastle School of Medicine of Durham University, and graduated M.B., B.S.Durh. in 1914. Shortly after the war broke out he obtained a commission in the Northumbrian Field Ambulance, R.A.M.C.(T.F.), in which he eventually held the rank of major. On his return home from Salonica in 1919, he went into general practice at Sunderland, where he soon became very popular. He leaves a widow and a young child.

The death is announced, by cable, of Dr. ARTHUR POOLE, of Umzinto, Natal. Dr. Poole graduated M.B., Ch.B. at Glasgow University in 1911, and held a commission in the R.A.M.C. from 1915 to 1919. After practising for a short time in Manchester he went to South Africa a year or two ago. He is survived by his widow, to whom he was married in 1921.

The Services.

THE KING has conferred the Royal Naval Volunteer Reserve Officers' Decoration upon Surgeon Captain Arthur R. Bralley, M.C.

DEATHS IN THE SERVICES.

Colonel Henry John Waller Barrow, Army Medical Service (retired), died at Weymouth on July 30th, aged 73. He was the son of Inspector-General T. W. Barrow, A.M.D., and was educated at Guy's. He took the M.R.C.S. and L.S.A. in 1871 and entered the army as assistant surgeon on September 30th, 1871; while the regimental medical system was still in force he served for a time in the 43rd Foot, now the 1st Battalion of the Oxford and Bucks Light Infantry. He attained the rank of colonel on September 25th, 1901, and retired on July 7th, 1910. He rejoined for service during the recent war, from December 24th, 1914, and was for some time in charge of a hospital at Epsom. In September, 1873, he served in medical charge of a company of the 43rd L.I., which attacked and destroyed a company of Moplah fanatics at Kolatare, on the Malabar coast of Southern India. Twelve years later he served in the Sudan expedition of 1885, at Suakin, and in the Sudan Frontier Force in 1885–86, when he was present at the action of Giniss, and received the Egyptian medal and the Khedive's bronze star. Colonel Barrow's family have contributed several officers to the medical service of the army. His father, Inspector-General T. W. Barrow, served in the Crimea. His elder brother, Lieut.-Colonel T. S. Barrow, served in the A.M.D. from 1864 to 1884. His twin brother, Lieut.-Colonel F. E. Barrow, entered the same day as himself, but two places senior to him, served in Egypt, the Sudan, and South Africa, and retired in 1893. His son, Colonel H. P. W. Barrow, C.M.G., D.S.O., is now serving.

Dr. James Desmond McCarthy, C.M.G., late R.N., died at Sway, Hampshire, on July 28th, aged 84. He served as surgeon in the Royal Navy from 1872 to 1874, when he resigned in order to enter the Colonial Medical Service, in which he served for sixteen years on the West Coast of Africa. He was assistant colonial surgeon at Lagos from 1877 to 1880, and full surgeon from 1880 to 1884, when he became chief medical officer of the Gold Coast Colony. In 1891 he received the C.M.G. and retired in 1893. He served under Sir Garnet, afterwards Lord, Wolseley in the Ashanti expedition of 1873–74, and was present at the capture of Kumasi, being mentioned in dispatches and receiving the medal with a clasp.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on August 8th the degree of doctor of medicine (D.M.) was conferred upon M. O. Raven.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.

THE following awards of medical scholarships and exhibitions have been made on the results of the Board's examinations held in June:

University College.—Bucknill Scholarship: J. R. Pierre. Medical Exhibitions: A. S. Hatch, M. Levy.

Westminster Hospital Medical School.—Natural Science Scholarship: H. J. Shorvon.

London (Royal Free Hospital) School of Medicine for Women.—Mabel Sharman Crawford Scholarship: Marguerite M. Fenn. St. Dunstan's Medical Exhibition: Joyce R. Woods. Isabel Thorne Scholarship: Decima M. Tracey. Mrs. George M. Smith Scholarship: Kathleen E. Gambrell.

Medical News.

THE formal opening of the winter session, 1923–24, of the Middlesex Hospital Medical School will take place on Tuesday, October 2nd. The introductory address will be delivered at 3 p.m. at the Scala Theatre by Mr. Somerville Hastings, F.R.C.S., on team work in nature. The prizes to successful students will then be distributed by H.R.H. Princess Alice, Countess of Athlone. The annual dinner will be held the same evening at 7.30 at the Trocadero Restaurant, with Sir John Bland-Sutton, P.R.C.S., in the chair.

THE movement known as Health Week was instituted in 1912, and in 1914, at the request of a meeting of local authorities, the Royal Sanitary Institute appointed a committee to undertake the central organization; but local celebrations in each centre are organized and controlled by local committees. The object of Health Week is to focus public attention for one week in the year on matters of health, and to arouse that sense of personal responsibility for health without which all public work, whether by the Government or local authorities, must fall far short of its aims. The next celebration will be held from October 7th to 13th.

ELSEWHERE in this issue (p. 292) is published an article on pure milk in which reference is made to the new tract on pasteurization published by the Ministry of Health. We are informed that a national milk conference will be held in the Guildhall, London, on November 21st. Papers are then to be read on every important aspect of pasteurization—methods and processes, physical changes, chemical changes, bacteriological changes, biochemical changes, and the financial and commercial aspect. The conference is being organized by the National Clean Milk Association, 3, Bedford Square, London, W.C.1.

THE address on "The adaptional machinery concerned in the evolution of man's body," delivered recently by Sir Arthur Keith as the twelfth Huxley Memorial Lecture, is published in full as a supplement to *Nature* of August 18th. The lecture by Professor N. Bohr on "The structure of the atom," published as a supplement in *Nature* of July 7th, is now obtainable separately at 6d., or by post at 7d.

IN his annual report for 1922 on the work of the South Travancore Medical Mission Dr. S. H. Pugh records that Mr. Howard Somervell, F.R.C.S., a member of the recent Mount Everest Expedition, has decided to join the staff of the institution.

A serial analysis of the patient's blood and alveolar air before and after a test breakfast containing 40 grams of starch but no sugar worked out as follows:

Time Taken.	Sugar, per cent.	Total Carb., per cent.	Difference Value, per cent.	Alveolar CO_2
Fasting	0.050	0.054	0.004	30 mm.
Meal	—	—	—	—
½ hour after meal	0.070	0.070	0.000	28 mm.
1 hour ,, ,,	0.090	0.090	0.000	25 mm.
2 hours ,, ,,	0.070	0.072	0.002	28 mm.
3 hours ,, ,,	0.050	0.054	0.004	30 mm.
4 hours ,, ,,	0.050	0.054	0.004	30 mm.

Next day he was given 40 grams of pure dextrose, fasting, and another serial analysis of the blood was carried out:

Time Taken.	Sugar, per cent.	Total Carb., per cent.	Difference Value, per cent.	Alveolar CO_2
Fasting	0.050	0.054	0.004	30 mm.
Dextrose	—	—	—	—
½ hour after dextrose	0.190	0.190	0.000	25 mm.
1 hour ,, ,,	0.140	0.140	0.000	28 mm.
1½ hours ,, ,,	0.090	0.090	0.000	29 mm.
2 hours ,, ,,	0.060	0.052	0.002	30 mm.

These analyses showed that the sugar content of the blood was low after the night fast, and that a meal of starch, protein, and fat induced comparatively little change, but that after sugar had been taken there was a sudden rise to an abnormal level followed by an equally rapid fall. Examination of the urine showed no sugar after the mixed meal, but 1.5 grams were passed in the two hours following the sugar test. Such findings are very characteristic of insufficient storage capacity on the part of the liver and other tissues, and are commonly associated with defects in the functions of the ductless glands, in my experience. The normal difference value of the blood found in both tests tended to exclude deficiency of the internal secretion of the pancreas. Turning now to the carbon dioxide tension of the alveolar air, it will be seen that it was subnormal in the fasting state and fell further as the sugar content of the blood increased, showing that the alkaline reserve of the body was deficient and that it diminished as the alkaline secretions of the pancreas and intestine were poured out.

Working on the hypothesis indicated by these analyses, that the condition of the patient was due to a chronic intestinal catarrh, associated with hepatic insufficiency, he was put on an appropriate diet, and given intestinal antiseptics with a small regular dose of grey powder, with the result that the attacks diminished in frequency and then ceased, while his general health has improved.

Similar treatment in other cases has had an equally beneficial effect, although in some, where evidence of insufficiency of the digestive functions of the pancreas was also found, have proved more difficult to deal with.

I have had no personal experience of alkalosis in children, and, as far as I can find, there is little literature on the subject. It is probable that an increase in the alkaline reserve is partially responsible for the symptoms met with in pyloric stenosis and infantile tetany, but accurate observations are apparently lacking. It is known, however, that tetany can be induced in animals by injecting alkalis, and I am acquainted with one case where tetanic convulsions followed an attempt to treat a diabetic acidosis in an infant by intravenous injections of sodium bicarbonate. An interesting case of alkalosis, with periodic attacks of vomiting, in an adult has been described by MacAdam and Gordon,[7] who found that the condition could be controlled by large doses of dilute hydrochloric acid. Whether similar treatment might be useful in the cyclic vomiting of children is not certain until more is known about the acid-base equilibrium in that condition; but, as it has been found that alkalis have a beneficial effect in some cases, it is probable there is often an acidosis and not an alkalosis.

Judging from the experimental work of Wilson[8] and others, it would seem probable that the equilibrium of fixed acids and bases in the body is intimately related to the functional activity of the ductless glands, and particularly the parathyroids, removal of which leads to a relative increase in the bases, with resulting tetany, which can be relieved by the injection of acids or soluble calcium salts. Analyses of the blood in the few cases of alkalosis I have met with in adults have invariably indicated the existence of some ductless gland deficiency, and treatment with appropriate gland preparations and calcium by the mouth has brought about improvement; but I have no evidence to offer that a similar condition occurs in children, or that treatment of an alkalosis in them on the same lines would be beneficial.

In conclusion, I should like once more to emphasize the warning with which I commenced—that ketonuria does not necessarily imply acidosis; I would now go further and point out that the presence of acetone bodies may be associated with alkalosis, as was conclusively proved in MacAdam and Gordon's case. As far as I am aware it is a unique example, but Davies, Haldane, and Kennaway[9] have shown that acetone bodies may appear in the urine as a result of the administration of large doses of alkalis.

REFERENCES.

[1] *Practical Physiological Chemistry*, 1919, p. 324. [2] *Journ. Amer. Med. Assoc.*, 1916, 66, p. 1594. [3] *Berl. klin. Woch.*, 1915, lii, p. 252. [4] *Arch. Int. Med.*, 1916, xvii, p. 847. [5] *Amer. Journ. Dis. Children*, 1919, xviii, p. 42. [6] *Journ. Biol. Chem.*, 1920, xlii, p. 517. [7] *Lancet*, 1922, ii, p. 560. [8] *Journ. Biol. Chem.*, 1915, xxiii, p. 83. [9] *Journ. Physiol.*, 1920, liv, p. 32.

DISCUSSION.

The PRESIDENT said that there was still considerable confusion in his mind as to the differentiation and effects of acidosis and alkalosis. Ketosis was an acidosis due to imperfectly desaturated fatty acids circulating in the blood. At what stage did this become an acidaemia? Could ketonuria occur without acidaemia? If so, as had been pointed out in the observations that ketonuria had been found in alkalosis and also as the result of large doses of alkali, it was somewhat confusing, for this implied that there was an acidaemia or acidosis, and that imperfectly desaturated fatty acids were circulating in a *plus* alkaline blood—in other words, a blood in which there was an excess of alkaline bases. He also inquired about the effect of the oxidase, glutathione, discovered by Hopkins, in the oxidation of fatty acids.

Dr. E. P. POULTON (London) said that, while listening with great interest to Dr. Cammidge's paper, and feeling complimented that he had used a classification which he (Dr. Poulton) happened to have put forward in a letter to the BRITISH MEDICAL JOURNAL two or three years ago, he felt now that such a classification was not satisfactory. This was chiefly because the condition of want of oxygen which, as Dr. Haldane had pointed out, caused alkalosis, led secondarily to diminished alkali reserve, so that on Dr. Cammidge's nomenclature there would be an alkalaemia causing a secondary acidosis. The Haemoglobin Committee had issued a report which advised that the terms "acidosis" and "alkalosis" should be abolished, and that a diminished or increased hydrogen-ion concentration should be called "alkalaemia" and "acidaemia." Possibly "alkalosis" or "acidosis," if used at all, might be applied to the process leading to alkalaemia or acidaemia, in the same way as, in Sir Clifford Allbutt's nomenclature, the process of hyperpiesis led to the condition of hyperpiesia. He protested against Dr. Cammidge's revival of Pavy's CO_2 tension theory of diabetic coma, since Professor Pembrey and his colleagues showed many years ago that this was untenable—namely, that the CO_2 in the tissues was not increased and that the blood could transport large quantities of CO_2 in addition to what they contained. He was very doubtful whether the liver was chiefly responsible for the production of ketosis. The latter was not very characteristic of acute yellow atrophy, and during fasting the liver was certainly not diseased. He referred to the association of alkalaemia with tetany, particularly as produced by forced breathing. It might not be the alkalaemia itself, but some alteration in the balance of metallic ions, and among

when no amoebae were found. No control bacteriological examination was made either, as the patient was too poor to pay for more than was absolutely necessary in order to guide treatment. No *post-mortem* examination could be made, but the symptoms very much resembled liver abscess. It would be interesting to know whether such a complication has ever been definitely found in an infection with this flagellate.

Chinosol was undoubtedly the only drug that seemed to have any good effect on this case. The creosote capsules were continued along with the chinosol and may have helped its action, but they seemed quite useless alone. Perhaps chinosol as an adjuvant in Dr. Whittingham's bismuth emetine treatment would improve his percentage of cures.

PILOCARPINE IN SUNSTROKE.

DR. J. MCOSCAR (Buxton) writes: To be forewarned is to be forearmed. Having been a ship's surgeon and had several cases of sunstroke, I give you my experience of the worst case I once had in 1889.

The man, a steward, was told by me not to be on deck without a hat, as we were steaming in the tropics. However, one morning, having had a pint of stout, he was on deck without a cap; he fell down insensible, with stertorous breathing, pupils fixed and contracted, dry burning skin and quick pulse; his face, head, and neck were livid, and the carotid pulsations visible. I gave pilocarpine hypodermically, with one or two minims of croton oil, and placed him with loosened clothing in a cool place on deck. In a little while there was a reaction of the pupils and twitching of the eyelids. After six hours he became semi-conscious, but unable to move. The croton oil acted well; his body was rubbed all over every four hours with raw eggs and brandy. He gradually regained consciousness, and the next morning was able to take some milk food. After a week, during which he was closely watched, he returned to duty. Pilocarpine in these cases, with a good aperient, seems to be the radical cure. The captain, officers, and crew told me they had never seen such a bad case recover, having seen many. Probably pilocarpine had never been given.

DEATHS ASSIGNED TO PREGNANCY AND CHILDBIRTH.

BEFORE Parliament adjourned the Minister of Health, in response to a request by Mr. Rhys Davies, gave the following statistics affording all available information as to the comparative death rate of women assigned to pregnancy and childbirth in England and Wales and in various European countries:

	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922
Deaths in—										
England and Wales*:										
per million living ..	185	192	176	166	132	127	154	210	168	149
per 1,000 births ...	3.96	4.17	4.18	4.12	3.89	3.79	4.37	4.33	3.91	3.81
Holland†:										
per million living ...	—	—	—	134	131	147	161	—	—	—
per 1,000 births ...	—	—	—	2.58	2.53	3.00	3.35	—	—	—
Italy:										
per million living ...	—	75	—	59	56	—	—	—	—	—
per 1,000 births ...	—	2.41	—	2.45	2.86	—	—	—	—	—
Japan:										
per million living ...	—	—	120	—	120	—	—	—	—	—
per 1,000 births ...	—	—	—	—	3.59	—	—	—	—	—
Switzerland:										
per million living ...	—	—	—	64	44	49	60	62	—	—
per 1,000 births ...	—	—	—	3.37	2.42	2.62	3.19	2.93	—	—
Sweden:										
per million living ...	53	58	63	56	51	—	—	—	—	—
per 1,000 births ...	2.28	2.60	2.90	2.66	2.46	—	—	—	—	—

* The deaths assigned to pregnancy or childbirth in England and Wales (per million living and per 1,000 births respectively) in preceding decennia, commencing with 1861, were as follows:—1861-70: 341 and 4.70; 1871-80: 350 and 4.72; 1881-90: 318 and 4.73; 1891-1900: 301 and 5.09; 1901-10: 266 and 4.01. Prior to 1911 puerperal nephritis and albuminuria were not classed to pregnancy and childbirth, and consequently the rates shown from 1913 onwards are from 0.22 to 0.25 in excess of what they would have been under the old classification.

† The number of deaths per million living in Holland for 1911-15 (inclusive) was 126.

The number of deaths per million living in Denmark in 1920 was 60, and the number per 1,000 births was 2.35.

THE NEED OF RECONSIDERATION OF DIAGNOSIS IN CHRONIC CASES.

DR. CHARLES J. HILL AITKEN (Kilnhurst, near Rotherham) writes: A girl of 20 passed through an illness that, despite a tardy convalescence, was called acute bronchitis. Ten years later, considering herself to be of average health, she studied and took a diploma, qualifying herself thus to earn her living. As her health had deteriorated through her efforts, she rested for a year or two. Then, considering her health restored, she took a post offered her. Being enthusiastic and intelligent, her responsibilities were increased, as also her hours. At the age of 40 she was really a sick person, and for the first time in twenty years she was examined and pronounced phthisical. For ten years she lived a life of semi-invalidism, though reaping the reward of her care of herself, as she was better at 50 than she had been at 40. At this age (50) she resigned herself to a life of semi-invalidism. Then, by chance, on the Continent she consulted a medical man who, with a mind unbiased by her previous history, examined her systematically and decided to enucleate her tonsils, assuring her that she would benefit enormously by the operation. The tonsils were removed a year ago and found on section markedly diseased. A little while back the patient, having enjoyed health to which she had for years been a stranger, was x-rayed, and, as the doctor who removed her tonsils expected, her lung was found to present the picture of cicatrization. What had happened was this. Three years ago or thereabouts the lung had healed, but as the symptoms to which the patient was accustomed continued she presumed she was still the victim of phthisis, and but for the reconsideration of her chronic case by a skilled medical man she would have continued her life of semi-invalidism, when only diseased tonsils lay between her and health. The late Professor John Chiene used to say to his students, "Gentlemen, examine your patients." Someone equally well known, whose name I forget, used to say what amounted to "Gentlemen, re-examine your patients." I showed the above to the patient, and she remarked, "Yes. The moral for patients otherwise will be 'Change your doctor.'"

SERUM BY THE MOUTH.

DR. R. A. PARKER (East Kew, Victoria, Australia) writes: With reference to the letter published in your issue of May 12th, 1923 (p. 840), I have had no experience of the oral administration of serum in the treatment of diphtheria, but my letter merely referred to prophylaxis. When a member of a household is affected with diphtheria, the oral administration of anti-diphtheria serum to the remainder of the inmates is an efficient and convenient form of prophylaxis, and the method raises no objections from the parents and children. The dose should be one to two thousand units. The important point is that the serum must be sipped slowly and retained under the tongue for a minute or more before it is swallowed.

THE BLOOD PRESSURE AFTER OPERATION.

DR. A. LEHRNBECHER (Eberswalde, near Berlin) writes: In his letter published in the BRITISH MEDICAL JOURNAL of May 26th (p. 916) Dr. Edgar Cyriax refers to his investigations on blood pressure, with special regard to differences in the two arms in cases of unilateral conditions, and he states that my own results taken before, during, and after operations are very liable to lead one to wrong conclusions, inasmuch as the readings were taken indiscriminately from either arm. I regret that at the time of my investigations I was ignorant of Dr. Cyriax's publications, as owing to bad economic conditions in Germany the medical journals of other countries are unobtainable. I do not think, however, that this possible source of error has materially affected the value of my results, as it only comes into question when the readings are compared immediately before and immediately after the operation under different conditions—namely, the operating theatre or the ward. The readings during the actual operation and during the ensuing days are of much greater value from the point of view of prognosis, and in my series of cases these were always taken on the same side and under the same conditions. As the factors that influence blood pressure are as yet imperfectly understood, I consider it advisable for all future workers to avoid the source of error referred to by Dr. Cyriax, and to make it an invariable rule to take observations always from the same arm.

FLIES IN INDIA.

MOST of us are familiar with photographs, sketches, and diagrams illustrating the evil propensities of flies, but a little pamphlet issued by the Public Health Department of the United Provinces of India presents some novel features. It includes eighteen pen and ink sketches of Indian village life and the connexion of flies therewith, and the letterpress consists of a conversation between a villager distressed about his son and a doctor who tells him what he must do to avoid a recurrence of his trouble. Both text and pictures are the work of Mr. A. Sousa, F.R.C.S.Ed., who is Director of Epidemiology in the Province in question.

MESSRS. A. W. GAMAGE, LTD., inform us that they have purchased the entire stock of the Stelastic Tyre Company, and are offering the tyres, which consist of nearly every standard size, at prices much lower than the cost of manufacture.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 28, 29, 30, 31, 34, and 36 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 112.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

but the quantity is insufficient, the quality is mediocre, and the infant does not thrive.

At the recent conference to which I have referred above a strong plea was made for wet nurses, but as a rule an artificial substitute for the missing natural aliment has to be sought. Experience and the best medical judgement have confirmed the use of cow's milk in some form or other as generally the best and most practical substitute for mother's milk. It is when we come to the form in which cow's milk is to be used we find ourselves on debatable ground.

Primarily there were two schools of thought, one of which advocated living instead of "dead" milk. The advocates of so-called "living" milk claimed that raw milk possessed diastatic activities or ferments which played an important physiological part in regard to the child. Certain of these ferments of a digestive order, they considered, assisted and completed the child's own digestive capabilities, whilst others were absorbed by the mucous membrane of the intestines and played an exciting part *vis-à-vis* the nutrition and cellular activity of the infant. This theory, seductive as it is, is unsupported by proof, and the employment of raw milk in the hand-feeding of infants has not furnished us with the results anticipated by theorists. On the other hand, this method of feeding can produce very serious results by reason of the bacterial infection it can engender. Indeed, in the light of recent work dealing with the subject it has been established that, except in the case of human milk, the fact that milk is "living" constitutes a disadvantage rather than an advantage for the nourishment of the infant.

Professor Marfan, the distinguished French pediatrician, is very fond of saying, "Cow's milk is better raw than cooked for calves and better cooked than raw for infants." When we consider the effects of heat on the constituents of milk we find that the chemists tell us that there is no demonstrable difference in the composition of various animal caseins. To chemical science they are identical, but biology shows us that this conception is erroneous and that each species of animal possesses its own particular kind of casein, differing distinctly from the others in some special characteristic. It is the nature of this special characteristic that renders the casein of one animal to an appreciable extent toxic on ingestion by an animal of another species, and I suggest that it is this point which has hardly been fully appreciated in the past. Cow's milk is to a certain extent toxic to infants, and indeed to all animals except calves. We must start out with this fact in our minds in considering the use of cow's milk in infant feeding, and its appreciation once and for all disposes of any leanings towards raw milk, as heat has been found to be most efficacious in diminishing the special characteristics of an albumin. Heat causes an albumin to lose its individual characteristics and thereby diminishes its toxic action. In the manufacture of therapeutic serums the products are submitted to a series of successive heatings, which diminish this toxic action. The French are so alive to this need for heating cow's milk in order to adapt it to infant feeding that M. Rousseau, the chemist at the Ecole de Puériculture at Paris, has invented an apparatus by which a thin film of milk is submitted to a high temperature for a short period in a steam jacket.

Despite the progress which has been made in improving the quantity and quality of cow's milk at reasonable cost, the public health official and the pediatrician in Europe, Asia, and America are confronted in many localities (*a*) with the high cost, (*b*) with the scarcity, (*c*) with the impossibility of securing a safe supply, and (*d*) with the inability of a large number of householders properly to handle and prepare milk in the home.

In a report issued by the Treasury Department of the United States Government last October, Drs. Clark and Collins of the United States Public Health Services stated:

"Over large areas of our country (America) milk is not produced in sufficient quantity to supply the local needs. One of the writers visited a State where in some localities milk retails at a dollar a gallon, obviously beyond the means of a large part of the population. In other sections of this country it is produced in such quantity that much of it goes to waste because of lack of transportation facilities or the limit of the distance which milk may be transported, the factors of time and the temperature operating to cause deterioration. It is for these reasons that inquiring minds have turned to the solution of these problems and sought to make generally available this valuable food at reasonable cost by converting it into a form in which its bulk and perishable nature would be diminished. Two products have been the results of their labours—namely, (1) condensed and (2) dried milk."

The former of these products has been the subject of much controversy, and there have been battles royal between authorities on infant feeding in both Europe and America on the value of condensed milk; some writers have praised it to the skies, whereas others have damned it to the deepest depths of perdition. Except for occasional use most physicians in both hemispheres were against the use of condensed milk until comparatively recently, when in January, 1919, Professor Calmette made a notable communication to the Academy of Medicine in Paris. After recalling the terrible mortality which raged at Lille during the German occupation and describing the physiological misery of the inhabitants, the development of tuberculosis due to privations and insufficient nourishment, Calmette made an unexpected and surprising statement. He claimed that the decrease in the mortality of infants under one year of age was due to the fact that their exclusive diet was condensed milk supplied by the neutral Committee of Assistance.

"Experience," he said, "has demonstrated the quite remarkable excellence of this regimen; with the exclusive use of sweetened condensed milk our infant welfare centres, which have not ceased exercising their activities, have seen the disappearance of enteritis and the gastro-intestinal troubles to which, before the war, 18 to 21 per cent. of the Lille babies succumbed in the course of their first year."

The claim of such an authority as Calmette naturally received a great deal of attention, and his experiences in Lille have been followed up by other French workers.

Condensed milk has found an enthusiastic advocate in Dr. P. Lassablière, director of the laboratory of the Faculty of Medicine, Paris, who has written a small treatise entitled *Le Lait Condensé*, which was awarded the Prix Jeunesse by the Faculty of Medicine in Paris in 1919. This has been translated into English under the auspices of the monthly review *La Médecine*. The author's view may be gathered from the following brief extract:

"When a mother cannot nourish her child herself the doctor will do well to recommend condensed milk. Feeding with condensed milk requires careful management, like all artificial feeding, but I assert when so managed it is suitable for children of any age, even from the first weeks after birth. Hundreds of observations have led me to this conviction, which I hold in spite of the opinion of those medical men who see in the good results obtained a mere chance success or an apparent one only."

I am inclined to think that most British observers will be amongst the medical men so referred to, as personally I have found that infants reared on sweetened condensed milk are fat, pale, and often listless. The obvious fault in such dietary is the large amount of cane sugar, but this defect is glossed over by Dr. Lassablière in the following words:

"The small percentage of cane sugar in dilutions of condensed milk has been observed to do no harm, and even at its worst has nothing but a slight laxative effect if not digested. This is often desirable in infants with a tendency to constipation. The sour gaseous stools of carbohydrate indigestion are not due primarily to sugar but rather to the abnormal flora of the intestine causing putrefaction."

This statement I find most unconvincing, and I shall be surprised if this audience agrees with the French savant.

It must not be supposed that Calmette's remarkable claims for condensed milk have been generally accepted by the medical profession on the other side of the Channel; on the contrary there is a large group of specialists who strongly support the use of the second form of preserved cow's milk to which I have referred. Drs. Aviragnet and Dorlencourt are just as enthusiastic with reference to dried milk, and I think I am right in saying that, on the whole, while the older pediatricians in Paris stick for fresh milk the younger men advocate the dried variety. Milk powder is, indeed, only beginning to make headway, which is surprising, as the product was first suggested as a food for infants in France nearly twenty years ago. Personally I have been acquainted with milk powder for nearly fifteen years and have used it extensively in India. A great deal

Surgery.

120. Tuberculous Disease of the Knee-joint.

M. AUVRAY (*Bull. et Mém. Soc. Chir. de Paris*, June 5th, 1923, p. 812) describes a method he has adopted with success in treating tuberculous disease of the knee-joint in children. The method is based on the opinion that tuberculosis shows a predilection for the epiphysis because of the poor blood supply in that region. He finds that by increasing the blood supply at this point the tissues are made as unfavourable as possible for the growth of the tubercle bacillus. He uses a series of bone grafts, some of which penetrate the bone down to the epiphysis, whilst others are placed subcutaneously outside these and supply the nourishment necessary for their vitality. A marked cellular reaction follows round the grafts, and the grafts themselves grow in length and breadth. The author demonstrates the success of this procedure in twenty cases, and he says that the results depend largely on the use of grafts of bone and periosteum from the patient's tibia, careful asepsis, and rapid transference of the graft to the bed already prepared for it. After the operation complete immobilization must be maintained. The graft is made to penetrate the diaphysis and epiphysis without entering the joint, and appears to act by increasing the circulation around it. It also produces a process of osteitis, and this condensation leads to destruction of the diseased tissue. In all the twenty cases the grafts have retained their vitality and the results, extending over five years, have been entirely satisfactory. In all cases the patients have some mobility of the joint, and in a number of them the mobility is practically complete.

121. Fractures of the Femur in Children.

C. G. BARDICK and I. E. SIRIS (*Annals of Surgery*, June, 1923 p. 736) find that fractures of the femur in children are almost invariably followed by a good functional result. A satisfactory anatomical reduction is not essential for perfect function. In many cases where shortening appeared on discharge from hospital within a year or two there was an appreciable lengthening. In children up to the age of 6 the treatment recommended is suspension in a Bryant frame. Both legs are suspended from the frame, the buttocks being kept two inches off the mattress. Adhesive plaster is applied from the top of the thigh, as the whole of the soft parts and the lower fragment will otherwise be pulled down. In older children the most satisfactory procedure is the plaster spica with continuous extension. After reducing the fragments with plaster traction straps the femur is maintained in moderate abduction by a plaster spica. The plaster is kept on for six weeks and exercises then instituted. The use of a Hodgen or Thomas splint is not advised except in compound fractures. An open reduction is rarely indicated, as skeletal traction will almost always correct any marked deformity. A certain number of cases, irrespective of the form of treatment, will be followed by a lengthening of the fractured side. The report is based on 268 cases of fractured femur, and emphasizes the conservative mode of treatment adopted by the authors.

122. Primary Carcinoma of the Ureter.

To the thirty-two cases of carcinoma of the ureter already recorded in the literature, LOUISE H. MEEKER and J. F. MCCARTHY (*Journ. Amer. Med. Assoc.*, July 14th, 1923, p. 104) add one more case. The origin and nature of the fatal illness was primary carcinoma of the right ureter. Secondary and terminal factors were generalized metastases to the liver, pericardium, lungs, spleen, pancreas, left kidney, lymph nodes, and skin. There was right hydronephrosis. Anatomical findings consisted of dense adhesions about the tumour, the right external iliac vessels were embedded in the tumour, and a polypoid nodule, 1 by 2 mm., was present in the bladder mucosa near the orifice of the right ureter. Concerning the histogenesis of this tumour, the evidence indicated that it had developed from the epithelium lining the ureter.

123. Acute Osteomyelitis.

N. G. SUTTON (*Med. Journ. of Australia*, May 12th, 1923, p. 517) points out that acute osteomyelitis occurs most frequently in children and that the death rate is considerably over 10 per cent. The treatment is entirely surgical and should be insisted on as soon as a diagnosis is made. Bone destruction occurs early in the disease, and the only way of preventing it is by providing early drainage for the inflammatory products. The least radical operation advised is incision down to and including the periosteum. At the other extreme certain surgeons recommend that the whole diaphysis should be resected subperiosteally. Ochsner and Crile advise splitting the periosteum and carefully opening the medullary cavity and making sure that free drainage is provided. The author maintains that in practice it is always wiser, even in milder cases, to open the bone. Even if no medullary pus is found little harm is done, whilst if a medullary focus has been neglected great harm may ensue. Having opened the bone free drainage should be provided and an antiseptic solution used to wash out the cavity. The mortality of the disease depends on the promptness of diagnosis and treatment and the efficiency of drainage at the primary operation.

124. Pyelography in Obscure Abdominal Symptoms.

R. F. O'NEIL (*Boston Med. and Surg. Journ.*, May 3rd, 1923, p. 671) points out that many cases of abdominal pain have their origin in the urinary tract and are not infrequently unassociated with urinary symptoms or any gross abnormality in the urine. Since the wider application of pyelography great advances have been made in the study of renal and ureteral pathology, and we have an extremely accurate method of diagnosing or excluding lesions of the urinary tract. Pain in the acute lesions, as in renal colic, may be a fruitful source of error when occurring in the right side, as the symptoms are often confused with appendicitis and gall-bladder lesions. Certain calculi are not demonstrable by *x* rays and symptomatically cannot be diagnosed from kinks and ureter strictures without having recourse to the ureterogram. It is frequently impossible to judge whether a tumour of the right upper quadrant of the abdomen is a distended gall bladder, cyst, or lesion of the kidney. In all such conditions the pyelogram is valuable. A 12½ per cent. solution of sodium iodide is used, which is non-irritating and non-toxic; the fluid is injected slowly by the gravity method and stopped when it causes discomfort. Where bilateral pyelograms are wanted it is better to inject each side at a different sitting. Much depends on the proper interpretation of the plates, and what appears to be an abnormal renal pelvis is often merely a defect in the injection of the fluid. Illustrative cases are described with radiograms. The author holds that pyelography is a very reliable diagnostic procedure and one which should be employed in all doubtful cases of abdominal tumour before resorting to exploratory operations.

125. Operative Treatment of Hydronephrosis.

A. CHALIER and M. VERGNORY (*Bull. et Mém. Soc. Chir. de Paris*, March 27th, 1923, p. 501) report the case of a large hydronephrosis in a child aged 13, caused by constriction of the ureter over an abnormal renal artery, and discuss the treatment of the condition. The renal condition in the case reported remained undiscovered for a considerable period, and, as so frequently happens in such cases, the symptoms were thought to be gastro-intestinal in origin. The abnormal artery was the cause of the hydronephrosis, as it formed a sharp band across the ureter. Above the vessel was the distended ureter, while immediately below the ureter was normal and even diminished in size. The condition found was such as to make a conservative operation impossible. Division of the vessel alone would have led to necrosis of the area of the kidney it supplied and have resulted inevitably in a secondary nephrectomy. With regard to the best means of approaching the kidney, the authors consider the anterior route has great advantages in large tumours of the kidney; it gives the best access to the kidney and its pedicle, and it also enables the organ to be delivered outside the wound more easily. Also, where there is no evidence of infection they consider the transperitoneal route better than the paraperitoneal. It makes the separation of the colon easier and the investigation of the tumour is simple, while the peritoneal cavity can safely be packed off with swabs. Haemorrhage can be better controlled, and when the operation is completed the colon is simply restored to its position.

126. Fatality from a Local Anaesthetic (Albromin).

H. KAERN (*Ugeskrift for Laeger*, May 24th, 1923, p. 379) points out that the claim is made for the local anaesthetic albromin that it is practically atoxic. In a 0.5 per cent. solution it is said to be as effective an anaesthetic as a 2 per cent. solution of novocain-suprarenin. Albromin is also said to keep better and to be less affected by boiling. The author has given this anaesthetic in several cases, and though the anaesthesia was satisfactory the drug was apt to cause severe cerebral symptoms reminiscent of cocaine poisoning. These symptoms were much less frequent and severe when adrenaline was added to the solution, but, in spite of this precaution, a strong man, aged 28, operated on for a swelling of one testicle, died a few minutes after 70 c.cm. of a 0.5 per cent. solution had been injected into the field of operation. The symptoms were violent headache, followed by convulsions, cyanosis, and loss of consciousness.

OPERATION.

I do not propose to discuss details, but merely to refer to a few salient points. A rubber bandage was always used as a tourniquet, and the leg firmly held by an assistant at about 120 degrees, the heel resting upon the table across the opposite leg. The advantage of this is that further flexion and rotation can easily be obtained. The surgeon stands on the opposite side and is thus enabled to look directly into the joint. This series of cases only includes those in which a definite diagnosis of displaced cartilage had been made, therefore Annandale's transverse interarticular incision was used, modified by a slight curvature upwards by the side of the patellar ligament in front. Posteriorly it extended to half-way round the joint, the internal lateral ligament not being endangered, as this structure lies postero-internal. I am aware that the vertical curved incision of Sir Robert Jones gives a better exposure for a general survey of the joint, but when the diagnosis of displaced cartilage is practically certain the transverse incision gives a more direct approach.

The cartilage, having been exposed, is hooked out and as much as possible removed, the synovial membrane then being inspected for fringes, tags, etc. Sutures of plain catgut are used for synovial membrane and capsule, and silkworm gut for the skin, the sutures being interrupted so that any excess of post-operative effusion can escape between the stitches. A bandage is applied firmly before the tourniquet is removed, and the patient returned to bed without a splint. The following day it is usually found necessary to loosen the bandage as swelling of the joint renders it uncomfortable.

Probably no muscle in the body wastes more rapidly than the quadriceps extensor, and therefore massage of the muscle is commenced on the second day. At the end of four days the bandage is further loosened to allow limited movement, which is speedily encouraged, and the patient is allowed up with a stick at the end of twelve to fourteen days, the inner border of the boot being raised about a third of an inch to take the strain off the inner aspect of the capsule.

In this series of fifty cases on only one occasion was the external cartilage the seat of the trouble. Von Bergmann states that the internal cartilage is separated "more than twice as commonly as the external";[2] this probably underrates the relative frequency.

I append a list of the relative frequency of pathological changes found in this series; in many cases more than one change was present, but to avoid complications I have only indicated the most obvious lesion.

Circumferential split	27
Definite abnormal mobility	15
Frayed or flattened	6
Doubtful increased mobility	2

Although in the last group no definite mobility was discovered, removal of the cartilage relieved all symptoms—a condition which has been remarked upon by Rendle Short.[3]

With regard to the length of time which should elapse between separation of the cartilage and operation, it is wise to wait a few days until the acute traumatic inflammatory reaction has subsided. There seems no need to wait until all the fluid has been absorbed; this may be a matter of weeks. In seven cases an ounce or more fluid escaped on opening the joint and no untoward complications occurred.

PROGNOSIS.

In considering the prognosis special attention was paid to the following features:

(*a*) *Recurrence.*

(*b*) *Pain.*—This is, of course, a difficult symptom to assess at true value. Many patients complain of slight or diminishing pain for an interval varying from a few weeks to two years, but unless it caused actual disability such pain has been ignored in considering the prognosis.

(*c*) *Movement.*—With a relatively healthy joint, followed by absence of splinting and early movements, there seems to be no reason why movement should be restricted after operation.

(*d*) *Stability.*—A "feeling of weakness" is a common immediate after-result of meniscotomy. This is in a great measure psychical, as the patient is often accustomed to the deranged knee feeling weaker than its fellow. Encouragement soon leads to re-education and restoration of confidence; and in the majority of cases the patient soon learns to trust his knee again and appreciate its stability.

Results fall naturally into three groups:

1. *Good.*—Where there is negligible pain, no sensation of weakness, and movements are unimpaired. This group includes two professional footballers and one music-hall dancer, all of whom subsequently followed their normal occupations.

2. *Fair.*—This includes cases in which there is slight limitation of movement or pain occurring periodically or when the limb is placed in certain positions.

3. *Poor.*—This includes cases in which recurrence takes place or range of movement is less than a right angle. Also are included cases in which pain is frequent or a sensation of weakness remains in the joint.

In considering these cases it is interesting to note that prognosis appears to depend chiefly upon two factors—firstly, the number of attacks, and secondly, the age of the patient. Hence I have analysed the series from these standpoints.

A. *Prognosis in Relation to Number of Attacks.*

(Group I consists of cases with not more than three attacks; Group II of cases with more than three attacks.)

	Group I (29 cases).	Group II (21 cases).
Pain:		
None or insignificant	23	13
Periodic	3	5
With certain movements	3	3
Movement:		
Unimpaired	24	15
Slightly impaired	4	3
Less than 90 degrees...	1	3
Stability:		
Normal	27	15
Sensation of weakness	2	6
Results:		
Good	22	13
Fair	6	5
Poor	1	3

There were no recurrences in Group I; two in Group II.

It will be noticed that, as would naturally be expected, the results of operation before repeated attacks have caused stretching of the supporting structures or early osteo-arthritis are much superior to those obtained in later cases.

Symptoms recurred in two of the later cases. In one this was shown to be due to foreign bodies in a joint which was the seat of osteo-arthritis. In the other subsequent operation was refused and no cause could be stated; possibly the failure was due to excessive traction on the cartilage during removal causing separation of the posterior remaining portion—a danger which has been emphasized by Sir Robert Jones.[4]

The occasional pain relatively more frequent in the later cases was usually associated with changes in the weather, suggesting its association with secondary osteo-arthritis.

B. *Prognosis in Relation to Age.*

(Group III consists of cases under 30 years of age; Group IV of cases aged 30 and over.)

	Group III (31 cases).	Group IV (19 cases).
Pain:		
None or insignificant	26	10
Periodic	1	7
With certain movements	4	2
Movement:		
Unimpaired	25	13
Slightly impaired	4	3
Less than 90 degrees	1	3
Stability:		
Normal	28	14
Sensation of weakness	3	5
Results:		
Good	25	9
Fair	4	7
Poor	1	3

There was one recurrence in each group.

133. Idiopathic Dilatation of the Colon.

D. FIRTH and K. PLAYFAIR (*Arch. of Radiol. and Electrother.*, April, 1923, p. 321) point out that all cases of megacolon are not necessarily cases of congenital idiopathic dilatation, since enlargement of the rectum and colon may arise secondarily to mechanical obstruction low down from such causes as stricture. Hirschsprung's disease is a dilatation and hypertrophy of the large bowel due to an obscure cause, but apparently congenital in origin. The following hypotheses, among others, have been advanced to explain its origin—mechanical due to torsion or kinking, atresia of the rectum, and valve formation. Inflammatory changes seen in the gut are probably secondary in origin. A congenital origin (as was suggested by Hirschsprung), with a primary hypertrophy and a secondary dilatation, is supported by the early age of onset and may be allied to the congenital hypertrophic pyloric stenosis of infants. A case is recorded by the authors and a series of radiograms is given illustrating the condition; the gradual filling of the dilated intestine is well demonstrated. In the reported case there was also a scoliosis due to a congenital maldevelopment of half a vertebra, and it is interesting to note that it is said that congenital defects of the central nervous system are frequently associated with deformation of the skeletal system.

Radiology and Electrology.

134. The X-ray Diagnosis of Pulmonary Tuberculosis.

J. TILLMAN (*Hygiea*, June 15th, 1923, p. 457) has compared the findings of ordinary physical examination with those of the *x* rays in 300 cases of pulmonary tuberculosis in adults treated at a sanatorium in Sweden. In 25 per cent. the stethoscopic and *x*-ray examinations agreed approximately, and in 12.7 per cent. the *x* rays showed signs of disease, whereas the stethoscopic findings were negative or doubtful. In 28.3 per cent. the *x* rays showed more extensive disease than did the stethoscope, and in 30 per cent. the *x* rays showed more intense or severe disease than did the stethoscope. There were only 2 cases in which the *x*-ray evidence was negative, although tubercle bacilli were present in the sputum, and there was only 1 case in which the stethoscopic evidence was positive and the *x*-ray evidence negative. Only in 6 cases were the findings of the stethoscope demonstrably superior to those of the *x* rays, and the author concludes that the *x* rays give much more complete information as to the presence, extent, and severity of pulmonary tuberculosis than does the ordinary physical examination. On the other hand, he regards the *x* rays as an auxiliary to, and not a substitute for, other diagnostic tests. The comparison between the two methods was made in more or less unselected, consecutive cases, but all the technically faulty skiagrams were rejected, as well as those which could not be definitely interpreted as showing the presence or absence of tuberculous changes.

135. Skiagraphy of the Pubic Arch during Pregnancy.

CHASSARD and LAPINE (*Journ. de Radiologie et d'Électrologie*, March, 1923, p. 113) eulogize Fabre's method of examination of the pelvic inlet by pelvimetric skiagraphy. At the request of Professor Commandeur the authors have sought to apply the same method to the study of the pelvic outlet, and more particularly of the pubic arch. Clinically, the determination of its form is difficult. Measurement of the bi-ischiatic diameter does not indicate its height, shape, nor the opening of the subpubic angle. The authors describe their experiments with the "dry" pelvis, which led them to select the following position for the patient. In order to bring the pubic arch as closely as possible to the plate, the patient is placed astride of a narrow bench, with thighs abducted, the body leaning forward in order to place the pubic arch in position parallel to the plane of the plate. It will then be seen that the symphysis and the ischia are closely applied to the plate. Comparisons of plates thus obtained with skiagrams of the "dry" pelvis showed that, without absolute precision, they approximate very closely to the actual position. The patient's sacrum is inclined at (approximately) 45 degrees and the tube is directed vertically downwards; the tube selected should be hard enough (7° Benoist at least). It is indispensable that a reinforcing screen should be used, or, even better, a film with a double screen. The use of a localizing cylinder has been recommended also. The authors found that, in normal pelves, the subpubic angle ranged from 103 to 68 degrees, the average being 83 degrees. The bi-ischiatic diameter ranged from 124 to 93 mm., with a mean 109 mm. This corresponds very closely to the classic measurements of Baudelocque, Farabeuf, and other obstetricians. The authors conclude that radiography following a definite technique permits accurate estimation of all details of the pelvic outlet. They consider that this method of determining the obstetrical bi-ischiatic diameter is more accurate than those usually employed, and that it should be used whenever there is suspicion of possible deformity.

136. Radiotherapy in Sarcoma of the Recto-Genital Septum.

L. SZAMEK (*Zentralbl. f. Gynäk.*, May 12th, 1923, p. 752) describes a case of a diffuse, rapidly growing sarcoma of the connective tissue of the recto-vaginal septum, which was treated with radium and *x* rays with great success. When treatment was first instituted the tumour was large and infiltrating in all directions, but now, a year after treatment there only remains a little cicatricial thickening. Stimulated by his experience the author has collected statistics regarding sarcomata in this situation, and notes that operation on such cases is very unsatisfactory, the prognosis, as one would expect, being very much worse in the diffuse, but better in the hard circumscribed growths. Of 59 cases collected from the literature, the primary mortality was extremely high, being 30.5 per cent.; 37.2 per cent. developed recurrences or metastases soon after operation; only 32.2 per cent. left the hospital well, and as these were lost sight of the duration of the so-called cure cannot be discovered. Radiotherapy in the treatment of such cases seems to hold out great hopes, and, though statistics are rare yet, they are sufficient to show that radiation may cure where operation must fail; this is especially the case in the diffuse type, where the radical operation is so extensive that it is impossible to remove the whole tumour. The circumscribed variety are often mistaken for fibroids, etc., and their true nature is not discovered until sections are made after operation, and thus no statistics regarding radiotherapy for this type can be found. The author asserts that operation should not be performed first in cases which are to be treated later by radiotherapy, as operation opens lymph channels and blood vessels and allows sarcoma cells to enter the general circulation and produce metastases, radiotherapy being then of no use. As regards treatment, both radium and *x* rays are advised, and the author suggests that if possible the radium should be placed within the tumour tissue to be sure of the best results. From the literature it would appear that all sarcomata, whatever their nature, are benefited and often cured by radiotherapy, authorities differing, however, in its efficacy for different types.

137. Radiograms of the Foetal Skeleton as a Sign of Pregnancy.

F. STEIN and A. ARENS (*Journ. Amer. Med. Assoc.*, July 7th, 1923, p. 4) assert that in the second half of pregnancy foetal radiograms are of definite confirmative value, and they give some interesting illustrations of radiograms showing the foetus *in utero*. In recognizing clinically obscure presentations and positions, and in differential diagnosis between pregnancy and other abdominal enlargements, the *x* ray evidence is a deciding factor. By the employment of pneumoperitoneum the gravid uterus can be quite clearly shown on the radiogram in the early months of pregnancy, and the value of this in differential diagnosis is obvious. The demonstration of the foetal skeleton by *x* rays is, say the authors, the most positive sign of pregnancy obtainable before quickening.

138. Physical Principles in Irradiation of Cancer of the Uterus.

ACCORDING to R. COLIEZ (*Journ. de Radiologie et d'Électrologie*, May, 1923, p. 201), there is abundant evidence—both experimental, in connexion with experimental cancer in animals, and clinical, in connexion with cancer of the breast and uterus—that both radium and *x*-ray applications in small doses exercise a stimulating effect on malignant neoplasms. In radiotherapy it is therefore of paramount importance to avoid radio-excitation of tumour cells such as may follow (1) too short exposures or (2) incorrect calculation of the dosage of *x*-rays or radium emanation received by deeply situated tumours or their metastases. In contrasting the usefulness of *x*-ray and radium treatment, there is an increasing amount of evidence of a specific superiority of the gamma rays of the latter, as regards capacity for destruction of the neoplastic cell. The author, in advocating a combination of *x*-ray and radium therapy, points out that to give *x*-ray treatment alone is to deprive the patient of the action of the highly specific gamma rays of radium; on the other hand, to give radium treatment alone is to neglect the superior penetrating powers of large-field *x* radiations and to risk producing radio-excitation in deep metastatic foci. A detailed account is given of the application of these principles to the technique of irradiation in cancer of the cervix uteri.

Memoranda:

DICAL, SURGICAL, OBSTETRICAL.

NTINENCE OF URINE AFTER CHILDBIRTH.

INGUISHED gynaecologist has recently deplored his y to cure the troublesome incontinence of urine ometimes follows childbirth, especially when instru- delivery has been required. It would therefore pportune to draw attention to the value of elec- in this condition, where the patients are much d by the escape of urine when coughing or laughing, eed, on any sudden movement.

: considerable experience of such cases I can con- r commend a continuous current of 3 to 5 milli- s passed for three to five minutes through an appro- copper electrode introduced into the urinary canal, peated on alternate days over a period of one or two The condition occurs also in unmarried women, a same method of treatment is here equally and even apidly successful.

w. W. F. SOMERVILLE, M.D.

ANOSIS DURING OPERATION, DUE TO A MEMBRANOUS EPIGLOTTIS.

recently removing the tonsils of a woman, aged 30 years, and had just taken out the left one, when atient's breathing became very difficult, and she lly became completely cyanosed. This was remark- the circumstances, because the jaw was well forward ole time, the head back, and the tongue held out of uth by the anaesthetist with a sharp pointed tongue Very little blood had escaped into the pharynx, and ad been allowed to accumulate; swabbing over the produced only a little blood-stained mucus. The hetist, Dr. B. B. Sharp, had withheld any further hesia while it was still quite light, owing to the fact e breathing seemed somewhat laboured. The heart ngs had previously been examined and found normal. ficial respiration had the effect of forcing a little l air out of the chest, but there was no re-entry. l of improving under this treatment, the patient orse. At this point I examined the larynx with the and found that the epiglottis was entirely devoid tilage, and was of the consistency of a soft piece of eather. It was lying right over the larynx and in contact with the posterior pharyngeal wall, to which adhering by means of sticky mucus. It was thus as a valve, permitting a little air to escape from est but none to enter. On hooking the epiglottis d with my finger, the patient took several deep s and became quite pink again.

ould have been quite possible to grasp the epiglottis tonsil volsellum and hold it forwards, but as the ce of such an instrument in the mouth for other es than its own renders the removal of a tonsil and ing of the vessels very difficult, I continued the ion without artificial aid, stopping at intervals to p the epiglottis whenever the respiration became ed.

possible that some unexplained deaths under anaes- may be due to this cause, which may have remained overed *post mortem*, for I notice that the consistency epiglottis is not then usually examined. Even if it its valve-like action in preventing respiration might apparent after death.

ould like to suggest that, in every case where other- nexplained dyspnoea occurs during anaesthesia, the be examined digitally; as I am quite sure that had ot been done in this case immediate tracheotomy have been necessary, and, as it happens, effective. is not desirable to perform tracheotomy without a strable and irremovable cause for obstruction in the , pharynx, or mouth; which makes such an examina- ll the more necessary.

H. M. WHARRY, F.R.C.S.,
Laryngologist, Mount Vernon Hospital for Diseases of the Chest.

Reviews.

THE COMMON NEUROSES.

DR. ROSS is to be congratulated on having produced in his book on *The Common Neuroses*[1] a volume handy in size and essentially readable in style, wherein the practitioner may find a useful guide to the treatment of many of his patients. Here are no abstruse discussions of psychological theories, no bewildering confusion of psychological terminology, but a plain statement of experience which anyone can understand. After an informing introductory chapter psychological views as to the etiology of the neuroses are briefly and simply discussed. Stress is rightly laid on the emotional reactions of the patient and a clarifying distinction is drawn between the neuroses and the psychoses. A simple, and therefore acceptable, classification is given into neurasthenia, hysteria, and the compulsion neuroses. The symptoms and diagnosis of neurasthenia are next considered in two chapters, which are short but full of wise observation, and fruitful in practical deductions. The general treatment and the treatment of special symptoms are next carefully described, and it is well to note that there is nothing here which is not within the competence of any general practitioner to carry out, given only the necessary time and patience.

The Freudian method is discussed, and while the author pays a deserved tribute to Freud for his pioneer work the dangers of the method of psycho-analysis and its possible therapeutic shortcomings are pointed out. It is especially interesting to note the importance attached by the author to the value of work, and he is equally right in dismissing as a grossly exaggerated factor the excuse of overwork as a cause of the neuroses.

The author's treatment of the subject of hysteria is practical and the negativism of the hysteric is emphasized. We are interested to note that he is no believer in the reflex paralysis of Babinski and Froment, of which so much was heard during the war; thus does he confirm the suspicions with which this doctrine was received by many, who, however, hardly felt equal to contradicting authorities so eminent. Dr. Ross favours the removal of the somatic symptoms of hysteria, such as paralysis, by direct suggestion coupled with explanation, and wisely insists on the importance of the physician being in a position to devote enough time to his first sitting. This treatment is, however, preliminary to the treatment of the underlying mental state, a matter of greater difficulty.

The book as a whole may be commended as a sane and balanced exposition of the views of one of wide experience. No doubt it will not find favour with those whose ideas are firmly set in one or other special psychological groove, but the student may learn a great deal from its pages and be grateful to Dr. Ross for clarifying much that has been made obscure. There are scattered throughout the book such *obiter dicta* as "Beware of praise from the hysteric," which add to the interest of the text and impress its lessons on the reader.

A TEXTBOOK OF MIDWIFERY.

DR. FITZGIBBON has followed the example of his two immediate predecessors in the Mastership of the Rotunda Hospital in publishing a book on midwifery. As the name, *Practical Midwifery*,[2] indicates, he deals mainly with the practical aspects of the subject. Had he done so exclusively the book might have been more useful to the class of readers it addresses; his descriptions of the early ovum and placentation are so abbreviated that one not already familiar with the subject may find it very difficult to follow.

Dr. Fitzgibbon deals very fully and elaborately with the whole subject of normal pregnancy and labour. In his introduction he states: "Ninety per cent. of cases will be found to be normal, and interference will result in

[1] *The Common Neuroses: their Treatment by Psychotherapy.* By T. A. Ross, M.D., F.R.C.P.E. London: Edward Arnold and Co. 1923. (Demy 8vo, pp. xi+256. 12s. 6d. net.)

[2] *Practical Midwifery.* By Gibbon Fitzgibbon, M.D., B.Ch., B.A.O.Dub. Univ., F.R.C.P.I., L.M., Master, Rotunda Hospital, Dublin. London: J. and A. Churchill. 1923. (Demy 8vo, pp. 534; 175 figures. 16s. net.)

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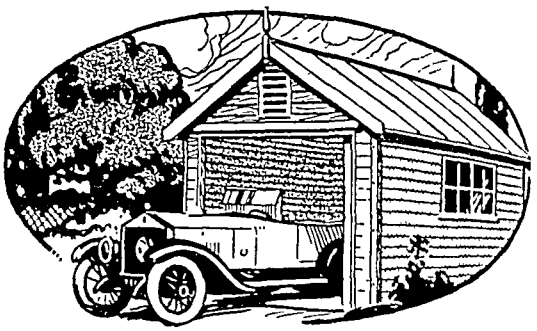

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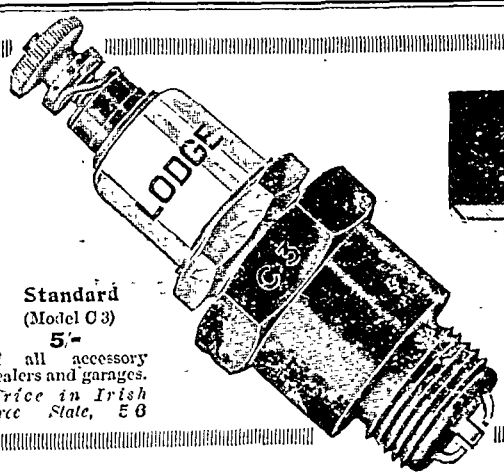

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greatest at the commencement of life, and becomes less as development proceeds. The rate of fall in the ratio is greatest in those animals with the shortest foetal life.

It is pointed out that these general laws suggest many interesting applications. The rate of growth of cells is apparently determined largely by the ratio between the mass of the nucleus and the mass of the cytoplasm, and anything which increases this ratio should act as a stimulant to cell growth. Starvation is the most obvious way in which this ratio can be increased, and starvation appears to stimulate cell growth as an after-effect, for if the growth of an animal is temporarily interrupted by starvation, growth is accelerated when feeding is resumed, and the animal temporarily starved may finally outstrip control animals.

Finally, there appears to be a possibility that research along these lines may throw some light upon the causation of the abnormal growth occurring in malignant tissues.

The possible applications of the method described are, of course, matters of speculation, but the writers appear to have rendered an important service by obtaining a basic series of facts which should serve as the foundation to many interesting studies upon the nature of the process of growth.

BRAIN ABSCESS.

DR. EAGLETON's book on *Brain Abscess*[5] is a record of personal experience in thirty-one cases, but he has also studied and analysed the clinical and statistical records of 125 cases of cerebellar and 145 cases of frontal lobe abscesses. From this combination of material the treatment of brain abscess has been considered; considerations based on surgical pathology have served as the guide to much of the surgical treatment.

Chapter II deals with the general surgical technique of intracranial operations, but we are frankly disappointed with the information it conveys. In such a highly specialized monograph as this is intended to be, details of technique are expected, but the subject is dismissed in a somewhat curt fashion. For example, the directions for ventricular puncture are altogether inadequate. The chapters which deal with surgical pathology are more helpful. The author has adopted a terminology which as yet is unrecognized by other authorities. Depending upon the mode of entry into the brain of the different infections which cause brain abscess, he uses the terms "adjacent" or "secondary," and "intermittent" or "tertiary." This nomenclature seems unnecessarily complicated and the terms do not appear to us etymologically correct.

Perhaps the most interesting part of the volume is the author's argument that from certain definite points of extracerebral origin cerebral abscess will occur in correspondingly definite cranial sites. So much does this view influence him that he believes the principle to be one of great importance in diagnosis. The diagnosis of the location of the abscess is described from the standpoint of where the intracranial pathological process will be with a given mode of entry rather than from that of the presence or absence of neurological symptoms produced by the lesion. This teaching has dangerous elements, and it is unlikely that it will receive the blessing of neurologists.

The volume is really the record of the experience of a surgeon who has done his best to recognize and to treat the different problems of intracerebral suppuration; as such it will repay careful perusal, but it is not to be accepted as expressing the considered opinion of the majority of surgical observers. The addition of some anatomical illustrations would have materially enhanced the value of the book.

ANAESTHESIA.

IN his handy little monograph, *Practical Anaesthetics*,[6] Dr. CHARLES F. HADFIELD has as his object, "to give to the medical and dental student and practitioner theoretical and practical information sufficient to enable him to give anaesthetics for all usual operations." He begins with a short chapter on the history of anaesthetics and then deals with such matters as vomiting, delayed chloroform poisoning, examination, and after-treatment. Next he describes signs and stages of anaesthesia, alkaloids used preparatory to induction, the airway and automatic respiration. Chapters follow on nitrous oxide, nitrous oxide with air or oxygen, and nitrous oxide in minor and major surgery. Attention is then directed to ether, Clover's inhaler, mitigated ether, open ether, ethanesal, warm ether vapour, and rectal, endotracheal, and intravenous ether. Passing next to chloroform, its physiological action, the Vernon Harcourt inhaler, open methods, and the Junker inhaler are described in turn. A chapter follows on A.C.E. and similar mixtures, and is succeeded by others on ethyl chloride, spinal anaesthesia, anaesthesia in children, and on some special operations and diseases. The work is brought to a close by a chapter on anaesthetic accidents, emergencies, and shock.

Careful perusal of the volume brings us to the conclusion that the author has succeeded in the task he set himself. While, of necessity, somewhat dogmatic in his statements, as is but natural in a short textbook on a by no means simple subject, his teaching is sound and his exposition clear and interesting. He has not made the mistake of overloading his text with many illustrations of complicated apparatus, and in the few cases in which apparatus is figured the descriptions are simple, those seeking fuller information being referred to appropriate monographs. The printers have done their part of the work well, paper, type, and binding being all that could be desired. The book can be confidently recommended to the student and general practitioner in search of a brief, sound, unbiased exposition of current practice in the art of anaesthesia, not involving the use of complicated and expensive apparatus.

A FRENCH CYCLOPAEDIA.

THE fifth of the twenty-two volumes of ROGER, WIDAL, and TEISSIER's *Nouveau Traité de Médecine*[7] is divided into two portions, the first of which deals with the infectious and parasitic affections, almost entirely tropical, left over from the previous instalment. The first two articles, on soft chancre and ulcerating granuloma of the pudenda, are contributed by Dr. R. Demanche, who gives due credit for the original description of the latter disease to Conyers and Daniels twenty-six years ago, and refers to the recent therapeutic use of emetine for its cure. Goundou, first described by the late Professor Alexander Macalister of Cambridge under the title of "The horned men of Africa," is discussed by Dr. Joyeux, who leaves open its relation to yaws, also summarized by him in the next article. Drs. Nicolle and Blaizot, of the Pasteur Institute of Tunis, write on relapsing and tick fever, and Dr. Thibaut on sodoku, more familiarly known as rat-bite fever. Malaria occupies a hundred pages, containing many charts, in some of which illustrations of the form of the parasites present at the various phases of the paroxysm are reproduced at the bottom of the graph, thus bringing out the parallel evolution of the parasite and of the temperature. This important article and that on haemoglobinuric fever have appropriately been contributed by Drs. H. Vincent and J. Rieux of the French Army. Among the articles on the parasitic diseases attention may be called to those on hydatids and cysticercus by Dr. F. Dévé of Rouen, who has so specially devoted himself to the subjects. Professor E. Brumpt's descriptions of human trypanosomiasis and bilharziasis are illustrated by a number of original figures.

The second and considerably the larger part of this work is devoted to an authoritative account of malignant disease in all its aspects by Professor Gustave Roussy, who is so widely known as an expert neurologist, and Dr. Maurice Wolf of Paris. This is indeed a most valuable monograph, combining a critical survey of our knowledge with the

[5] *Brain Abscess: Its Surgical Pathology and Operative Technic.* By Wells P. Eagleton, M.D. New York: The Macmillan Co. 1922. (Med. 8vo, pp. xix + 297; 40 figures. 31s. 6d. net.)

[6] *Practical Anaesthetics for the Student and General Practitioner.* By Charles F. Hadfield, M.B.E., M.A., M.D.Camb. London: Baillière, Tindall, and Cox. 1923. (Demy 8vo, pp. x+244; 32 figures. 7s. 6d. net.)

[7] *Nouveau Traité de Médecine.* Published under the direction of Professors G. H. Roger, Fernand Widal, and P. J. Teissier. Secrétaire de la Rédaction, M. Garnier. Fascicule V, Maladies infectieuses et parasitaires (fin)—Le cancer. Paris: Masson et Cie. 1922. (Roy. 8vo, pp. viii + 784; 35 figures, 4 coloured plates. Fr. 50.)

Bordier speaks highly of the value of diathermy for the treatment of cold paralysed limbs in anterior poliomyelitis. It is a valuable aid to electrical treatment, and the antagonists to the latter could not rationally object to it. The recovery from paralysis is greatly delayed by cold, and no method of heating is so effective as diathermy. I noted considerable improvement in the one case which I treated by diathermy for a period of three weeks. The treatment by diathermy of anterior poliomyelitis, in which the limbs are cold, is well worth full investigation.

Diathermy is, in my experience, most valuable in the treatment of the pain and spasms accompanying haemorrhoids. A case has recently been under my care at St. Bartholomew's Hospital. The patient complained of pain, bleeding, and the "coming down" of piles during defaecation, which he had to replace afterwards. After a course of diathermy, applied by means of a rectal electrode, the pain and bleeding disappeared. He said that something came down during defaecation, but only to a slight degree. He was examined by a surgeon with the proctoscope, but no haemorrhoids could be seen. If new fibrous tissue has formed in the pile it cannot be expected that diathermy will make it disappear, but the pain and discomfort can, in my experience, be permanently relieved.

Diathermy should be an efficient method of treatment of dysmenorrhoea by reason of its power to relieve congestion and painful spasmodic contraction. It is recommended by Bordier, and I believe that Dr. Turrell has obtained good results. The question of technique is one of importance. Bordier treated one case by placing one electrode in the vagina so that the metal end made contact with the cervix, the other being placed on the hypogastrium. By this method the uterus would receive a greater share of the diathermy than would be the case if both electrodes were placed on the skin, the vaginal electrode replaced by one on the buttocks or sacrum.

Diathermy should also be given a trial in cases of chronic para- and peri-metritis. I treated one case of parametritis before the war, and the patient derived some relief from pain, but did not continue the treatment.

A malady which is frequently seen in hospital electrical departments is coccygodynia. I see that Bordier, in his book, recommends diathermy for this condition. In my hands this treatment has not been very satisfactory.

Diathermy has been tried by a few workers in the United States and Germany for pulmonary tuberculosis. It has been said that in some cases the night-sweats had ceased, the temperature was lowered, and that the patients felt better and gained weight. If diathermy possesses therapeutic action in pulmonary tuberculosis the benefit derived is likely to be due to the increase of blood and lymph supply to the affected parts, and perhaps to the increased secretion of mucus, not to a direct germicidal action, because a temperature high enough for this purpose cannot be safely produced in the lungs. Nagelschmidt says that early cases only should be treated; if more advanced cases are treated there is a risk of increasing the haemoptysis.

I have refrained from speaking on the use of diathermy for the treatment of hypothermia, local and general, of neuritis, and of high blood pressure. Its value has been sufficiently established in these diseases.

In the subsequent discussion I trust that we shall hear the experience of others in the treatment not only of the diseases which I have mentioned, but also of others. Diathermy has established its position in therapeutics; it can cure or relieve some diseases for which other measures are unsuccessful. In other diseases in which simpler therapeutic methods are often successful diathermy has procured success in cases that resisted treatment.

C. A. ROBINSON, B.A., M.B., D.M.R.E.,
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THE TREATMENT OF GONORRHOEAL AFFECTIONS BY DIATHERMY CURRENTS.

THE following is a brief account of some work which has been carried out on the treatment of gonorrhoeal affections by diathermy currents. Dr. Cumberbatch has mentioned the inception of the investigation by him before the war. It was taken up again after the armistice, and it is since then that I have been associated with it. All the earlier work and most of the later has been done in the Electrical Department of St. Bartholomew's Hospital, presided over by Dr. Cumberbatch.

In January, 1922, we made a communication to the Electro-Therapeutic Section of the Royal Society of Medicine, giving the results of treatments up to that time. Treatment of gonorrhoeal infection of the urethra in the male was undertaken last of all the regions on account of the fact that the work was started as an investigation into the treatment of gonorrhoeal rheumatism. It was natural, therefore, that cervicitis and urethritis in women and prostatitis in men should first receive attention after the joint affections.

The diathermy current was chosen because of the vulnerability of the gonococcus to heat and because by this means we can raise the temperature of the tissues concerned.

Growth of the gonococcus takes place in culture between 77° and 100.4° F. The optimum temperature for its growth is from 95° to 98.6° F. Exposure to 109° F. for seventy-six minutes, or to 111.2° F. for fifty-four minutes, or to 113° F. for thirty-seven minutes kills the organism. It is clear, then, that the gonococcus is less resistant to rises of temperature than most of the pathogenic organisms.

The foregoing observations, however, only apply to cultivations, and the temperature which is most suitable to its growth in living tissues is not known. Nor do we know the temperature to which it is necessary to heat it in order to kill it in these circumstances.

From the results of repeated observations it is clear that in the treatment of gonorrhoea by diathermy the effect produced is not due to the direct effects of heat alone. Gonorrhoea affecting the female urethra and cervix may be rapidly abolished, yet I have never been able to satisfy myself that the female urethra or cervix is heated above 112° F. during these treatments, and it is not necessary to heat it to this degree for longer than ten minutes. On the other hand, we have frequently heated the first two inches of the male urethra to this temperature for longer times without effect on the course of the disease.

From the results of observations on the effects of heat on cultures it follows that the two factors, temperature and time, must be taken into account in considering the direct lethal effect of heat. In living tissues there are the indirect effects of heat also to be considered. These indirect effects may be due to the effects of heat upon blood, upon the vessels, upon the mucus-producing cells, and upon other cellular activities. Indirect effects of heat may be present in laboratory experiments from chemical changes taking place in the culture medium on account of the heat, but it is doubtful if this will be so at the temperatures attained in these circumstances. If the indirect effects are absent it would account for the higher temperature and the greater time required to destroy under these conditions.

The fundamental results of raising the temperature of living tissues are not known. There are two factors to be considered—namely, the temperature attained and the time of the application. In dealing with living tissues the element of time is not so important as in the case of its application to cultures, because in the former reactions affecting blood and blood supply and other tissue reactions are set up after a short application and continue for some time afterwards. It is for this reason that a treatment lasting ten minutes or so may be as effective as one lasting half an hour.

Gonococcal infections of joints, of the cervix and urethra in females, and of the prostate and epididymis in males, are amenable to diathermy treatment because by this means these parts can be heated to a temperature which for gonococcus in these situations is lethal within the time of a treatment, when to the direct effect is added the secondary effects of heat and because this temperature is below that producing pain or destruction of the tissues concerned. In considering the temperature-time product in regard to the secondary effects of heat there is a minimum temperature which must be attained in order to get these effects and also a maximum beyond which they are again

LONDON'S WATER SUPPLY.

THE Metropolitan Water Board's seventeenth annual report, by Sir Alexander Houston,[1] for the year ending March 31st, 1923, is notable for its full introduction, in which a vivid and most interesting account is given of the whole water scheme of the metropolis. The story is clearly a labour of love on the part of its author, who sedulously avoids technicalities of language which might repel a reader without scientific knowledge. It is intended for "people of all classes," who "are now taking a real interest in water and are wanting to know much more than previously of rainfall, sources of supply, methods of purification, and means of distribution."

The supply is for nearly seven million persons, covering over 537 square miles in six administrative counties. Four-fifths of the water is drawn from polluted rivers, and yet London is one of the healthiest cities in the world. The daily average supply is 250,000 million gallons, of which three-fifths come from the Thames, one-fifth from the Lee, and one-fifth from deep wells. It is distributed by 6,577 miles of pipes, and over 43,000 horse-power is needed for its collection and distribution.

Deep Wells.

Deep wells are the purest source, situated in Kent and the Lee valley, and though the water is hard the bulk of it needs no treatment. Three of the wells, however, are so situated or contain such chemicals in solution as to require filtration or chlorination or both. Deep well water is clear, sparkling, and pleasant to drink, with few bacteria or microbes of any sort, and its hardness is not regarded as harmful. Of the (in round numbers) 40 million gallons daily from deep wells in Kent and the Lee valley, 10 millions are not supplied directly, but are pumped into the Lee or New River, and pass through their filters. Sir Alexander Houston says that the supply from the deep wells, even omitting what is pumped into the Lee, would suffice to supply Birmingham at the rate of 35 gallons per head per day. That is a kind of illustration he is fond of as a convenient measure of the greatness of the scheme.

River Sources.

The Water Board is not the conservancy authority, and so has no control over pollution of the Thames and the Lee. Its functions begin with the intakes. The Thames, though polluted, is partly or largely self-purifying, and in summer, when the level is low, many sources of pollution fail to reach it above the intakes.

The New River is a diversion of the waters of the Upper Lee into an artificial channel nearly thirty miles long. It is the purest of the river sources, but the storage reservoirs are small and the filtration area limited, so that up to a few years ago the winter floods used to cause deterioration of the supply, and chlorination before filtration often gave the water an appreciable chlorine taste. Difficulties, however, have now been overcome, and the only remaining trouble is vegetable growths, which in warm spring weather may interfere with the flow and block the sand filters, so that rapid mechanical filters are now being experimented with. In fact, during the whole year now a high standard of purity is reached. The New River itself would suffice to supply the water needs of Liverpool or Manchester at 35 gallons a head per diem.

The River Lee.—Izaak Walton's river is not too pure, but the reservoirs, which in total area amount to lakes, purify by sedimentation, and there is also slow sand filtration. The Lee yields over 30 million gallons a day, and would meet the needs of both Sheffield and Bristol at 35 gallons a head per diem.

The Thames.—This great river provides about 150 million gallons per day, and at the 35-gallon standard would supply half a dozen great cities — Glasgow, Birmingham, Manchester, Liverpool, Sheffield, and Bradford. The water is all filtered, nearly all is stored, and half is chlorinated excepting in floods. The reservoir capacity is over 7,000 million gallons, and is being doubled. Before the war 70 to 80 million gallons were pumped daily for purification by reservoir storage, but the cost of coal and its scarcity in the war led to the substitution of chlorination, and that has been so effective as to be still continued. The coal saving last year was £21,000, and this year will be over £16,000. The dose of chlorine is very minute—barely one part in two millions—but in respect of bacteria it improves the water a thousand times. In high floods the process is discontinued, and water long stored in Staines Reservoir is supplied instead. About half the water supply from the Thames is not chlorinated, but purified by storage and slow sand filtration at Southwark, Vauxhall, Chelsea, and Lambeth. Long stored water does not block and involve renewal of filter beds, as raw water does. Filtering of water from Walton Reservoir can go on for months instead of for weeks without requiring attention. Storage also slightly softens water, and so would save soap if the fact were domestically recognized.

Sir Alexander Houston concludes his graphic picture of London's water supply by asking his readers to conjure up a vision of vast underground lakes feeding surface rivers; of deep wells of great purity; of imperfect sources of supply purified either in enormous artificial lakes covering 2,000 acres and holding nearly 13,000 million gallons, or by chlorination; and of water finally delivered to consumers after slow sand filtration.

[1] London: P. S. King and Son, Ltd., 4, Great Smith Street, Westminster. (Fcap. 4to, pp. 90; with plates and diagrams. 15s. net.)

INTERNATIONAL DENTAL FEDERATION.

THE second annual meeting since the war of the International Dental Federation was held at the Sorbonne, Paris, from August 6th to 10th. The meeting was opened by M. Maunoury, Minister of the Interior, in the absence of the Premier, M. Poincaré, who was unable at the last moment to attend.

The Minister of the Interior was supported by Dr. Truman W. Brophy of Chicago, President; Mr. W. B. Paterson of London, Honorary President; Messrs. Blatter, Georges Villain, M. Roy, and Professor Viau, of Paris; Messrs. J. H. Mummery of London, Walter Harrison of Brighton, and Professor Gilmour of Liverpool, Dr. W. Guy and Mr. J. A. Amoore (President-elect of the British Dental Association) of Edinburgh, Dr. Florestan Aguilar of Madrid, the Secretary-General, Dr. Wheeler of New York, Dr. Dubeau of Montreal, Dr. Edward C. Kirk of Philadelphia, Dr. Potter of Boston, U.S.A., and many others.

Dr. Aguilar, the Secretary-General, described to the meeting the terrible state of poverty and starvation in which he had found many of the once leading dentists of Petrograd and Moscow; and as a result of a visit to those cities during the past winter he had, in the name of the Federation, advanced several hundred pounds to be distributed to dentists through the Committee of Dr. Nansen's fund.

The President of the Federation detailed the work of the Federation since its last meeting, and made reference to the possibility of some financial co-operation with the Rockefeller and Carnegie Trust funds for the purpose of spreading abroad generally the considered opinions of the Federation on dental education and dental hygiene. M. Maunoury eulogized the work of the medical officers of the public health service in France. Their work was conducted, he said, under great difficulties of public finance owing to the results of the war, but nevertheless it was conducted with efficiency and economy, and under it he included such public dental services as were possible. More, he said, might be expected year by year as the country improved in prosperity, and on behalf of himself and the Minister of Health he promised that the public health should continue to occupy a first place in all Government measures. From professional bodies, like the Federation, ministers and Government departments welcomed on all occasions counsel and advice. At the conclusion of the Minister's remarks, the representatives in the Federation of some fourteen nationalities made short speeches, chief among which was the speech of Dr. W. Guy of Edinburgh, representing Great Britain. Dr. Guy's eloquence and its

must be sufficiently high, and this meant that the condensers must not be too big. He wished also to say that diathermy and intensive high frequency did have a definite effect upon the growth of bacteria. Twenty-five years ago he conducted a series of experiments with a bacteriologist on the growth of the diphtheria bacillus, and by putting the test tube into the solenoid through which the high frequency current was passing it was evident what an influence the current had on the growth of bacteria, and it might help the growth of bacteria in the body in the same way. Next, Dr. Robinson had pointed out that in gonorrhoeal arthritis, say of the elbow-joint, it was better to treat the source of the poison. There were a very large number of distressing cases of chronic blood poisonings, perhaps of the rheumatic type. Many cases of this kind were due to septic infection of the tonsils, which could be dealt with by surgical means, but there were a series of most distressing cases in which blood poisoning was due to haemolytic streptococci entering the tonsils, and the tonsils were very small and could not be removed, at least without a good deal of haemorrhage. There were a certain number of cases in which tonsillectomy could not be practised. Was there any possibility of surgical diathermy being applied to the tonsil in such cases, to get rid of the focus of infection? The question of high blood pressure was a very difficult one; he quite agreed with Dr. Turrell that very often the patient might be made worse by altering the blood pressure. On the other hand, high blood pressure did mean a state of danger, and if people could be kept below that danger limit their lives would be prolonged. To bring the pressure down too much in an artificial way was to do harm, but there was surely some carefully adjusted method which would be useful. In most cases of increased high blood pressure there was interstitial nephritis. Dr. Howard Humphris had said that general diathermic treatment would increase the elimination of waste products. If that was the case it ought to be followed. In conclusion he referred to the treatment of haemorrhoids by intensive high frequency, a method of treatment he had carried out for twenty-five years, and the more he used it the better he liked it. He had had many cases come back after four, five, or six years with a request for another set of treatments, and the patients had told him that the course he had given them previously had ensured their comfort until then. He usually gave twenty minutes' treatment on a condenser couch for two or three times. The same thing applied to simple congested prostates.

Dr. C. B. Heald (London) said that the headings furnished by Dr. Cumberbatch provided an excellent basis for discussion, and he proposed following these in the remarks he had to make. With regard to what Dr. Cumberbatch had said about machines, he was convinced that this suggestion for removable ends in the spark-gap was both useful and practical, nor should there be any difficulty in manufacture. He would like to ask Dr. Russ whether anything could be done to prevent sooting up of the spark-gaps; his impression was that this sooting took place more rapidly with some samples of gas. Under his heading of "deep heating" Dr. Cumberbatch had described certain paradoxical effects. The speaker's own clinical experience had taught him that in using diathermy, especially for deep-seated organs, it was not a question of how much current could be brought to bear but of the most suitable quantity and technique. Indeed, he now felt certain that if diathermy was used when acute lymphangitis was present it was essential that small currents and long times should be employed. Dr. Cumberbatch had asked for their experiences in certain special diseases, and he would like to deal particularly with three. With regard to gonorrhoea, he had had the pleasure of receiving instruction from Dr. Robinson in his methods, and so impressed was he of the value of these that he had adopted them as a routine practice at his hospital. He would, however, like to ask him whether in his diathermic treatment of the epididymis he had ever produced sterility or prevented this most common sequel of a gonorrhoeal affection of this organ. He also agreed with him as to the necessity of treating the primary focus in all cases of gonorrhoeal arthritis. With regard to cold limbs and poliomyelitis, he had a paper on this subject in course of preparation, but he could say there without entering into too great detail that he had met with most remarkable and uniform success, and that if the current was employed by a technique he had elaborated improvement took place even in cases of very long standing. One case he had under treatment at the present time was showing rapid and remarkable progress, although there was a previous history of twelve years without improvement. In lung cases some of the remarkable effects he had seen from the use of the diathermic current and its cousin, the vacuum electrode, could not be accounted for entirely by the heating effect and required further research. Passing to one or two points outside Dr. Cumberbatch's paper, he had been particularly struck by a remark by one of the previous speakers that "Other remedies having failed, the case was presented for electrical treatment." This, unfortunately, was often too true, and the great value that electrical treatment could have in the early or acute stages of disease was too little known or realized. This, however, was their fault as electro-therapeutists, and it was up to them to educate, by convincing scientific proof, their medical colleagues. The first step in this education must be to prove to them that diathermy not only did not irritate or stimulate when properly applied, but was soothing and sedative. When, however, such a great authority as Sir Robert Jones categorically stated that any form of electrical treatment in the early stages of poliomyelitis was actually harmful, it necessarily followed that cases in the early stage of that disease were rarely referred to the electro-therapeutist. The speaker, however, had no hesitation in saying that not only would these children benefit by the early application of diathermy, but a material lessening of the crippling effects of the infection might be expected. He thought there was need for scientific investigation of the question whether diathermy did not act also in some manner that was not entirely due to the heating effects of the current. He was, therefore, particularly glad to hear Dr. Batten's observations on Professor Phillipson's recent paper. Finally, he wished to agree most strongly with Dr. Turrell's remarks on the necessity for viewing each case from the physiological and pathological standpoint before any course of electrical treatment was embarked upon. It was in these respects that the non-medically qualified people who used electrical currents were liable to bring the science of electro-therapeutics into danger.

Professor Sidney Russ (Middlesex Hospital) said that, knowing Dr. Cumberbatch as an experimentalist, he rather expected to hear him say that he would like a machine which would give him a bigger range not so much of output as of frequency of oscillation. That was where expansion was required, and if that was secured it would help to clear up one or two points touched upon lightly during the discussion. The heating effect of the diathermy current was, of course, the main reason for its use. Had Dr. Cumberbatch in any cases seen favourable results by the use of the diathermy current when he had reason to suppose that the rise of temperature was insignificant? If so, then the question arose, to what were the results due? It was well known that with this frequency of oscillation practically all ionic movement could be cut out. An oscillating magnetic flux was associated with this current. So far as the speaker knew, there were very few instances in which the oscillations of a magnetic field had any physiological response. The only one which had been demonstrated to the physicist's satisfaction was the experiment of Professor Silvanus Thompson in which there was an effect on the sensation of vision. Here a kind of magnetic flicker went on. If physiological effects were to be observed with these currents with an insignificant rise in temperature he would like to know to what cause the electro-therapeutist attributed them. The ordinary laws of resistance all broke down in the case of these oscillations. It would be very difficult to predict the effect even with metals, and in going through the human body where a passage was made not only from one kind of tissue to another but from solids to gases, he did not wonder that irregularities occurred. He imagined it would be very difficult to predict what the

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THE MODERN CONCEPTION OF JAUNDICE.

WITH the passage of time there is often a swing of the pendulum, so that hypotheses that have been abandoned, if not almost forgotten, come again into favour and fashion, though perhaps in a somewhat altered dress on account of fresh data. This has certainly taken place with regard to the classical theories of jaundice. From the time of Virchow's observations on haematoidin, an isomer of bilirubin (1847), the older writers believed in the existence of a true haematogenous jaundice without any biliary obstruction and quite independent of any participation of the liver cells. After 1886 a reaction succeeded Minkowski and Naunyn's experimental removal of the liver in geese, which showed that the jaundice which in control animals followed the administration of arseniuretted hydrogen failed to occur, and thus suggested that the liver was essential for the production of bile pigment. A little later, in 1891, Stadelmann's experiments with haemolytic agents rendering the secretion of bile excessively viscid, and so obstructing the smallest bile ducts and capillaries, led to the view, set out at length by Dr. William Hunter in the first edition of Allbutt's *System of Medicine* (1897), that all jaundice was obstructive, if not in the larger bile ducts then inside the liver.

The notion of haematogenous or haemolytic jaundice was thus discredited until 1911, when it again came to the fore, and since then has inspired a large amount of research work, with a corresponding alteration in our views as to the mechanism of jaundice; much has been done in America, France, Germany, Holland, and in this country. Dr. J. W. McNee, who began work on these lines in 1912, has now, in a critical review[1] of the recent advances in our knowledge of jaundice, given an admirable summary of the whole subject; and, as haemolysis and the metabolism of haemoglobin are so intimately connected with jaundice, it is fortunate that Dr. Peyton Rous[2] of the Rockefeller Institute has provided a comprehensive review dealing with the destruction of the red blood corpuscles in health and disease. According to the more modern view the ordinary polygonal cells of the liver do not form bile pigment from effete haemoglobin; this is carried out by the reticulo-endothelial system, the constituents of which are exemplified by Kupffer's cells in the liver and the haematophages of the spleen. In birds these cells are mainly in the liver, the spleen being small, whereas in mammals and man this distribution is reversed. In confirming the absence of jaundice in hepatectomized geese poisoned by arseniuretted hydrogen Dr. McNee argued that this result was due to removal of the Kupffer's cells, and that the goose's liver contains two categories of cells distinct in function—the endothelial and the parenchymal. The polygonal liver cells, however, appear to play the part of receiving the bile pigment formed by the cells of the reticulo-endothelial system and of passing it on to the bile capillaries after modifying its constitution. To these two functions of the liver cells attention may now be briefly directed.

The French school, and especially Brulé (whose monograph was noticed in our columns),[3] insist that functional disorder of the hepatic cells may result in the bile pigment and the bile salts, one or both, being shunted into the blood vessels instead of into the bile capillaries; the influence of functional disturbance rather than of mechanical obstruction, for example, in so-called catarrhal jaundice, is emphasized. The conception of dissociated jaundice—namely, when bile pigment without bile salts, or vice versa, is retained in the blood—thus arose, and is regarded as characteristic of hepatic insufficiency. In connexion with the changes effected in the bilirubin by the liver cells the test elaborated by Professor Hijmans van den Bergh, now of Utrecht, for the detection of bilirubin in the blood serum, has most important bearings. It shows that there are two forms of bilirubin. One form gives an immediate reaction with Ehrlich's diazo-reagent, and occurs in obstructive jaundice—that is, when the bilirubin has passed through the polygonal cells of the liver and has then been absorbed on account of obstruction; this prompt (or immediate) direct reaction is given by the bile in the gall bladder. The other form of bilirubin gives no colour reaction, or only after a long delay; this is the delayed direct reaction, and occurs in the serum in non-obstructive jaundice, and in haemorrhagic effusions in the chest and abdomen, when presumably the bilirubin, formed by the cells of the reticulo-endothelial system, has not been modified by passage through the liver cells. In addition there is a biphasic reaction, probably due to the presence of both forms of bilirubin in the blood serum, as in some cases of catarrhal jaundice in which there is a combination of obstructive and toxico-infective factors. It should be added that every icteric serum gives an immediate colour reaction with the diazo-reagent after treatment with alcohol—van den Bergh's indirect reaction. Quantitatively van den Bergh's test shows that bilirubin is normally present in blood serum in the proportion of from 1 in 1,000,000 to 1 in 400,000, and that when it reaches 1 in 50,000 bile appears in the urine; below this figure there may be latent jaundice, either haemolytic, as in pernicious anaemia, icterus neonatorum, and helminthic anaemia, or obstructive, as in cirrhosis. In obstructive jaundice the colour of the skin gives no indication whatever of the bilirubin content of the blood serum; for example, in chronic black jaundice the bilirubin content may be much less than early in the course of the disease when the yellow tinge is just appearing.

Dr. McNee divides jaundice into three groups: (*a*) obstructive; (*b*) toxic and infective, by far the largest, in which the van den Bergh test gives variable results, and in which the biphasic reaction was first described; and (*c*) haemolytic. In the toxic and infective jaundice it is probable that both obstruction in the bile passages from cholangitis and damage to the polygonal liver cells play a part, preponderating one way or the other at different times. Into this critical review Dr. McNee, who, it will be remembered, was the first in this country to publish anything about van den Bergh's test, has introduced much of his own work and conclusions, and thus provided a model of what such an article should be.

[1] McNee, J. W.: *Quart. Journ. Med.*, Oxford, 1922-23, xvi, 390-420.
[2] Rous, P.: *Physiological Reviews*, Baltimore, 1923, iii, 75-105.
[3] BRITISH MEDICAL JOURNAL, 1919, ii, 419.

of oscillation of the current played an important part in the distribution through the tissues. In the case of tonsil infection, mentioned by Dr. Batten, he would suggest the excision of the tonsils by means of the diathermy knife electrode. He was cordially in agreement with Professor Russ on the point that when cases were described not only the strength of the current but its density should be mentioned. With regard to Dr. Stoney's remarks, chilblains would be removed by applications of diathermy, but if the cause of chilblains still remained they would recur.

SECTION OF DISEASES OF CHILDREN.

EDMUND CAUTLEY, M.D., F.R.C.P., President.

DISCUSSION ON ACIDOSIS AND ALKALOSIS IN CHILDREN.

OPENING PAPER

BY

P. J. CAMMIDGE, M.D.LOND.

BEFORE we can profitably discuss acidosis and alkalosis it is essential that we should have a clear conception of what we mean by the terms, as they are frequently employed by clinicians and laboratory workers in different senses. The theory of acidosis was introduced into medicine to explain diabetic coma, which it was believed arose from the presence in the blood of abnormal acid products of metabolism, notably beta-hydroxybutyric acid, in an unneutralized condition. Since this substance was found to be excreted in the urine along with acetone and aceto-acetic acid, acetonuria came to be looked upon as an index of acidosis, and the terms are still regarded as synonymous by some clinicians; it will save possible difficulties, however, if we agree to refer to this condition simply as acetonuria, or, better, ketonuria. Subsequently means were sought by which the degree of acidosis could be easily determined, and, as direct measurement of the acid products proved impracticable, reliance was placed upon an increased elimination of ammonia by the kidneys. Such an increase usually takes place when there is an undue formation of acid products in the metabolic cycle, but, as it was found that the acids are not necessarily of the group referred to, acidosis with, and ithout, ketonuria were eventually recognized. At a later te, when the essential characters of acids and bases had een worked out and new and more delicate methods of lood analysis were developed, the subject was investigated from a fresh point of view. At first it was hoped that determination of the acetone content of the blood would be helpful, but it proved a fallacious guide. The same was found to be the case with the titratable reaction, which, it was shown, undergoes very slight alteration in even the most severe forms of clinical acidosis; in fact, so carefully is the reaction of the blood regulated that it has been suggested by Hawk[1] that a change equivalent to the very slight difference between the reaction of tap water and distilled water might prove fatal. In the light of this discovery the old idea of acidosis, in the sense that the symptoms associated with it are dependent upon the presence of unneutralized acid products of abnormal metabolism in the blood, had to be abandoned and replaced by a new conception.

In order to obtain a clear understanding of the views which now arose it is necessary we should briefly consider the mechanism by which the normal, faintly alkaline reaction of the blood is maintained. It is essentially a physico-chemical process, depending upon the interaction of alkalis with acids, of which carbonic and phosphoric acids are the most important. Weak acids such as these possess the interesting property of maintaining the reaction of the fluid in which they occur at a practically constant value if an excess of their salts is also present; any added acid or alkali is, as it were, soaked up, hence they are known as "buffer substances." Owing to the presence of substances of this character in the blood considerable quantities of acid or alkali can be dealt with without any alteration taking place in its reaction, and if the mechanism for renewing the supply and removing the products formed is working efficiently, the process can continue indefinitely. In ordinary circumstances the necessary supplies are derived from the food. On a mixed diet there is a tendency towards the constant production of an excess of acid radicals, which are, however, oxidized or neutralized and then eliminated, the organic acids being converted into carbon dioxide, and the mineral acids combined with ammonia, when a sufficiency of bases coming from the food is not available, or with colloids, the amphoteric nature of which enables them to take up a considerable amount of acid or base without altering their reaction. Removal of the end-products produced in this way is effected by the lungs, through which carbon dioxide is eliminated; by the kidneys, which excrete most of the fixed acids; and by way of the intestine, through which some of the phosphoric acid passes out from the body. Very little is known of the part the intestine plays in regulating the reaction of the blood and tissues, although it is probably more important than is generally supposed. The efficient functioning of the kidneys is a cardinal factor, but their influence is exerted comparatively slowly and the amount of acid derivatives they can excrete is not large relatively to the quantity calling for removal in some pathological conditions. The most important regulating mechanism for rapidly controlling temporary variations is the excretion of carbon dioxide by the lungs.

When the entrance of acid products into the circulation disturbs the equilibrium existing there between the carbonic acid and bicarbonates, by decomposing some of the latter and producing a relative excess of carbonic acid, the increased acidity which would result is prevented by the sensitiveness of the respiratory centre to changes of reaction in the blood. It at once speeds up pulmonary ventilation and thus eliminates carbonic acid until its original ratio to the bicarbonates is restored, but, as there is less bicarbonate than before, the proportion of carbonic acid will also be lower and remain so until the destroyed bicarbonate has been replaced from the alkaline reserves of the body. In a healthy individual this is quickly accomplished, and the alkaline reserve is replenished from the bases contained in the food; but when, as may happen under pathological conditions, large amounts of acid are continually entering the circulation, the supply may not be equal to the demand. The alkaline reserve is then gradually depleted, the proportion of bicarbonate in the blood is permanently diminished, and there is a corresponding reduction in its capacity to transport carbon dioxide, which consequently accumulates in the tissues, giving rise to the subjective symptoms of suffocation, with hyperpnoea or air hunger, followed eventually by death when the exhaustion of the alkaline reserve is sufficiently extreme. According to modern views, therefore, the cardinal feature of acidosis is not an excessive production or accumulation of acid in the body, but a diminution of the reserve supply of alkali-yielding substances arising from the attempt to prevent acids appearing in the circulation as such; and since the proportion of bicarbonate in the blood represents the excess of bases left, after all the fixed acid has been neutralized, acidosis has been defined as "a condition in which the concentration of bicarbonate in the blood is reduced below the normal level." It will be noticed that no reference is made to acetone bodies or the excretion of ammonia, although an acidosis associated with ketonuria and an increased ammonia output in the urine is covered by both definitions. Various subdivisions of acidosis, such as compensated and uncompensated, relative and absolute, and alkalipenia or diminution of the alkali reserve, have been introduced to describe particular forms arising in special circumstances. For our present purpose, however, it will be sufficient if we agree on the fundamental feature of acidosis as it is now understood—namely, a diminution of the alkaline reserve of the blood and tissues—and only use the term in that sense, modifying it by the adjective "mild" or "severe" as may be necessary. In order to provide for the rare condition where there is an actual change in the reaction of the blood toward the acid side we may speak of an acidaemia. Alkalosis is the antithesis

INSULIN IN AMERICA.

IN the *Canadian Medical Association Journal* for July, 1923, the Insulin Committee of the University of Toronto reviews the therapeutic value of insulin in diabetes, its action, and its manufacture. The now familiar history of the discovery of insulin is summarized, beginning with the experiments of von Mering and Minkowski, who first established the important relationship between the pancreas and diabetes. Attention is drawn to the excellence of the team work, which in the later stages of the investigation in Canada showed such good results in a comparatively short space of time. It is again emphasized that medical practitioners must not conclude that insulin can replace the dietetic treatment of diabetes mellitus, and that the indiscriminate use of insulin in cases of diabetes is a real source of danger. Hitherto the most brilliant results obtained with insulin have been in the treatment of diabetic acidosis and coma; in such cases it must be given immediately. The article in our contemporary describes the care that was taken by the University of Toronto to ensure the proper manufacture of insulin, and to provide for the control of its distribution among the medical profession. In order to obtain insulin on a large scale in America an arrangement for its manufacture was made first of all with the firm of Eli Lilly of Indianapolis, who also distributed the drug to a large number of physicians for clinical trial. When, however, a satisfactory process had been worked out for the preparation of insulin on a large scale it was decided to grant licences to manufacture the drug to other firms who were able and willing to comply with certain conditions imposed by the Insulin Committee. That the policy of the Committee was justified is shown by the statement that several firms in America have exploited for the treatment of diabetes entirely worthless preparations, to which they gave names so closely similar to insulin as to convey the impression that these contained the antidiabetic hormone. But for the conditions imposed the market would probably by now have been flooded with preparations of unknown potency and durability, and serious accidents would certainly have resulted. At the end of the article a full bibliography is given of the literature dealing with insulin published up to the present time.

INTERNATIONAL CONFERENCE OF RED CROSS SOCIETIES.

THE eleventh International Conference of Red Cross Societies, organized by the International Red Cross Committee of Geneva, will be held at Geneva on August 28th and following days. The first of these conferences took place in 1863 as the outcome of Henri Dunant's *Souvenir de Solferino*, and led to the diplomatic conference which framed the Geneva Convention of 1864 to ameliorate the sufferings of sick and wounded in war. Periodical conferences subsequently fell into abeyance for fifteen years during and after the Franco-German war of 1870-71; they were revived in 1884 and were held every five years in the capitals of European countries until 1912, when the ninth conference was held in Washington. The great war then intervened and the next conference was not held until April, 1921. By that time the League of Red Cross Societies, as an offshoot of the League of Nations and the treaty of Versailles, had established itself in Geneva and seemed to overshadow the old International Committee. But the spheres of work of the two organizations were adjusted by mutual agreement during the conference of 1921: the League confining its activities to international health propagandism, child welfare, and disease prevention in time of peace, and the International Committee to maintaining solidarity amongst the National Red Cross Committees for work during war. It is this latter aspect of Red Cross activity with which the International Conference of Red Cross Societies, which now meets every two years, is chiefly concerned. One of the principal matters before the eleventh conference is the history of efforts which have been continued during the present year to bring about a fusion of the League of Red Cross Societies and the Geneva International Committee. These efforts have—according to a statement published in the *New York Herald*—so far failed. In this connexion it may be recalled that the voluntary aid organizations of Great Britain took no part in the International Conferences of Red Cross Societies until 1907, although a War Office or Government delegate was appointed to attend each. When, after the South African war, the National Society for Aid to Sick and Wounded in War was reconstituted as the British Red Cross Society, it began to take an active part in the conferences. We understand that the British Red Cross Society will be represented next week by Sir Edward Stewart, and the War Office by Sir W. G. Macpherson; each attended the last conference in a similar capacity. It is expected that the Red Cross Societies of the Dominions also will be represented again.

CONTROL OF VENEREAL DISEASE.

WE understand that the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease, each of which has considered and unanimously accepted the Trevethin Report, have decided to confer together in order to determine what joint action can be taken for giving effect to the recommendations contained in the report. This conference will probably be held after the summer vacation. A full account of the findings of Lord Trevethin's Committee and its recommendations was published in the BRITISH MEDICAL JOURNAL of June 9th, 1923 (p. 976). In discussing the report on June 16th we expressed the view that it provided a starting point for work towards the common goal of reducing the incidence of venereal disease to negligible proportions, and that it ought to be the means of ending unfortunate controversies which have so prejudicially affected the campaign against this disease in the near past. The medical profession at large will welcome the prospect of the two societies working together. The public has a right to expect guidance and assistance from a united profession; we hope, therefore, that the forthcoming conference will be the prelude to active co-operation.

"BROWN HEART."

"BROWN HEART" is not another calamity that has to be added to the list of the many ills that afflict humanity. It is the name given to a functional disease of apples and pears, as the result of researches carried out during the past four or five years by Drs. Franklin Kidd and Cyril West on behalf of the Department of Scientific and Industrial Research of the Food Investigation Board. An account of their work has just been published,[1] and is of great interest from the physiological, pathological, and economic standpoints. The condition was first observed in 1918 in the course of experiments conducted with the object of investigating the retarding effect of carbon monoxide and subnormal oxygen upon the ripening of apples as a cheap method for preserving the home-grown apple crop in storage. It was then observed and since confirmed that "brown heart" appeared in apples stored in the presence of carbon monoxide above a certain concentration, combined with a subnormal oxygen concentra-

[1] Special Report No. 12. Obtainable from H.M. Stationery Office Publishing Department, Imperial House, Kingsway, and from the chief publishers in New Zealand, Johannesburg, Calcutta, Bombay, and Madras, at 2s. 7½d. post free.

I do not propose to discuss the large variety of diseases in which acidosis may arise in children and materially add to the gravity of the condition individually, as they will no doubt be much better dealt with by those who have had greater experience of children's diseases. I shall confine my remaining remarks to two groups of cases, which have particularly come under my notice—namely:

(1) Those in which there is definite evidence of defects of carbohydrate metabolism—in other words, frank diabetics.

(2) Children suffering from recurrent "bilious attacks," with vomiting and transient ketonuria.

It is important that it should be generally realized that diabetes, or glycosuria, in children as in adults, is not a disease in the sense that it is always dependent upon the same cause. The investigations upon which I have been engaged for over twenty years have definitely proved that it is a condition which may arise in a variety of ways, and twelve types can now be differentiated. In some of these ketonuria and acidosis develop at an early stage, in others they are only met with as a terminal complication, the chief determining factor being apparently the functional efficiency of the liver. As long as the liver is able to perform its part in metabolism satisfactorily there is no fear of acidosis, even though there is pronounced hyperglycaemia and glycosuria; but when, owing to congenital defects, acquired deficiencies, or secondary disturbances in its functions, the liver is unable to carry out completely the chemical changes it normally performs, so that unusual acid products enter the circulation, the alkaline reserve of the body soon suffers and acidosis develops. These points were well illustrated by a partially depancreatized dog I had the opportunity of observing. In spite of a fairly high blood sugar and the constant presence of sugar in his urine, he appeared in good health and showed no evidence of acidosis until he was given a series of injections of hydrazine phosphate, a drug which is known to have a specific toxic effect upon the liver; he then rapidly developed the signs of acidosis and ultimately died of diabetic coma, the carbon dioxide of his blood falling from 81.5 to 45 per cent. and finally to below 30 per cent.

It is generally assumed that the depletion of the alkaline reserve which occurs in diabetic acidosis is entirely dependent upon the formation of acid products of imperfect fat metabolism, but the whole-blood analyses I have made in a large number of cases suggest that this is not the only explanation and that incompletely utilized protein derivatives are a contributory factor; also that in some instances defects in the excretory functions of the kidneys, similar to those met with in interstitial nephritis, accentuate the acidosis. In many cases, too, analysis of the faeces reveals an inorganic ash content considerably in excess of the normal, pointing to there being an abnormal excretion of bases through the bowel wall, a condition which would serve to diminish the alkaline reserve still further. It is not surprising, therefore, that acidosis of an advanced type, in which several of these factors are probably at work, is difficult to control, and especially in children, whose metabolism is less stable than in adults, as is shown by the fact that comparatively small changes in the diet of a diabetic child will often produce very striking results. Thus I have seen the addition of a single egg, or a dose of cod-liver oil, induce a ketonuria, which rapidly disappeared when the addition was discontinued. But such a result is not inevitable; it depends entirely on the type of case and the stage of the disease.

In the earlier stages of diabetic acidosis suitable regulation of the diet brings about a rapid improvement, and even in the more severe types the alkaline reserve can usually be brought back to the normal by appropriate treatment, if serious organic changes have not taken place in the liver and sufficient glycogen can be laid down. It has frequently been stated that diabetes in children is a hopeless condition, especially when there is acidosis and ketonuria, but, although this might have been true at one time, it is not the case now. I have records of over a dozen children under the age of 12 who are alive and well at least three years—in one instance ten years and in another twelve years—after I first saw them, in spite of the fact that they th exhibited evidence of acidosis and were suffering from pr nounced glycosuria. In all of the more recent cases, whe it has been possible to employ modern methods of investig tion, the metabolic changes have proved, however, to i largely the result of functional disturbances, and there h been no evidence of serious organic mischief in the liv or pancreas. When there are permanent defects in the organs the problem is more difficult, and only temporar improvement can be effected, even with the most recen methods of treatment. The introduction of insulin ha placed at our disposal a powerful weapon for dealing wit acidosis dependent upon defective glycogen storage, but unfortunately, its effects are only temporary in the majorit of cases.

Take, for example, the case of a boy, 11 years of age, who wa brought to me in January with a history of diabetes of two years duration. His blood was then found to contain 0.36 per cent. o sugar, while the carbon dioxide tension of his alveolar air stood a the very low figure of 16 mm. After the injection of 25 units (old style) of insulin the carbon dioxide tension rose to 25 mm. and the blood sugar dropped to 0.30 per cent. in three hours. As the result of continued treatment with insulin, combined with dieting, during the following three weeks his blood sugar fell to 0.11 per cent., and the carbon dioxide tension of the alveolar air increased to 34 mm. Yet within a month of the injections of insulin being discontinued the blood sugar had returned to almost its original level, the carbon dioxide tension had diminished to 25 mm., and examination of a twenty-four hours' collection of the urine showed 1.96 grams of ammonia nitrogen and 2.3 grams of oxybutyric acid, in spite of every care being taken with the diet. A fortnight later the ammonia excretion in the urine had increased to 2.3 grams and 22 grams of oxybutyric acid were being passed.

The second group never exhibit the pronounced acidosis met with in some diabetics, but there is always evidence of a reduction of the alkaline reserve, particularly during an attack. The patients coming under my observation have varied in age from 2 to 12 years. As a rule they would seem to have been healthy infants; then, for no apparent reason, they commenced with febrile attacks, associated with loss of appetite, general malaise, sickness, and headache, which persisted for several days and recurred at intervals, generally of progressively shorter duration. During an attack examination of the urine shows the presence of acetone bodies, and, although Fehling's test is usually negative, or gives a doubtful reaction, Benedict's test often reveals traces of a reducing substance. It is a type of case with which everyone is no doubt familiar, and my only reason for referring to it is that I have been able to carry out more elaborate analyses than are usually performed. Let us consider an illustrative example.

In March, 1922, I was asked to advise regarding a boy, aged 11, who had been treated by several physicians for attacks of the type to which I have referred, which had commenced about three years previously and had recently become more frequent and severe. A twenty-four hours' collection of his urine, made towards the end of the attack from which he was then recovering, showed 0.8 gram of acetone, a total acidity of 600, an ammonia nitrogen of 0.79 gram, 0.35 gram of amino-acid nitrogen, 2.1 grams of sugar, a considerable excess of urobilin, and gave a pronounced reaction for indican. Two days later another collection of the urine, made on a test diet containing 70 grams of carbohydrate, 45 grams of protein, and 35 grams of fat, was found to be free from acetone and to show a lower total acidity (400) and ammonia nitrogen (0.59 gram), but still to contain a trace of sugar (1.9 gram). Examination of the faeces revealed no striking abnormality macroscopically or microscopically, although chemical analysis showed that there was 22 per cent. of inorganic ash, an excess of combined fatty acids relative to unsaponified fat, and a marked reaction for biliverdin. From these results it seemed probable we had to deal with a case in which there was a chronic catarrh of the small and large intestines, with abnormal decomposition in the contents of the upper bowel and interference with the functions of the liver, giving rise to ketonuria and slight alimentary glycosuria. A full analysis of a sample of blood taken from a vein before breakfast tended to confirm these conclusions, for it showed an excess of uric acid (4.5 mg. per cent.), amino-acid nitrogen (9 mg. per cent.), ammonia (0.9 mg. per cent.), and phenols (14 mg. per cent.), while a low calcium content (2.5 mg. per cent.) suggested a possible explanation of the bleeding from the nose to which the patient was liable, and the presence of only 48 volumes per cent. of carbon dioxide showed that there was mild acidosis.

Guy's Hospital Reports and elsewhere. In a recent paper with the rather formidable title "Heteromorphosis (metaplasia) of the alimentary tract,"[1] he contends that the only way to understand gross malformations, such as monsters, originating during embryonic life is the investigation of the very simplest anomalies due to pathological states, or the heteromorphoses. The distinction generally drawn between congenital anomalies and those acquired later is to his mind purely artificial, since every malformation must originally have been acquired. Underlying the article is distrust of Cohnheim's theory of tumours as due to foetal displacement of cells, as is shown by the dictum that "displaced and undifferentiated cells seldom, if ever, exist except in the imagination." Specimens of vitelline duct, Meckel's diverticulum, pancreatic cyst, inflamed gall bladders, and tuberculous ulcer of the colon, all showing gastric mucous membrane, are described to support the argument that inflammation produces the changes in the epithelium and that there has not been a displacement of gastric "rests" into these various situations. Chronic inflammation first causes active proliferation of the epithelial cells and de-differentiation or a regressive change, but this may in abnormal circumstances be succeeded by differentiation, or more correctly a re-differentiation, since there was a preceding de-differentiation of the epithelium, which has retained its prospective potency to undergo differentiation into gastric mucous membrane. The changes described in cholecystitis are specially interesting; out of 35 inflamed gall bladders 24 contained mucous glands, which are normally present only in its neck, and 17 of these showed gastric glands as well; it is argued that the gall bladder has throughout life the potentiality of forming gastric glands; normally this capacity remains latent, but it is readily roused to activity as a result of the proliferation involved in cholecystitis. The study of de-differentiation and re-differentiation as the result of inflammation has a most important bearing on tumour formation, and it is to be hoped that Dr. Nicholson will continue his efforts to throw light on this difficult problem.

THE EDUCATIONAL NUMBER, 1923.

OUR next issue, dated September 1st, will be the annual Educational Number of the BRITISH MEDICAL JOURNAL. The usual features will be supplemented by two introductory articles on certain aspects of the training of the medical student, contributed at our request by Sir George Newman and Dr. J. S. Fairbairn. The former writes on the permeation of the medical curriculum by preventive medicine, and the latter on the teaching of obstetrics and gynaecology; in their insistence on the need for preventive teaching, these articles are complementary to each other. The concise information annually provided for intending students of medicine and newly qualified practitioners has been revised throughout with the co-operation of the deans and secretaries of the various medical schools and kindred institutions. A full account is given of the important changes that have been introduced this year into the scheme of study and examination in accordance with the resolutions and recommendations of the General Medical Council. Among the sections which have been rewritten or largely recast may be mentioned those on post-graduate study in London, and on the present and future of psychological medicine; also the introductory note on professional study and practice, addressed mainly to prospective students and their parents. The Educational Number for 1923 will include also articles on the various public services, on the medical education of women, on tropical medicine, on dental study and practice, and on the numbers of the medical profession. The requirements of the universities and other licensing bodies, and the opportunities offered by the medical schools and teaching institutions of the British Isles, are summarized upon the plan followed in recent years. The "preventive idea," dwelt on by Sir George Newman in his opening address, will be found reflected in various parts of the issue, more particularly in the articles on the revised curriculum and on the public health service.

[1] G. W. Nicholson, *Journ. of Path. and Bacteriol.*, Edinburgh, 1923, xxvi, 399-417.

PRIMITIVE SURGICAL INSTRUMENTS.

THE Museum of the Royal College of Surgeons of England, in Lincoln's Inn Fields, has recently been enriched by the addition of a series of very primitive surgical instruments used at the present day by the Shawiya, a Berber tribe living in a remote part of Algeria. The donor is Captain M. W. Hilton-Simpson, B.Sc., author of *Arab Medicine and Surgery*, a work which describes these uncouth contrivances, with illustrations; it was reviewed in our issue of February 17th, 1923 (p. 291). Though very roughly fashioned, the instruments appear to be strong and serviceable, and include the primitive bone-saw known to Ambroise Paré and modified by Hey as the saw which bears his name. This collection forms an instructive contrast to a set of ophthalmic instruments used in the island of Crete, probably during the Venetian occupation, and remarkable for their artistic finish. They were collected in Crete, seventy years ago, by Admiral Spratt, C.B., F.R.S., and recently presented by Colonel Spratt-Bowring, C.B.

VOLUNTARY BOARDERS IN MENTAL HOSPITALS.

IN his report for 1922 Dr. A. A. D. Townsend, medical superintendent of the Barnwood House Hospital for the Insane, near Gloucester, makes several references to voluntary boarders. As many as nine patients, after decertification upon recovery, elected to remain as voluntary patients for the whole or some part of the year, preferring a further residence in the hospital before returning to home life. In regard to the position of voluntary boarders generally, Dr. Townsend expresses the hope that greater latitude will be granted to medical officers. Existing regulations should, he suggests, be so modified that certification of a boarder only becomes necessary in very exceptional circumstances. In support of this view he quotes the case of a voluntary patient suffering from depression and apprehensions, whose mental symptoms suddenly became so acute that, as the law now stands, certification or discharge was necessary. Being unfit for discharge she was thereupon certified, much to the distress of her husband and relations. Within a fortnight of certification she had completely recovered. Experience of other cases persuades Dr. Townsend that some change in the regulations regarding voluntary patients is called for. In this connexion we recall that the Board of Control in its last annual report recommended that a voluntary boarder in a registered mental hospital or licensed house should never be placed under certificate while in residence unless such a course is absolutely necessary for the safety of the patient or the protection of the public.

LONDON POST-GRADUATE COURSES.

SPECIAL courses in general medicine and surgery, cardiology, dermatology, diseases of children, ophthalmology, proctology, and other subjects have been arranged up to June, 1924, by the Fellowship of Medicine and Post-Graduate Medical Association. The programme for next month will include a two weeks' course in general medicine and surgery, from September 10th to 22nd, at the Hampstead General Hospital in conjunction with the Hospital for Epilepsy and Paralysis, Maida Vale, the North-Western Fever Hospital, and Paddington Green Children's

them calcium, that might be the real cause of this type of tetany. He mentioned a case of tetany under his care which had a gastro-colic fistula, through which the patient lost valuable HCl in the stools. MacAdam and Gordon's case of periodic vomiting, in which there was fairly good evidence of alkalaemia, was of interest in view of Haldane's experiments with ammonium chloride and calcium carbonate. Ammonium chloride was commonly given in these conditions, and Haldane found an increase of fixed acid in the blood when this substance was taken by the mouth. With ammonium chloride the ammonia was converted into urea, so that the HCl was free in the blood. Similarly with calcium chloride the blood was flooded with HCl, calcium being excreted by the bowel as calcium carbonate. In two cases of acute rickets Mr. Osman, working with Mr. Burgess at Guy's Hospital, had found a marked fall in plasma bicarbonate, which could not be accounted for by the slight ketosis present in one of them. He doubted whether this diminished plasma bicarbonate was really the cause of the disease; it was more likely a collateral phenomenon due to alteration in the proportion of the mineral constituents of the blood. Finally, Dr. Poulton doubted whether either acidaemia or alkalaemia by itself was of so much significance in disease as had often been considered. Alkalaemia of measurable degree could be readily produced by taking large doses of sodium bicarbonate. With Campbell Hunt he had found roughly the same degree of acidaemia in bronchitis and emphysema, in diabetics recovering from coma, and in uraemic coma, though the symptoms were very different in these cases; but a warning should be given that there were great difficulties in determining accurately the reaction of the arterial blood at the present time.

Dr. ERIC PRITCHARD (London) asked what practical value could be got out of this academic discussion. He agreed that the commonly held view that acidosis and ketosis were the same obscured the real significance of acidosis. Health in children depended almost more on the extent of the alkaline reserve than on any other factor. It was important to find out under what conditions this reserve was reduced. If acids were produced during metabolism they must be neutralized. Unless they were excreted the result would be an increase of fixed acids in the blood. The kidneys were not the only means of getting rid of metabolic products; surely more importance should be attached to the faeces. In rickets, for instance, a striking feature was the fatty stool. Bases were excreted in combination with the fatty acids in the faeces, and the alkaline reserve was thus rapidly depleted. The presence of fatty acids in the faeces might be due to unabsorbed fat; or fatty acids might be produced by internal metabolic processes, neutralized, and then excreted by the intestine. That the latter was possible was shown by Heidenhain, who isolated a loop of intestine and found after seven or eight days that it contained faecal matter similar to that in the rest of the gut. Non-volatile acids appeared to be present when there was incomplete combustion of food. If a child was allowed out of doors after being kept in a warm room its metabolism was doubled. Substances which were not metabolized appeared in the faeces. Reduction in the alkaline reserve was the result of defective oxidation and excretion of fats by the intestine. Defective oxidation followed overfeeding and absence of fresh air and sunlight. Dr. Pritchard then discussed calcium metabolism. The amount of calcium required in the general metabolism in infants was 0.2 gram in twenty-four hours. If the blood was not able to supply this it was taken from the tissues, especially from the bones. Infants were born with a calcium reserve in the bones, but in premature infants there was no such reserve. In them there was danger of calcium starvation.

Dr. CATHERINE CHISHOLM (Manchester) said that the readers of the papers threw light on various phenomena observed by clinicians. Tetany in marasmic infants she had been accustomed to regard as a result of parathyroid defect. Now it appeared also to be due to alkalosis. Was the parathyroid action that of producing an alkalosis? Would, therefore, this condition be relieved by administering acids? The relief produced in some forms of pneumonia, particularly after infections such as measles, was, in her experience, often relieved by large doses of sodium bicarbonate. Presumably this was because it relieved the acidosis.

Dr. CAMMIDGE, in reply, said that to do justice to a subject of this description it would be necessary to use terms which it would be very difficult for anyone not trained in the latest developments of chemistry to understand. He had therefore tried to simplify the subject and had excluded any unfamiliar expression. For this reason he adopted a classification obvious to everyone. He had been obliged to use the words "acidosis" and "alkalosis." They occurred, in fact, in the title of the discussion. Inorganic salts in the body bore a fixed relation to each other. If this were altered the tissues did not function normally. He had proved this experimentally by perfusing livers with solutions containing various proportions of salts. He could alter the rate of glycogen metabolism according to the solution used. With regard to calcium, it was normally contained in the blood in saturated solution. It was excreted by the intestine. In chronic colitis, as also in some other conditions, and often in diabetes, the faeces contained a high proportion of inorganic ash. This was excreted chiefly in combination with fatty acids. Calcium in the blood was diminished after removal of parathyroids and increased by subsequent parathyroid feeding. The magnesium in the blood was also affected. Injection of magnesium salts produced anaesthesia. Tetany could also be stopped in that way.

COW'S MILK IN INFANT FEEDING.

BY

COLONEL R. J. BLACKHAM, C.B., C.M.G., C.I.E., D.S.O., M.D., M.R.C.P.E., F.R.F.P.S., D.P.H.

CONSIDERABLE publicity has been given in the lay press to the statement of Dr. Eric Pritchard at the National Conference on Child Welfare, held in London at the beginning of July, to the effect that the giving of cow's milk to infants was equivalent to infanticide, as the infant could no more digest cow's milk than it could digest lobster. Such a statement, taken apart from the rest of the distinguished pediatrician's address, naturally appealed strongly to the lay reporter, but conveys an impression to the public mind which was quite different from that actually conveyed to Dr. Pritchard's audience, of which I happened to be one. The general impression conveyed to my mind by the first day of the conference was the need for emphasizing the value and necessity for breast-feeding.

The feeling of that conference was that not only mothers, but nurses—and even doctors—required education on this important point, and if this be the case I think no apology is needed for introducing at this meeting a short paper on the subject of cow's milk.

Professor Richet of Paris has put the view I should like you to endorse in words which may be freely translated as follows:

> "For the newborn infant any method of bringing up except the natural one is detestable. The cleverest chemist will not succeed in inventing for the newborn infant a food superior to woman's milk. To replace the mother's breast, when well supplied with milk, by a feeding bottle or a spoon is a crime. I am so thoroughly convinced of this," he continues, "that I should think a doctor dishonoured if he were to say to a mother: 'What is the use of suckling your child? It is undergoing an unnecessary fatigue. Make haste and dry up your milk and give your child cow's milk, sterilized, condensed, or in powder, and you will see the little one thriving quite as well.'"

Apparently such practitioners do exist, and to those I would say that physiology and medical practice, supported by statistics from practitioners of preventive medicine and fortified by common sense, demonstrate that in order to keep down infantile mortality maternal milk is the first essential, and to give the miniature man or woman the best possible start in life whenever breast-feeding is possible it should be enjoined rigorously, and, if the infant is thriving, exclusively. Nevertheless there are cases, unfortunately only too numerous, in which breast-feeding is impossible. Many modern women are bad nurses: they have some milk,

England and Wales.

METROPOLITAN ASYLUMS BOARD.

Report for 1922-23.

THE report of the Metropolitan Asylums Board for the year ending May 31st, 1923,[1] has just been issued. It is larger by nearly 80 pages than the report for the previous year. After the death in December, 1921, of Sir German Sims Woodhead, who had acted as bacteriological adviser to the Board for seventeen years, the arrangements to be made for continuing his work were reviewed in consultation with the Ministry of Health and the Medical Research Council. As a result of this it was decided to put the necessary scientific advisory work into commission by inviting the help of several scientists, each expert in his own way, working together as an advisory committee. The committee has now been constituted. Its Chairman is Dr. Foord Caiger, chief medical officer in the Board's infectious hospitals service. The other members are Sir G. S. Buchanan, representative of the Ministry of Health, Professor H. R. Dean (bacteriology), Dr. C. M. Wenyon (protozoology), Professor J. C. G. Ledingham (immunology), Professor Hugh MacLean (biochemistry), and Dr. Major Greenwood (statistics).

The year 1922 was the third from the commencement of the recent high prevalence of infectious disease in the metropolis, which, though it reached its culminating point in 1921, actually started in 1920. The incidence of scarlet fever and diphtheria in 1922 should, according to anticipation, have been very high, though substantially lower than in 1921. But this expectation was, happily, not realized; on the contrary, the total incidence of scarlet fever and diphtheria in the London area fell with great rapidity towards the normal, and this pronounced fall continued during the early months of 1923. A remarkable feature of the recent group of epidemic years was the large proportion of diphtheria cases. The number of doses of diphtheria antitoxin supplied to the Board's institutions was nearly 120,000 last year; each dose contained 3,000 units. Reference is made to the difficult problem of dealing with cases of cross-infections of high infectivity, of doubtful diagnosis, and of exposure to infection. Recent experience during the time when scarlet fever, diphtheria, and measles were all prevalent together in London, has shown that in the acute hospitals about 25 per cent. of the total accommodation should be available for isolation purposes. To meet this need the Board has taken steps to provide additional observation accommodation; the method adopted at the Western Hospital is described in the report. During 1922, 72 cases of small-pox were admitted; 39 were discharged, and 23 died; 11 were still under treatment on the last day of the year, and one patient had been carried over from the previous year. Most of the cases occurred in the institution of the Poplar Board of Guardians, where, it will be remembered, an outbreak of small-pox became widespread before it was recognized.

Some idea of the magnitude of the Board's operations and its sphere of responsibility may be gained from the following figures. The district it serves covers 121 square miles, and the population numbers 4½ millions. The Board maintains fourteen infectious diseases hospitals, two institutions for venereal disease and nine for tuberculosis, five mental hospitals, a training colony for improvable imbeciles, and another for sane epileptics, five children's institutions, and a training ship. It maintains also a river ambulance service, with three wharves and five steamboats, and a land ambulance service with seven stations and 150 vehicles, a laboratory and a research establishment, a central store department, and a number of casual wards. During the year under review more than 200,000 passengers were conveyed by the land transport service, and more than 5,500 by the river ambulances.

[1] Metropolitan Asylums Board: Annual Report for the year 1922-23. Published from the office of the Board, Victoria Embankment, E.C.4. (Pp. 254. Price 5s.)

NEWCASTLE ROYAL VICTORIA INFIRMARY.

According to the annual report of the Royal Victoria Infirmary, Newcastle-upon-Tyne, the year 1922 showed a steady growth in the work of the hospital, the number of in-patients treated having exceeded all previous figures. The daily average number of beds occupied was 525.4, which represented 98.3 per cent. of the total beds available. During the year 11,876 in-patients were treated, and 93,406 new cases were treated in the out-patients' department during the year, the total number of out-patient attendances amounting to 276,079. As compared with three years ago the number of in-patients rose 10 per cent., the out-patients and casualty cases 11 per cent., and operations 19 per cent. As many as 15,669 accident cases were treated, and of this number 1,343 were detained for admission to the wards. The total number of surgical operations performed during the year was 7,831 upon in-patients, and 3,874 upon out-patients. The financial result of the year's working was satisfactory: during 1922, £98,602 was received, £75,116 being in subscriptions and donations; the expenditure for the year amounted to £97,057, so that there was a balance of £1,545 on the right side. The cost per occupied bed on ordinary expenditure for 1922 amounted to £174 2s., as against £202 5s. for the previous year. During the year Colonel Innes Hopkins presented to the Infirmary the house and grounds situated at Ryton, known as "The Innes Hopkins Memorial Home," which for the past two years had been in the occupation of the Ministry of Pensions for disabled soldiers. It is intended to use the house as a convalescent home, thus enabling some of the cases in the wards to be at once removed to a healthier environment and thereby affording some relief to the overcrowded beds of the hospital. The intention is that this home should be self-supporting, and with this object in view it is proposed to ask patients recommended for treatment to contribute towards their maintenance. In the medical report of the Infirmary it is noted that diseases of the digestive and nervous systems remained the most frequent medical disabilities for which patients sought admission, while the diseases resulting in the greatest number of deaths were pneumonia and organic heart disease. In the surgical report it is stated that the operations for perforated ulcer of the stomach and duodenum showed an increase from 91 in the previous year to 112, but owing to patients being sent in sooner after the onset of an attack the mortality was reduced from 35 to 22.3 per cent. The number of open operations for tuberculous disease of joints continued to diminish; 24 operations were performed for this condition, which contrasts with 61 in 1892. The skin department reports a progressive reduction in the total number of new cases of venereal disease. In the ophthalmic department 274 operations were performed, being an increase of 62 over the previous year. A striking feature of the work of the throat, nose, and ear department was the number of foreign bodies removed from the oesophagus by means of the oesophagoscope and *x*-ray screen method, the foreign bodies mostly consisting of false teeth and coins. In the electrical department more work was done in 1922 than ever before, and the space at its disposal was often uncomfortably crowded. The pathological report indicates a considerable increase in every part of the work undertaken by the department; the number of necropsies was 465, and the number of clinical reports from the wards, etc., was 1,183. In the bacteriological department 3,371 specimens were received and reported upon during the year.

NOTTINGHAM GENERAL HOSPITAL.

A new Nurses' Home at Nottingham General Hospital was opened by the Prince of Wales on August 1st. The new home is a four-story building of imposing design and accommodation is provided for 130 nurses, each of whom will have a bedroom of her own. The cost of the home will exceed £60,000, but the money has already been raised, and the opening of the nurses' home is but the first portion of the hospital's large extension scheme. The further extensions contemplated include new wards and new departments for out-patients, *x* rays, pathology, and bacteriology. The Prince of Wales was received at the main entrance

has been written about this product, and one of the most striking things at the National Milk Conference held at the Guildhall last October was the remarkable unanimity of the medical speakers with regard to its usefulness; but I do not think it is sufficiently realized that the product varies considerably in characteristics according to the method by which it is prepared. Two processes of manufacture are now in use. The first of these consists in the rapid drying of fresh milk on rollers heated by water or steam, and the subsequent powdering of the solids thus obtained with or without admixture of lactose; the second in the projection of milk in the form of a fine spray into a chamber with a current of hot dry air, so that the milk solids fall on the floor in the form of fine powder.

The powders produced by these two processes differ not only in physical characters but also in their reaction to rennet. Roller process powders, for instance, are not soluble in cold water, whereas spray powders are soluble; but the most important difference is the fact that whereas the addition of rennet to reconstituted milk prepared from the former variety produces a fine flocculent curd, its addition to a solution of spray process milk powder forms a dense mass identical with that formed in raw milk. This difference is important, for it was the character of the curd described by French writers as "just like human milk" which first led most of us to advocate the use of milk in this form for infant feeding. Another characteristic of dried milk which has always appealed strongly to me is the constancy of its composition. Nothing is more notorious than the variation in the composition of the milk of one cow, but Dr. James Crowther has drawn attention to the remarkable variation in the milk of small herds as well. In a paper read at the National Milk Conference he pointed out that the variation of fat from day to day is not great in either morning or evening milk when considered separately, but as between morning and evening milk the range of variation is relatively enormous.

In regard to vitamins, I might mention that Professor Dreyer of Oxford University has pointed out that it is only the "C" vitamin which is reduced in quantity by heat. It is destroyed altogether by double heating, reduced considerably by the longer periods of heating at low temperature commonly practised, but only slightly affected by rapid boiling or short heating at temperatures near the boiling point. It may be asserted, therefore, that milk loses little of its vitamin content by the process of drying, whereas with commercial pasteurization there is a tendency to reheat the milk in the home and thus destroy all the "C" vitamin. It is suggested that it is twice-heated milk which causes infantile scurvy.

I consider that milk in this form is especially adapted for mixed feeding, in which, perhaps, the best practice consists not in giving breast feeds and bottle feeds alternatively, but at each feed giving first the breasts and then a bottle in which the amount of milk corresponds as nearly as possible to that in which the former was deficient. Frequently the complementary feed, especially in young infants, is very small, and if ordinary milk be used we are faced with considerable difficulties in regard to obtaining it absolutely fresh, while if condensed milk is used wastage is almost unavoidable. Milk powder can be kept in a tin for weeks, and the French authorities strongly recommend it and largely employ it when a complementary ration is required to supplement the mother's milk.

It is obvious from the foregoing remarks that the subject I have ventured to bring before you is one on which strongly divergent views are held by various authorities on both sides of the Atlantic. We have what might be called three distinct schools of thought—namely, the fresh milk school, the condensed milk school, and the dried milk school. Famous names can be found in the members of each school, and it might not be unprofitable in this discussion to bring out the special qualities claimed for each variety, as the best practice may be found in a knowledge of and judicious employment of all three varieties.

Personally, my experience has been chiefly in hot countries, where milk is more putrescible, more sophisticated, and even more liable to contamination than in temperate climates. Under such conditions for infant feeding one has turned gratefully from the "white sewage" of the bazaars to the comparatively sterile milk powders.

DISCUSSION.

Dr. Eric Pritchard (London) said that the statement made by him regarding cow's milk referred only to infants in the first few days of life and to undiluted milk. It came as rather a shock to him that milk had toxic properties. Normally he thought that such substances were broken up and detoxicated in the process of digestion. With regard to the use of condensed milk, when one had pathological cases they had to be fed pathologically. All kinds of milk were useful if properly used.

Dr. Catherine Chisholm (Manchester) felt it advisable to stress the necessity of teaching medical practitioners and students the principles underlying the maintenance of a good breast secretion. They taught the necessity of breast-feeding, but they were too ready to accept the statement that the milk was insufficient and poor. She felt that all forms of milk could be used by some healthy children, and agreed that all types of preparation had their uses if given according to indication. The difficulty of using dried milk for children with dyspeptic difficulty was that it was not so easy to vary the constituents of fat, protein, and sugar according to the varying necessity of the case.

PROGNOSIS AFTER REMOVAL OF SEMILUNAR CARTILAGES.

BY

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The object of this paper is to review the results of a series of cases of meniscotomy and to endeavour to investigate any factors which influence the prognosis after operation. This paper is based upon a series of 50 cases, the majority of which were treated in the army, and owing to favourable local conditions one was enabled to keep the patients under observation for a sufficiently prolonged period while they performed ordinary duties and partook of vigorous exercises—for example, football, swimming, etc.

It was a curious fact that during the Mesopotamian campaign internal derangement of the knee was an epidemic condition, especially prevalent in the autumn. The probable explanation of this was that during the summer months all hostilities automatically ceased and strenuous exercises and games were in abeyance. The result of this inactivity combined with excessive heat was that muscles, ligaments, and other periarticular structures rapidly lost their tone. With the onset of the autumn an active life was abruptly resumed, and as a consequence internal derangement occurred before the structures supporting the joint regained their tone.

That loss of tone is a predisposing cause of internal derangement of the knee is also suggested by the fact that derangement sometimes follows a simple effusion when a sudden strain is thrown on the knee before the effusion has completely subsided. This occurred in one case of this series when internal derangement followed simple traumatic synovitis; the patient slipped into a river and displaced his internal cartilage while struggling out again.

The war in Mesopotamia virtually ended in the spring of 1917, after which the Expeditionary Force became an army of occupation. This obviated the need of continual movement of men, hence after operation men could be posted for duty at base units, and so "followed through" as long as necessary.

Treatment was carried out on the lines now almost universally adopted. After the first attack the limb was splinted, in the hope that adhesions might form and refix a separated cartilage to the capsule. It is imperative that reduction of the cartilage is first obtained, and if the cartilage is merely displaced or torn without separation of fragments fixation may then occur.[1] Patients who had suffered more than one attack were strongly advised to submit to operation.

had been made in certain towns by prepaid stamped envelopes addressed to non-subscribers through the local secretaries; but I did not know that by this and the special general meeting at the College of Physicians only £400 had been obtained in new subscriptions this year; if this represents four hundred new subscribers, which I very much doubt, it only adds another one per cent. to the 10 per cent. of the profession now subscribing.

We are told that in 1913, at a festival dinner, £3,197 was raised—a splendid result; yet when I put forward the advantage of another dinner and proposed further that we should have an annual dinner, I received little support and none from the officials.

The conference called by the British Medical Association failed because both the present committees of the two medical charities wished to continue their own independent action and many members were afraid of any close connexion with the Association. I believe there is a strong feeling in the profession that there should be only one charitable institution. We are anxious to take away definitely from Epsom College that charitable aspect which we are told has been proved to be harmful to the college; and we maintain that while Epsom College grants annuities this stigma of charity will remain.

I said at Portsmouth that the administration of the Royal Medical Benevolent Fund is of the same character as it was twenty years ago. This is a fact, and the committee have always been proud of their small working expenses. We must, however, adapt ourselves to new circumstances. Now, if money is required, whether for charity or any other object, money must be expended—as our hospitals are experiencing in collecting their subscriptions. Further, to make our fund correspond to the needs of the profession, we cannot trespass upon the necessary time required from any honorary secretary, except in an advisory capacity, and the ordinary routine duties of the secretaryship should be undertaken by a permanent responsible official.

I take the liberty to suggest the following four points which should be discussed with regard to the future reorganization of the Royal Medical Benevolent Fund:

(1) A permanent office is needed for the fund. It is not enough to share a room in the Medical Society building; we require our own office, which should be distinguished by its character and name.

(2) We need also a permanent secretary, who would devote his whole time—an organizer, acting under the guidance of the honorary officers and committee, and assisted by an adequate clerical staff.

(3) A complete reorganization of our honorary secretaries' list is needed. Personally I would hand over the collection of local subscriptions to the Divisions of the British Medical Association, for I am sure if the committee would co-operate in a more active manner with the Association greater support would be given and more money would be obtained. I do not share with Sir Charters Symonds his fear of the 20,000 non-members, and I would remind him they are a diminishing quantity, for the membership of the Association is annually increasing.

(4) An annual dinner is, I think, very important. It should be carried out on similar lines to the Artists' Benevolent Fund dinner: well advertised and canvassed amongst the profession. A prominent public man should be asked to preside—the Prince of Wales as the first Chairman would be a splendid augury. He should be supported by a number of well chosen stewards, who would present to the treasurer their separate totals collected for him to read out at the dinner; this would stimulate competition to obtain the highest amount.

I am sure that if some alterations were made in the organization along the lines of the above suggestions our Benevolent Fund would become better known and more largely supported. These reasons alone guided me in my criticisms at the Portsmouth meeting.—I am, etc.,

Lausanne, Aug. 18th. G. E. HASLIP.

P.S.—The excellent new progressive idea of the Leicester Panel Committee, of subscribing a farthing for each State-insured patient, came either from Dr. Astley Clarke or from his committee, and not from any request of the Royal Medical Benevolent Fund. I even question whether the Committee of Management have thought of asking other Panel Committees to follow this fine example.

SIR,—I have read with much interest all that has appeared recently in the JOURNAL concerning the Royal Medical Benevolent Fund.

I am quite certain that in this, as in all other charities, fresh subscribers are only obtained by interest being aroused through the personal efforts of those who already subscribe. I would go so far as to say that all the prominence that has been given by the JOURNAL to the meagre support afforded by the profession generally will have little or no beneficial effect in securing an appreciable number of new supporters. The vast majority of readers will merely glance at the speeches and letters, and, while perhaps agreeing that such a fund deserves to be well supported, will think no more of the matter.

Two or three years ago I was appointed at my own request local honorary secretary for the Fund in the town in which I have practised for many years. I wrote to, or interviewed, every medical man and woman in the district, and with little or no trouble I obtained a subscription from every one without a single exception, thus being able to collect about £30. So far, I am pleased to say, the subscriptions have been repeated annually, and I have no reason to believe that anyone intends to drop out. I take no praise to myself over this, for I am only doing my duty in a small way in trying to help those members of our profession and their dependants who have fallen on evil days. But what I want to emphasize is that what I have done plenty of others can do. I note that throughout England and Scotland there are only between 50 and 60 towns where organized collections take place under a local honorary secretary. It should not be difficult to get some members of the profession to act in this capacity in other towns as yet untapped, and I feel sure many doctors, if only asked, would be pleased to accept this position, thus ensuring increased personal service and interest all over the country.

I conclude with a practical suggestion. Scores of medical luncheons and dinners take place annually. An appeal on behalf of the Fund at these functions would, in my opinion, not be misplaced, and would always meet with a sympathetic reception. Many new subscribers would thereby be obtained and the amenities of the social gathering would be enhanced by the knowledge that a deserving charity had not been forgotten.

I render an account of my own stewardship annually at our medical dinner, and each year brings in a fresh subscriber or two, which encourages me to continue my self-imposed and pleasant task.—I am, etc.,

August 22th. HOWARD DISTIN.

ANTLERS AND BONE GROWTH.

SIR,—I have just read the leading article upon Sir William Macewen's address on "Antlers and bone growth" in your issue of July 21st.

Although I cannot lay claim to an extensive knowledge of the wide problems of human origin and variation, I have done my best to guard against the myopia but too readily induced by the contemplation of minute and specialized questions. I have, I trust, succeeded to the extent of being able to subscribe to your words:

"The doctrine he inculcates has a very important bearing, not only on surgical pathology, but also on physiology and histological anatomy. Those who are working in the special fields of reparative and (as they hope) constructive surgery stand in need of these gentle reminders. They will show their worth by the manner in which they respond."

Every doctrine must be supported by sufficient evidence, otherwise it is no more than an expression of opinion. What is Sir William Macewen's evidence, in so far as it concerns my own minute and specialized subject of histological anatomy? He has produced none, actual or theoretical, that the heterotopic bone in the pathological lesions he has described does not owe its existence to the activity of the fibroblasts of the granulation tissue *in situ*. Sir William Macewen's "thousand memories of the atoms comprising each osteoblast" are merely a restatement in picturesque language of the fact that osteoblasts give rise to bone. They are based upon the assumption that a preformationist doctrine of development and growth is true. If we do not accept this doctrine they lose their meaning. I cannot see that Sir William Macewen has brought forward

As was to be expected, prognosis in the elder patients was less good than in the younger, for the power of recuperation diminishes with age and osteo-arthritic changes are more prone to occur. Also as a rule the elder patients have been subjected to more numerous attacks.

By combining the two groups the results of operation were: Good, 35 cases (70 per cent.); fair, 11 cases (22 per cent.); poor, 4 cases (8 per cent.). Hence the prognosis is not by any means assured, but I believe these figures indicate a fair average of the results that may be expected if cases are "followed through" after operation. This is particularly necessary with internal derangements of the knee-joint, as cases apparently cured may relapse after a period of freedom. In one patient in this series who was apparently cured the condition suddenly recurred after an interval of nine months of strenuous life.

Prognosis should be especially guarded where attacks have been frequent and in the elderly. On the other hand, when once attacks have become established insecurity of the joint and osteo-arthritic changes are a natural sequence and may be diminished or controlled by removal of the offending cartilage.

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[1] Sir D'Arcy Power: BRITISH MEDICAL JOURNAL, January 14th, 1911. [2] Von Bergmann: *Operative Surgery*. [3] Rendle Short: *Bristol Medico-Chirurgical Journal*, 1912, 52. [4] Sir Robert Jones: *Annals of Surgery*, December, 1909.

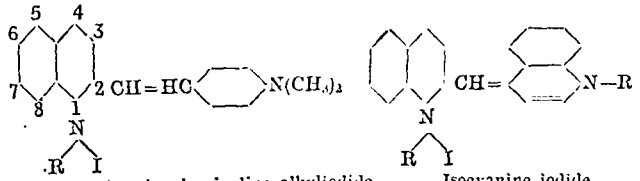
THE ANTISEPTIC ACTION OF THE STYRYL-PYRIDINES AND STYRYL-QUINOLINES.*

BY

C. H. BROWNING, J. B. COHEN, S. ELLINGWORTH, AND R. GULBRANSEN.

(From the Organic Chemistry Department of the University, Leeds, and the Pathological Department of the University and Western Infirmary, Glasgow.)

THE formation of styryl-quinoline derivatives by the condensation, in presence of piperidine, of p-dimethylamino-benzaldehyde and quaternary salts of quinaldine and lepidine was noticed by König,[4] and, later, Barbier[1] and König and Treichel[5] described a number of substances of this type. Recently Mills and Pope[6] described the preparation of a similar kind of compound from α-picoline methiodide, and also recorded the fact that this material, like the cyanines, possesses photosensitizing properties. The similarity in structure between these substances and those of the isocyanine type, together with observations made by us showing that the antiseptic potency of the isocyanines was increased by simplification of the quinoline portion of the molecule, suggested the possibility that the styryl compounds might also exhibit antiseptic activity. The relation between the two types will be apparent from the appended formulae:



Dimethylamino-styryl-quinoline alkyliodide. Isocyanine iodide.

Preparation of the Styryl Compounds.

One molecule of p-dimethylamino-benzaldehyde and 1 molecule of the quinaldine methiodide were dissolved in alcohol, and the solution boiled for three to four hours after the addition of a small quantity of piperidine. The dyestuff, which crystallized on cooling, was in some cases recrystallized from alcohol. This further purification, however, did not increase the antiseptic potency.

These bodies have the advantage over the cyanines of being much more easily and rapidly prepared, and are obtained in much better yields. The following compounds were tested:

2 p-dimethylamino-styryl-pyridine methiodide;
2 p-dimethylamino-styryl-quinoline methiodide and ethiodide;
2 p-dimethylamino-styryl-6 aminoquinoline methiodide (base
2 [illegible] -6 methylquinoline methiodide and [illegible]chloride;
2 p-dimethylamino-styryl-6 methylquinoline allobromide;
2 p-dimethylamino-styryl-6 methoxyquinoline methiodide and the corresponding ethoxy compound;
2 p-dimethylamino-styryl-7 aminoquinoline methiodide hydrochloride.

Antiseptic properties were determined, as previously described.[2 3]

To 1 c.cm. of culture medium were added varying amounts of the substances to be tested along with 0.1 c.cm. of a 1 in 1,000 dilution in saline of a twenty-four-hour culture of the organisms (*Staphylococcus aureus* or *B. coli*) in peptone water. As test media (*a*) 0.7 per cent. peptone water with a P_H value of about 7.2, and (*b*) undiluted ox serum (previously heated at 56° C.) were employed. The mixtures were then placed at 37° C., and were examined after forty-eight hours for the presence or absence of growth, which was determined in each instance by the appearance of turbidity in the fluid, and also by subculturing a loopful on agar.

In the case of *Staphylococcus aureus*, the sterilizing concentration of the above-named substances lay between 1 in 200,000 and 1 in 1,000,000 both in peptone water and in serum, except with 2 p-dimethylamino-styryl-pyridine methiodide, which was distinctly weaker (1 in 40,000 was required to produce sterility in both media). Toward *B. coli* the antiseptic action was never greater and usually somewhat weaker than toward staphylococcus. For *B. coli* the most powerful compounds were 2 p-dimethylamino-styryl-6 methylquinoline methochloride and methiodide (sterilizing concentration in both media, 1 in 100,000 to 1 in 200,000). The occurrence of long zones of inhibition between concentrations which permit of active growth and those which sterilize completely is a feature of this group of compounds. In no case did the presence of serum cause a marked decrease in antiseptic power for either organism.

The toxicity of several compounds of the series was tested for mice; the tolerated dose was 1 c.cm. of 1 in 5,000 to 1 in 15,000 dilution for animals weighing 20 grams. Where lethal doses had been given there were no characteristic lesions in any organ.

The methochloride and methiodide of 2 p-dimethylamino-styryl-6 methylquinoline and the ethochloride and ethiodide of 2 p-dimethylamino-styryl-quinoline were tested on mice infected with *Tryp. brucei;* but with the maximal doses tolerated there was no effect on the course of the infection.

The chemical variations in the series involve merely alterations in side-chain substituents, apart from the pyridine compound. The substitution of a simple pyridine nucleus for a quinoline nucleus caused slight reduction of antiseptic power. Alterations in the side-chain occupying the 6- position are not very marked in their effect; the 7-amino derivative does not differ significantly in its action from those substituted in the 6- position.

Thus it is shown that substances belonging to the group of styryl-quinoline compounds are very powerful antiseptics.

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[1] Barbier: *Bull. Soc. Chim. Paris*, 1920, vol. 27, p. 427. [2] Browning, Cohen, and Gulbransen: BRITISH MEDICAL JOURNAL, 1922, April 1st. [3] Browning, Cohen, Gaunt, and Gulbransen: *Proc. Roy. Soc.*, B, 1922, vol. 93, p. 329. [4] König: *Journ. f. prakt. Chem.*, 1912 (ii), vol. 85, p. 172. [5] König and Treichel: *Journ. f. prakt. Chem.*, 1921 (ii), vol. 102, p. 63. [6] Mills and Pope: *Trans. Chem. Soc.*, London, 1922, vol. 121, p. 946.

* This work was done with the support of the Medical Research Council.

A REPORT received by the United States Public Health Service at Washington shows a remarkable reduction in the infant mortality rate in Springfield and Campbell Townships, Green County, Missouri, since the establishment of a whole-time county health department. In 1918 the infant death rate in these two townships was 105 per 1,000. The county health department was organized that year. In the following year the infant death rate in the two townships dropped to 96 per 1,000. In 1920 it was 85, in 1921 it was 76, and in 1922 it was 61. This reduction of 42 per cent. in four years is regarded as a striking example of what may be accomplished in infant welfare by carrying out, with economy and efficiency, a well balanced general programme of health work affecting all age-sex groups in a community with a well administered health department under the direction of a whole-time health officer.

splinting, and rest of the lung by the horizontal position, and by breathing only sufficiently to exist. Rest of mind is equally important, and I have known an improving patient go back and die after receiving bad news. Children do better than adults as they will submit to discipline, they are unconscious of their danger, and have no worry.

Food should be fresh, and the ideal site is upon a farm where the medical superintendent can have charge of the milk supply.

The best air is that of the moors in September with a trace of frost in it. But damp and foggy air should be excluded, and only sufficient ventilation allowed to keep the atmosphere of the ward from becoming stuffy. If exposed to fog and damp, the patient has to fight both disease and environment, and the proper treatment of tuberculosis is tonic all the time. One of the best forms of rest in fresh air is a ride in a motor car on a dustless track, and some of the money spent on elaborate buildings might be better diverted to this form of treatment. Again, change of air is most desirable. And in my opinion (given sanatoriums under equal supervision) a patient should hardly stay longer than six months at one sanatorium. If a dozen children's sanatoriums were established in different parts of England, and the children (that is, pulmonary cases) moved every three or six months, I believe that such changes of air would shorten the two years' cure by at least six months.

With regard to sunlight, I have previously pointed out in the BRITISH MEDICAL JOURNAL that it is the morning and the evening sunlight which is tonic, whilst the midday heat is depressing, and that sanatorium wards (with double verandahs) should run north and south, as this provides sun and air baths at the proper times—whilst the ward itself gives shelter (another important factor) from the midday heat. Shelter from wind is also essential, and the two verandahs give shelter from the east and west as is found desirable.

Given early diagnosis (and pulmonary diagnosis is the most important of anything in medicine or surgery) the above conditions would, I believe, give the best results in Nature's treatment of tuberculosis.—I am, etc.,

Newcastle-upon-Tyne, Aug. 11th. T. M. ALLISON.

ETHER *VERSUS* CHLOROFORM.

SIR,—I have been reading the correspondence in your columns, "Ether *versus* chloroform," with interest. I must say I agree with Dr. Samways, and cannot understand why chloroform is such a bugbear at home. During twenty years' service in India I have never used, or seen used, any other general anaesthetic. I have never seen any deaths on the table from chloroform, although often the anaesthetic has been given by dressers and compounders.

I have, however, had two deaths from delayed chloroform poisoning; both of these were children about six years of age to whom chloroform had been given for over two hours. They were both cases of extensive tuberculous glands on both sides of the neck, and I was tempted to do both sides at once, as it is very difficult to get Indian patients to turn up for a second operation.

I know that other medical men in this country will corroborate my statements. Perhaps some will say that this is due to the fact that in a hot climate the chloroform evaporates quickly, and therefore the vapour is not so concentrated. Granted; but that does not apply to the cold weather in the Punjab, where the climate approximates to that of England, and is often in December and January quite cold.

Personally I should never dream of using ether, not that I have no experience of it, as I, when a house-surgeon at Guy's, used it extensively; but open ether would be out of the question in the hot weather; and the closed apparatus is complicated and cumbersome, and would rapidly become unserviceable, as all rubber goods deteriorate rapidly in this country. The only other anaesthetic I am using at present is spinal anaesthesia, which I find very useful for operations on the rectum, such as for haemorrhoids, where full relaxation is required.—I am, etc.,

H. C. KEATES, Lieut.-Col. I.M.S.,
Civil Surgeon, Amritsar.

July 26th.

Obituary.

R. C. ACKLAND, C.B.E., M.R.C.S., L.D.S.,

Dental Surgeon, St. Bartholomew's Hospital.

MR. ROBERT CRAIG ACKLAND, who died on August 6th, came of an old Devonshire family, and was born in Exeter in 1865. His father died when he was quite young, and he always attributed any success he had attained to the inspiration and influence of his mother. He was educated at Exeter and Torquay, and after passing his preliminary examination proceeded to London, entering at Charing Cross Hospital and the Royal Dental Hospital; at the former, in addition to the medal in anatomy, he obtained distinction in several subjects. He took the L.D.S.Eng. in 1887, and the M.R.C.S. and L.R.C.P.Lond. in 1890, and settled in town. Soon afterwards he obtained the appointment of assistant dental surgeon to St. Bartholomew's Hospital, and became senior dental surgeon many years ago.

During the war he was appointed medical officer in charge of the Red Cross Hospital for Facial Injuries in Grosvenor Square, and this, in addition to his large practice in Brook Street, made inroads upon his strength, and his health gave way under the strain. He received the C.B.E. for his services. He was joint author of "Diseases of the teeth" in *Quain's Dictionary of Medicine*, and wrote several articles on dental surgery in textbooks and periodicals. A splint he introduced for the treatment of fractures of the lower jaw in 1893 is still largely used, and was of great service during the war. He married a daughter of Edmund Macrory, K.C., formerly treasurer of the Middle Temple, by whom he had two daughters. The large attendance at the Church of St. Bartholomew the Great on the occasion of his funeral bore testimony to the affection and regard in which he was held by his colleagues and his many friends. His body was cremated at Golders Green, and the ashes deposited in the churchyard overlooking the sea at Winterton in Norfolk, close by his house there.

R. C. Ackland was one of five brothers, all medical men and all practising dental surgery. His brothers are J. M. Ackland practising at Exeter, W. R. Ackland at Clifton, C. H. Ackland at Bournemouth, and D. Ackland at Bath. This record probably has no parallel.

We are indebted to Sir CHARLES GORDON-WATSON for the following appreciation:

Ackland came to St. Bartholomew's Hospital in 1891 as assistant dental surgeon after serving as demonstrator of anatomy at Charing Cross. In these early days, when he taught the dressers the art of extraction in most kindly fashion, I made his acquaintance—an acquaintanceship which ripened into a friendship of close on thirty years. It was a very precious friendship, for he was a very lovable man. Ackland possessed a magnetism, compounded of good looks, boyish gaiety, and generous instincts. Modestly and unobtrusively he was always doing somebody a good turn. He served St. Bartholomew's for thirty-two years, and there must be many Bart's men and many Bart's patients who will lament his death. For he had that sympathetic touch which attracted and endeared him to those with whom he came into close contact. Ackland was at his very best when entertaining at his house in Brook Street. His friends loved to dine there; he was such good company, such a good raconteur. In the outdoor life which he loved his boyish exuberance was always to the fore. He was a good shot and a keen motorist, when motors were in their infancy. Whether shooting, playing golf, or driving a car, his consideration for the other fellow stood out as an example to many. Those who were privileged to know him in his happy home life, away from the worries of work, in his delightful Norfolk home by the sea, could know the inner depths of the man. Ackland was not content to follow the beaten path in dental surgery. He was one of the first in this country to realize the great importance of dental sepsis in relation to general ill health. His pioneer work is now fully accepted, and there are many who, after enduring years of unsuccessful treatment,

perversion of the normal process; thus the number of cases capable of being damaged is nine times greater than if every case was left without interference." Though the construction of this sentence is open to criticism, its meaning is apparent, and it states a truth which, almost more than any other in practical obstetrics, requires emphasis at the present day. The remaining chapters are devoted to the different pathological conditions met with in pregnancy and labour. In regard to treatment, Dr. Fitzgibbon restricts himself to the methods which he personally employs at the Rotunda Hospital, and while this may simplify the matter for his students, it detracts from the value of the book to the more general reader, and prevents it from being regarded as a full discussion of the subject.

We turn with special interest to the chapter on pre-eclamptic toxaemia and eclampsia and find, as was to be expected, a very full, interesting, and detailed account of the method of treatment of this serious complication, which has been so successful in the hands of Dr. Fitzgibbon and his immediate predecessors, and is now being adopted and imitated throughout Great Britain. For this chapter alone, if for no other reason, the book is well worth possessing.

The dogmatic attitude, to which we have already referred, makes it inevitable that we should find ourselves at variance with Dr. Fitzgibbon in regard to some points of treatment. Thus, for example, it is disappointing to find him referring to manual rotation of the head in occipito-posterior positions in a very half-hearted sentence, which seems to suggest that any such attempt is foredoomed to failure. He devotes half a page to the extraction of the head by forceps as a face-to-pubes case, but to those familiar with the technique of manual rotation or rotation by forceps, delivery as a face-to-pubes case seems a confession of failure. Again, in discussing the mechanism of labour, Dr. Fitzgibbon states that "when labour sets in the vertical axis of the uterus shortens . . ." This is no doubt a slip due to insufficient revision, of which there are several other examples. Is not dogmatism carried rather too far when it is said that "When albumin is found in the urine of a case with any type of accidental haemorrhage, the necessity of laparotomy as the only treatment must be accepted from the first, and the patient moved to suitable surroundings"?

Our object, however, is not to seek for faults in the book, and it is a pleasure to recognize this volume frankly as a useful contribution to the subject of practical obstetrics, and as a full statement of the methods which are at present the routine in one of the most famous maternity hospitals in the world.

PREDISPOSING CAUSES OF PHTHISIS.

DR. PASSINI, director of the principal criminal sanatorium for tuberculosis in Italy, has published the first of a series of studies on some modern and important practical questions relative to diseases of the chest.[3] His object is to make known certain deductions from his twenty years' experience, which he regards as indispensable to those who have not devoted their whole activity to the subject; and further to explain some personal views on the physio-pathology of the disease. Mention is made of the symptoms that should lead the physician to suspect that a patient is the subject of tuberculosis. In addition to these, an examination for tuberculosis is, he considers, desirable when the symptoms of any of the following conditions are present: Hyperthyroidism, hypoadrenalism, the solar plexus syndrome and mucous entero-colitis, hypohepatism, pancreatic diabetes, and erythema nodosum. Pulmonary tubercle deviates frequently from its normal type, and a suspicion of its presence should arise when symptoms of the above-named diseases are present.

In describing the physical signs stress is laid on Baccelli's scapula sign (diminished mobility of the scapula on the diseased side) and on the presence of enlarged and tender glands in the axilla or neck, on one side of the body. In many cases the diagnosis is concerned with the activity or quiescence of the disease rather than its presence. The presence of numerous bacilli in the sputum constitutes a presumption of activity, but is not decisive, since the extension of the disease may be limited by a barrier of fibrous tissue. Nor is the occurrence of haemoptysis decisive, because a cirrhotic lung may give rise to haemorrhage through occasional congestion. The temperature affords the most reliable evidence of quiescence; if during and after walking no rise of temperature occurs it may be assumed that the lesion is inactive, and even with a rise of temperature if this returns to the normal within an hour quiescence is probable.

The author has no doubt that pulmonary tuberculosis is curable in the anatomical sense. Autopsies show that tubercle is commoner than was supposed, that it may have an absolutely latent course and undergo spontaneous cure, and that the cases usually seen probably represent the graver and less curable forms. Dr. Passini considers that it is legitimate to speak of a pretuberculous stage—that is to say, a stage of incubation—and he enumerates its signs and symptoms. Two chapters are devoted to the relation of hepatism and the circulation to tuberculosis. It is held that hepatic insufficiency in its milder degrees is an indirect cause of tuberculosis, and that successful treatment of the condition may in some cases ward off tubercle in its earliest stage.

THE GROWTH OF CELLS.

IN a monograph[4] issued from the Institute of Physiology of the Faculty of Medicine of Strasbourg, MM. E. LE BRETON and G. SCHAEFFER have attacked the problem of the growth of cells along biochemical lines, and have studied the relation between the total nitrogen and the purin nitrogen content of embryos during the first few weeks of development. The variations between the size of the nucleus and the size of the cell during early embryonic development have been studied by several morphologists, but, as the authors point out, a morphologist is confined to two dimensions in such studies, and therefore the biochemical line of investigation offers obvious advantages. The book commences with a history of the various investigations which have been made to determine what proportion of an animal's tissues consists of living protoplasm and what proportion serves merely as a food store. The study of starving animals has yielded remarkable results in this connexion, and Rübner has concluded that in addition to the food stores of fats and carbohydrates, about half of the protoplasm of cells can also act as a food store. In a starving animal about half the protoplasm of the cells can be removed without the destruction of the cells. Special attention has been given to muscle cells, and it has been shown that though in starvation the muscles undergo enormous wasting, there is no destruction of any of the muscle fibres. Measurements of the muscle cells have shown that in a starving animal the individual muscle cells may be reduced to as little as one-fourteenth of the volume of the muscle cells of a fat animal. These and other facts are adduced to establish the clear distinction that exists between that portion of cell protoplasm which is essential to cell life, and the remaining protoplasm or paraplasm.

The nucleus is the most important part of the essential protoplasm, and the authors have measured the purin content of tissues to get an indication of the mass of nuclear material; the total nitrogen less the purin nitrogen is taken to indicate the mass of non-nuclear protoplasm.

The authors of the monograph now before us used hen's eggs, pig embryos, and mouse embryos, and made in each case estimations of the relation between the mass of nuclear material and mass of non-nuclear protoplasm during the first few weeks of development. From the figures thus obtained they have produced curves showing the variations in the ratio, and also the rate of increase of the various substances estimated. Their chief conclusions are that during the course of foetal development the ratio of mass of nucleus to mass of cytoplasm decreases steadily and the rate of decrease follows a regular curve. The rate of decrease is

[3] *Il Libro della Tuberculosi.* Serie 1a. By Dr. R. Passini. Bologna: L. Cappelli. 1922. (Med. 8vo, pp. 274. L. 25.)

[4] *Variations Biochimiques du Rapport Nucléo-Plasmatique au Cours du Développement Embryonnaire.* By Eliane le Breton and G. Schaeffer. Recherches de physiologie générale sur la détermination de la masse protoplasmatique active. Paris: Masson et Cie. 1923. (Roy. 8vo, pp. 177; 16 figures. Fr. 15.)

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

IN accordance with a Grace approved by the Senate on June 8th, 1923, confirming a report of the Special Board for Medicine, important changes in the regulations for medical and surgical degrees will come into force in October next. Copies of the regulations and schedules may be obtained from the Registrary of the University. The main features of the new regulations will be noted in the section on the University of Cambridge in the annual Educational Number of the BRITISH MEDICAL JOURNAL, published next week.

The following candidates have been approved at the examination indicated:

Diploma in Tropical Medicine and Hygiene.—R. A. Anderson, J. M. Ghosh, M. R. Goverdhan, K. K. Shenai, J. H. Spencer, K. S. Thakur, F. R. Thornton.

UNIVERSITY OF LONDON.

UNIVERSITY COLLEGE.

THE Epsom Scholarship tenable in the Faculty of Medical Sciences has been awarded to Mr. G. G. Gillam.

The Services.

MEDICAL DIRECTOR-GENERAL, R.N.

SURGEON REAR-ADMIRAL JOSEPH CHAMBERS, C.B., C.M.G., has been selected for the post of Medical Director-General, R.N., and will take up office on October 1st. He is succeeded as officer in charge of the Royal Naval Hospital, Plymouth, by Surgeon Rear-Admiral Arthur Gaskell, C.B., O.B.E.

K.C.V.O.

THE King has been pleased to promote Surgeon Captain A. R. Bankart, C.V.O., R.N., to be a Knight Commander of the Royal Victorian Order.

DEATHS IN THE SERVICES.

Lieut.-Colonel James Edward Carter, R.A.M.C. (retired), died of septic poisoning at Machynleth, North Wales, on July 27th, aged 58. He was born at Loughally, Armagh, on April 23rd, 1865, the son of the late Rev. H. B. Carter, D.D., of Derryloran, Cookstown, Tyrone, and was educated at Trinity College, Dublin, where he graduated M.B., B.Ch., and B.A.O. in 1889; he took the D.P.H. in 1902. Entering the army as surgeon on January 31st, 1901, he became major on December 2nd, 1905, and retired on December 2nd, 1913. He was recalled to the active list for service in the late war on August 5th, 1914, and promoted to lieutenant-colonel on May 25th, 1919. He also served in the South African war in 1899–1900, and took part in the advance on Kimberley, including the actions at Modder River and Magersfontein, and in the operations in the Orange Free State, including the ten-day action of Paardeberg, February 17th to 28th, 1900, in which he was severely wounded; and received the Queen's medal with two clasps.

Major William MacDowall MacDowall, R.A.M.C., died suddenly at Middlesbrough, Yorkshire, on board the British India s.s. *Mandala*, on June 22nd, aged 51. He was the only son of James MacDowall, Esq., of Crouch End; he was educated at the London Hospital, and took the diplomas of M.R.C.S. and L.R.C.P. Lond. in 1901. After serving as surgeon on the Natal Direct line of steamers, and as assistant medical officer at Hoxton House Asylum, he entered the R.A.M.C. as lieutenant on August 31st, 1903, and became major on February 28th, 1915. He served in the recent great war, and acted as lieutenant-colonel from April, 1917, to August, 1919.

Medical News.

THE annual Westminster Hospital old students' dinner will be held on Thursday, October 4th, at the Empire Rooms, Trocadero Restaurant, Piccadilly, W. Mr. W. G. Spencer will be in the chair. The honorary secretary is Dr. Adolphe Abrahams, 17, Harley Street.

PROFESSOR CIRO CALDERA has been appointed to the chair of oto-rhino-laryngology in the University of Pavia.

POST-GRADUATE courses on dermatology and venereal diseases will be held in Paris at the museum of the St. Louis Hospital and the amphitheatre of the clinic, 40, Rue Bichat; the course on dermatology will commence on October 5th, and that on venereology on November 14th. The courses will be conducted under the direction of Professor Jeanselme, with the co-operation of Professor Sébileau, Dr. Gougerot, Dr. Sabouraud, and others. The fee for each course is 150 francs. A detailed programme will be sent on request.

THE Spanish Congress of Pediatrics will be held at San Sebastian from September 2nd to 7th, under the presidency of Dr. Arquellada.

THE famous histologist, Professor Camillo Golgi of Pavia, has recently celebrated his 80th birthday.

THE twenty-ninth congress of the Italian Society of Internal Medicine will be held in Rome, under the presidency of Professor V. Ascoli, from October 24th to 26th, when the following subjects will be discussed: (1) Diabetes insipidus, introduced by Professor Ascoli Maurizio; (2) cholelithiasis, with special reference to pancreatitis and infection of the bile ducts, introduced by Professor Schupfer Ferrucio (conjoint meeting with Italian Society of Surgery); (3) progress in diagnosis and treatment of heart disease, introduced by Professor Barlocco Amerigo. Further information can be obtained from the secretary of the congress, Professor Giuseppe Sabatini, Clinica Medica, Policlinico Umberto 1, Rome.

THE Board of Trade's referee has ruled that formaldehyde be excluded from the list of articles chargeable with duty under Part I of the Safeguarding of Industries Act.

THE thirtieth congress of the Italian Society of Surgery will be held in Rome from October 24th to 26th, when the following subjects will be discussed: (1) Infections of the gall bladder, with special reference to pancreatitis, introduced by Professor Muscatello. (2) Infections of the large bile ducts, introduced by Professor Crosti. (3) Grafting in general, including skin grafts, introduced by Professor Fasiano. (4) Nerve grafts, introduced by Professor Chiasserini. Further information can be obtained from the secretary of the congress, Professor Leonardo Dominici, Clinica Chirurgica, Policlinico Umberto 1, Rome.

THE Health Commissioner of Chicago has refused to license a parents' clinic for the purpose of giving information concerning the control of conception. The mayor, on appeal, refused to interfere with the Health Commissioner's decision, and the whole question has been submitted to the corporation counsel for a legal opinion.

THE second congress of the Italian Society of Urology will be held in Rome on October 27th, when the following subjects will be discussed: (1) Functional examination of the kidneys, introduced by Professors Pirondini and Raimoldi. (2) Roentgenotherapy in urology, introduced by Professors Busi and Bonamone. (3) Radiotherapy in urology, introduced by Professor Cassanello. Further information can be obtained from the secretary of the society, Professor Mingazzini, Clinica Chirurgica, Policlinico Umberto 1, Rome.

THE thirty-eighth annual report of the Trudeau Sanatorium, Saranac Lake, New York, records that 450 patients were treated last year, of whom 322 were discharged. The patients discharged were classified as follows: apparently arrested, 50 cases; disease quiescent, 155; disease improved, 29; unimproved or failed, 43; diagnosis doubtful (suspected tuberculosis), 22; cases found to be non-tuberculous, 21. Two patients died.

IN his annual report on the work of the Shanghai Public Health Department for 1922 Dr. C. Noel Davis, Commissioner of Public Health, records that the outbreak of small-pox which started in 1921 continued until the following April. The campaign of vaccination was carried on with great vigour, and the effect began to be seen early in the year, when the outbreak waned, and only a few sporadic cases occurred after the end of March.

A REPORT on plague in Egypt during the year 1922 has been issued by the Department of Public Health of the Ministry of the Interior. The total number of cases of plague was 487, including 25 foreigners; the deaths numbered 228, including those of 15 foreigners. The cases and deaths were distributed fairly evenly between Lower Egypt and Upper Egypt.

THE eleventh annual report of the medical department of the United Fruit Company, issued from the general office of the company at Boston, Massachusetts, is a sumptuous publication of nearly 150 pages. In the course of his introductory letter Dr. W. E. Deeks records that in August, 1922, the United Fruit Company inaugurated a free medical wireless service and consultation with its hospitals and steamships and all ships at sea. The announcement of this service was translated into French, Spanish, and Portuguese, and distributed to merchant shipping throughout the world. It was established primarily for the benefit of ships not carrying doctors; but ship's surgeons may consult by wireless with the company's doctors, either aboard ship or ashore. Radiograms requesting medical advice have a special code prefix, and are given preference over all other messages except SOS calls through the wireless service of the United Fruit Company and its subsidiary companies.

THE *Times* of August 23rd states that the *Deutsche medizinische Wochenschrift*, the *Münchener medizinische Wochenschrift*, and the *Klinische Wochenschrift* have suspended publication owing to the exorbitant costs of production.

results of much personal research. A welcome feature is the space devoted to the comparative pathology of malignant disease in animals.

ST. BARTHOLOMEW'S HOSPITAL REPORTS.

THE second part of this year's volume of *St. Bartholomew's Hospital Reports*[8] opens with an admirable and sympathetic obituary notice of the late Sir Norman Moore, illustrated by a full-page portrait of the late President of the Royal College of Physicians. Dr. Ormerod, his colleague both at the hospital and at the College of Physicians, writes with personal touches drawn from their many years of companionship. He mentions that if Moore thought the patient (or others) too curious about the diagnosis of a case in the wards it was written at the head of the notes in Irish; as teacher and lecturer Sir Norman Moore attracted students by making even the most commonplace cases interesting. Full justice is here done to the learning, wit, and versatility of "a man singularly responsive to all human interests." Mr. Girling Ball contributes a good account of diverticulum of the urinary bladder based on two cases without any obstruction to the outflow from the bladder, which were successfully treated by radical surgical measures; he concludes that whether associated or not with obstructive lesions in the bladder and urethra the origin is the same—namely, some defect in the bladder wall, either a gap in the musculature or a deformity resulting from the persistence of a portion of the urachus or an accessory ureteric bud. Acetonuria and its relation to surgical operations was investigated by Mr. G. H. Caiger in 76 cases, of which about 40 per cent. had post-operative acetonuria, sex having no influence. From these cases and from observations on himself he finds that diet is the only important factor. The remainder of the volume is devoted to a series of lectures given in the winter session on syphilis from different aspects. Its history from the earliest times to the present day is sketched with his usual charm by Sir D'Arcy Power. Mr. John Adams draws on his experience at Thavies Inn Clinic for his account of the ante-natal and post-natal disease, and Dr. Branson deals in a temperate manner with its bearing on life assurance. The nervous lesions are described by Dr. Hinds Howell, and Colonel L. W. Harrison has contributed from his experience his views on prevention.

NOTES ON BOOKS.

F. FRANÇON and J. HUTINEL'S monograph *Les hépatites amibiennes, autochtones et coloniales*[9] was inspired by their teacher, Professor Chauffard, who contributes a short preface, and by their war experience in Morocco and with the Second Army. The occurrence of amoebiasis in France among people who had never been abroad was recognized before 1914, but became more noticeable after the war. This monograph is rich in references to the work of others and full justice is done to British writers and especially to Sir Leonard Rogers. After a brief sketch of the history of amoebiasis since the *Entamoeba histolytica* was discovered, the various forms of amoebic hepatitis are tabulated and described—namely, pure and mixed infection, such as with bacillary dysentery, malaria, and tuberculosis; acute, subacute, and chronic inflammation and suppuration. The predominating influence of emetine on the clinical picture, prognosis, and treatment is forcibly brought out, and it is well said that the prognosis of amoebiasis depends on its diagnosis. It is remarkable how rare it is, even with Widal's haemoclasic test, to find evidence of hepatic insufficiency in amoebic hepatitis. The indications for surgical intervention and for medical treatment are given, and of the three forms of medical treatment—emetine alone, 914 alone, or these two combined ("ENV")—the last is said to be that now in popular favour. The toxic effects of these remedies are wisely pointed out, and the causes of failure of emetine in certain cases are discussed. This compact little work contains a great deal of recent information and will serve as a useful source of reference.

[8] *Saint Bartholomew's Hospital Reports*, vol. lvi, part ii. London: John Murray. 1923. (Pp. 95-198; 3 illustrations.)

[9] *Les hépatites amibiennes, autochtones et coloniales et leur traitement.* Par F. Françon et J. Hutinel. Paris: Gauthier-Villars et Cie. 1923. (Roy. 8vo, pp. 131. Fr. 10.)

Mrs. GASQUOINE HARTLEY'S little book on *The Mind of the Naughty Child*[10] is the fifth volume of a series entitled "The Blue Booklets," which consist of "plain talks on vital topics of the day." In very simple language the author, who is obviously permeated with Freud's doctrines, discusses the causes underlying the various forms of naughtiness in children, dealing successively with the bumptious, boastful, and violent-tempered child, the sulky child, the jealous child, the destructive child, the inquisitive child, and the lying child. The book will interest parents.

With the holiday season in full swing what better time could there be for the appearance of Mr. G. R. STIRLING TAYLOR'S *Oxford: A Guide to its History and Buildings*,[11] for probably all wise people go to Oxford or Cambridge, and if they cannot stay there for three or more years require some kindly help in getting to know the spirit of the place? Of guides there are several kinds; some are full of accurate dates and details, while a few, wisely casting aside all pretence at omniscience, tell the story with the happy knack of exciting appetite for more. Of this more excellent type Andrew Lang's *Oxford: Brief Historical and Descriptive Notes* was a good example, and Mr. Stirling Taylor's book follows the attractive lead in giving as the first of its three parts the outlines of the history which the reader is advised to study before setting out on his voyage of sight-seeing. The second part—an itinerary of Oxford in historical order—is to be read *en route* with reference to the notes and illustrations contained in part three. The illustrations are admirably produced and the comparatively low price of this attractive handbook is noteworthy.

[10] *The Mind of the Naughty Child.* By Mrs. Gasquoine Hartley. London: A. M. Philpot, Ltd. 1923. (Cr. 8vo, pp. 90. 2s. 6d. net.)

[11] *Oxford: A Guide to its History and Buildings.* By G. R. Stirling Taylor. London: Longmans, Green, and Co. 1923. (Cr. 8vo, pp. 125; 25 plates, 1 map. 4s.)

APPLIANCES AND PREPARATIONS.

Card Index System of Book-keeping and Case-taking.

WE have received from Messrs. H. K. Lewis and Co., Ltd., 136, Gower Street, W.C.1, particulars of their card index system with specimen cards. These are four in number—an account card, a case card, a plain card for continuations, and a temperature card. The account card is ruled for twelve months of thirty-one days with a series of three money columns following, and a column for the date on which the account was sent. It can thus be made to serve both as day-book and ledger. At the head of the case card are spaces for the name and address of the patient, and particulars as to age, sex, married state, occupation, and date. The rest of the card is plain. The temperature card is of the ordinary chart type, with both Fahrenheit and Centigrade scales indicated. All the cards are of the same size—the same width as an insurance record card and about an inch longer—8 in. by 5 in. Card index systems are in increasing use, and this is a particularly convenient and useful one for the methodical practitioner who is at the same time busy and careful. A cabinet is supplied for holding the cards; they can be perforated for use also in a holder, the cards for the day's round, if wanted, being taken from the drawer and placed in the holder and put back at the end of the day. The cards are of suitable thickness and surface for easy writing, and the prices appear reasonable. Messrs. Lewis state that specimens will be sent to any medical practitioner on application.

A Protein-Iron Preparation.

Messrs. E. T. Pearson and Co., Ltd., have produced from edestin a compound for medicinal use containing 10 per cent. of iron in the ferric state, which is sold under the name of "Protoferrin Brand Organic Iron." Edestin is a vegetable protein occurring plentifully in the seeds of flax, hemp, and cotton, and is manufactured by Messrs. E. T. Pearson for use as an accessory to the diet of mothers during lactation. It belongs to the group of proteins characterized by solubility in water containing about 15 per cent. of ammonium sulphate and by insolubility in water saturated with the same salt. It is also soluble in a solution of sodium chloride. The chemical union of iron with a digestible protein offers an interesting subject for study in therapeutics. It is contended that the exhibition of iron in this form gives all the advantages to be derived from treatment with iron, without the risk of the astringent action and constipative effect experienced with ordinary iron compounds. An analysis made at our direction has verified the correctness of the constitution ascribed to Protoferrin Brand Organic Iron, and physiological tests are also reported to have been made with satisfactory results. This compound may prove to be a very useful addition to the resources of prescribers.

149. Typhoid Perforation of the Intestines.

T. SANDELIN (*Finska Läkaresällskapets Handlingar*, May-June, 1923, p. 323) has found from a study of Finnish statistics that the incidence of typhoid perforation of the gut is considerably greater in men than in women. In Tammerfors 18 women and 35 men have suffered from this complication of typhoid fever since 1897, and at the author's hospital and another hospital in Helsingfors 26 men and only 8 women have been treated for this condition during the past twenty years. Why it should show such predilection for men is not clear. Of a total of 55 cases operated on in Finland for typhoid perforation, only 7 terminated in recovery, and this low recovery rate of 12.7 per cent. must be traced to the fact that most cases come to operation at a comparatively late stage. The author records in detail the case of a workman's wife, aged 40, whose appendix became glued to the perforation in the intestine, sealing it up, and thus saving her from severe perforation peritonitis from the escape of the intestinal contents into the peritoneal cavity. This patient recovered.

150. Recurrence of Gall Stones after Cholecystotomy.

A. GOSSET (*Bull. et Mém. Soc. Chir. de Paris*, April 24th, 1923, p. 535) points out that the so-called operation of "ideal cholecystotomy" was first performed in 1883. This operation is now only mentioned in textbooks of surgery to be condemned. This procedure was advocated in cases where the gall bladder was healthy with thin walls, and in cases where the cystic duct was permeable and of normal calibre and in the absence of signs of infection. The author has recently had under his care a patient with gall stones, who had the conservative operation of cholecystotomy performed in 1910. For thirteen years the patient had repeated attacks of colic followed by jaundice, and in 1910 gall stones were removed from the gall bladder. In 1923 the gall bladder was removed for a recurrence of the gall stones. A transverse scar across the fundus of the gall bladder could be recognized, the result of the previous operation. Histological examination revealed absence of the mucous membrane in the line of the scar. This case demonstrates that only removal of the gall bladder is able to prevent recurrence of gall stones, and it convinces the author that, notwithstanding recent assertions to the contrary, cholecystotomy is not the ideal operation.

Ophthalmology.

151. The Treatment of Conical Cornea.

C. KILLICK (*Brit. Journ. Ophthalmol.*, June, 1923, p. 264) discusses the treatment of conical cornea. After a brief summary of the pathology of the condition he describes his experiences with regard to treatment. In his earlier cases he has tried sclerotomy, cauterization, with and without perforation of the cornea, and the performance of the first stage of a cataract extraction, making a large flap and maintaining a pressure bandage for some time afterwards. He expresses his disappointment with all these procedures, and in fact obtained better results by the non-operative method of pressure bandage, tonics, and rest. Recently he has dealt with a case by operation, and has obtained a much more favourable result. The method he employed in this instance was as follows: He first extracted the lens in the ordinary manner. As the lens was only slightly cataractous there was a considerable amount of after-cataract remaining; in needling this he made an incision in the capsule 1 mm. broad and 1,2 cm. long in the vertical diameter, establishing therefore a narrow slit. This incision was based on the well established fact that vision in conical cornea is improved by narrowing the pupil or by making it resemble a stenopaeic slit. Before operation this patient had approximately 32 dioptres of myopia, and after operation with – 5 D. sphere the vision was improved to 6/24.

152. Neurotic Disturbances of Eye Function.

L. K. LUNT and A. F. RIGGS (*Arch. of Ophthalmol.*, July, 1923, p. 313) deal with those cases, so commonly met with, of slight refractive error with marked symptoms who do not get the expected benefit from glasses. The following case is quoted as typical. An intelligent woman of 50, with a family history of "weak eyes," has never been very strong, but on the other hand there has never been anything definitely wrong with her. She has always been rather shy and reserved, not making friends very readily. She has been happily married for twenty-five years, but owing to a pelvic condition has never had any children; this has disappointed her greatly. Her husband is of a somewhat neurotic temperament. Eight years ago she had an attack of typhoid fever, since when she has never been able to use her eyes with comfort; this state of affairs has gone from bad to worse and she eventually could only use her eyes for a few minutes at a time. She even contemplated learning Braille. She had consulted at various times competent ophthalmic surgeons, who one and all had assured her that beyond a very small error of refraction, for which glasses were prescribed, there was nothing wrong with her eyes. She had a genuine desire to get well, and after eight weeks of graduated eye exercises she was able to use her eyes in concentrated efforts for three and a half hours a day. The authors point out that this type of case requires more than the fitting of glasses. Re-education of the faculty of sight is necessary. In the process of re-education each case must be approached individually and with great sympathy. Graduated reading exercises must be initiated, the length of the daily exercise being gradually increased, but great care being taken not to advance too quickly. Finally, there must be careful oversight of the physical activities as well as the training of the supposedly handicapped function, so that the gains may become real and permanent.

153. Ocular Complication following Abortion.

P. PESME and DARAIGNEZ (*Gaz. hebdom. des sciences méd. de Bordeaux*, March 18th, 1923, p. 123) record the case of a woman, aged 19, who, eleven days after a two months' abortion, completed by digital removal of a portion of the ovum, became suddenly blind in one eye, which showed a preretinal haemorrhage in the region of the macula. The abortion had been attended with considerable loss of blood, and the patient suffered from mitral stenosis. Discussing the cause of the ocular haemorrhage the authors exclude both the ordinary post-haemorrhagic lesion which is characterized by oedema of the papilla and is bilateral, and the recurring haemorrhage of adolescents, which quickly invades the vitreous; the blindness followed the first effort of the patient to sit up, and is ascribed to suddenly augmented venous tension in a condition of lowered intra-ocular pressure. Seven weeks later visual acuity had been restored to 5/10.

154. Treatment of Xanthoma Palpebrarum with Finsen Light.

S. LOMHOLT (*Ugeskrift for Laeger*, May 31st, 1923, p. 390) notes that as xanthoma palpebrarum is a perfectly benign and painless growth, doctors are seldom called on to treat it, although in his experience it is a very common condition. From the cosmetic point of view, however, it is a serious condition, and at the Finsen Institute in Copenhagen the usual practice adopted in these cases up to the spring of 1922 has been to give radium treatment. But this treatment proved tedious, and better results have recently been achieved with concentrated carbon arc light applied in the same way as for lupus. A single exposure of about one hour was in some cases repeated three or four times, a certain interval being allowed between each exposure for the reaction to subside. At the Finsen Institute 11 cases have recently been treated in this manner, and the results have been very good. The yellow patches disappeared completely, or almost so, and without the formation of any scar. Only in a few cases was there a slight pigmentation left in the periphery of the area treated, and it should be noted that such pigmentation may exist before treatment. Provided the first course of treatment is adequate, there seems little chance of relapses *in situ*, but this treatment does not, of course, prevent recurrence of the disease in new areas. The author concludes that even in the tuberculous form of the disease, Finsen light is superior to any other form of treatment.

Obstetrics and Gynaecology.

155. Extrauterine Pregnancy at or near Term.

H. E. HAYD (*Amer. Journ. Gyn. and Obstet.*, June, 1923, p. 601), having encountered two cases of extrauterine pregnancy near full time, summarizes various points of interest connected with this rare condition. The author shows that the diagnosis is extremely difficult as pregnancy progresses apparently normally, there being no signs of violent rupture and no loss of blood in the early months to draw the patient's attention to some abnormality. When examined near term the textbook descriptions, which usually state that the foetal heart sounds are unduly loud and the limbs easily felt, were not found to be the case, nor was the child found to be more to one side of the abdomen than the other. The cervix, however, was much harder than in a normal pregnancy near term, and in both cases the uterus could be felt per vaginam as a hard mass below the pregnant sac, which caused the diagnosis of a fibroid complicating pregnancy to be made in each. The symptom which caused both patients to seek medical advice was a sudden obstruction of the bowels due to adhesions of the sac. As regards treatment

concluding high note of friendship for France so moved the audience in the theatre of the Sorbonne that the Minister of the Interior left his presidential chair and cordially shook the hand of the speaker amidst great applause.

During the meeting the Miller Memorial Prize, which consists of a gold medal, an illuminated diploma, and a sum of money, was presented to Mr. J. Howard Mummery for his distinguished work in dental histology. In the various commissions, or sectional meetings of the Federation, held during the week progress was made in attempts to arrive at a universal ideal curriculum for dental studies, and a collective investigation into the best means of carrying out public dental service on the most economical basis was also begun. Professor Jersen incidentally referred to a cheap metal plate for a denture which was now in use amongst the many thousands employed in Krupp's factories at Essen. A specimen plate, which he showed, had the appearance of platinum but consisted of very thin stainless steel; five years' use had shown it to be practically unbreakable, and it was not acted upon deleteriously by the oral fluids. Unfortunately, from the professional point of view, the makers of the metal, who were Messrs. Krupp, had refused to divulge the secret of its manufacture. The collection and the documentation of all published matters relating to dentistry, either scientific or general, were proceeding under the skilled guidance of Dr. Huet at the great library of bibliography in Brussels, and it was hoped that at some future date the result would be an important work of reference. A visit to the tomb of Dr. Charles Edouard Godon in the cemetery of Père Lachaise, Paris, one of the founders and an honorary president of the International Dental Federation, who died recently, was made by a delegation of the Federation.

During the meeting various ceremonial functions and entertainments were organized by the French members of the Federation. The meeting terminated in a pleasant excursion by motor car to the country home, near Versailles, of Pierre Fauchard, "the father of French dentistry," who died in 1786.

Nova et Vetera.

TAR WATER.

IF we are a nation of shopkeepers, none of us minds his own shop with an exclusive devotion; the triumphs of the amateur are the glories of England. Charles Darwin was not a professor, George Boole taught himself mathematics, John Dalton was self-educated. These names illustrate the successes of the amateur; his failures are sometimes instructive, and the history of medicine provides many examples. The story of Tar Water is a case in point. In 1744 there was published *A Chain of Philosophical Reflexions and Inquiries concerning the Virtues of Tar Water and divers other Subjects connected together and arising one from another.* It was reprinted the same year with additions and a new title, *Siris* (from σειρά, a chain), and reached a fifth edition by 1748. "We are now," said Horace Walpole, "mad about the water, on the publication of a book written by Dr. Berkeley, Bishop of Cloyne. The book contains every subject from tar water to the Trinity; however, all the women read it and understand it no more than if it were intelligible. A man came into an apothecary's shop the other day: 'Do you sell tar water?' 'Tar water?' replied the apothecary, 'why, I sell nothing else!'"

Our profession vigorously denounced the "epidemical madness of drinking tar water," thus, as some cynics held, justifying Berkeley's claims. But the cynics were wrong; all that remains of tar water in the memory of man is covered by a phrase. "The luminous spirit," said Berkeley, "lodged and detained in the native balsam of pines and firs is of a nature so mild, and benign, and proportioned to the human constitution as to warm without heating, to cheer but not inebriate." Cowper applied the last phrase to tea and made it immortal, the one unrusted link of Berkeley's chain.

What did Berkeley claim for tar water, and why? As to the first question it would be hard to say what he did not claim. To begin, it was a sure prophylactic against small-pox. He knew a family of seven, all of whom escaped "except one young child which could not be brought to drink tar water as the rest had done," while Captain Drape of Liverpool made a solemn affidavit that of "170 negroes seized at once by the small-pox on the coast of Guinea one only died, who refused to drink tar water; and the remaining 169 all recovered, by drinking it, without any other medicine, notwithstanding the heat of the climate, and the incommodities of the vessel" (*Second Letter to Thomas Prior*, par. 18). Tar water was sovereign in cutaneous eruptions and ulcers—"encouraged by these successes I ventured to advise it in the foulest distempers, wherein it proved much more successful than salivations and wood drinks had done." Tar water was also very good for gout, but "nothing is more difficult or disagreeable than to argue men out of their prejudices; I shall not therefore enter into controversies on this subject, but if men dispute and object, shall leave the decision to time and trial."

If it be objected that one and the same medicine cannot possibly cure so many different diseases, we should remember that opposite causes sometimes produce the same effect: "it is not therefore strange that tar water should warm one habit and cool another, have one good effect on a cold constitution, and another good effect on an inflamed one; nor, if this be so, that it should cure opposite disorders."

How did it come about that one of the acutest thinkers of the eighteenth century, familiar—as *Siris* itself proves—with the Hippocratic collection, reasoned so ill? Part of the explanation is that although Berkeley was a fine reasoner, his field was remarkably narrow. Hardly anyone since Plato has been acuter in the use of dialectic, hardly anyone of equal powers has been so destitute of either mathematical or experimental tact. His *Analyst* exhibits a total failure to comprehend the leading ideas of Newton's doctrine of fluxions—of what we now call the infinitesimal calculus; Jurin, who although eminent in both mathematics and physic was a much smaller man than Berkeley, easily vanquished him in the mathematical controversy. A fraction of the skill with which Berkeley dissected the notion of "matter" would have made short work of Captain Drape's solemn affidavit.

But this cannot be the whole explanation. Practical economics are at least as far from dialectics as practical therapeutics, and Berkeley was a much better practical economist than most of his contemporaries, as a few extracts from the *Querist* will prove, thus:

> "Whether the women may not sew, spin, weave, embroider, sufficiently for the embellishment of their persons, and even enough to raise envy in each other, without being beholden to foreign countries?"
>
> "Whether, if drunkenness be a necessary evil, men may not as well get drunk with the growth of their own country?"
>
> "Whether it must not be ruinous for a nation to sit down to game, be it with silver or paper?"

We should suppose the cause of his failure to lie deeper; to be what it is now fashionable to call a "complex," which certainly sounds much wiser than *arrière pensée*. Berkeley's "complex" was a conscious and unconscious wish to smash the "deists." This prompted his successful onslaught on "matter" and his unsuccessful attack on fluxions. He was no doubt worried because, as Lord Balfour said, "ordinary men were not prepared to admit that a Deity was necessary because matter was impossible." If he could but discover a panacea, his argument for Divine Providence would be clinched. Tar water was that panacea, and proofs of its efficiency no more than rationalizations—to adopt another fashionable term for what used to be called argumentation *ex post facto*.

Here perhaps we have the explanation of many other panaceas before and after Berkeley's time, from the elixir of Paracelsus to the *Bacillus bulgaricus*. The physician must be a philosopher, but a simpler philosophy than that of Berkeley may serve his turn better—that of the worldling who said:

> "Virtus est vitium fugere, et sapientia prima
> Stultitia caruisse."

THE

British Medical Journal.

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

LONDON: SATURDAY, SEPTEMBER 1st, 1923.

EDUCATIONAL NUMBER, SESSION 1923-1924.

PERMEATION OF THE MEDICAL CURRICULUM BY PREVENTIVE TEACHING.

BY

SIR GEORGE NEWMAN, K.C.B., M.D., D.C.L., F.R.C.P.,

CHIEF MEDICAL OFFICER, BOARD OF EDUCATION AND MINISTRY OF HEALTH.

A NEW epoch opens this year before the students of medicine. In 1922 the medical curriculum in Great Britain was completely revised and reconstructed in such a way as to make it more preventive in purpose. The changes introduced had, of course, other collateral objects, but this was one of the special aims, and it was sealed by a resolution of the General Medical Council "that throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of Medicine."

The medical schools are devising, or have already made, arrangements to carry out the new recommendations of the Council. These arrangements will no doubt be subject to the periodical visitation of the Council's inspectors. It is anticipated that examiners also will look for and require substantial evidence of the student's appreciation of the importance of dealing with disease in the "preventive" way, of not only knowing how to diagnose and cure immediate maladies, but of being in a position to advise the patient how to order his life in such a mode as to direct his personal and environmental tendencies towards health. It is a new outlook.

There were two fundamental reasons for this new attitude. First, it had come to be recognized that as compared with the twenty-three centuries since Hippocrates we are living in a Golden Age of Medicine, the chief glory of which has been the advance of prevention; and secondly, it is now generally acknowledged that the ultimate purpose of the science and art of medicine is not to cure the individual patient only, but to seek out the laws or principles which govern health or ill health for the human family. The nobility of the profession of medicine reaches its highest plane in compassion towards, and the relief of suffering of, the individual on the one hand, and, on the other, the finding and establishment of scientific truth which shall advance the evolution of man.

THE VICTORIES OF PREVENTIVE MEDICINE.

Let me name four recent examples of the victories of preventive medicine in its communal sphere, which will illustrate the methods to which we must have regard. We need go no further back than thirty years. In 1893 there were in England and Wales 6,801 deaths from *typhoid fever*, or 229 per million persons living; in 1903, this disease caused less than half that number of deaths (3,347 persons); in 1913 the death rate had fallen to 41 per million; and in 1922 it had come down to 12 per million, which meant only 443 deaths from a disease which formerly made an annual toll of eight or ten thousand lives. The case fatality remains about the same (15 to 20 per cent.) and the type of disease has not materially changed. *But the disease is disappearing.* Why? Because the public water supply is improved; because drainage, sewerage, and refuse disposal have been reformed, and the food supply, including shell fish, has been controlled. There is no mystery about it, nor any doubt. Inoculation is available, and has been used in exceptional circumstances, though not widely, in the civil community. Its value, in conjunction with general and special sanitation, in the European war, 1914-18, is unquestioned. In the South African war the British Army strength was 208,000; there were 58,000 cases of typhoid, and 8,000 men died of it. In the European war the British Army on the western front had a strength exceeding a million men, but there were less than 7,500 cases of typhoid and only 266 deaths. In the army or the civil community the result is the same: the disease is conquered.

A second example is small-pox. In London from 1660 to 1780 Farr estimated from the bills of mortality that small-pox caused upwards of 4,000 deaths per million living. In England and Wales in 1838-42 the rate was 575 and in 1886-90 it had fallen to 14 per million. Why? Because of vaccination. It has been proved beyond doubt that vaccination was the specific agent in this decline, the specific protection against this disease. The malady was all but a universal scourge, and it is now entirely controllable. The vaccination laws may or may not be wise, ineffective vaccine and inefficient vaccination may or may not occur, the protection afforded may not be of indefinite duration; but in all countries the experience has been the same—vaccination prevents small-pox. It is not a disease which is dying out like black death or leprosy. When reintroduced into an unvaccinated community it returns, whatever be the sanitation. We have control if we choose to exercise it, but because of prejudice or ignorance we have not yet reached the stage of stamping it out for ever.

Tuberculosis is a third example. In 1847 the death rate per million from phthisis in England and Wales was 3,189. It has steadily declined for seventy years and in 1921 it was 854. Non-pulmonary tuberculosis is likewise declining. If the disease be as widely distributed as is generally supposed, it must indeed be one of the most curable of the great scourges. What is the explanation of its decline? The answer is prevention. An improved milk supply, institutional treatment of the disease, better nutrition, sanitation of the home and the workplace, the reduction in the habit of promiscuous spitting, and an immense advance in social well-being are, in spite of voluble and inconstant

THE HEALTH AND THE INTELLIGENCE AND PHYSIQUE OF SCHOOL CHILDREN.

PROFESSOR KARL PEARSON has many titles to respect, amongst them his prowess as an iconoclast. A secondary definition of the word "iconoclast" is one who assails or attacks cherished beliefs. Even the first iconoclasts of the eighth and ninth centuries did not manage to break all the idols, any more than the Protestants of the sixteenth and seventeenth centuries succeeded in smashing all the images on our churches. Professor Karl Pearson will perhaps be no more successful than his predecessors, but students of medicine and sociology are sincerely grateful to him for now and again asking them to examine critically the grounds of their confident beliefs. The most recent publication of the Galton Laboratory deals with the relationship of health to the psychical and physical characteristics of school children,[1] and is based on information collected between 1898 and 1903 from teachers in a number of secondary and elementary schools. The teachers recorded the measurements of a number of quantitatively defined characters and classified a number of non-measurable characters. The classification of intelligence was based upon a very careful series of definitions of categories supplied by Professor Pearson. A large number of pupils—2,388 boys and 2,290 girls—were examined.

Many of the results deducible from this valuable collection of data have already been published by Professor Pearson, notably in his Huxley Lecture. With regard to the interrelationship of health and psychical or physical characters, he concludes in the first place that there is little or no change either in health or intelligence through school life. Indeed, "vivacity" in boys and "popularity" and handwriting in girls are the only characters furnishing a correlation with growth which exceeds 0.1, the sign in each instance being negative.

Passing to the correlations of the estimate of health with other estimates and measurements, the results are these. The correlation is greater than 0.2 in three instances — with athletic power (0.443), with self-assertion (0.263), with vivacity (0.222). It is between 0.1 and 0.2 in two cases—with popularity (0.199), and with handwriting (0.154). The figures in brackets are the values for boys; for girls the values are somewhat smaller. The order of the probable error is ± 0.015 in each case. Professor Pearson considers that his data "seem to shatter three widely if not universally accepted beliefs. Firstly: General Intelligence and a variety of psychical characters seem practically to be unchanged throughout the whole range of school life. It is not therefore possible for the teacher to modify them. It is the parent, not the teacher, who provides the metal; all the teacher can do is to give it an edge and temper it. Secondly: General health changes exceedingly little during the whole school period. Health and Intelligence are correlated, although not very markedly. While recognizing this association of Health and Intelligence, it does not seem feasible with the present state of medical knowledge to improve Intelligence by modifying Health. In the middle classes, where environmental and medical care of children is the rule, we do not find any appreciable advance in Health during school years. We are forced to recognize that on broad lines Health and Intelligence are innate characters, chiefly determined by inheritance. Thirdly: There appears to be no foundation for the widely spread opinion that Health is a governing factor of temperament."

There will be no difference of opinion as to the value of this exact and lucidly presented analysis of a body of data gathered by experienced observers in many schools. There may be a difference of opinion as to the justice of the remarks quoted. We shall not ourselves take part in this discussion, because Professor Pearson emphasizes the fact that the bulk of his data is drawn from middle-class schools, and, so far as we are aware, it is with respect to elementary schools that opinions resembling what Professor Pearson asserts to be universally accepted beliefs have been at all widely expressed by medical men. We are not, indeed, sure that even in that field it has been asserted without qualification that medical care can modify intelligence. What we think has been universally asserted is that underfed, sickly children suffering from remediable defects—uncorrected errors of refraction, septic mouths, dirty scalps—are not in a state permitting them to profit by the educational advantages proposed in our system of elementary education. This belief, whether true or false, is not shattered by the present analysis.

Professor Pearson writes: "Beneath the ceaseless flow of life the feeble mind of man catches now and again some glimpse of deep biological purpose in the universe; he sees it mid the shifting vortices of the flood only too obscurely. Nature does not work through man but on man; and she works not with his ineffectual tools but with her own all-powerful machinery. She made by variation, by inheritance, and by ruthless extermination the moderately amiable, the moderately intelligent man of to-day out of an untamed and mordacious precursor. Is it not blind audacity for man to claim that by the aid of his puny, if undoubtedly useful, little polishing tools, such as education and medicine, he can achieve as much in a school life as Nature with her omnipotent mechanism has taken in all probability a quarter of a million years to produce? If man would throw himself into sympathy with Nature's purpose, let him appreciate to the full extent the potency of her methods, and endeavour as his slender strength may permit to use her tools." This is finely said, and, in an age of braggarts proclaiming that if only this or that were done disease and sorrow would be banished, the truth it enforces is not very likely to be misused. But metaphors, if good servants, may be bad masters; should anyone conceive "Nature" as a learned lady with the features of Britannia on our pence, study of the Registrar-General's annual returns, and perception of the fact that in 1918, a year of deadly pestilence, the annual rate of mortality which appalled us was within 0.1 per 1,000 of what Farr fifty years before had proposed as a possibly attainable standard, will convince him that the good dame's rate of movement away from Frightfulness has quickened during the past two generations.

When we drop metaphor, we may recollect that all we do and hope is part of "Nature," that confidence in our useful little polishing tools of medicine and education was implanted in us *by* "Nature," and that these selfsame tools also belong to "Nature's" all-powerful machinery.

[1] *On the Relationship of Health to the Psychical and Physical Characters in School Children.* By Karl Pearson, F.R.S. Drapers' Company Research Memoirs, Studies in National Deterioration, IV. Cambridge: University Press; London: H. K. Lewis and Co., Ltd. 1923. (Med. 4to, pp. 77; 39 diagrams. 15s.)

at all stages of the disease, in its initiation, in its development and in its progress, then and only then is the *natural history* of heart disease understood."

In the second place, the student must become really keen on the search for the etiology, the primary and secondary causes, of the morbid condition he is investigating. One frequently hears it said that the clinical student learns best by seeing a great number of cases, and that London with its immense population therefore affords fullest opportunity for clinical study. I am afraid I do not agree. Of course, the wider the experience the better; but it is not the superficial survey of many cases but the understanding investigation of a few which really educates the student. Comprehension and not repetition is the strength of memory; and it is obtained as the mind really explores and observes, and discovers for itself the causation of the condition. Nowadays we look for guidance (*a*) to bacteriology and pathology, (*b*) to clinical character and symptomatology, (*c*) to laboratory confirmation, and (*d*) to social factors. There is much new knowledge available, but 150 years ago at Edinburgh, William Cullen was proclaiming all the enduring principles, and his plan of studying each case has not been greatly improved upon by some modern prophets. Nevertheless, of course, he taught before the industrial revolution. The people had not swarmed into the towns (where four-fifths of them now live), the factory system was not dominant, industrial fatigue—a fertile source of physical and psychical impairment—was not appreciated, and the general stress and strain of modern life was less than now. Mr. G. M. Trevelyan tells us that the second half of the nineteenth century is "the story of the building up of the new world, of a wholly new type of society, infinitely more complicated and interdependent in its parts, more full of potentialities for progress or disaster, than anything the world has before seen," and this must be taken into account. Moreover, the growth of knowledge was awaiting Darwin, Pasteur, Lister, Ehrlich, and Einstein. Hence, the actual and relative *causes* of disease were not evident. But now every inquisitive student can search with hopefulness, and be, as Cromwell said, "happy seeker, happy finder."

Lastly, the student should habituate himself to think widely and resourcefully of the means of prevention in their whole range. Poverty, industry, personal habits, social conditions, channels of infection, must be considered as well as the grand category of the therapeutics which prevent—drugs, vaccines, serums, organic substances, sunlight, electricity, radium, massage, psychology—and the still wider factors of environment. He is to learn by ingenuity to apply and adapt all knowledge to the harnessing of disease as a whole. The patient is to be cured; yes, but out of the patient is to be wrought an understanding of, and an attack upon, and the prevention of, the particular disease from which he suffers. It may well be that the student cannot *practise* prevention as he learns to practise the cure, for the issues raised are beyond his immediate control. But when he enters upon his life's work as a medical practitioner he will find that it is required of him that he shall take an essential part in the vast national and international machinery now in being for the conquest of disease. There are not less than a score of Acts of Parliament which impose public preventive duties upon him as a medical practitioner. He must know how to comport himself in relation to those laws. But more than that, his private patient is concerned not only with the alleviation of his malady, he is anxious about the future and his capacity to work, and he asks, "What can I do to *prevent* this?" Surely, that is a very cogent and penetrating question for the medical practitioner to answer. His answer, and its wide promulgation and proper interpretation, is the fulfilment of his splendid part as the missionary of Preventive Medicine. For his comfort he may remember that to prolong human life and make it fuller, better, and more effective, is the "master task of mankind."

THE TEACHING OF OBSTETRICS AND GYNAECOLOGY.

BY

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THE shortcomings of the old midwifery training must have been obvious to all those who, fortified by having recently passed an examination in anatomy and physiology, sallied forth into the outdoor maternity district to pick up, under no supervision whatsoever, what they could of the practice of midwifery under the worst possible conditions. Lamenting past deficiencies will, however, serve no useful purpose and time and space will be better occupied in describing present methods and ideals, so far as can be done by one teacher, speaking on behalf of many.

NEW AND WIDER VIEWS.

A beginning may be made by outlining the changed view of what is included under Midwifery and the Diseases of Women. Though the title is double, the subject is not: it is the study of normal and abnormal reproduction and the diseases of the reproductive tract in women, and it cannot be taught in two separate pigeon-holes as obstetrics and gynaecology. It must be presented to the student from the aspect of preventive and curative medicine—midwifery *representing chiefly the preventive and gynaecology the curative and reparative side*—and the more the subject can be widened to include an outlook over the whole reproductive cycle—from one generation to the maturity of the next—the more educative will it be.

Training in midwifery cannot be expressed merely in terms of attendance on labour, within and without the hospital, but must include all the machinery of what is commonly termed a maternity centre. Pregnancy, labour, lying-in, and lactation are physiological states and in all of them our primary object is the maintenance of the physiological and the avoidance of the pathological. The physiological study of reproduction is, therefore, the essential foundation on which practice must be built, and no opportunity must be lost of interesting the student in all phases of the normal functioning of the reproductive system. In the ante-natal clinic he will be taught the observation and care of the pregnant woman with the object of detecting and remedying any deviation from the normal. For the first time in his training the student sees patients, of whom the vast majority are not ill, in order to pick out occasional cases in which trouble may be brewing or may be feared in the future. He will learn the examination of women in all stages of pregnancy, and the warning signs that enable its disorders to be detected early and preventable difficulties in labour forestalled. In the wards the investigation and treatment of the more serious diseases of pregnancy will be carried out with the help of biochemical and other laboratory methods, and the conduct of labour learnt first in the maternity ward, under the best conditions, with all the resources of the hospital at hand. The birth itself will not be taken as the "be-all and end-all" of midwifery, but as a stage in the reproductive process and a critical one calling for special care. The management of the puerperal woman and the nursing mother and her infant will likewise be followed with the same object of keeping healthy patients in health, and observing the physiological processes of involution, lactation, and the early development of the child. The follow-up of mother and child throughout the period of lactation in the infant clinic is the natural corollary of this part of the work.

The diseases of the reproductive tract are largely represented by (1) infections, due to gonorrhoea and puerperal sepsis, (2) mechanical lesions resulting almost entirely from injury at childbirth, and (3) new growths. Of these the first two are preventable and should be presented first to

tion; and recently in shipments of apples from Australia thus affected the condition was traced to an excess of carbon monoxide accompanied by a low oxygen concentration in the holds. In an illuminating prefatory note to the special report Mr. W. B. Hardy, F.R.S., the director of the Food Investigation Board, draws attention to the physiological or functional as distinct from the infective nature of this abnormal condition. In other words, it is not a condition that is due to moulds or infective organisms. The apple, as a living organism, breathes, and "brown heart" is the result of physiological suffocation. The researches of Kidd and West entailed a study of its respiration and analysis of its internal atmosphere—that is to say, of the air enclosed in certain microscopic canals which traverse the flesh of the fruit. The disease was thus found to be caused by the death and subsequent browning of the internal fleshy tissue when the amount of carbon dioxide in this internal atmosphere was excessive. The external tissue remains undamaged and the fruit appears generally sound until it is cut open, when the fleshy tissue around the heart of the apple is seen to be brown-coloured and rotten. The condition may be caused by a brief exposure to excessive carbon monoxide concentration, and this rather than a prolonged average concentration is the most important factor, although temperature also influences the results. The practical effect of the investigations is that, while the ripening of the fruit can be retarded by a certain concentration of carbon monoxide, and a subnormal oxygen concentration above a certain minimum, without injury, a degree of ventilation is necessary to prevent the carbon monoxide becoming excessive and so suffocating the respiration. These researches also throw light on what is known as "bitter pit" in orchards, a condition in which small, isolated patches of dead tissue appear immediately below the skin of the fruit, causing the skin to sink in after the patches dry out. The whole series of experiments and conclusions are of great interest and of many-sided scientific and economic value. They are an excellent example of the useful work that has been, and is still being, carried out by the Food Investigation Board, which was instituted during the war. It is undersood that further researches will be carried out to determine the immediate possibility of an improvement in the method of storage during overseas transit not only of apples but also of other fruits. A report, which will have a definite bearing on this, is being prepared, embodying the results of gas-storage tests with various fruits. The special research was carried out under the direction of Dr. F. F. Blackham, F.R.S.

THE INTRODUCTION OF HYPODERMIC MEDICATION.

IN the account of Charles Gabriel Pravaz, under the heading "Nova et Vetera" in the JOURNAL of August 18th, our contributor made a passing reference to Alexander Wood (1817-84), at one time President of the Royal College of Physicians of Edinburgh (1858-61). Wood was the first representative of the College (1858-73) on the General Medical Council, on which he did yeoman's service for his fellow countrymen by successfully advocating the abolition of territorial and limited licences to practices, thus removing the difficulties previously besetting those migrating from the North to the South of England. His name should also be gratefully remembered as the originator of hypodermic medication; in 1853, taking as his model the sting of a bee, he constructed a small glass syringe with a fine perforated needle point attached, and thus injected morphine hypodermically. Two years later (1855) he published *A New Method of Treating Neuralgia by Subcutaneous Injection*. Curious as it may now seem, the injection was at first, and apparently as a matter of course, made by Wood's direction into the painful area. Hypodermic injection at a distance from the pain was first carried out by Mr. Charles Hunter, a house-surgeon at St. George's Hospital, in 1858, who as late as 1866 felt it necessary to argue, through twelve pages in the first volume of *St. George's Hospital Reports*, that hypodermic injections of morphine at a distance from the painful spot were really effective—or, in his own words, which then probably appeared bold and now seem unduly cautious, "Notwithstanding the strong current of opinion still in favour of localization . . . distant injections have, with some experimenters, as a rule, been always equally effectual with local injections." Very shortly after this Sir Clifford Allbutt recorded in the *Practitioner* (1869) the remarkably good effects of hypodermic injections of morphine in patients suffering from severe heart disease; this at the time was also rather a bold, though most valuable, departure from paths of strict orthodoxy. Truly "our little systems have their day . . . and cease to be."

THE BRITISH ASSOCIATION, LIVERPOOL, 1923.

As already announced, the ninety-first annual meeting of the British Association for the Advancement of Science will be held at Liverpool from September 12th to September 19th. On the opening day there will be meetings of the Council and the Organizing Sectional Committees; at 5 p.m. the General Committee will meet, and at the inaugural general meeting at 8.30 p.m. Sir Ernest Rutherford will deliver his presidential address, on the electrical structure of matter. On Thursday, September 13th, Professor G. H. Nuttall, F.R.S., as President of the Section of Physiology, will give an address on symbiosis in animals and plants. On September 14th, at a joint meeting of the Sections of Chemistry and Physiology, a discussion will take place on the physical chemistry of membranes in relation to physiological science; at 8.30 p.m. on the same day Professor G. Elliot Smith, F.R.S., will deliver a lecture on the study of man before a general meeting of the Association. Saturday, September 15th, will be devoted to excursions. A discussion on the delinquent child will be held on Monday, September 17th, at the joint meeting of the Sections of Psychology and Education. Professor J. J. R. Macleod will open on the same day a discussion in the Section of Physiology on insulin and its value in medicine, and Dr. Edridge-Green will read a paper in the same section on the effect of the blood in the retina on colour equations. A scientific soirée will be held on the evening of September 16th, when exhibits will be shown illustrating the results of recent work in various departments of science. Throughout the course of the week an exhibition of scientific apparatus will be on view in the Central Technical School, and the Air Ministry is arranging a meteorological demonstration. Most of the thirteen sections will hold their sessions in the buildings of the University of Liverpool. The reception room and administrative offices will be held in St. George's Hall. In connexion with the meeting a series of public lectures to citizens and children will be given by members of the Association.

HETEROMORPHOSIS.

IT is not uncommonly thought that morbid histology is practically worked out, and no doubt it has been thrown into the shade by the attractions of other branches of pathology, and especially, perhaps, by the study of metabolism, biochemistry, and disorders of function. But that morbid histology affords plenty of scope to research workers is shown by Dr. G. W. Nicholson's papers in the

where the number of abnormal cases in proportion to the number of students is sufficient to provide the necessary material. Difficult and operative cases must be seen by all students in residence and within call. The diagnosis of obstetric complications is acquired in the ante-natal clinic as well as in the labour room, obstetric manipulations are taught on the dummy and foetus and by making the utmost of the hospital clinical material by demonstration to as many students as possible. Many of the lesser procedures—low forceps and the like—will afford opportunities for the student in the later stages of his training to carry out these operations under the supervision of his teachers.

Preventive measures during pregnancy have so greatly diminished the proportion of complicated cases—especially misfits between the head and pelvis, malpresentations, and eclamptic convulsions—that the number of obstetric difficulties available for teaching are correspondingly less. The high forceps operation, craniotomy, and version for shoulder presentation are now rare events, and delivery by the breech is reduced, by turning some weeks before term, to a small percentage of its former frequency. There is less alteration in the treatment of the albuminuria of pregnancy and *ante-partum* haemorrhage, in which the management largely consists of rest in bed and observation to determine whether interference is called for and, if so, the most appropriate moment and method. Errors of observation, emergency cases sent into hospital, and unavoidable complications will always provide a certain number of difficult labours, which must be discussed with the students in the same attitude of prevention that pervades all their teaching. The first question will be: Could this complication have been foreseen, and, if so, how did it come to be overlooked? Had it been foreseen, what better could have been done and what troubles to mother and child might have been avoided? This attitude of mind should be maintained even towards such trifling procedures as the low forceps operation by considering the factors that interfere with uterine efficiency. Were any of these present in this case and could anything have been done to secure a physiological labour for this woman?

THE GYNAECOLOGICAL SIDE.

Early in the third month clerking in the gynaecological department will be begun, spare time being portioned out between the maternity and infant clinics. Diagnosis is learnt most easily on patients in the wards and bimanual examination on those under anaesthesia, but, as the out-patients approach more closely to conditions met with in general practice, close attendance on them is especially important. Provided attention is not unduly concentrated on dramatic and striking operations and the most made of minor procedures, the teaching of gynaecology is simple and straightforward compared with that of midwifery; except that the opportunities for pelvic examination of women are more limited, it differs but little from clinical teaching in medicine and surgery. The nervous and psychical element is intimately bound up with sexual and reproductive disorder and this aspect is easily overlooked, but ought to be kept before the student, for its importance in practice can scarcely be overestimated. The student, having already learnt his general pathology, only requires such features as are peculiar to the reproductive function to be emphasized, and they can be best illustrated by demonstrations of material from the department, the naked-eye and microscopical investigation of which is part of the case record.

UNITY IN DIVERSITY.

All schools and teachers have their own individuality, determined more by variations in the atmosphere in which teaching is conducted than in method. Thus the writer's own atmosphere may have distorted the perspective of this sketch by making some features stand out too prominently and others recede too far into the background; but the general impression may be taken to represent the present-day aspirations and ideals of those who, in this subject, endeavour to train up the student in the way he should go.

The Profession of Medicine.

INTRODUCTORY.

FOR long past the annual Educational Number of the BRITISH MEDICAL JOURNAL has appeared at this time of year, when the opening of a new session is at hand. The remarks that follow, on the profession of medicine, are addressed more particularly to intending students and their parents. It would be out of place to discuss medical politics at large, but the occasion may be taken to touch briefly on a few current matters affecting professional study and practice. If an opinion is expressed on debatable topics it must be understood that our object is not to lay down the law, but to put certain considerations before those who think of devoting their lives to medicine, and thus help them to judge of their fitness for the calling and of the prospects it holds out. There is no profession for which a special vocation is more necessary. And (it should perhaps be added) there are few professions in which a fortune is less likely to be made.

Our present issue, then, is largely a guide to the steps that must be taken in order to become a legally qualified practitioner. It contains also certain sections intended for younger members of the profession who may be in doubt as to the path in medicine they should choose as a career, and a section on the facilities for post-graduate study in Great Britain. The particulars given under these two main heads are founded for the most part on official information, and are arranged along the customary lines; but, following last year's plan, we publish in this issue two introductory articles on particular features of medical education, each from the pen of a recognized authority. Sir GEORGE NEWMAN writes on the need for permeating the student's whole course of training with the spirit and methods of preventive medicine, and indicates the steps already taken to attain that end by reformation of the curriculum. Dr. JOHN FAIRBAIRN, in his note on the teaching of obstetrics and gynaecology, discusses certain ways in which the "preventive idea" may be carried further into this most important branch of medical education. The two articles are thus complementary, each emphasizing, one in general terms and the other from a special point of view, the significance of prevention in the study and practice of medicine. Apart from these and other special articles, the prospective student will find in subsequent pages an account of the course of education required of him, the places where this training can be obtained, and the universities and other bodies which test the knowledge gained and issue degrees or diplomas entitling successful candidates to become registered medical practitioners.

PORTALS OF THE PROFESSION.

As will be seen from a perusal of the articles in this issue, there are many portals through which admission may be obtained to the *Medical Register*, which is the official statutory list of qualified medical practitioners. Yet the medical courses of all the universities and corporations in Great Britain and Ireland run on parallel lines, and the obligatory curriculum is much the same in all. Within these broad lines, however, there are many differences between the requirements of the various teaching and examining bodies. The choice should therefore be made early, so that a definite plan may be followed throughout the years of study. To prevent a false step at the outset

Hospital. There will also be a special course of instruction in infants' diseases at the Infants' Hospital, from September 3rd to 21st, a course in ophthalmology at the Central London Ophthalmic Hospital, from September 3rd to 29th, and a course in dermatology at St. John's Hospital for Diseases of the Skin, from September 17th to October 13th. Particulars of the courses may be obtained from the Secretary, Fellowship of Medicine, 1, Wimpole Street, W.1.

We announce in our Service notes this week the promotion of Surgeon Captain Arthur Reginald Bankart, C.V.O., R.N., now serving in H.M. Yacht *Victoria and Albert*, to Knight Commandership of the Royal Victorian Order. It was largely owing to Sir Reginald Bankart's personal influence that members of the British Medical Association attending the Annual Meeting at Portsmouth last month were able to visit the Royal Yacht.

VARIETIES OF SMALL-POX.

BY

JOHN C. McVAIL, M.D., LL.D., F.R.F.P.S.

The extensive prevalence of mild small-pox in England last year and this year has naturally created much medical interest in the subject, and the purpose of this article is to review briefly the general position.

The subject is far from new. As pointed out by me in the Milroy lectures in 1919, Sydenham referred to small-pox without eruption. Wagstaffe, in the eighteenth century, said of small-pox that "there is one sort in which a nurse cannot kill, and another which even a physician can never cure." Jenner, in 1789, seven years before his first vaccination, discussed the question whether a mild type of small-pox then existing might not be used for protective inoculation in preference to matter from the ordinary disease. Adams, of the London Small-pox Hospital, wrote on "pearl-pox" in 1806. About a century ago Professor Thomson of Edinburgh defended at much length the proposition that small-pox and chicken-pox are one disease, and, if I mistake not, Hebra was of the same opinion. In the eighteenth century names such as stone-pox, horn-pox, water-pox, swine-pox were not uncommon, but probably referred mainly to modified second attacks of small-pox, which occasionally occurred at long intervals after a first attack, particularly, no doubt, if the first attack had been mild.

In recent years mild or modified small-pox has been much heard of in various parts of the world—in Trinidad, the United States, Canada, Australia, and South Africa. Some outbreaks have been the subject of careful and valuable investigation, as recorded in the *Proceedings of the Royal Society of Medicine* and in the *Transactions of the Society of Tropical Medicine and Hygiene*. Various names have been applied to such outbreaks in the countries where they have occurred—alastrim, Cuban itch, or, in South Africa, amaas, meaning milk-pox. In one instance such a cognomen was adopted to allay alarm in the country surrounding the invaded area, lest the alarm should prevent the bringing in of necessary supplies. But such nomenclature leads to confusion, and whatever is variolous should be so acknowledged, whether mild or severe.

In this country a most puzzling and anomalous outbreak in Suffolk and Norfolk was investigated in 1919 by Dr. Monckton Copeman, whose report, published by the Ministry of Health in its 1919-20 volume, is of much interest. In a total of 31 cases only four were seriously ill, and the only death was that of a puny unvaccinated baby. The infection, it was supposed, might have had its origin in Egypt, and in the course of his early visits Dr. Copeman expressed the opinion that "as the disease gradually became more acclimatized" it would tend to "approach more nearly to the type of small-pox as ordinarily met with in this country." That, as it turned out, was the course of events; in the later cases the severity of the symptoms was markedly greater, and backache, for example, was added to the initial headache.

In that connexion a very important question is whether the exceedingly mild variola at present prevalent in Gloucester and elsewhere will continue to breed true—will be mild throughout the whole of its prevalence, or will, whether by degrees or suddenly, change its character and take on the classical appearances of small-pox so well known throughout the world. No certain answer can be given to the question. That close and competent observer, the late Dr. Franklin Parsons, related how "in one town in Lancashire there were outbreaks from two sources concurrently; one could be traced to the cases imported from America, of a mild type, while another was traceable to the infection which had come across from Paris via London, and that was severe." Indeed, the fatality rate from mild small-pox in this country is now even lower than in the prevalence of 1902-5, when the American type first became prominent on these shores. At that time fatality rates ran from about 1 per cent. to 4 or 5 or 6 per cent., including vaccinated and unvaccinated, but no large outbreak that I know of had so low a rate, say, as last half-year's two or three deaths in over 1,200 cases. In America we in this country have generally understood that mildness of type had become established so that the disease was in some places being regarded as endemic, and not worth troubling about. Now, however, the picture has suddenly changed. The United States Treasury Department, in its Public Health Report for the week ending June 22nd, 1923, has a note entitled "Increasing virulence of small-pox in the United States," and accompanies it by an important table of statistics, headed "Small-pox cases and deaths, and deaths per 100 cases, in 275 American and Canadian cities, 1920, 1921, and 1922." The population of the cities is not stated, but there is full information as to the number of cases and of deaths in each year for the total cities, and for ten or eleven "special cities." Canadian cities to the number of 29 are included in the 275, because the data are contained in a statistical bulletin of the Metropolitan Life Insurance Company. Taking the cities as a whole, there were 30,328 cases in 1920, 23,977 in 1921, and 8,709 in 1922. The numbers, therefore, have decreased. But the fatality rate was 0.6 per cent. in 1920, 1.1 in 1921, and 5.5 in 1922. In the special cities jointly, the fatality rate in 1920 was 0.2 per cent., in 1921 8.5 per cent., and in 1922 no less than 28.4 per cent. Of individual cities, Kansas and Denver were very hardly hit, the deaths being at the rates of 45 and 31 per cent. It is surmised that the outbreaks in these two towns may have had the same unknown origin, but whatever the sources it is clear that either the mild type has changed or a severe type has taken its place in these and other cities.

In no country can there be any certainty as to the future of small-pox, and the only prudent course is to be prepared against whatever may come. Vaccination, renewed as required, can prevent both severe and mild small-pox. The one form protects against the other, vaccination protects against both, and Chapin, when the mild form was spreading in America, pointed out, further, "that persons who have had the mild type are equally immune to vaccination." As to diagnosis, I would call attention to Dr. Wanklyn's article in the British Medical Journal of July 21st (p. 106), and would also remind the profession that the Ministry of Health has appointed for each part of the country a consultant skilled in all that relates to variola. When doubt arises there should be no delay in calling in this aid.

in this direction. Beyond the qualifications which admit to the *Medical Register*, most of the licensing bodies bestow higher titles, such as Doctor of Medicine or Fellow, after further tests. For the career of a consulting physician the M.D. degree of a university is usually necessary, and also the membership of one of the three Royal Colleges of Physicians, according to the part of the British Isles in which practice is contemplated. In the same way, the Fellowship of one of the three Royal Colleges of Surgeons should be sought by those proposing to devote themselves to surgery. There are also diplomas in a growing number of special branches of work, such as public health, tropical medicine, ophthalmology, radiology, and mental disease, which are superfluous for most practitioners, but either useful or indispensable for the medical man or woman who wishes to specialize in these subjects.

FINANCIAL AND SOCIAL CONSIDERATIONS.

The financial aspect of medicine cannot be discussed here at length. Three remarks must suffice: Medicine is not to be regarded as a path to fortune, and anyone who enters our profession with the sole idea of making money has mistaken his calling. The competent practitioner, at any rate in urban districts, can always make a living, but the main reward of the medical life is the knowledge of good work well done. Whatever the branch of practice chosen, there are few doctors who become what a business man would consider even moderately rich by the exercise of their profession.

But if medical practice, from the financial point of view, offers little more than a means of livelihood, in its social and intellectual aspects the prospect is brighter. The culture which once belonged to the physician alone, entitling him to his place among members of the learned professions, has spread into all ranks of the practitioners of medicine. The great improvement in the education, general as well as technical, of the practitioner, has added much to his influence in public life, and has been a large factor in raising his social status during the past sixty years. No medical specialty is so narrow but that it affords scope for intellectual achievement in an atmosphere of service for others.

THE NUMBERS OF MEDICAL STUDENTS.

Nearly five years have passed since the war ended, but some of its effects upon our profession can still be felt. One effect was a great increase in the number of medical students, both men and women, but especially women. This matter has often been discussed in these pages, so we give here an outline only of the story. It may be read in conjunction with the note at page 355 on the numbers of the profession. In the thirteen years before the war the annual entry of medical students in Great Britain and Ireland averaged 1,400. During the war period the total number of students pursuing their studies in the various medical schools was ascertained and made public from time to time. These figures showed that from 1914 to 1919, although many left to serve with the Forces, the whole number actually studying in the schools was growing steadily larger. Thus, in May, 1916, the total was 6,103; in May, 1918, it was 7,630; and in the following January it had risen to 9,490. After the armistice the total figures were no longer published, but the number of entrants recorded in each year told its own tale. Thus, during 1919, when demobilization was in active progress, 3,420 new students were registered. The number of new students in 1920 fell to 2,531, and in 1921 to 1,803. In 1922 the entries rose to 1,833, notwithstanding the higher educational standard demanded by some of the licensing bodies. The great increase after the armistice threw a heavy strain on the schools, and the subsequent fall in the entries was welcomed, both by the overcrowded teaching institutions and by those who feared there might not be work enough to go round when the students of to-day become qualified. As it is, the ratio of medical practitioners to population is greater now than at any time in the past half-century. The new regulations which came into force at the beginning of this year should do something to keep the number of students within manageable bounds.

PRIVATE PRACTICE: THE OUTLOOK.

The prospects held out by the various public medical services are indicated in later sections. Here we may note very briefly some circumstances that have a bearing on private practice. In the first place, efforts are being made to bring professional training more into line with the growth and differentiation of medical science, and so to raise the level of medical practice; it was with this in view that the student's curriculum has lately been recast. Next, the fundamental importance of the work done by the general practitioner is better understood, and it is more fully recognized that an efficient medical service for the community must be based upon the individual skill and devotion of the family medical attendant, working in ever closer touch with the aims and methods of preventive medicine.

The National Insurance system, now more than ten years old, has already had a profound influence upon general practice. The Insurance Medical Service comprises nearly 14,000 practitioners, some doing much work among insured persons, others little. If the freedom of family practice has been restricted by the Insurance Acts and Regulations, they have probably rendered it easier for a doctor to make an assured income out of attendance on working-class patients. The full effect of the insurance system upon the medical profession cannot as yet be gauged. Some of its most objectionable features have been removed through the efforts of the Insurance Acts Committee of the British Medical Association, which is the central executive of the Local Medical and Panel Committees of the country, and represents the interests of insurance practitioners in all negotiations with the Government. But the capitation rate of payment for the medical attendance and treatment of insured persons is once again under revision, and the future of panel practice turns to a large extent upon the value set by the State upon the general practitioner and his work.

Increasing contact with public duties and official requirements not only makes new demands on the practitioner; it adds uncertainty to his outlook. Thus a recent writer on medical practice predicts that in another two generations doctors will be servants of the State, meaning by this that a class of State practitioners will be formed who will devote their whole time to insured persons and their dependants. Mr. Sidney Webb, speaking from the chair at the last annual Conference of the Labour Party, indicated 1926 as the date of Labour's accession to power, but affirmed that our next masters will not try to do everything at once; each step towards their goal will (he said) depend on gaining the assent and support of the majority of the people. This, for what it is worth, suggests that the setting up of a whole-time salaried State medical service, towards which the Labour Party is understood to lean, may perhaps be deferred until such time as it is definitely favoured by the greater part of the electorate; but it is all rather disturbing, and the future of private practice is difficult to foreçast.

PROFESSIONAL ORGANIZATION.

Obviously, in these times of social and professional change the doctor needs a strong sense of *esprit de corps*: the effects of modern measures are apt to be so far-reaching that no practitioner, whatever his work or position, can safely stand aside from his fellows. It follows, therefore,

hall of the General Hospital by Lieut.-Colonel F. E. Seely, President of the hospital, and other officials, and inspected one of the surgical wards, which during the war was used for the treatment of military patients, exchanging a few words with the patients who were being treated there. He then proceeded from the hospital to the Nurses' Home, upon which is an inscription commemorating the great war, and opened the door with a golden key. The new home was designed by Mr. Robert Evans, in collaboration with Dr. D. J. Mackintosh of Glasgow Royal Infirmary.

Scotland.

CENTRAL MIDWIVES BOARD FOR SCOTLAND.

THE examination of the Board, held simultaneously in Edinburgh, Glasgow, Dundee, and Aberdeen, has just concluded with the following results: Out of 135 candidates who appeared for the examination 120 passed. Of the successful candidates 29 were trained at the Royal Maternity Hospital, Edinburgh; 42 at the Royal Maternity Hospital, Glasgow; 4 at the Maternity Hospital, Aberdeen; 7 at the Maternity Hospital, Dundee; 6 at the Queen Victoria Jubilee Institute, Edinburgh; 12 at the Cottage Nurses' Training Home, Govan, Glasgow; and the remainder at various recognized institutions.

LOANS IN AID OF EDINBURGH BUILDING.

Edinburgh Corporation has had under consideration a number of applications from persons who desire to take advantage of the recent powers conferred on local authorities to grant loans in aid of building houses. This is the first list of applications, comprising 72 houses. One-half are applications by employers erecting houses on behalf of miners; one-third are for houses of the better-class kind for the occupation of working-class proprietors; and the remainder are for individual houses intended for occupation by the applicants. With regard to the amount that would be advanced, the Housing Director suggests that on a building estimated at £550 with a probable rental of £32, the amount of advance with subsidy might be from £460 to £500.

SCOTTISH MENTAL HOSPITALS' ACCOMMODATION.

In a report to the Aberdeen District Board of Control, Dr. H. C. Marr, Commissioner of the General Board of Control, expresses the hope that it will not be found necessary to extend the accommodation of Kingseat Mental Hospital, as the present institution is large enough to obtain a maximum of efficiency and there are at present many vacant beds in other institutions throughout Scotland. Also relief may be expected in the near future by extended amplification of the Mental Deficiency and Lunacy (Scotland) Act of 1913, which owing to the war and subsequent financial restrictions had its operations greatly limited. It is expected that mental defectives will be dealt with under the Act elsewhere than in a mental hospital. The hospital, with its elaborate medical equipment and facilities, and its essentially curative aims, is unsuited for the custodial care and occupational education which are necessary for mental defectives.

FAITH HEALING IN SCOTLAND.

An important sign of the times in regard to the spread of the practice of faith healing by mass suggestion was witnessed in a religious festival held on August 15th at the grotto of Our Lady of Lourdes in Carfin, to celebrate the feast of the Assumption. Large crowds flocked to Carfin from all parts of the West of Scotland, the number of persons present being estimated at close on 50,000. In the forenoon a visit was paid to the grotto by 300 Italian pilgrims drawn from all parts of Scotland. Headed by a banner with the device, "Ave Maria," the procession of men, women, and children marched through the village singing hymns. On arrival at the grotto, flowers were presented by children among the processionists to the priest in attendance, who placed them on the shrine. In the afternoon there was a similar procession of cripples composed of inmates of Roman Catholic institutions in Edinburgh and the East of Scotland. On their arrival at the grotto, special prayer and invocation was offered for the sick and afflicted, and the vast crowd repeated the words of the prayer, "Lord, say but the word, and I shall be whole." Whether any physical benefit accrued to any of the cripples is not known.

Ireland.

COUNTY GALWAY BOARD OF HEALTH.

THE County Galway Board of Health has published its first annual report. In a foreword Mr. W. T. Cosgrave—who, when Minister of Local Government, was mainly responsible for the amalgamation of unions in Ireland—states that he has great hopes that in the County Galway and throughout the Free State the new schemes established for the relief of the poor and the treatment of the sick will be administered prudently and humanely. The report states that the medical and surgical staff of the County Hospital consists of a visiting physician, a house-physician, and a house-surgeon; and an honorary staff appointed by University College, Galway, consisting of two surgeons, a gynaecologist, obstetrician, ophthalmologist, and otologist. In February, 1922, the Galway Health Board suggested the grading of dispensary districts with graded salaries and a promotion system. The Local Government Department pointed out that it would be inadvisable to proceed with this scheme until the whole scheme of Irish Medical Services is remodelled. To meet, however, the grievances of the dispensary doctors the Health Board agreed, as a temporary measure, to pay each of its dispensary doctors a minimal salary of £300 per annum. The Local Government Department refused to sanction the proposal except in the case of doctors with ten years' completed service. Newly appointed doctors must commence on an initial salary of £250 per annum with annual increments of £5 until a maximum of £300 per annum is reached. The report states also that during the year under review there were performed 2,771 vaccinations, and that there were treated in the dispensaries and in the people's homes 9,807 cases. There were 1,927 cases admitted to the different hospitals in the county; of these 121 were fever cases.

LABOUR AND MEDICAL BENEFITS.

At a meeting of the Irish Labour and Trade Union Congress held recently, a resolution was unanimously adopted demanding that medical benefits be included in the present State scheme of National Health Insurance, and urging on the National Executive to convene a conference of Trade Union Approved Societies to assist in the preparation of a suitable scheme to give effect to this resolution.

Correspondence.

MEDICAL CHARITIES.

SIR,—I am sorry my absence from London has prevented me from answering at once the courteous letter of Sir Charters Symonds in which he refers to the statements I made at Portsmouth about the Royal Medical Benevolent Fund. It was because I am a member of the Committee of Management that I was able to speak as I did, and other members know that I simply repeated what I have said in our committee meetings—that new ideas were required in the organization.

I have the greatest admiration for the time given, trouble taken, and work accomplished by Dr. Newton Pitt, but I am sure he could be relieved of a considerable amount of detail work in his secretarial duties if we had a wider business method of administration.

Frankly, after reading Sir Charters Symonds's letter I fail to see any great advancement of the fund in the last twenty years. The figures he quotes for comparison, from 1902 to 1922, are not encouraging. In 1902 income and subscriptions came to £3,946, in 1922 £8,080—the figures have doubled. But alas, the economic conditions have changed, and eight thousand pounds now is nothing like double the value of four thousand pounds of twenty years ago.

I knew that during the last two years special appeals

of life, in the raising of the present standards of physical health and national welfare.

New Rules for the D.P.H.

It is important to note the bearing that this development of the teaching of disease prevention to all students of medicine has upon the stringent rules which will come into force at the beginning of 1924 for the obtaining of diplomas in public health (see page 391). Fears have been expressed that the stiffening of the requirements will discourage those who intend to go into ordinary medical practice from taking the additional qualification which would specially fit them for co-operation with the health officer of their district. The reply is twofold: Henceforward all new practitioners will have received tuition qualifying them generally for such co-operation, and in addition they are already being systematically educated in "the duties which devolve upon practitioners in their relationship to the State." The balance, therefore, seems clearly on the right side as to the ordinary practitioner, and there will unquestionably be advantages in strengthening the education of those who aspire to a life spent in the public health service. In America, it may be mentioned, the standard of study for a "doctorate" in public health will at most medical schools probably correspond with that for the new health diploma in this country.

THE NUMBERS OF THE MEDICAL PROFESSION.

A REVIEW OF FORTY-FIVE YEARS.

SINCE the year 1870 the General Medical Council has kept an analytical record of the number of persons whose names were entered in, added to, or removed from the *Medical Register* in each twelve months. The *Medical Register* has been published annually since the Council was constituted under the first Medical Act of 1858; but up to 1876 no such data as these were ascertained or preserved.

In order to gain a general view of the numerical strength of the medical profession during the past forty-five years we have extracted from the tables and set down in parallel columns the total number of names in the *Medical Register* on December 31st of each year, and the total number added annually by registration between 1876 and 1922.

The figures for each year since 1899 are given in a statistical table published in the current *Register;* the corresponding figures for the earlier years have been taken from copies published previous to 1899.

Numerical State of the "Medical Register."

Year.	Names added in Year.	Total No. on Dec. 31.	Year.	Names added in Year.	Total No. on Dec. 31.
1876	1,009	22,713	1900	1,345	36,355
1877	940	22,841	1901	1,318	36,912
1878	996	22,600	1902	1,275	37,232
1879	996	22,516	1903	1,233	37,878
1880	1,123	22,936	1904	1,168	38,492
1881	1,053	23,275	1905	1,240	39,060
1882	1,171	23,601	1906	1,197	39,529
1883	1,304	24,517	1907	1,221	39,827
1884	1,388	25,321	1908	1,137	40,257
1885	1,377	25,993	1909	1,143	39,818
1886	1,431	26,452	1910	1,062	40,483
1887	1,531	27,246	1911	1,042	40,913
1888	1,184	27,939	1912	1,157	41,439
1889	1,305	28,348	1913	1,168	41,940
1890	1,266	29,163	1914	1,433	42,378
1891	1,345	29,555	1915	1,526	43,225
1892	1,513	30,590	1916	1,202	43,481
1893	1,579	31,644	1917	1,134	43,819
1894	1,426	32,637	1918	1,077	43,926
1895	1,446	33,601	1919	1,322	44,510
1896	1,385	34,478	1920	1,457	44,761
1897	1,230	34,642	1921	1,760	45,403
1898	1,210	35,057	1922	1,984	46,477
1899	1,351	35,836			

The following table indicates the varying proportion of registered medical practitioners to population during the period under review. It shows the total population of the British Isles at each decennial census since 1881, and the corresponding total number of names on the *Medical Register.*

Proportion of Practitioners to Population.

Year.	Registered Practitioners.	Population, British Isles.
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,403	47,261,530

These parallel columns of figures reveal a general tendency during the past forty-five years towards an increase in the ratio of doctors to population. The number of registered practitioners at the end of 1921 was almost exactly double the number at the end of 1876, but the population within that period only increased by about 50 per cent. During the year 1922 the new medical registrations numbered no fewer than 1,984, and there was a net increase of more than a thousand names. If the rate of increase is maintained in the present year, the time may not be far distant when there is one name in the *Medical Register* to every thousand of population.

THE GENERAL MEDICAL COUNCIL.

THE General Medical Council was set up by the first Medical Act of 1858, and consists of thirty-eight members, six of whom are elected by the medical profession, five nominated by the Privy Council, and the remainder are representatives of the universities and such medical corporations of the United Kingdom as have a statutory right to issue diplomas. Under the Dentists Act, 1921, three additional members have been appointed by the Privy Council for dental business; they must be qualified and registered dentists and members of the Dental Board. The Council's headquarters are at 44, Hallam Street, Portland Place, W.1, and it has branch offices at 20, Queen Street, Edinburgh, and 35, Dawson Street, Dublin. Its duties are to control the medical and dental professions in the interests of the general public, and to that end to maintain a register of legally qualified medical practitioners. It is admission to the *Medical Register,* and not the possession of a degree or diploma, that constitutes a person a legally qualified practitioner. The Council is bound to admit to the *Medical Register* those who hold the qualifications granted by the bodies represented among its members, but it exercises supervision through the Privy Council over the terms on which those bodies grant such diplomas or degrees, and it can erase from the *Medical Register* or the *Dentists Register* the name of any medical man or dentist who has been convicted before a court of law of an ordinary crime or of a serious offence against public order, or who is proved before the Council itself to have been guilty of certain actions which the Council regards as professionally "infamous." Its disciplinary powers are limited to legally qualified practitioners, and it has no control whatever over irregular practitioners of any kind. In that respect it differs from the Midwives Board in England and Scotland, which can penalize unqualified midwives, even if they make no pretence to be on the midwives roll, and from the Dental Board of the United Kingdom, which, now that the Dentists Act, 1921, is in operation, can prosecute unregistered persons practising dentistry.

An account of the Recommendations that the Council has drawn up in respect of the education of medical students here follows.

REGISTRATION OF MEDICAL STUDENTS.

The Council recommends that every intending student of medicine should be registered as such at one of its three offices, whose addresses are given below.

As from January 1st, 1923, candidates must produce evidence (*a*) that they have attained the age of 17 years; (*b*) that they have passed an examination in general education which is accepted for matriculation or entrance to the Faculties of Arts or Pure Science in a university in the United Kingdom; (*c*) and in addition thereto that they have passed an examination in elementary chemistry and elementary physics conducted or recognized by one of the licensing bodies.

Application for registration should be addressed to the Registrar for the division of the United Kingdom in which

arguments to disprove the opinion that "all forms of mesoblastic tissue are interconvertible," or that every fibroblast in the body, if subjected to a suitable environment, will and indeed must assume the functions and therefore the structure of an osteoblast. Nor does he help us to an understanding of how the first osteoblast arose in the animal series. His paper has done nothing to upset my belief in an epigenetic mechanism of growth.

It does not matter in the least whether Sir William Macewen or I be right or wrong in our interpretation of development and growth. All that really matters is a better knowledge of the truth. This is, in my opinion, the real importance of the doctrine inculcated by him. Its true purpose will have been served only if it incites us to further research and thought. Will we, who work in special fields, show our worth by accepting the doctrines laid down by any man or number of men, however great they be, when we are convinced that they are wrong, because every fact known to us in our small corner of knowledge cries out against their acceptance? This is the course you advise us to adopt in your leading article, or so I read it. I vigorously, though humbly, protest against it.—I am, etc.,

Guy's Hospital, S.E., Aug. 18th. G. W. Nicholson.

MEDICAL MAGISTRATES.

Sir,—Dr. Tyson has expressed in better language than I can the opinion I have held for some time past, and put forward in vain. But I would go further, and suggest that whenever possible a medical man with experience in lunacy or mental deficiency should be given a seat on a magisterial bench. By such means a considerable number of mental deficients would be enabled to receive appropriate treatment, and also relieve magisterial courts of many constantly recurring cases.—I am, etc.,

Hubert C. Bristowe, M.D.Lond.

Wrington, Somerset, Aug. 20th.

Sir,—I am pleased to notice in the current issue of the Journal a correspondent emphasizes the importance and desirability of having more medical men on the magisterial bench. There are many cases, such as bastardy claims, where the knowledge and experience of a medical man are most useful in helping to sift the evidence and in coming to a just decision.

At quarter sessions many years ago a man charged with a serious crime, who was an epileptic and had had a seizure previous to the commission of the crime, was found guilty and was about to be sentenced, when I was able to point out to the chairman that some of the most atrocious and motiveless crimes are committed in the dull and half-stupid condition following an epileptic fit. The chairman was glad to have the information, and although the question of responsibility had not been referred to in the evidence, the prisoner was discharged.—I am, etc.,

Winsford, Cheshire, Aug. 20th. G. Okell.

ORAL HYGIENE.

Sir,—I have come to the conclusion that dental caries, pyorrhoea, gastric pollution, appendicitis, and organic decomposition in general is caused by the inane daily scrubbing of teeth with bristles and by the insane use of chemical dentifrices, both of which lacerate and mortify living tissue, destroy epithelial defence, and provide a ready entrance for hostile germs. I earnestly invite attention to the handicap this kind of thing imposes on the natural disinfectants—saliva and mucus.

In ventilating this opinion I do not wish it to be inferred that I disapprove of cleansing the teeth. On the contrary, gentle rubbing with a soft (that is, badger hair) brush and some ordinary soda or other potable mineral water—milk and soda water with a final rinse of the latter to remove taste of milk is also a soothing combination—are procedures which I strongly recommend.

Any brushing of the gums or inside of cheeks I consider an insult to the natural scavengers and any artificial meddling with their job is as insensate as it is destructive.

People from time to time inform me that they use hard brushes in order to clear out foodstuff which becomes impacted between the teeth; to this I invariably [illegible] object can be effected much more accurately by the gentle precise employment of a tooth-pick—which, by the way, is (as far as I can gather) employed universally without discrimination of colour—white, black, and yellow. I am informed by many who have travelled much more than I have done that a tooth-pick in some form or other has general application, and that the most beautiful and healthy teeth may be seen in those who never saw (much less used) a tooth-brush. If I am correctly informed on these matters I can only conclude that in our white races our teeth become the victims of what is to them a superfine civilization.

Frequently patients have asked me what they can substitute for soda or mineral water, which is not always available. In such cases, for many years past, I have recommended a saltspoonful of sodium bicarbonate to the tooth tumbler of boiled or filtered water. I do not prohibit the use of well diluted milk of magnesia in those who find it particularly agreeable, and I prescribe its employment in those undergoing mercurial treatment. Under all conditions, I emphasize the words "soft brush and gentle rubbing" with the injunction, "Confine these to your teeth. Do not put anything into your mouth that you would be ashamed to put into your stomach—don't smash up your gums."—I am, etc.,

Buenos Aires. John O'Conor, K.B.E., M.D.

FREEDOM OF NEGRO RACES FROM CANCER.

Sir,—In your issue of June 30th, 1923 (p. 1116), appears a letter from Dr. F. P. Fouché, in which he states that during his six and a half years of practice in the Orange Free State he had never seen, *inter alia*, a case of appendicitis, or of cancer in any form, in a native. The implication is conveyed, I think, that cancer and appendicitis are, if not unknown, at least exceedingly rare, among the natives of South Africa.

As a matter of fact, although these diseases—so far as one can gather—occur rather infrequently among natives, they are not at all in the nature of pathological curiosities, nor even strikingly infrequent, certainly not unknown. In a series of one hundred consecutive necropsies on native mine labourers conducted by myself in the latter part of 1922 and the first two months of 1923, two cases of carcinoma were observed—one was carcinoma of the pancreas and glands of the neck in a native male of the Shangaan race, age about 40, the other was a case of carcinoma involving practically the whole of the liver, in a native male of the same race, age about 25.

Dr. Pirie, of the South African Institute for Medical Research, has published several cases of carcinoma in natives.

The vast majority of the natives employed on the mines are between 25 and 40 years of age, and undergo at least two, and frequently three, medical examinations before engagement. Their average stay on the mines is about six months. Under such circumstances one would hardly expect to see many cases of carcinoma even among Europeans, yet we had two cases in only one hundred consecutive deaths in a native population averaging about 80,000.

With regard to appendicitis; at the symposium on "Acute Abdomens" held by the Transvaal Mine Medical Officers' Association in March, 1923, and published in their *Proceedings* for the same month, a number of cases of appendicitis were mentioned. Thus on a mine employing some four to five thousand natives, two cases were operated on in 1921, and three cases in 1923. On one of the mines of our group there were recently three cases within a few weeks.—I am, etc.,

A. J. Orenstein, M.D.,
Superintendent of Sanitation, Rand Mines, Limited.

Johannesburg, July 27th.

THE TREATMENT OF TUBERCULOSIS.

Sir,—I should like the opportunity of supporting Dr. Goodwin's views on the treatment of tuberculosis (August 4th, p. 206), though I think the elements of success might be coupled in this order: food and rest; fresh air and sunlight; and another added—that of shelter.

With regard to rest the ideal is rest in fresh air (not fresh air with exertion); in other words, rest of the joint by

order to commence therein his professional curriculum. Immediately his course of medical study has been begun, he should apply to the Dean of the school, or to the Registrar of one of the branches of the General Medical Council, for a form of application for registration as a student, and should have it completed and sent in to one of the Branch Councils as soon as possible. There is no fee for this registration. The medical curriculum will extend for at least five years, and the dental curriculum for at least four years, from the date of registration as a student.

A student who has studied the subject of elementary biology at an institution recognized by one of the licensing bodies may, if the body sees fit, be admitted to the professional examination in this subject immediately after his registration as a student. For information in regard to this, he should apply to the body whose medical qualification he seeks.

A Dental Student may commence his curriculum, if he so desires, as a pupil with a registered dental practitioner; but it is desirable, if possible, that he should commence professional study at a dental school. If, however, he is apprenticed to a dental practitioner, he may have to take out a course of four years of dental mechanics, and this will have the effect of lengthening the duration of his curriculum to five or six years instead of four.

The addresses of the Branch Registrars are:

General Medical Council, 44, Hallam Street, Portland Place, London, W.1.
Scottish Branch Council, 20, Queen Street, Edinburgh.
Irish Branch Council, 35, Dawson Street, Dublin.

Examining Bodies in Preliminary Education.

The following is a list of the officials of the examining bodies in preliminary education, with the names of the examinations—in parentheses.

Registrar, Queen's University of Belfast, Belfast. (Matriculation.)
Registrar, The University, Bristol. (Matriculation, School Certificate, or Higher School Certificate.)
Assistant Registrary, The University, Cambridge. (Previous.)
Secretary, Cambridge Local Examinations, Syndicate Buildings, Cambridge. (School or Higher School Certificates.)
Director, Central Welsh Examination Board, [illegible]
Registrar, University of Dublin School of Pr[illegible]
man, Special Preliminary, Junior Exhibi[illegible]t,
Arts.)
[illegible]hool of Medicine, Newcastle-on-Tyne.
[illegible]iculation.)
Royal College of Surgeons, Dublin.
[illegible]eland, Dublin. (Matriculation.)
Education Board of Ireland, 1, Hume
[illegible]enior Grade Examinations.)
of London, South Kensington, London,
[illegible]eral Schools Certificate.)
Secretary, Northern Universities Joint Matriculation Board, 315, Oxford Road, Manchester. (Matriculation or Senior School Certification.)
Registrar, The University, Oxford. (Responsions or Moderations.)
Secretary, Oxford and Cambridge Schools Examination Board, Schools Examination Office, Balliol College, Oxford. (School or Higher School Certificate.)
Secretary, Oxford Local Examinations, University Press, Oxford. (School or Higher School Certificate.)
[illegible], Bloomsbury Square, London, W.C.2.
[illegible] of Scotland, 47, Moray Place, Edin-
Examination.)
Secretary, Scottish Education Department, 14, Queen Street, Edinburgh. (Leaving Certificate.)
Secretary, Scottish Universities Entrance Board, 81, North Street, St. Andrews. (Scottish Universities Preliminary Examination.)

Licensing Bodies.

The following is a list of the officials of the various licensing bodies, to whom communications should be addressed:

Secretary, English Conjoint Board, 8, Queen Square, Bloomsbury, W.C.1.
The Clerk, Society of Apothecaries, Blackfriars, E.C.4.
[illegible]-on-Tyne.
[illegible]
Dean of the Faculty of Medicine,
Registrar, The University, Glasgow.
Secretary of the Medical Faculty, The University, Aberdeen.
[illegible]ews.
[illegible]yal College of Surgeons, Dublin.
[illegible]land, 95, Merrion Square, Dublin.
[illegible] Dublin.
[illegible]reland, Dublin.
[illegible]fast, Belfast.

Medical Schools.

The following is a list of officials of the Medical Schools of Great Britain and Ireland, other than the universities.

Secretary, University of Durham College of Medicine, Newcastle-on-Tyne.
Dean of the Medical School, St. Bartholomew's Hospital, London, E.C.1.
Dean of the Medical School, Charing Cross Hospital, W.C.2.
Dean of the Medical School, St. George's Hospital, S.W.1.
Dean [illegible]
Dean [illegible]
Dean [illegible]
Dean [illegible]
Dean [illegible]
Dean [illegible]
Dean [illegible] [illegible].C.1.
Dean [illegible]
Dean of the Medical School, Royal Free Hospital, London, W.C.1.
Secretary, Bedford College for Women, London, N.W.1.
[illegible]
[illegible] Cardiff.
[illegible]
Registrar, School of Physic, Trinity College, Dublin.
Registrar, University College, Cork.
Registrar, University College, Dublin.
Registrar, University College, Galway.

PROFESSIONAL EXAMINATION.

The Council's Recommendations.

The following Recommendations of the General Medical Council in regard to professional examinations for medical and surgical qualifications were adopted in May, 1922:

1. In order to secure due continuity and sequence in medical study, two or more Professional Examinations in the earlier subjects should be held antecedently to the Final Examination in Medicine, Surgery, and Midwifery.

2. Three years at least should intervene between the date of passing the Professional Examination in Anatomy and Physiology and that of admission to the Final Examination in Medicine, Surgery, and Midwifery.

3. A candidate remitted in any subject of a Professional Examination should, before he is readmitted to examination therein, be required to produce satisfactory evidence that he has, during the interval of remission, pursued the study of the subject in which he was rejected. Candidates who obtain less than 30 per cent. of the marks in any subject should be remitted for a longer period than three months.

4. In all the Professional Examinations sufficient time should be assigned to practical work, in order to test the thoroughness of the candidate's knowledge and to encourage practical methods of study.

5. Candidates in all their examination work should be carefully supervised.

6. Two examiners should always participate in the oral examination of a candidate, except in subordinate parts of practical examinations.

7. In all written examinations the questions in each subject should be submitted for the approval of all the examiners in that subject.

8. In all written examinations an average of at least half an hour should be allowed for a candidate to answer each question.

9. It is desirable that examiners, and in particular those for the Final Examination in Medicine, Surgery, and Midwifery, should be appointed or re-elected for at least three consecutive years.

10. Whatever may be the system of marking, the percentage for a pass in each subject should be not less than 50.

11. In the regulations for the several examinations it should be provided that examiners, in assessing marks, be empowered to take into account the duly attested records of the work done by the candidate throughout his course of study in the subject of the examination.

12. The Final Examination in Medicine, Surgery, and Midwifery, with the exception of the Clinical and Practical Examination in Midwifery and Gynaecology, must not be passed before the close of the fifth academic year of medical study.

13. The three portions of the Final Examination in Medicine, Surgery, and Midwifery should not be further subdivided into sections which may be entered for or passed separately.

14. Compensation in respect of marks as between the three different portions of the Final or Qualifying Examination—namely, Medicine, Surgery, and Midwifery—is contrary to the intention of the Medical Act (1886).

15. The Final Examination should include clinical and practical examinations in Midwifery and Gynaecology.

16. The clinical examination in Medicine, Surgery, and Midwifery should be held in properly equipped hospitals or examination halls well provided with suitable patients.

17. In the examinations in clinical medicine at least one hour, and in clinical surgery at least half an hour, should be allowed to the candidate for the examination of, and report on, his principal case.

18. In Medicine, in Surgery, and in Midwifery, no candidate should be allowed to pass who fails to obtain 50 per cent. of the aggregate marks assigned to the whole examination; or who fails to obtain 50 per cent. of the marks assigned to the clinical examination; or who fails to obtain 40 per cent. of the aggregate of the marks assigned to the written and oral examination. In Midwifery, where a clinical examination is not held, the duly attested records of the work done by the candidate in clinical midwifery

now owe to him a debt of gratitude for health restored. The war came, and for him the call was strong. Like many another he gave his untiring best in splendid but exacting home service. At the beginning of the war he took an active part in organizing the Duchess of Westminster's Hospital, and served for a short time with the hospital in France. Later he organized and commanded, under the British Red Cross Society, a special hospital for injuries to the jaw—the first of its kind in the country. Here he worked with indefatigable energy, and for his services he received the C.B.E. at the end of the war. In this work he gave of his best gladly, lovingly, and unsparingly, for above all he loved his fellow man—but he paid the price. Never very robust, he emerged from the war a tired man. He surely needed a long rest, but was soon engulfed once more in the strain of a large practice. The inevitable happened. His friends became anxious. Alas! persuasion to take a long rest came too late, and the end came with tragic suddenness.

J. EDGAR P. DAVIES, M.B., B.Sc., M.R.C.S., L.R.C.P., Llanelly.

DR. EDGAR DAVIES, who was well known in South Wales as an able and hardworking practitioner and a most active member of the British Medical Association, passed away on August 1st in his 54th year. He had retired from practice owing to illness in 1918, and since then had shown a brave and determined spirit in his patient struggle to regain health. He was educated at Llandovery College and the University College of Wales at Aberystwyth. On entering St. Mary's Hospital he was awarded an entrance scholarship in science, and in the early part of his career there passed B.Sc.Lond. and the intermediate M.B. with honours in chemistry and physiology. He held the post of demonstrator in the physiological laboratory, and later, after obtaining the M.B. degree, was appointed house-physician under Dr. Sydney Phillips.

In 1897 Dr. Davies settled in Llanelly, succeeding to a large practice in an industrial area, and became a member of the honorary staff at the Llanelly Hospital. In his work he soon gave proof of the thoroughness of his early training and the richness of his natural gifts. He was an acute and careful clinical observer, shrewd in his deductions, and self-confident and not easily shaken once he had come to a decision. He was a very capable operating surgeon. Dr. Davies was a most conscientious worker, held high ideals of professional duties and responsibilities, and never thought any sacrifice too great for the sake of his patients. No doctor was held in higher esteem for his skill and devoted services. To his fellow practitioners he was loyal and helpful, and was frequently called by them into consultation.

Dr. Davies took a deep interest in medical politics. He acted as secretary to the South-West Wales Division of the British Medical Association for many years, and was its first representative at the Annual Meetings of the Association. He took an active part in the work of the Carmarthen Panel Committee, was a member of the Insurance Acts Committee of the British Medical Association, and for some time of the National Health Advisory Committee. All this committee work—in addition to the duties of a large practice—was done by one never in robust health and is an indication of the energy and enthusiasm he devoted to his profession. Dr. Davies was a staunch temperance advocate and was a devout and sincerely religious man. He held the office of deacon of the English Presbyterian Church, Llanelly.

We regret to record the death at Lewes, Sussex, on August 10th, of Dr. JOHN ROBERT STENHOUSE, aged 52 years. Dr. Stenhouse received his medical education at Guy's Hospital, and took the diplomas of a sc. R.C.S.Eng. and L.R.C.P.Lond. in 1894; he graduated ly re. B., B.S.Lond. in 1895 and M.D. (qualified for gold medal) in 1907; in 1904 he took the D.P.H. He held the posts of resident obstetrician and house-surgeon at Guy's Hospital, and clinical assistant at the Royal Ophthalmic Hospital, Southwark. Dr. Stenhouse started practice in Lewes in 1897, and was honorary surgeon to the Victoria Hospital there. [illegible] the height of his success when the war broke out, and as a surgeon lieutenant in the Sussex Yeomanry he was mobilized early in August, 1914. He never returned to his home until he came back from France in 1918, shattered in mind and body. In Lewes, where he was medical officer of health and school medical officer, he will long be remembered for his work in the prevention of infantile mortality, and for the object-lesson he set on the treatment of pulmonary tuberculosis in his private sanatorium on the Downs. As a physician he was remarkable for his accuracy in diagnosis and for the unremitting care he bestowed on his patients. Among his fellow officers in the war he will be remembered particularly for his gallantry and devotion on the night of the heaviest raid at Etaples in May, 1918, when he organized and led a body of volunteers, who rescued many men from burning huts when rescue seemed impossible and official attempts at it had ceased. Stenhouse was known also as an athlete and keen sportsman; in his student days he won trophies at Guy's. He was a member of the Lewes Priory Cricket Club and of the Southdown Hunt. He leaves a widow, two sons, and a married daughter.

We regret to record the death, on June 28th, of Dr. HERMANN MICHAEL BIGGS, State Commissioner of Health for New York, at the age of 63. He received his medical education at Bellevue Hospital Medical College, and qualified in 1883. In 1885 he was appointed professor of pathological anatomy at his college, in 1897 professor of therapeutics and clinical medicine, and in 1914 professor of medicine. He was director of the bacteriological laboratories of the New York Department of Health from 1892 to 1901, and general medical officer from 1901 to 1913, when he was appointed State Commissioner of Health. He had been a director of the Rockefeller Institute of Medical Research since its organization in 1901. Dr. Biggs was a member of the British Medical Association, and a Fellow of the New York Academy of Medicine. At the Annual Meeting of the British Medical Association held at Montreal in 1897 he delivered the address in public medicine, taking as his subject "Preventive medicine in the City of New York." In this he discussed some of the measures more particularly distinguishing the work of his department and described some of the procedures followed in the sanitary surveillance of infectious diseases which had been introduced by it. He took the occasion to pay a warm tribute to the leading part taken by England in the matter of public health. The address was printed in full in the BRITISH MEDICAL JOURNAL of September 11th, 1897 (p. 629). During the war he was nominated as a member of many important American committees in connexion with war organizations, and he was medical director of the League of Red Cross Societies at Geneva in 1920. His name will long be remembered for his pioneer work in the establishment of municipal bacteriological laboratories.

Dr. EDWARD R. HOLBOROW of Weston-super-Mare lost his life on August 18th in endeavouring to rescue two school girls who had got into difficulties while bathing in a rough sea. He had dived into the water fully dressed. Dr. Holborow, who was only 37 years of age, received his medical education at the University College, Bristol, and University College, London, and graduated M.B., B.S.Lond. in 1909, taking the diploma of F.R.C.S.Eng. in 1917. Before settling at Weston-super-Mare he had served as house-surgeon to the Cardiff Infirmary, the Somerset Hospital, Cape Town, and the Pretoria Hospital, Transvaal. He served at Gallipoli during the war. He is survived by his widow and two young children, with whom deep sympathy is felt.

Dr. WILLIAM STUART ARMITAGE died at Pembroke on July 31st, aged 55. In early life he served for a short time in the Royal Artillery, and held a commission as lieutenant in the Reserve (R.F.A.) from July 21st, 1886. As such he served in West Africa in 1898. After going through the medical curriculum at St. George's, he took the diploma of M.R.C.S.Eng. and L.R.C.P.Lond. in 1913, at the age of 45. During the recent war he rejoined the Royal Field Artillery as lieutenant on August 29th, 1914, and was subsequently promoted to captain.

SCHOLARSHIPS.

Most colleges grant scholarships open to intending medical students of £80 a year, tenable for four years, in natural science, chemistry, physics, and biology. Exhibitions of varying value are also awarded in these subjects. At two colleges (University and Pembroke) there are medical entrance scholarships of £100 a year. Particulars can be obtained on application to the college tutors. Scholarships for women are also offered by the various women's colleges, from the principals of whom details of the examinations may be obtained. A Radcliffe Travelling Fellowship of £300 a year, tenable for two years, is conferred annually; candidates must have taken the B.M. degree. A Philip Walker Studentship in Pathology of £200 a year, tenable for two years, is awarded biennially for the encouragement of research in pathology, as also are the Rolleston Memorial Prize and the [illegible] (including [illegible] Anatomy, [illegible] ble for two years. A Radcliffe Scholarship in Pharmacology of £50 for one year, open to the University, is awarded annually by the Master and Fellows of University College. A Burney Yeo King's College Hospital Scholarship of £80 is awarded annually.

FEES.

An annual fee of £4 10s. is paid to the university for the first four years, being reduced to £1 when the B.A. has been taken. For the degree the fees are: the B.A., £7 10s.; the B.M. and B.Ch., £14; the D.M., £25; the M.Ch., £12. College fees, varying in amount, are paid for the first four years of membership and in taking degrees. Tuition fees vary from £21 to £30. The minimum annual cost of living during the three university terms may be regarded as not less than £180, or for women not less than £140.

For further information application may be made to Dr. E. W. Ainley Walker, Dean of the School of Medicine, University of Oxford.

UNIVERSITY OF CAMBRIDGE.

THE professional degrees given by this university are those of Bachelor of Medicine (M.B.) and Bachelor of Surgery (B.Ch.), each of which entitles the possessor to admission to the *Register* by the General Medical Council, and the higher degrees of Doctor of Medicine and Master of Surgery. It also grants diplomas in Tropical Medicine, in Public Health, in Hygiene, in Psychological Medicine, and in Medical Radiology and Electrology to medical practitioners, not necessarily graduates of the university. Information regarding these diplomas will be found in later sections under the headings Tropical Medicine, Psychological Medicine, Public Health, and Radiology. A candidate for the M.B., B.Ch. degrees need not possess a degree in arts; it is sufficient if he has passed the previous examination or some other examination accepted by the university as its equivalent. Most students, however, are advised to take the B.A. degree, preferably by obtaining honours in the Natural Sciences Tripos at the end of their third year. Under the new regulations the attainment of a sufficient standard in chemistry or in physiology in this Tripos will secure exemption from the corresponding tests in the second M.B. examination. Women students, members of Girton or Newnham College, are now admitted, under certain conditions, to the first and second M.B. examinations.

New regulations for degrees in medicine and surgery come into force in October, 1923.

PROFESSIONAL EXAMINATIONS.

To obtain the M.B. degree the candidate must pass three examinations; those who are finally successful may receive the B.Ch. degree (which is a complete registrable qualification) without further examination.

First M.B.—This comprises (1) general and inorganic chemistry, (2) mechanics, (3) physics, (4) elementary biology. The parts may be taken together or separately. In either case the candidate before admission to examination must have satisfied the requirements in respect of the previous examination and paid the matriculation fee. Certain exemptions from the first M.B. examination are allowed; the regulations may be obtained from the Registrary. The complete examination is held twice a year—in October and June; an additional examination, in parts 2 and 4, is held in December.

Second M.B.—This examination, which cannot be passed until the first examination has [illegible] Part I, organic chemistry; Part II, human anatomy and physiology; Part III, elementary pharmacology, including pharmaceutical chemistry and the elements of general pathology. No one may enter Part III unless he has passed Parts I and II. The candidate must be signed up in all three subjects and have dissected for one academic year. The examination for Parts I and II is held in December and June; that for Part III in October and April.

Third M.B.—This is divided into two parts, to neither of which is the candidate admitted until he has passed the examinations previously mentioned. A candidate for the first part, which deals with the principles and practice of surgery (including special pathology) and midwifery and diseases peculiar to women, must have completed five years of medical study and be signed up in these subjects and have completed two years and a half of hospital practice. Before admission to the second part the candidate must have completed five years of medical study, and be duly signed up in all subjects and have completed three years of hospital practice. He must also possess certificates showing that he has fulfilled all the recommendations as well as the requirements of the General Medical Council. The examination is in the principles and practice of physic (including diseases of children, mental diseases, and medical jurisprudence), pathology (including hygiene and preventive medicine), and pharmacology (including therapeutics and toxicology). The third M.B. examinations are held twice a year—in June and December.

Act for the M.B.—Before receiving his M.B. degree a candidate who has been successful at the final M.B. examinations has to write a thesis. This he reads in public on an assigned day, and is then questioned concerning it and other subjects of medicine by the Regius Professor of Physic. If approved at this test he is then certified as having "kept the Act" satisfactorily, and in due course receives his degree. Medical degrees may be taken in absence by those living abroad, the candidate sending to the Regius Professor of Physic a dissertation, which is laid before the Degree Committee.

THE HIGHER DEGREES.

The M.D. degree may be taken by a bachelor of medicine of three years' standing after writing a thesis approved by the M.D. Degree Committee, and keeping a further Act, at which he reads his thesis and is examined thereon. Previously to the Act being kept a topic taken from the general subject of his thesis (whether it be physiology, pathology, pharmacology, practice of medicine, State medicine, or the history of medicine) is submitted to the candidate, on which he is required to write an extempore essay.

The M.Ch. degree may be granted to a candidate who has qualified for the B.Ch. at least two years previously; he is then examined in pathology, surgery, surgical anatomy, and surgical operations. The tests are partly in writing, partly oral, and partly practical: they include the writing of an extempore essay.

FEES.

In addition to college fees, tutorial fees, and the expenses of living, the following examination fees are payable: First M.B., £5 5s.; Second M.B., £5 5s.; Third M.B., £10 10s. For schedules referring to the examinations, lists of schools recognized by the university, and other information, application should be made to the University Registrary, Cambridge.

UNIVERSITY OF LONDON.

UNDER the regulations of the University of London the degrees obtainable in the Faculty of Medicine are those of Bachelor of Medicine and Surgery, Master of Surgery in two branches, and Doctor of Medicine in six different branches. The university has its own matriculation examination, and this is of so peculiar a kind that candidates should secure and carefully study the booklets relating to it. The matriculation examination is open to any person, of either sex, who has attained the age of 16. It is held in January, June, and September, and lasts four days; the first two take place both in London and in certain provincial centres; the September examination is held in London only.

In no circumstances is a degree granted to anyone in less than three years after the date at which he passed the [illegible]

water. Intradural injection of 1 c.cm. of (25 per cent.) solution per kilo of body weight produces temporarily after three or four hours all the symptoms of section of the cord, and may give rise to respiratory disturbance, paralysis of sphincters, and especially to retention of urine. The authors have experimented with solutions of magnesium citrate and chloride, in addition to the sulphate; solution of magnesium citrate produces perfect analgesia which lasts longer than that produced by the other salts. The technique is very simple: they inject 10 c.cm. of the 25 per cent. solution—4 c.cm. by the epidural route and 2 or 3 c.cm. into the various painful points in the course of the sciatic nerve. They prefer the epidural route as yielding equally good results without the dangers of the intradural method. The results are as follows: The sedative action commences after a period of one and a half to three hours and is more marked the next day; the relief obtained usually persists longer in acute than in chronic cases—in the former it frequently lasts for four days, but in the latter it has not persisted for more than two or three days. In one case relief was not obtained after the injection of 15 to 20 c.cm. No symptoms of intolerance were observed, but chemically pure salts must be used, otherwise the injections may produce pain. Details of the 10 cases are given.

143. Prophylaxis of Mumps Orchitis.

A. CHALLAMEL (*Bull. Soc. de Thér.*, May 9th, 1923, p. 116), whose previous communication on the prophylaxis of mumps was recently noticed (EPITOME, June 9th, No. 471), has lately employed colloidal silver, owing to its bactericidal properties, as a prophylactic against orchitis in mumps. The drug was given by mouth, in doses of 12 to 16 cg. a day, in the form of pills or cachets taken three or four times daily. In none of the fifteen cases of mumps in which this method was employed did orchitis occur, whereas in Challamel's previous experience one out of every three or four cases of mumps developed this complication.

Surgery.

144. Acute Osteomyelitis of the Patella.

H. L. ROCHER (*Paris Méd.*, July 21st, 1923, p. 74), who has collected 50 cases, including one of his own in a boy aged 13, states that osteomyelitis of the patella is an affection which occurs chiefly between the ages of 5 and 15, and is most frequent in boys. It usually runs its course without affecting the joint, but in exceptional cases, as in that reported by Rocher, the joint may be involved from the first or may be affected secondarily. The acute extra-articular form has the appearance of a prepatellar abscess, and is usually accompanied by an aseptic hydrarthrosis. A sinus may be caused by a partial or complete necrosis of the patella or by a small area of fungating osteitis. A few cases of chronic or prolonged osteomyelitis have been observed. The acute intra-articular form resembles suppurative arthritis of the knee, and the origin of the suppuration in the joint can only be determined by a profile *x*-ray picture. Treatment consists in incision, scraping the lesion in the bone, removal of one or more sequestra, and complete excision of the patella if the lesions are diffuse. Regeneration of the patella can only be expected if the fibro-periosteal covering and the deep layer of cartilage protecting the joint cavity are preserved. In the form of osteomyelitis in which the joint is involved from the first, removal of the patella by the anterior route, completed by lateral arthrotomy or a counter-incision in the cul-de-sac beneath the quadriceps, is indicated. In osteomyelitis complicated secondarily by infection of the joint the local lesion should be treated and the joint drained and immobilized. Amputation is only needed in the presence of severe septicaemia.

145. Tuberculosis of the Tongue.

FANTOZZI (*Il Policlinico*, May 15th, 1923, p. 234) publishes a case of primary tuberculosis of the tongue. Lingual tuberculosis is a rare disease, especially when the numerous opportunities of infection which occur are borne in mind. This immunity is chiefly due to the muscular structure of the tongue. Primary localizations are extremely rare. Clinically the cases may be divided into a lupous type, an ulcerative or superficial type, and a nodular or interstitial type. Diagnosis is often difficult, and bacterioscopic and histological examination of a portion of the growth is most important. As far as the actual local affection is concerned the prognosis is good, but one always has to bear in mind possible tuberculous disease in other organs of the body. The ulcerating and nodular types should be excised, and in every case general antituberculous treatment should be administered. In cases not favourable for excision *x* rays or Finsen light may be used.

146. Lymphangitic Abscess of the Neck.

P. CLAIRMONT (*Schweiz. med. Woch.*, May 3rd, 1923, p. 441) points out that surgical textbooks usually trace abscesses in the lower part of the front of the neck to inflammation of the thyroid gland. He has come to the conclusion that in many cases the abscess in this position is caused by suppuration in the lymphatic vessels running deep to the mid-fascia of the neck in the triangular space bounded by the middle line, the main blood vessels of the neck as they run under the sterno-mastoid muscle, and above by the median portion of the omo-hyoid muscle, from the point where it crosses the jugular vein to the middle line. The author records in detail three cases of lymphangitic abscess in this triangle. In every case suppurative thyroiditis was suspected or actually diagnosed before the operation, which showed a well defined abscess cavity just under the mid-cervical fascia. A microscopic examination of the wall of the abscess cavity in one of these cases showed it to consist of granulation tissue, and the pus found contained the *Streptococcus pyogenes* in one case, and a Gram-negative bacillus belonging to the lactic acid bacillus group in another case. No bacteriological examination was made in the third case. The prognosis is good for this form of abscess, and after evacuation of the pus uneventful recovery usually occurs. The course of the disease is, in fact, that of lymphangitic abscesses in the limbs, and the chief interest attaching to the lymphangitic abscess described by the author lies in the fact that it has hitherto seldom, if ever, been identified as a simple lymphangitic abscess with well defined boundaries. It must not, as has sometimes happened, be confused with diffuse phlegmon of the neck.

147. Treatment of Rupture of the Achilles Tendon.

H. ABRAHAMSEN (*Ugeskrift for Læger*, April 26th, 1923, p. 279) considers that subcutaneous rupture of the Achilles tendon from violent straining is more often complete than incomplete, and that only when it is incomplete is conservative treatment justifiable. As it is difficult to distinguish between the two simply by palpation, he prefers operative treatment in most cases. Without operative treatment it is impossible to ascertain the extent and nature of the lesion, and the torn ends may be so far apart, and the strands of tendon may be so torn, frayed, and retracted, that the prospect of firm and early union without excessive lengthening of the tendon is almost negligible. The surgeon who relies on conservative treatment only cannot be sure that these obstacles to rapid and complete recovery are absent unless he operates. To enforce his arguments in favour of operative treatment, the author records in detail 7 cases, in 4 of which the original diagnosis of incomplete rupture proved to be mistaken. In 2 cases the diagnosis of partial rupture led to conservative treatment with massage, but a year later there was still almost complete loss of function. In 2 other cases union had, indeed, occurred, but the functions of the tendon were greatly impaired by its increased length. The author believes that other surgeons have also of late become more and more convinced of the superiority of operative over conservative treatment in most cases.

148. Albee's Operation for Pott's Disease.

F. LANGENSKIÖLD (*Finska Läkaresällskapets Handlingar*, May–June, 1923, p. 237) warmly recommends Albee's operation as the usual method of treatment for Pott's disease in adults, provided there is no severe and permanent kyphosis and the disease is not situated in the cervical vertebræ. At this level the prognosis for the disease is comparatively good, and it is seldom, if ever, necessary to operate. Spinal abscesses should be treated by the usual methods before the operation is undertaken, and an attempt should be made to relieve paralyses before operating. Fistulæ are no contraindication provided they are not situated in the field of operation, and slight forms of pulmonary tuberculosis are also no contraindication. These views are founded on the author's experience of 34 cases, only 7 of which were operated on under ether anaesthesia. In the remaining cases local anaesthesia was employed, and it is certainly to be preferred to general anaesthesia. It is undesirable to supplement the operation by plaster supports and other apparatus which make sun and open-air treatment unnecessarily difficult in the patient's home. He should be advised not to work for six months after the operation. In 3 of the author's 34 cases the observation period was too short for conclusions to be drawn as to the results. Among the remaining cases there were 20 which were observed for half a year to two and a half years after the operation, and which showed complete clinical recovery and fitness for work. Among the 11 remaining cases there were 3 terminating fatally from amyloid disease. Only in 2 cases did the bone grafts fail to immobilize the spine as completely as was intended.

FEES.

The fee for matriculation is £2, £2 10s. for pre-medical examination (if taken in university), and £2 10s. for each of the first four professional examinations; M.B., Ch.B. degree fee, £10; M.D. and Ch.M. examinations, £12 10s. each. For further particulars application should be made to the Dean of the Medical Faculty, University of Birmingham.

UNIVERSITY OF BRISTOL.

THE university grants the following degrees: In medicine and surgery, M.B. and Ch.B., M.D., Ch.M. (the M.D. may be taken in State medicine); in dental surgery, B.D.S., M.D.S. Diplomas in public health (D.P.H.) and dental surgery (L.D.S.) are also granted. Candidates for degrees must qualify for matriculation in the university by passing either one of the school certificate examinations held twice a year in July and in September by the university itself, or the *Higher School Certificate*, or any one out of a list of similar examinations which will be found in the university regulations for matriculation. Candidates over the age of 23 may, in certain circumstances, be permitted to matriculate without examination. The winter session opens on October 2nd, 1923.

Candidates who possess a *Higher School Certificate* approved by the Board of Education in physics, chemistry, and biology may count the first year of the curriculum and the first examination—the curriculum being thus reduced to four and a half years in the university.

PROFESSIONAL EXAMINATIONS.

M.B., Ch.B.—There are three examinations for these degrees. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. The first M.B. comprises chemistry, physics, botany, and zoology. The second M.B. comprises organic chemistry, elementary anatomy (Part I), advanced anatomy, physiology (Part II). The two groups may be taken separately or together. The Final Examination includes materia medica and pharmacy, pharmacology, and therapeutics, general pathology, morbid anatomy, and bacteriology (Part I), special pathology, forensic medicine, toxicology, and public health, obstetrics (including diseases of women), surgery (systematic, clinical, practical and operative), medicine (systematic, clinical, and practical), including mental diseases (Part II). The two groups may be taken separately or together. At the option of the candidate, forensic medicine and toxicology may be taken either with Group I or Group II. First or second class honours may be obtained by a candidate whose work is deemed of sufficient merit, but cannot be awarded to one who has recorded against him a failure at any examination after the first M.B.

M.D.—A candidate must be a M.B. and Ch.B. of at least two years' standing. He has a choice between presenting an original dissertation, undergoing a general examination in medicine (including medical anatomy, medical pathology and bacteriology, systematic and clinical medicine), or passing an examination in State medicine.

Ch.M.—A candidate must have attended, since becoming M.B., Ch.B., and for not less than two years, a public institution affording opportunities for the study of practical surgery, and produce certificates to that effect; the candidate shall be required to pass a general examination in surgery (including surgical anatomy, surgical pathology and bacteriology, operative and clinical surgery), and to present a dissertation in some department of surgery. He must be of two years' standing as a M.B., Ch.B. The degree is also awarded after examination in general surgery and in special subjects—for example, oto-rhino-laryngology, ophthalmology, and gynaecology.

Applications for other information should be addressed to the Dean of the Medical Faculty.

UNIVERSITY OF DURHAM.

To its own graduates, who may be of either sex, this university grants the degrees of Bachelor of Medicine and Bachelor of Surgery (M.B., B.S.), and Doctor of Medicine (M.D.), and Master of Surgery and Doctor of Surgery (M.S. and D.Ch.); it also grants special degrees and diplomas in Public Health, Psychiatry, and Dental Surgery. To become a graduate, however, at the university it is not necessary to pass the major portion of the five years' curriculum within its precincts, or even to commence that period by matriculation. It is sufficient if, before he presents himself for his final examination, the candidate has passed at least one year in study at the University of Durham College of Medicine, Newcastle-on-Tyne, including the practice of the Royal Victoria Infirmary in the same city. The earlier examinations may be passed while the student works elsewhere, but not less than a year must elapse between the date when the student satisfies the requirements of the university as regards matriculation and his presenting himself for the Final M.B., B.S. Examination.

The university has its own matriculation examination, but accepts the tests of a considerable number of other educational bodies as a full or partial equivalent. A list may be obtained on application.

PROFESSIONAL EXAMINATIONS.

There are four professional examinations for the M.B., B.S. degrees. Each is held twice a year—in March and June. The first deals with elementary anatomy and biology, chemistry and physics; the second with anatomy and physiology; the third with pathology, elementary bacteriology, medical jurisprudence, public health, materia medica, and pharmacy. At the final M.B., B.S., the candidate is examined in medicine and clinical and psychological medicine; surgery and clinical surgery; midwifery and diseases of women and children; clinical and practical gynaecology; therapeutics; diseases of the throat, nose, and ear; diseases of the skin; and diseases of the eye.

M.D.—A Bachelor of Medicine who wishes to proceed to this higher degree must be of at least two years' standing, and must comply with the regulations printed in the Calendar of the College of Medicine. If the candidate is not a M.B. of the university, he must be a practitioner of fifteen years' standing, 40 years of age, and submit to special tests. (See under Degrees for Practitioners, p. 383.)

M.S.—Candidates for this degree must have been engaged in practice for at least two years subsequent to becoming M.B., B.S.Durham. They are submitted to an examination which covers the whole range of surgical knowledge.

D.Ch.—The University grants also the Degree of Doctor of Surgery. Candidates for this degree must be registered medical practitioners, not less than 24 years of age. They must devote three years, subsequently to obtaining a registrable qualification, to the study of surgery and ancillary subjects; one at least of the three years must be spent in the university. The candidate must submit to the professor of surgery the course of study he proposes to follow, and this course must be approved by the Board of the Faculty of Medicine.

One year shall be devoted mainly to work in the departments of anatomy, physiology, pathology, and bacteriology, and the candidate must submit evidence of having so worked. Not less than six months of another year must be spent as resident surgeon in a recognized teaching hospital, and the rest of the year in the study of surgery in a recognized medical centre. Not less than six months of one of the three years must be spent in surgical study abroad.

FEES.

The following fees are payable: Matriculation or its equivalent, £2; First, Second, and Third M.B., B.S. Examinations, each £5; Final M.B., B.S., £15; M.D. and M.S., £5 for each examination and £12 12s. for the degrees of M.B. and B.S. The fee for the degree of M.D. is £10. The fee for the examination of D.Ch. is £20, and the fee for the degree £10.

Further information may be obtained from Professor Howden, Registrar, University of Durham College of Medicine, Newcastle-on-Tyne.

UNIVERSITY OF LEEDS.

THE degrees granted in the Medical Faculty of this university are Bachelor of Medicine, Bachelor of Surgery (M.B. and Ch.B.), and Bachelor of Dental Surgery (B.Ch.D.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), and Master of Dental Surgery (M.Ch.D.). It also gives diplomas in public health, in psychology, and in dental surgery.

Candidates for the M.B. must have attended courses of instruction approved by the university for not less than five

advises immediate operation in nearly all cases, the operation only being postponed if the child is not viable and a viable child is greatly desired, the patient being able to be kept under the closest observation. Waiting for spurious labour to occur and the child and placenta to die before operation is deprecated on the ground that, though the placenta can be easily separated, the sac is still firmly adherent and its separation will cause much bleeding. With regard to the placenta, the author only advocates removal when the sac with placenta can be tied off at both ends, which will only be possible in a tubal or tubo-ovarian pregnancy; in other cases packing of the sac with iodoform gauze is advised, and the wound either closed or the sac marsupialized. By the former method the placenta is partially absorbed and partially becomes calcareous; it usually gives rise to no untoward symptoms, but if symptoms do develop laparotomy can be done. If marsupialization is done the placenta should not be pulled on until separation is complete, as fatal bleeding may be encountered if it is still partly adherent. Sloughing and necrosis may occur by such methods of treatment, but they are infinitely preferable to bleeding, which is often fatal.

156. Cure of Eclamptic Coma by Unilateral Renal Decapsulation.

A. NIEDERMEYER (*Deut. med. Woch.*, June 8th, 1923, p. 756) has recently observed two cases in which unilateral renal decapsulation was performed at a time when patients suffering from eclamptic coma were practically moribund. In his second case the effect of the operation was dramatic; as soon as the operation had been performed there was an improvement in the respiration and pulse, and though the scanty urine passed before the operation had turned solid on boiling, there was only a trace of albumin in the urine on the day following the operation. The author suggests that the beneficial effect of renal decapsulation in such cases depends on the mechanical relief of pressure, and he uses the term "glaucoma of the kidneys" to explain the mechanism of decapsulation. It would seem that when intrarenal pressure has reached a certain level the secretory functions of the renal parenchyma are completely inhibited. It is sufficient to perform decapsulation only on one side, and considering how critical the patient's condition is in the cases in which this operation is undertaken, it would be dangerous as well as superfluous to strip the fibrous capsules off both kidneys. It appears that when the pressure of one kidney is relieved, the functions of the other will gradually return without its capsule being opened.

157. Oligohydramnios.

M. W. SCHELTEMA (*Nederl. Tijdschr. v. Geneesk.*, July 28th, 1923, p. 353), who emphasizes the rarity of oligohydramnios, or the occurrence of only a few cubic centimetres of amniotic fluid, records a case in a primipara, aged 26, in which there was no fluid but merely a clear colourless syrupy mass which could best be called amniotic jelly, and was present only between the membranes and the skull. The child was covered with a remarkably thick layer of vernix caseosa. The membranes themselves were so thick that it was impossible to rupture them with the finger and they had to be snipped with scissors. Scheltema has been unable to find any description of such remarkably thick membranes in the literature. The child was a female weighing 3,650 grams, and did not present any malformations.

Pathology.

158. The Anti-anaphylactic Action of Lipoids.

ACCORDING to C. DUPREZ (*C. R. Soc. de Biologie*, July 7th, 1923, p. 420), if a guinea-pig, previously injected with horse serum, be injected intravenously with a saline emulsion of the lipoids obtained from an alcoholic extract of calf's heart, its sensitivity is so diminished that no shock is apparent on the administration of the dechaining dose. The effect of the lipoids is to produce a state of anti-anaphylaxis. On what does this action depend? To elucidate this he mixed 5 c.cm. of fresh guinea-pig serum with 0.5 c.cm. of an emulsion of lipoids, incubated for one hour at 37° C., centrifuged, and removed the supernatant layer of lipoids. To the remaining liquid he added 1 c.cm. of a 0.5 per cent. suspension of agar, incubated the mixture for one hour, and centrifuged it the following day. The supernatant fluid was injected into a guinea-pig, which died within a few minutes. From this, and from another similar experiment, he concludes that the anti-anaphylactic action of lipoids is not of the nature of an adsorption phenomenon. Working with guinea-pigs rendered allergic by intraperitoneal injection of dead tubercle bacilli, the same author found it was possible to produce [illegible] of desensitization by the administration of potassium iodide. After preliminary treatment with tubercle bacilli two animals were obtained which reacted to the intradermal injection of tuberculin by the production of a papule 3 cm. in diameter. A daily injection of 1 c.cm. of a 5 per cent. solution of potassium iodide was then given subcutaneously to each animal for ten days. At the end of this time the reaction to tuberculin was limited to a papule of only 1.5 cm. in diameter. Another series of potassium iodide injections was given for ten days, after which the skin reaction to tuberculin had disappeared completely. A week later, however, the allergic reaction was present in the same intensity as before.

159. The Leucocytes in Health and in Disease.

K. D. FAIRLEY (*Med. Journ. of Australia*, June 16th, 1923, p. 655) gives a good general review of our present knowledge of the physiological and pathological activities of the white blood corpuscles. In the light of recent work which has been conducted in various countries throughout the world it would appear that the usually accepted blood formula must be modified. Instead of the polymorphonuclear cells being present in three times the number of the mononuclears, it is probable that in the normal blood they show not more than a slight excess. The average for a large number of estimations gives a relative proportion of 54.6 per cent. for the polymorphs and 45.3 per cent. for the mononuclears. But it is important to remember that in the individual case such wide variations may be found that little significance can be attached to the average. Of far greater value in the interpretation of the single blood count is a knowledge of the normal variations above and below the mean. These variations, the author points out, are greater than is usually supposed. He regards the normal physiological variation of the total leucocyte count as lying between 4,500 and 15,000 per c.mm.; the relative proportion of the polymorphonuclear cells is probably between 30 and 80 per cent. Failure in the past to realize the possibility of such a low polymorph percentage as 30 being compatible with normality has been responsible for the erroneous interpretation of high lymphocyte counts in healthy persons.

160. Tracheitis due to Pfeiffer's Bacillus.

G. ROSENTHAL (*Paris Méd.*, July 28th, 1923, p. 89) states that in his inaugural thesis of 1900 he showed that there was no parallelism between influenzal syndromes and infections caused by Pfeiffer's bacillus, the latter being as frequent an inhabitant of the respiratory tract as *B. coli* is of the intestine. This view was subsequently confirmed by Professor Bezançon and De Jong as well as by a large number of bacteriologists. He has recently seen a case of mild haemorrhagic tracheitis of ten days' duration with little rise of temperature and no prostration in a patient aged 50, whose principal complaint was the expectoration of thick blood-stained sputum in the morning. The mild course of the disease, the absence of emaciation, and the normal character of the respiratory murmur excluded pulmonary tuberculosis, and there was nothing to justify the diagnosis of influenza. Bacteriological examination showed that the sputum was swarming with Pfeiffer's bacilli. Rosenthal refers to the article by Lisbonne and Leenhardt on Pfeiffer's bacillus meningitis (see EPITOME, March 10th, No. 210), which, like the tracheo-pulmonary localizations, cannot be regarded as a manifestation of influenza.

161. The Value of Egg Yolk in Rickets.

IN view of the high content of fat-soluble vitamin in yolk of egg, and the close association in nature of this vitamin with the antirachitic factor, as best exemplified in cod-liver oil, it appeared worth while to A. F. HESS (*Journ. Amer. Med. Assoc.*, July 7th, 1923, p. 15) to test the potency of the yolk in relation to its prophylactic and curative value in rickets. Rats were fed on a low phosphorus diet, as a basic rickets-producing dietary, and to this diet 0.5, 0.3, and 0.25 gram of egg yolk was added daily. Experiments showed that egg yolk is able not only to protect young rats from rickets, but also to cure them of rickets. On the other hand they showed that white of egg is not merely devoid of antirachitic properties but seems to enhance the rickets-producing quality of a dietary. The yolk of one egg was added to the regular formulas of each of twelve infants, in the attempt to forestall the occurrence of rickets and the seasonal ebb of the blood phosphate. In most instances this addition was made in December, when the tendency to rickets becomes acute. By this simple supplement to the diet all the infants were protected from rickets, as judged by clinical, *x*-ray, and chemical criteria. The percentage of inorganic phosphate in the blood, instead of falling to 3.6 mg., the ebb observed last March, was maintained at 4 mg. or more, a level encountered during the summer months. The calcium content of the serum also was unusually high. It seems evident, from these data, that yolk of egg possesses considerable protective value in rickets.

a diploma in bacteriology; and a degree and diploma in dental surgery. Candidates for degrees must pass the special Matriculation Examination prescribed by the Faculty of Medicine (or some equivalent examination accepted in lieu thereof; see the prospectus of the Joint Matriculation Board), and study at the university itself for at least two years of the six years' curriculum, one such year being subsequent to the passing of the first M.B. Examination. The Matriculation Examination comprises (1) Latin, (2) mathematics, (3) the English language, its literature and history; (4) two subjects at choice, one of which must be a language approved by the Joint Board, the other being elementary mechanics or physics, chemistry, geography, natural history, or botany. It is held in July and September.

PROFESSIONAL EXAMINATIONS.

M.B., Ch.B.—There are four examinations for this degree. They must be passed in proper order, and before admission to them the candidate must be duly certified as having attended in the subjects involved. At all examinations the subjects, or groups of subjects, prescribed can be taken separately or together, as the candidate pleases. The first M.B. is divided into Part 1, chemistry and physics; Part 2, biology—(*a*) botany, (*b*) zoology. The parts may be taken separately or together. At the second M.B. the candidate is examined in anatomy and physiology; at the third in pathology and pharmacology (including materia medica and practical pharmacy). The Final Examination is divided into two parts, which may be taken separately, and includes medicine, systematic and clinical, mental diseases, and diseases of children, surgery (systematic, clinical, and practical), obstetrics and gynaecology, preventive medicine, forensic medicine and toxicology.

M.D.—A candidate for this degree must be a bachelor of medicine of at least one year's standing. He has a choice between presenting an original dissertation or undergoing a written (as well as practical and clinical) examination in medicine, and a written and practical examination in pathology, and one other subject selected by himself.

Ch.M.—A candidate must have held, since becoming Ch.B., and for not less than twelve months, a post in a public institution affording opportunity for the study of the branch of surgery in which examination is desired. The examination in Branch I comprises the general field of surgery; Branch II obstetrics and gynaecology; Branch III ophthalmology; Branch IV otology, laryngology, and rhinology.

FEES.

The following fees are payable: Matriculation, £2; on re-admission, £1 10s. Each M.B. examination, £8 8s.; on readmission, after failure, £3 3s. M.D., including the conferring of the degree, £15 15s. Ch.M., £6 6s. for the examination and £9 9s. for conferment of degree. Application for further information should be addressed to the Dean of the Medical Faculty.

UNIVERSITY OF SHEFFIELD.

THE degrees of this university (M.B., Ch.B., M.D. and Ch.M., B.D.S. and M.D.S.), the diploma in public health, and the diploma of licentiate in dental surgery, are open to candidates of either sex. Candidates for a degree must have matriculated in the university or have passed such other examination as may be recognized for this purpose, and have passed the further examination in chemistry and physics.

PROFESSIONAL EXAMINATIONS.

A candidate for the degrees of M.B., Ch.B. must produce certificates that he will have attained the age of 22 years by the day of graduation; that he has pursued the courses of study required by the university regulations during not less than five years subsequent to the date of his matriculation or exemption from matriculation, and the passing of the further examination in chemistry and physics, three of such years at least having been passed in the university, one at least being subsequent to the passing of the first examination. The following examinations must be passed in due order.

First Examination.—The subjects are chemistry, physics, and biology. The intermediate examination in science—chemistry, physics, and zoology—will, on payment of the required additional fee, be accepted instead of this examination. Candidates on presenting themselves for this examination are required to furnish certificates of having attended for not less than one year approved courses of instruction, after matriculation, and the passing of the further examination in physics and chemistry, in (i) chemistry, inorganic and organic; (ii) physics; (iii) biology.

Second Examination.—The subjects are anatomy and physiology. The candidate must have completed the second year of professional study, must have passed the First Examination, and must have attended (1) lectures on anatomy, and dissections during three terms; (2) lectures on practical, experimental, and chemical physiology and histology during three terms.

Third Examination.—The subjects are pathology and pharmacology, anatomy and physiology. Candidates must have completed the fourth winter of medical study and the requisite courses in these subjects, including *post-mortem* clerkship for three months.

Final Examination.—The subjects are medicine (including forensic medicine, public health, mental diseases, and diseases of children), surgery, and obstetrics (including gynaecology). Candidates must have completed the fifth year of study.

M.D.—Candidates for the degree of Doctor of Medicine must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, must present a thesis embodying observations in some subject approved by the Professor of Medicine, and must pass an examination in the principles and practice of medicine.

Ch.M.—Candidates for the degree of Master of Surgery must have passed the examination for the degrees of M.B., Ch.B. at least one year previously, and must, since taking the degrees of M.B., Ch.B., have held for not less than six months a surgical appointment in a public hospital or other public institution affording full opportunity for the study of practical surgery. The subjects of examination are systematic, clinical, and operative surgery, surgical anatomy, surgical pathology, and bacteriology.

Other information concerning this university will be found in the section devoted to Provincial Medical Schools.

UNIVERSITY OF WALES.

THE Charter and statutes of the University of Wales provide *inter alia* for a Faculty of Medicine and for the granting of the following degrees: Bachelor in Medicine (M.B.), Bachelor in Surgery (B.Ch.), Master in Surgery (M.Ch.), and Doctor in Medicine (M.D.).

A candidate for the M.B., B.Ch. is required to pursue a course of study of not less than six academic years subsequent to matriculation in the university, and of these years at least three must have been passed as a student in one of the constituent colleges of the university. These are the University College of Wales, Aberystwyth; University College of Wales, Bangor; University College of South Wales and Monmouthshire, Cardiff; and University College, Swansea. He must also hold an Arts or Science degree of the University of Wales, or of some other university approved for this purpose. Certain of the courses of study pursued for a B.Sc. or B.A. degree may be counted as part of the courses required for the degrees in the Medical Faculty.

The courses for the M.B., B.Ch. are divided into two sections, of which the first includes the preliminary subjects—physics, chemistry, botany, zoology; and the ancillary subjects—organic chemistry, human anatomy, and physiology. Study of the preliminary subjects and of organic chemistry must extend over at least one academic year; study of physiology and anatomy must extend over at least two academic years, and cannot be commenced until all the preliminary courses have been completed; hence the first section of the course must occupy not less than three years. The second section includes courses in pathology, bacteriology, pharmacology, medicine, surgery, and obstetrics and gynaecology, and cannot be commenced, except in the case of pharmacology, until the examinations relating to the preliminary and ancillary courses have been passed. Examinations in the earlier subjects are held at the end of each academic year, and in the subjects of the second section each July.

declarations to the contrary, steadily gaining ground over tuberculosis.

The last example I need cite is the prevention of a high infant mortality. At the end of the nineteenth century there died every year in England and Wales 150 infants per 1,000 born. In many industrial districts the figure was 300. In 1922 it had fallen for the whole country to 77. What has happened here? No doubt many factors have contributed, but the most potent have been more enlightened motherhood and infant nurture.

Now here we have four examples of the effect of preventive medicine applied to the community through the operations of the State or the municipality. They have effected a postponement of death and an enormous betterment of man's physical condition and capacity. But it was Medicine, medical science and medical art, which first determined the causes or conditions of these diseases, and then conceived the means of their prevention. Many and complex have been the factors at work, but in the four examples quoted (*a*) improved sanitary environment, (*b*) vaccine, (*c*) personal and social hygiene, and (*d*) enlightened motherhood, emerge as dominant.

Some Undefeated Enemies.

We must now take a further step in the argument, and ask ourselves if preventive medicine can be applied to other morbid conditions, which, though not national or racial scourges, do, in fact, prove themselves to be the most formidable enemies we have to face. What are they? There are two bodies of data immediately at hand. There were 486,780 deaths in 1922. The chief cause was respiratory disease (non-tuberculous), responsible for 18 per cent.; next came diseases of the heart and circulation, 16 per cent.; then nervous diseases and cancer, 10 per cent. each; then tuberculosis 9 per cent. So that 63 per cent. of the total number of deaths was due to five great groups of disease. What has preventive medicine to say to these? There is another body of data which illumines the situation—namely, the causes which take upwards of seven million patients to their insurance doctors every year. A survey was made in 1921 of 36,000 cases in 226 practices in 116 towns, and it was found that 22 per cent. went to the doctor with respiratory disease (mainly bronchitis), 13 per cent. with digestive disease, and 45 per cent. with influenza, anaemia, skin disease, minor injuries and accidents, septic conditions, lumbago and rheumatism, and debility. Thus we know approximately 80 per cent. of the early morbid conditions met with in average insurance practice. What has preventive medicine to say to this group? Clearly, it should have more to do with them than with the ultimate causes of death. But taking both groups together, with the exception of cancer, they constitute the chief current burden of preventable mortality, sickness, incapacity, and "lost time" from the industrial point of view. This is now the unconquered territory. Preventive medicine has proved itself efficacious in the realm of infection; it must turn its attention to this larger issue, for it possesses the potentiality to deal with it also.

The problem before us at the moment is not the action the State should take in regard to these diseases, nor even the work of the medical practitioner, essential as they both are. It is the narrower engagement, How can the medical curriculum be permeated with the spirit and methods of prevention? I think the answer is twofold. First, by the teachers of medicine conducting the studies of their pupils in the direction of prevention (*a*) by a special course in hygiene and preventive medicine, and (*b*) by addressing themselves to the preventive aspects of clinical work; secondly, by the student bending himself to preventive study.

A Course in Physiological Hygiene and Preventive Medicine.

The celebrated medical school in the University of Salerno possessed, as early as the twelfth century, a department of instruction in the basic subject of the Conservation of Health, and its sanitary precepts and principles have been handed down to us in the records and poems of the *Schola Salernitana*. Every British Medical School has had something of this kind. But we do not make enough of it. It calls rather urgently for reform and amplification, partly as a definite and prescribed course in hygiene, and partly by the introduction into physiology and the clinical subjects of the preventive view. There should be a living and comprehensive short course in hygiene—not "drains" and nuisances, but the vital principles and means of health and the widest understanding of the physical effect of his environment and habits on man. We make the student, by special courses, familiar with anatomy and physiology that he may have the normal in his mind, and on that we build up his conception of disease. Why not start all his clinical work on a similar basis by providing a course in *Hygiene* of the normal body in action, and the factors which affect it? Again, *Medicine* proper should always and invariably include instruction in the prevention of disease of the respiratory, alimentary, circulatory, and nervous systems. There is a cause for all these morbid conditions, and Pasteur urged that the cause should be continuously sought and explored. *Surgery* likewise includes, and in some ways embodies in its most graphic form, the means of prevention; the removal of enlarged tonsils and adenoids, the correction of deformities, antisepsis, much abdominal and thoracic surgery, gynaecology, dentistry, industrial surgery, surgical reconstruction and re-education are examples which leap to the eye, but there are many others. *Obstetrics* should place in the foreground (and not in the background) the whole question of pre-natal supervision, puerperal fever, the prevention of congenital syphilis, ophthalmia, and the care of the infant, as well as the improved management of labour. What is really the scientific use and educational value of sending an inexperienced student to attend the confinement of a woman, whom he has never seen before, and of whose physical history he knows nothing? Is it only that he may count the case in the necessary twenty he must attend?

Even more important than the spirit of prevention pervading all instruction is the whole attitude of the student to his clinical work. I want him to ask himself, every time: "*Why is this patient here?* What is the physical or social complex that has made his body depart from the normal? To what stresses and exhaustion has he been subjected? How did he *get* this thing that troubles him and me?" Certainly, it is not chance, caprice, or fate. It is our business and our science to worry out the causes, and discover the way to escape or remove them. If every student became thus an investigator and discoverer, the science and art of medicine would be saved from perfunctory workmanship, and from explanations which are no explanations, what Cullen used to call "the most absolute languor" leading to "exclusive attachment to one system." We ought to welcome light from any source, orthodox or heterodox, frequently question all our methods, and even receive cheerfully "the noise and bustling of Paracelsus." As Henry Ford of motor-car fame says, "Everything can always be done better than it is being done."

The Philosophy of Prevention.

The preventive attitude of the student cannot merely be left to opportunity. It must be provided for. In the first place, he should get a clear and fair "scratch line." He must know the physiological standard of health and capacity from which he starts. The preventive purpose of the course in anatomy and physiology is to teach him the range and capability of the human body, what Nature can and cannot do. "Our natures," said Hippocrates, "are the physicians of our diseases;" and, following him, in the Introduction of his *Medical Observations*, Thomas Sydenham, our grand exemplar in the seventeenth century, repeated the axiom: "Nature by herself determines diseases, and is of herself sufficient in all things against all of them." The study of biology, chemistry, and physics and the intermediate subjects, is to give an apprehension and standard of Nature which we may bring to the bedside. Without it we are lost, and prevention has no meaning. The natural history of disease is the crucial requirement. "When it is thoroughly grasped," says Sir Thomas Lewis, "that infection has more to do with heart failure than has strain or a mechanical defect in the heart itself

be passed after six years of professional study. Candidates must pass the Final Examination of the Examining Board in England and be admitted Members of the College before admission to the Second Examination for the Fellowship, except in the case of graduates in medicine and surgery of not less than four years' standing of universities recognized by the College for the purpose, who are required to attend for one year the surgical practice of a general hospital recognized by the College after obtaining their degrees.

Fees.—At first examination, £8 8s.; for re-examination, £5 5s. At second examination, £12 12s. Diploma fee for non-members, £10 10s.

The College also issues a diploma (L.D.S) in dentistry.

SOCIETY OF APOTHECARIES OF LONDON.

THIS body confers a registrable diploma in medicine, surgery, and midwifery, now known as the L.M.S.S.A. (Licentiate in Medicine and Surgery of the Society of Apothecaries), on those successful at the following examinations:

Primary Examination.—This is divided into two parts, of which Part I includes elementary biology, chemistry, chemical physics, practical chemistry, pharmacy. Part II includes anatomy, physiology, and histology, and cannnot be passed before the completion of twelve months' practical anatomy with demonstrations. Candidates will be excused any or all the subjects of the primary examination on producing evidence that they have passed equivalent examinations before an examining body recognized by the Society. Candidates referred in anatomy will be required to produce evidence of further work in the dissecting room before being admitted to re-examination.

Final Examination.—This is divided into three parts. Part I includes clinical surgery, the principles and practice of surgery, surgical pathology, operative manipulation, surgical anatomy, instruments and appliances. Part II includes clinical medicine: (*a*) The principles and practice of medicine (including therapeutics, pharmacology, and prescriptions), pathology, and morbid histology; (*b*) forensic medicine, hygiene, theory and practice of vaccination, and mental diseases. Part III includes midwifery, gynaecology, and diseases of newborn children, obstetric instruments and appliances.

The fee for the primary examination is £5 5s.; for the final, £15 15s. The regulations and synopses relating to the several examinations, and other information, may be obtained from the Secretary, Court of Examiners, Apothecaries' Hall, Blackfriars, E.C.4.

The Scottish Universities.

THERE are in Scotland four universities, each possessing a faculty of medicine, and having the right to confer degrees which admit the holder to the *Medical Register*. In essential points the regulations in their medical faculties for undergraduates are much alike, so that a general account can be given of all of them together.

The universities are those of Edinburgh, Glasgow, Aberdeen, and St. Andrews. The provision each of the cities in which these universities are situated makes for the education of medical students will be found in the section on Medical Schools in Scotland; here it need merely be said that degrees in medicine from Scotland as a whole have always enjoyed a high repute.

The degrees granted in medicine and surgery to candidates of either sex are four in number—Bachelor of Medicine (M.B.), Bachelor of Surgery (Ch.B.), Doctor of Medicine (M.D.), Master of Surgery (Ch.M.). The two former are not obtainable one apart from the other. Besides these degrees a diploma in tropical medicine and hygiene is obtainable from the University of Edinburgh, as also diplomas in psychiatry and public health. As for public health, registrable degrees in this subject are granted by the Universities of Edinburgh and Glasgow, while diplomas in public health may be obtained from the Universities of St. Andrews and Aberdeen.

The conditions for admission of graduating students of medicine are the same as those in the Faculties of Arts or Science (for degrees in pure science).

As from January 1st, 1923, prospective medical students are also required to pass a pre-registration examination in chemistry and physics.

PROFESSIONAL EDUCATION.

The regulations comply in all respects with the requirements and recommendations of the General Medical Council, and in addition necessitate definite study for stated periods of diseases of children, of the larynx, ear and nose, of the skin, of ophthalmology, and of mental diseases. In respect of the various courses certificates must be obtained showing that the student has not only attended regularly, but has duly performed the work of the class. Out of the necessary five years of medical study, not less than two must be spent at the university whose degrees the student hopes to obtain, and the balance at any place officially recognized for such purpose. In each academic year there are two sessions—one lasting from the beginning of October to the middle of March, and the other from the beginning of May to the middle of July.

PROFESSIONAL EXAMINATIONS.

The distinctive feature of the Scottish curriculum is that, though nominally there are only four examinations, each of these may be, and habitually is, split up by the student into sections. Hence, a student may complete some stage of his career during the course of nearly every session. Thus, by the end of the first winter session the student may pass in zoology and chemistry. At the end of the first summer session he can finish with botany and physics, and with anatomy and physiology at the end of the second. Pathology and materia medica he will pass at the end of the third year, and so on, until the final examination in midwifery, surgery, and medicine, and the corresponding clinical subjects at the end of the fifth year of study. At each examination the candidate may pass "with distinction," and a record is kept of the merit displayed, so that, when the time comes for the candidate to graduate, one who has done well throughout can be declared as graduating with first or second class honours. A further point in the system is that the student's own teachers commonly take some part in his examination.

Of the four examinations, the first deals with physics, botany, zoology, and chemistry; the second with anatomy and physiology; the third with materia medica and pathology; the fourth with medicine and surgery (clinical and systematic), midwifery, forensic medicine and public health, and clinical gynaecology. The first three examinations are held three times a year; the final twice a year.

Exemption from the first professional examination can be obtained by candidates who have passed an arts or science degree examination in its subjects at any recognized university. When a candidate presents himself for an examination in several of its parts, but is not successful in all of them, he is credited at the next examination with those subjects in which he has already been approved.

THE HIGHER DEGREES.

It is open to those who are already M.B., Ch.B. to proceed either to the M.D. or the Ch.M. A candidate for the former must have been engaged for not less than one year in work in the medical wards of a hospital, or in scientific research in a recognized laboratory, or in the Naval or Military Medical Services, or have been at least two years in general practice, and he must be 24 years of age. He has to write a thesis on any subject not exclusively surgical, and is examined in clinical medicine and in some one or other of its special departments. The regulations for candidates for the Ch.M. are of a corresponding character, a period of surgical work in a hospital or elsewhere being substituted for medical work, and the thesis being on a surgical rather than a medical subject. He is examined in surgical anatomy, clinical surgery, operative surgery, and in some of the special departments of surgery.

the student from this aspect and afterwards from the curative and reparative side. It will be obvious that touch should be kept with cases of puerperal fever and with the female venereal disease department, if the preventive aspect of infections is to be fully illustrated.

Having completed his training in clinical medicine and surgery, in which the diagnosis of disease and injury and their treatment and repair in the individual patient have been studied, the student comes to the reproductive function, not essential to the life of the individual but essential to the life of the race, and the opportunity must now be taken to make him think in terms of the community as well as of the individual and realize that he will have a place in a team working to improve the national health and physique. Once he can visualize the work of the maternity department with its follow-up sides, the gynaecological department, and the infant clinics, his whole outlook may be enlarged whilst learning the practice of obstetrics, gynaecology, and pediatrics.

Some reference may be made to the debatable point of the place of systematic lectures, as they have of late fallen somewhat into disrepute, especially in England. A pressed audience is bad for the lecturer and difficult to satisfy, and if attendance on them was not compulsory the prestige of lectures would at once improve. The student would attend without compulsion if he could obtain something he cannot get equally well from his books, and the lecturer would estimate the worth of his lectures by the size of his audience. Systematic lectures have a place if designed to expand and give light and shade to the student's reading by illuminating through clinical experience the lessons taught, and bringing into prominence what is frequently met with and putting into the shade many of the rare and curious scraps from books that often unduly impress the mind of the student. The bearing of anatomical and physiological points on clinical practice can be illustrated and interest aroused on many problems of reproduction affecting the national welfare—heredity and eugenics, the birth rate, child-bed and infantile mortality and invalidity, and the improvement of the national physique—on which guidance from well informed medical opinion may be sought regarding voluntary, municipal, or State schemes of public health.

Planning the Student's Course.

Coming now to the actual training to be given, a whole-time minimal period of six months should be allotted to obstetrics, gynaecology, and pediatrics, and early in the first half of this term the student must be in residence for six weeks. A couple of weeks at the beginning of the term may be profitably spent in obtaining a bird's-eye view of the work of the centre as a scheme of preventive medicine, concentrating particularly on the ante-natal clinics and the practice of the maternity wards, and at the same time attending obstetric demonstrations on the dummy. The resident period, as representing the time of most intensive training, should be taken early and the hospital method of delivery and management of the lying-in mother and infant acquired under supervision. Maternity beds, either in a lying-in ward in a general hospital or in a lying-in hospital, must be of sufficient number to allow each student a minimum of five deliveries and to train him in the management of normal and abnormal pregnancy and labour and of the lying-in mother and infant. Obviously, the number of beds must correspond with the number of students trained, but if during his term of residence the average number of deliveries is less than one a day, it cannot be said that the student is really working in an obstetric atmosphere. As pointed out by a committee of the Obstetric Section of the Royal Society of Medicine in 1919, the system of staffing maternity hospitals in England and Scotland militates against efficiency in the teaching of difficult and complicated labour, as a visiting staff does not permit of the continued presence of an experienced teacher throughout a prolonged case; that committee advocated the union of small into large institutions, with at least 75 beds and a resident chief of the standing of the Master of the Rotunda in Dublin. From the educational point of view the Rotunda system presents obvious advantages, but the rearrangement and rebuilding that its introduction into England and Scotland would entail are almost impossible under present financial conditions. The centralization and amalgamation of existing institutions would appear more feasible in provincial schools, where there is a University that can exert pressure on its constituent teaching institutions, than in London, where the inherent tendency of each medical school to remain self-contained and self-sufficient is difficult to overcome in the absence of a central co-ordinating authority. Oxford and Cambridge did much to further the teaching of midwifery in London by their immediate and whole-hearted adoption of the recommendations of the General Medical Council (1906) insisting on hospital practice, whereby the medical schools were compelled to open lying-in wards or otherwise make provision for the training of those of their students proceeding to a medical degree at the old Universities, such facilities becoming available for all. A still greater advance could be made if, by a combination of the London schools into three or four obstetrical centres and amalgamation with lying-in hospitals, large institutions on the Rotunda model could be inaugurated. Such reorganization would assist in getting over another difficulty, the shortage of cases owing to the number taken up for the training of midwives, in regard to which the regulations of the Central Midwives Board are much more strictly drawn than those of the medical qualifying bodies.

The Lying-in Ward and the District.

While urging further and better training, the most must be made of the material at present available, and the management of labour and lying-in, as conducted in hospital, acquired under the supervision of a teacher, first by watching cases delivered by other students and then by personally conducting deliveries. In one hospital the management of normal labour may be taught by the sister-midwife in charge of the labour room, at another by a house officer, at another perhaps an obstetric tutor or registrar, but never by a member of the visiting staff. My personal feeling is strongly in favour of a sister-midwife; she is much to be preferred to a temporary house officer, and the student, who in after-life will have to supervise and assist midwives, had best begin by learning the conduct of normal labour as the midwives do and of abnormal labour from his medical teachers. My chief contention in favour of this plan is that it is the logical sequence of the fundamental principle of the physiological character of labour, which must ever be impressed on the student; normal labour can be left to the midwife, as the nursing of the lying-in mother and infant is left, the function of the medical attendant being the careful supervision before, during, and after labour, but not necessarily entailing his constant presence throughout labour or at the moment of birth. Even in a hospital with an experienced resident chief it would be ridiculous and wasteful excess if the steam-hammer was used to crack nuts.

After a month's experience of hospital midwifery and having acquired thoroughly the hospital routine, the student's education should be completed by learning how to apply these methods to the more difficult conditions met with in the homes of the women in the district. For district work to be really educative to the student a health visitor or other social worker should select the homes suitable and exclude those wholly unsuited; attendance in houses in which it is impossible to carry out an adequate surgical technique only results in discouraging the student and encouraging slovenly methods. The obstetrical registrar or house officer should closely supervise the student's work, making occasional visits with him and seeing that daily reports are presented of all the patients under his charge. Under satisfactory conditions the work on the district is most valuable; for the first time the student is brought into touch with patients in their own homes, where he has an opportunity of seeing the conditions under which they live, how poverty, housing conditions, and lack of education and training in the mother may affect the health of herself and her children, of studying social work, and learning how other agencies, public and voluntary, may be called in for assistance, and generally how to work in with the local health authorities and the whole team of health workers.

Training in complicated labour and obstetric emergencies is more difficult to obtain because there are few schools

paid by a candidate for the Membership is £36 15s. The examination is held quarterly, and application for admission to it must be made a month previous to its date. For the Fellowship the candidate must have been a member of the College for at least three years, and, if accepted, pays fees, including £25 stamp duty, amounting altogether to £64 18s. Further details can be obtained on application to the Secretary of the College.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

THIS College has two grades—its Licence and its Fellowship. Licentiates may be of either sex, and for the Fellowship women are eligible also.

Licence.

As an original qualification the Licence is only granted after fulfilment of the regulations of the Conjoint Board, but as an additional qualification it can be obtained by those already possessed of a registrable qualification in medicine. In this case the candidate has to pass a written, oral, and clinical examination in surgery and surgical anatomy, and may be asked to operate on the dead body.

The fee is £15 15s., of which £10 10s. is returned to unsuccessful candidates. On due cause being shown, a special examination may be granted, the fee being £20, of which £10 is returned to a candidate if he is not approved.

Fellowship.

Candidates for the Fellowship must be not less than 25 years of ago, and have been in the practice or study of their profession subsequent to registration for at least two years, and must hold either a surgical degree from a university recognized for that purpose by the College, or a registrable diploma obtained as the result of an examination which includes surgery as well as medicine and midwifery. Candidates are examined in (*a*) the principles and practice of surgery, including surgical anatomy, (*b*) clinical surgery, and (*c*) one optional subject, which they may choose from among the following: surgical pathology and operative surgery, ophthalmology, laryngology, otology, and rhinology, gynaecology, obstetric surgery, anatomy, and dental surgery and pathology. The examination is written, oral, and clinical or practical. A candidate who desires to be examined must give one month's notice, his application for admission being supported by two Fellows of the College, one of whom must be resident in Edinburgh, or, in default, by testimonials obtained specially for the purpose. *Candidates are not allowed to appear more than three times at the examinations.*

Licentiates of the College pay £35, and others £45. For further information application should be made to the Clerk of the College, Mr. D. L. Eadie, 49, Lauriston Place, Edinburgh.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

THIS body possesses two classes—Licentiates and Fellows. The regulations applying to the former correspond with those respecting candidates for the Licence of the Royal College of Surgeons of Edinburgh. Candidates for the single Licence are examined in surgery (including clinical surgery and surgical anatomy). The fee is £15 15s., and examinations are held quarterly. Candidates for the Fellowship must be qualified medical men of not less than two years' standing and 24 years of age. Candidates approved at this examination are then eligible for election as Fellows. Special regulations are in force for medical practitioners who served in the late war. The Faculty can also elect four Fellows annually without previously submitting them to examination, providing they "have highly distinguished themselves in medical science or practice." They must be of not less than ten years' standing and 40 years of age. Further information can be obtained from Mr. Walter Hurst, Faculty Hall, 242, St. Vincent Street, Glasgow.

The Irish Universities.

THERE are three universities in Ireland, each with a medical faculty. These are the University of Dublin (usually known as Trinity College, Dublin), the Queen's University of Belfast, and the National University of Ireland. The two former teach students, examine them, and grant degrees; while the third is an academic body only, inasmuch as its practical work is divided among three constituent colleges, situated, one at Cork, another at Galway, and the third in Dublin. Information as to the arrangements for the education of medical students will be found in the section relating to Irish Medical Schools.

UNIVERSITY OF DUBLIN: TRINITY COLLEGE.

THIS university grants two degrees in medicine (M.B. and M.D.), two in surgery (B.Ch. and M.Ch.), two in midwifery (B.A.O. and M.A.O.), and a post-graduate diploma in public health. It also grants a post-graduate diploma in gynaecology and obstetrics, for which one year's study is required. The degrees are granted to those who, having passed the Professional Examination, have also graduated in arts.

PROFESSIONAL EXAMINATIONS.

A candidate for the Final Examination for the M.B., B.Ch., and B.A.O. degrees must be a matriculated student of at least five years' standing. At least three of the five years' medical curriculum must be pursued at the School of Physic of the university. The examinations which students must pass are the Preliminary Scientific, the Intermediate Medical, and the Final. Before admission to any of these examinations students must have completed the courses of study in the subjects involved.

Preliminary Scientific.—This covers (*a*) chemistry, (*b*) physics, (*c*) botany and zoology; the three divisions may be taken together or at different times.

Intermediate Medical.—This is divided into two parts: (*a*) anatomy, physiology, organic chemistry, and histology; (*b*) applied anatomy and applied physiology. The two parts may be taken separately or together.

Final Examination.—Part I: Hygiene and medical jurisprudence, pathology and bacteriology, materia medica, and therapeutics. *Part II:* (*a*) Midwifery and gynaecology; (*b*) medicine and mental diseases; (*c*) surgery in all branches, including clinical ophthalmology. The three sections of Part II may be taken separately or together. In either case the full curriculum must have been completed, and the final examination cannot be completed before the end of the fifth year.

M.D.—The candidate must have passed all the qualifying examinations in medicine, surgery, and midwifery, and have taken, or have been qualified to take, the degree of B.A. three years previously. He must send in a thesis for approval. Subsequently the Regius Professor of Physic and an assessor will discuss with him questions connected with the thesis, and may also examine him viva voce on other medical subjects of a more general nature.

M.Ch.—The candidate must be a B.Ch. of not less than three years' standing, and have been engaged in practice for two years.

M.A.O.—The candidate must be a B.A.O. of not less than two years' standing and must produce satisfactory evidence of having been engaged for two years in obstetric science. The examination is specially directed to obstetrics and practical gynaecology.

Dental Degrees.—The University of Dublin gives two degrees in dental science—namely, B.Dent.Sc. and M.Dent.Sc. The course for the former has a minimum duration of four years; for the latter, five years.

Further information regarding courses of instruction, etc., may be obtained from the Registrar of the School of Physic, Trinity College, Dublin.

the student and his advisers should endeavour to obtain a clear idea of the object to be aimed at, of the relative advantages of taking one or other of the degrees or diplomas open to him, and of the comparative difficulties they present.

All who wish to enter the medical profession must comply with certain conditions. These are prescribed by the General Medical Council, which is a statutory body established under the Medical Acts; a statement of its requirements is given at page 355. It will be observed that many changes have lately been made in the medical curriculum, and this section should be studied with care. Every medical student, after passing examinations in the subjects of general education and in the preliminary sciences, must take a course of training at a recognized medical school, covering at least a period of five years but usually extended to six years or more. The examination of candidates as to their fitness to practise medicine is left to the licensing bodies, which are of two kinds—the universities, and certain corporations in England, Scotland, and Ireland. One of the functions of the General Medical Council is to make sure that the tests at each stage do not fall below a certain standard, and that the students examined have undergone prescribed courses of instruction at recognized institutions. Successful candidates at such examinations eventually receive from the body holding them either degrees, in the case of a university, or diplomas or licences, in the case of a corporation; these qualifications entitle them to claim insertion of their names in the *Medical Register* kept by the General Medical Council. Holders of diplomas and licences once made up the great majority of all medical men, especially in England and Wales. But universities have greatly multiplied, and so many practitioners are now graduates that a student of ordinary ability will be well advised to aim at a medical degree, though it may be desirable to take also a diploma or licence.

Cost of Medical Education.

At this point the question of the cost of a medical training naturally arises. The answer, however, cannot possibly be given in a single precise statement, because the outlay varies within wide limits. Besides differences in the charges made by medical schools for instruction there are differences in examination fees, as well as in those payable for the certificates of qualification. Again, not all students, however industrious, pass examinations with equal facility. Since in any case professional education must continue for five years at least (a period exceeded by the vast majority), and since the cost of living in different parts of the country varies much, while personal expenditure varies still more, it can only be said in a general way that anyone who thinks of entering the profession must assume that a medical education—first and last—will cost at least £1,500. On the other hand, the number of scholarships and prizes now offered is larger than in the past; in the Scottish universities bursaries are numerous, and the Carnegie Trust gives financial assistance to many Scottish students. It will be seen, however, that, as compared with other professions, the period of training in medicine is long, and for most students costly. There is also to be remembered the time of waiting after qualification when income is apt to lag behind expenditure.

Choice of a Career in Medicine.

The student, having passed all his tests and placed his name on the *Medical Register*, becomes a member of the profession and assumes the privileges and responsibilities that go with legal qualification. But the final examination, though a great event in his life, is only the opening of a door into a wider field of training. Education must continue throughout his career; a good doctor remains always a student. As an introduction to practice nothing is so useful to the newly qualified man or woman as a year or more spent in junior hospital appointments; and all who can afford the time should look upon an "internship" as a most valuable investment. Next comes the choice of a career in the larger world of medicine. Many paths are now open—for example, general practice, Government service at home or abroad, and special work in public health or mental disorder, in scientific research, or in one of the many modern subdivisions of medicine and surgery. Most of these different paths in medicine are considered in some detail in the later sections of the Educational Number, but a few words may be said here about general practice and the work of a consultant or specialist. A good deal of information on these and other cognate matters will be found in the *Handbook for Recently Qualified Medical Practitioners*, published by the British Medical Association.[1]

General Practice.

General practice is still the goal of the great majority of all medical students, and it is beyond question that this country produces the finest body of general practitioners in the world. The life is onerous and exacting; a recent writer has said: "Of all professional men, the general practitioner is the worst paid and the hardest worked."[2] Nevertheless, general practice has its compensations, and it appeals to many of the very best students; which is fortunate, both for medicine and for the public. This career is usually entered upon in one of three ways. The newcomer may take a house and wait for patients to seek his services; he may purchase the goodwill of a practice rendered vacant by retirement or death; or—perhaps best of all—he may become a partner in an established practice. Success in the work of a private practitioner demands, however, a great deal of knowledge other than that gained at the medical schools, and consequently a man is more likely to be accepted as a partner, or to succeed on his own account, if he has already some experience of family practice as an assistant or deputy. An all-round knowledge of practical medicine, surgery, and obstetrics should, if possible, be supplemented by skill in some particular branch of practice. Moreover (as already hinted), the value to a general practitioner of having held one or more resident hospital posts is incalculable. "In after-life," writes Sir William Macewen, "one can generally pick out those who have been thus trained, as they gain a confidence and reliance and experience which they cannot easily obtain elsewhere."

Consultants and Specialists.

As for those whose aim it is to become a consultant or specialist, their path, though full of interest, is seldom smooth. For them success will depend in the long run not only upon mental gifts and capacity for hard work, but (as is true of practitioners of all branches) on the possession of those qualities which inspire confidence both in patients and in colleagues. As Sir Clifford Allbutt has well said: "In practice, personal tact and character are as important to the operations of a physician as scientific equipment." Moreover, since the consultant or the specialist can scarcely hope at first to pay his way by consulting work or by the practice of his specialty, he must either have the means to support himself for an uncertain period or be prepared by teaching or in other ways to defray expenses; a hospital appointment is almost indispensable. The question of additional degrees and diplomas is of special moment to those whose ideas turn

[1] *Handbook for Recently Qualified Medical Practitioners.* 1923. British Medical Association, 429, Strand, W.C.2. 2s. 6d. net.
[2] *An Index to General Practice.* By A. Campbell Stark, M.B. [illegible] Baillière, Tindall and Cox. 5s. net.

in Midwifery practitioners of over five years' standing are exempted from examination by printed questions. The other grades of the College are Members and Fellows. The former are admitted after an examination which is open to all university graduates in medicine and Licentiates in medicine of Royal Colleges of Physicians, and deals with the general subjects of medicine. Fellows are selected, by vote, from among the Members of the College, irrespective of sex.

Fees.—For the Licence in Medicine, 15 guineas; Special Examination, £21; for the Licence in Midwifery, 8 guineas; Special Examination, 16 guineas. For the Membership, 20 guineas to a Licentiate of the College, 35 guineas to others; a special examination costs 10 guineas extra. The Fellowship, £35, in addition to stamp duty, £25.

Information as to special examinations and other matters can be obtained from the Registrar, the Royal College of Physicians, Kildare Street, Dublin.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

THIS body, besides granting a Licence in Surgery, admits those possessed of registrable surgical qualifications to its Fellowship under certain conditions. Its Licence is usually granted conjointly with that of the College of Physicians, but it is given separately to holders of a registrable qualification in medicine, provided the College is satisfied that adequate courses of study have been pursued, and provided its own provisional examination is passed. This examination is held on its behalf by the Conjoint Board, and is identical with the ordinary surgical portion of the examinations imposed by that body.

The Fellowship.—Candidates for the Fellowship must pass two examinations, of which the first is in anatomy (including dissections), physiology, and histology; and the second in surgery (including surgical anatomy) and pathology. Both examinations are partly written, partly practical, and partly viva voce; while the final examination includes the performance of operations. All subjects of either examination must be passed at one time, and to neither can a candidate be admitted who has been rejected in any of its subjects by any other licensing body within three months. Candidates are not admitted to the Primary Examination except on evidence that they have already passed an examination in anatomy, physiology, and histology, held by some university or other body whose degrees or licences entitle the holder to admission to the *Medical Register*; if, however, the candidate's name is on the Colonial or Foreign List in the *Medical Register*, at the discretion of the Council. Candidates for the Final Examination must be over 25 years of age, produce a certificate of general good conduct signed by two or more Fellows of the College, and, if successful, must make a declaration before admission to the effect that they do not conduct dispensing practices, and will not do so as long as they are Fellows.

Fees.—Candidates for the Licence pay 5 guineas for examination, which sum, if they pass, is counted as part of the fee payable on admission to the Licence, this being 25 guineas. Candidates for the Fellowship pay 5 guineas for each examination, the total of 10 guineas being reckoned as part of the fee payable on admission to the Fellowship. That fee is 25 guineas in the case of those who are already Licentiates, and 40 guineas in the case of others.

APOTHECARIES' HALL OF IRELAND.

A DIPLOMA is granted by this Hall which entitles the holder to be registered as a practitioner of medicine, surgery, and midwifery, and confers also the privileges of an apothecary. Two periods of dissection, each not less than six months, must be included, and twenty-seven months of hospital attendance, or its equivalent. Three professional examinations have to be passed; they are held three times a year. The Primary Examination deals with biology, physics, and chemistry, practical and theoretical; the Intermediate Examination is in practical anatomy and physiology, and histology and materia medica. A candidate who has passed tests in any of the subjects of these examinations before another licensing body is exempt from further examination in such subjects. The Intermediate Examination, Part II, consists of pathology, medical jurisprudence, and hygiene. The Final Examination deals with medicine, surgery, midwifery, and pharmacy. The Hall's own examination in all these subjects must be passed. Women candidates are eligible.

Fees.—Primary Examination, £10 10s.; Intermediate Examination, £10 10s.; Final Examination, £21; Final alone, when the others have been passed elsewhere, £26 5s.

Application for other information should be made to the Registrar, 95, Merrion Square, Dublin.

MEDICAL SCHOOLS AND COLLEGES.

LONDON.

INFORMATION as to the fees at each of the various metropolitan medical schools, and the scholarships, prizes, and junior appointments which they offer, will be found in the following pages. The courses they provide are fundamentally the same, and in all of them the arrangements made are such as to meet the requirements of students of every class—of those who are aiming at the diplomas of the English Conjoint Board or the Apothecaries' Society, not less than of those who have London or other university degrees in view. At all, too, special facilities are offered to students who have commenced their professional education at Oxford or Cambridge.

CHARING CROSS HOSPITAL.

THIS school, with its hospital, is situated in the centre of London, and is easily accessible. Primary and intermediate students attend lectures and practical work at King's College. The final studies are taken in the school and hospital, where systematic lectures, demonstrations, and tutorial classes are arranged to cover all the subjects necessary for the qualifying examinations. Departments are also available for the other final subjects of bacteriology, clinical pathology, materia medica, toxicology, public health, operative surgery, and for research work. An Institute of Pathology, with a whole-time staff of scientific workers and fully equipped laboratories, has been established in the school. Students receive their training in preventive medicine, pathology, and bacteriology here, and are encouraged to undertake research.

Women students are admitted to the school and hospital upon the same terms and conditions as men, and after qualification are eligible for resident hospital appointments. A separate common room and a female attendant are provided, but beyond this no further distinction is made.

The fees are at present under revision.

Further information may be obtained on application to the Dean of the Medical School, Charing Cross Hospital, London, W.C.2.

GUY'S HOSPITAL.

THE hospital contains 626 beds in constant occupation. Twenty-six beds are set apart for diseases of the eye, and 40 for the most urgent and interesting medical cases, which form the subjects of the weekly clinical lectures. There is a special ward of 30 beds for the reception of cases of diseases of women and for cases of difficult labour. Beds are also allotted to the throat and ear departments, the orthopaedic department, the department for the treatment of diseases of the genito-urinary system, and the children's department; there are also some special beds for the treatment of syphilis.

The residential college fronts the east gate of the hospital, providing accommodation for resident students. This contains a dining hall, reading rooms, a library of general literature, and a gymnasium for the use of the residents and of the members of the Clubs Union. The athletic ground at Honor Oak Park is reached from the hospital in twenty minutes. The Gordon Museum of Pathology, the Wills Library, the Departments of Chemistry, Physics, Pathology, and Pharmacology, and the school buildings in general, afford opportunities for a liberal education and for research and provide the full curriculum for a medical qualification. New departments of Anatomy, Physics, and Biology were opened in July, 1923. They are equipped on modern lines, and provide ample accommodation for teaching and research. Special classes are held for the First and Second Examinations for medical degrees of the University of London and for the first F.R.C.S.Eng. Special teaching is provided to meet the

that medical men and women must band themselves together for the common protection of their profession and themselves. The first step after qualification should be to become an active member of the British Medical Association and to join one of the two professional defence societies. A young practitioner will find in the meetings of the local Division of the British Medical Association many opportunities, not only of keeping abreast with the progress of medicine, but also of friendly intercourse with colleagues.

The Association was founded in 1832 to promote the medical sciences and to maintain the honour and interests of the profession. A brief note on its objects and constitution, and the advantages offered to members, will be found at page 398. The record of ninety years' work shows that professional organization, directed with wisdom and imagination, can successfully combine service for its members with service for the public. Greater work remains to be done in each direction, and we look to the rising generation of doctors to take their share.

THE NEW ERA IN MEDICAL EDUCATION.

A FULL account of the resolutions and recommendations of the General Medical Council which have applied since the beginning of 1923 is given in the present issue of the JOURNAL. Here we propose to indicate some of the salient features of the new scheme, both of study and of examination.

The Revised Curriculum.

The minimum age for registration as a medical student has been increased from 16 years to 17 years. Formally, the length of the medical curriculum is not added to; practically it is, by transferring to preliminary study and examination the subjects of elementary physics and chemistry in their purely scientific aspects. In their applications to the professional courses—as in biophysics, biochemistry, and pharmacological chemistry—appropriate instruction is to continue throughout the curriculum, and is to be tested by examination, so that the student shall no longer be able to put behind him as passed and done with the knowledge which he acquired as a preliminary. If he has had no facilities at a secondary school or otherwise for obtaining what is necessary for the preliminary examination in these subjects, then he can come for it to the university or college, but study there will not count for the medical curriculum.

In biology it is understood that comparatively few secondary schools are equipped for elementary tuition, but the Council has suggested an ingenious arrangement for utilizing the work of such schools as are qualified for the purpose. The examination will not be "pre-curriculum," but the instruction may be so, and a licensing body can allow students who so desire to sit for the examination immediately after matriculation. Here again, however, the applications of biology to medicine, surgery, and midwifery will continue to receive attention throughout the courses.

The Council attaches great importance to the reservation of sufficient time for the later subjects of study, free from all worries about passing the examinations of the earlier parts. To that end it recommends what is practically a block system. A minimum of three years should be available, not merely after the courses of anatomy and physiology have been taken, but after the professional examinations have been passed. The value of this proposal is obvious.

Examination Reform.

Another notable feature is that in assessing marks in the several examinations account may be taken of "duly attested records of the work done by the candidate throughout his course of study" in the subject. This is an effort to meet the long felt difficulty that a man's mental agility, or the want of it, counts far too much in his being passed or rejected. The difficulty is real, but the remedy is not easy, and the Council is wise in the cautious approach it makes towards a solution. Where, as in the colleges, a student will only by chance come before his own teacher as an examiner, absolute impartiality in the attested records will be necessary. A teacher must not play for popularity with students by too easy certification of diligence or success in class. On the other hand, at the universities, where the teacher is always one of the examiners, no personal like or dislike of a student must influence the report of the internal to the external examiner. The class records should, of course, be available, but the scheme will put a serious ethical obligation on all concerned, and the Council will doubtless watch its operation with keen and critical interest.

Besides the Resolutions of the General Medical Council in regard to professional education and examination (see pages 355-358), a series of additional Resolutions was adopted on May 26th, 1922, as follows:

(*a*) That throughout the whole period of study the attention of the student should be directed by his teachers to the importance of the preventive aspects of Medicine;

(*b*) That each Licensing Body should make adequate arrangements for the effective correlation of the several subjects of study throughout its curriculum;

(*c*) That the teaching of Anatomy and Physiology should include as a regular part of the courses the demonstration on the living human body of structure and function;

(*d*) That the curriculum should be so arranged that a minimum period of three years shall in every case be available for study after the completion by the student of the Professional Examinations in Anatomy and Physiology held at the close of the second year;

(*e*) That the curriculum should be so framed as to afford sufficient opportunities for the study, during the last three years of the course, of Physics, Chemistry, Biology, Anatomy, and Physiology in their practical applications to Medicine, Surgery, and Midwifery, and that the student's knowledge of these applications should be subject to test in the Final Examination;

(*f*) That before the student is admitted to his clinical appointments he should have received practical instruction in clinical methods and in the recognition and interpretation of physical signs;

(*g*) That instruction should be given, in the courses of Forensic Medicine and Public Health or otherwise, on the duties which devolve upon practitioners in their relation to the State, and on the generally recognized rules of Medical Ethics. Attention should be called to all *Notices* on these subjects issued by the General Medical Council.

Training in Preventive Medicine.

The first of these resolutions should be borne in mind by every teacher throughout the whole curriculum, and not merely in the clinical subjects. As indicated in a questionary issued by the Council in 1918, all the earlier subjects—Physics, Chemistry, Biology, Physiology, Anatomy, and, of course, Pathology, Bacteriology, and Therapeutics also—afford opportunities from the very beginning for instilling into the mind of the student the necessity for his keeping constantly in view, in all the advice and treatment he may give throughout his professional life, the primary importance of promoting the general health of those who entrust themselves to his care, and of preventing trivial ailments from developing into definite disease. In his presidential address to the Council five years ago Sir Donald MacAlister pointed out that if "the efficient practice of their profession" by doctors was "to be judged by new civic standards, and to be carried on under new conditions," the student would have to be trained accordingly. The era of that training has begun formally this year. Though no details are given in resolution (*a*), and though it may require some change of orientation by teachers who have hitherto given no special heed to the bearings of their subject on the maintenance of health and the prevention of disease, yet they will doubtless join heartily in what will indeed be an epoch-making advance in medical education in this country. Its reflex and reward will surely be found as time passes in a diminution of sickness and prolongation

Pathology, £25; Prizes in Clinical Medicine, Surgery, and Obstetrics and Gynaecology, £20 each; Duckworth Nelson Prize, in Practical Medicine and Surgery, £10; Hutchinson Prize in Clinical Surgery, £40; Sutton Prize in Pathology, £20; Sir Andrew Clark Prize in Clinical Medicine and Pathology, £26; Anderson Prizes in Elementary Clinical Medicine, £20; Dressers' Prizes, £40; Practical Anatomy Prizes, £10; Arnold Thompson Prize, in Medical and Surgical Diseases of Children, £15; Harold Fink Prize in Dental Surgery, £5 5s. The London Hospital Medical College and the Eliza Ann Alston Medical Research Funds amount to over £26,000.

Fees.—Entrance fee, 20 or 15 guineas, according to examinations passed; annual fee, 40 guineas.

Full information may be obtained from the Dean at the London Hospital Medical College, Mile End, E.1.

THE MIDDLESEX HOSPITAL.

THE school and hospital are in Mortimer Street, W., close to Oxford Circus, Goodge Street, and Great Portland Street stations. There are prosperous athletic clubs and a gymnasium within the hospital precincts. The hospital contains over 450 beds, including a wing containing 92 beds for patients suffering from cancer. There are special wards for maternity and gynaecological cases, for mental cases, for cases of venereal disease and for diseases of children and of the skin and eye.

The medical school, which includes the Bland-Sutton Institute of Pathology and the cancer research laboratories, is completely equipped for teaching the entire medical curriculum, including the pre-medical subjects, chemistry, physics, and biology. The Bland-Sutton Institute, under the charge of the Professor of Pathology, contains large pathological and public health laboratories, and smaller rooms for original investigation as well as a pathological and anatomical museum. Bacteriological, chemical, and microscopic examinations of material from the wards, operating theatres, and out-patient departments are carried out in the laboratories, and senior students are eligible for clerkships in connexion with this work. Every facility is given for original research. The cancer research laboratories offer unrivalled opportunities for the study of this disease, in both its clinical and pathological aspects. Several valuable scholarships are awarded in this connexion. Students also receive special instruction in the electro-therapeutic and electro-cardiographic departments.

Appointments.—Twenty-two resident appointments are open annually for competition among students of the hospital. The officers reside and board in the residential college free of expense. Two casualty medical and two casualty surgical officers, and two resident officers to the special departments, are appointed annually. Eight house-surgeons are appointed every year at intervals of two months, after examination; six house-physicians are also appointed annually at similar intervals. An obstetric and gynaecological house-surgeon is appointed every six months. In the out-patient departments the appointments are: clerk and dresser to the physicians and surgeons to out-patients; clerk in the departments for diseases of the skin and nervous diseases; dressers to the department for diseases of women, to the ophthalmic surgeon, to the throat and ear department, and to the dental surgeon. Extern midwifery clerks and *post-mortem* clerks are also appointed. The appointments are so arranged that every student may, during his course, hold all the out-patient and in-patient clerkships and dresserships. Students must have held an out-patient clerkship and dressership before holding in-patient clerkships or dresserships. Non-resident qualified clinical assistants are appointed in the Medical, Surgical, Skin, Neurological, Ophthalmic, Throat and Ear, Odontological, Children's, and Electro-therapeutic Out-patient departments.

Scholarships.—There are three Entrance Scholarships, value £100, £50, and £25 respectively. An annual Entrance Scholarship, of the value of £50, is open to students of the universities of the United Kingdom who have completed the curriculum for, or passed the examinations in, anatomy and physiology. Students joining the school in the previous April are eligible. The Freer Lucas Scholarship is annually awarded on the nomination of the head master to a pupil of Epsom College who has passed the first examination for medical degrees (Preliminary Scientific Examination). There is also a scholarship, value £50, awarded annually to students from New Zealand. In addition to the Entrance Scholarships, there are numerous other valuable scholarships, prizes, and exhibitions open to students of the hospital, including the Brodrip Scholarship, value £60 and £40; Lyell Gold Medal and Scholarship, value £55 5s.; Freeman Scholarship, value £30; John Murray Gold Medal and Scholarship, value £25; Hetley Clinical Prize, value £25; Leopold Hudson Prize, value 11 guineas; and the Second Year's Exhibition, value 10 guineas.

Fees.—(*a*) Pre-medical students: For one year or less, £21. (*b*) Students who have completed the Preliminary Science course; Entrance fee, 15 guineas; five annual fees of £42. The annual fee for further attendance at the medical school, if a registrable qualification has not been obtained, is £21. Three-quarters, one-half, or one-quarter of the last annual fee may, at the discretion of the School Council, be returned if the student obtains a registrable qualification within three, six, or nine months of the annual payment becoming due. (*c*) Oxford and Cambridge and other students who have completed the Intermediate course: Entrance fee, 10 guineas; two annual fees of £42; further annual fees as above.

Further information may be obtained from the Dean or the School Secretary.

ST. BARTHOLOMEW'S HOSPITAL.

THIS institution fills one side of Smithfield and Giltspur Street, sharing with the Post Office buildings a large island of ground separated practically from all other buildings; it is on the edge of the City, and easily reached from all parts of London. The hospital contains 757 beds. Extensive buildings, opened in July, 1907, occupy part of the ground acquired from the old Bluecoat School, and these materially enhance the attractions of the hospital as a place of medical study. The medical school buildings, including the library and the chemical, physical, biological, and physiological laboratories, and anatomical department, have now at their side a very large building, which includes club rooms for the Students' Union, a writing room, luncheon and dining halls, new quarters for the resident staff, and an out-patient department and accommodation for special departments of such large size as to be unsurpassed by any hospital in the kingdom. During the year 1909 a second block of new buildings was completed. These form the pathological department, and include, in addition to an extensive *post-mortem* room, large and well equipped laboratories for clinical pathology, pathological histology, bacteriology, and chemical pathology, altogether forming the most complete pathological department in the country. Within the precincts of the hospital also there is a residential college for a large number of students. The Students' Union owns, moreover, grounds of some 10 acres in extent for recreative purposes at Winchmore Hill, which is easily accessible from the hospital.

Special classes are held for students preparing for the Preliminary Scientific and other examinations, for the M.B., M.D. of the Universities of London, Oxford, and Cambridge, and for the higher surgical degrees at the same universities, including the M.Ch.Oxon., M.Ch.Cantab., M.S.Lond., and F.R.C.S.Eng. Special laboratory instruction for the D.P.H. of Cambridge, Oxford, Durham, and London is also given.

Clinical Units.—Special Clinical Units have been established in Medicine and Surgery, each under the charge of a professor and director who devotes the whole of his time to the purpose of hospital practice, teaching, and research. In each unit there are an assistant director and four assistants, for whom special laboratory accommodation is provided. The appointments of clerks and dressers are open to all students in these departments, and arrangements are made for all students to study in these units during a part of their clinical course.

Appointments.—Clinical clerks to the physicians and to the physician-accoucheur, and dressers to the surgeons and in the casualty department, are chosen from the students; clerks and dressers are also selected from the students to attend in the out-patient rooms, in the special departments (Ophthalmic, Orthopaedic, Gynaecological, Children's, Laryngological, Aural, Dermatological, Venereal, Electrical, and Dental), and in the *post-mortem* room. Chief assistants and clinical assistants are selected from qualified men appointed yearly to help in the general medical, surgical, and in the special departments. Ten house-physicians and ten house-surgeons are appointed annually. During their first six months of office they act as "junior" house-physicians and house-surgeons, and receive a salary of £80 a year. During

the applicant is residing—England and Wales, or Scotland, or Ireland. It must be made on a special form, which can be obtained from one of the offices of the General Medical Council itself or from one of the various licensing bodies and medical schools.

The regulations with regard to registration apply equally to medical and dental students, with the exception that in the case of the latter pupilage with a registered dental practitioner may be regarded as a commencement of professional study, and that applications for registration should be addressed to the London office only.

PROFESSIONAL EDUCATION.

The rule is that it is only from the date which appears against his name in the *Students Register* that the medical student's career officially begins; thereafter five years must pass before he can present himself for the final examination for any diploma which entitles its lawful possessor to registration as a qualified medical practitioner under the Medical Acts; but to meet the circumstances brought about by the dates at which sessions of the medical schools begin and end, the close of the fifth year may be reckoned as occurring at the expiration of fifty-seven months from the date of registration. In any case, the period of five years must be one of bona fide study, and in every course the following subjects should be included:

(i) Elements of General Biology, including an introduction to Embryology. This course, if the Licensing Bodies permit, may be taken before registration, and the examination may be passed immediately after registration.

(ii) Chemistry, Physics, and Biology in their application to Medicine.

(iii) Human Anatomy and Physiology, including Histology, Elements of Embryology, Biochemistry, and Biophysics.

(iv) Elementary Bacteriology, prior to regular clinical appointments.

(v) Pathology general, special, and clinical, and Morbid Anatomy.

(vi) Pharmacology and Materia Medica, to be taken concurrently with clinical instruction.

(vii) Forensic Medicine, Hygiene, and Public Health.

(viii) Medicine, including applied Anatomy and Physiology, Clinical Pathology and Therapeutics, Children's Diseases, Acute Infectious Diseases, Tuberculosis, Mental Diseases, Skin Diseases, and Vaccination.

(ix) Surgery, including applied Anatomy and Physiology and Clinical Pathology, Anaesthetics, Diseases of the Eye, Ear, Throat and Nose, Radiology, Venereal Diseases, and Orthopaedics.

(x) Midwifery and Diseases of Women, including ante-natal conditions and infant hygiene.

The Council recommends that during the last three of the five academic years clinical subjects shall be studied.

The first two years must be passed at a school of medicine recognized by any of the licensing bodies enumerated in the schedule to the Medical Act of 1858, and the remainder must be devoted to clinical work at any public hospital or dispensary at home or abroad which is recognized by a licensing body.

SPECIAL CONSIDERATIONS.

The requirements of the General Medical Council in respect of the education of those who desire to enter the medical profession have now been given in outline, but before leaving this part of the subject the steps which the aspirant should take may be rehearsed in their due order:

(1) Pass an examination in arts;

(2) Pass an examination conducted or recognized by a licensing body in elementary physics and elementary chemistry.

(3) Enter himself at a medical school or other scientific institution approved by the Council;

(4) Get himself registered as a medical student;

(5) Study for a minimum of five years certain prescribed subjects;

(6) Meanwhile pass sundry intermediate examinations; and at the end of the fifth year pass a "qualifying examination" which will entitle him to receive from a licensing body a legal authority to practise.

The Minimum Period.—It must be remembered that the period of five years is a minimum; more is often required even by the man of good abilities and reasonable industry. Besides these qualities a student, to obtain a registrable qualification in the minimum period of five years, or fifty-seven months, must have a considerable amount of good luck; in other words, he must keep in good health through every term, and never fail at a single examination. Thus, for instance, before presenting himself for any examination he must be "signed up" for the subjects covered by that examination; this means that his teachers have to certify that he has diligently attended the required number of lectures or classes in the subjects in question. If, however, the student happens to be ill during the term when such lectures or classes are taking place he may miss enough of them to make it impossible for him to be signed up. Then, again, should he fail to satisfy the examiners at some examination, he cannot present himself for re-examination for at least three months. This generally entails further consequences, because, apart from the student's success at the next stage in his career being imperilled by the need for restudying the subjects in which he has failed, the Examining Boards usually insist upon a definite interval elapsing between one examination and the next. Further, many Boards have refused to recognize lectures and classes which have been attended before the student has passed the requisite examination in earlier subjects, and the Council now recommends that the professional examinations in anatomy and physiology be passed before the minimum period of three years' subsequent study be entered on. In other words, no clinical study should count as such until these examinations have been successfully completed. Failure at an examination may thus not only mean deferment of the date of examinations, but deferment of the beginning of the student's study of certain subjects. It is thus exceedingly easy for a student to fail to qualify in five years, and, as a fact, the majority of students take longer.

In speaking of the minimum period, it is to be remembered also that that time is only sufficient to gain a registrable qualification, such as a Bachelorship of Medicine or Surgery or the diplomas of the Royal Colleges. Those who wish to take a higher qualification—for instance, the F.R.C.S.Eng.—must prolong their work for another year or more. So, too, must in some cases those who desire to convert their Bachelorship into a Doctorate. This may entail further formal examination, but at some universities the M.D. is obtainable on presentation of a thesis when the Bachelor has attained a certain age and has practised for a certain number of years. However, a student's career proper may be considered, perhaps, to have ended when he obtains his first registrable qualification, for while preparing himself for any further tests he can, and usually does, hold some junior appointment which more or less covers his expenses.

MEMORANDUM ON STUDENTS' REGISTRATION.

The following memorandum has been drawn up by the Registrar of the General Medical Council as to the procedure for those who desire to be registered as medical or dental students.

The requirements for the registration of medical and dental students are the same, and every intending student should, in his own interest, register as soon as he commences his professional curriculum.

A recognized examination in general education must first be passed. If the student intends to obtain a university degree, he should apply to the university he selects for information as to its matriculation requirements in arts or pure science, or as to any examinations which may be accepted in lieu of its matriculation examination. If the student intends to obtain a qualification from one of the licensing corporations (these are the Conjoint Boards in England, Scotland, and Ireland, the Society of Apothecaries of London, and the Apothecaries' Hall of Dublin), any of the examinations indicated below will be accepted. The subjects required are (1) English, (2) Mathematics (elementary), (3) a language other than English, and (4) an additional subject or subjects, as required by the regulations of the particular examination, to be chosen from the following—namely, History, Geography, Physical Science, Natural Science, Latin, Greek, Hebrew, French, German, or other language accepted by the university for matriculation.

The requirements of the preliminary examination in general education being satisfied, it is then necessary to pass an examination in Elementary Chemistry and Elementary Physics, which is conducted or recognized by one of the licensing bodies—that is, university or corporation. The student should write to the body whose qualification he desires to obtain (a list will be found below) for information in regard to its requirements for this examination.

These two examinations having been passed and the student having attained the age of 17 years, he should apply to one of the universities or one of the medical schools for admission in

students are enabled to follow closely the practice and teaching of the out-patient staff. There is a full complement of special departments, and connected with the hospital a special tuberculosis department gives opportunity for instruction of students. There is a clinical theatre, centrally situated, so as to facilitate the illustration of lectures by patients from the wards and out-patient room; it is arranged also for lantern demonstrations. The maternity ward, containing 20 beds, gives students full facilities for maternity training, under supervision, within the precincts of the hospital. This obviates any necessity for supplementary instruction elsewhere, and fully prepares the student for the extern maternity practice of the hospital district. The revised regulations of the examining bodies can thus be fully complied with.

Appointments.—All hospital appointments are open to students without charge. A resident assistant physician, a resident assistant surgeon, and a resident anaesthetist are appointed annually at a salary of £200 each per annum. Two hospital registrars, medical and surgical, at an annual salary of £250 each, are appointed yearly. The tenure of these offices may be renewed for a term not exceeding two years. An obstetric tutor and registrar, an ophthalmic registrar (at an annual salary of £50 each), and an orthopaedic registrar (unpaid) are appointed yearly. Ten resident casualty officers and anaesthetists (including two senior) are appointed every six months. Seven house-physicians (including two obstetric house-physicians and one house-physician to the department of diseases of children) and nine house-surgeons (including two ophthalmic house-surgeons, two orthopaedic house-surgeons and one house-surgeon to the ear, nose and throat department) are appointed every six months. Eight or more clinical assistants in the special departments are appointed every three months, and hold office for six months if recommended for re-election. Two research assistants (bacteriological and chemical) are paid £200 per annum each. Clinical clerkships and dresserships to the in-patient and out-patient departments are available to the number of 400 each year.

Scholarships.—There are five entrance Scholarships: Two in Arts, giving one year's free tuition; one of £150 and one of £60, in Chemistry, Physics, and Biology, for students who have not received instruction in Anatomy or Physiology; one of £100 in any two of the following subjects: Anatomy, Physiology, or Chemistry, for students who have completed their examinations in Anatomy and Physiology, for a medical degree in any of the universities of the United Kingdom or the Colonies, and have not entered as clinical students in any London medical school. Valuable scholarships, prizes, and medals are open for competition throughout the whole career of a student, including the Louis Jenner Research Scholarship of the annual value of £60 for Pathological Research.

Fees.—The annual fees are: For each year of study, £50. These fees cover all tutorial classes, but do not include instruction in infectious fevers, pharmacy, and vaccination. Qualified practitioners are permitted to attend the hospital practice on terms which may be ascertained from the Medical Secretary.

Special courses of instruction are given for various examinations, and a register of lodgings is kept at the school. Further information may be obtained from the Medical Secretary of the School, St. Thomas's Hospital, Albert Embankment, S.E.1.

UNIVERSITY COLLEGE HOSPITAL.

THE school, which forms part of the Corporation of University College Hospital, is in immediate proximity to the hospital in University Street, and opposite University College. It comprises departments of medicine and clinical medicine, surgery and clinical surgery, midwifery and gynaecology, pathology including morbid anatomy, chemical pathology, biochemistry and bacteriology, cardiography, forensic medicine, mental physiology and mental diseases, dental surgery, practical pharmacy, and other departments for the study of special diseases, such as those of the eye, skin, ear and throat, venereal diseases, and for instruction in anaesthetics, electrotherapeutics, and skiagraphy. The Hospital and School have acquired the National Dental Hospital and College as their Dental Departments, thus providing every facility for the study of dental subjects. The Royal Ear Hospital, Dean Street, Soho, has also been amalgamated as the Ear, Nose, and Throat Department.

The school thus provides the final course of study for the degrees of the Universities of London, Oxford, Cambridge, Durham, and other British universities, and for the diplomas of the Royal College of Physicians and Surgeons in Medicine and Dental Surgery, and the Licence of the Society of Apothecaries. Special bacteriological classes are also held in preparation for the various diplomas of public health. Each department is also equipped for more advanced work, and provides facilities for research.

Clinical Units in Medicine and Surgery are now in operation. The whole-time directors of the Units are concerned with the organization of the teaching generally, but the honorary staff is responsible for the largest share of the teaching in the wards and out-patient department of the Hospital. A Unit in Obstetric Medicine will be established as soon as the new obstetric hospital now in course of construction is finished.

The new buildings of the obstetric hospital of 60 beds (rendered possible by the Rockefeller benefaction), the new Residents' House (with accommodation for 30 residents and students), the extension of the Nurses' Home, and the new research laboratories for the Medical School, are well under way, and these buildings should be ready for occupation by the Spring of 1924.

Scholarships.—The following scholarships and prizes are open to competition: Two Entrance Exhibitions of 112 guineas each, awarded after a competitive examination in anatomy and physiology; Radcliffe Crocker Travelling Scholarship in dermatology for one year, value about £280; the Graham Scholarship in pathology of a sum not exceeding £300 per annum; Leslie Pearce Gould Research Scholarship in surgery for one year, value about £200; the Atkinson Morley Scholarship of £45 a year for three years, awarded after examination in the theory and practice of surgery; the Atchison Scholarship of £55 a year for two years for general proficiency in medical studies; the Magrath Clinical Scholarship, value about £100; the Filliter Exhibition in pathology of £30; the Percival Alleyn Prize for the advancement of surgery by research, value about £60; the Graham Gold Medal for research work; four Fellows Medals in clinical medicine; Liston Medals in clinical surgery; the Bruce Medal in pathology and surgery; two Tuke Medals in pathology; and the Erichsen Prize for practical surgery.

Fees.—The fee for the full course of final studies at the school is 112 guineas if paid in one sum, or 115 guineas if paid in two instalments. Fees for vaccination and fevers not included.

Appointments.—The qualified appointments, in addition to a number of posts as house-physicians and house-surgeons and obstetric assistants, include the appointments of resident medical officer, surgical registrar, obstetric registrar, Harker Smith radium registrar, casualty medical officers, casualty surgical officers, assistants in ear, nose and throat, ophthalmic, skin and venereal diseases departments, and house anaesthetists.

Particulars of general and special courses can be obtained on application to the Dean of the Medical School, University College Hospital, University Street, W.C.1.

WESTMINSTER HOSPITAL.

THIS school, with its hospital, situate in Broad Sanctuary, opposite Westminster Abbey, provides for the education of its students in the preliminary and intermediate subjects of the University of London at King's College. The rest of the work is done in the school buildings near the hospital. The number of in-patients averages 3,000 and out-patients upwards of 30,000 annually, and the hospital and school afford ample facilities for instruction in all branches of medicine and surgery.

Appointments.—A medical, surgical, and obstetric registrar are appointed annually, each with a salary of £50. Three house-physicians, three house-surgeons, one assistant house-physician, one assistant house-surgeon, and a resident obstetric assistant are appointed after examination, and are provided with rooms, commons, and salary of £50 per annum, except the assistant house-physician and the assistant house-surgeon, who are provided with commons only. The assistant house-physician after three months' service becomes house-physician for a further period of six months, and the assistant house-surgeon after three months' service becomes house-surgeon for a further period of six months. Clinical assistants to the assistant physicians and assistant surgeons,

must be presented to the examiners for assessment in the Final Examination; and no candidate should be allowed to pass who fails to obtain 50 per cent. of the aggregate marks assigned to Clinical and Practical Midwifery and Gynaecology.

19. The Final Examination should include the examination of secretions, the testing of urine, clinical microscopy, and prescription writing, and there should always be an oral examination in Medicine, Surgery, and Midwifery, which should include an examination on pathological specimens.

20. At the Final Examination each candidate should be submitted to a practical and oral examination in Pathology (macroscopic and microscopic), unless this has been included in a Professional Examination preceding the Final Examination.

21. Whatever be the method of entry for the Final Examination all candidates should be required to complete the three portions of the Final Examination within a period of nineteen months.

The English Universities.

THERE are eleven universities in England and Wales, and some account of each of them follows. They all have now fully developed medical faculties. Until recently the only exception was the University of Wales, whose constituent colleges are those of Aberystwyth, Bangor, Cardiff, and Swansea. This university grants degrees, and has laid down a six years' curriculum for candidates for the M.B. and B.Ch. degrees, and it now provides, at the Welsh National School of Medicine at Cardiff (see page 361), instruction in all the subjects of the medical curriculum.

UNIVERSITY OF OXFORD.

THE professional degrees conferred by this university are those of Bachelor of Medicine (B.M.), Bachelor of Surgery (B.Ch.), Doctor of Medicine (D.M.), and Master of Surgery (M.Ch.). It also grants a diploma in Public Health and a diploma in Ophthalmology. On receiving the B.M. the candidate is entitled to registration by the General Medical Council. In favourable circumstances this degree and the B.Ch. may be obtained in six or seven years from matriculation. Before receiving either, the candidate must have taken a degree in Arts (B.A.), for which three years' residence within the university is necessary. This, however, does not necessarily mean deferment of professional study for that period, for some of the subjects chosen for the final stage of the arts course may be the same as those in which examinations would in any case have to be passed for the medical degrees.

In accordance with a statute which came into force on October 7th, 1920, women may be matriculated and admitted to degrees in the university. The statute is retrospective under certain conditions. Before matriculation a woman must have been admitted as a member of one of the five societies of women students (Lady Margaret Hall, Somerville College, St. Hugh's College, St. Hilda's Hall, or the Society of Oxford Home Students). Women members of the university are admitted to all degrees, except those in Divinity, under the same conditions as those laid down for men in regard to examinations, courses of study, and fees, and under corresponding conditions as to residence at the university. Among the university diplomas open to women are those in anthropology, ophthalmology, and public health.

A candidate may obtain the B.A. degree in either of the following ways, of which the latter constitutes the normal course for medical students:

(*a*) By passing Responsions (or one of the examinations which are accepted as equivalent), Moderations, a Scripture examination, or, in the event of a candidate objecting, an examination on some substituted book; and the Final Pass School in three subjects, two of which may be the same as two of the preliminary examinations in natural science.[1]

(*b*) By passing Responsions, the Scripture examination, some of the preliminary examinations in the Natural Science School,[1] or the Honour School of Mathematics in the first public examination; and one of the final honour examinations. The Final Honour School of Natural Science (Physiology) is that usually taken.

[1] The four subjects of the medical preliminary examinations are four of the subjects in the natural science preliminary, and can be commenced directly after passing Responsions

Responsions and the preliminary examinations in Natural Science may be passed before a candidate is a member of the university[1]; Moderations and Scripture can be passed in or after the second term; the final pass school may be taken any time after Moderations; a final honour school may be taken at the end of the third or fourth academical year—that is, within nine or twelve terms respectively; the preliminary examinations of the Natural Science School may be taken as soon as Responsions have been passed.

PROFESSIONAL DEGREES.

To obtain the B.M., B.Ch. degrees the candidate must first pass in four of the subjects of the Preliminary Examination of the Natural Science School—namely, physics, chemistry, zoology, and botany.

He then has two further examinations to pass—the First B.M. and the Second B.M. These take place twice a year, the first on the Thursday, the second on the Wednesday, of the eighth week of Michaelmas and Trinity terms. Every candidate at the First B.M. is examined in human anatomy, in physiology, and in organic chemistry, but is excused from physiology if he has obtained a first or second class in the Honour School of Physiology, and from organic chemistry if he has satisfied the Examiners in Part I of the Honour School of Chemistry. Once he has passed this examination he can, on production of certain certificates, be examined as soon as he pleases in pathology, forensic medicine, and hygiene, materia medica, and pharmacology (subjects of the second examination), but cannot present himself for the remaining subjects—medicine, surgery, and midwifery—until the eighteenth term from the day of his matriculation, and not until a period of at least twenty-two months has elapsed from the date of his passing the first examination,[2] and he must take all the three subjects at one and the same time.

Before admission to the second B.M. examination the student must produce certificates of instruction from a medical school recognized by the university of having acted as clinical clerk and dresser, each for six months, and as *post-mortem* clerk for three months, of attendance on labours, of instruction in infectious and mental diseases and ophthalmology, and of proficiency in vaccination and the administration of anaesthetics.[3] He must also produce certificates of attendance in laboratory courses in pathology, bacteriology, and pharmacology, either in Oxford or in a recognized medical school.

D.M. AND M.CH. DEGREES.

A Bachelor of Medicine who wishes to proceed to the D.M. must have entered his thirtieth term and must present a dissertation for approval by the appointed examiners on a subject previously approved by the Regius Professor of Medicine. If a candidate for the M.Ch. he must have entered his twenty-first term and must pass an examination, which is held in June.

Examinations for the Diploma in Public Health are held in Trinity and Michaelmas terms; that for the Diploma in Ophthalmology is held annually, commencing on the third Monday in July. For the Diploma of Ophthalmology attendance on a twelve months' course of clinical ophthalmology in hospitals or institutions recognized for the purpose by the Board of the Faculty of Medicine, and on a course of instruction in Oxford lasting two months, is obligatory. Candidates must have their names on the *Medical Register* of the United Kingdom, unless, being Bachelors or Doctors of Medicine of universities outside the United Kingdom, they have obtained special permission from the Board of the Faculty of Medicine.

TEACHING.

The several colleges provide their undergraduate members with tutors for all examinations up to the B.A. degree. In addition, the university provides certain courses of instruction, including lectures, demonstrations, and practical work, which cover all the subjects of the Preliminary Examination and First B.M., and in part those of the Final Examination.

[1] Membership is constituted by matriculation and by becoming either a member of a College or a Hall or a non-collegiate student.

[2] For students commencing medical study after December 31st, 1922, this period will be thirty-three months.

[3] For the certificates that will be required from candidates amenable to the new Regulations of the General Medical Council, see *Examination Statutes*, Clarendon Press, Oxford, 1923 edition (in the press).

UNIVERSITY COLLEGE.

THIS institution, one of the principal component parts of the University of London, possesses a Faculty of Medical Sciences whose work covers all the subjects included in the group commonly known as the preliminary medical sciences—namely, physics, chemistry, botany, and zoology; and also the intermediate medical sciences—namely, anatomy, physiology, and pharmacology. The new anatomy building, provided by the munificent gift of the Rockefeller Foundation of New York, was opened on May 31st, 1923, by His Majesty the King. This building forms part of the block which includes physiology and pharmacology. The Department of Hygiene and Public Health prepares for the diplomas in public health of the Royal Colleges and of the various universities. Research work is undertaken in all the above named departments. The College undertakes the education of students in all the subjects mentioned, leaving them free to complete their education in the strictly professional subjects—medicine, surgery, and the like—at any one of the recognized schools of advanced medical studies. The work is somewhat differently arranged, according to whether the student has in view the degrees of the University of London or the diplomas of the Royal Colleges. In either case the whole work to be done is divided into courses devised to meet the requirements of different examinations, and students can join the College for any of them. Women students are admitted to all courses on the same terms as men. The general arrangements for the benefit of students include membership of the Union Society or the Women's Union Society with the College gymnasium and the athletic grounds. There is also a collegiate residence for about fifty-five men students at Ealing, and for about seventy women students at Byng Place, Gordon Square.

Scholarships.—The scholarships and exhibitions obtainable include the Bucknill Scholarship, value 135 guineas, in chemistry, physics, botany, and zoology (the successful student must complete his work at University College Hospital Medical School), and two entrance exhibitions in the same subjects, each of the value of 55 guineas.

Fees.—The fees for the courses covering the work of the First Examination for medical degrees of the University of London, and in both parts of the Second Examination, amount to 115 guineas. The fees for the courses covering the corresponding examinations held by the Conjoint Board in England also amount to 115 guineas. These fees may be divided into payments for the different courses which it may be desired to take out, but do not cover tuition for more than a stated period.

A handbook specially relating to this faculty may be obtained on application to the Secretary of University College, Gower Street, London, W.C.1.

THE PROVINCES.

THERE are in England and Wales, not counting London, ten medical schools, each supplying instruction in the full medical curriculum. Accounts of them here follow. In several cases there is appended information concerning hospitals other than those directly connected with the school in question; such hospitals, officially and unofficially, play a part in the education which the students of the school receive, and in any case serve as places of additional or post-graduate study.

OXFORD AND CAMBRIDGE.

BOTH at Oxford and Cambridge there are medical schools which furnish unsurpassed opportunities for obtaining a good knowledge of the preliminary sciences and of anatomy, physiology, and pathology. The laboratories are excellently furnished, and the teaching staffs most distinguished. Both schools provide a full medical curriculum, and there is no essential reason why the student should not complete his career at either of them, but this is not commonly done. The local hospitals, though well equipped, are comparatively small. The university authorities therefore encourage the students, as soon as they have completed the earlier examinations and taken a degree in Arts, to join some London school, and thus spend the time of their preparation for the final examinations in a city where the opportunities for gaining clinical knowledge are greater and more varied. A considerable proportion of Oxford and Cambridge medical students take the London Conjoint diplomas before graduating in medicine and surgery at their own university.

BIRMINGHAM.

THE school in this city is carried on by the Medical Faculty of the University of Birmingham, its students having an adequate number of good laboratories, classrooms, and other necessaries devoted to their use by the university. The clinical work is done at the General and Queen's Hospitals, which are amalgamated for this purpose. Together they have upwards of 600 beds for medical, surgical, and special cases, and with an array of special departments of all kinds, including one for lying-in women. Clinical instruction is given in the wards and out-patient and special departments daily, and formal clinical lectures delivered weekly throughout the winter and summer sessions. Special tutorial classes are also held alike for the degrees of Birmingham and some other universities and for the diplomas of corporations.

Appointments.—The large number of appointments open to past or other students includes the following:—At the General Hospital: surgical registrar, £200 a year; one resident medical officer, salary £155 a year; one resident surgical officer, salary £180 a year; one resident pathologist, salary £70 a year; two visiting anaesthetists, salary £50 a year; four house-surgeons, office tenable for nine months, £70 a year; one house-surgeon to the gynaecological and one to the special departments, each tenable for six months, £70 a year; three house-physicians, post tenable for six months, £70 a year. At the Queen's Hospital: three house-physicians and three house-surgeons (posts vacant in January and April): one obstetric and one ophthalmic house-surgeon (posts vacant in April and October). These appointments are tenable for six months. Salaries at the rate of £70 per annum, with board, lodging, and washing. One resident dresser, tenable for three months; candidates must previously have attended their third year lectures, etc., and need not be qualified; honorarium, £13 13s. on completion of duties. Four non-resident obstetric students who hold office for one month and receive board only at a payment of £1 1s. a week. At the Maternity Hospital: one house-surgeon, salary £50 a year. At the City Workhouse and Workhouse Infirmary: five resident medical officers. At the Birmingham General and Branch Dispensaries: twelve resident surgeons. At the Birmingham Mental Hospitals: five assistant medical officers. At the City Fever Hospitals: three assistant medical officers. At the Children's Hospital: one resident surgical officer, one resident medical officer. At the Birmingham and Midland Eye Hospital: four resident surgeons. At the Orthopaedic and Spinal Hospital: two clinical assistants (non-resident). At the Ear and Throat Hospital: one house-surgeon, £70 a year; four clinical assistants (non-resident). Four non-resident Poor Law appointments are in the gift of the Board of Guardians.

Scholarships.—There are numerous money and other awards for students of sufficient merit, among them being the following: The Walter Myers Travelling Studentship of £300, offered in 1923, and in each alternate year succeeding, tenable at home or abroad; the Sands-Cox Scholarship of £42 (an entrance scholarship in the Faculty of Medicine, awarded on either matriculation or First M.B. marks); four Queen's Scholarships of £10 10s. each, awarded annually at the second, third, fourth, and final university examinations respectively; one or more Sydenham Scholarships, allotted on entrance to students who are the sons of deceased medical men; the Ingleby Scholarships (two) of £10 for proficiency in midwifery and diseases of women; the Arthur Foxwell Memorial Gold Medal (Clinical Medicine) at Final M.B. examination. There is also an entrance scholarship of £37 10s. for students proceeding to a degree in dental surgery. University Clinical Board Prizes are awarded annually as follows: Senior Medical prize, Gold Medal; Senior Surgical Prize, Gold Medal; Midwifery Prize, Gold Medal; Junior Medical Prize, Silver Medal; Junior Surgical Prize, Silver Medal.

Fees.—The composition fee for university classes is £105 5s. This covers all the work required for the degrees of Birmingham and some other universities, and for the ordinary qualifications of licensing corporations, but not the additional courses required for the Fellowship of the Royal College of Surgeons of England, the diploma and degrees of the university in State Medicine, and some other special work. The total cost for the five years' curriculum, including hospital and examination fees, is estimated at £197 0s. 6d.

Other information should be sought from the Dean of the Medical Faculty, University, Edmund Street, Birmingham.

other way; and, unless they are already registered medical practitioners of a certain age and standing, all students must pass not less than five and a half years in professional study subsequent to matriculation.

PROFESSIONAL EXAMINATIONS.

M.B., B.S.—There are three examinations, the last two being subdivided. They are held twice a year.

The First Examination covers inorganic chemistry, general biology, and physics, there being two papers, a practical test, and a possible oral test in each subject. The names of successful candidates are placed in alphabetical order, with a note as to any subject in which a candidate has distinguished himself or herself.

The Second Examination, Part I, cannot be passed within six months of the passing of the First Examination. It covers organic and applied chemistry, the candidate's knowledge being tested as in the earlier examination. It is a pass examination, but a mark of distinction may be won. Candidates for Part II must have passed the First Examination at least eighteen months previously, besides having completed Part I of the Second Examination. The subjects are anatomy, physiology, and pharmacology, the tests being written, oral, and practical. Candidates who fail in one subject may sit for re-examination in that subject alone if the examiners think fit.

No candidate is admitted to the Third M.B., B.S. Examination within three academic years from the date of his completing the Second Examination. The subjects are medicine (including therapeutics and mental diseases), pathology, forensic medicine and hygiene, surgery, and midwifery and diseases of women. They may be divided into two groups, one comprising medicine, pathology, forensic medicine, and hygiene, and the other surgery and midwifery and diseases of women. Either group may be taken first at the option of the candidate, or the groups may be taken together. Only candidates who show a competent knowledge of all the subjects comprising a group are passed. There is no separate examination held for honours, but the names of successful candidates are divided into an honours list and a pass list, and a university medal may be awarded the candidate who has most distinguished himself in the whole examination.

THE HIGHER DEGREES.

M.D.—An examination for the M.D. is held twice yearly—in December and July. Every candidate must have passed the examination for the M.B., B.S., unless he became M.B. before May, 1904. He may present himself for examination in any one of the following branches: (1) Medicine, (2) pathology, (3) mental diseases and psychology, (4) midwifery and diseases of women, (5) State medicine, (6) tropical medicine, and, if he wishes, may pass also in another branch at a subsequent examination.

The period that must elapse between acquiring the M.B. and sitting for the M.D. in any branch varies between one and two years, according to the nature of the candidate's previous work, and in all cases evidence must be afforded of special study of the subject chosen; both written and practical examinations must be passed, though exemptions can be obtained from the former in exceptional circumstances. In each branch the scheme of examination is the same: two papers on its special subject, a paper on an allied subject—for example, medicine in the case of branch (4), pathology in branch (1)—an essay on one of two suggested topics connected with the special subject, and a clinical or other practical test. In any branch of the M.D. Examination a gold medal of the value of £20 may be awarded.

M.S.—The regulations with regard to the Mastership in Surgery are of a corresponding kind, but there are only two branches in which it may be obtained—General Surgery and Dental Surgery.

FEES.

The examination fees have been raised from pounds to guineas for all examinations held after September 1st, 1918. For Matriculation: 2 guineas for each entry. First Examination: 5 guineas for each entry to the whole examination. For re-examination in one subject the fee is 2 guineas. Second Examination, Part I: 2 guineas for the first and each subsequent entry. Second Examination, Part II: 8 guineas for each entry to the whole examination. For re-examination in one subject the fee is 4 guineas. M.B., B.S. Examination: 10 guineas for each entry to the whole examination, and 5 guineas for examination or re-examination in either group. M.D. and M.S. Examinations: 20 guineas, and 10 guineas on re-examination.

Inquiries should be addressed to the Registrar, the University of London, South Kensington, S.W.7.

UNIVERSITY OF BIRMINGHAM.

THIS university confers the ordinary medical and surgical degrees—M.B., Ch.B., M.D., and Ch.M.—and also diplomas and degrees in State medicine and dentistry. It has a plan, too, by which, extending his study to six instead of five years, the M.B., Ch.B. candidate may become a Bachelor in Science as well. Of the five years' curriculum, the first four must be spent, as a rule, at the university itself, the fifth being passed at any approved school or schools. Occasionally, however, the Senate will reduce the period of enforced residence to three years and exempt from the First M.B. (Part I) those who have passed elsewhere an examination considered to be its equivalent. A degree of Ph.D. is also conferred for research study in medicine under special regulations. Candidates must be graduates in medicine of a recognized university.

Students entering the Medical Faculty for the M.B., Ch.B. degrees must have passed—

(1) Either (*a*) the matriculation examination of the Joint Board of the Universities of Manchester, Liverpool, Leeds, Sheffield, and Birmingham; or (*b*) some other examination recognized as equivalent to the matriculation. Candidates for medical degrees are recommended to take Latin and a science subject—chemistry or physics—at the matriculation examination, although these subjects are no longer compulsory. The matriculation examination of the Joint Board is held in July and September. The regulations and the list of examinations accepted in lieu thereof will be sent on application to the Secretary to the Board, Joint Matriculation Board, 315, Oxford Road, Manchester.

(2) A recognized pre-medical examination in the subjects of chemistry and physics—for example, the Higher School Certificate of the Joint Matriculation Board; or a candidate may attend courses for pre-medical year in the university, October to June, taking chemistry and physics, and biology (optional).

PROFESSIONAL EXAMINATIONS.

The candidate for the M.B., Ch.B. degrees has five examinations to pass. In the second and final examinations the candidate must pass in all the prescribed subjects or undergo the whole examination again.

The First M.B. (Part I) deals with elementary biology, and physical and organic chemistry. The First M.B. (Part II) deals with anatomy and physiology, and the student must pass in both simultaneously. The Second M.B. deals with general pathology and bacteriology, materia medica, and practical pharmacy. The Third M.B. takes place at the end of the fourth year, the subjects being forensic medicine, toxicology, public health, therapeutics, and special pathology.

Final M.B.—This comprises medicine, surgery, midwifery and diseases of women, ophthalmology, and mental diseases. The candidate, in addition to more ordinary certificates, must be prepared with a certificate of having acted as a *post-mortem* clerk for three months, and received special instruction in anaesthetics and clinical instruction in diseases peculiar to women, asylum ward work, ophthalmology, venereal diseases, etc. In respect to ophthalmology he must show that he has learnt refraction work. He also has to present to the examiners reports by himself on six gynaecological cases, and certificates drawn up by himself regarding four actual cases of lunacy and notes on two others.

M.D.—An ordinary candidate for this degree must be a M.B., Ch.B., of not less than one year's standing. He presents an original thesis for approval, and then passes a general examination in the principles and practice of medicine. From the latter the Board of Examiners may exempt a candidate whose thesis is of exceptional merit. The regulations respecting the Ch.M. are of the same general character. Subject to certain requirements as to special research or other post-graduate study, graduates of other universities may obtain the M.D. and Ch.M. in the same way as holders of the Birmingham M.B., Ch.B.

Appointments.—One senior anaesthetist, £50; seven anaesthetists, £25 each; one resident medical and one resident surgical officer, each at £150 per annum; one casualty officer, at £125 per annum; one resident ophthalmic officer, at £100 per annum; one resident aural officer, at £100 per annum; one resident orthopaedic officer, at £150; one ophthalmic house-surgeon, and one resident obstetric officer, at £50 per annum; four house-physicians, each holding office for six months, and four house-surgeons, holding office for six or twelve months. Surgical dressers are appointed every six months; physicians' clerks, ophthalmic and aural dressers, gynaecological ward clerks, gynaecological out-patient clerks, maternity clerks, assistant physicians' clerk, dermatological clerks and assistant surgeons' dressers, dressers in the casualty room, *post-mortem* clerks, and laboratory assistants every three months, and dressers in the venereal clinic every month. A resident medical officer (honorarium at rate of £30 per annum) is also appointed every six months for the Ida Semi-convalescent Hospital. Appointments are also open to students at the Leeds Public Dispensary (four resident medical officers, with salaries commencing at £80), at the Hospital for Women (two house-surgeons, at £50 per annum, and two anaesthetists, £20), and at the West Riding Asylums.

Scholarships.—The university awards annually a scholarship in the form of a free admission to the lectures and classes given in the university, which are covered by the composition fee. The university also awards a scholarship on the results of the first examination, of the value of £68, in the form of a free admission to the clinical teaching of the infirmary.

Fees.—It is estimated by the authorities that the approximate cost of medical education to a student in this university is £300, *plus*, of course, the expenses of living during the five years covered by the curriculum. The fee for a complete course for the First M.B. is £41; the composition fee for the course for the second and third examinations, and for the clinical work at the infirmary, is £174. The composition and clinical fee for those who have passed the second examination is £138.

Further information can be obtained from the Dean and Clinical Subdean, School of Medicine, Leeds.

LIVERPOOL.

THE Medical School of this city is part of the university, and, owing to the enlightened liberality of several men of wealth, is exceptionally well provided with special laboratories, as well as with ordinary spacious and well equipped classrooms and laboratories for the instruction of students proceeding to medical degrees and diplomas in special and ordinary subjects. All the laboratory and other rooms are situated close to one another and intercommunicate, together forming large blocks of buildings. The work of students throughout all stages of their career is arranged upon very satisfactory lines, and the teaching hospitals, of which an account is given below, have amalgamated to form the clinical school of the university.

Appointments.—The nature of the appointments open to past and other students at this school will be gathered from the account which follows of the hospitals forming its clinical department.

Scholarships.—The awards made each year to successful students total over £1,500. They include the following: Two Holt Fellowships, one in Pathology, the other in Physiology; a Robert Gee Fellowship in Anatomy; two John Rankin Fellowships in Anatomy; a John W. Garrett International Fellowship in Bacteriology; a Johnston Colonial Fellowship in Biochemistry; an Ethel Boyce Fellowship in Gynaecology; and a Thelwall Thomas Fellowship in Surgical Pathology; one University Fellowship (value of Fellowships: one at £150, two at £120, seven at £100); a University Scholarship of £25, awarded on the results of the Second M.B. Examinations; a Scholarship in Mechanical Dentistry of £20; two Lyon Jones Scholarships, of the annual value of £21 each for two years, one for the junior and the other for senior students; the Derby Exhibition of £15; the Clinical School Exhibition of £15; the Owen T. Williams Prize; the Torr Gold Medal in Anatomy; John Rankin Exhibition in Practical Anatomy, £25; the George Holt Medal in Physiology; the Kanthack Medal in Pathology; Mitchell Banks Medal in Anatomy; the Robert Gee Prize of £5 5s. in Children's Diseases; Mary Birrell Davies Memorial Scholarship, £60 per annum for four years; two Robert Gee Entrance Scholarships, each of the value of £25 per annum for two years; Dental Operating Prizes (four); Orthodontia Prizes (two); Samuels Memorial Scholarships, three at £20 each; one Thomas H. Bickerton Prize in Anatomy; Dr. N. E. Robert Prize in Zymotic Diseases; Ash's Prize in Dental Surgery, value £2 2s.; Gilmour Medal; and other Entrance scholarships.

Fees.—Information as to the fees for the courses of instruction provided by the schools should be sought from the Dean of the Medical Faculty.

The Clinical School.

As many as ten hospitals have combined to form the clinical school of the university, these being: The Royal Infirmary, the David Lewis Northern Hospital, the Royal Southern Hospital, the Stanley Hospital, the Royal Liverpool Children's Hospital, the Hospital for Women, the Liverpool Maternity Hospital and Ladies' Charity, the Eye and Ear Infirmary, St. Paul's Eye Hospital, and St. George's Hospital for Diseases of the Skin. Between them they provide about 1,150 beds.

MANCHESTER.

THE staff of the Medical School in this city constitutes the Medical Faculty of the Victoria University, all the arrangements for the instruction of students, both in their earlier and their later studies, being of an elaborate nature. The clinical work of the undergraduates is done chiefly in connexion with the Royal Infirmary, an institution which itself contains about 592 beds, and has associated with it a large convalescent home (136 beds), and the Royal Lunatic Asylum at Cheadle (430 beds). Instruction in practical gynaecology and midwifery is given at the Royal Infirmary and the St. Mary's Hospitals.

Appointments.—The following are among the appointments open to past and present students of this school in connexion with its arrangements for clinical tuition: A surgical registrar, at £150 per annum; a pathological registrar, at £350 per annum; two medical registrars, at £150 per annum; a surgical tutor, at £30 per annum; a director of the clinical laboratory, at £400 per annum, and one assistant director at £300; three assistant medical officers and three assistant surgical officers, each at £35 per annum; one assistant surgical officer, aural department, at £35 per annum; five anaesthetists, two at £75 and three at £100 per annum; one radiological registrar, at £250 per annum; one resident medical officer, one year, £250 per annum; ditto at Cheadle, one year, £300 per annum; one resident surgical officer, one year, £250 per annum; two resident medical officers for Central Branch, £200 and £100 per annum; one accident room house-surgeon, six months, £200 per annum; one assistant medical officer at the Convalescent Hospital at Cheadle, appointed every six months, at a salary of £80 per annum; ten senior and ten junior house-surgeons and ten house-physicians, appointed during the year for a term of six months, at a salary of £50 for the first six months, and £100 for the second six months. Resident officers are appointed to the gynaecological, the eye, and the ear and throat departments every three months. Clinical clerks and surgical dressers are appointed to the various departments of the hospital every three months.

Entrance and other Scholarships.—The following are among the scholarships obtainable by students of the school: Rogers and Seaton Scholarships in Arts (in alternate years), £40 per annum, tenable for two years. Derby Entrance Scholarship in Mathematics, tenable for one year, value £25, one being awarded annually, except in such years as a Cartwright Scholarship is awarded. Cartwright Scholarship, £35 per annum, tenable for three years. Three Hulme Scholarships, tenable for three years, of £35, one being awarded annually for proficiency in subjects of general education. Two James Gaskill Scholarships of £35, tenable for two years, one being awarded annually for proficiency in the branches of mechanics and chemistry. A Dora Muir Scholarship, £30 per annum, tenable for three years, and open to the competition of women students only. This is awarded triennially. Sir J. P. Kay-Shuttleworth Scholarship, £30 per annum, tenable for three years, awarded triennially, open to the competition of scholars from Sedbergh School, Giggleswick School, and Burnley Grammar School. Subjects: mathematics, chemistry, and mechanics. Dreschfeld Memorial Scholarship, value £20, tenable for two years and awarded triennially on the result of the Entrance Examination. A Theodores Modern Languages Exhibition, £20, awarded annually. Two Dauntesey Medical Scholarships, value £45 and £35, tenable for one year, for candidates who have not commenced the second year of study leading to a medical qualification. Subjects: zoology, botany, and

years, two at least of such years having been passed in the university, at least one year being subsequent to the date of passing the first examination. They must also have matriculated by satisfying the examiners in:

I. *Either* English Composition and English Literature, *or* English Composition and History.
II. *Either* Mathematics *or* Latin.
III. IV. V. } *Three* other subjects not already taken under I and II above, chosen from the following list:

1. English Literature.	9. Mathematics.
2. History.	10. Mechanics.
3. Geography.	11. Physics.
	12. Chemistry.
4. Greek.	13. General Experimental Science.
5. Latin.	
6. French.	14. Natural History.
7. German.	15. Botany.
8. Some one other language approved by the Board.	

Provided that (*a*) candidates who take Mathematics under II above must include one of the subjects 4—8; (*b*) candidates who take Latin under II above must include one of the subjects 9—15.

Exemption from the examination may be granted to applicants holding certificates of having passed examinations of a standard deemed by the Matriculation Board to be at least equal to the Board's examination.

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., Ch.B. number three. The first deals with (1) physics and chemistry, (2) biology. In each subject laboratory work is included, but the two parts can be taken separately. For neither can the candidate present himself until after matriculation and a period of approved work in the respective subjects.

Second M.B.—This examination may be taken in two parts: (*a*) anatomy and physiology, including practical work; (*b*) materia medica and pharmacy, including actual compounding of drugs. The candidate's certificates must show, among other things, that he has dissected during at *least* five terms.

Final M.B.—This may be divided into three parts. The first (pathology and bacteriology) may be taken at the end of the tenth term; the second (forensic medicine and public health) and the third (medicine, surgery, obstetrics, and pharmacology and therapeutics) cannot be taken before the end of the fifth year; before admission to the examination in its subjects the candidate, besides ordinary certificates, must produce proof that he has done both intern and extern maternity work, and received clinical instruction in gynaecology, in diseases of the eye, skin, or larynx, and in the administration of anaesthetics. This division covers all branches of surgery, medicine (including mental diseases and diseases of children), and obstetrics and gynaecology. First and second class honours may be obtained in this division.

The regulations and curriculum are now under revision in accordance with recent recommendations of the General Medical Council.

M.D.—A candidate for this degree must be a M.B., Ch.B. of the university of at least one year's standing. He presents a dissertation embodying the results of personal observation or original research, and, if this is approved, he may be required to write a short extempore essay on some topic connected with medicine, and may be examined orally on the dissertation or other work submitted.

Ch.M.—The candidate for this degree must have been admitted to the M.B., Ch.B. of the university not less than a year previously, and during that time must have held for at least six months a surgical appointment in a public institution affording full opportunity for the study of practical surgery. He must also have attended certain courses, including one on ophthalmology and one on bacteriology; he is then examined on the subject of surgery in all its branches.

FEES.

The matriculation fee is £2, and on readmission £1 10s. For each of the other examinations £6 (£7 for Ch.M.); and £3 on readmission. On conferment of the degree of Ch.M. £7 is payable, and £6 for the M.D. degree.

UNIVERSITY OF LIVERPOOL.

THIS university, besides granting degrees in medicine (M.B. and M.D.) and in surgery (Ch.B., M.Ch.Orth., and Ch.M.), gives degrees in dental surgery (B.D.S. and M.D.S.), a degree in hygiene (M.H.), and degrees in veterinary science (B.V.Sc., M.V.Sc., and D.V.Sc.). Diplomas are awarded in dental surgery (L.D.S.), tropical medicine (D.T.M.), public health (D.P.H.), veterinary hygiene (D.V.H.), and medical radiology and electrology (D.M.R.E.).

MATRICULATION.

The Matriculation Examination is governed by the Joint Matriculation Board, 315, Oxford Road, Manchester, which accepts under certain conditions the test of several other bodies as its equivalent. The Faculty of Medicine has power to exempt from examination in corresponding subjects in the first M.B. examination any student who has obtained a certificate at a Higher School Certificate examination in the group including chemistry and physics, and who has reached a standard deemed satisfactory in the subject of exemption. Of the five years' curriculum, not less than two must be passed in the university itself, one such year being subsequent to the date of passing the first M.B. Examination.

PROFESSIONAL EXAMINATIONS.

Candidates for the M.B., Ch.B. degrees have three examinations to pass, the first including (1) chemistry, inorganic, organic, and physical; (2) biology, including zoology and botany; (3) physics. Section 2 may be taken alone or in conjunction with Sections 1 and 3.

Second M.B.—This test covers (*a*) (1) anatomy, (2) physiology, including physiological chemistry and histology; and (*b*) (3) materia medica and pharmacy; (4) pharmacology. Candidates may present themselves in (*a*) and (*b*) separately.

Final M.B.—The subjects of the Final Examination are: (1) General pathology, morbid anatomy, and bacteriology; (2) forensic medicine, toxicology, and public health; (3) obstetrics and diseases of women; (4) surgery, systematic, clinical, operative, and practical, including ophthalmology; (5) medicine, systematic and clinical, including mental diseases and diseases of children and therapeutics. The examination is divided into three parts: Part I, subject 1; Part II, subject 2; Part III, subjects 3, 4, and 5. Candidates may present themselves for examination in the three parts at the same time, or in any two parts together, or in each part separately. Part III may not be taken until five years of study have been completed.

M.D. and Ch.M.—Candidates for these degrees must have received the M.B. and Ch.B. at least two years previously. Students holding equivalent degrees of other approved universities may become candidates for the M.D. degree after two years' study in the university or clinical school of the university. The M.D. candidate submits for approval a published thesis or a dissertation covering original work. The M.Ch. candidate undergoes an examination. Other information concerning the diplomas of this university and its medical school will be found on page 377.

FELLOWSHIPS, SCHOLARSHIPS, AND EXHIBITIONS.

The university awards Fellowships annually to students of distinguished merit, as follows:

(1) John Rankin Fellowships in Anatomy; two, each of the value of £120, tenable for two years. (2) Ethel Boyce Fellowship in Gynaecology, value £100 and tenable for one year, open to fully qualified medical students of either sex. (3) John W. Garrett International Fellowship in Bacteriology, value £100 and tenable for one year. (4) Robert Gee Fellowship in Human Anatomy, value £100 and tenable for one year. (5) Holt Fellowships in Physiology and Pathology, two in number, value £100 each and tenable for one year. (6) Johnston Colonial Fellowship in Biochemistry, value £100 and tenable for one year. (7) Thelwall Thomas Fellowship in Surgical Pathology, value £150 and tenable for one year. (8) University Fellowship, £100.

There are, in addition, scholarships and exhibitions open to medical students.

VICTORIA UNIVERSITY OF MANCHESTER.

THIS university grants the four ordinary degrees in medicine and surgery, M.B. and Ch.B. and M.D. and Ch.M.; a diploma and a degree (B.Sc.) in public health; a certificate in factory and in school hygiene; a diploma in psychological medicine;

of medicine in this university. They range from £8 to £100 per annum, and are tenable in most cases for two or three years. The winter session begins on October 10th, 1923; the summer session on April 21st, 1924.

Fees.—An inclusive fee of 126 guineas is payable for instruction within the university, and the fee for the degrees of M.B., Ch.B. is 33 guineas. The total cost, including hospital fees, class and matriculation fees, and degree fees, is about £235.

EDINBURGH.

THERE are two Schools of Medicine: the School of the University, and the School of Medicine of the Royal Colleges of Physicians and Surgeons of Edinburgh,

THE UNIVERSITY SCHOOL.—This school, in addition to other resources of the university, has the following means of affording practical instruction: Royal Botanic Garden, Herbarium, and Museum; Zoological Laboratory and Museum of Science and Art; Physical Laboratory; Chemical Laboratories; Dissecting Room, Bone Room, and Anatomical Museum; Physiological Laboratory; Medical Jurisprudence Laboratories; John Usher Institute of Public Health; Materia Medica Museum and Laboratory; *Post-Mortem* Department of the Royal Infirmary and University Pathological and Bacteriological Laboratory; Tutorial Classes of Practice of Physic, of Clinical Medicine, and Clinical Surgery, Surgery, and Midwifery; and the practice of certain other hospitals.

Fees.—The sessional fee for [illegible] logy, pathology, materia medi[illegible] is £6 6s. each. Physics, bota[illegible] public health, £5 5s. Practical [illegible] *morbid anatomy, practical materia medica, mental diseases,* practical pathology, and medical entomology and parasitology, £4 4s. Experimental physiology, diseases of tropical climates, practical botany, histology, operative surgery, clinical surgery (per term), experimental pharmacology, and invertebrate zoology, £3 3s. Practical anatomy (winter), £6 16s. 6d. Clinical medicine, £3 13s. 6d. first term, subsequent terms £3 3s. Practical chemistry, £4 14s. 6d. Regional anatomy, chemical physiology, surgical pathology, and applied anatomy, £1 11s. 6d. Tuberculosis, diseases of children, diseases of the eye, diseases of the larynx, ear, and nose, diseases of the skin, and venereal diseases, £2 12s. 6d. Advanced bacteriology, £7 17s. 6d. *Clinical gynaecology, £2 2s. Infectious diseases, £1 1s.*

Scholarships.—There are many funds for the assistance of students by means of bursaries, scholarships, exhibitions, and money awards from the beginning to the end of their undergraduate career. In addition there are funds which help those who have taken a first degree in medicine and surgery to continue at work as research students. The value of these awards, and the conditions attaching to them, are so varied that those interested should consult the prospectus of the school itself. No other university is in a better, even if as good, a position to smooth the financial path of earnest students.

THE SCHOOL OF MEDICINE OF THE ROYAL COLLEGES.—This school is composed of lecturers licensed by the Royal College of Physicians and the Royal College of Surgeons, and also recognized by the university through their *licentia docendi*; for the sake of convenience they lecture in separate buildings near to the Royal Infirmary, but form a single corporate body governed by a board consisting of five members elected by the Royal College of Physicians, five members elected by the Royal College of Surgeons, and five members elected by the lecturers in the school. This board, with the assistance of the standing committees of the school, supervises the whole management and especially the maintenance of the efficiency and discipline of the school. The different buildings at present utilized for the purposes of lecturing are the following: (1) Surgeons' Hall, Nicolson Street; (2) New School, Bristo Street; (3) Nicolson Square; (4) Marshall Street; and other places. The teaching is similar to that of the Scottish universities, and the students receive similar certificates at the close of each session. The courses on the special subjects not included in the curriculum of the Examining Boards are also conducted by teachers specially qualified in each branch, and have for the last quarter of a century formed a special feature of the school. The fees payable for class and other instruction, and including the sums payable on admission to the examination of the Conjoint Board for the triple qualification, amount to about £180. The Calendar, giving full information regarding classes and fees, can be obtained (price 6d.) on application to the Dean of the School, 11, Bristo Place, Edinburgh.

WOMEN STUDENTS IN EDINBURGH.—Until the close of the summer session of 1916 women students intending to proceed to graduation in the University of Edinburgh, as well as those entering for the triple qualification of the Royal Colleges of Edinburgh and Glasgow, received their training in the Edinburgh School of Medicine for Women. Now women students study under the same conditions as men, and may obtain either the university degree or the diploma of the Royal Colleges. In the university systematic lectures are given to them by the professors in the ordinary classes, which are therefore mixed. With few exceptions, prizes, scholarships, bursaries, and similar distinctions are open to women under the same conditions as for men. The women students also have the same privileges as in the past have been given to the men of attending a certain proportion of the extramural classes taught by the lecturers of the School of Medicine of the Royal Colleges. Most of the Students' Societies are open to women, with the exception of the University Union and the Royal Medical Society. Their place is taken by the Women Students' Union, and the Women's Medical Society. There is also a Women's Athletic Club, with playing fields gifted to it by the University. Information on matters connected with women's studies may be obtained from the Lady Warden, University New Buildings, Edinburgh.

GLASGOW.

THE UNIVERSITY SCHOOL FOR MEN.—The whole course of study required for graduation (M.B., Ch.B.) at the University of Glasgow can be taken here. Besides ample provision for lectures there is practical and clinical work at the hospitals, and practical courses are conducted in the laboratories of the following departments: Surgery, Pathology, Public Health, Pharmacology, Physiology, Anatomy, Chemistry, Zoology, Physics, and Botany; the Botanic Garden and the Hunterian Museum (Zoology and Pathology) are also open to students. New buildings and equipments have been provided for botany, for practical anatomy, for operative surgery, as well as for pathology; the very large additions made a number of years ago to the Chemical Laboratory rendered it one of the most extensive in Scotland. The classrooms and laboratories for the departments of Physics, Physiology, Pharmacology, Materia Medica, Medical Jurisprudence and Public Health, and Zoology are also of recent erection, and are elaborately equipped. Four additional chairs of Medicine, Surgery, Obstetrics, and Pathology have been recently established, the Professors being specially attached to the Royal Infirmary; and a number of University Lectureships in Clinical Medicine, Clinical Surgery, Venereal Diseases, Laryngology, Dermatology, Otology, Psychological Medicine, Tuberculosis, and Electrical Diagnosis and Treatment have been founded there. Four other chairs have been founded at the University, in Bacteriology, Organic Chemistry, Physiological Chemistry, and Applied Physics, and two more, one in Hygiene and the other in Pediatrics, will be established this year (1923). There are also lectureships on the Surgical and Medical Diseases of Children, and on Electrical Diagnosis and Therapeutics. The university, in short, has made great and successful efforts to extend and improve the accommodation of the medical departments, to strengthen the teaching staff, and to encourage post-graduation and research work. Three very extensive general hospitals in the city afford exceptional opportunities for clinical instruction—namely, the Western Infirmary (600 beds), near the university, to which the Regius Professors are attached; the Royal Infirmary (630 beds); and the Victoria Infirmary (260 beds); while the Royal Asylum (460 beds), the Royal Hospital for Sick Children (200 beds), the Royal Maternity and Women's Hospital (108 beds), the Glasgow Eye Infirmary (100 beds), the Ophthalmic Institution (35 beds), the fever hospitals at Belvidere (680 beds) and Ruchill (540 beds), and other institutions afford facilities for the practical study of special branches. The large general hospitals of the Parish Council are now also available for clinical instruction in Medicine and Surgery. Information regarding post-graduate study will be found at page 385.

Bursaries.—Bursaries confined to the Medical Faculty amount in annual value to about £1,000, while bursaries in any faculty, amounting to about the same annual sum, may be held by students of medicine, a number of both sets being open to women. Several valuable scholarships may be held by medical students who have graduated in Arts.

WELSH NATIONAL SCHOOL OF MEDICINE.

Students can complete the whole of their curriculum in the Welsh National School of Medicine, which is an integral part of the University College of South Wales and Monmouthshire, and qualify for the degrees of M.B., Ch.B. in the university.

Further information may be obtained from the Registrar, the University Registry, Cathays Park, Cardiff.

English Medical Corporations.

THERE are three medical corporations in England—the Royal College of Physicians of London, the Royal College of Surgeons of England, and the Society of Apothecaries of London. The first two combine for certain purposes to form what is known as the "Conjoint Board." Details concerning this body, its component Colleges, and the third licensing body here follow.

THE CONJOINT BOARD.

THIS body—the Examining Board in England—deals with the qualifications of all candidates for the Licence of the Royal College of Physicians of London and for the Membership of the Royal College of Surgeons of England. It prescribes for them certain periods of study, and recommends those who satisfy it for the Licence and for the diploma of Membership respectively. The successful candidate is then entitled to register as L.R.C.P.Lond., M.R.C.S.Eng. It performs the same task in connexion with diplomas in State medicine, tropical diseases, ophthalmic medicine and surgery, and psychological medicine, jointly issued by the two Colleges in question. Under the new regulations, which apply to all students who have not passed the required preliminary tests of general education before January 1st, 1923, every candidate for the M.R.C.S. and L.R.C.P. must (1) complete five years of professional study after passing a recognized preliminary examination and a recognized pre-medical examination in chemistry and physics; (2) comply with the regulations, which may be had from the Secretary, Examination Hall, 8-11, Queen Square, Bloomsbury, London, W.C.1; and (3) pass the two professional examinations of which particulars appear below. The old regulations for the Conjoint diploma, of which an account was given in last year's *Educational Number*, still apply to students who passed their preliminary examination in general education before January 1st, 1923.

NEW REGULATIONS FOR THE CONJOINT DIPLOMA.

The following is an outline of the regulations applicable to candidates for the L.R.C.P.Lond. and M.R.C.S.Eng., who passed the required Preliminary Examination in general education on or after January 1st, 1923. The full regulations and synopses and forms of certificate may be obtained from the secretary.

PRE-MEDICAL EXAMINATION.

Students are required to pass a Pre-Medical examination in Chemistry and Physics conducted by the Conjoint Examining Board before commencing the five years' curriculum of professional study or some other examination recognized by the Board—namely, the examination in Chemistry and Physics for the degree in Medicine of any university recognized by the Board, the Higher School Certificates of Oxford and Cambridge Universities and the Oxford and Cambridge Schools Examination Board, the Higher Certificates of London, Bristol, Durham Universities, and the Joint Matriculation Board of the Northern Universities.

A candidate must enter for Chemistry and Physics together and he will not be allowed to pass in one without obtaining at the same time at least half the number of marks required to pass in the other subject. He will be admitted to the examination on producing evidence of having passed the required Preliminary Examination in General Education and of having received instruction during 180 hours in Chemistry and 120 hours in Physics to the satisfaction of his teachers. These courses may be commenced or attended before the required Preliminary Examination in General Education is passed.

The examination is partly written, partly oral, and partly practical. A candidate rejected in one or both subjects of the examination will not be admitted to re-examination until after the lapse of a period of not less than three months and he must produce evidence of further instruction in the subject or subjects of failure.

PROFESSIONAL EXAMINATIONS.

There are two Professional Examinations called the First and Final Examinations. The courses of study for these examinations must not be commenced until the Pre-Medical Examination in Chemistry and Physics or some equivalent examination has been passed.

First Professional Examination.—The subjects of this are: Section I, (*a*) Anatomy, including Histology and Embryology; (*b*) Physiology, including Biochemistry. Section II, Pharmacology, Practical Pharmacy and Materia Medica. A candidate must have attended at a recognized Medical School courses of instruction in Anatomy, including Embryology, during five terms, during which he must have dissected the whole body, courses of instruction in Physiology, including General Biology, Biochemistry, and Biophysics, during five terms, courses of instruction in Pharmacology, Practical Pharmacy, and Materia Medica. A candidate may present himself for the two Sections together or separately, but he must take parts (*a*) and (*b*) of Section I together until he has passed in one or both parts, but a candidate will not be allowed to pass in one part unless he obtains at the same time at least half the number of marks required to pass in the other part. Section II of the examination may be passed at any time before the candidate enters for the Final Professional Examination. A candidate who produces satisfactory evidence of having passed an examination in the subjects of Section I or of either part of Section I and of Section II in the examination for the degree in Medicine conducted at a university recognized by the Board will be exempted from further examination in such subject or subjects.

Final Professional Examination.—The subjects of this are: Section I, (*a*) Pathology, including Morbid Anatomy, Morbid Histology, and Clinical Pathology; (*b*) Bacteriology. Section II, Part I, Medicine, including Medical Anatomy, Forensic Medicine, and Public Health; Part II, Surgery, including Surgical Anatomy and the use of Surgical Appliances; Part III, Midwifery and Gynaecology. The examination is partly written, partly practical, partly clinical, and partly oral. A candidate may take Sections I and II and the three parts of Section II of the Final Examination separately or may take the whole examination together. He will be required to produce the certificates required by the regulations before being admitted to the respective parts of the examination. A candidate who produces evidence of having passed an examination for a degree in Medicine in the subjects of Pathology and Bacteriology at a university recognized by the Board is exempted from Section I.

FEES.

The fee for the *Pre-Medical Examination* is three guineas, for re-examination in Chemistry two guineas, and for re-examination in Physics one guinea. The fee for the *First Professional Examination* is ten guineas, for re-examination after rejection in Section I six guineas, for re-examination after rejection in either part of Section I three guineas, for re-examination after rejection in Section II three guineas. The fee for admission to Section I of the *Final Professional Examination* is four guineas, for admission to Section II, Part I, ten guineas, Part II ten guineas, Part III six guineas; and the re-examination fees are respectively three guineas, six guineas, and four guineas.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

THIS College has three grades—its Licentiates, its Members, and its Fellows. The Licence is now only issued through the Conjoint Board. The Membership is only granted to those who have passed the final examinations for the Licence, or those who are registered practitioners and graduates of a recognized university; in any case they must be persons over 25 years of age. Candidates are examined in pathology and the practice of physic, partly in writing and partly viva voce; they are also examined in Latin, and either Greek, French, or German. The fee for the Membership is £42, or in the case of a Licentiate, £21. There is a fee of £6 6s., payable before entrance to the examination, which in the case of successful candidates is reckoned as part of the Membership fee. The body of Fellows is maintained by election from among the Members.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THIS College has two grades—Members and Fellows. The Members are admitted as stated in the section dealing with the Conjoint Board. The Fellowship is granted after examination to persons at least 25 years of age who have been engaged in professional studies for six years. There are two examinations for the Fellowship—the first in anatomy and physiology, which may be passed after the third winter session; the second, chiefly directed to surgery, which may

ST. ANDREWS AND DUNDEE.

THE medical departments in these two teaching centres cater specially for students proceeding to the degrees of the University of St. Andrews, but admit other students as well. In the former city the United College provides education in all subjects of the first two years. In Dundee, University College provides for the needs of students from the beginning to the end of the five years' curriculum. Its buildings are modern, and contain fully equipped laboratories. The clinical work of the school is facilitated by various institutions. The class fees are from £6 6s. to £5 12s. 6d. for systematic classes, and from £4 14s. 6d. to £4 4s. for practical classes. The hospital ticket is £1 8s. for three months, £4 4s. a year, or perpetual £13 6s. 8d. in one sum. The inclusive or composition fee for the curriculum is £182. In connexion with both institutions there are bursaries and scholarships of considerable value, which are awarded after competitive examination. Information as to these can be obtained from the Secretary of the University of St. Andrews. Information regarding the clinical facilities may be obtained from the Dean of the Medical Faculty, Medical School, Dundee.

Clinical Work.

Good opportunities for clinical work are afforded by the Dundee Royal Infirmary, the instruction given thereat being recognized for purposes of graduation by all the Scottish Universities, the University of London, the University of Cambridge, the National University of Ireland, and by the Royal Colleges of England and Scotland.

IRELAND.

THERE is a choice of six schools for those pursuing their medical studies in Ireland. For clinical instruction the choice is equally satisfactory and varied, though the hospitals themselves are comparatively small. Some account of the schools follows.

DUBLIN.

School of Physic.

This school is in Trinity College, Dublin, and is carried on under the joint auspices of the University of Dublin and of the Royal College of Physicians in Ireland, the King's professors of institutes of medicine (physiology), practice of medicine, materia medica, and midwifery being appointed by the latter. Clinical instruction is given at Sir Patrick Dun's Hospital, and some twelve other metropolitan hospitals and asylums are recognized by the Board of Trinity College. The courses of instruction are open to all medical students whether they belong to the university or not.

The Schools of Surgery.

These are schools carried on in Dublin under the supervision and control of the Council of the Royal College of Surgeons. They are formed of the College's own school, combined with two famous old medical schools—Carmichael and Ledwich; they are attached to the College by charter. The buildings contain spacious dissecting rooms, special pathological, bacteriological, public health, chemical, and pharmaceutical laboratories. Advantage can be taken of the lectures and instruction afforded by students otherwise unconnected with the College.

Prizes.—Among the prizes annually awarded are: The Barker Anatomical Prize (£26 5s.); the Carmichael Scholarship (£15); the Mayne Scholarship (£8); the Gold Medal in Surgery, the Stoney Memorial Gold Medal in Anatomy, the H. Macnaughton Jones Gold Medal for Midwifery and Gynaecology; class prizes, accompanied by silver medals, will also be given in each subject.

A prospectus can be obtained post free on application to the Registrar, Royal College of Surgeons, Dublin.

University College, Dublin.

This is one of the constituent colleges of the National University of Ireland, and at present conducts its work at buildings on St. Stephen's Green. It possesses a good library, and the arrangements for the teaching of medical students from beginning to end of the curriculum are adequate. Applications for other information may be addressed to the Secretary and Bursar, University College, Dublin.

Clinical Work.

There are numerous well arranged hospitals in and around the city, and almost all of these are recognized for teaching purposes by the Conjoint Board of Ireland, the University of Dublin, the National University of Ireland, and by like bodies elsewhere in the British Isles. Among them are the Mater Misericordiae Hospital, with 345 beds; Dr. Steevens's Hospital at Kingsbridge, with 150; Meath Hospital and County Dublin Infirmary, with 160; Mercer's Hospital, close to Trinity College, with 120; the Royal City of Dublin Hospital, with 124; the Adelaide Hospital, with 140; the Royal Victoria Eye and Ear Hospital, with 100 beds; Sir Patrick Dun's, which has a direct connexion with the School of Physic, and the combined institutions formed by the Hardwicke Fever Hospital, the Richmond Surgical Hospital, and the Whitworth Medical Hospital, with an aggregate of 230 beds.

As for the famous Dublin medical institution known as the Rotunda Hospital, this practically consists of two distinct hospitals, and is believed to be the largest combined maternity and gynaecological hospital in the British Isles. It receives nearly 3,000 patients every year, and, apart from ordinary out-patient work of a gynaecological order, annually attends some 2,000 women at their own homes during their confinement. It possesses residential quarters for students, and, taken as a whole, offers exceptional opportunities for study both to ordinary students and to medical graduates of any nationality.

BELFAST.

THE Medical School is part of the Faculty of Medicine of Queen's University, Belfast, and provides a complete medical curriculum for all purposes. The laboratories in connexion with the departments of biology, chemistry, physiology, pathology, anatomy, physics, and materia medica are all excellent, and there is a Students' Union which gives students the advantages of dining rooms, reading rooms, a library, and various recreation rooms. Women are eligible as students. Clinical instruction is given at the Royal Victoria Hospital, which was rebuilt a few years ago and has 300 beds, and the Mater Infirmorum Hospital, which has 150 beds. Other hospitals open to the students of the university are: the Maternity Hospital, the Ulster Hospital for Women and Children, the Hospital for Sick Children, the Ophthalmic Hospital; the Benn Ulster Eye, Ear and Throat Hospital; the Union Infirmary and Fever Hospital; the Fever Hospital, Purdysburn; the District Lunatic Asylum, the Samaritan Hospital, Forster Green Hospital for Diseases of the Chest, and the Belfast Hospital for Skin Diseases.

Scholarships.—(1) Twelve, of the value of £40 each, are assigned as Entrance Scholarships in the Faculties of Arts, Science, and Medicine, tenable for one year; (2) sixteen Professional Scholarships, value from £15 to £40 each; (3) one Hutchinson Stewart Scholarship, £12, in mental diseases; (4) one Mackay Wilson Travelling Scholarship, £100, awarded triennially; (5) Isabella Tod Memorial Scholarship, tenable for three years, awarded triennially to a woman student; (6) Magrath Clinical Scholarship, awarded annually, value about £112; (7) two Musgrave Studentships of £200 in Physiology and Pathology; (8) numerous sessional prizes. There is also a post-graduate research fund, open to all graduates of not more than three years' standing. Gold medals are awarded at the M.D. examination.

Fees.—The cost of the curriculum intended for students proceeding to the degrees of the Queen's University of Belfast is, approximately, £150. This includes examination fees and a perpetual ticket for attendance at the Royal Victoria Hospital or the Mater Infirmorum Hospital, and fees for the special hospitals. The course for the Conjoint Board costs about the same amount.

The Regulations of the Medical Faculty, containing full information, can be obtained on application to the Secretary, Queen's University, Belfast, price 4d.

UNIVERSITY COLLEGE, CORK.

THIS institution, formerly known as Queen's College, Cork, is one of the constituent colleges of the National University. It holds examinations for all the faculties of that university, in addition to continuing the work which it has hitherto performed—namely, that of providing education adapted to the needs of medical students at all stages of their career. Its first aim is to fit students for the degrees

FEES.

It is estimated that the class, examination, and other fees for the M.B., Ch.B. come altogether to about £247, the separate examination fees included in this calculation being as follows:

	£	s.	d.
First Professional..	9	9	0
Second Professional	7	7	0
Third Professional	6	6	0
Final	11	11	0

Re-entry in any subject in which the candidate has failed entails a fresh payment of £1 1s. Candidates for the M.B. and Ch.M. pay £21, and on re-entry £5 5s.

More detailed information with regard to the University of Edinburgh can be obtained from the *Medical Programme*, price 6d., which is published by Mr. Thin, 55, South Bridge, Edinburgh, or on application to the Dean of the Faculty of Medicine. Similar information about Glasgow should be sought from the Assistant Clerk, Matriculation Office, Glasgow. With regard to Aberdeen, application may be made to the Secretary of the Medical Faculty, Marischal College. In respect of St. Andrews information can be obtained either from the Secretary of the University, or, alternatively, the Secretary of the United College, St. Andrews, or the Secretary of University College, Dundee, these being the two constituent colleges of the University of St. Andrews.

Finally, it should be mentioned that in connexion with all the Scottish universities there are valuable bursaries and scholarships, some information as to which will be found in the article on Medical Schools.

The Scottish Corporations.

THERE are three medical corporations in Scotland—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Their licences can be separately obtained only by persons who are already in possession of a recognized qualification—in surgery in the case of the College of Physicians, and in medicine in the case of the College of Surgeons and the Faculty of Physicians and Surgeons of Glasgow. All others must submit to the examinations held by the Conjoint Board which the three corporations have combined to form. Details concerning this Board and its component colleges follow. The conditions on which their higher qualifications are granted will be found set forth separately in connexion with each corporation.

THE CONJOINT BOARD IN SCOTLAND.

THIS body has charge of all questions connected with candidates for the Conjoint Licences of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow. Those finally approved by it are entitled to registration and to the initials denoting the Licences of the three bodies concerned—namely, L.R.C.P. Edin., L.R.C.S.Edin., and L.R.F.P.S.Glasg. The Board requires all candidates to comply with the regulations of the General Medical Council. It has an arts examination of its own, but is prepared to accept in its place any of the other educational tests approved by the General Medical Council. All candidates must obtain registration with the General Medical Council.

Professional Curriculum for Candidates registered as Medical Students prior to January 1st, 1923.

Subsequent to registration as a medical student the candidate must pass not less than five years in medical study, each comprising a winter and a summer session. The Board does not insist that candidates shall pursue their study at any particular place, and is prepared to accept certificates of having attended the necessary courses from any recognized medical school.

Its examinations are four in number, each of them being held four times every year, and these will fall to be held twice in Edinburgh and twice in Glasgow during the next period; it is open to candidates to present themselves for examination at either place. The first examination deals with physics, chemistry, and elementary biology; the second with anatomy and physiology, including histology; the third with pathology and materia medica, including pharmacy; and the final with (1) medicine, including therapeutics, medical anatomy, and clinical medicine; (2) surgery, including surgical anatomy, clinical surgery, and diseases and injuries of the eyes; (3) midwifery and diseases of women and of newborn children; and, if it has not been passed previously, (4) medical jurisprudence and hygiene. Candidates may also be examined on diseases of children, diseases of the ear and throat, insanity, vaccination, etc.

These examinations must be passed in due order, and before admission to any of them the candidate must supply certificates showing that he has completed the due periods of study of their subjects. He can present himself in any single subject of the first three examinations. As regards the final examination, a candidate can present himself in medical jurisprudence and hygiene at any time after completion of the third examination and of his study of these subjects; but in medicine, surgery, and midwifery he cannot present himself until the completion of five years' study, and he must take them all simultaneously. A candidate who takes up several subjects of an examination or the whole of the subjects at one time, but fails in some of them, is credited at the next examination with those subjects in which he has been approved.

Part or entire exemption from the first three examinations may be granted to those who have already passed before other bodies examinations deemed by the Board equivalent to its own; but all candidates for the Conjoint licence must sit for the final examination, and at no examination can a candidate present himself within three months of his rejection by some other licensing body.

Professional Curriculum for Candidates registered as Medical Students after January 1st, 1923.

The curriculum has been extended to meet the recommendations of the General Medical Council. Candidates when applying for copies of regulations should state date of medical registration.

FEES.

It is estimated that the total cost of lectures and fees for the conjoint licence is about £152. The separate examination fees are as follows: First, Second, and Third Professional, £5 each; Final £15. On re-entry for any of the first three examinations £3, and on re-entry for the Final, £5. If the re-entry is only in one or two subjects the fees are smaller.

Information concerning this Board should be sought either from Mr. D. L. Eadie, 49, Lauriston Place, Edinburgh, or from Mr. Walter Hurst, Faculty Hall, 242, St. Vincent Street, Glasgow.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

THIS College has three grades—Licentiateship, Membership, and Fellowship—all of which are open to men and women. The regulations applying to candidates for the Licentiateship have already been generally indicated. If desirous of receiving it apart from those of the other two corporations they must be holders of a surgical qualification recognized by the College, and must pass an examination corresponding to the medical part of the Final Examination of the Conjoint Board, and conditioned in the same way, and also an examination in materia medica. The fee for examination is 15 guineas, a special examination being obtainable on due cause being shown, and on payment of 5 guineas extra. Ordinary examinations take place monthly on the first Wednesday, except in September and October. Candidates for the Membership must be either Licentiates of a British or Irish College of Physicians, or alternatively graduates of medicine of a university approved by the Council, and in either case not less than 24 years of age. Candidates are examined in medicine and therapeutics, and in one further subject at choice. This may be either (*a*) one of the departments of medicine specially professed; (*b*) psychology; (*c*) general pathology and morbid anatomy; (*d*) medical jurisprudence; (*e*) public health; (*f*) midwifery; (*g*) gynaecology; (*h*) diseases of children; or (*i*) tropical medicine. The fee to be

Hospital near Charing Cross, the Royal Eye Hospital, Southwark, and the Central London Ophthalmic Hospital, Judd Street, W.C.1, each with about 40 beds.

Fever Hospitals.—The Metropolitan Asylums Board has under its control a good many institutions in and around London for the treatment of the more serious zymotic disorders; it makes special arrangements for the instruction of students in this subject, and grants certificates at the end of the courses. Detailed information should be sought from the Clerk to the Board, Victoria Embankment, E.C.4.

Chest Hospitals.—The largest of these is the Brompton Hospital for Consumption, which has 333 beds and a large sanatorium at Frimley with 150 beds. There is also the City of London Hospital for Diseases of the Chest, Victoria Park, with 175 beds, and the Royal Hospital for Diseases of the Chest, City Road, which has recently amalgamated with the Royal Northern Hospital, Holloway Road.

Nose, Throat and Ear Hospitals.—The institutions which confine their work to disorders of the throat, nose and ear all make special arrangements for the benefit of senior and post-graduate students. They are the Metropolitan Ear, Nose and Throat Hospital, Fitzroy Square; the Royal Ear Hospital, Dean Street; the Central London Throat, Nose and Ear Hospital, Gray's Inn Road; and the Hospital for Diseases of the Throat, Golden Square—the latter, which possesses 75 beds, being the largest of the four institutions.

Miscellaneous Special Hospitals.—Among these are the Bethlem Royal Hospital, St. George's Fields, S.E.1, which confines its work to the treatment of mental diseases, and includes a department for nervous and early mental disorders; St. Peter's Hospital for Stone and Urinary Diseases, Henrietta Street, Covent Garden; St. Mark's Hospital, City Road, which devotes itself to the treatment of diseases of the rectum, including cancer and fistula; the National Hospital for Diseases of the Heart in Westmoreland Street, W.1; St. John's Hospital for Diseases of the Skin, in Leicester Square; the Hospital for Diseases of the Skin, Stamford Street, Blackfriars; and the National Hospital for the Paralysed and Epileptic, Queen Square, W.C.1, an institution possessing 200 beds and a world-wide reputation.

Detailed information as to the teaching arrangements of all these institutions may be obtained on application to their secretaries.

WOMEN IN MEDICINE.

WOMEN are admitted to all the medical examinations of the following qualifying bodies: all the Universities of Great Britain and Ireland, with the exception of Cambridge; the Royal College of Physicians of London and the Royal College of Surgeons of England; the Society of Apothecaries of London; the Conjoint Boards of Scotland and of Ireland. The regulations of the various universities and colleges and those of the General Medical Council set out in previous sections apply to women in the same way as to men.

Medical Education of Women.

The school which admits women only is the London (Royal Free Hospital) School of Medicine for Women, which is one of the constituent schools of the Medical Faculty of the University of London. Glasgow University (see p. 379) has Queen Margaret College for the use of students of the University; and where some of the university classes, such as those in practical anatomy, are restricted to women. The clinical classes and university lectures in the Glasgow Royal Infirmary are open to students of both sexes. Women are also admitted to the schools of medicine in connexion with King's College, Charing Cross Hospital, and St. Mary's Hospital, London; and in restricted numbers to University College Hospital Medical School. The medical schools of the English, Scottish, and Irish Universities and Colleges are open to women. The arrangements for women students in Edinburgh are briefly indicated on page 379; women enrolled in this university are, however, not guaranteed a course in Practical Obstetrics in the Maternity Hospital. Women can also attend the medical school attached to University College, Cardiff. As regards the London School of Medicine for Women, particulars will be found at page 374 in the article on London Medical Schools.

Openings for Medical Women.

Women hold many appointments as residents in general hospitals, in hospitals for women and children, and in a large number of sanatoriums, infirmaries, fever hospitals, and asylums. Many medical women are also engaged in public health, tuberculosis, and school inspection work, as well as at infant welfare centres and venereal disease clinics; they can also become prison medical officers and inspectors of the mentally deficient. A considerable number of medical women are engaged in private practice, both as consultants or specialists and as general practitioners.

In view of the very great increase during the past eight years in the number of women medical students it may, perhaps, be well to direct the attention of those who contemplate entering the profession to the note of caution which has been sounded from time to time in these columns. It is desirable that women who propose to study medicine should reflect carefully on the keen competition for posts which has existed since the war, and when qualified, consider the wisdom of seeking a wider field than hitherto in general practice and specialization, more especially in obstetrics and gynaecology. There is a large field opening in India, both in practice and in the women's services of that country. Applications for particulars regarding the women's medical service for India may be addressed to the Hon. Secretary, United Kingdom Branch of the Countess of Dufferin's Fund, c/o Sir Havelock Charles, G.C.V.O., India Office, Whitehall, S.W.1.

Equal Pay for Equal Work.

The British Medical Association was the first of all professional organizations to lay down the principle that no distinction should be made on the ground of sex as regards the emoluments to women members of the profession. Attempts are continually being made by public authorities to obtain the services of women doctors at lower salaries than those paid to men, and the Association looks to all medical women to help it in resisting such attacks upon the solidarity of the profession. In its constant efforts to maintain this principle the Association works in close co-operation with the Federation of Medical Women. In defence of the principle the Association has at various times fought—usually with success—Government departments and local authorities of all kinds. Where the authorities concerned have declined to recognize the justice of the claim that equal pay should be given for equal work the machinery, local and central, of the Association has been put into operation, and as a result the authority has generally seen fit to drop the proposed distinction between men and women practitioners or give up the attempt to fill the post.

DEGREES FOR PRACTITIONERS.

AT one time it was almost the universal custom for medical students educated in London and aiming at general practice not to seek a university degree, and as that custom still prevails to a considerable extent a large proportion of medical men in England possess diplomas or licences to practise but not degrees in medicine. This is a fact which they sometimes find reason to regret, and to such practitioners the following paragraphs may be of interest. It should be noted, however, that the M.D.Brussels diploma, if obtained subsequently to June, 1886, is not registrable, and that the University of Brussels no longer holds special examinations for foreign medical practitioners.

UNIVERSITY OF LONDON.

Registered medical practitioners who have passed the First Examination for medical degrees and the Second Examination for medical degrees, Part I, may proceed to the Second Examination for medical degrees, Part II, and M.B., B.S. Examinations without observing the intervals prescribed by the regulations, on producing certificates that they have gone through the required course of study at a school of the university; subject to the proviso that no degree of the university can in any circumstances be granted by examination to anyone in less than three years after passing the Matriculation Examination or after admission by the university of the candidate's right to exemption therefrom.

Persons over the age of 25 years who have not entered for the ordinary Matriculation Examination of the University but hold certain definite professional qualifications may be admitted to a special Matriculation Examination in four subjects, of which mathematics or logic must be one. This

QUEEN'S UNIVERSITY, BELFAST.

THE degrees granted by the Medical Faculty of this university are as follows: Bachelor of Medicine (M.B.), Bachelor of Surgery (B.Ch.), Bachelor of Obstetrics (B.A.O.), Doctor of Medicine (M.D.), Master of Surgery (M.Ch.), Master of Obstetrics (M.A.O.). The university also confers a diploma in public health. The first three degrees mentioned serve as a qualification for admission to the *Medical Register*, and are not granted separately. In addition to matriculating and passing his professional examinations, a candidate for these degrees must have passed three of the regulation five years as a student at the Belfast School of Medicine. Degrees in dental surgery (B.D.S. and M.D.S.) are conferred by the university and also a diploma in dental surgery (L.D.S.).

PROFESSIONAL EXAMINATIONS.

The examinations for the M.B., B.Ch., B.A.O. are four in number. The first deals with: (1) Inorganic, organic, and practical chemistry, (2) experimental and practical physics, (3) botany and practical botany, (4) zoology and practical zoology. It is divided into two parts, of which botany and zoology form one. The Second Examination covers anatomy and physiology, and may be taken at the end of the second year of the student's career. The Third Examination includes: (1) Pathology, (2) materia medica, pharmacology, and therapeutics, (3) medical jurisprudence, and (4) hygiene. To be valid a certificate in regard to the study of the subjects of this examination must show that the work has been done after the First Examination has been passed.

The Final Examination includes: (1) Medicine, (2) surgery, (3) midwifery, (4) ophthalmology and otology. The student may pass in all subjects at once at the end of his fifth year, or he may divide the examination into two parts—namely, (1) systematic, (2) clinical, practical, and oral. The first part may be taken at the end of the fourth year, but for the second part the candidate may not present himself until the end of his fifth year, but students invariably take both parts at the end of their course. No certificate in regard to the study of the subjects of this examination will be valid unless the work was done subsequent to passing in all the subjects of the Second Examination.

THE HIGHER DEGREES.

Candidates for the degree of Doctor of Medicine must be graduates in medicine of at least three years' standing, unless they hold also a degree of the university in arts or science, in which case a standing of two academic years will suffice. Moreover, candidates must be able to show that the interval has been passed in the pursuit of such courses of study or practical work as may be prescribed. The degree may be conferred either (*a*) after a formal examination, or (*b*) in recognition of the merits of a thesis or of some piece of original study or research carried out by the candidate, followed by an oral or other examination in its subject. When an ordinary examination is imposed it will include (1) a written paper on the principles and practice of medicine, (2) a commentary on a selected clinical case, (3) a clinical and viva voce examination, and (4) a written paper and clinical or practical and viva voce examination on a subject chosen from the following list: (*a*) Human anatomy, including embryology, (*b*) physiology, (*c*) pathology, (*d*) pharmacology and therapeutics, (*e*) sanitary science and public health, (*f*) forensic medicine and toxicology, (*g*) mental diseases. The regulations for the degrees of M.Ch. and M.A.O. are of the same general nature.

NATIONAL UNIVERSITY OF IRELAND.

THE National University of Ireland carries on most of its educational work through three constituent colleges—one in Dublin, one in Cork, and one in Galway. Each of these provides a full medical curriculum, and all candidates for the medical degrees of the university must pass three of their five years of study at one or other of them. These years do not count except after matriculation or recognition as a student of the Medical Faculty obtained in some other fashion. The candidates at each constituent college are examined thereat by the university, and a common standard of education is secured by all courses of instruction and the regulations concerning them having to be approved by the Senate, after considering report thereon from the Board of Studies of the university. In addition to the ordinary degrees in medicine and surgery, the university grants those of Bachelor and Master of Obstetrics, Bachelor and Doctor of Science in Public Health, and Bachelor and Master in Dental Surgery, as well as diplomas in Public Health, in Mental Diseases, and in Tropical Medicine.

Application for other information may be made to the Registrar, National University of Ireland, Dublin.

The Irish Corporations.

THERE are three licensing bodies other than the Medical Faculties of the Universities, and in Dublin, just as in London, there is a Royal College of Physicians of Ireland, a Royal College of Surgeons in Ireland, and an Apothecaries' Hall. In Ireland, as in England, the two Colleges have formed an examining Conjoint Board, which is responsible for the recommendation of candidates to the two bodies for their respective licences. The Apothecaries' Hall of Ireland, like the Apothecaries' Society of London, gives its licence separately.

THE CONJOINT BOARD IN IRELAND.

THIS body requires of candidates the passage either of its own preliminary examination in the subjects of general education or proof that the candidate has passed one of the tests accepted by the General Medical Council.

PROFESSIONAL EXAMINATIONS.

There are four professional examinations, the first of which cannot be passed earlier than the end of the first winter session, nor the fourth before the conclusion of full five years of medical study. Before being admitted to any of them the candidate must show that he has studied the different subjects in practice and theory for the requisite periods, certificates to this effect being accepted from the authorities of most of the recognized medical schools at home and abroad. The first and second examinations deal respectively with (*a*) chemistry and physics, and (*b*) biology; and (*a*) anatomy, and (*b*) physiology and histology. All parts of these examinations, as also of the following one, which deals with (*a*) pathology, (*b*) materia medica, pharmacy, and therapeutics, (*c*) public health and forensic medicine, may be taken separately.

Final Examination.—This is divided into three divisions, which cannot be completed until at least four years have passed in medical studies other than those for the first examination, and five years at least since the beginning of the curriculum. The divisions are (*a*) medicine, including fevers, mental diseases, and diseases of children; (*b*) surgery, including ophthalmic and operative surgery; (*c*) midwifery, including diseases of women and newborn children, and the theory and practice of vaccination. Candidates are recommended to present themselves in all the subjects of the Final Examination at one time, but a candidate at or after the end of the fourth year may present himself in any one of the divisions (*a*), (*b*), or (*c*), provided he has completed his curriculum as far as concerns the division in which he presents himself.

Fees.—Preliminary Examination, £2 2s.; re-examination, £1 1s. First Professional Examination, £15 15s.; Second, £10 10s.; Third, £9 9s.; Final, £6 6s.; re-examination fee is £2 2s. for each division.

Further information can be obtained from Mr. Alfred Miller, Secretary of the Committee of Management, Royal College of Surgeons, 123, St. Stephen's Green, Dublin.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

THOSE whose names already appear on the *Medical Register* can obtain the separate Licence in Medicine of this College, and its Licence in Midwifery. In either case an examination has to be passed in the subjects indicated, questions on midwifery, hygiene, and jurisprudence being included in the examination for the Licence in Medicine. For the Licence

British Medical Association.[1] Many of these hospitals are of world-wide renown, and are attended by post-graduate students from all parts of the world. Special note may perhaps be made of the London School of Tropical Medicine, Endsleigh Gardens, N.W.1, and the Maudsley Hospital, Denmark Hill, S.E.5.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.

Under the auspices of the Fellowship of Medicine regular "refresher" courses in general medicine and surgery, each lasting two weeks, are held once a month at the various metropolitan post-graduate hospitals. The fee for each course is 7 guineas. Courses in special subjects—ophthalmology, diseases of children, proctology, diseases of heart and nervous system, gynaecology, etc.—are given from time to time at the various special hospitals. Particulars of these courses can be obtained from the secretary. The Fellowship issues a monthly *Bulletin* containing a programme of the work in the various hospitals, specifying the names of teachers or lecturers, together with the time and place at which their instruction is given. This list is arranged under the headings of the various sections of the course—for example, diseases of the chest, ophthalmology, radiology, venereal diseases, etc. Announcement is also made of special courses of clinical lectures, some of which are occasionally held out of London.

Special courses in general medicine and surgery, cardiology, dermatology, diseases of children, ophthalmology, proctology, and other subjects have been arranged up to June, 1924, by the Fellowship of Medicine and Post-Graduate Medical Association. The programme for this month includes a two weeks' course in general medicine and surgery, from September 10th to 22nd, at the Hampstead General Hospital, in conjunction with the Hospital for Epilepsy and Paralysis, Maida Vale, the North-Western Fever Hospital, and Paddington Green Children's Hospital. There will also be a special course of instruction in infants' diseases at the Infants' Hospital, from September 3rd to 21st, a course in ophthalmology at the Central London Ophthalmic Hospital, from September 3rd to 29th, and a course in dermatology at St. John's Hospital for Diseases of the Skin, from September 17th to October 13th. Particulars of the courses may be obtained from the Secretary of the Fellowship of Medicine.

The offices of the Fellowship are at 1, Wimpole Street, W.1 (telephone Mayfair 2236). The Secretary, Miss M. A. Willis, is in attendance daily from 10 a.m. to 5 p.m., excepting Saturday. The annual subscription for membership of the Fellowship of Medicine and Post-Graduate Medical Association has been fixed at a minimum of 10s.

PROVINCIAL COURSES.

In the Provinces post-graduate courses have been organized in connexion with the universities at Birmingham, Bristol, Edinburgh, Manchester, and Oxford, and through the Post-Graduate Medical Association at Glasgow. Special courses also exist at Cambridge, Durham, Leeds, and elsewhere. Liverpool has its School of Tropical Medicine. Interesting experiments in post-graduate work for practitioners in a locality or trained originally at a medical school may be recorded in the South-West London Post-Graduate Association, St. James's Hospital, Ouseley Road, Balham, in a course at Addenbrooke's Hospital, Cambridge, during the Long Vacation, and in a lightning week-end course at St. Mary's Hospital, Paddington, for old students of the hospital.

It is a matter for satisfaction that the interest in post-graduate medical education is becoming more widespread; and in the development of this interest it is not impossible that the British Medical Association may take a part under the enlargement of the scope of its activities which its new buildings in Bloomsbury will render possible.

EDINBURGH POST-GRADUATE COURSES.

In connexion with the University and Royal Colleges post-graduate courses have been arranged this year from July 16th to September 8th inclusive, comprising: (*a*) A Course in Obstetrics and Gynaecology which was held from July 16th to August 10th; (*b*) a Course on Diseases of Children from July 30th to August 10th; (*c*) a General Medical Course; (*d*) a General Surgical Course. Courses (*c*) and (*d*) extend for four weeks from August 13th to September 8th. Similar courses are held each year.

The Course in Obstetrics and Gynaecology comprises instruction in Clinical Midwifery and Clinical Gynaecology, Obstetrics and Gynaecological Pathology, Child Welfare and Ante-Natal Clinics, etc.

The Course on Diseases of Children includes Medical and Surgical Clinics and Special Clinics on Diseases of the Skin, Venereal Diseases, Child Welfare, Mental Defect, Ear and Throat, Dental Clinics, and Ante-natal Clinics. The General Medical Course includes Lecture Demonstrations, and, where possible, practical instruction on Medical Anatomy, Medical Side-room Work, Examination of the Blood, X-Ray and Electrical Therapy, Morbid Anatomy, and *Post Mortems*; Clinical Instruction in Medicine, Diseases of Children, Diseases of the Skin, and Infectious Diseases; and Special Instruction in the Diseases and Methods of Examination of the Nervous, Circulatory, Respiratory, Alimentary, and Renal Systems, and in Diseases of the Ductless Glands. The General Surgical Course includes Lecture Demonstrations on Surgical Anatomy, Surgical Pathology, and Surgical X-Ray Diagnosis; Clinical Instruction in Surgery at the Royal Infirmary and Royal Hospital for Sick Children; Clinical Instruction in Venereal Diseases; Surgical Out-patients; Surgical and Gynaecological Operations and Special Instruction in Abdominal and Genito-Urinary and other branches of Surgery.

A series of Special Lectures, open to all graduates, is being delivered thrice weekly during the month, on subjects of general medical and surgical interest, including recent advances in treatment. The following special courses have also been arranged: Examination of the Blood, Vaccine Therapy, Physiological and Biochemical Methods in Clinical Medicine, Diseases of the Ear, Nose and Throat, and Venereal Diseases.

Particulars regarding the courses, dates of commencing, fees, etc., may be had on application to the Honorary Secretary, Post-Graduate Courses in Medicine, University New Buildings, Edinburgh.

GRADUATE MEDICAL TEACHING IN GLASGOW.

Organized post-graduate medical teaching is available in Glasgow under the auspices of the Post-Graduate Medical Association. This association is composed of practically all the teaching institutions in Glasgow and the various teachers giving post-graduate instruction, and its business is managed by a board elected periodically by them. The chairman of the board is Principal Sir Donald MacAlister, K.C.B., M.D., and the vice-chairman Sir Hector C. Cameron, C.B.E., M.D. During the winter months special courses in various subjects are conducted, and there is a series of weekly demonstrations specially designed for local practitioners. A comprehensive scheme of Clinical Courses is carried out during the summer months, from May till October, and arrangements have also been made whereby a limited number of graduates may become attached to wards or out-patient departments nominally as clinical assistants for definite periods throughout the year. As such they work under the direct supervision of the physician or surgeon in charge, and carry out such detailed investigations as directed. Those desiring further information should apply to Dr. J. N. Cruickshank, Acting Secretary, Post-Graduate Medical Association, University, Glasgow.

COURSES FOR MEDICAL GRADUATES AT BRISTOL.

The University of Bristol provides courses of post-graduate study for practitioners. Details of set courses at the Royal Infirmary and General Hospital are announced locally. In addition, practitioners may become clinical assistants in medicine, surgery, or special subjects for periods of a month or more.

The University also holds courses of demonstrations in outlying centres in the West of England. Resident practitioners form themselves into a committee and consider the type and extent of demonstrations required. The University furnishes

[1] *Handbook for Recently Qualified Medical Practitioners.* 1923. British Medical Association, 429, Strand. 2s. 6d. net.

requirements of the Universities of London, Oxford, and Cambridge in general pathology and pharmacology.

Appointments.—All appointments are made according to the merits of the candidates, as determined by a committee of the medical staff. Sixteen out-patient officers, eight house-physicians, twenty-five assistant house-surgeons, eight house-surgeons, four ophthalmic house-surgeons, two genito-urinary house-surgeons, and nine resident obstetric assistants are appointed annually. The house-physicians and house-surgeons, obstetric residents, ophthalmic house-surgeons, and genito-urinary house-surgeons hold office for six months each, and receive free board and lodging in the college. Every student is provided with rooms and commons in the hospital during the period of his "take in" as senior dresser. In addition to the clerkships and dresserships in the medical and surgical wards, students are appointed to the posts of clinical assistant, dresser, or clerk in the special departments of ophthalmology, laryngology, gynaecology, diseases of children, diseases of the nervous system, dermatology, otology, actino-therapeutics, anaesthetics, dentistry, orthopaedics, vaccine, tuberculosis, and genito-urinary and venereal disease; clinical assistantships in the various special departments are open to post-graduates.

Scholarships, Prizes, etc.—The following scholarships in Arts and Science are awarded. A. Open Junior Scholarships: (1) An Arts Scholarship of the value of £100, (2) a Science Scholarship of the value of £100; these are awarded annually in July. (3) A War Memorial Scholarship of the value of £200, awarded alternately in Arts and Science. This Scholarship is open every other year; the next award will be made in July, 1924. B. Confined Scholarship in Science. A Junior Science Scholarship of the value of £100 is offered for competition, annually in September, to candidates who have attended preliminary science classes at this school. Candidates for these scholarships (male students only) must be under 21 years of age on October 1st of the year of the competition. C. Open Senior Science Scholarships: (1) A War Memorial Scholarship of the value of £80, (2) an Open Scholarship of the value of £80; both of these are awarded annually in July. Full particulars as to the scholarships may be obtained from the Dean of the Medical School. Junior prizes for general proficiency, £20, £15, £10; Hilton prize for Dissection, £5; Michael Harris prize for Anatomy, £10; Sands-Cox Scholarship for Physiology, £15 for three years; Wooldridge Memorial prize for Physiology, £10; Beaney prize for Pathology, £34; Treasurer's gold medal in Medicine, Treasurer's gold medal in Surgery, and the Golding-Bird gold medal and scholarship for Bacteriology (£20), are awarded annually after competitive examination. The Gull Studentship in Pathology of the value of £250 per annum, the Beaney Scholarship in Materia Medica, of the annual value of about £50, and the Anderson Demonstratorship in Clinical Chemistry, value £150 per annum, are awarded without examination to enable research to be carried on in these subjects. An Arthur Durham Travelling Scholarship of £100 is awarded triennially. The Griffiths Demonstratorship in Pathology of the value of £320 per annum, and the Hilda and Ronald Poulton Fellowship, value £150 per annum, are awarded without examination.

An annual composition fee is paid by all students until a registrable qualification is obtained. Further information may be obtained from the Dean of the Medical School, Guy's Hospital, London Bridge, S.E.1.

KING'S COLLEGE HOSPITAL.

THE medical school of this hospital, which is situated at Denmark Hill, deals with the advanced or final subjects of the medical curriculum. The hospital was opened in 1913, and is the most modern and best equipped in England. In the education at the hospital a special feature has always been the individual attention given to each student. The studies are co-ordinated under the direction of senior members of the honorary staff, assisted by medical, surgical, obstetric, and pathological tutors. There are special departments for diseases of women and children, nervous diseases, ophthalmology, otology, laryngology and rhinology, dermatology, radiology, and physico-therapy. The laboratory and pathological department are specially noteworthy.

Appointments.—Fourteen resident medical and surgical officers are appointed half-yearly, as well as dressers and clerks in the wards, out-patient departments, *post-mortem* rooms, and special departments. Each of the special departments has several clinical assistants. There are three registrars and four tutors, all of whom receive salaries. The Clubs and Societies Union combines athletics, music, and other societies connected with the school, and provides also a common room.

Scholarships, etc.—At entrance: Science Scholarship, £50. At commencement of Final Studies: Anatomy and Physiology Scholarship, £50; Pathology and Pharmacology Scholarship, £50; two Burney Yeo Scholarships, each £80 (for Oxford and Cambridge students); Epsom College Scholarship, £50; Senior Scholarship, £40; Todd Prize, Tanner Prize, Class Prizes and Medals.

Fees.—The composition fee is 93 guineas if paid in one sum. Entrance fee 10 guineas, includes membership of the Clubs and Societies Union.

The calendar of the school can be obtained on application to the Dean, H. Willoughby Lyle, M.D., F.R.C.S., or to the Secretary, S. C. Ranner, M.A., King's College Hospital, Denmark Hill, S.E.5.

THE LONDON HOSPITAL.

THIS hospital, with its medical college and dental school, is situated in the Mile End Road, E.1. The hospital contains 950 beds, and during 1922, 17,444 patients passed through the wards and 107,455 out-patients received treatment. Of the latter number, 32,427 received treatment in the departments for diseases of the ear, nose, throat, eye, skin, and teeth, and in the orthopaedic, venereal, radiological, electro- and physico-therapeutical and inoculation departments. The number of major operations which were performed amounted to 7,215.

The hospital presents, therefore, a large field for clinical instruction, and in its wards and out-patient and special departments exceptional opportunities are afforded for acquiring an extensive and practical experience of all phases of disease.

The clinical units in medicine and surgery co-ordinate the teaching of their subjects in the hospital. The directors and their assistants give practical instruction in elementary clinical medicine and surgery to all students before they are allowed to enter the wards and out-patient department. Senior students are encouraged to work with the units. Special courses of lectures and demonstrations are arranged in medicine and surgery and in their ancillary subjects. Opportunities for research are provided under the supervision of the staffs of the units.

All the departments are modern and adapted for the teaching of all subjects in the various curricula. Special courses of instruction are held in preparation for the examinations of the University of London, for the Fellowship of the Royal College of Surgeons, and for the Membership of the Royal College of Physicians. A course of post-graduate training is held in the work of school clinics for school medical officers (actual and intending) and others. Special entries can be made for the medical and surgical practice of the hospital. A residential hostel on hospital ground is provided for the convenience of students who wish to live near the wards and casualty departments. The athletic ground, of over thirteen acres, is at Highams Park, and is open to all members of the Clubs Union.

Appointments.—The salaried appointments open to past students of the Hospital are those of assistants to the clinical units, medical registrars, surgical registrars, obstetric registrar; medical, surgical, and obstetric tutors; clinical assistants in the medical, surgical, ophthalmic, aural, light and skin, orthopaedic, and electrical departments, and in the Pathological Institute. There are appointed annually 4 resident accoucheurs, 14 resident house-physicians, and 24 resident house-surgeons, 14 resident receiving-room officers, 8 resident emergency officers, 8 clinical assistants to the medical out-patient department, and 16 clinical assistants to the surgical out-patient department, also paid and unpaid clinical assistants in the various special departments. In addition, there are numerous assistantships, clerkships, and dresserships in the departments of medicine, surgery, gynaecology, and obstetrics.

Scholarships and Prizes.—The following is a list of scholarships and prizes:—At Entrance: Price Scholarship in Science, £100; Price Scholarship in Anatomy and Physiology, open to students of Oxford and Cambridge Universities, £52 10s.; Entrance Scholarship in Science, £50; Epsom Scholarship, "Free Medical Education." After Entrance: Buxton Prize in Anatomy and Physiology, £31 10s.; Letheby Prizes in Organic Chemistry and Chemical

DIPLOMAS AND DEGREES.

LONDON UNIVERSITY.—Tropical medicine is one of the six branches in which the M.D. degree may be obtained. The regulations relating to the curriculum and examination correspond to those applying to the other branches.

LONDON CONJOINT BOARD.—This body grants a diploma in tropical medicine to candidates after an examination usually held in the months of April, July, and December. Ordinary candidates must present evidence of having attended, subsequently to obtaining a registrable qualification in medicine, surgery, and midwifery, (1) practical instruction in pathology, protozoology, helminthology, entomology, bacteriology, and hygiene in relation to tropical medicine, in an institution recognized for this purpose, during not less than three months; (2) the clinical practice of a hospital recognized for the study of tropical diseases during not less than three months. These conditions may be modified in the case of candidates who have had practical experience in tropical countries. The fee for admission to the examination is £9 9s. The Board also grants diplomas in psychological medicine and in ophthalmic medicine and surgery. Candidates must hold a medical qualification registrable in the United Kingdom or be graduates in medicine of an Indian, Colonial, or foreign university. Particulars and conditions of admission to these examinations, fees, etc., may be obtained from the Secretary of the Examining Board, Examination Hall, Queen Square, Bloomsbury, London, W.C.1.

UNIVERSITY OF LIVERPOOL.—A diploma in tropical medicine is given by this university to students who have been through the courses provided by the Liverpool School of Tropical Medicine and have passed the examination held twice yearly by the university examiners. The subjects of examination are (*a*) tropical pathology, parasitology, and entomology; (*b*) tropical and applied bacteriology; (*c*) tropical hygiene and sanitation; (*d*) tropical medicine, including etiology, symptoms, diagnosis, and treatment of tropical diseases. Further information can be obtained from the Dean of the Faculty of Medicine, University of Liverpool.

UNIVERSITY OF CAMBRIDGE.—This university grants a diploma in tropical medicine and hygiene to any person whose name has been on the *Medical Register* for not less than a year provided that he passes the examination of the university in this subject. Previous to admission to the examination he must produce approved evidence that he has studied pathology (including parasitology and bacteriology in relation to tropical diseases), clinical medicine and surgery at a hospital for tropical diseases, and hygiene and methods of sanitation applicable to tropical climates. Examinations are held in January and August each year, and last four days. The fee for the examination and diploma is 9 guineas on admission or readmission. Application for further information should be made to Dr. G. S. Graham-Smith, Pathological Laboratory, Cambridge.

SCHOOLS.

LONDON SCHOOL OF TROPICAL MEDICINE.

This school is under the auspices of the Seamen's Hospital Society. The laboratories, museum, library, etc., are within the building of the Hospital for Tropical Diseases, Endsleigh Gardens, N.W.1, and excellent opportunities are afforded to students and others who may be desirous of studying diseases incidental to tropical climates before entering the services or going abroad. In the wards of the Hospital for Tropical Diseases are to be found cases of tropical disease such as may be met with in actual practice in the tropics. There are three courses in the year, lasting three months, beginning September 25th, January 9th, and April 24th approximately. The course is so arranged as to equip men for the Cambridge D.T.M. and H. and the D.T.M. and H. of the Conjoint Board. Tropical Medicine has been admitted as a sixth alternative subject for the M.D. of the University of London, and the school curriculum is adapted to afford facilities for candidates desirous of taking the M.D. in this subject. Further information may be obtained from the Dean, London School of Tropical Medicine, India Office, Whitehall, London, and the Secretary, London School of Tropical Medicine, Seamen's Hospital, Greenwich, S.E.10.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE.

This school is affiliated with the University of Liverpool and the Royal Infirmary of Liverpool. Two full courses of instruction are given every year, commencing about January 6th and September 15th, lasting for the term of about thirteen weeks, and followed by the examination for the diploma of tropical medicine given by the University of Liverpool. Two courses in veterinary parasitology are also given, commencing about the same dates as the diploma courses. In addition to the full courses, an advanced course of practical instruction in tropical pathology and medical entomology, lasting a month, is given every year in June; it is of such a kind as to be very useful to medical men returning from the tropics on short leave. A special course of instruction in entomology, etc., is also given three times a year to officers of the East and West African Colonial Services. Students of the school who do not care to undertake the examination held by the university at the end of each term for the diploma in tropical medicine are given a certificate if attendance has been satisfactory.

Fees.—The fee for the full course of instruction is 20 guineas, with an extra charge of 1 guinea for the use of a microscope, if required. The fee for the Diploma Examination is 5 guineas, for the Advanced Course 6 guineas, and for the course in veterinary parasitology 15 guineas.

The new laboratories of the school adjoin the university and the tropical ward of the Royal Infirmary. The dimensions of the building are 162 ft. in maximum length by 84 ft. in width. In addition to the basement, in which are accommodated the photographic department and large storage rooms, there are four floors. The ground floor has: (1) Lecture theatre, with accommodation for about seventy students; (2) library; (3) a spacious museum, with preparation room adjoining. The first floor has twelve rooms, in which are housed the Departments of Tropical Medicine and Entomology. The second floor has the main class laboratory, 69 ft. by 58 ft., excellently lighted, and three other rooms, devoted to the Department of Parasitology. The third floor has a large research laboratory and two research rooms. On the roof is an insectarium, a mosquito-proofed house, and other accommodation.

Since it was instituted the school has dispatched to the tropics thirty-two scientific expeditions, many of the workers having been taken from among its students. The work done by them has been published in twenty-one special memoirs, besides textbooks and numerous articles in the scientific press, also in the *Annals of Tropical Medicine and Parasitology* of the school. In connexion with the school are (1) the Manaos Research Laboratory in Brazil, and (2) the Sir Alfred Lewis Jones Tropical Laboratory, Sierra Leone, which was opened on January 10th, 1922. Further information may be obtained from the Hon. Dean, School of Tropical Medicine, Pembroke Place, Liverpool.

PSYCHOLOGICAL MEDICINE.

IT cannot be impressed too strongly upon the medical student that a knowledge of mental disorder is just as essential as a knowledge of the other forms of disease which he will be called upon to treat in the routine of general practice. It must be understood that by the term mental disorder is not only meant those severe forms which are to be found in asylums, but the term also includes mental defectives of all grades; nervous, difficult, and backward children; the mild and often unrecognized psychoses; and also the various types of psychoneurosis. Such disorders provide the general practitioner with a large proportion of his most difficult cases, and he will find a good knowledge of mental disorder invaluable in his work. Apart from general practice, the student who proposes to take up a career in the prison service or, still more importantly, the school medical service, will find a knowledge of psychological medicine an almost essential part of his equipment.

Instruction and Diplomas.

At the present time the instruction given to the student is far from adequate to supply the knowledge of mental disorder requisite for the needs of the general practitioner. The

their second six months they become "senior" house-physicians and house-surgeons, and are provided with rooms by the hospital authorities, and receive a salary of £80 a year. A resident midwifery assistant, an ophthalmic house-surgeon, a house-surgeon to the skin and venereal department, and a house-surgeon for diseases of the throat, nose, and ear are appointed every six months, and are provided with rooms and receive a salary of £80 a year. Three resident administrators of anaesthetics are appointed, the senior for one year at a salary of £150, and two juniors for six months with a salary at the rate of £80 per annum, and all are provided with board and rooms. An extern midwifery assistant is appointed every three months, and receives a salary of £80 a year.

Scholarships.—Four entrance Scholarships are annually awarded after an examination held in September. The subjects of examination and conditions of eligibility for these scholarships are: (1) One scholarship, value £75, in not fewer than two and not more than three of the following subjects, Chemistry, Physics, Botany, Zoology, Physiology, and Anatomy, limited to students under 25 years of age who have not entered on the medical or surgical practice of any London medical school. (2) One scholarship, value £100, in not fewer than three of the following subjects, Chemistry, Physics, Botany, Zoology, and Physiology, limited to students under 21 years of age who have not entered on the medical or surgical practice of any London medical school. (3) The entrance scholarship in Arts, of the value of £100, will be given in Latin and mathematics, with one other language—Greek, French, or German. (4) The Jeffreson Exhibition in Mathematics, Latin, and one other language—Greek, French, or German—of the value of £50. The value of the scholarships and prizes is over £900 annually.

Further information and a handbook can be obtained on application to the Dean of the Medical College, St. Bartholomew's Hospital, E.C.1.

ST. GEORGE'S HOSPITAL.

THIS school is at Hyde Park Corner, and is carried on in connexion with St. George's Hospital, an institution having a service of 436 beds, of which 100 are at the convalescent hospital at Wimbledon. It provides for the instruction of its students in the preliminary and intermediate subjects of the curriculum at the teaching centres of London University established at King's College and University College. The school at Hyde Park Corner is devoted entirely to the teaching of clinical subjects, great attention being paid by the members of the staff to individual teaching. A number of special courses are given, in which the requirements of university and all other examinations receive careful attention.

The St. George's Hospital Club consists of an amalgamation club, with smoking and luncheon rooms on the hospital premises, and other students' clubs, with an athletic ground at Wimbledon. Students have the advantage of a well filled library of medical and scientific books. A register of accredited apartments and a list of medical men and others willing to receive St. George's men as boarders may be seen on application to the Dean.

Appointments.—Four house-physicians, four house surgeons, and two casualty officers are appointed every six months. The house officers receive salaries at the rate of £50 per annum, in addition to board and residence. The casualty officers are non-resident, and receive salaries at the rate of £200 per annum. After the student has held a house appointment, the following are, among others, open to him: Medical registrarship at £200 per annum; surgical registrarship at £200 per annum; assistant curatorship of the museum, £100 per annum; obstetric assistantship, resident, at £50 per annum; the post of resident anaesthetist at £100 per annum; the posts (2) of junior anaesthetist, each at £30 per annum.

Scholarships.—Two university entrance scholarships in anatomy and physiology (90 guineas and £70) are awarded at the commencement of each winter session. This year, in addition to these Scholarships, Exhibitions, each of the value of £40 and up to eight in number, will be awarded to candidates of approved merit in the Entrance Scholarship Examination. The William Brown Exhibition of the value of £135 per annum (tenable for two years) is awarded by examination to a perpetual pupil of the hospital every second year. The William Brown Exhibition is £49 (tenable for three years) is awarded by examination to a perpetual pupil of the hospital every third year. Other prizes to the value of £200 are awarded annually to the students of the hospital.

Fees.—First year, £36 15s.; second and third years, £42 each. For the course of clinical study, in the fourth and subsequent years, entrance fee, £10 10s.; annual composition fee, £42. No entrance fee is payable by St. George's students who have studied at King's and University Colleges.

Further information may be obtained from the Dean of the Medical College.

ST. MARY'S HOSPITAL.

THIS hospital and medical school are situated close to Paddington Station (G.W.R.), having on one side a poor district of 500,000 persons, and on the other side the residential district of Kensington and Bayswater. The hospital contains 305 beds, and, by a scheme of affiliation, for teaching purposes, of the Paddington Hospital, Paddington Green Children's Hospital, Maida Vale Hospital for Nervous Diseases, and the Lock Hospital for Venereal Diseases, the teaching facilities extend over 1,000 beds. The athletic ground (10 acres) is situated at Wembley, and can be reached in thirty minutes by a constant service of trains; a large pavilion has recently been erected.

Clinical Facilities.—Clinical Units in Medicine and Surgery were established in 1920, and have now been formally recognized by the University Grants Committee, St. Mary's being one of the six medical schools in London which enjoy this privilege. In addition to the lying-in beds at St. Mary's, every student attends a short course at Queen Charlotte's Lying-in Hospital (which is situated near to St. Mary's) before holding a post on the maternity district of the hospital.

Institute of Pathology and Research.—Students specially interested in pathology and bacteriology have singular advantages at St. Mary's. The Institute comprises seven special departments, the whole being under the personal direction of Sir Almroth Wright, F.R.S. Three research scholarships of £200 each are awarded annually to students working in the departments of the Institute; and research beds are provided. Clerkships in Pathology and Bacteriology and Chemical Pathology, lasting for a period of three months, are open to students of the fifth year, and enable them to carry out the pathological and bacteriological investigations of the wards, and learn the necessary technique under supervision. Seventy-two of these posts are available annually.

Complete Curriculum.—The medical school provides complete courses of instruction, and students can join at once on passing a Preliminary Examination in Arts. Terms begin in October, January, and April.

Entrance Scholarships.—Three entrance scholarships of £210 each and one of £26 5s. are awarded annually in July by nomination on the lines of the Rhodes Scholarships.

Fees.—Composition fees for entire curriculum (5½ years), £200 in one sum, or £210 by five annual instalments. Composition fee for clinical curriculum (2½ years), 90 guineas in one sum, or 95 guineas by two annual instalments. As an alternative, students may pay an annual fee of 40 guineas, with an entrance fee of 10 guineas.

ST. THOMAS'S HOSPITAL.

THIS school and hospital are situated in Lambeth, on the south bank of the Thames, facing the Houses of Parliament, and form one of the well known architectural features of London.

The school buildings, which are separated from the hospital by a quadrangle, comprise lecture theatres, laboratories, and classrooms well adapted for the modern teaching of large bodies of students in the subjects of the medical curriculum. A splendid library and reading room and a complete museum are open to all students from 9 a.m. to 5 p.m., on Saturdays to 1 p.m. The Students' Club premises contain a dining room and smoking and reading room supplied with daily and illustrated weekly papers, and a gymnasium. Good meals are obtainable at a moderate tariff. The Terrace affords facilities for exercise and recreation. The sports ground, of more than nine acres in extent, is at Chiswick. It can be reached in forty minutes from the hospital; it is admirably adapted for football, cricket, lawn tennis, and athletic sports.

The hospital proper contains 632 beds. In addition to the ordinary provisions of a great hospital there are connected with the out-patient department physicians' and surgeons' rooms provided with ample sitting accommodation, so that

xpert knowledge. By the adoption of this suggestion there would many asylums be two senior assistant medical officers, and erhaps even three or four in the largest asylums.

(v) That except where there has been previous asylum experience, appointments to posts of assistant medical officers should n the first instance be temporary in character.

Under (b) the Board suggested that the treatment of recent ecoverable cases should be carried out by members of the nedical staff conversant with modern methods, and that the number of the medical staff should be sufficient to ensure that none of them is required to undertake the treatment of more han fifty recent cases at any one time. Under (c) suggestions were made with a view to encouraging assistant medical officers to obtain a diploma or degree in mental diseases, ncluding provision for study leave on full salary. The attitude of the Board of Control is clearly shown in the following sentence:

"If the welfare, treatment, and recovery of patients is not to be jeopardized and the study of mental diseases is not to lag behind the study of other branches of medicine, the Board feel the necessity of initiating measures to maintain progress and to secure the best possible treatment of the patients."

Both the British Medical Association and the Medico-Psychological Association are working separately and together to improve present conditions of service, and have, for example, already removed the "celibacy" objection to the service. The salaries have also been considerably increased, especially in the junior ranks, and contrast favourably with those which were paid before the war. During the next few years considerable progress may be anticipated in the conditions under which the insane are treated. The asylums will tend to develop an atmosphere approximating more closely to that of the general hospitals. If these most desirable changes are brought about, the mental hospital service will become more attractive, and will afford greater opportunities for the medical graduate who proposes to specialize in psychiatry.

It may be said that while routine, administrative, and clerical work bulk largely in mental hospital duties, as they do in other public medical services, there is ample material, time, and scope for purely medical work and research—difficult as the subject may be—in psychiatry as one of the branches of medicine open to young graduates. If the Mental Treatment Bill passes into law, psychiatric work will undoubtedly become still more attractive to medical men. In this bill power is given to local authorities to make provision for the treatment of early and acute cases of mental disorder without certification. When this bill comes into operation hospitals, either in the precincts or the grounds of the county or borough mental hospitals, or in adjacent towns, will tend to be erected in course of time; or wards in general hospitals may be utilized for the same purpose. Such clinics would render appointments in mental hospitals more attractive; because the work would be entirely free from the custodial aspects of mental disorder, and attention could be given by the physician to purely medical problems without irksome legal restrictions.

MAUDSLEY HOSPITAL, DENMARK HILL.

A number of courses of instruction for the Diploma in Psychological Medicine have been given at the Maudsley Hospital, the details of the last course being as follows: The course consisted of two parts, Part I being conducted by Sir Frederick Mott, Dr. F. Golla, and Dr. Henry Devine. Sir Frederick Mott gave eight lectures on the anatomy of the nervous system, followed by practical instruction and demonstrations on methods of staining nervous tissue and preparing it for microscopical examination; microscopic sections were distributed, illustrating the principal diseases of the nervous system, for mounting as a permanent collection. Dr. Golla gave eight lectures on the physiology of the nervous system, followed by practical instruction and demonstrations on physiological chemistry (including the chemistry of the nervous system, physico-chemical methods, blood and urine analysis, and gastric contents analysis), and practical physiology (including the recording of reflexes and tremors in man and the action of drugs on the autonomic system). Similarly, Dr. Devine gave eight lectures on psychology, followed by practical instruction and demonstration of psycho-physical methods and memory and intelligence tests. In Part II of the course Sir Frederick Mott gave six lectures on the pathology of mental diseases, including brain syphilis, its symptomatology and treatment. Dr. Bernard Hart gave eight lectures on the psychoneuroses. Sir Frederick Mott and Dr. F. Golla gave twelve clinical demonstrations in neurology; the first six demonstrations were given by Dr. Golla at the Hospital for Paralysis and Epilepsy, Maida Vale. Dr. F. C. Shrubsall gave eight lectures on the practical aspect of mental deficiency. Dr. W. C. Sullivan, medical superintendent of Broadmoor Asylum, gave six lectures on crime and insanity. Dr. C. Hubert Bond and Dr. E. Mapother gave a course of lectures on the differential diagnosis and treatment of mental disorders and the legal relationships of insanity. The fee for the whole course (Part I and Part II) was 15 guineas, or for either part separately 10 guineas; for one single series of lectures in Part I the fee was 4 guineas, and in Part II 2 guineas. Inquiries as to lectures, etc., should be addressed to the director of the pathological laboratory, Maudsley Hospital, Denmark Hill, S.E.5.

BETHLEM ROYAL HOSPITAL.

A course will be held at Bethlem Royal Hospital, commencing on September 17th, of lectures and practical instruction for the Diploma in Psychological Medicine. It is proposed in future to give two courses each year—an autumn session of intensive character, commencing in September, and completed in early December, and a spring session, commencing in the middle of January and completed in the middle of April. Each course consists of two parts: Part A includes lectures and demonstrations on the anatomy, histology, and physiology of the nervous system, with lectures on psychology and demonstrations in experimental psychology. Part B comprises lectures and clinical demonstrations in psychology, including lectures and demonstrations in the morbid anatomy of the nervous system, a series of lectures, with clinical demonstrations, on different branches of psychological medicine, and lectures, with clinical demonstrations, on mental deficiency. Entrants for the course who pay a composition fee of 15 guineas may, if due notice is given, attend either Part A or Part B of one course and postpone the other part until the next session. An entrant who wishes to attend one part only pays a fee of 10 guineas. An entrant who takes the complete course can attend the general clinical practice of the hospital on payment of 5 guineas for six months, or 10 guineas for one year, but an entrant who does not take either part of the course and desires to attend the clinical practice of the hospital must pay a fee of 5 guineas for each three months of attendance. To enable post-graduates to obtain special experience in this branch of medicine clinical assistants are appointed from time to time. Further particulars may be obtained from the physician-superintendent, Bethlem Royal Hospital, S.E.1.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, QUEEN SQUARE.

A post-graduate course, which fulfilled the requirements of the regulations for the Diploma in Psychological Medicine in regard to instruction in nervous diseases, was held at the National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury, W.C.1, from May 7th to June 29th, 1923, and other courses will be duly announced. Dr. J. G. Greenfield delivered lectures on the pathology of the nervous system, various clinical lectures and demonstrations were given, and out-patient clinics were held at the hospital on the afternoons of Mondays, Tuesdays, Thursdays, and Fridays. An inclusive fee of 10 guineas was charged for the whole course, but any part of the course could be taken separately at a special fee. A special arrangement was made for those unable to attend the whole course, and for details applications should be made to the dean of the medical school. Similar courses are held three times a year—namely, January, May, and October. Special arrangements are made throughout the year for work in the laboratory. Fees are payable to the secretary of the hospital on entering for the course.

and to the officers in charge of special departments, are appointed from among the qualified students. Every student must perform the duties of out-patient dresser for four months, and afterwards hold the office of in-patient dresser for four months. He is also required to serve two terms of four months each as medical clinical clerk to in-patient physician and one term as gynaecological clinical clerk. Two pathological clerks are appointed every three months to assist in the *post-mortem* room. No student is eligible as an in-patient dresser or clinical clerk until he has passed the Second Examination of the Conjoint Board, or an equivalent examination. Clerks and dressers in the special departments of hospital practice are periodically appointed. So far as vacancies permit, students of other hospitals are admitted to in-patients' dresserships or clerkships.

Scholarships.—The following open scholarships are offered for competition during the year 1923-24: In the winter session two scholarships in anatomy and physiology, £70 each. In the spring two scholarships in anatomy and physiology, £70 each. A certain number of scholarships have been allotted to universities of England, Wales, and the Colonies, and to public schools. These scholarships are awarded entirely on the nomination of the Principal of the University or School.

Fees.—The annual composition fee is 35 guineas. An entrance fee of 10 guineas is payable by all students—namely, primary and intermediate students, £10 10s.; students entering for the final subjects, £8 8s. These fees include subscriptions for membership of the Clubs Union.

Further information and a prospectus can be obtained on application to the Dean at the Westminster Hospital, Westminster, S.W.1.

The Governors of the Hospital propose in the near future to carry out extensive improvements and alterations to the Hospital which will render it a still more efficient teaching institution.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

THE school is situated at 8, Hunter Street, Brunswick Square, W.C.1, close to the Royal Free Hospital. It is, like all the other London schools which have so far been mentioned, one of the constituent schools of London University. The school buildings have recently been enlarged. The laboratories are extensive and well lighted, and are fully equipped for the examination courses of the University of London and the Royal Colleges of Physicians and Surgeons. Research laboratories are attached to all departments. A large, well equipped library, common room, Union room, and refectory are provided for the use of students. Resident accommodation for 58 students is provided in students' chambers attached to the school.

The Royal Free Hospital, Gray's Inn Road, W.C.1, has 240 beds, all of which are available for clinical instruction. A new block contains the Obstetrical and Gynaecological Unit, which, with the Marlborough Maternity Department, controls 68 beds. There are separate departments for diseases of the eye, ear, and skin, infant welfare, venereal diseases, massage, electrical and *x*-ray work, dentistry, and casualty. The instruction given covers the full curriculum for the M.B., B.S. degrees of the University of London, including first medical courses. Students attend the practice of one of the fever hospitals of the Metropolitan Asylums Board and receive special instruction in lunacy at Bethlem Hospital; they are also admitted to the practice of a number of special hospitals, and hold clerkships and dresserships at the Elizabeth Garrett Anderson Hospital, the Cancer Hospital, Hospital for Sick Children, the National Hospital for Nervous Diseases, the South London Hospital, and the Royal Ophthalmic Hospital. The work of the school includes preparation for the Primary Fellowship examination, and also for the medical school and general hospital course for dental students. An agreement has also been made under which a certain number of students of the school can receive clinical instruction at St. Mary's Hospital, Paddington.

Appointments.—Qualified students of the school can obtain appointments as house-physicians and house-surgeons, obstetric assistants, surgical, gynaecological, and medical registrars, assistant pathologists, assistant anaesthetists, medical electrician, skiagrapher, and clinical assistants and demonstrators in various subjects.

Scholarships.—The Isabel Thorne Entrance Scholarship, value £30, the St. Dunstan's Medical Exhibition, value £60 a year for three years, which may be extended to five years, and the Mabel Sharman-Crawford Scholarship value £20 a year for four years, are offered for competition in each year. The Sir Owen Roberts Memorial Scholarship of the value of £75 a year for four years, the Mrs. George M. Smith Scholarship of the value of £50 a year for three years, which may be extended to five years, the Dr. Margaret Todd Scholarship of the value of £37 10s. a year for four years, and the Sarah Holborn Scholarship of the value of £20 a year for three years, which may be extended to five years, are awarded in alternate years. The Bostock Scholarship, value £90 a year for two or four years, is awarded by the Reid Trustees on the result of an examination held in May by the University of London every fourth year. The holder of the scholarship must enter the London School of Medicine for Women. The Lieutenant Edmund Lewis and Lieutenant Alan Lewis Memorial Scholarship, of the value of £25 a year for four years, is awarded every fourth year. The John Byron Bursary of £20 a year for two years, the Helen Prideaux Prize of £40, the Mabel Webb Research Scholarship of £30 for two years, the Fanny Butler Scholarship of £14 10s. a year for four years, together with many other scholarships and prizes, are offered on sundry conditions. The Dr. Edith Pechey-Phipson Post-Graduate Scholarship of £100 is awarded annually. Various missionary societies also offer scholarships on certain conditions, and assist ladies who wish to go to India and other countries as medical missionaries.

Fees.—Courses for the University of London degrees and the diplomas of the Conjoint Board in England, and other qualifications: £240, payable in five instalments. These sums include library and laboratory fees.

The Students' Union exists to promote corporate action of the students on matters of common interest, to promote and maintain athletic and other clubs, and to issue a school magazine. All students are required to become members of the Union.

Further information can be obtained from the Warden and Secretary.

KING'S COLLEGE.

IN the Faculty of Medical Science instruction is given in the preliminary and intermediate subjects of the first and second examinations leading to the degree of M.B., B.S. of the University of London, of the corresponding examinations of other universities, and of the Conjoint Examining Board of the Royal Colleges of Physicians and Surgeons, including the primary examination for the F.R.C.S.Eng. The courses are open to women students on the same terms as to men.

Regular students who have completed their preliminary and intermediate examinations proceed to a hospital to pursue their studies for the final examinations. The hospitals associated with King's College are: King's College Hospital, Denmark Hill, S.E.5; Westminster Hospital, S.W.1; St. George's Hospital, Hyde Park Corner, S.W.1; and Charing Cross Hospital, Strand, W.C.2.

There is a Department of Public Health and Bacteriology under the direction of Sir William J. Simpson and Professor R. T. Hewlett. Full particulars of this department may be obtained from the Secretary of the College.

A course for the diploma in dental surgery in conjunction with King's College Hospital Medical School has been arranged. Full details may be obtained on application to the Secretary, King's College Hospital Medical School, Denmark Hill, S.E.5.

Scholarships.—The entrance Scholarships are: (1) Two Warneford Scholarships, each £30 for four years; subjects—selected from mathematics, classics, divinity, and science. (2) One Sambrook Exhibition of £25 for two years, open; subjects of examination—mathematics, elementary physics, inorganic chemistry, botany, zoology, and geology. The holders of the preceding awards must proceed to King's College Hospital. (3) Worsley, £100, paid in five annual instalments. (4) Rabbeth Scholarship, value £20, in July, for the best student of the first year. (5) Second year's scholarship, value £20, for the best student of the second year. (6) Daniell Scholarship, £40, awarded on the results of the University Honours Examination.

Full information as to admission, fees, and scholarships can be obtained from the Dean of the Faculty of Medical Science (Professor E. Barclay-Smith), King's College, Strand, W.C.2.

the inspection imposed by law of benefit not merely to the individual child but to the community at large, by preventing conditions which lead to the existence of a large proportion of inefficient citizens among the adult population. In short, the work is so far related to that of a medical officer of health that in most areas the senior school medical officer fills both appointments, his work, when necessary, being supplemented by that of whole- or part-time assistants. Whole-time assistants are commonly paid salaries commencing at a minimum of £500 a year, the chief attraction of the posts being that they may lead on to appointment as medical officer of health, but we fear that not many actually do reach that position. Yet it is desirable for a prospective whole-time school medical officer to obtain a diploma in public health. In some counties and county boroughs it is now the practice for the officer to undertake certain minor ameliorative work, notably prescription of glasses when necessary, the removal of adenoids, and treatment in connexion with certain diseases of the skin. The added interest thus given to the work appears to make for increased efficiency and also enhances the value of the post. Otherwise the monotony of filling up record cards in the absence of any duty of treatment is apt to become intolerable, and if no public health functions belong to the post it gives little chance of developing into a health officership.

Tuberculosis Officers.

Before sanatorium benefit was transferred to the public health authorities the prescribed duties of tuberculosis officers were to act as advisers to Insurance Committees in connexion with the operation of the National Insurance Act and to take charge of the work of the tuberculosis dispensary, which is the main unit of the Departmental Committee's scheme. A tuberculosis officer is a whole-time officer, who should have special training in tuberculosis work, and be of suitable age and attainments to command general confidence. At present the number of appointments is small, and the salary generally attached to them is about £500 a year with an occasional bonus addition. In many instances they are now appointed on the staff of the medical officer of health, so that the work of prevention and cure of tuberculosis may be made part of the general health work of the Municipal Council.

Venereal Disease Medical Officers.

Schemes for the diagnosis and treatment of venereal disease are administered by county councils and county borough councils. A few of these authorities have appointed whole-time medical officers at a salary of £600 to £700 per annum. In some cases the officer is on the staff of the medical officer of health and in others he is an independent official. Specialized practical experience in the treatment of venereal disease is essential, and it is an advantage if such experience has been obtained in the navy or army. His duties usually include not only the diagnosis and treatment of cases of venereal disease at one or more central clinics, but also the instruction and supervision of the treatment by general practitioners attached to local clinics.

Diplomas in Public Health.

New rules for study and examination for these diplomas come into force on January 1st, 1924, but it will be convenient in the first place to state the present position. Most of the universities and licensing corporations now grant diplomas in public health to candidates who pass the examinations imposed by them. Since all such tests must conform to the requirements of the General Medical Council, there is considerable similarity in their nature, though they differ not a little in their reputed difficulty. All of them aim at excluding any candidate who does not appear to have a thorough knowledge of his work in theory and in practice, for the regulations of the General Medical Council demand that the granting of a diploma in Sanitary Science, State Medicine, or Public Health shall be proof of the "possession of a distinctly high proficiency, scientific and practical, in all the branches of study which concern the public health." The tests, in short, are supposed to constitute an honours and not a mere pass examination. As regards the special tuition required, it is now easy to obtain this in practically every centre of medical education, and at almost every medical school of any importance. It is desirable to note in this connexion that the chemical and bacteriological examinations for many of the health diplomas are so practical, and the time allowed so short, that unless a candidate—even though familiar with the duties of M.O.H.—has a considerable amount of manipulative dexterity only to be acquired by ample work in a laboratory, he would not be likely to satisfy the examiners.

Existing Rules.

The present rules of the General Medical Council remain in force until January 1st, 1924. They require that every candidate (subsequent to obtaining a registrable qualification in medicine and surgery) shall have passed through a stated curriculum in the subjects of sanitary science. This must last not less than nine calendar months, and include four months' study in a laboratory in which chemistry, bacteriology, and the pathology of diseases of animals transmissible to man are taught, six months' practical study of the duties involved by public health administration, and attendance at least twice weekly for three months on the practice of a hospital for infectious diseases at which instruction is given in methods of administration. These rules do not apply to practitioners registered or entitled to be registered before January 1st, 1890, while that regarding six months' practical study of public health administration is waived in the case of a candidate who has himself been in charge of a sanitary district with a population of not less than 15,000 for a period of not less than three years. The study in question must be passed under the personal supervision of a medical officer possessing certain definite facilities for affording it, these being carefully described in the regulations. The period may be reduced to three months in the case of a candidate who has undergone a corresponding period of study in the public health department of a recognized medical school, or who has been resident medical officer at a hospital for infectious diseases with accommodation for 100 patients for not less than three months. The laboratory study must include at least 240 hours' work, not more than half being devoted to practical chemistry. The examinations imposed by the diploma-granting bodies must extend over not less than four days, one at least being devoted to practical work in the laboratory, and one to practical examination in, and reporting on, subjects within the duties of a medical officer of health, including those of a school medical officer.

The steps which examining bodies take to ascertain the candidate's fitness for a diploma are in all cases much the same, though the order in which the subjects are taken is not always identical. Every candidate therefore should, when he has settled what diploma or degree in State medicine he wishes to obtain, seek the schedule relating to it from the authority concerned. A certain number of the universities grant degrees in the subject as well as diplomas.

The New Rules.

The new Rules will apply after January 1st, 1924. They require that not less than two years shall elapse after obtaining a registrable qualification before admission to the Final Examination for a public health diploma. The curriculum shall extend over not less than twelve calendar months. At least five months must be given to practical laboratory instruction in an approved institution in (*a*) bacteriology and parasitology, including entomology, especially in relation to diseases of man and to those transmissible to man from the lower animals (180 hours); (*b*) chemistry and physics in relation to public health (90 hours); and (*c*) meteorology and climatology (10 hours). Not less than 80 hours' instruction in an approved institution, or by approved teachers, must be given to the following subjects, the approximate hours being as bracketed: Principles of public health and sanitation (30), epidemiology and vital statistics (20), sanitary law and administration (20), sanitary construction and planning (10).

There is required three months' attendance—30 daily attendances of not less than two hours in each week—on the clinical practice of a recognized hospital for infectious diseases, with instruction in methods of administration. Six months' practical training under a medical officer of health is an important feature of the new scheme, and the time cannot be reduced by attendance on lectures as at present. Three hours on each of sixty working days are the minimum, and the instruction is to include maternity and child welfare, the services relating to school life, venereal disease and tuberculosis, industrial hygiene, and food, meat, and milk inspection.

The examination will consist of two parts, each lasting for at least two days. Part I covers bacteriology, parasitology (with medical entomology), chemistry, physics, meteorology, and climatology. Part II includes hygiene and sanitation, epidemiology and infectious diseases, sanitary laws and vital statistics, and public health administration. There will be practical examinations in infectious diseases, food inspection, and inspection of premises. Neither part can be entered on until the relative courses of instruction (after registration in medicine) have been completed, and Part I must be passed before admission to Part II.

BRISTOL.

THE school is carried on by the Faculty of Medicine of the university, and provides full instruction for all its degrees and diplomas. The allied hospitals (Bristol Royal Infirmary and Bristol General Hospital) have between them about 600 beds and extensive out-patient departments, special clinics for diseases of women and children, and those of the eye, throat, and ear, in addition to arrangements for dental work and large outdoor maternity departments. At each of these institutions there are well arranged pathological departments, comprising large pathological museums, *post-mortem* rooms, and laboratories for morbid anatomy. There are also laboratories for work in clinical pathology, bacteriology, and cytology, in which special instruction is given in these subjects. Departments are provided and well equipped for *x*-ray work both in diagnosis and treatment, the various forms of electrical treatment, including high-frequency currents, electric baths, Finsen light treatment, and massage.

The students of the school have also the advantage of attending the practice of the Royal Hospital for Sick Children and Women, containing 108 beds, and that of the Bristol Eye Hospital, with 40 beds. Excellent facilities are thus afforded to students for obtaining a wide and thorough acquaintance with all branches of medical and surgical work. Each student has the opportunity of personally studying a large number of cases and acquiring practical skill in diagnosis and treatment. All classes are open to women.

Appointments.—(1) Undergraduate: Clinical clerkships, dresserships, also ophthalmic, obstetric, pathological, ear, nose and throat clerkships, are tenable at the Bristol Royal Infirmary and the Bristol General Hospital. In these institutions the dressers reside in rotation free of charge. (2) Post-graduate—At the Bristol Royal Infirmary: Four house-surgeons, £120 each per annum; two house-physicians, £120; resident obstetric and ophthalmic house-surgeon, £120; throat, nose and ear house-surgeon, £120; dental house-surgeon, £120. All these appointments are made for twelve months. From the resident officers a senior resident officer is appointed at a salary of £200. At the Bristol General Hospital: Senior resident medical officer, £300 per annum; casualty house-surgeon, £125 per annum; two house-physicians, £125 per annum; house-surgeon, £125 per annum; special obstetric physician, £125 per annum; house-surgeon to special departments, £125 per annum; dental house-surgeon, £300 per annum. All these appointments are for six months, except that of senior resident medical officer, which is for two years.

Scholarships.—The following are among the scholarships and other awards open to students of the school: The Ashworth Hallett Scholarship, value £15, open to women only; two Martin Memorial Pathological Scholarships of £10 each; the Tibbits Memorial Prize, value 9 guineas, for proficiency in practical surgery; the Committee's Gold and Silver Medals for fifth-year students for general proficiency; the Augustin Prichard Prize, value 7 guineas, for proficiency in anatomy; the Henry Clark Prize, value 11 guineas, for proficiency in gynaecology; the Crosby Leonard Prize, value 7 guineas, for proficiency in surgery; the Suple Surgical Prize, a gold medal and 7 guineas; the Suple Medical Prize, a gold medal and 7 guineas; the Henry Marshall Prize, value £12, for dressers; the H. M. Clarke Scholarship, value £15, for proficiency in surgery; the Sanders Scholarship, value £22 10s., for general proficiency; the Barrett-Roué Scholarship for proficiency in diseases of the eye, ear, nose and throat, value £14.

Fees.—The fee for all the courses required for the medical curriculum, including hospital practice, is 205 guineas, paid by annual instalments.

UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.

The Welsh National School of Medicine.

STUDENTS can complete the whole of their curriculum in the school. The courses of instruction are fully adapted to meet the needs of those students studying for the degrees in Medicine and Surgery of the University of Wales, and certain of them also for the degrees of other universities and for the diplomas of the Conjoint Board. All classes are open to both men and women students.

Medical men wishing to prepare for the Diploma in Public Health or the Tuberculosis Diploma

Prospectuses can be obtained on application to th the Faculty of Medicine, or to Mr. D. J. A. Brown, at University College, Cardiff.

UNIVERSITY OF DURHAM COLLEGE OF MEDIC

THIS, the Medical School of the Faculty of Medici University of Durham, is in the neighbouring city, N on-Tyne. Its classes and lectures are arranged to requirements of the university in all the degrees w latter grants, and also those of the other examinin The students do their work in the preliminary sci Armstrong College, also part of the university, a clinical work in the Royal Victoria Infirmary, an tion with about 550 beds and special accommoda the benefit of students. In a Heath wing of the sch there is the department of physiology. There are this wing a gymnasium and a set of rooms for th the Students' Union. A new bacteriological departn recently been erected adjacent to Armstrong College.

Appointments.—Assistant demonstrators of anato prosectors for the professor of anatomy, assistant logists, pathological assistants, and assistants in t department, throat and ear department, and departm skin diseases, are elected periodically. Clinical cler dressers are appointed every three months.

Scholarships.—A University of Durham Scholarship, val a year for four years, for proficiency in arts, open annually beginning of the winter session to intending students. The Scholarship, value £150, for proficiency in arts (when v The Dickinson Memorial Scholarship, interest of £400, with medal for medicine, surgery, midwifery, and pathology, o perpetual students in their fifth year. The Tulloch Schol interest of £400 annually, for elementary anatomy, biology, chem and physics, for students at the end of their first year. Charlton Memorial Scholarship, interest of £700 annually, o full students entered for the class of medicine, at the end of fourth or fifth winter. The Gibb Scholarship, interest of annually, for pathology, at the end of summer session. G Prize, interest of £250 stock, for midwifery. Outterson Prize, interest of £250, for psychological medicine. The G Memorial Scholarship, proceeds of £325; subjects: clinical med and clinical surgery. Luke Armstrong Memorial Scholar proceeds of £680, for best essay in some subject in compar pathology. The Stephen Scott Scholarship in Surgery, interes £1,000 annually. The Heath Scholarship in Surgery, of the v of £200, awarded every other year. First award in 1896. Philip Scholarships (2), the interest on £1,800, to the candidates who ob the highest marks in the Final M.B., B.S. examinations hel March and June respectively.

Fees.—The composition fee for lectures at the college is £1 Composition fee for hospital practice, £46, *plus* £2 2s. yearly three years, payable to the Committee of the Royal Victoria Infirma Other information should be sought from the Registrar of the Coll of Medicine at Newcastle.

LEEDS.

THE School of Medicine—which is open to both male a female students—in this city forms the teaching centre of t Medical Faculty of the University of Leeds, and is situate in immediate proximity to the Ge students sufficiently advanced receive

The buildings were opened in 1894, and contain excellen dissecting rooms, several well arranged laboratories for physio logy, pathology, and bacteriology, three lecture theatres, an several similar classrooms. In addition, there are a library and reading room and two museums, one being devoted t pathology and the other to anatomy. The comfort of the students is secured by common rooms and a refectory in which they can take meals. The General Infirmary has 632 beds, and includes gynaecological and ophthalmic wards, a special children's ward, and a large out-patient department. The Ida and Robert Arthington Semi-convalescent Hospitals, Cookridge, attached to the Infirmary, have 88 beds. The West Riding Lunatic Asylum at Wakefield is also open for the study of mental diseases. Students can, in addition, attend the practice of the Leeds Public Dispensary (where the practical instruction in dental subjects is also given),

classes that undergo courses at the recently instituted School of Army Administration at Chisledon will be of great advantage to the Medical Service. Many appointments of an administrative character are open to officers who show zeal and capacity for this side of the army medical officer's duties.

ROYAL AIR FORCE MEDICAL SERVICE.

THE Royal Air Force Medical Service offers a career for medical men which should prove both attractive and interesting. The rates of pay and allowances are good, and a new field of scientific interest is opened up by the manifold problems which the circumstances of aviation produce. The physical and mental fitness for and reaction to the varied conditions under which the flying personnel perform their functions provide much scope for research.

As promotion to the higher ranks of the service is to be entirely by selection, and as a certain proportion of the higher ranks will be reserved for purely scientific as opposed to administrative appointments, it will be seen that there are excellent prospects for the young medical officer who exhibits ability and energy in scientific research, as well as for those who develop a talent for administration.

Commissions.

The establishment will consist partly of permanent and partly of short-service officers.

Short-service officers will be admitted by direct entry for a period of two years, which may be extended to four years at the discretion of the Air Council on recommendation of the Director of Medical Services. Those who are not selected for permanent commissions will pass into the Royal Air Force Medical Reserve at the expiration of their period of service on the active list, and will then receive the gratuity to which their service entitles them. Short service officers who are approved for permanent commissions, but for whom there are not vacancies in the Royal Air Force Medical Service, may under certain conditions transfer to the Royal Army Medical Corps, counting their time served in the Royal Air Force towards increments of pay and retired pay in the Royal Army Medical Corps.

Officers who have been selected for permanent commissions will be granted leave for a period not exceeding nine months for post-graduate study in general medicine and surgery, tropical and preventive medicine, and other special subjects. Such leave will be granted during the first six years of permanent service, and during such leave officers will remain on full pay and allowances.

New entrants into the Royal Air Force Medical Service will be commission [illegible] promotion [illegible] service. O[illegible] to the rank of Squadron Leader after ten years' total service. Accelerated promotion may be carried out, in a limited number of cases, of officers who show exceptional ability after completion of eight years' service. Promotion to the rank of Wing Commander will be by selection at any time after sixteen years' total service, and to that of Group Captain by selection at any time after twenty-two years' service.

There will be no competitive examination on entry; candidates must be under 28 years of age; be nominated by the Dean of a recognized medical school or teaching hospital; and will be interviewed personally by the Director of Medical Services, Royal Air Force, before acceptance. Each candidate must produce:

1. Birth certificate.
2. Medical registration certificate.
3. A declaration containing the following information:
   (a) Age and place of birth.
   (b) That he is of pure European descent and the son of a subject of the British Empire.
   (c) That he labours under no constitutional or mental disease or disability which may interfere with the efficient discharge of the duties of a medical officer in any climate in peace or war.
   (All candidates will be required to pass a medical examination as to their physical fitness before acceptance, to ensure that they fulfil the standard laid down in this declaration.)
   (d) That he is ready to engage for general service at home or abroad as required.
   (e) The qualifications he is possessed of and what medical or other appointments he has held (if any).
   (f) That he is willing to fly whenever called upon to do so, and to qualify in such aviation test as may be required.

If the applicant is in possession of a certificate of training in an Officers' Training Corps this should be submitted.

An applicant who at the time of application holds or is about to hold a resident appointment in a recognized civil hospital may be seconded for the period, not exceeding one year, during which he holds such appointment. Whilst seconded he will not receive pay from Air Council funds, but his seniority will count from the day on which he is seconded to the civil hospital.

Uniform and Equipment.

Medical officers will be required to provide themselves with the uniform of their rank, and with the distinguishing badges of the Royal Air Force Medical Service. They will be required to provide themselves with service dress and mess dress. The provision of full dress is entirely optional.

An outfit allowance of £50 will be granted to officers if they have had no previous commissioned service. If they have had previous commissioned service in the Royal Navy, the Army, or the Royal Marines, but not in the Royal Air Force, they will receive an outfit allowance of £25.

Rates of Pay.

The rates of pay in the Royal Air Force Medical Service are set out in the following tables:

Rank and Years of Service.	Rate per Diem. s.	d.
Flying Officer:		
On joining	24	0
Flight Lieutenant:		
On promotion	25	0
After 2 years in the substantive rank	28	0
" 4 years " "	30	0
Squadron Leader:		
On promotion	34	0
After 2 years in the substantive rank	36	0
" 4 years " "	38	0
" 6 years " "	42	0
Wing Commander:		
On promotion	46	0
After 2 years in the substantive rank	50	0
" 4 years " "	52	0
" 6 years " "	54	0
Group Captain:		
On promotion	60	0
After 2 years in the substantive rank	64	0
" 4 years " "	68	0

Rates of Pay in India.

	Rs. per Mensem.
Flying Officer	650
Flight Lieutenant	750
After 2 years as such	850
" 4 years "	900
Squadron Leader	1,050
After 2 years as such	1,100
" 4 years "	1,150
" 6 years "	1,250
Principal Medical Officer	1,950

The scale of *Retired Pay* for Group Captains and lower ranks is given in the following table:

Age.	Service Counting for Retired Pay.	Rate of Retired Pay.	Addition for each Extra Year of Service.*	Reduction for each Deficient Year of Service.*
		£	£	
55	24	790	22	15
54	24	765	22	15
53	23	742	22	15
52	23	710	22	15
51	22	657	22	15
50	22	615	15	15
49	21	587	15	15
48	21	600	15	15
47	20	562	15	15
46	20	525	15	15
45	19	487	15	15
44	19	450	15	15
43	18	412	15	15
42	18	375	15	15
41	17	337	15	15
40	17	300	15	15

* Limited to five years.

Group Captains retire at 55; maximum retired pay £900
Wing Commanders retire at 51; " " £650
Squadron Leaders retire at 48; " " £550

There will be a minimum qualifying period for retired pay of twenty years.

Short-service officers will receive gratuities at the rate of £100 for each of the first two completed years of service, and at the rate of £150 for the third and fourth completed years. (If granted permanent commissions these gratuities will not be payable, but the period of service under the short-service commission will count for retired pay.)

Medical officers holding permanent commissions may, at the discretion of the Air Council, be allowed to withdraw from the service after ten years' service with a gratuity of £1,250, or after sixteen years with a gratuity of £2,000 in lieu of retired pay.

The usual allowances will be payable to medical officers under the same conditions as to officers of other branches of the Royal Air Force.

chemistry. Two Entrance Scholarships in Medicine, value 160 guineas, awarded annually for proficiency in Arts or Science respectively. One Research Fellowship in Public Health of £100, awarded annually. Tom Jones Exhibition in Anatomy, £25, offered annually. A Robert Platt Physiological Scholarship of £90, tenable for one year. A Leech Fellowship of £100 for original research after graduation. A Graduate Scholarship in Medicine, value £25, tenable for one year, awarded annually for proficiency shown at Final M.B. Examination. A Dumville Surgical Prize, value £15, awarded annually at graduation. The Tom Jones Memorial Surgical Scholarship, value £60, tenable for one year, awarded usually annually. The Turner Medical Prize, value £20, [illegible] in certain subjects of the Final M[illegible] The John Henry Agnew Scholarship of £30, awarded annually for proficiency in the Diseases of Children. The Ashby Memorial Scholarship, tenable for one year (£100), for research in the Diseases of Children; offered triennially. Sidney Redshaw Exhibition in Physiology; one offered annually. The details and regulations of the Dickinson Scholarships—(1) for Anatomy, (2) for Pathology, (3) Research Scholarship in Surgery, and (4) Travelling Scholarship in Medicine—may be obtained from the Secretary to the Trustees. The Sam Gamble Scholarships—the trustees are prepared to award four scholarships of not less than £10 per annum, tenable for not more than four years, to women students who have passed the first M.B. Examination; the conditions can be obtained from the Registrar. The Knight Prize of £50 for original research in the psychological factors in the causation of mental disorder—open to holders of the Diploma in Psychological Medicine or medical practitioners who have been registered in the university as candidates for that diploma.

Fees.—The composition fee for the university course in medicine is 104 guineas, payable in four instalments of 26 guineas, but this sum does not include the fee to cover the work required for the first M.B. Examination. This is 36 guineas, payable in one sum. Hospital fees are additional and usually amount to about 77 guineas.

A prospectus and further information about the school and scholarships may be obtained from the Registrar.

Clinical Work.—The Royal Eye Hospital, the Hospital for Diseases of the Skin, the Manchester Northern Hospital for Women and Children, the well known Hospitals for Children at Pendlebury, and St. Mary's Hospital for Diseases of Women and Children, all make arrangements for the instruction of students.

SHEFFIELD.

IN this city the Medical School is one of the departments of the University, being conducted and controlled by its Medical Faculty, and occupying practically the entire north wing of the quadrangle of the university buildings overlooking Weston Park. The laboratories and lecture rooms connected with the subjects of the first and second examinations—namely, chemistry, physics, biology, anatomy, and physiology—are, both as regards structural arrangement and scientific equipment, on the most modern and complete lines.

For students of pathology and bacteriology there are laboratories replete with everything necessary for the most advanced work, and a large pathological museum which is open daily. In addition, there is a museum devoted to materia medica specimens, and a large library and reading room. There are a number of recreation, athletic, and other societies, all under the management of an annually elected students' representative council, and large and comfortable common rooms both for men and women students. In the university buildings there is a refectory open to all students of the school, and a university journal is published each term. The ordinary clinical work of the school is done at the Royal Infirmary and Royal Hospital, which have amalgamated for the purpose of clinical instruction, and provide over 500 beds for medical, surgical, and special cases, including diseases of the eye.

In addition, the Royal Infirmary has special departments for the treatment of diseases of the skin and ear, with beds assigned to them; whilst at the Royal Hospital there are special out-patient departments for diseases of the throat, ear, skin, orthopædics, and mental diseases. The medical and surgical staffs attend daily, and give clinical instruction in the wards and out-patient rooms. Clinical lectures in medicine and surgery are given weekly. Instruction in the practical administration of anæsthetics is given at either institution by the anæsthetists, and the *post-mortem* examinations at both institutions are in charge of the Professor of Pathology, and afford ample material for study of this subject. Students are able to attend the practice of the Jessop Hospital for Diseases of Women and the Hospital for Sick Children, while special courses on fever are given at the City Fever Hospital, and on mental diseases at the South Yorkshire Asylum.

Appointments.—The following appointments are open to all students who have passed their examinations in anatomy and physiology: (1) Casualty dresserships, (2) surgical dresserships, (3) medical clerkships, (4) pathological clerkships, (5) ophthalmic clerkships, (6) clerk to the skin department, etc. These appointments are made for three months, commencing on the first day of October, January, April, and July.

Scholarships.—Entrance Medical Scholarship, value about £100, open to both sexes. Four Edgar Allen Scholarships of £125 a year for three years may be held by students taking the degree course in Medicine. Two Town Trustees' Scholarships, each of the value of £50, tenable for three years, for boys or girls under the age of 19 years who have been educated in a Sheffield secondary school for a period not less than two years immediately preceding the examination. Four Town Trustees' Scholarships, value £50, for boys or girls under 19 years of age, educated in any school in Sheffield, secondary or otherwise. Town Trustees' Fellowship, value £75, tenable for one year. Mechanics' Institute Fellowship, value £50 (with remission of fees), tenable for one year, and renewable for a second year. The Frederick Clifford Scholarship, value about £50, tenable for two years. Kaye Scholarship, for proficiency in anatomy and physiology, value £22 10s. Gold and bronze medals are also awarded for proficiency in various subjects.

Fees.—Students in the Faculty taking their complete medical course in the university pay an inclusive composition fee of £38 for each of the five years. Students taking a complete dental course pay a composition fee of £25 at the beginning of each year of the course. In addition, a fee of £50 is payable each year the student receives instruction in Mechanical Dentistry in the Dental Department. The fees for special courses taken separately can be ascertained by inquiry of the Dean.

SCOTLAND.

As will be gathered from the following paragraphs, the facilities for acquiring a medical education in Scotland are very ample, whether the student be proceeding to a university degree or to a diploma. To the descriptions of the different Scottish medical centres is in some cases added an account of hospitals which either play an official part in the education given to students as yet unqualified or offer valuable opportunities for post-graduation work.

ABERDEEN.

THE school is conducted by the Faculty of Medicine. This comprises twelve chairs, from which instruction is given in all the main branches of medical science—namely, botany, zoology, physics (ordinary and pre-registration), chemistry (ordinary and pre-registration), anatomy, physiology, materia medica, pathology, forensic medicine, surgery, medicine, and midwifery. Courses of instruction in public health, tropical medicine, medical ethics, and sanatorium treatment of tuberculosis, are conducted by lecturers appointed by the University Court. Special opportunities for practical instruction are afforded in the laboratories and museums attached to the departments.

Clinical instruction is obtained in the Royal Infirmary (accommodating 270 patients), the Royal Lunatic Asylum (900 patients), the Sick Children's Hospital (85 patients), the City Fever Hospital (250 patients), the General Dispensary, Maternity, and Vaccine Institution (10,000 out-patients annually), and the Ophthalmic Institution (3,000 patients annually). Courses of practical instruction are given in diseases of children at the Sick Children's Hospital; in fevers at the City Fever Hospital; in insanity at the Royal Asylum; in diseases of ear, nose, and throat at the Infirmary and Dispensary; in diseases of the eye at the Infirmary and Eye Institution; in venereal diseases and diseases of the skin at the Royal Infirmary.

The degrees granted in medicine are: Doctor of Medicine (M.D.), Master of Surgery (Ch.M.), Bachelor of Surgery and Bachelor of Medicine (M.B., Ch.B.). A Diploma in Public Health is conferred after examination on graduates in medicine in any university of the United Kingdom.

The degree of Ph.D. is also granted in this faculty.

Bursaries, Scholarships, and Fellowships, to the number of fifty and of the annual value of £1,180, may be held by students

because facilities for transfer from the medical service of one colony or group of colonies to that of another are as yet practically non-existent, except in connexion with a few specialist and senior appointments; this sets strict limits upon the opportunities for promotion.

The bulk of the medical appointments made by the Secretary of State in this country are to the services in the East and West African Colonies and Protectorates, the Straits Settlements and Malay States, the East Indies, and Fiji and the Western Pacific. In general, candidates for such appointments must be between the ages of 23 and 35; and whilst these limits are not for the moment absolute, an officer over 35 years of age on first appointment may be required to serve on a temporary and non-pensionable footing; regular appointments are, subject to a varying period of probation, for the most part, nominally at least, permanent and pensionable. There is no entrance examination, but practitioners selected for appointment must obtain a certificate of physical fitness from one of the Medical Advisers of the Colonial Office. In the case of the West African Medical Staff and the East African Services successful candidates are required to undergo an approved course of instruction in tropical medicine.

Colonial Service: The General Outlook.

While colonial service offers undoubted attractions to some practitioners it also presents very definite disadvantages, and not the least of these is, at the present time, uncertainty as to the future. Before the war, conditions in several of the services gave rise to considerable anxiety; the greatly enhanced cost of living during the war resulted in certain more or less inadequate temporary advances in remuneration, but consideration of the radical reforms required was postponed until the succeeding period of reconstruction. In 1919 a Departmental Committee under the Chairmanship of Sir Walter Egerton was appointed to consider the position of the Services generally, the means of securing contentment within them, and the maintenance and increase of the supply of candidates. The Committee found that the ideal to be aimed at was the creation of a unified Colonial Service, recruited by competitive examination and represented on the staff of the Colonial Office by a Medical Director-General. As an immediately practicable step in this direction it recommended the assimilation of the medical services in neighbouring colonies, and more especially those in the East African and Malayan groups. A permanent increase of salaries with a general minimum of not less than £600 a year on first appointment was recommended; the necessity for study leave was recognized, as was the need for the development of facilities for research; an increase in the number of specialist appointments and adequate provision for promotion by transfer from the service of one colony or group to that of another were other points emphasized.

Progress along the lines laid down by the Departmental Committee, which correspond broadly to the policy adopted by the British Medical Association, has undoubtedly been made since the report of the Committee was issued. With the exception of the West Indian Services, the Fiji and Pacific Colonies, and a few of the smaller dependencies which each offer only one or two medical appointments, the adoption of the £600 minimum or its equivalent in local coinage has been achieved. The commencing pay in the West African Medical Staff is £660 a year. For all practical purposes the Services in the Malay Peninsula have been unified, and some steps have been taken towards the assimilation of the East African Services, whilst there has been an appreciable increase in the number of specialist appointments and the facilities for research. The Services, however, remain understaffed. Opportunities for promotion, failing means of transfer from one service to another without loss of pension, must remain inadequate. Certain services, notably those in the West Indies and Fiji, have not yet secured that measure of reform essential to a minimal standard of efficiency, and it seems clear that the final unification of the East African Medical Services under conditions approximating to those of the West African Medical Staff will be indefinitely postponed.

Moreover, the acute economic depression of the last three years has affected many of the colonies with almost crushing severity. It has in some cases brought about the indefinite postponement of projected reform, and in others it has practically neutralized advances in remuneration that were at one time thought to be permanent, besides imposing disastrous restrictions on the public health programme in many places, and reductions in the medical personnel of the Services. Nor do economic difficulties, radical though they are, stand alone. The constitutional status of the colonies is under review. Schemes for regrouping and for the concession of greater local autonomy may be temporarily delayed pending economic recovery, but it is not unreasonable to suppose that until such questions are settled there can be little progress towards the unification of the Colonial Medical Service. Their adoption, on the other hand, may entail the formulation of a new solution for the admitted difficulties.

The condition of the Colonial Medical Services has for some time been a matter of the gravest concern to the British Medical Association, which gave evidence on the subject before the Egerton Committee, and has been in constant communication with the Colonial Office on matters touching their welfare since August, 1921. During this period the Association has, in effect, been recognized as the mouthpiece of the Services, and has received copies of all official documents primarily affecting medical officers, and also the gazettes of the various local Governments. It has therefore been possible to supplement the activities of the Overseas Branches by the exercise centrally of unceasing vigilance over all tendencies likely to affect the development of the Colonial Services. It cannot be too strongly emphasized, however, that present conditions render advance impracticable.

The future is extremely uncertain, and after twelve months in which there has been no material advance worthy of record we must again warn intending candidates to consider carefully whether they may not be well advised to look elsewhere than to the Colonial Medical Services for a career.

Kenya Colony and the Windward Isles.

The necessity for caution is not diminished by the action of the Secretary of State for the Colonies in connexion with the recent reduction of personnel in the Kenya Colony Medical Service. The ruling in this case, discussed in detail in the BRITISH MEDICAL JOURNAL of April 21st last, by which two established members of the service were compulsorily retired without compensation beyond the award of the pension payable after the same period of service, in the event of retirement on grounds of ill health, has made it plain that colonial appointments officially scheduled as permanent and pensionable do not, as a matter of fact, afford security of tenure. Doubtful as the general outlook is, it is bright in comparison with the conditions now obtaining in the Windward Islands, where three years of unremitting effort on the part of the British Medical Association, both centrally and locally, have ended in failure. The Representative Body of the Association, after full consideration of the facts of the case, and with a due sense of the responsibility involved in any action tending to hinder the supply of qualified candidates for the services in these islands, passed at Portsmouth last July a resolution regretting that the Colonial Office had declined to press the claims of the Windward Islands Medical Officers with regard to their terms and conditions of service, and thoroughly endorsing the action taken by the Council in support of those claims. Such a resolution is the best possible commentary upon the opinion already expressed in these columns (June 30th, 1923, p. 1102), that no qualified medical practitioner aware of the conditions of service will accept an appointment in these islands.

Official Sources of Information.

All inquiries in connexion with colonial medical appointments made by the Secretary of State for the Colonies should be addressed to the Assistant Private Secretary (Appointments), Colonial Office, Downing Street, S.W.1. Any vacancies occurring in Iraq, Palestine, and Aden are recruited through the Colonial Office, and information can be obtained at the same address. Vacancies also occur, though at rare intervals, in the Sudan, and inquiries as to these should be addressed direct to the Civil Secretary, Sudan Government, Khartoum. Inquiries about any medical appointments made by the Egyptian Government should be addressed to the Director-General, Public Health Department, Cairo.

Information as to medical appointments in the self-governing Dominions and their dependencies can be obtained on application to the High Commissioners or Agents-General for the Dominions. Intending applicants are also recommended to

The following bursaries are open to undergraduates of both sexes: The Gibson Bursary, annual value £36, tenable for four years. This is open to medical students who are preparing for service as medical missionaries in connexion with the Church of Scotland and will be awarded to the eligible candidate who has gained the highest number of marks in the First Professional Examination. The Arbroath Bursary, annual value £40, tenable for three years, is awarded by the Senate, on the recommendation of the Faculty of Medicine, to the student who is of the highest merit among the candidates, as shown by their class records and their performances in the First and Second Professional Examinations. One Logan Bursary, annual value £16, tenable for four years; appointment by the Senate. Six Lorimer Bursaries (each £20 and tenable for one year) are awarded to the best students in each of the following classes: botany, zoology, physics, chemistry, anatomy, physiology. The Mackintosh Mental Science Bursary in medicine, of the value of £31, is awarded annually to the student (of either sex) attending the class of insanity who stands first in an examination in that subject, the bursar to continue the practical study of the subject to the satisfaction of the Faculty of Medicine. The Gardiner Bursary, annual value £14, tenable for two years, will be awarded after the autumn professional examination to the candidate who has passed in physiology at the Second Professional Examination, and whose aggregate of marks in that subject and in chemistry and physics of the First Professional Examination is the highest. Of the eight James A. Paterson Bursaries two are awarded each year; they are of the value of £30 and £20 respectively, and are tenable for four years; examination in mathematics and natural philosophy in June for students entering the first and second year of medical study. The following are tenable in any faculty: Four Nivison Bursaries (each £75 and tenable for four years), two Pratt Bursaries (each £20 and tenable for four years), and two Taylor Bursaries (each £10 and tenable for four years). Andrew and Bethia Stewart Bursaries (£50 each, tenable for three years); candidates must have taken the M.A. degree of Glasgow. There is a special examination. Nine Glasgow Highland Society's Bursaries, for students of Highland descent, of the annual value of £25, and tenable for five years; two vacant each year.

The Carnegie Trust for the Universities of Scotland is empowered to pay the whole or part of the university ordinary class fees of students of Scottish birth or extraction, under conditions given in the *University Calendar*. The Dobbie Smith Gold Medal is awarded for the best essay on a prescribed subject within the science of botany. The Brunton Memorial Prize of £10 is awarded annually to the most distinguished graduate in medicine of the year. The University Commissioners issued an ordinance to make regulations for the admission of women to certain bursaries, scholarships, and fellowships. Scholarships and fellowships are offered by the Carnegie Trust in science and medicine for post-graduation study. There are also four McCunn Medical Research Scholarships (two of £200 and two of £100) for graduates in medicine of the Scottish universities; one Faulds Fellowship for Research in Medical Science of approximately £200 for three years; and one Strang Steel Scholarship value £160 for one year.

Fees.—The matriculation fee for each year is £2 2s. In most cases the fee for each university class is £6 6s., but in some cases it is £4 4s. For hospital attendance students pay an entrance fee of £7 at the Western Infirmary, with an additional fee of £5 5s. for each winter and £2 12s. 6d. for each summer clinical course; at the Royal Infirmary the fees are somewhat similar. The university fee for the four professional examinations is £34 13s. For the whole curriculum the fees for matriculation, class attendance, hospital attendance, and professional examinations amount to about £225.

For further information apply to the Registrar, Glasgow University.

QUEEN MARGARET COLLEGE.—In this, the Women's Medical School of the University of Glasgow, the courses of study, degrees, regulations, fees, etc., are the same as for men. Women students have their own buildings, with classrooms, reading room, library, etc. They are taught in some classes apart from male students, in others together with them, but in either case have all the rights and privileges of university students. Their clinical studies are taken in the Royal Infirmary, where wards containing 520 beds are available for their use, and in its dispensary; and similarly in the Western Infirmary and in the Victoria Infirmary; also in the Royal Hospital for Sick Children, the Glasgow Ear Hospital, the Royal Asylum, Gartnavel, Hawkshead Asylum; the Ophthalmic Institution, the City of Glasgow Fever Hospitals, Belvidere and Ruchill; and the Glasgow Royal Maternity and Women's Hospital.

Scholarship.—The Arthur Scholarship, annual value £20, tenable for three years. Open to competition by medical students of first year at the First Professional Examination in October, 1922. This scholarship is restricted to women medical students.

Full information can be obtained from the Mistress, Margaret Hospital.

Board for Students.—A house of residence for w students, Queen Margaret Hall, is situated near the co in Bute Gardens. The cost of board and residence is 27s. to 32s. 6d. a week, according to accommodation. A cation to be made to the Lady Superintendent. An hostel near the college is South Park House, Ann St belonging to the Student Christian Movement, and ope women students of all colleges in Glasgow. Cost of boa from 28s. to 30s. weekly. Applications to be made to Warden.

ST. MUNGO'S COLLEGE.—This is the Medical School of Royal Infirmary, which is the largest general hospita Glasgow. The infirmary is situated in Cathedral Squ Castle Street, and has car communication with every par the city. St. Mungo's College is in the infirmary grou and affords full courses in all the subjects of the med curriculum, and in all the medical subjects of the den curriculum.

The infirmary has (including the ophthalmic departme over 700 beds, the average number occupied in 1920 be over 600. There are special beds and wards for diseases women, of the throat, nose and ear, venereal diseases, bur and septic cases. In the out-patient department the atter ances in 1921 numbered 168,610. In addition to the lar medical and surgical departments, there are departments f special diseases—namely, diseases of women, of the thro and nose, of the ear, of the eye, of the skin, and of the teet There is also a fully equipped electrical pavilion, with th latest and most approved apparatus for diagnosis an treatment.

Appointments.—Five house-physicians and eleven hous surgeons, who must be fully qualified, are appointed ever six months, and board in the hospital free of charge. Clerk and dressers are appointed by the physicians and surgeons As many cases of acute diseases and accidents of a varie character are received, these appointments are very valuable

Fees.—The average class fee is £3 3s. for summer classes an £4 4s. for winter classes. The fees for all the lectures, practica classes, and hospital attendance necessary for candidates for the diplomas of the English or Scottish Colleges of Physicians and Surgeons amount to about £80. The classes are open to male and female students.

A syllabus of classes can be obtained on application to the Secretary to the Medical Faculty, St. Mungo's College, 86, Castle Street.

THE ANDERSON COLLEGE OF MEDICINE.—This school provides education in all subjects of the curriculum for both medical and dental students. The school buildings are situated in Dumbarton Road, immediately to the west of the University and Western Infirmary. The hospital practice and clinical lectures are provided in the Western or Royal Infirmary; pathology in the Western or Royal Infirmary; vaccination and dispensary practice in the Western or Royal Infirmary Dispensary. These classes are recognized by all the licensing corporations in the United Kingdom, also by the Universities of London, Durham, Glasgow, and Edinburgh (the latter two under certain conditions stated in the school Calendar). The courses (lectures and laboratory) in public health are recognized by the Scottish Licensing Board, the Universities of Oxford, Cambridge, and London, and the London and Irish Colleges.

Fees.—The fees for the lectures and practical work required by ordinary students range between 2 and 5 guineas a session. In the Public Health Department the fee for a six months' course is £14 14s. The Carnegie Trust pays the fees of students at Anderson College on conditions regarding which particulars may be obtained from the Secretary, Carnegie Trust Offices, Edinburgh.

A Calendar will be sent on receipt of a postcard by the Secretary to the Medical Faculty, the Anderson College of Medicine, Glasgow, W., who will forward any further information which may be desired.

The Royal Samaritan Hospital for Women, Glasgow, with over 90 beds, offers facilities for clinical instruction in the diseases peculiar to women. Particulars may be obtained from J. Mason Macquaker, M.A., honorary secretary, 149, St. Vincent Street, Glasgow.

majority of the directors and all the operating staff are registered dentists, and that no other business than dentistry or only some business ancillary to dentistry is carried on by the company. Companies carrying on the business of dentistry at the present time are permitted to continue to do so with certain restrictions, provided that the names of the directors have been entered in a list kept by the registrar for the purpose. Every director or manager of a company convicted of an offence under the Act will be held to be guilty of the offence unless he proves that the offence was committed without his knowledge, and the court may, in addition to a fine, order that the name of any director convicted shall be removed from the list of directors aforesaid.

THE DENTAL BOARD.

The Dental Board of the United Kingdom has been established for the purpose of administering the new Act. The first members hold office for three years, subsequent members for five years. The Privy Council has appointed the chairman and two members, the latter being dentists not registered under the principal Act. The General Medical Council has appointed three members, who must be members of the Branch Council for England, Scotland, and Ireland respectively. Three persons who are neither medical practitioners nor dentists represent England, Scotland, and Ireland, and four registered and qualified dentists have been appointed —two by the Minister of Health, one by the Scottish Board of Health, and one by the Lord Lieutenant of Ireland. At the end of three years the two members being dentists not registered under the principal Act, and the four members registered under that Act appointed by the Minister of Health (two), the Scottish Board of Health, and the Lord Lieutenant of Ireland, will be replaced by four members who will be elected by qualified dentists practising in the three countries and two by registered dentists who are not qualified.

On the establishment of the Dental Board in 1921 certain powers and duties of the General Medical Council were transferred to it, including the duty of erasing from the *Dentists Register* any entry which has been incorrectly or fraudulently made. An inquiry into the case of a person alleged to be liable to have his name erased from the *Register* will be made by the Board, which will report its finding to the General Medical Council, the order directing the erasure being made, as at present, by the Council. A name erased from the *Register* can only be restored by the Council upon a report made by the Board. An appeal to the High Court may be made by any person aggrieved either by refusal of the Board to register his name or by the removal of his name from the *Register*. The first registrar was appointed by the General Medical Council with the approval of the Privy Council, and he holds office for three years; subsequent appointments will be made by the Board. The administrative expenses of the Board are defrayed from the registration fees and annual retention fees, but any surplus may be allocated to purposes connected with dental education and research or to any public purpose connected with dentistry. The office of the Dental Board is at 44, Hallam Street, London, W.1.

The *Dentists Register* for 1923 contains the names of 12,762 persons, of whom less than a half are registered with qualifications, 7,269 names having been registered under the Dentists Act, 1921.

DENTAL EDUCATION AND EXAMINATION.

The preliminary examination in Arts is the same for medical and dental students, and the early stages of their education embrace much the same subjects[1]; and, as the dental student is required to obtain a knowledge of the broad principles of medicine and surgery, it is necessary for him to pursue some portion of his studies at a medical school as well as at a special dental school, the latter not undertaking the teaching of these subjects. Registration as a dental student is not in all cases compulsory, though it is to be advised as convenient as affording proof of the commencement of professional education, and it is required by most of the licensing bodies, all of whom insist upon a curriculum covering four academic years.

Qualifying licences are granted by the Royal Colleges of Surgeons of England and of Edinburgh and of Ireland; by the Royal Faculty of Physicians and Surgeons, Glasgow; and by certain of the universities in the United Kingdom.

[1] See the Registrar's Memorandum, printed in the article on the General Medical Council at page 356.

Recognized dental schools are numerous. In London there are those connected with the Royal Dental Hospital, Leicester Square; the National Dental Hospital (now the University College Hospital Dental School), Great Portland Street; Guy's Hospital; and the London Hospital. In the provinces there are the Birmingham Dental Hospital; the Royal Infirmary and the General Hospital, Bristol; the Dental Hospital and the Public Dispensary, Leeds; the Dental Hospital, Liverpool; the Dental Hospital, Manchester; the Dental Hospital and School, Newcastle-on-Tyne; the Royal Hospital, Sheffield. In Scotland there are the Dental Hospital, Dundee; the Incorporated Dental Hospital and School, Edinburgh; and the Incorporated Dental Hospital, Glasgow; and in Ireland, the Incorporated Dental Hospital of Ireland and the Royal College of Surgeons in Ireland.

Study may also be commenced in the dental department of any university of the United Kingdom. The universities mentioned in the current issue of the *Medical Directory* as possessing dental schools or departments are: Birmingham, Leeds, Liverpool, Manchester, and Sheffield.

There are considerable variations in the order in which the different licensing bodies require the various subjects of the curriculum to be taken up, and every prospective dental student should study not only the regulations of the General Medical Council but also those of the body whose licence he hopes to obtain. This is the more important as in the case of some licensing bodies changes in the curriculum, with the view of making it more closely adapted to the needs of the practising dentist, have either already been made or are in contemplation.

Recommendations of the General Medical Council.

The Dentists Act still leaves to the General Medical Council the duty of controlling the course of study and examinations required for dental qualifications.

The following recommendations as to the course of study and examinations to be required of candidates for degrees or licences in dentistry or dental surgery were adopted by the Council on May 27th, 1922.

Preliminary Examination and Registration.

1. That every dental student shall, at the commencement of his studentship, be registered in the manner and under the conditions prescribed for medical students.

2. That before registration in the *Dental Students Register* every applicant shall be required to have passed, in addition to the examination in general education, which shall be the same as that required for medical students, an examination in Elementary Physics and Elementary Chemistry, conducted or recognized by one of the licensing bodies, which shall also be the same as that required for medical students.

3. That before registration as a dental student every applicant shall produce evidence that he has attained the age of 17 years.

Professional Study.

4. That every candidate for a degree or licence in dentistry or dental surgery shall be required before admission to the final or qualifying examination to produce certificates showing:

(i) That he is at least 21 years of age.

(ii) That he has been registered as a dental student.

(iii) That he has, subsequently to the date of registration as a dental student, been engaged in professional study for at least four years, of which three years at least shall be spent at a school or schools recognized for professional study by one of the licensing bodies.

(iv) That, subsequently to the date of registration as a dental student, he has attended at a recognized medical school courses of instruction, which shall be the same as those required for medical students, in the following subjects: (*a*) Chemistry, and (*b*) Physics, in their application to Medicine; (*c*) Elementary Biology. That he has attended at a recognized medical school courses of instruction in the following subjects: (*d*) Human Anatomy (with dissections and demonstrations) for three academic terms; (*e*) Physiology (with laboratory instruction, including practical Histology) for two academic terms; (*f*) General Pathology (including Bacteriology) for two academic terms; (*g*) Medicine for two academic terms; (*h*) Surgery for two academic terms; (*i*) the practice of a recognized general hospital or hospitals of not less than eighty beds, with certified instruction in Clinical Medicine and Clinical Surgery, for four academic terms.

(v) That he has attended at a recognized dental school courses of instruction in the following special subjects: (*a*) Dental Anatomy and Physiology, human and comparative. The course should comprise a minimum of twenty meetings of the class. (*b*) Practical Dental Histology and Morbid Histology. The course should comprise a minimum of sixteen meetings of the class. (*c*) Dental Pathology and Surgery. The course should comprise a minimum of twenty meetings of the class. (*d*) Dental Materia Medica and Therapeutics. The

of the new university, but students proceeding for the examinations of the Conjoint Board of England, Scotland, or Ireland, the Society of Apothecaries of London, or the Apothecaries' Hall of Ireland, or London University, can arrange the courses of lectures which they attend, and the order in which they attend them, to meet the requirements of those bodies. Certificates of attendance at the college courses are also accepted by the University of Cambridge. Clinical instruction is given at the North and South Infirmaries (each 100 beds) and at the Cork Union Hospital (1,200 beds). Students can also attend the Mercy Hospital (60 beds), the County and City of Cork Lying-in Hospital, the Maternity, the Hospital for Diseases of Women and Children, the Fever Hospital, the Ophthalmic and Aural Hospital, and the Eglinton Lunatic Asylum. The session extends from October to June.

There is a Dental School in which the degree of Bachelor of Dental Surgery of the National University of Ireland can be obtained. There is a large well equipped dental hospital in connexion with the school.

Scholarships.—Over £1,000 are available annually for scholarships in the College. Particulars as to each of them can be obtained on application to the Registrar.

Fees.—The fees for the lectures and hospital attendances required by the National University of Ireland course, including examination fees, come to about £150.

Further information can be found in the college regulations, or obtained on application to the Registrar.

UNIVERSITY COLLEGE, GALWAY.

THIS institution is one of the constituent colleges of the National University of Ireland, and includes Faculties of Art, Science, Law, Celtic, Engineering, Commerce, and Medicine. The college buildings are well lighted and well ventilated, and contain dissecting rooms, an anatomical theatre, and laboratories for the study of physiology, chemistry, physics, and other departments of medical science. For pathology and chemistry new laboratories are now provided. It has good grounds surrounding it, and there are many arrangements, such as a library, a college union, and an athletic union, for the benefit of those belonging to the Medical Faculty, as well as for students in other departments of the college. The clinical teaching, which is recognized as qualifying not only for the degrees of the National University, but for those of London University and the diplomas of the various colleges in the three kingdoms, is carried on at the Central Hospital, Galway County Hospital, the Galway Fever Hospital, and the Galway Dispensaries. The Galway Central and County Hospitals are general hospitals, and at the other two hospitals and at the dispensaries students have ample opportunities of studying zymotic and chronic diseases. The Central Hospital has a special ward for diseases of children. Each year the governing body offers about £1,500, and the County Councils of Connaught offer about £3,500, in scholarships. These scholarships are tenable in any faculty. Additional information regarding these scholarships can be obtained on application to the Registrar, and to the Secretaries of the Connaught County Councils.

CLINICAL HOSPITALS IN ENGLAND.

THERE are a great many hospitals in Great Britain and Ireland which, though not connected with any medical school, open their doors either to those who have yet to become qualified, to those who are doing post-graduation work, or to both. The facilities they offer for gaining practical clinical experience are very great, and should not be overlooked. Their honorary staffs commonly make a point of giving such instruction as opportunity offers, and at those situated in the larger towns there are often appointments as clinical assistants to be obtained. In addition, they all have to offer, at shorter or longer intervals, appointments for resident medical officers, house-physicians, and house-surgeons. These are usually paid offices, which may be held for periods varying from six months to a year. Some of those situated in the great medical centres in the provinces, and in Scotland and Ireland, have already been mentioned in speaking of the medical schools in these localities, but it should be added that there are many other provincial hospitals where admirable work is done, and at which much valuable experience can be gained by both senior and junior students, and by those already qualified. Cases in point are the Royal Infirmary, Bradford; the Royal Sussex County Hospital, Brighton; the Royal United Hospital, Bath; the Kent and Canterbury Hospital; Derbyshire Royal Infirmary; the Royal Albert Hospital and Eye Infirmary, Devonport; the Royal Devon and Exeter Hospital; the West of England Eye Infirmary, Exeter; the Gloucestershire Royal Infirmary and Eye Institution; the Royal Infirmary, Leicester; the County Hospital, Lincoln; the General Hospital, Northampton; the Norfolk and Norwich Hospital; the General Hospital, Nottingham; the Royal Portsmouth Hospital; the Royal Berks Hospital, Reading; the Royal South Hants and Southampton Hospital; the Staffordshire General Infirmary, Stafford; the North Staffordshire Infirmary at Hartshill; the Royal Hants County Hospital, Winchester; the Wolverhampton and Staffordshire General Hospital; the County Hospital, York; and the Coventry and Warwickshire Hospital.

London Clinical Hospitals.

As for the hospitals in the metropolis, so many of these take a share in the giving of clinical instruction that it is worth while to classify them.

General Hospitals.—These include the Dreadnought Hospital at Greenwich, and its annexe at the Albert Dock, which form the headquarters of the London School of Clinical Medicine, and the London School of Tropical Medicine with its hospital at Endsleigh Gardens; the West London Hospital and the Prince of Wales's General Hospital, Tottenham, both of these being described in the article on post-graduate work; the Royal Northern Hospital, Holloway Road, an institution containing 185 beds; and the Temperance Hospital in Hampstead Road.

Children's Hospitals.—There are at least seven of these, the leader among them being the Hospital for Sick Children, Great Ormond Street, which has 240 beds. There are also the East London Hospital for Children, Shadwell, with 124 cots; the Queen's Hospital for Children, Bethnal Green, with 134; the Victoria Hospital for Children, Chelsea, with 104; the Belgrave Hospital for Children, which has a considerable out-patient department, but in-patient accommodation for only 40 children; the Paddington Green Children's Hospital, an institution of about the same size; and the Evelina Hospital for Sick Children, Southwark Bridge Road, with 76 beds.

Hospitals for Women.—Queen Charlotte's Lying-in Hospital, Marylebone Road, with 70 beds and a residential college for students and practitioners, specializes in the teaching of midwifery. The Samaritan Hospital for Women, Marylebone Road, admits qualified practitioners as clinical assistants to both the in-patient and out-patient departments; demonstrations are given daily in both departments, the fees—payable in advance—being £3 3s. for three months; full particulars may be obtained from the secretary. In addition may be mentioned the Hospital for Women, Soho Square, whose teaching is confined to post-graduates in limited numbers; the Chelsea Hospital for Women, Arthur Street, Chelsea; and the Elizabeth Garrett Anderson Hospital for Women in Euston Road, the latter being in the nature of a general hospital so far as concerns the class of case treated.

Eye Hospitals.—The largest of these is the Royal London Ophthalmic Hospital (Moorfields), City Road. At this hospital two complete courses of instruction are given during the year—October to February and March to July—comprising the following subjects: anatomy, physiology, and optics; ophthalmic medicine and surgery—(1) external diseases, (2) motor anomalies and squint, (3) ophthalmoscopic conditions (weekly classes), (4) pathology; practical refraction classes; methods of examination (practical); operative surgery; practical pathology; practical bacteriology; x-ray and radiotherapy; clinical lectures; discussion classes. A fee of 24 guineas entitles the holder to one full five months' course (with the exception of practical pathology and practical bacteriology), together with a permanent ticket for the practice of the hospital. Fee for the practice of the hospital (permanent), £5 5s.; for three or six months, £3 3s.; for two months, £2 2s.; for one month, £1 1s. Gentlemen are eligible, under certain conditions, for the posts of chief clinical assistant, clinical assistant, and junior assistant. Clinical work takes place every morning at 9 o'clock, and operations at 10 every morning. An additional special course in the preliminary subjects (namely, anatomy, physiology, and optics) for the D.O.M.S., and other ophthalmology examinations, will be held immediately preceding the date of the examination. The fees for this course will be 12 guineas, or £5 5s. for any subject separately. Further particulars may be obtained from the Dean of the Medical School. Other eye hospitals are the Royal Westminster Ophthalmic

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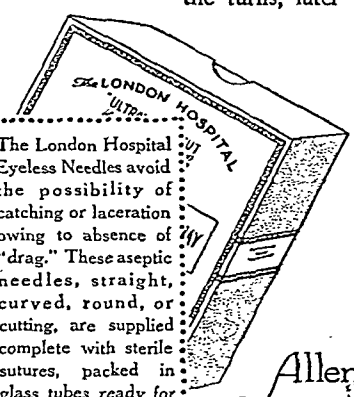

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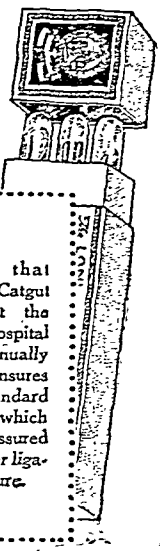


The fact that "Ultratan" Catgut is made at the London Hospital and is continually in use there, ensures a constant standard of excellence which cannot be assured with *any other* ligature or suture.

Professional Matriculation Examination is open to ministers of religion, barristers and solicitors, medical practitioners, registered teachers; also to engineers, architects, surveyors, pharmacists, accountants, auditors, and associates of the Institute of Bankers, holding recognized qualifications conferred after examination. Information should be sought from the Registrar, The University of London, South Kensington, S.W.7.

UNIVERSITY OF DURHAM.

The degree of M.D. is granted by the University of Durham to registered practitioners of not less than fifteen years' standing, who have been qualified and in practice for that period, upon the following conditions, without residence: The candidate must be 40 years of age, and must produce a certificate of moral character from three registered medical practitioners. Should he not have passed an examination in arts previously to the professional examination in virtue of which his name was placed on the *Register*, he is examined in classics and mathematics; if otherwise, he is required to translate into English passages from any one of the following Latin authors: Caesar, *De Bello Gallico* (first three books), Virgil, *Aeneid* (first three books), or Celsus (first three books). Natives of India or the British Colonies are placed on the same footing as natives of Great Britain. Natives of India must produce evidence from an Indian university that they have passed within one year an examination in Latin.

Professional Examination.—The candidate must pass an examination in the following subjects: (i) Principles and practice of medicine, including psychological medicine, hygiene, and therapeutics; (ii) principles and practice of surgery; (iii) midwifery and diseases of women and children; (iv) pathology, medical and surgical; (v) anatomy, medical and surgical; (vi) medical jurisprudence and toxicology. The examination is conducted by means of printed papers, clinically, and viva voce, at the College of Medicine, Northumberland Road, Newcastle, and in the Royal Victoria Infirmary. The classical part of the examination may be taken separately from the professional on payment of a portion (£10 10s.) of the full fee.

The examinations are held twice a year, towards the end of March and of June. Notice, accompanied by the fee and certificates, must be sent to Professor Howden, Registrar of the University of Durham College of Medicine, Newcastle-on-Tyne, at least twenty-eight days before the commencement of the examination.

Fees.—The inclusive fee is 50 guineas; if a candidate fail to pass, 20 guineas are retained, but if he present himself again, 40 guineas only are required.

UNIVERSITY OF BRUSSELS.

Until recently this university granted its M.D. to such foreign candidates as were already duly qualified in medicine and surgery in their own countries, provided they passed the three special examinations imposed. The examinations were conducted viva voce. The University of Brussels, however, announced two years ago that these special examinations would no longer be held, nor would the M.D.Brussels diploma be granted by the university to foreign medical practitioners as formerly. Nevertheless, we are informed by the Secretary of the University, Dr. Jean Willems, that it is still possible for a foreigner to obtain in Brussels a diploma of "Docteur en médecine, chirurgie et accouchements," which, although it does not entitle to practise in Belgium, has exactly the same value as the Belgian legal diploma.

For Belgians (Dr. Willems writes) the usual length of studies is seven years: two years of candidature of sciences, two years of candidature of medicine, and three years of doctorate of medicine. But it rests with the Faculty concerned to decide on questions of equivalence of foreign academic records with the ordinary Belgian qualifications for admission to university courses, so that a student who has several years of university training in Great Britain may, on presentation of his certificates or diplomas, be admitted to follow the courses of the first, second, or even third doctorate. I beg to insist on one point which if properly understood may spare your citizens much useless trouble. It happens that English practitioners, already bearers of an M.D. diploma, ask from the Faculty that our degree of doctor be conferred on them *ad eundem* on payment of necessary fees. The regulations of our University absolutely forbid that a diploma be granted to anybody, without at least one year's attendance on the courses.

POST-GRADUATION STUDY.

THE POSITION IN ENGLAND.

IT is unfortunate that so far very little success has attended efforts made to establish in England a predominant centre of post-graduate education. There is no lack of material for post-graduation study, and teachers are plentiful. But of real organization capable of affording facilities such as exist even in post-war Vienna there is very little evidence. In any such organization two objects must be held in view: first, provision for study which will attract men of capacity from the Dominions, America, and foreign countries; secondly, courses which will benefit practitioners in this country whether they intend to perfect themselves in special forms of treatment or to bring up to date their knowledge of general subjects in medicine and surgery.

A committee appointed by Dr. Christopher Addison, when Minister of Health, under the chairmanship of the Earl of Athlone, did something to crystallize ideas on the subject of post-graduate education. This committee recommended that a school attached to a hospital centrally situated in London should be devoted solely to post-graduate medical education, that it should be a school of the University of London, and that it should receive financial assistance from Parliament. On the other hand, many have held that a hospital entirely devoted to post-graduate students need not for the moment be regarded as essential to a post-graduate scheme; and that a central co-ordinating body for post-graduate students might, with the material already available, lay the foundation of a scheme of which a post-graduate hospital might ultimately come to be the centre.

These views have been discussed by the Fellowship of Medicine, a body which arose in 1918 for the purpose of drawing together the members of all the inter-allied countries for the exchange of medical knowledge and the advancement of medical science. The Fellowship of Medicine arranged a post-graduate course in the early part of 1919 for the benefit of medical men who had served as temporary officers in the Royal Navy, the R.A.M.C., the Royal Air Force, and from the Dominions, the United States, and the allied countries. The Fellowship of Medicine was amalgamated with the Post-Graduate Medical Association in October, 1919, and since that date the combined body has applied itself to the problem of establishing a predominant post-graduate institution in London. It cannot, however, be said that its efforts so far have brought it within sight of success. The main result of its deliberations up to the present has been a reconstitution of the Fellowship of Medicine as representative of a number of hospitals which are not engaged in undergraduate teaching. While the reconstituted body will doubtless be of great value in meeting the needs of practitioners in this country, it is hardly likely to carry the prestige which will place England in the forefront as a centre of post-graduate education.

So far, however, as medical practitioners in this country are concerned, whether they be newly qualified or wishful to refresh their knowledge or to embark on special treatment, the facilities offered are numerous and varied, even if somewhat unco-ordinated. The Fellowship of Medicine, in addition to possessing an office, kindly housed at the Royal Society of Medicine, 1, Wimpole Street, for the provision of information regarding post-graduate facilities, has organized courses of instruction at various hospitals scattered about London. The monthly *Bulletin* of the Fellowship contains a list of the hospitals which welcome the attendance of graduates. For those who desire to revise or increase such medical knowledge as is useful in their professional work, the West London Post-Graduate College and the North-East London Post-graduate College are eminently suitable. Some of the large undergraduate teaching hospitals provide short post-graduate courses for their former students during the summer vacation. The London Panel Committee arranges with Guy's Hospital for periodical courses of demonstration lectures to be given to insurance practitioners, and at Charing Cross Hospital weekly post-graduate classes are held. At the London Hospital there are courses in connexion with school clinics. Courses in special diseases are obtainable at a large number of special hospitals, a list of which is printed in the *Handbook for Recently Qualified Practitioners*, issued by the

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

VICTOR BONNEY, M.S., M.D., F.R.C.S., President.

DISCUSSION ON THE TREATMENT OF ACUTE SALPINGITIS.

INTRODUCTORY PAPERS.

I.—ALECK W. BOURNE, B.CH., M.B., F.R.C.S.,
Obstetric Surgeon for Out-patients, St. Mary's Hospital.

IN this paper our discussion will be confined to the treatment of those forms of acute suppurative salpingitis which give rise to the signs and symptoms of pelvic peritonitis. It is not intended to refer to so-called catarrhal salpingitis, which does not pronounce itself by the signs of definite peritonitis and never requires more than the simplest medical treatment for its relief.

Clinical Definition of Acute Suppurative Salpingitis.

Before discussing the treatment of the disease in detail it is necessary to define its clinical manifestations. It is essentially an attack of acute suppurating pelvic peritonitis with a background of genital symptoms due to acute suppuration of one or both Fallopian tubes. Thus we find that a patient suffering from acute salpingitis has acute pain, tenderness, and rigidity of the hypogastrium, with the ordinary accompaniments of moderate fever. A little later there is distension of the lower abdomen with constipation, sometimes vomiting, and painful micturition. In addition there are uterine haemorrhage, leucorrhoea, and great tenderness by vaginal examination. No definite swelling can be identified during the first few days on account of the softness of the enlarged tube and the pain of examination. It is essential, however, to diagnose the presence of free pus in the pelvic cavity during these earliest days before a definite tubal swelling has had time to form.

The Aim of Treatment.

The cardinal lesions requiring treatment are: (*a*) suppurative inflammation of the tubes, and later the ovaries; (*b*) suppurative pelvic peritonitis. These two conditions are inseparable and cannot be regarded independently.

The first object, therefore, of any intelligent treatment must be to arrest the acute disease and prevent its extension to the abdominal cavity proper. It is seldom that a general peritonitis arises as a result of acute salpingitis except after full-term labour, when the tube is an abdominal organ; but if the disease is treated efficiently it is possible to cut short the long-drawn-out course of tubal and pelvic suppuration which occurs when treated by expectant methods.

The second object is to prevent the formation of chronic sequelae in the shape of adhesive pelvic peritonitis, interstitial salpingitis, pyosalpinx, etc. Too little attention is paid to this aspect of the disease. It is virtually impossible for a suppurative salpingo-peritonitis to resolve unless operated upon. Chronic thickenings, adhesions, and cold abscesses are the almost inevitable result, producing a chronic semi-invalidism with relapses of acute symptoms. Further, a bilateral salpingitis is certainly followed by sterility.

The third object of treatment is to enable the affected tube to resolve sufficiently to resume its normal function. Suppurative salpingitis, by its denudation of epithelium and formation of intratubal adhesions, in addition to sealing of the abdominal ostium and fixation by intratubal adhesions, ensures the future sterility of the patient, which is a serious matter for a young married woman affected by gonorrhoeal salpingitis soon after marriage. It should be our aim, then, not only to prevent chronic ill health, but, if possible, to give back the reasonable hope of conception.

The Case for Operation.

The employment of expectant and medical methods will usually result in the acute symptoms passing off and the subsidence of any inflammatory mass in the pelvis. The patient "recovers" and is able to get up in about three weeks and resume her ordinary occupations; but she is inevitably sterile thereafter, and the slow development of chronic salpingo-oöphoritis or pyosalpinx is only a matter of time. If acute suppurative salpingitis is capable of resolution as a result of medical treatment, how does the ordinary chronic interstitial salpingitis arise? The commonest operation on the tube is for these chronic forms of inflammation. The great frequency of this disease and of operations for its cure after years of pain, menorrhagia, and sterility, is an indication of the ordinary sequel of the disease in the acute form. It would appear, therefore, that medical methods, although they may suffice to nurse the patient through the acute stages into a convalescence, are insufficient as treatment, in so far as the patient is left with a chronic inflammatory pelvic focus and all its symptoms. It is obvious that something more is necessary. Complete treatment can only be accomplished by surgical means—that is to say, by laparotomy—and proper treatment of the tube.

Time for Operation.

The ideal is to arrest the destructive inflammatory process at the earliest possible moment. As we have seen, the desquamation of the tubal epithelium and the formation of the intratubal adhesions and diverticula and the sealing of the ostium comprise the essential damage from the functional point of view, and it is probable that these processes begin very early in the disease. The chief element in the tube is its ciliated epithelium, for on its integrity depends the function.

It is important, therefore, to operate as soon as possible—in other words, as soon as the disease is diagnosed as a suppurative salpingitis. The sooner the abdomen is opened the easier is it to restore tubal function by arresting the destructive suppurative processes.

The chief objections to operation during the acute stage are (1) that it is usually "unnecessary"; (2) that it may be dangerous in spreading infection. We have already discussed the first objection by suggesting that though medical treatment may succeed in assisting the patient through her acute stage, yet surgery is necessary for the prevention of chronic tubal disease. The second objection used to be urged against operation for acute appendicitis before the fifth day. It is no more valid as applied to salpingitis than to appendicitis, probably less so, as the organisms of acute salpingitis are usually of a less virulent order. It is stated that laparotomy in the acute stage is dangerous inasmuch as it is liable to spread infection into the general abdominal cavity. By an ordinarily careful technique this should be no more likely than in acute appendicitis.

During the last three years I have been able to trace eleven cases of acute suppurative salpingitis operated on within a few days of the first onset of pain. There have been no deaths, and all the cases have done well. I have excluded eleven cases of puerperal salpingitis, which is a much more dangerous disease, and is anatomically and pathologically different from the non-puerperal variety.

From the arguments set forth, contending that medical treatment is very liable to be followed by chronic disease and that the risk of the operation is extremely small, the case for surgical interference appears to be established. Further, our knowledge of the pathological processes going on within the tube serves to indicate that such surgical treatment should be as early as possible.

The Operation.

The abdomen having been opened and the abdominal cavity proper carefully packed off from the pelvic cavity, the tubes are inspected to note their condition. In all true cases of the suppurative disease in the acute phase the tubes are greatly congested and plum-coloured, with oedematous

the lecturers and makes all the necessary arrangements. All inquiries should be addressed to the Director of Post-Graduate Studies, Pathological Department, Bristol University.

Daily Post-Graduate Study.

For those who are able to devote several hours each day to hospital practice the university offers special facilities for post-graduate work. Qualified medical practitioners may be appointed as clinical assistants for a period of one or more months. They may act as assistants, if times permit, in more than one department and in any of the hospitals during their period of study. They will be entitled to the use of the clinical laboratories and medical library, and have the right to attend in all departments, including operations, post-graduate and ordinary clinical demonstrations, and *post-mortem* examinations. Fee, £3 3s. a month.

Post-Graduate Clinical Work.

Demonstration courses with weekly lectures are held during May, June, and July. Fee, £2 2s. All inquiries and applications for admission should be addressed to the Director of Post-Graduate Studies (Clinical Section), Pathological Department, University of Bristol, who can be seen on any day by appointment at the Pathological Department.

WEST LONDON POST-GRADUATE COLLEGE.

The work of this institution is carried on at the West London Hospital, the first in London to devote its clinical material solely to the instruction of qualified medical men. The college started in 1895; it is provided with lecture, reading, writing, and class rooms, and accommodation of all sorts for the convenience of post-graduate students. In the five years before the war the yearly entry averaged over 220. The work of the college is eminently suitable for men who wish to revive their general clinical knowledge after war work.

As for ward work, the students accompany the senior staff on their visits to the wards at 2.30 p.m. daily, and also go round with the resident medical officers in the morning. Out-patient work begins at 2 p.m. This department is large, and affords ample facilities for post-graduates to see and examine patients. There are the usual special departments. Post-graduates are appointed to act as clinical assistants for three or six months. There is no charge to members of the college. Special practical classes are held in medicine, general practical surgery, gastro-intestinal surgery, medical and surgical diseases of children, analysis of blood and urine, cystoscopy, venereal disease, tropical diseases, retinoscopy, ophthalmic operative surgery, and, when material is available, in operative surgery. The size of the classes is limited. A special clinic for the treatment of venereal diseases (male and female) is held every evening (Saturdays included) at 5.30. Graduates are admitted to the work of the clinic free, and certificates of satisfactory attendance and work are given.

Operations take place at 2 p.m. daily, the surgeons often availing themselves of the assistance of the post-graduates, and in any case making arrangements so that they can readily see what is going on. The anaesthetists give instruction in the administration of anaesthetics, including spinal analgesia, on the operating days, students being allowed to administer them under supervision, while special classes are held in each session. The pathological laboratory is in charge of a pathologist who attends every day.

Demonstrations are ordinarily given in the morning by the assistant physicians and surgeons, and by the medical and surgical registrars.

Fees.—Hospital practice, including all ordinary demonstrations and lectures, £1 11s. 6d. for one week, £4 4s. for one month, £6 6s. for six weeks, £9 9s. for three months, £15 15s. for six months, £23 12s. 6d. for one year, and £45 for a life ticket. Instruction in the administration of anaesthetics is given at the rate of £3 3s. a month.

The certificates of the school are recognized by the Admiralty, the War Office, the Colonial Office, the India Office, and the University of London (for higher degrees). A prospectus can be obtained on application to the Dean.

NORTH-EAST LONDON POST-GRADUATE COLLEGE.

The headquarters of this post-graduate school are situated at the Prince of Wales's General Hospital, in the midst of a densely populated North London district. It contains 125 beds, and is within a few minutes' walk of South Tottenham Station on the Midland Railway, Seven Sisters Station on the Great Eastern Railway, and Tottenham Hale on the Great Eastern main line. It is readily accessible by electric tram from Finsbury Park and Hackney, and from Dalston, Edmonton, and other parts of North London.

The college is recognized by the Admiralty and the India Office for the purposes of study leave, and by the University of London as a place for advanced study for the M.D. and M.S. degrees; the course of practical teaching of bacteriology is approved by the University of Cambridge for its D.P.H. diploma, and there are ample arrangements for the convenience of men who are thus working, or who, being in active practice, are desirous of getting themselves into touch with modern methods. The hospital as a whole affords excellent facilities to qualified medical practitioners who wish to take part for a time in the work of an active general hospital, or to obtain special instruction in the several branches of medicine and surgery, since it is open to them to study diseases of the eye, ear, throat, nose, skin, fevers, children's diseases, psychological medicine, dental surgery, radiography, the application of electricity in disease, and the administration of anaesthetics. Throughout the sessions into which the year's work is divided, clinics, lectures, and demonstrations are given by members of the teaching staff in the lecture room. Operations are performed every afternoon of the week except Saturday. Special classes are arranged in modern methods of the investigations and treatment of disease, and special intensive courses are held at intervals throughout the year, each lasting two weeks, clinical instruction being arranged for each hour of each day.

Fees.—Two guineas for a three months' course of study in any one department, which may be begun at any time; a fee of 5 guineas admits to the whole practice of the hospital for a similar term (one month, 2 guineas, and one year, 10 guineas); and a perpetual ticket for the practice of the hospital may be obtained for 15 guineas.

Additional information can be obtained from the Dean of the Post-Graduate College, at the hospital, or at 39, Harley Street, London, W.1.

AUSTRALIAN AND NEW ZEALAND MEDICAL ASSOCIATION.

Some members of the profession born in Australia or New Zealand and now resident in England have formed an Australian and New Zealand Medical Association to give information and advice to medical visitors from the Commonwealth and Dominions with regard especially to attendance at special clinics, post-graduate work, and facilities for preparing for examinations such as the M.R.C.P., F.R.C.S. (England and Edinburgh), and the D.P.H., and also as to house appointments and clinical assistantships in London and the provinces. Information will also be given as to lodgings, sports, and social opportunities. All medical graduates or undergraduates born in Australia or New Zealand and resident or visiting England are eligible to become members. The fee is one payment of 5s. Further information can be obtained from the joint honorary secretaries, Mr. E. T. C. Milligan, F.R.C.S., and Mr. Bedford Russell, F.R.C.S., 86, Harley Street, London, W.1.

TROPICAL MEDICINE.

THERE are large and important schools of Tropical Medicine in London and Liverpool, and several universities and other examining bodies have instituted diplomas or degrees in the subject. The Colonial Office now expects all nominees for the Colonial Medical Service to pass through one or other of the two schools mentioned before their appointments are confirmed, and commercial firms engaged in tropical enterprise commonly demand from medical applicants for employment corresponding evidence of special knowledge. Information with regard to these schools and diplomas and degrees follows.

state of affairs not due to salpingitis at all, but to appendicitis, tubal gestation, infection of a pre-existent tumour, etc.—conditions which manifestly should have been treated by immediate operation.

Dispassionately reviewing the experiences I have related to you I came to the conclusion that the treatment of acute salpingitis as taught and exemplified to me was all wrong, for the medical treatment was not treatment at all and the surgical treatment had obviously been postponed till too late. I therefore began to operate on every case as early as possible—on the first day if I got the chance.

I had been taught that early operation was dangerous, and if this was true it would be better in many cases not to operate at all—the very bankruptcy of surgery. But it is not true. This is a most important point and must be settled at the outset.

I have operated on a large number of cases of early salpingitis during the last twenty years, and the only case I have lost died of delayed chloroform poisoning. Those opponents of early operation who maintain that it is dangerous speak without experience. I asked one of them who was thus denouncing the practice whether he had ever operated on an early case. He replied, "No; I consider it criminal." Now, had he told me that he had so operated but had given it up on account of his bad results I should have been impressed, but as it was I merely noted another example of a good natural mind, hopelessly tethered, tied, and bound in the net spread by his teachers.

It has been suggested that patients operated on early have frequently to be reopened on account of collections of pus in the ovaries or pelvis. I can only say that there is no substance in such a suggestion; I have never had to do it.

Writing off, then, the fable that early operation is dangerous, we can proceed to consider a most important question: Is an inflamed tube capable of recovering its function, and, if so, is the likelihood of such recovery considerable or small? For if the likelihood of such recovery is considerable then the tubes should be saved if possible, and it is worth incurring a risk to save them; whereas if the likelihood is small, and still more if it does not exist, then the safest route to the patient's recovery must be adopted, irrespective of what happens to the tubes.

Evidence as to the subsequent value of tubes that have been inflamed is badly wanted, and I hope that this discussion will result in a certain amount of such evidence becoming available. It is no use reciting the case of Mrs. Brown, who was treated non-operatively for salpingitis five years ago and now is six months pregnant, for there is no certainty that both Mrs. Brown's tubes were inflamed. What we want is a record of cases where the abdomen was opened, both tubes were found inflamed, one or both were conserved, and the patient subsequently conceived; and at present early operation with conservation of the tubes has not been practised sufficiently long for any considerable number of such cases in the practice of one surgeon to become available for evidence. For this reason single cases of that kind should be published at once so that we may the quicker obtain the desired body of evidence.

While not denying that an inflamed tube may recover so entirely as to allow of pregnancy occurring, I am at present of opinion that such complete recovery is rare. This opinion is founded on pathological and clinical considerations, and my experience of abdominal section on patients who years before had salpingitis. Of direct evidence I have only one case, and that not conclusive. I operated on a patient with only one tube and that inflamed (the other had been previously removed), and I conserved the tube. A year or two afterwards I reopened her on account of an inflammatory ovarian cyst, and found the tube apparently recovered, though I did not inflate it. She had not conceived, though living with her husband, but, on the other hand, her one and only ovary was cystic.

Since it has been my practice until the last few years always to remove the early inflamed tubes, I cannot draw on the bulk of my operations for early salpingitis for evidence in this connexion. The number of cases in which I have conserved the tubes and drained is relatively small, and still smaller are those in which I have slit the tube.

My experience of conservation with drainage has not been particularly encouraging. All my cases recovered, but one very nearly died of paralytic ileus, and none of them have conceived since the operation, so far as I know. Twice I have subsequently had to reoperate on account of chronic disease of the appendages.

The operation of slitting, I must say, appeals to me as being much more likely to lead to complete restoration of the tubal function, but one must remember that though it makes future closing of the abdominal ostium less likely it can have but little effect on closure towards the other end of the tube, and this is really the more serious of the two events.

Should the evidence, when sufficient is accumulated, show that complete recovery of an inflamed tube is not uncommon, then the acutely inflamed tube must be conserved whenever possible. Conservation may be practised by (1) not operating at all, or (2) conservative operation, either by simple drainage of the pelvis or by slitting and drainage. Since it is very rare in delayed operations to find the tubes in a condition suitable for conservation, the choice would be between not operating at all and early operation with simple drainage or slitting and drainage. Of the two I have not the slightest hesitation in deciding for early operation. Early operation, as I have stated, is exceedingly safe when the tubes are removed, and evidence seems to show that the risk is at all events not greatly increased by conserving the tubes.

Early operation has the great advantage over expectant treatment that the ovaries can always be conserved, whereas by withholding the surgeon's hand, though a proportion of the patients eventually appear to recover their health entirely, in the remainder the ovaries become hopelessly disorganized by suppuration or cyst formation, and eventually the unfortunate woman has to undergo double salpingo-oöphorectomy. These delayed operations are, as I have said, at all times serious, and often most formidable and difficult, and I never perform one myself or watch one being performed without regretfully remembering that had the disease been attacked surgically at its incidence a very simple and safe operation would have sufficed to cure the patient.

A pyosalpinx or an ovarian abscess is, in my opinion, a disgrace to the surgeon if the delay which allowed of such forming can be laid to his door. The parallel with appendicitis is a fair one. There the surgeon seeks to operate before abscess formation because the operation is safer than after an abscess has formed. In salpingitis, also, the operation is safer before abscess formation; but in salpingitis there is additional reason for early operation. No one wants to conserve an appendix, healthy or unhealthy; but the ovary is a different matter, and now evidence is suggesting that the tubes may be saved if operated on early enough.

Natural cure of a pyosalpinx or an ovarian or pelvic abscess is usually effected by adhesion to the pelvic colon with discharge of the pus into the bowel. Relief, however, is not immediate as a rule, for there are generally two or more collections of pus, and, moreover, the abscess cavity at once becomes analogous to a blind internal fistula with faecal infection of its wall and contents, so that prolonged suppuration with intermittent discharges of pus per anum is not uncommon. In delayed operations the surgeon frequently has to dislodge a tube or ovary which has already perforated or is on the point of perforating into the bowel, with the result that a faecal fistula up the drainage track develops within the first few days. This is another important objection to delayed operation and a valid reason in favour of surgical interference at the earliest possible moment. Finally, as a reason for immediate operation, there is always the possibility of faulty diagnosis. There are cases of pelvic appendicitis, diverticulitis, and also early extrauterine gestation, which it is impossible at the outset to distinguish from salpingitis.

But supposing that the evidence—when sufficient is accumulated—shows that inflamed tubes very rarely remain patent, how shall we stand then? A few years ago my answer would have been simple: The tubes, being practically valueless, need not be considered and should be removed as early as possible, since by early operation we save the ovaries from secondary infection and the patient

facilities for the study of psychological medicine in the general hospitals are now much greater than in former years. Thus many of the teaching hospitals have out-patient departments for the treatment of mental cases, and in some of these hospitals special lectures are given on psychopathology. These facilities need not be utilized by the student, however, and the compulsory part of the curriculum is confined to formal lectures and a few attendances at some mental hospital. Here the student is apt to see mainly the terminal states of mental disease, and he is also apt to gain the impression that mental disorder is necessarily related to segregation and custody. We would therefore impress upon him the importance of attending the out-patient department for mental disorders where he will be able to observe the mild and early cases such as he will hereafter meet with in general practice.

The Ministry of Health has recently issued a memorandum by Sir George Newman on *Recent Advances in Medical Education in England*.[1] The inadequacy of the facilities for the teaching of psychopathology is there commented upon, and it is pointed out that the general practitioner must be competent to diagnose all the chief forms of mental disease and defect (Lunacy Act, 1890, Mental Deficiency Act, 1913, Elementary Education (Defective and Epileptic Children) Acts, 1899 and 1914). The certificates under these Acts are shown to necessitate a diagnosis, a record of the clinical grounds for it, and in some cases the medical reasons for detention or custodial care. It is evident, as Sir George Newman points out, that these requirements are sufficiently exacting to render necessary the proper education in this subject of every medical student; and it should be practical and the subject of examination. The curriculum in mental diseases suggested is as follows:

"(i) A short course of lectures in normal psychology, preferably as part of the course in physiology (reflexes, habit, instinct, emotion, intelligence, the conscious and the unconscious mind, Binet tests, investigational methods, etc.).

"(ii) Half a dozen explanatory discourses in abnormal psychology, to be taken concurrently with clinical work in mental disease.

"(iii) Ten or twelve systematic lectures on mental disease, concurrently with clinical work, and clinical demonstration, at a mental hospital of in-patients, pronounced cases (recent or chronic), and the usual types of insanity.

"(iv) A series of demonstrations in the out-patient clinic for nervous and mental disorders at the general hospital.

"What the student needs is instruction in the etiology, symptoms, diagnosis, treatment, and prognosis of the morbid mental states most commonly met in general practice. The student must also be trained in case-taking, the examination of patients dealing with relatives of patients, certification, precautions, etc."

A scheme is now in actual operation at the Middlesex Hospital in which a small number of mental cases are treated in the hospital as in-patients. This is an important move from the teaching point of view, because the student will gain true insight into the relation between mental disorder and medicine as a whole, and he will realize that it is a form of illness to be studied with other diseases and to be treated along similar lines.

In London post-graduate courses of instruction of a comprehensive kind are given at the Maudsley Hospital and at Bethlem Hospital; and at the National Hospital for the Paralysed and Epileptic, Queen Square, courses are arranged to meet the requirements for the diploma in psychological medicine in regard to nervous diseases. Courses in mental deficiency are arranged by the University of London. There are also post-graduate courses at the Universities of Edinburgh, Glasgow, Cambridge, Birmingham, Leeds, Manchester, Durham, and elsewhere. Those who are taking up psychiatry as a career will find it desirable to obtain a diploma in psychological medicine. Such a diploma is not at present compulsory for a permanent position on the staff of a mental hospital, but it will probably become so in course of time, just as it is now essential to obtain the D.P.H. if a career in public health is contemplated. Psychiatry is one of the branches of medicine which candidates for the M.D. degree of the Universities of London and Edinburgh can take up, and, in addition, diplomas in psychological medicine, to which reference has been made, can be obtained from the Universities of Cambridge, London, Edinburgh, Durham, Leeds, Manchester, and the National University of Ireland, and from the Conjoint Board in England. The Medico-Psychological Association of Great Britain and Ireland also grants certificates of proficiency after examination and encourages the study of psychiatry by the offer of prizes for original and research work.

[1] H.M. Stationery Office, 1923. To be purchased through any bookseller. 1s. 3d. net.

Mental Hospital Appointments.

Those who take up psychiatry as a career work as medical officers of public or private mental hospitals or similar institutions. Except in the larger institutions, such as those under the control of the London County Council, where a number of the medical officers are allowed to live out if married, the medical staff are resident officers, having board, lodging, etc., either in the hospital itself or a residence in the grounds. Junior assistant medical officers receive about £300 to £400 per annum, and senior assistant medical officers about £500 to £700, in both cases with board, lodging, laundry, etc., in addition; if married, the board, etc., is commuted for cash. As the mental hospitals are under local control the salaries vary much in different asylums. Medical superintendents, whose pay commonly ranges between £800 and £1,500 per annum, are provided with a house in the grounds of the hospital and draw various allowances.

Since the passing of the Asylum Officers' Superannuation Act in 1909, all officers and others of the established staff of a public (county or borough asylum) mental hospital may retire at the age of 55 on a pension varying from one-half to two-thirds of the value of their pay and emoluments, or one-fiftieth for every year served, paying as contribution 3 per cent. of the value of their appointments annually. This very favourable prospect may not appeal to junior practitioners joining the services, but will eventually prove to be a valuable asset.

Prospects in the Public Service.

Appointments to the public mental hospitals are made by the Visiting Committees, and in most cases only the junior posts are open to those who have not had previous experience in psychiatry. Since the public mental hospital service is a local and, except indirectly, not an imperial one, the promotion tends to be slow and uncertain, and the higher positions are not always advertised and thus thrown open to competition. For this and other reasons mental hospital work has undoubtedly not been in favour with newly qualified men in years past, but the general conditions of service have tended to show a progressive improvement and will in all probability continue to do so in the future.

In March, 1920, the Board of Control did useful service by issuing to visiting committees of asylums a circular upon the three following matters: (*a*) the dearth of suitable applicants when vacancies occur for the post of assistant medical officer, and the probable causes thereof; (*b*) the need of provision for the more effective treatment upon modern lines of recoverable cases of mental disorder; (*c*) the necessity for raising the standard as to the training of existing and future assistant medical officers in asylum practice, and of affording facilities for such training.

Under (*a*) the Board of Control, after pointing out some of the disadvantages of the present state of affairs, made the following suggestions:

(*i*) That an improvement be made in the salaries of the assistant medical officers, at least to such an extent that in the cases of all those who have been in the service above a certain number of years and are regarded as permanent officials, the salary should be reasonably sufficient for a married medical man, and that in the case of the deputy superintendent it should more closely approximate than at present to that of the superintendent.

(ii) That, in the case of a permanent official, application for permission to marry be not required; that, according to circumstances, proper accommodation for a married man be provided, and that subject to rules approved by the Secretary of State for the protection of the patients, and with due regard to the proper administration of the institution, permission to live out may be granted.

(iii) That to the title of assistant medical officer the words "and deputy superintendent" should be added to that of the one selected to be in charge during the absence of the medical superintendent.

(iv) That the use of the title "senior assistant medical officer" should not be restricted as at present to the post of first assistant, but should be extended and be indicative of a certain standing and

so far 5 of these have become pregnant—that is, 25 per cent. Most of these cases presented few or no physical signs, and their chief complaint was sterility. It is only a small series, but some interesting facts emerge from a closer study.

Choice of Cases.

In choosing cases for operation the following factors were taken into consideration as suggesting the likelihood of tubal occlusion or obstruction following salpingitis:

1. The failure of other methods of treating the sterility, including dilatation, alone or with insertion of a stem, incision of the cervix, or curettage. Most of the patients in this series had already been subjected to one of these operations without conception resulting.

2. The occurrence of an early miscarriage followed by sterility lasting more than eighteen months, especially if uterine operations, such as curettage, were without effect after the miscarriage.

3. The occurrence of a definite gonococcal cervicitis in the past. Some of the cases had been treated for gonococcal cervicitis, proved by positive cultures, and some gave a history suggesting an attack of salpingo-oöphoritis in the past. A history of past attacks of appendicitis is also not without significance.

4. In some of the cases there was present an unsplit virgin cervix with an issuing chronic muco-purulent discharge, which though giving negative cultures was associated with a history of gonorrhoea in the husband.

5. In about half the cases dyspareunia was associated with definite tenderness in one or both fornices. This is a significant and valuable sign in cases where no lesion of the tubes is palpable on bimanual examination.

Details of Findings.

The following conditions were found:

1. Tubes of almost normal length and thickness, mobile, slightly convoluted, and with normal lustre, but with closed and club-like ostial ends, occasionally showing a central dimple. On opening the tubes a little clear sterile fluid can usually be expressed. The club-ended tubes are almost invariably the result of gonococcal infection, are usually bilateral, free from adhesions, and when the fimbrial end is reopened can be easily probed to the uterine extremity. Even under anaesthesia, before the abdomen is opened, it is impossible as a rule to detect any abnormality in the pelvis in these cases.

2. Tubes of normal length and thickness, but adherent at the fimbrial ends and along their lateral aspects to the back of the broad ligament or the sides and floor of the pelvis. These cases are usually the result of streptococcal or mixed infections following abortions, and intrauterine operations, especially stem insertions of more than forty-eight hours' duration. Occasionally in these cases there are so many adhesions that the pelvis is roofed over and it is impossible to reach the tubes and ovaries without risk of damage to the intestines or the lighting up of a dangerous streptococcal infection. Moreover, unlike the mobile closed gonococcal tubes they are frequently adherent to the ovary at the ostial ends, a false fibrous capsule of condensed lymph covering both the ovary and the end of the tube in such a way as not only to occlude the tube but also to render ovulation impossible. In such cases the ovary can be shelled out of its fibrous bed quite easily, and given a new lease of procreative life.

3. Tubes open at the ostial ends but kinked, stenosed, or obstructed at one or more points, so that the tube cannot be threaded throughout its entire length over a fine probe or blunt-ended needle. This most often occurs at the point where the tube curves backwards and inwards towards the middle line almost midway between ostium and uterus. They are usually the result of mild mixed infections, not sufficiently severe or prolonged to close the tubes, but serious enough to produce a local stenosis and fibrosis at the point where narrowing of the bent canal usually occurs.

4. Tuberculous affections of the tubes occurred in 5 of the 25 cases, or 20 per cent.

A most striking feature in this series was the clinical paucity of physical signs in association with bilateral pathological lesions of the tubes and ovaries sufficiently serious to produce sterility.

Operative Technique.

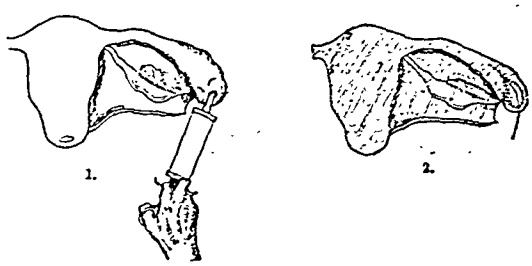
The following reconstructive operations on the tubes were performed: (*a*) salpingostomy; (*b*) partial salpingectomy; (*c*) resection and anastomosis; (*d*) incision and re-suture after canalization.

(*a*) *Salpingostomy.*

The cervical canal is first dilated slowly up to No. 8 and a sterile swab placed against the cervix. The abdomen is then opened in the middle line below the umbilicus, a quadrilateral self-retaining retractor inserted, the intestines packed away from the pelvis, and the edges of the wound clipped to sterile protective.

If a mobile club-ended tube be found it is carefully drawn up, punctured at the dimple or extremity of the club, milked of its contents, and then blown up with air (see Diagram I), using an ordinary metal syringe similar to that employed in hospital casualty departments for removing wax from the ears.

This expands the tube and exposes any kinks or stenoses if existent. A long fine Wassermann needle from which the sharp point has been clipped off is then passed down to the cornual end of the tube, the latter being threaded over the needle and care being taken not to make a false passage. As a rule it passes easily. A 20 c.cm. Record syringe filled with flavine, 1 in 1,000, is then attached to the end of the needle projecting from the ostium, and this antiseptic, non-toxic, and non-irritant solution is gradually forced into the uterus. Consequently when the plug against the cervix is removed it is found stained orange by flavine, proving the patency of tube and uterus. Finally, the free margin of the tube at the ostial end is incised for about 1½ inches and the cut edges oversewn with 00 catgut on



I. SALPINGOSTOMY ON CLUB-ENDED TUBES.

1. After puncturing the club end of the tube the lumen is distended with air forced into the tube by a metal ear syringe; any kinks or stenoses are thus exposed.

2. After the patency of the lumen has been tested by threading the tube over a fine blunt-ended needle, the dorsal surface of the ostial end is slit up for 1½ inches and the cut edges oversewn with a continuous catgut buttonhole stitch, so as to leave an everted mucous membrane and a patent oval ostium. A strand of No. 4 catgut can be left in the lumen.

very fine needles, using a continuous buttonhole stitch, taking care to evert the mucous membrane and not to pucker up the new opening, but to secure arrest of bleeding from the oversewn edges. (See Diagram I, No. 2.) Then one or more strands of No. 4 catgut can be passed for a short distance into the tube lumen, threaded on a needle, the latter being pushed inwards, blunt end first, so as to release the catgut and leave it in the tube lumen. The other end can be left free or given a *point d'appui* by running it through the edge of the ovary or adjacent broad ligament.

Finally, when both tubes have been reconstructed the round ligaments, and if necessary the ovarian ligaments, are shortened, leaving tubes and ovaries suspended from the back of the broad ligament in a position less favourable to the development of adhesions. After canalizing the second tube, 1/2 per cent. violet-green can be syringed through, so that the patency of both canals can be demonstrated by the orange and violet on the cervical swab.

On one occasion the following slight modification was made. After slitting up the dorsal aspect of the ostial end of one tube for 1½ inches, the free edge was sewn to the ovary, so as to enclose a ripening follicle. On the other side a piece of ovary was partially detached and left in the tube lumen as an autogenous graft. This patient has not yet reported herself to be pregnant.

It is not necessary to drain cases of gonococcal origin, but streptococcal cases, especially if many adhesions have been separated, are best drained for twenty-four or forty-eight hours by a strip of iodoform gauze running from the bottom of Douglas's pouch into the vagina.

PUBLIC HEALTH SERVICES.

GENERAL CONSIDERATIONS.

THE Public Health Service, to use the term in a strict sense, consists of medical officers of health appointed by local public health authorities and holding office under varying conditions of tenure. In addition there are county medical officers appointed by the county councils. The latter are not, strictly speaking, public health authorities; the duties of their medical officers are somewhat similar to those of other medical officers of health, but, in England, include few executive functions. In many of the county boroughs and counties assistant medical officers of health or assistant county medical officers are appointed, and such appointments may afford stepping-stones for promotion to higher offices. The service is, however, not unified throughout the country, and there is no regular system of promotion; appointments are to be obtained only by application to some particular local authority which has advertised a vacancy.

Three other services also ungraded have been brought into existence by recent legislation; their members are charged with duties which bring them into more or less direct relation with public health authorities or county councils and their officers. They are school medical officers, tuberculosis officers, and venereal disease medical officers. Appointments as school medical officer are made by local education authorities, while appointments as tuberculosis officer and venereal disease officer are made by the county councils and the county borough councils.

The medical department of the Ministry of Health for England has been organized under the control of a chief medical officer who has the status of an assistant secretary: it contains six sections, with a senior medical officer at the head of each. These sections are concerned with general health and epidemiology, maternity and child welfare, tuberculosis and venereal disease, the supervision of food supplies, and sanitary administration in relation to infectious disease. There is a separate section concerned with insurance practitioners. Lastly, there are medical officers employed in the Poor Law department and several whose services are available for special purposes but who are not "established" officers. Medical officers and medical inspectors are also employed by the Ministry or the corresponding Board in Wales and in Scotland. Appointments to these posts are not open to public competition; they are made by the Minister of Health in England and Wales and by the corresponding head of the department in Scotland. They are civil service appointments, and come under the superannuation scheme of the service.

MEDICAL OFFICERS OF HEALTH IN ENGLAND AND WALES.

The first appointments of medical officers of health were made for limited periods, the holder of the office having to risk re-election at the expiration of his term of office. This pernicious practice, so far as it applies to whole-time officers, owing to the persistent endeavours of the British Medical Association, in co-operation with some other bodies, ceased to exist after April 1st, 1922, as regards medical officers of health appointed prior to May 1st, 1921; it is not in operation as regards those appointed after the latter date. The Public Health (Officers) Act, 1921, which was promoted by the British Medical Association, provides that a whole-time medical officer of health shall not be appointed for a limited period, and shall not be removed from his office except with the consent of the Minister of Health. This Act came into operation on April 1st, 1922, but an order of the Minister of Health dated April 12th, 1921, makes a similar provision with respect to those officers appointed after May 1st, 1921.

A medical officer of health who does not devote his whole time to the duties of his office, and a portion of whose salary is obtained from Exchequer grants, may be appointed without limit of time, in which case he cannot be removed from office without the consent of the Minister of Health. If he is appointed for a specified term, say one year, he continues to hold office from year to year unless the Minister consents to his removal or the electing authority gives him three months' notice to resign his office, but the notice must take effect at the same period of the year as that at which the original term of appointment expired. Where the electing body pays the whole of the salary of a medical officer of health he may be dismissed from office without reference to the Minister of Health.

An increasing number of local authorities have established schemes for the superannuation of their officials, but there is no general scheme throughout the country. During the past twenty years the British Medical Association has on several occasions succeeded in getting introduced into Parliament a bill providing for the superannuation of medical officers of health, but the measure has always been opposed by the Government of the day, latterly on the ground that all municipal officers should be superannuated, and that sectional legislation was undesirable. In this connexion it may be stated in passing that medical officers of health are the only State-paid (whole-time) medical officers who do not come under a superannuation scheme.

A medical officer of health of a county or of a district or combination of districts with a population of more than 50,000 persons must hold a diploma in public health. This diploma is now generally required from all applicants for whole-time appointments of medical officers of health and assistant medical officers of health, and very frequently in the case of school medical officers, tuberculosis officers, and venereal disease officers. A medical man who desires to enter the public health service as a career must as a first step obtain such a diploma.

Position in Scotland.

The above statement applies specially to England. In Scotland the position is different in several respects. The central authority is a Board of Health which has at present four members, with offices in Edinburgh. One of the four is a medical man. It is now proposed to reduce the membership to three as existing appointments expire, and to abolish the qualifications of future members, so that not one of the three need be medical.* The "Board" system is the rule in central government north of the Tweed, there being also Boards of Agriculture, Fisheries, Education, and Control (of lunatics). The Secretary for Scotland, whose chief office is in Whitehall, is over all, and there is a Parliamentary Secretary. Both of these are members of the Board, the Secretary for Scotland being President, and one of the Edinburgh members Vice-President. The Board has a staff of medical officers and of referees for insurance work. Under the Public Health (Scotland) Act, 1897, no one can be appointed as medical officer of health for any area, burghal or rural, however small, unless he possesses a diploma in public health. One result is that small burghs often appoint the county M.O.H. as their officer. No medical officer or sanitary inspector can be removed from office except with the sanction of the Board of Health. A "proper" salary must be paid, and it is incompetent for the local authority to bring about a resignation by indirect means, such as reducing a salary, or attaching conditions to the appointment. The Act says nothing about superannuation, and specifies no retiring age. The appointment, however, is not *ad vitam aut culpam*. Most counties in Scotland are smaller than in England, and the county medical officer is also district medical officer, being therefore both administrative and executive in function. A few counties are not divided into districts.

THE SCHOOL MEDICAL SERVICE.

School medical officers are appointed by local education authorities under schemes of medical inspection of school children which must be approved by the Board of Education. Primarily their duty is to detect among the children attending the public elementary schools any physical or mental defect which may retard the education of such children, and to inform their parents of its existence. But practically their duties vary considerably in different areas. This is because most approved schemes of inspection include systems of work which aim at facilitating the task of parents in obtaining for their children the necessary treatment, at checking the results of the latter, and at keeping each defective child under skilled observation both at home and at school until it has passed altogether out of the education authority's hands. The general object of all schemes alike is to make

* See BRITISH MEDICAL JOURNAL, August 18th, 1923, p. 293.

ie cases. Except in one case no operation was performed more than two years ago. Three successes were in cases of bilateral salpingostomy, for closed club-ended tubes—one in a case of bilateral resection and anastomosis, and one in a case of bilateral incision and suture after separation of adhesions with resection of one ovary. No successes have so far followed in cases of partial salpingectomy and in operations performed at the uterine end of the tube.

Laparotomy in Sterility: The Place of the Operation.

Are we justified in advising laparotomy in cases such as these, where the only complaint is sterility? It is a question upon which diverse opinions are held. Against the operation it can be argued:

1. That all abdominal operations are a risk to life. No matter how capable the surgeon, he is extremely fortunate if he is able to perform 100 operations without mortality, for pulmonary embolism, which we are as yet unable to prevent, occurs in 1 per cent. of cases.

2. The reopened tubes may close again or adhesions may occlude them.

3. The lining of the tubes may be unhealthy. Though patency may be restored, the inflammatory process which originally sealed them may have destroyed or unfavourably modified the mucous lining with its delicate cilia and necessary secretion.

4. Cases of extrauterine pregnancy have been reported after salpingostomies.

5. It is a tradition of surgery that operations are undertaken to save life or relieve suffering, and as a rule neither justification can be argued in these cases. In other words, not only is the woman incurring a risk, both immediate and remote, but fertility cannot be promised as a result of the operation.

On the other hand it is only fair to remember:

1. That while such an operation is not performed to save life or as a rule to relieve suffering, it may actually be the means of creating a new life; and that when symptoms such as pain are present they are frequently relieved by the operation.

2. The successful cases are surgical triumphs in which intrauterine operations, so often repeated and varied, are doomed to failure.

3. Fertility cannot be promised, neither can it be ensured, by any other method of treatment, but laparotomy does at least allow inspection of the tubes and ovaries, and possibly correction of the bar to fertility. When the abdomen is closed it is at least established that everything possible has been done to favour pregnancy, and probably the chances have been improved. It is a question of balancing the risks of operation against the improved chances of conception. The correct attitude is to explain this to the patient, to show her both sides of the picture and let her decide, an attitude adopted in all the cases in this series. To some women a child means little, to others it means so much, and such women will sometimes ask for operation knowing all its risks and even against advice, if they are satisfied that it improves their chances of conception and ensures that everything possible has been done.

DISCUSSION.

Dr. CARLTON OLDFIELD (Leeds) said that everyone must have been interested in Mr. Bourne's paper. He personally was much attracted by his suggestions: they were idealistic, aiming not only at the saving of life, but the complete restoration of the patients' functions. He personally did not regard delayed operation on the tubes as very dangerous. It seemed to him that in urging early operation the important question was, Could a case of pregnancy following upon operation be produced? Mr. Bourne could not show a case, neither could Mr. Bonney. He had investigated seventeen cases of his own, in which one definitely inflamed tube had been left behind; there was not a single case of pregnancy in the lot. In another series of thirty cases, where simple posterior colpotomy had been performed, there was one case where subsequent pregnancy occurred; but, of course, in these cases the condition of the tubes was not known. Thus, in forty-seven cases there was only one subsequent pregnancy. He saw very few cases of salpingitis before the formation of a tumour. He recalled one case, however, in which he had performed salpingostomy on account of excessive loss and sterility, in which at operation he had found a great mass of adhesions which bled very freely. This patient two years later had an ectopic pregnancy with pelvic haematocele on the left side, and following that again she had two healthy living children. His conclusions were that he would try Mr. Bourne's operation, but he was not very hopeful of the results. He thought they would rarely see their cases as early as the stage described in the paper. He was not entirely convinced of the safety of operation in the acute stage. He did not think that they could justly claim that slitting up the tubes would secure resolution. Drainage by tube would itself probably leave severe adhesions. Again, a certain number of patients would get ectopic pregnancy, more, probably, than would do so if the cases were left alone. The one advantage he could see of early operation was that an inflamed appendix might occasionally be found to be causing all the trouble. Possibly, too, if only one tube were diseased early operation might prevent the other tube becoming involved. His experience of the later cases was that, except in tuberculous cases, faecal fistulae were very rare. Certainly most patients got well after simple colpotomy. He would certainly try earlier operation, but he was not at all sanguine as to the results.

Dr. JOHN CAMPBELL (Belfast) said that he was the more gratified at the views put forward because when he opened the discussion on this subject at the Annual Meeting in Glasgow last year and advocated early operation, he had received little or no sympathy or support. He was in complete agreement with Mr. Bourne when he insisted on the advantage of early operation. There could be little doubt as to the desirability of saving patients from the prolonged ill health which usually followed the expectant method of treatment. Hence the need for early operation. While he agreed with Mr. Bourne as to the general principle of early operation, he was not able to follow him in his method of operation. He had hitherto removed the bulk of the diseased tube and made a new abdominal mouth for it, using no drainage but filling the pelvis with saline solution. He knew of no case in which both tubes had been operated on in which subsequent pregnancy had occurred. Mr. Bourne had divided his cases into two classes: (1) Those in which the tube was not much damaged and in which he slit the tube and drained; (2) those in which the tube was so greatly affected that he considered it necessary to remove it. The drainage was the weak point in his method. Drainage was followed by adhesions, and adhesions were surely likely to be a barrier to the ovum reaching the tube and uterus from the ovary. Drainage thus defeated the main object he had in view—namely, the probability of future pregnancy. Slitting the tube would appeal to him if Mr. Bourne could advise them to get rid of drainage. Colpotomy had been advocated as a method of treatment, but in such cases as Mr. Bourne had been discussing it was useless. By that method they could drain an abscess in Douglas's pouch, but they could not adequately deal with the tubes. It had been objected that tubal pregnancy was likely to result after operation. Surely this was not a valid objection, since a tubal pregnancy could hardly occur in a case in which slitting or resection of the tubes had been done. He contended strongly that early operation was desirable. It had been remarked that the surgeon seldom saw the early cases. That was a matter which the education of the profession and the public would remedy. The same difficulty formerly existed in regard to acute appendicitis, and it had now disappeared.

Professor R. J. JOHNSTONE (Belfast) said that he saw very few cases of the nature described. In acute salpingitis it was necessary to bear in mind that they were not dealing with disease of one hollow organ, as in appendicitis, but with disease which involved the whole generative apparatus. In slitting the tube they were only dealing with part of the disease. The bad results following treatment of the tube were not so much due to the damage to the tube alone, but to the general damaged condition of cervix, endometrium, and ovaries. He thought that there was a slight danger to life in operating on acute cases, small though it might be. The slight additional trauma of the operation might be sufficient to turn the scale and set up general septicaemia. There was a real danger, too, that trauma might extend the local spread of infection. Drainage was certain to produce adhesions. If the source of infection could be got rid of he believed that adhesions would disappear, but if all

THE PUBLIC SERVICES.

THE ARMY, AIR FORCE, AND INDIAN MEDICAL SERVICES.

THE Medical Departments of the Royal Navy, of the Army, and the Indian Government normally employed between them before the war some 3,000 medical men, and vacancies in the ranks of these services were filled by offering commissions for competition once or more each year. In the abnormal circumstances arising out of the war and the period immediately following it the usual regulations for recruiting the permanent medical staff of these services were, for the most part, in abeyance. Now that a return has been made to peace establishments we publish somewhat fuller information than we gave during the war period, for the guidance of those junior members of the profession who think of applying for regular commissions in the Royal Air Force Medical Service and the Royal Army Medical Corps. Further details should be sought from the respective medical departments. The usual information regarding the conditions of service, pay, and prospects in the Medical Department of the Royal Navy is omitted for the reasons stated at page 394.

ARMY MEDICAL SERVICE.

Competitive examinations for commissions into the Royal Army Medical Corps are held twice a year, usually in January and July.

The prospects of the newly qualified medical man taking up the army as a career have been improved by changes that have come into force since the war. The rates of pay and pension are given in the subjoined tables; they compare favourably with those that obtained in 1914.

Pay and Allowances.

	At Home.		In India.
	Married. £ per annum.	Unmarried. £ per annum.	Rupees a Month.
Lieutenant	625	541	650
Captain	751	657	800
Captain after 6 years' service	769	675	900
Captain after 10 years' service	824	730	950
Major	857	818	1100
Major after 15 years' service	933	909	1250
Major after 18 years' service	—	—	1400
Lieut.-Colonel	1170	1091	1550
Lieut.-Colonel after 20 years' service ...	1216	1137	1650
Lieut.-Colonel after 25 years' service ..	1262	1183	1850
Colonel	1439	1422	"According to appointment."
Major-General	2163	2091	

Allowances vary slightly from time to time.

At Home.—An officer under the rank of lieutenant-colonel holding an appointment as specialist receives 2s. 6d. or 5s. a day according to subject or group of subjects. An officer in charge of a hospital receives charge pay, the daily amounts being: in excess of 50 beds, 2s. 6d.; in excess of 150, 5s.; in excess of 300, 7s. 6d.; in excess of 500, 10s. An officer in charge of a medical or surgical division of a general hospital with not less than 300 beds receives half the so rates. Senior Medical Officer Royal Arsenal not exceeding 10s. a day. Officer in Command of the Dépôt R.A.M.C. 5s. daily. Adjutant R.A.M.C. Dépôt 5s daily. Adjutant R.A.M.C. (T.A.) 2s. 6d. daily. Professors at the Royal Army Medical College receive £200 and assistant professors £80 a year, in addition to pay and allowance of their rank.

In India.—The specialist pay is 60 rupees a month; charge pay is from 60 to 240 rupees a month, according to the size of hospital.

Retirement.

A lieutenant-general or major-general must retire on attaining the age of 60 years, a colonel at 57, and other officers at 55. A major superseded for promotion retires on the completion of twenty-five years' service, or, if he fails to qualify for promotion, on the completion of twenty years' service. A captain who fails to pass the examination for promotion to major on a second trial must retire at once with any gratuity for which he may be eligible, or, if not, on completing five years' service. A lieutenant who does not qualify for promotion within three and a half years is required to resign. A candidate who has been specially employed in consequence of a national emergency, either as an officer or in a position usually filled by an officer, will be allowed to reckon such service towards retired pay and gratuity. The maximum rates of retired pay are as follows:

Captain and Subaltern	£300
Major	£150
Lieutenant-colonel	£600
Colonel	£800
Major-General	£1,000
Lieutenant-General	£1,400

Voluntary retirement on retired pay is not allowed until after twenty years' service. Earlier retirement on gratuity is allowed as follows:

Major or Captain:	Gratuity.
After 8½ years' commissioned service ...	... £1,000
" 3 years' service in the rank of major ...	... £1,800
" 6 years' service in the rank of major ...	... £2,500

Seconded Service.

An officer may be permitted to accept employment in the Foreign or Colonial Offices; when so seconded he is not eligible for pay or allowances from army funds, but his service continues to reckon towards promotion and, under certain conditions, towards increase of pay, pension, or gratuity. Among the capacities in which R.A.M.C. officers may be employed are:

(1) The medical service of the Egyptian Army.
(2) The sanitary service of the Egyptian Government.
(3) The medical services of the various foreign and colonial Governments.

Service on the West Coast of Africa.

Officers for service in West Africa are usually taken from a list of volunteers for such service. An officer at present receives, while actually serving in West Africa (which service may include ordinary leave not exceeding sixty-one days in a year, and any time spent at Madeira or the Canary Islands on sick leave), additional pay at the following daily rates: lieutenant-colonel 12s., major 9s., captain 7s. 6d., lieutenant 6s.

The professional work of the corps has received a great impetus through the Directorates of Hygiene and Pathology. Specially selected and trained officers have now been appointed as assistant and deputy assistant directors of hygiene to all commands and garrisons at home and abroad. Junior officers appointed on probation undergo a course of instruction in hygiene at the army school of hygiene, where lectures and demonstrations are given on the methods of sanitation, including entomology, applicable to the various climates and countries, special attention being paid to tropical hygiene.

The Directorate of Pathology offers many attractions to those officers who are desirous of taking up the scientific side of medicine. Officers who show aptitude in this direction are encouraged to continue their scientific studies during the whole course of their service. As junior officers the posts of clinical pathologists to hospitals at home and abroad are available, while, after their first tour of foreign service, they are given the opportunity of qualifying as specialists in bacteriology and pathology at the Royal Army Medical College; having so qualified they become eligible for the appointments of assistant or deputy assistant director of pathology, posts which carry with them specialist pay or temporary promotion.

Appointments to the staff of the Directorate of Hygiene or Pathology at the War Office are open to officers who have served in these scientific branches—the senior posts carrying the rank of colonel or major-general as the case may be. All such staff appointments, either at the War Office or in commands at home, have a fixed tenure of three or four years should the exigencies of the service permit.

Arrangements have been made for the appointment of consultants in both medicine and surgery, and the ranks of colonel and major-general are now open to such officers. This will encourage officers of outstanding ability in these subjects to continue to devote their attention to medicine and surgery, in which previously there were no openings for officers above the seniority of lieutenant-colonel.

The question of specialists has also undergone review and a great improvement in the method of training and selection has been affected. Captains undergo a five months' course at the Royal Army Medical College for promotion to major in the subjects of hygiene and pathology, together with general medicine and surgery. Of those officers who pass the Combined Examination in these subjects, the first 50 per cent. are now eligible to take out a further four months' specialist training, provided that they can prove to have had past experience in a particular subject and to have shown special aptitude for that subject. Results so far achieved by this system have, we are informed, been most encouraging. The training is undertaken by selected teachers of the various London general hospitals, as well as the army professors at the college.

It is recognized that, apart from purely professional work, officers should receive administrative training, and the inclusion of officers of the Royal Army Medical Corps in the

regarded as final, and may require modification as the work proceeds.

No reference is made on this occasion to certain histological details, which we hope to bring forward at some subsequent date.

Clinical Results.

The clinical material upon which our observations are based was selected to ascertain the character and nature of uterine contraction at various periods of pregnancy, when the nervous impulses from the lumbo-sacral cord were eliminated by means of spinal anaesthesia. The cases include:

(*a*) Abdominal Caesarean section, at the eighth and ninth months of gestation for such varying indications as contracted pelvis, placenta praevia, fibroids, and toxaemia.
(*b*) Vaginal Caesarean section during the fourth and fifth months of pregnancy.
(*c*) Evacuation of the ovum at the second month of gestation.

The technique employed was practically the same in all cases, and is identical with that outlined by us in a previous communication.[11] Briefly, it consists in injecting 1.5 c.cm. of a 5 per cent. solution of tropacocaine (Allen and Hanbury) dissolved in normal saline solution into the spinal theca, by means of a Barker's syringe introduced between the second and third lumbar vertebrae, after 10 c.cm. of cerebro-spinal fluid have escaped from the needle.

When the lumbar cord is paralysed by the drug, usually in about five minutes, the uterus always contracts, and it does not relax until the drug ceases to act. This is the case whether a general narcotic—for example, nitrous oxide, ether, or chloroform—is administered in addition or not. Further, the contraction appears to involve the circular muscle fibres of the uterus, the longitudinal being unaffected. In other words, the uterus grips the ovum firmly, and on several occasions before the abdominal incision was made the organ was noted to stand forward and to become markedly prominent.

When the membranes are incised and the liquor amnii has escaped, the uterus contracts down upon the foetus with extraordinary rapidity, and may cause some difficulty in extraction. This is especially the case when the membranes have ruptured before operation, and, in the interest of the child, rapidity of technique is essential.

The lower uterine segment and cervix also appear to be involved in the increased uterine "tone." There is certainly no "polarity" as evidenced by dilatation, and in one instance some difficulty was experienced in extraction of the placenta per vaginam. Previous to operation in this case the degree of dilatation of the cervix appeared such as to warrant expulsion of the placenta *per vias naturales*. This in practice was rendered very difficult owing to the increased tone of the circular muscle fibres of the lower uterine segment. The uterus contracts equally well whether labour has started or not, and in our experience the tired organ, after forty-eight hours of expulsive effort, contracts quite powerfully when the lumbar stimuli are eliminated.

Further, we note that the contractile power is in no way diminished during the earlier months of pregnancy, as was shown by two cases of vaginal Caesarean section at the fourth and fifth months of pregnancy and the evacuation of the uterine contents at the second month. On the other hand, contraction of the circular muscle fibres during pregnancy will not induce labour, as in the case of a patient from whom a large vaginal cyst was removed under lumbar anaesthesia during the fourth month of her pregnancy. The gestation in this case is proceeding normally to term.

The contractile power of the uterus under spinal anaesthesia is in marked contrast to what is generally observed when a general anaesthetic is administered. Under chloroform, ether, or nitrous oxide narcosis, alone, however light or deep, the uterus when induced to contract, by manipulation or otherwise, generally relaxes somewhat after a few moments. This, in our experience, is never the case when the lumbo-sacral cord stimuli are eliminated, the contraction and tone persisting until such stimuli are restored.

With regard to the influence of spinal anaesthesia upon normal labour, we have been rather chary of experimentation owing to our direct observations of the behaviour of the uterus in cases of Caesarean section. As already noted, it appears to be the circular fibres of the uterine wall, both corpus and cervix, which are inhibited by the lumbo-sacral autonomic system, and for this reason we think that these stimuli should not be cut off until dilatation of the cervix is complete.

In one patient, a 3-para, to whom a spinal injection of tropacocaine was given when the os was fully dilated and the membranes ruptured, the second stage of labour occupied one and a half hours. The uterus never relaxed, but, on the other hand, there were no strong intermittent expulsive contractions. The child was expelled, painlessly of course, by means of strong voluntary expulsive efforts on the part of the patient, reinforced by the hand of the medical attendant on the uterus. In other words, the child was partly expressed from the uterus. The placenta was delivered at the end of fifteen minutes and the lochia was less than normal.

The necessity for expression of the child, due to loss of the normal expulsive mechanism under lumbar anaesthesia, is important evidence, in our opinion, of tonic stimuli of the central nervous system normally exerted upon the longitudinal muscle fibres of the uterus.

With regard to operations on the non-pregnant uterus, no contraction of the uterine muscle was noted, and the only observation of interest related to the sensory impulses. When total abdominal hysterectomy was performed under spinal anaesthesia in the absence of adhesions to other organs, we found that it gave rise to very little, if any, shock. Should the organ, however, be adherent to small intestine, considerable shock and discomfort of a vague type are produced. This appears to indicate that the autonomic sensory fibres from the uterus enter the spinal cord below the dorsal region, while sensory fibres from the ileum enter the dorsal region above the narcotized area.

Experimental Evidence.

The experimental work in connexion with this investigation is being carried out in the Pathological Department of the University of Birmingham with the kind assistance of Professor Haswell Wilson and Dr. A. F. Wright, M.C., to whom we desire to express our indebtedness. The results of certain animal experiments performed for us by Dr. Wright and independently confirmed by him are here recorded.

Experiment 1.

Rabbit No. 1; two weeks pregnant. Ether narcosis. Laparotomy and inspection of abdominal contents. Peristaltic movements of intestines well marked; no movements observed in pregnant uterus. Lumbar puncture performed. Peristaltic movements of intestines continued; uterus unaffected. Tropacocaine (2½ per cent.) injected into lumbar spinal theca. Uterus immediately contracted. Spinal cord severed in upper lumbar region. Uterus contracted further and no subsequent relaxation noted. Dorsal region of cord pithed without relaxation of the uterus. Uterus excised and placed in bath of normal saline at temperature of 37° C. Rhythmical contraction and relaxation occurred for five minutes.

Experiment 2.

Rabbit No. 2; three weeks pregnant. Ether narcosis. Laparotomy, and pregnant uterus containing seven embryos eviscerated into normal saline bath at temperature of 37° C. No movements of uterus noted until lumbar cord was narcotized, when permanent contraction occurred. This was increased by palpation, but did not relax completely. Injection of tropacocaine into dorsal region of cord produced no alteration in the uterine contraction. The dorsal cord was next pithed, without any change. The right broad ligament containing the uterine and ovarian vessels and nerves was then clamped and divided. The right uterus immediately commenced rhythmic contractions; the left uterus remained tonically contracted. The uterus was finally excised and placed in a warm saline bath. Peristaltic waves of contraction, apparently commencing in the region of each Fallopian tube, continued for several minutes.

Experiment 3.

Rabbit No. 3; three weeks pregnant. Ether narcosis. Laparotomy; intestines and uterus containing five embryos eviscerated and placed in warm saline. Lumbar cord pithed, followed by tonic contraction of uterus. Dorsal cord pithed without alteration in condition of uterine muscle. Mesentery divided without effect on uterus. All tissues divided at junction of lumbar and dorsal regions, with the exception of the abdominal aorta and inferior vena cava. The uterus did not relax. The uterus was excised and placed in saline. The temperature of the latter had fallen to 30° C., and no peristaltic movements were observed. The temperature of the bath was raised to 37° C., when rhythmic contraction and relaxation of the excised organ commenced.

Experiment 4.

Rabbit No. 4; four weeks pregnant. Ether narcosis. Laparotomy; hypogastric nerve exposed and stimulated by faradic current. This produced contraction of the circular fibres of the uterus, the portion of the organ containing each foetus becoming

INDIAN MEDICAL SERVICE.

UNDER the new constitution now being brought into effect in India medicine is a transferred subject—that is to say, it will in future be under the control of the Provincial Governments and legislatures. As at present arranged 305 civil posts are reserved for officers of the Indian Medical Service—namely, 65 under the Government of India and 240 under Local Governments. In the present state of transition the position which the Indian Medical Service will in future occupy is not well defined; it seems unnecessary, therefore, to reproduce here in full the conditions of service. Full details and particulars can, however, be obtained from the Secretary, Military Department, India Office, Whitehall, London, S.W.1.

THE ROYAL NAVAL MEDICAL SERVICE.

A WARNING TO YOUNG MEDICAL MEN.

IN January, 1920, as a consequence of the report of the Jerram-Halsey Committee, new regulations for retirement of officers came into force in the Royal Navy, and new rates of pay were laid down. The new regulations inflicted a great injustice upon a considerable number of surgeon commanders who were nearing, or had passed, the new retiring age. The grievance arose under two heads—age of retirement and rate of pension—and frequent remonstrances were addressed to the Admiralty by the British Medical Association.[1]

Very briefly stated, these medical officers, who had entered the Service on the understanding that they would be allowed to serve until the age of 55, were compulsorily retired at 50, and their maximum pension was fixed at £600 a year, representing an increase of but 10 per cent. on the former retired pay of their rank; it should be particularly observed that officers of other branches got increases of pension varying from 26 to 100 per cent. In reply to representations by the British Medical Association the Admiralty admitted the grievance, but declined to remedy it. The Council of the Association at length warned the Admiralty that if the question could not be settled satisfactorily it would be obliged to place the facts before the profession, and to advise young medical men that if they entered the Royal Naval Medical Service they must do so with the knowledge that, with its present policy, the Admiralty cannot be trusted to keep any engagement it may make with its medical officers. Therefore, bearing in mind the treatment of senior surgeon commanders, the Association's advice to medical students and young practitioners is to consider seriously the disadvantages to which they are liable if they place their careers in the hands of the Admiralty.

It may be hoped that before next year's Educational Number appears the Admiralty will have seen the wisdom of putting itself right in the eyes of the medical profession. If this is done, we shall be able to include once again a statement of the conditions under which commissions are granted in the Medical Department of the Royal Navy, and in other ways give encouragement to prospective candidates.

PRISON MEDICAL SERVICE.

CANDIDATES for the medical staff are approved by the Secretary of State for the Home Office on the recommendation of the Prison Commissioners. The Chairman of the Board is M. L. Waller, Esq., C.B. Application for employment may be made to the Board on a special form, which can be obtained from the Secretary, Prison Commission, Home Office, London, S.W.1.

In the smaller prisons the medical officer is usually a local practitioner, but in the larger the members of the medical staff are required to devote their whole time to the service. In the case of those required to give their whole time to the service the appointment in the first instance is to the post of medical officer Class II, and from the seniors of this rank the medical officers Class I are selected as vacancies occur.

The pay of the whole-time prison medical staff is: Medical officer Class II, £300, rising by annual increments of £15 to £500; medical officer Class I, £550, rising by annual increments of £20 to £700. Unfurnished quarters are provided, or an allowance in lieu is made. The Civil Service bonus is paid on the salary. There are 15 medical officers Class II, 10 medical officers Class I, and 33 part-time medical officers.

The number of vacancies is never large, and promotion is slow. Although there has recently been some improvement in the scale of pay, the remuneration both of whole-time and part-time prison medical officers is unsatisfactory. A Committee is now inquiring into the pay, etc., of prison officers (including medical officers) and its report is expected to be issued this year.

MEDICAL PRACTICE IN BRITISH DOMINIONS AND FOREIGN COUNTRIES.

MEDICAL Acts have now been passed in almost all places forming part of the British Empire beyond the seas, and registers of duly qualified practitioners are consequently maintained. To these registers medical men educated in the United Kingdom are always admissible merely on payment of a registration fee, providing they produce evidence that they are of good repute and are either registered or eligible for registration in the United Kingdom, as the local requirement may be. The only exception to this statement that need be made relates to the Dominion of Canada. Each of its provinces acts in medical matters as an independent State. The result has been that reciprocity of practice has been established between this country and all the Provinces of Canada except British Columbia, where certain obstacles still remain to be overcome. We would advise any medical man proposing to practise in Canada first to communicate with the Provincial Registrar, stating what degrees or diplomas he holds, and asking for information as to the precise steps he must take in order to obtain admission to the Provincial Register.

Italy and Japan are the only two foreign States with which complete medical reciprocity has been established, though there are other countries which grant a limited recognition to British qualifications. Generally speaking, in Continental countries (with the exception of the kingdom of Italy) a British medical man desiring to exercise his profession therein must pass practically the same examinations as those imposed on natives of the country. The same observation applies to all foreign States in the South American continent. Each of the United States of North America has its own laws and regulations governing medical practice; some of the States admit any holder of a degree or diploma to their Register, but the majority require a candidate for registration to submit to an examination.

A pamphlet showing the conditions under which medical and dental practitioners legally qualified in their own country may practise abroad can be obtained from the office of the General Medical Council, 44, Hallam Street, Portland Place, London, W.1, price 2s. 6d., or 2s. 9d. post free in the United Kingdom. Practitioners who think of going abroad to practise will find therein much useful information, including the name of the official in each country to whom requests for further particulars should be addressed. The last edition was published in January, 1921.

MEDICAL APPOINTMENTS UNDER THE COLONIAL OFFICE.

APPOINTMENTS to the Medical Services of the Colonies and Protectorates under the administrative control of the Colonial Office are made by the Secretary of State for the Colonies. Such appointments are to the service of a given colony or colonies, for there is no unified service directly administered from the Colonial Office. It follows that conditions of service and superannuation are in the main determined by the economic resources and general public health policy of the individual colony and its local government, and vary almost as widely as do conditions of climate. Moreover, the extent of the control exercised by the Colonial Office varies according to the constitutional status of the particular colony, and the detailed information available centrally is not always complete. The intending candidate, therefore, should make comprehensive inquiries as to local conditions before applying for an appointment, and will do well to supplement official information by reference to the central office of the British Medical Association, where reports obtained from time to time from the local Branches are available. This is the more necessary

[1] See BRITISH MEDICAL JOURNAL, July 8th, 1922 (p. 52).

5. Both autonomic and sympathetic stimuli are controlled by higher centres in the medulla and possibly the cortex, but are capable of acting independently of the same.

6. Reflexes, both (*a*) autonomic and (*b*) sympathetic, are probably important factors in normal uterine contraction. (Reference may be made to mammary and perineal stimulation.)

7. Uterine contractions, to be effective, depend equally upon the integrity and correctly adjusted balance of autonomic and sympathetic impulses. Disturbances in either, whether in the direction of augmentation or diminution, will interfere with the normal course of parturition.

Practical Application of Results.

In conclusion, we cite a few instances where the observations here recorded may possibly find a practical application.

In the first place, in classical Caesarean section, the advantages of lumbar narcosis, either alone or combined with a general anaesthetic, are evident. By elimination of inhibitory stimuli from the lumbar cord and allowing the hypogastric impulses full play, the circular muscle fibres of the uterus contract firmly, and in so doing reduce haemorrhage to a negligible amount. In one of our cases the foetus and five fibroids were removed at term with only a trifling amount of bleeding. The contraction of the circular fibres also produces more marked eversion of the edges of the uterine incision than is normally present, and consequently the introduction of the uterine sutures and accurate coaptation of the cut surfaces is facilitated.

Secondly, in cases where a temporary increase of intra-uterine tension is indicated, as in *ante-partum* haemorrhage from premature separation of a normally situated placenta, it is possible that this may be obtained without risk of inducing labour by means of lumbar cocainization. With placenta praevia, on the other hand, although the haemorrhage might be controlled for the time being by contraction of the lower uterine segment, it is probable that subsequently it would be increased, owing to greater separation of the placenta.

Thirdly, when the uterus is exhausted, we are of opinion that spinal anaesthesia will undoubtedly diminish the tendency to *post-partum* haemorrhage. Certainly, in those cases which we have observed, it diminishes the amount of bleeding from the placental site. For the same reason we prefer spinal to general anaesthesia when it is necessary to evacuate the uterus by the vaginal route during the earlier months of pregnancy.

Tonic uterine contraction during labour, either general, or local as in the "contraction ring" and so-called "rigid cervix," we believe to be due to excessive sympathetic stimulation, probably from fatigue of the lumbar centre. Some cases of intrinsic dysmenorrhoea possibly have a similar etiology, for, after all, each menstrual period is a miniature labour.

Finally, we repeat a note of warning in connexion with the employment of spinal anaesthesia in normal cases of labour. By its use dilatation of the cervix will be delayed, and even if administered at the commencement of the "second" stage, the expulsive power of the uterus is diminished. Consequently forceps delivery with its attendant risks will in all probability be required.

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The PRESIDENT congratulated Mr. Beckwith Whitehouse on his very fine paper. It was not a paper which lent itself to discussion; time was required in order to read it and follow it out in detail. He was much interested in the subject of the contractions of involuntary muscle. His attention had been directed to the contractions of the intestinal musculature; frequently with spinal anaesthesia in cases of paralytic obstruction the intestine would evacuate itself without the necessity of any further measure being adopted. He had often wondered why physiologists had not made more use of living human embryos, removed sometimes in the course of operations at about the fourth month; their hearts continued to beat for quite a long time.

THE TREATMENT OF SEVERE UTERINE HAEMORRHAGE BY RADIUM.

BY

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IN a short paper it is not possible to attempt a general survey of functional uterine haemorrhage, and therefore I propose to devote some attention to the treatment of this condition by radium, and to show that the effect of exposure to radium is due entirely to changes in the endometrium and in no way due to any action upon the ovaries.

Functional uterine haemorrhage must for the moment be defined as uterine haemorrhage without detectable lesion. Speculation as to the cause or causes has carried us into the realm of the endocrine glands, where we wander hither and thither, weaving fantastic pictures of the excess energy in one gland and the deficiency in another; and one writer has gone so far as to illustrate his ideas of the contribution of these varied glands by means of a ring—reminiscent of the benzene ring—each arc of the circle bearing its share in the general welfare of the organism. Speculation is only of value in so far as it stimulates the search for truth, and, where it fails of this, it remains the idle gossip of a lazy mind.

For the moment I am not concerned with causes; but in passing I must pay tribute to Bourne and Wilson for having classified a fraction of this group by the association of the uterine haemorrhage with hyperthyroidism, and their subsequent successful application of *x* rays to the thyroid gland. At the same time I must register my opinion that hyperthyroidism is only concerned with a fraction of the whole, and by diligent search we may hope to classify the remainder. In the absence of precise causation, we are faced with symptomatic treatment. In the less severe cases the salts of iron, magnesium, and calcium, with a change of scene, frequently play a useful part; and, by contrast, ergot, in my opinion, is valueless, and not infrequently makes the condition worse.

This brief review, however, is only concerned with severe cases, in which ordinary measures have failed and where curettage, performed even up to five times, has only sufficed to establish a temporary lull in the story of heavy haemorrhages, and where the increasing anaemia and weakness of the patient compels us to face a grave condition.

In a paper read before the Gynaecological Section of the Royal Society of Medicine in March, 1923, I analysed the results of 45 cases treated by radium, and I have only to add to that report that three of the patients had a recurrence of haemorrhage from eight to nine months after treatment, in one of whom it was so slight as to require no further attention; the other two had each a further exposure, which sufficed to re-establish amenorrhoea. The report on the remainder requires no modification.

I have now treated 65 cases in all of this severe type of haemorrhage, 43 of which had undergone some form of operation, dilatation and curettage being the commonest, one patient being curetted no less than five times; two patients had been curetted three times, and several had undergone the process twice. The other operations noted in the history were excision of polypi, amputation of the cervix, resection of cystic ovaries, salpingectomy, and appendectomy. The remainder were compelled to spend some part of each month in bed or had become so anaemic that further treatment was imperative. Seven of the cases were associated with small mural or subperitoneal fibroids, all of which responded equally well to the treatment, and no detectable change was found in the size of the subperitoneal fibroids on examination some months after treatment.

consult the Colonial Office List and the Professional Handbook (price 6d.) issued by the Overseas Settlement Office, 6, St. James's Square, S.W.1.

There remain a number of medical appointments made by mining companies and other commercial undertakings in various parts of the tropics. Much caution should be exercised in accepting such posts, and the form of contract should be subjected to very careful scrutiny. Advice in this connexion should always be sought at the central office of the British Medical Association, 429, Strand, W.C.2.

MEDICAL RADIOLOGY AND ELECTROLOGY.

THE CAMBRIDGE DIPLOMA.

A DIPLOMA in Medical Radiology and Electrology is granted by the University of Cambridge. The primary object is to provide adequate training in a branch of medical work which is becoming increasingly important and difficult, and which is outside the ordinary medical curriculum. The Diploma is only open to those who hold a medical qualification, and includes a course of lectures and practical work in Physics (Part I) and in Radiology and Electrology (Part II). Attendance at the necessary courses of lectures in both subjects, and in addition six months' clinical experience in an adequately equipped hospital recognized by the Committee, is essential. The whole course of study takes six months, the lectures, practical work, and hospital attendance running concurrently.

The courses carried out by the University of Cambridge are at present arranged to begin early in January. Three months are spent in Cambridge doing the lectures and practical work in Part I, and attending the systematic lectures in Part II and the practice of Addenbrooke's Hospital, where there is a fully equipped and up-to-date X-ray and Electrological Department. The remaining three months can be completed at any recognized hospital, but special arrangements are made for students to continue their studies in London, where demonstrations at various hospitals are arranged, in order to give a wide experience.

In addition, an independent course is arranged by the British Association of Radiology and Physiotherapy. This course is held entirely in London, but is recognized by the University as qualifying for the examination; it begins early in October.

Further particulars as to the Cambridge Course can be obtained from F. Shillington Scales, M.A., M.D., Medical Schools, Cambridge, and of the London Courses from Stanley Melville, M.D., at the offices of the British Association of Radiology and Physiotherapy, 12, Stratford Place, London, W.1.

MEDICAL MISSIONARIES.

MISSIONARY Societies are in constant need of qualified men and women to fill vacancies as they occur in their hospitals, and also to enable them to take advantage of fresh openings. To those suitably endowed the mission field offers unique opportunities for interesting work, and the development of native medical schools, as training institutions in connexion with some of the larger mission hospitals, affords excellent scope for valuable work to medical men and women who are qualified to teach. It is not usually expected that medical missionaries should take a position such as would otherwise be occupied by an ordained clergyman or minister, but it is essential that they should be prepared to exert their influence in any hospital to which they may be sent so that a Christian atmosphere may be maintained and the work of evangelization be carried on through the ministry of healing.

As for scientific and other qualifications for the work, medical missionaries, in addition to being physically capable of sustaining a life which makes a great demand upon their strength, should be thoroughly well trained physicians and surgeons. It is very desirable that they should have held a resident appointment at a general hospital, and have a good knowledge of practical surgery, gynaecology, tropical medicine, and the treatment of eye diseases. Useful information can be obtained from the Secretaries of the various Missionary Societies, or from Thomas Cochrane, M.B., C.M., Honorary Secretary, British Advisory Board on Medical Missions, 3, Tudor Street, London, E.C.4.

Dental Surgery.

UNTIL the passing of the Dentists Act, 1921, the profession of dentistry in this country was regulated by enactments very closely similar to those relating to the practice of medicine—that is to say, there was no direct prohibition of the act of practice; and the Dentists Act of 1878 gave the same degree of protection to legally qualified and registered dentists as was accorded to registered medical practitioners—namely, the reservation of the use of certain titles. This Act also provided (1) that no person should take or use the name or title of "dentist" (either alone or in combination with any other word or words) or of "dental practitioner," or any other name, title, or description expressed in words or by letters implying that he was specially qualified to practise dentistry, unless he was registered, under a penalty of £20; and (2) that an unregistered person could not recover any fee or charge in respect of any dental operation, attendance, or advice. But, in the case of the practice of medicine by unqualified and unregistered persons, certain deterrent factors came into play—such as the inability to give a death certificate—and these did not operate to the same extent in the case of dentistry; hence, unqualified practice has been far more prevalent in dentistry than in medicine, and this increased after a decision of the House of Lords placing a narrow interpretation upon the words "specially qualified to practise dentistry," by defining the word "qualified" as not referring to competence but to the possession of a recognized diploma.

THE DENTISTS ACT, 1921.

This unsatisfactory position has now been remedied by the passing into law of the Dentists Act, 1921; its provisions are based largely on the recommendations of a Departmental Committee appointed in 1917 by the Privy Council "to investigate the extent and gravity of the evils connected with the practice of dentistry and dental surgery by persons not qualified under the Dentists Act." Since November 30th, 1922, no person has been permitted by law to practise or hold himself out, whether directly or by implication, as practising or as being prepared to practise dentistry unless he is on the *Dentists Register* provided for by the Dentists Act, 1878. The practice of dentistry is defined as including "the performance of any such operation and the giving of any such treatment, advice, or attendance, as is usually performed or given by dentists," and the performing of any operation or the giving of any "treatment, advice, or attendance on or to any person as preparatory to or for the purpose of or in connexion with the fitting, insertion, or fixing of artificial teeth." The maximum penalty incurred by an unregistered dentist is £100 for each offence. There are, however, certain important exceptions to the requirement of registration. A registered medical practitioner may practise dentistry without being on the *Dentists Register*, and a registered pharmaceutical chemist or chemist and druggist may extract a tooth where the case is urgent and where no doctor or dentist is available, but the operation must be performed without any kind of anaesthetic; further, any person may carry out minor dental work in a public dental service under the personal supervision of a registered dentist provided it is in accordance with conditions approved by the Minister of Health after consultation with the Dental Board.

Certain persons other than those qualified by examination were entitled to be registered under the new Act. They had to be of good personal character and 23 years of age before July 28th, 1921 (the commencement of the Act), and to have been engaged for five of the seven years preceding that date as their principal means of livelihood in the practice of dentistry in the British Islands, or have been admitted to membership of the Incorporated Dental Society not less than one year before the commencement of the Act. The passing of "the prescribed examination in Dentistry" within two years of the commencement of the Act is considered as equivalent to practising for five years, and a registered pharmaceutical chemist or a chemist and druggist who immediately before the commencement of the Act had a substantial practice as a dentist, including all dental operations, was treated as though he had practised for five years. A dental mechanic who for the five years has been carrying on his work as such can be registered provided within ten years of the commencement of the Act he passed the prescribed examination.

Dentistry may be carried on by a corporate body provided the

Mr. BECKWITH WHITEHOUSE (Birmingham) thought that these cases were very difficult to treat. He cited an instance where he had used radium, but the haemorrhage did not stop and the patient died. Subtotal hysterectomy would probably have saved her. He agreed with the President that multiple curettage was a dreadful mistake. He thought that radium might act by holding up the function of the endometrium, possibly destroying its hormones, until the full development of ovarian function. If the endometrium were found to be atrophic after diagnostic curettage, radium would probably do good. He wondered whether, in those cases of Dr. Forsdike's where ovarian changes had been demonstrated, these changes could be ascribed to the atrophy of the endometrium rather than to the direct action of the radium.

Dr. W. R. GROVE (St. Ives) believed that many of these cases would be found to have calcium deficiency. He had come to the conclusion that calcium deficiency was evidence of blood sepsis, preventing healthy healing and predisposing to the manifestation of disease in the patient's weakest spot. A chronic eczema would frequently be healed if calcium efficiency could be established. If an intramuscular injection of 1 grain of calcium chloride were repeated daily for two or three days haemorrhage would probably cease, but parathyroid extract was the only thing by means of which permanent calcium efficiency could be maintained.

Dr. JOHN CAMPBELL (Belfast) had been very disappointed in the use of radium in cases of uterine haemorrhage. He was interested to hear that radium produced atrophy of the endometrium. Thirty years ago nitric acid and other agents had been employed to achieve the same purpose. He had been in hopes that radium might supplant operation in the case of the smaller fibroids, but he had found that this was not so. Surgery had not lost its place even with small fibroids. He had seen fistulae following the use of radium in several cases, but in only one was the fistula permanent—the others healed spontaneously without the need of operation.

Dr. RUSSELL GREEN (Birmingham) thought the comparison of radium therapy to the action of a red-hot poker both fortunate and unfortunate. It was unfortunate because it obscured the idea lying behind radiation methods—namely, that a selective action could be exerted. It was fortunate because it illustrated the fact that, in order to produce an effect even slightly remote from the point of application of radium, a much greater dose must be given at the point of application. If the dose required was a fairly big one, the radium dosage delivered from a remote point was very greatly larger, and then there was the danger of sloughing. The Erlangen-Frankfurt technique had been evolved to avoid, and did avoid, this danger inseparable from radium therapy.

Dr. JAMES HENDRY (Glasgow) asked Dr. Grove whether he could produce evidence that in these cases of menorrhagia there was a septic condition of the blood. He presumed that Dr. Forsdike did not include the menorrhagia of puberty in his cases. In very young girls these severe haemorrhages generally cleared up with simple medical treatment without the use of radium.

Dr. FORSDIKE, in reply, said that he was afraid that the discussion had become discursive. His cases had been limited to those which had already been treated in a variety of ways without result. He had never had occasion to treat a girl at puberty—they usually got well of themselves. If radium were placed in the vagina it was very likely that a fistula would be produced if the radium were left in long enough. His point was that radium placed in the uterus as he employed it could not cause a fistula. It was the gynaecologist, and not the radiologist, who should use radium on the female genitalia. The ovarian changes he had demonstrated were so gradual that he could not ascribe them as due to the changes produced on the endometrium. In the 65 cases in which he had used it radium had never failed to do what was required of it. In young patients he thought that they should aim to bring about a modification of the haemorrhage rather than completely to abolish it.

MENORRHAGIA TREATED BY INTENSIVE X-RAY THERAPY.

REPORT OF TWENTY CONSECUTIVE CASES.

BY

LOUISA MARTINDALE, M.D., B.S.LOND.,

London.

SINCE last September I have adopted a modification of the Erlangen technique in the treatment of uterine haemorrhage, whether such be due to the climacteric, or to fibroid tumours of the uterus, or to fibrosis of the uterus, as well as for cases of carcinoma and sarcoma, either after or instead of operation. I have been so impressed with my own results, as well as the results I have seen abroad, that I venture to lay before you a short report of twenty cases of fibroids and climacteric haemorrhage treated by myself by this new technique, comparing them with twenty consecutive cases I did by the Freiburg method some years ago. Although these represent only a very small proportion of the cases I have done with the new technique, I feel that any report on my carcinoma cases would be on work done too recently to be of any statistical value. I must also confess that I am still doing a large number of myomectomies and subtotal or panhysterectomies for fibroids. In all cases of doubtful diagnosis I do a diagnostic curetting. In cases of tumours reaching above the umbilicus I am also, unlike many of the distinguished foreign gynaecologists, still doing hysterectomy; also in some cases in which I have diagnosed pedunculated subperitoneal fibroids or in which the symptoms make me believe that there may be some degeneration, malignant or otherwise, of the fibroid tumours.

Surgical treatment is to me sometimes a temptation; hysterectomy or myomectomy in all these non-malignant cases is so satisfactory and the cases do so well; one never has sepsis, and one actually sees for oneself at the operation the uterine condition. On the other hand, I suppose most surgeons still have to confess to a 1 per cent. mortality even for hysterectomy for fibroids.

Gauss of Freiburg, who is an excellent surgeon, uses x rays in practically all his cases of fibroids and in all cases of carcinoma of the cervix; in fact, when I saw him at work last year I found he only refused to x-ray a fibroid when it was complicated by very urgent pressure symptoms. He goes so far as to say that in doubtful cases he would even do an exploratory laparotomy. If only a small fibroid were present and a myomectomy would suffice he would do myomectomy, but never a hysterectomy. He would close the abdomen and use x rays instead.

The new technique, which I must remind you involves only one, or at most two, treatments, lasting about two and a half hours, I have employed since last September. I work with a Symmétrie apparatus on the double coil principle, said to work at a voltage of 200,000, and capable of generating an extremely hard, penetrating radiation, which, when filtered, is practically homogeneous.

I moved to my present house for the sake of its well lighted and airy x-ray room, and I work from an ante-room protected by 5 mm. thick lead screening. By means of a specially constructed fan ventilator the air of the room is always fresh, and much of the Roentgen sickness complained of by some radiologists is therefore avoided.

Precision of Dosage.

The chief characteristic of the new technique is precision of dosage. This involves:

1. Knowledge of the exact biological unit skin dose of every tube.
2. Knowledge of the percentage depth dose of every x-ray tube employed.
3. Knowledge (and this also is only gained by exact experimentation) of the best filtering for each tube so as to obtain the highest point of homogeneity.
4. Measurement of the coefficient of absorption of each tube in those cases in which Dessauer's curves are used.

These measurements have to be made for each tube certainly every fourteen days, and it is extraordinary how much variation one finds, but it is only with this exact knowledge that one can work with such intense doses with any degree of safety.

course should comprise a minimum of sixteen meetings of the class. (c) Dental Metallurgy (with practical work and demonstrations). The course should comprise a minimum of twenty meetings of the class. (f) Dental Mechanics (with practical work and demonstrations). The course should comprise a minimum of twenty meetings and twenty demonstrations. (g) A course of instruction in the use of Anaesthetics, general and local, employed in Dental Practice. (h) A course of instruction in Radiology as applied to Dentistry.

(vi) That he has for at least twenty-four calendar months attended, during the ordinary academic terms, the practice of a recognized dental hospital or of the recognized dental department of a general hospital.

(vii) That he has received for not less than twenty-four calendar months, or for 2,000 hours, practical instruction in dental mechanics.

5. That the examination for a degree or licence in dentistry or dental surgery shall be partly written, partly oral, and partly practical, and shall include the following subjects: (a) Che Physics, and Biology, in their bearing on Medicine and De (b) Human Anatomy. and Physiology. (c) General Pat including Bacteriology. (d) Medicine and Surgery. (e) Anatomy and Physiology, Dental Pathology, Dental Surgery (ing Orthodontics), Dental Materia Medica and Therapeuti Dental Mechanics and Dental Metallurgy. (f) Practical Exam in Dental Surgery. (g) Practical Examination in Dental Me and Metallurgy. (h) Anaesthetics, general and local, empl Dental Practice.

6. That the prescribed subjects of examination may be co or distributed at the discretion of the licensing bodies, and taken at two or more successive stages during the course of sional study; provided that no candidate shall be admitted final examination in Dental Surgery and Dental Mechanic he shall have completed the required four years' course of stu

The British Medical Association:

ITS AIMS, WORK, AND CONSTITUTION.

THE British Medical Association (as briefly stated at the close of our introductory article on the Profession of Medicine) was founded in 1832 to promote the medical and allied sciences, to maintain the honour and interests of the profession, and foster a feeling of friendship among its members. To attain these objects it holds periodical meetings for the discussion both of medical and scientific subjects, and of professional affairs; it publishes the *British Medical Journal;* it maintains a reference and lending library; it has instituted lectures, scholarships, and grants for research work; and does an immense amount of work on behalf of practitioners. The British Medical Association, with a membership of more than 25,600, is the oldest, largest, and most powerful British organization devoted to the welfare of the medical profession. It has recently acquired a fine building in Bloomsbury for its headquarters, providing ample accommodation for immediate needs and space for future developments. The remarkable growth in the central work of the Association during recent years has far outstripped the capacity of the present premises at 429, Strand. An account of the steps taken to acquire, on most advantageous terms, the handsome building designed by Sir Edwin Lutyens, R.A., was given in our issue of July 7th, 1923, at pages 28 and 33.

Constitution and Administration.

The Association has Branches and Divisions throughout Great Britain and Ireland, and also in the Dominions, Colonies, and Dependencies. The Divisions are arranged territorially, and number, in all, 277. For certain purposes of administration or of scientific and clinical work, the Divisions are combined into 93 Branches. Members of Divisions elect Representatives on the Branch Councils and also a member or members of the Representative Body, which is the governing body of the Association and determines its policy.

The Council is the executive of the Association. It is elected partly by the Divisions and Branches and partly by the Representative Body, and includes representatives of the Navy, Air Force, Army, and Indian Medical services elected by the Representative Body. The Representative Body and Council elect standing Committees to take charge of different subjects. Among these may be mentioned the Science, Medico-Political, Ethical, Hospitals, Public Health, and Naval and Military Committees. There are Committees also for the Dominions, Scotland, Ireland, and Wales; and for the working machinery of the Association, such as the Organization, Finance, and Journal Committees. The Insurance Acts Committee, elected partly by the Association and partly by insurance medical practitioners, is financed by the Association; it is the recognized executive and mouthpiece of the insurance practitioners of Great Britain.

Privileges of Members.

A member of the British Medical Association has the right—

1. To attend the annual and other general meetings of the Association and the meetings of the Division and Branch to which he or she belongs.
2. To take part by personal vote (or in some Divisions by voting paper) in the election of the representative of his or her Division in the Representative Body, and also in the election
3. To receive by post the *British Medical Journal*, pa weekly, which gives a full record, with commentary, of p in clinical and scientific medicine, and of medico-p affairs throughout the British Empire.
4. To receive the help and advice of the central office professional difficulty.
5. To use the library as a reading room, and to current medical or scientific books on payment of p Besides modern works and periodical medical liter foreign as well as English—the library contains many b historic interest.

The full benefits of the Association can only be secu the co-operation of large numbers of the medical prof who by their annual subscriptions provide the nec funds. The greater the membership and the funds th efficient and influential the organization. The Asso during the past ninety years has been the direct me benefiting every class of medical men and medical w In asking for new members it looks not only to the practitioners but also and especially to those recently qu To these a generous concession is made as regards sub tion, and there is a special claim to their recognition work of the British Medical Association in improvi conditions under which they may hold appointments public services or in civil life. The Association's wo the Services is well known. It considers itself to a special sense the guardian of the interests of those me of the profession who by reason of their position are pre from taking common action. At the present time, nearly all the Imperial services are being cut down b numbers and in remuneration, it is ordinary pruden every medical officer to join his professional organizati

Subscriptions and Applications for Membership.

The ordinary subscription to the British Medical Asso is 3 guineas a year for members resident in the U Kingdom, but this is subject to various exceptions. newly qualified practitioners elected within two ye registration pay half this sum up to the end of the year after registration; medical officers on the active the R.N., R.A.F., R.A.M.C. (Regular), and I.M.S. pay 2 gu concessions are made also to members (in the British of forty years' standing, to members of ten years' sta who have retired from practice, to medical married c residing together, and to whole-time teachers and res workers. The ordinary subscription for members abroad is 1½ guineas, but some Branches have special subscriptions. A member elected after June 30th in an pays for that year one-half the current annual subscript

All duly qualified British medical practitioners are el for election as members. Full particulars can be obtain application to the Medical Secretary, British Medical As tion Building, 429, Strand, London, W.C.2; the Sc Medical Secretary, 19, Rutland Square, Edinburgh; c Irish Medical Secretary, 16, South Frederick Street, Du

[*The present issue being the Annual Educational Nu all current material is held over, and neither the "Supple nor the "Epitome of Current Medical Literature" is publ this week.*]

The symptoms were cured in every case except one, in which either the prolonged treatment the patient had already undergone at the hands of another radiologist had set up an immunity to x rays, or I had made the mistake of giving her small repeated doses instead of the 40 per cent. dose which I should apparently have ventured to give her in spite of her youth and the x rays she had had before. The tumours in every case I examined after had diminished in size—in one case very markedly so; and the pressure symptoms have abated, except in one case. This patient tells me by letter that she is still short of breath, but she does not feel bad enough to come to see me, although I have urged her to come, and she writes very gratefully.

It is remarkable how well the patients seem to feel, and although in about one-third of the cases they complain of some flushings, the complaints are not as bad as those of some of my patients who are going through the normal climacteric.

When I turn to my older cases—some of them now nine years old, and a large number of which I reported at the Cambridge meeting of the British Medical Association—I have no failure to report in the first twenty people who answered my letters of last month. They have all done well and had no further complications, and all are extraordinarily grateful and satisfied with their treatment. But when I think of the number of their treatments and the hours they and I and my x-ray sister spent over them, I cannot help being thankful that at last such a sure and certain treatment can be offered to patients suffering from climacteric haemorrhage and from interstitial fibroids smaller than a five months' pregnancy. Indeed, I would like to urge that we do what is being done in all the university hospitals abroad—that is, that every gynaecological clinic should have its own x-ray installation and personnel—for I am more and more convinced that it is the gynaecologist who should undertake the x-ray treatment of gynaecological conditions.

The only drawbacks are, of course, the expense of the apparatus and the necessity of very accurate work in calibrating both tubes and apparatus, and the paramount importance of conscientious dosage and filtering, as well as unbiased and accurate diagnosis in every individual case.

On the other hand, it seems only right to be in a position to offer a method of treatment so easy and comfortable for the patient, involving no period of time off work, no unpleasantness of an anaesthetic, no long period in a nursing home or hospital, and, above all, a treatment involving no risk to life.

DISCUSSION.

The PRESIDENT said the subject was too big for the Section to discuss fully in the limited time available. He had to confess at the outset that he had no use at all for x-ray treatment. He could remember the days when the ovaries were extirpated with the idea of curing fibroids, and it seemed to him that x-ray treatment was a return to those methods of barbarism. He had always, even before the war, had a profound distrust of Germans, and did not believe their results. Castration for gonorrhoea seemed to him to be gynaecology gone mad, and similarly x-ray treatment for pyosalpinx. For fibroids he was immensely in favour of myomectomy. He had seen the most violent menopause symptoms produced in young women by x rays. He had recently had a case of the most diffuse cellulitis of the abdominal wall set up by exposure to x rays. He looked upon x-ray treatment of fibroids as a most retrograde step, and when operation was attempted after their use the difficulties were increased a thousandfold.

Dr. FORSDIKE (London) confessed that he had not realized the depths of his ignorance until he listened to Dr. Martindale's paper with its maze of technicalities. He repeated what he had said in the paper he had read that morning—that in his view all forms of radiation were absolutely contraindicated in the presence of pelvic peritonitis. He had clearly demonstrated that the ovary never recovered if radiation was pushed to the point of castration—temporary castration was impossible.

Mr. BECKWITH WHITEHOUSE (Birmingham) wished to associate himself entirely with the remarks made by the President. He regarded castration as most emphatically a retrograde step. He asked Dr. Martindale whether she had observed any cases of severe anaemia from destruction of red cells following x-ray treatment.

Dr. MARTINDALE, in reply, said that she did not think it was quite fair to compare her results with the tragedies quoted by other speakers. She had had no cases of severe anaemia; her patients had all been wonderfully improved.

RUPTURE OF THE ABDOMINAL AORTA: DEATH FROM ACUTE INTESTINAL OBSTRUCTION.

BY

CLEMENT NICORY, M.R.C.S., L.R.C.P.,

OPHTHALMIC HOUSE-SURGEON, ST. THOMAS'S HOSPITAL.

As an exhaustive research into the literature has failed to disclose a similar complication of rupture of the aorta, I venture to record this case.

On December 26th, 1922, whilst walking in his house the patient, a man aged 52, very stout, a moderate drinker, without history of syphilis, was seized with severe intermittent pain in the right testicle. On the following morning the pain had almost subsided, but returned on his attempting to walk. There was a slight rise of temperature each evening. On January 10th the pain in the testicle returned quite suddenly, and he was admitted to the Torbay Hospital. The radial arteries were found to be rather rigid; the blood pressure was 200 mm. Hg. The patient had passed a restless night owing to abdominal distension and the frequent eructation of gas by the mouth; later he commenced vomiting greenish fluid, which later in the day became brownish and of markedly faecal odour. Death occurred the same day. The Wassermann reaction was negative.

Necropsy.—The right lung was firmly adherent to the parietal pleura; there were fibrous scars in both apices. The heart was markedly hypertrophied, but the valves were normal. Macroscopically, the thoracic aorta showed no abnormalities. The intestines were greatly distended with gas. A dark blue mass was seen bulging the parietal peritoneum in the right half of the abdomen. The ascending colon was embedded in the retroperitoneal mass, but the caecum and appendix were recognizable. Incision of the peritoneum revealed a large blood clot reaching to the upper pole of the right kidney and downwards into the pelvis. The ascending colon had been separated from its peritoneal covering and was so completely surrounded and compressed by the clot that its lumen was almost obliterated. A portion of the clot in the immediate vicinity of the aorta was dark brown and harder than the rest; it was probably older and due to an earlier leak, which may have been responsible for the collapse and pain referred to the testicle on December 26th, a fortnight before death. After clearing away the clot, there was found in the right wall of the aorta, 15 mm. above its bifurcation, a hole 12 by 6 mm.; and a calcareous plaque, beyond which the aorta had given way, and which was still attached to the edge of the perforation. The wall of the abdominal aorta above and below the site of rupture was almost completely calcified.

The rupture appears to have taken place in two stages, as may happen in dissecting aneurysms, the tear involving first the inner tunics, and eventually the external.

It is interesting to note that Durand and Marquezy[1] record a case of dissecting aneurysm of the abdominal aorta in a woman with active tuberculosis and no signs of syphilis, and Muselier[2] describes the case of sudden rupture of the abdominal aorta in a woman of 55, with double apical pulmonary tuberculosis and without evidence of syphilis; though what the precise connexion is between the two conditions has not been demonstrated.

Although spontaneous rupture is associated with the later half of life, Oppenheimer[3] records the case of a girl aged 9 years, in apparently good health and without a history of syphilis, who died from intrapericardial rupture of the thoracic aorta associated with advanced arterio-sclerosis. A similar case is reported by Sparks[4] in a patient aged 16 years.

Syphilis plays an important part in spontaneous rupture of the ascending aorta, but cases are recorded in which rupture followed ulcerative aortitis, suppurative endocarditis, gonococcal salpingitis, and pyaemia.[5]

NEUROSES—
THE FIRST THERAPEUTIC STEP.

IT is becoming increasingly evident that there is no such thing as psychic disorder apart from corresponding disturbance of the physical mechanism. We are being driven to the belief that there is a psychology of the cell as significant as and even more fundamental than what we may call the collective psychology of the individual, to which the term has, so far, been generally applied.

Equally it is questionable whether any bodily derangement occurs without parrallel mental disturbance.

It is a matter of general experience that the neurotic individual nearly always is troubled with dyspepsia and constipation. So frequent, indeed, is the association that by some they have been thought to be cause and effect. Such, however, is probably but a crude explanation of the coincidence.

What is certain is that attention to the alimentary system may wisely precede and accompany all other psycho- and physico-therapeutic measures for the relief or cure of neuroses. Drastic purgatives, it is true, are generally most undesirable in these cases, but many physicians have found a most valuable adjuvant, in dealing with neurosis, in ENO's "Fruit Salt." This preparation can safely be entrusted to the patient, being meticulously pure, free from all harsh mineral salts, and pleasant to take, yet thoroughly efficient in action.

THE proprietors of ENO's "Fruit Salt" will consider it a pleasure to send to any member of the Medical Profession for his personal use a bottle (Handy or Household size, as desired) of their preparation, with a copy of the "Doctor's Pocket Remembrancer." This summarises briefly a few points in the diagnosis of nervous diseases which often slip the memory. Bound in black morocco limp.

J. C. ENO LTD., LEVER HOUSE, VICTORIA EMBANKMENT, E.C. 4.

and I was so impressed by the fact that a septic tonsillitis and a quinsy respectively were followed by a typical attack of erythema nodosum that I determined to try injecting antistreptococcus serum at the next opportunity. I had to wait more than two years before it occurred.

Case 1.—A girl, aged 14, was admitted into hospital under my care suffering from typical erythema nodosum. She had a not very definite history of subacute rheumatism and of a slight sore throat within ten days preceding her admission. There was no cardiac lesion nor any evidence of other constitutional trouble. She was immediately given 10 c.cm. of polyvalent antistreptococcus serum, and in forty-eight hours the improvement was most marked. A further dose of 10 c.cm. was given, and in thirty-six hours the erythema had entirely cleared up, leaving only the usual discoloration. The subsequent or accompanying anaemia rapidly improved under iron, and the girl was quite well in between two and three weeks.

Case 2.—A woman, aged 51, had septic tonsillitis. She gave no previous history of rheumatism; eight days after the commencement of the tonsillitis, and when the latter had cleared up, typical erythema nodosum developed. She was given 10 c.cm. of polyvalent antistreptococcus serum, and after forty-eight hours, although she was immensely improved, a further dose of 10 c.cm. was given, and in thirty-six hours the erythema had entirely subsided, leaving only the usual discoloration. The anaemia rapidly improved and she was well and about in three weeks.

No other treatment was given, except for the anaemia, in either of these two cases. I am not claiming that antistreptococcus serum is a specific for erythema nodosum. It may be that horse serum injections would be equally efficacious and that these are simply further examples of non-specific protein therapy. The results in these two cases, however, were sufficiently remarkable to make me feel justified in recording them, in the hope that others who have cases of erythema nodosum will give the antistreptococcus serum or ordinary horse serum a trial.

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THE HARVEST BUG.

A DESCRIPTION of the effects of this creature is usually omitted in ordinary textbooks, and is limited to a few lines in manuals on skin diseases. But to those who have gone for their holiday to a region infested with harvest bugs their prevention and cure becomes a matter of serious importance, as the intolerable itching they produce often quite prevents sleep, and the holiday is wasted as far as rest to the nerves is concerned.

The harvest bug is a small red object just visible to the naked eye, it is said, though I have never been able to detect it myself. It is a cousin to the acarus of scabies, and belongs to the Arachnida or spider group. Its technical name is *Leptus autumnalis*, or *Microtrombidium autumnale*, as it belongs to the family Trombidiidae. Another member of this family causes the Isutsugamushi disease, which is usually fatal in the East. When magnified it is seen to have six legs, and these and its body are covered with hairs. It penetrates the skin—probably at a hair follicle—and buries itself more or less completely therein. A glance at the magnified creature will show the intense irritation it and its hairs must produce.

It is prevalent in the country, particularly in chalky districts, in the months of August and September. Personally I have experienced it in Berkshire and North Cornwall. It swarms in the grass at the side of roads and in fields, a walk through which will lay in a stock very rapidly. In wet weather it disappears for a time, but in bright dry seasons it is at its worst. This year has been one particularly favourable to its activities. Children are tormented by it, and the more one washes the worse one suffers, probably by removing the sebaceous material from the hair follicles and facilitating its entrance. A certain immunity is acquired by those who live in infested areas, and also among visitors who have gone regularly to the same spot year by year.

Prevention.—It is well to avoid walking in long grass. The skin can be protected by daily sponging all over with infusion of quassia. It is well to use carbolic soap for the body. Sulphur powder dusted in the socks and underclothing is also recommended.

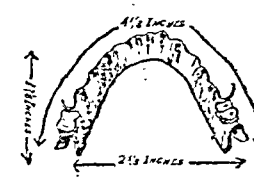
Cure.—Any mild parasiticide ointment is recommended. I have found sulphur ointment well rubbed into the spots fairly effectual, but it is a messy application, and unpleasant for constant use. A sulphur bath, with one teaspoonful of potass. sulphurata to the gallon, would probably be indicated for widely distributed bites. Jeyes' fluid, two teaspoonfuls to the pint, is recommended by many, but it is sticky and has a strong smell. Scrubb's cloudy ammonia has its advocates. The remedies that I have found produce immediate and permanent relief are two: (1) A 1 per cent. carbolic acid lotion rubbed on the spots with the fingers until it is rubbed dry and sebaceous matter expressed. This stops the itching instantly. One has a pot of the lotion, dips one's fingers in it, and rubs the affected spots. As carbolic can be absorbed by the skin too much should not be rubbed in at a time. (2) To prevent any such remote contingency as carbolic acid poisoning I have tried methylated spirit, and it appears to act effectively if applied *directly the itching begins and before the parasite is protected* by a scab produced by scratching, which seals its point of entrance. In that case there is a distinct papule, which must be pricked with a needle and squeezed. In cases where large surfaces are affected it would be preferable to rub in methylated rather than carbolic. In either case the rubbing in with the bare hand is indicated, and it is probable that the parasite is mechanically removed with the sebaceous material extracted by rubbing the lotion on till it dries up.

It is in the hope of offering promising suggestions for others similarly attacked that I have written this note.

Sydenham. H. B. GLADSTONE, M.D.

THE PASSING OF A LOWER DENTURE.

AT 4.15 one afternoon a clerk in the A.D.M.S. office, Madras District, swallowed, whilst at tea, his lower artificial denture. He could not extricate the denture, and as he felt that he was choking he "jumped it down." He reported the accident to the staff surgeon, who ordered him to eat a large quantity (1 lb.) of bread; this was done. At about 2 o'clock the next morning the patient was seized with severe colic, accompanied by a cold sweat and much flatulence. From this it was presumed that the denture had passed through the pylorus. He treated the matter lightly, however, and did not want to go into hospital. During the following day he was entirely free from pain of any description, and performed his ordinary duties in the office.



As the *x*-ray installation in Wellington was not in working order the patient was sent to Madras. On the journey, which took twelve hours, he experienced severe abdominal pains, which began just below the stomach. On admission into the Madras General Hospital no time was lost in taking an *x*-ray photograph, but before the result of this could be ascertained the patient was seized with most violent pains and asked to use a commode. At 11 a.m., after a great deal of exertion, he passed the denture per rectum. During the passage of this foreign body through the rectum he was in a state of collapse, and was attended to by the medical officer present. He was kept under observation for forty-eight hours, but after the first two hours which followed the passing of the denture no ill effects or complications were observed.

The total time this artificial denture took to pass through the body was sixty-six hours and fifty minutes.

W. G. PRIDMORE,
Colonel, I.M.S.
Wellington, S. India.

DIAPHRAGMATIC HERNIA OF THE NEWBORN.

A PRIMIPARA, aged 42, recently gave birth to a male weighing 8 lb. The child died three hours after birth. I had used forceps (the mother was small), and the fear of intracranial haemorrhage was upon me. *Post-mortem* examination, however, showed a deficiency in the left side of the diaphragm, which was large enough to admit three fingers. The entire bowel, accompanied by the spleen, had herniated, and occupied the left thorax, displacing the heart to the right side of the sternum, and reducing the left lung to two small tags of tissue. The contents of the hernia could easily be reduced, but very soon returned to their thoracic lodging as the place of greatest comfort.

Perhaps the death of the newly born is not so frequently due to "excessive weakness" as midwives (and others) suppose.

Broad Chalke. G. C. ADENEY, M.B., B.S.Lond.

fimbriae and pus leaking from the abdominal ostium. Plastic lymph adheres in flakes to the peritoneal surface of the tubes and neighbouring viscera, such as the ovaries and uterus. Organized adhesions have not yet had time to form.

Each tube should first be slit up as far as possible along the border opposite to its mesenteric attachment, the pus very gently swabbed away, and the mucous membrane carefully inspected. Should it appear intact to the naked eye, only congested without ulceration or greyish patches of necrosis, the tube should be left *in situ* without any further treatment beyond a few sutures of thin catgut to fix the muco-cutaneous surfaces at any point where there is arterial bleeding. Any cyst in the ovaries should be opened freely to prevent the formation of an ovarian abscess; a drainage tube is placed to the bottom of the pouch of Douglas, and the abdomen is closed, or drainage may be provided through the vagina.

The advantages of laparotomy and salpingostomy are as follows:

(1) A check is given to spreading peritonitis and the formation of adhesions and peritoneal abscesses by opening and draining the pelvis.

(2) The laying open of the tube drains its lumen and immediately offers it the chance of resolution without the risk of further permanent changes caused by a continuation of suppurative inflammation.

The suppurating tube must be regarded as an abscess cavity with an imperfect drainage through the abdominal ostium. So long as the drainage is imperfect the destructive suppurative process will continue as in an ordinary abscess cavity, with the production of necrosis and desquamation, the formation of adhesions within the tube and sealing of the ostium. But salpingostomy will provide complete drainage, and thus allow immediate retrogression of the inflammatory process, for there is no slough to separate, and the function of the tube may thus be restored.

(3) Salpingostomy obviously renders the formation of a pyosalpinx impossible, and permanent thickening of the tubal wall extremely unlikely.

Salpingectomy.—If after laying open the tube the mucous membrane shows grey patches of ulceration and gangrene it is beyond the power of functional recovery and should be removed. The only possible object of preserving the tubes is to maintain their function, and if this appears impossible owing to the extent of their destruction the tubes should be completely removed. By this operation there can be no further salpingitis, and the ovary is saved considerable risk of infection. To leave the tube alone and merely drain the pelvis is to invite the formation of chronic tubal disease and permanent ill health. Further, the convalescence will be longer and more likely to be disturbed by residual abscesses.

Results.

It is only very rarely that it is possible to inspect the distant results of salpingostomy done for the acute form of salpingitis. A case in which this was possible made a great impression on me, and is worth recording to show the complete degree of possible resolution.

The condition operated on was one of acute puerperal salpingitis, a notoriously severe form of the disease, in which the tubes were greatly congested, enlarged, plum-coloured, and were *oozing pus*. They were treated by salpingostomy. The whole of each tube was slit up as far as the isthmus, and the abdomen drained from above.

About three weeks after the operation the patient died of pneumonia and a partial *post-mortem* examination was made. The tubes were carefully inspected, and were found to have undergone complete resolution. The tube wall was soft and of normal appearance, without any congestion, while the gutter made by the operation was found to be clear of any adhesions and opening freely into the pelvic cavity. Moreover, the plicae of the mucous membrane had entirely regained their ordinary appearance.

Such a tube we know from other experience to be capable of bearing ova to the uterus, and so justifying its preservation. How far it is usual for so complete resolution to follow acute suppurative salpingitis with the crowning success of a subsequent pregnancy it is impossible to say, for I doubt if anybody has yet done sufficient operations of this kind, but cases are on record of pregnancy following salpingostomy of the tube in a chronic state, and it is reasonable to hope that similar treatment of the acute tube sufficiently early, before too great damage of the mucous membrane has occurred, will be followed by similar success.

Even suppose, however, that salpingostomy does fail to produce resolution and a functioning tube, we have done no harm by not removing the tube in the early stages, inasmuch as it cannot lead to a chronic pyosalpinx, and adequate drainage of the pelvis will prevent residual peri-tubal abscesses.

If, on the other hand, the tube is damaged beyond hope of repair, as by gross ulceration of the mucous membrane, salpingectomy is the only procedure which will preserve the pelvis from future pathological conditions. To leave such cases unoperated upon will ensure the formation of a subsequent pyosalpinx or chronic interstitial salpingitis.

One final word. Many cases of acute salpingitis occur in young women soon after marriage, in whom the certainty of future sterility is a very real tragedy. We are sometimes apt to regard the "recovery" of the patient as the chief if not the only aim of our treatment. Now I claim that our treatment should be designed for further results than "recovery." These (non-puerperal) patients will frequently recover whether the gynaecologist is present or not, but if our treatment is not intelligent and prospective we condemn a young woman to the prospect of certain sterility and frequently to pelvic invalidism. If the tube is treated early, salpingostomy will give her the chance of further childbirth, and if it is already too much damaged, salpingectomy will prevent permanent ill health.

II.—VICTOR BONNEY, M.S., M.D., F.R.C.S.,

Obstetric Surgeon, Middlesex Hospital.

I AGREE entirely with Mr. Bourne's proposal to leave out of discussion puerperal salpingitis, the propriety of immediately operating upon which nobody, I suppose, contests. I wish he had called it "post-abortional salpingitis," for salpingitis, though common after abortion, is rare after full-time delivery, because there is no communication between the tubes and the uterine cavity for some time after labour. Cases diagnosed as puerperal salpingitis are usually examples of thrombo-phlebitis of the leash of veins and lymphatics which accompany the ovarian artery in the upper broad ligament, the tube being stretched sessile over the mass so formed.

I have been for a great many years an advocate for operating on all cases of salpingitis at the earliest possible moment. My opinion on this matter has not been lightly formed, for I was brought up in that older school of thought which denounced early operation, and it is always difficult to break away from the teaching impressed by one's seniors at an age when the mind is mouldable. Indeed I know some men who have never recovered from their teachers.

In the nineties I well remember how every female medical ward at Middlesex Hospital perennially contained two or three cases of "perimetritis" undergoing "treatment." Each patient stopped there for weeks with a see-saw temperature chart, and a poultice on her abdomen. I recall that some died, but the majority eventually got well after a discharge of pus per rectum, and after weeks of suffering resumed their normal mode of life.

Later on it became the practice, after the first fury of the attack had spent itself, to transfer these cases to the gynaecological ward and to operate on them. The operation was always severe, sometimes most formidable, and the appendages the surgeon dislodged from the pelvis were a couple of swollen, ragged, pus-exuding masses bearing no likeness to the normal ovaries and tubes as fashioned by Nature's beautiful handiwork. Both appendages were then habitually removed, and, indeed, in very few of the cases could the surgeon have done otherwise. Drainage had often to be maintained for several weeks, and faecal fistulae were common. The mortality attached to these cases of delayed operation was high, and it remains high, for unfortunately patients with neglected salpingitis are still all too frequently presented to us.

More than occasionally, too, I saw cases where opening the abdomen, after days or weeks of suffering, revealed a

The editor has also added a number of notes of his own, giving additional references or explanations. So far two volumes have reached us; each volume will be sold separately, but subscriptions are invited by the publishers to the whole series, which will be completed in seven volumes. The subtitle of the first volume is *Dissymmétrie moléculaire;* the well known portrait of Pasteur in his laboratory painted in 1889 by A. Edelfelt forms a frontispiece, and all the illustrations in the original papers are reproduced. The second volume is entitled *Fermentations et générations dites spontanées* and indicates how from the investigation of crystallography and molecular chemistry Pasteur was led on to the study of ferments, which he began in 1855. In this volume again all the illustrations in the original papers are reproduced. Pasteur has many monuments, but this collected edition of his own works will form his best.

GUY'S HOSPITAL REPORTS.

THE third quarterly instalment of this year's volume of the *Guy's Hospital Reports,*[9] though of the usual size, contains four papers only, two of considerable length and two quite short. In his study of the Guy's Hospital cases of chlorosis during the last thirty years Dr. J. M. H. Campbell also collects statistics from other sources showing the reality of the widespread belief that it has become much less prevalent; thus in 1916 the number of cases was less than a quarter of that in 1903. The main cause of this diminution is the improved condition of factory life and domestic service, which thus provide more opportunities for fresh air and exercise. There are many other points of interest arising out of the analysis of the cases at Guy's Hospital, and to some of these we refer in another column. Dr. G. W. Nicholson's continuation of his "Studies on tumour formation," occupying more than fifty pages, is devoted to the consideration of the heterotopic tumours, or those consisting wholly or in part of epithelium differing fundamentally in structure from that of the cells in the organs in which they have originated—for example, a duct carcinoma of the breast lined by keratinized squamous epithelium. As in his previous studies on tumour formation, the amount of research, reading, and thought devoted to this paper is remarkable, but it must be admitted that it is not exactly light reading. It provides another nail for the coffin which the author is thoughtfully constructing for Cohnheim's theory of tumours as the result of an embryonic cell-rest, or congenital malformation in its widest sense. In referring to Driesch's Gifford lectures he neatly remarks that, while this is not the place to criticize Driesch's philosophy, even were he able to do so properly, he (Driesch) appears "to have suffered from a defect not altogether unknown in biologists, in that he knew no pathology." Of the two shorter contributions that of Gordon Covell is on the laevulose tolerance test for hepatic insufficiency and its application in certain tropical diseases; the value of this test as claimed by H. Maclean and his co-workers is confirmed, and it is shown to indicate whether or not the liver is involved in cases of amoebiasis. The other paper, by the editor, is modestly crowded into smaller type, and describes hereditary familial congenital haemorrhagic nephritis occurring in sixteen individuals in three generations.

NOTES ON BOOKS.

VOL. VII of the *Official History of Australia in the War of 1914–18*[10] deals with the Australian Infantry Force in Sinai and Palestine, and is written by Mr. H. S. GULLETT. It is, we understand, the second volume of the set in order of publication. Of how many volumes the whole work is to consist we do not know, but it seems likely that the whole publication will certainly provide the average reader with pabulum for several months. But although lengthy, this official history, if the present volume be a fair sample of the whole, may well prove a popular success. One of the many pitfalls lying in the path of a conscientious historian, and especially of the author of an official war history, is that of writing in so dry a style as to fatigue any but the most earnest students; but this defect the recorder of the doings of the Australian Light Horse in Palestine and Sinai has managed to avoid by introducing into his narrative a great deal of detail of an easily comprehended kind. Often, perhaps, it is of little importance in itself, but it supplies the pages with a human atmosphere and will certainly make the volume attractive to friends of the individuals mentioned or described in connexion with it. The medical features of the long-drawn-out campaign in a sandy, fly-ridden country receive a fair degree of attention, and we gather that the medical officers, as also officers of other branches, sometimes found difficulty in getting their own way even when that way was a great improvement on the one initially imposed on them by the Higher (British) Command. But such experience was not peculiar to the Anzacs, either in Palestine or in other areas, nor was the Higher Command always unwise in opposing ostensible progress or in consenting reluctantly, if at all, to material modifications of equipment and the like. The author cannot be aware that some improvisations that he mentions with approval and credits by inference to the ingenuity of the Australian Light Horse were already time-honoured practices elsewhere when circumstances rendered them desirable. But this is of small importance, seeing that the part played by Australia in the war was indisputably magnificent. The volume is well illustrated by maps and photographs and includes an admirable index.

Under the title of *Youth and the Race*[11] the Fourth Report of the National Birth Rate Commission, 1920–23, with the chief evidence, has been published under the editorship of the secretary, Sir JAMES MARCHANT. The inquiry was conducted by a body of forty members, of whom fourteen belonged to the medical profession, and the evidence was given by thirty-one witnesses representing psychology, education, and medicine. The report, which precedes the evidence, is divided into two parts, the first dealing with the moral education and the second with the social responsibility of the adolescent. In view of the importance of the cinematograph in relation to adolescence—an importance equal if not superior to that of the press—it is interesting to learn that a psychological inquiry on this subject is now being carried out at University College; the results, it is hoped, will be published this autumn.

The monograph on functional albuminuria and nephritis in childhood,[12] by Professor LUDWIG JEHLE, head of the children's department of the Vienna General Policlinic, is divided into four parts. The first is devoted to orthostatic lordotic albuminuria, a subject on which he is a well known authority; the second to functional nephritis, a term applied to atypical forms of lordotic albuminuria; the third to renal diseases, including acute and chronic nephritis, nephrosis, syphilis of the kidneys, paroxysmal haemoglobinuria, and tuberculosis of the kidneys; and the fourth to diseases of the urinary tract, including cystitis and pyelocystitis. A bibliography of the literature since 1912 is appended.

The small book entitled *Surgical "Don'ts" (and "Do's")*[13] is a collection of a number of articles all written in identical form by Mr. C. HAMILTON WHITEFORD of Plymouth, the first having been read before the South-Western Branch of the British Medical Association in 1910 and the latest having been published as recently as April in the current year. As a rule the advice given is supported by a brief statement of the reason why it is given and in some instances illustrations are given of the unhappy results of taking the opposite course.

A handbook on *Alcohol,*[14] by Mr. C. SIMMONDS, has been added to Pitman's series of books on common commodities and industries. It is written in the easy style appropriate to lectures, and there is hardly a question regarding the sources, the mode of manufacture, or the uses of alcohol which is not answered sufficiently to satisfy scientific and technical as well as popular readers.

[9] *Guy's Hospital Reports,* Vol. LXXIII (Vol. iii, Fourth Series, No. 3, July, 1923). Edited by Arthur F. Hurst, M.D. London: Henry Frowde, and Hodder and Stoughton. (Pp. 247-370; 15 figures, 19 charts. Price 2 guineas, post free for volume of 4 numbers; single numbers 12s. 6d. each.)

[10] *The Official History of Australia in the War of 1914–18.* Vol. VII: Sinai and Palestine. By H. S. Gullett. Sydney, Australia: Angus and Robertson; London: British Australasian Book Store, 51, High Holborn. 1923. (Demy 8vo, pp. 844; 77 maps, 83 illustrations.)

[11] *Youth and the Race: the Development and Education of Young Citizens for Worthy Parenthood.* (Being the Fourth Report and the Evidence taken by the National Birth Rate Commission, 1920–23.) Edited by Sir James Marchant, K.B.E., LL.D. London: Kegan Paul, Trench, Trübner, and Co., Ltd.; New York: E. P. Dutton and Co. 1923. (Demy 8vo, pp. xx + 378. 15s. net.)

[12] *Die Funktionelle Albuminurie und Nephritis im Kindesalter.* By Professor Ludwig Jehle. Vienna, Leipzig, and Munich: Rikola. 1923. (Med. 8vo, pp. 63; 2 figures, 3 tables.)

[13] *Surgical "Don'ts" (and "Do's").* By C. Hamilton Whiteford, M.R.C.S., L.R.C.P. London: Harrison and Sons, Ltd. 1923. (Cr. 8vo, pp. 46. 3s. net.)

[14] *Alcohol in Commerce and Industry.* By C. Simmonds, O.B.E., B.Sc., F.I.C., F.C.S. Pitman's Common Commodities and Industries. London: Sir I. Pitman and Sons, Ltd. 1922. (Cr. 8vo, pp. x + 119; 9 illustrations. 3s. net.)

from prolonged illness. This is the opinion I maintained and the practice I adopted until quite recently. The increasing vogue of operations designed to restore the function of closed tubes, and latter-day methods of diagnosing such closure by inflation and so forth, make the question more difficult to answer.

What we need is evidence of the value of tubes subsequent to operative reopening, and here again I am hoping that such will be forthcoming as a result of this discussion. Speaking for myself, I would say that I have performed a considerable number of these reparative operations during the last fifteen years, and the number of successes I have had—that is, the number of times pregnancy has occurred subsequent to the operation—is small. Cases with simple closure of the abdominal ostium without tubal distension are, I believe, the only ones likely to yield a fair percentage of successes. When the tube is distended both ends are closed, and no operative technique that I know of offers much chance, I think, of permanently restoring communication with the uterus—not even reimplantation; and what I have said applies also to cases where the closure affects only the uterine end as proved by inflation.

However, I am most willing—nay, most anxious—to be converted from this pessimistic view by more favourable evidence, and I hope some of the speakers will be able to give it. If it be shown, now or in the future, that tubal function lost by inflammation can be restored by surgical means in a fair percentage of patients, then the case for conservation of the tubes at the primary operation is strengthened, for the surgeon, having failed in his first endeavour to restore the reproductive organs to their normal state, would still have another bolt to shoot. Conversely, if the truth turns out to be that recovery by Nature or operative repair is a feeble hope, we shall have regretfully to fall back on removal of the tubes at the earliest possible moment as the least disastrous way out of a situation laden with disasters.

III.—PROFESSOR W. BLAIR BELL, B.S., M.D.,

Gynaecological Surgeon, Royal Infirmary, Liverpool.

I CONGRATULATE Mr. Bourne on his paper, and on his attempt to deal with so disabling a condition as acute salpingitis by conservative methods. It must be conceded by all that such endeavours are almost beyond criticism, and that they are worthy of emulation. I have often insisted that in gynaecological surgery the limit has long ago been reached in regard to eradication, and that the perfection of conservative procedures alone remains as an ideal of the scientific surgeon.

The method of treatment advocated by Mr. Bourne is the same as that described by Holden[1] two years ago for "chronic adnexal disease," except in regard to minor details, such as the suture of one lip of the incision to the round ligament, which was suggested by Holden in order that intestinal adhesions may be avoided. It is true that Holden practises the operation for chronic lesions, whereas Mr. Bourne employs this procedure in acute infections.

The after-histories of Holden's cases are not encouraging, for reasons that I will explain—reasons which, I think, affect, but perhaps in a less definite way, cases treated in the acute stage.

Mr. Bourne, like Holden, has not made a clear distinction between the elective lesions—if this term may be used—of the gonococcus and the streptococcus respectively; nor is the relative virulence of these organisms emphasized, except in so far as Mr. Bourne has alluded to what he calls "puerperal salpingitis" as being more serious than the non-puerperal variety. The former is, of course, usually associated with streptococcal infection, the latter with gonorrhoeal. These two infections overshadow all other infections, and presumably it is to these that Mr. Bourne refers, because such treatment as that recommended would not be applied to acute tuberculous salpingitis.

I believe that recognition of the differences in the circumstances of infection, in the essential pathology, in the aim of treatment, and in the time for operation leads to the complete separation of the two conditions—gonorrhoeal and streptococcal salpingitis. There is, I have been glad to notice, evidence of hesitation on the part of Mr. Bourne to put his cases of "puerperal salpingitis" alongside those of "non-puerperal salpingitis." Mr. Bourne is learning by experience what others have already learned—namely, that extensive interference in acute streptococcal lesions is so dangerous, and the mortality is so high, that it is to be avoided rather than advocated.

I believe and teach: (1) That whereas the gonococcus remains localized for a long time in the mucosa of the tube, and in time may lead to the destruction of it with the formation of granulation tissue; the streptococcus, on the other hand, has a faculty for passing rapidly through the lining membrane, without permanently injuring it in a majority of cases, and reaching the lymphatics. In consequence the tube often recovers entirely or to such an extent that a salpingostomy is not required until the acute stage has long subsided. (2) That operation during the acute stage or even subacute stage of streptococcal infection is dangerous. In order to learn when operation in such cases is safe, I myself employ what I call the "chronicity test"—namely, the observation of febrile reaction or immunity after repeated examination. Any rise of temperature in such circumstances indicates that operation should be postponed. Leucocytosis, I think, is not always a sufficiently definite indication. I would remind Mr. Bourne that the streptococcus remains alive and active in the pelvic organs for many months.

In acute salpingitis in which there is a febrile reaction, and in which the presence of pus in the pelvis demands interference, I limit operative procedures to posterior colpotomy. I would therefore—as I think Mr. Bourne also shows an inclination to do—rule out the operation under the discussion as either unnecessary or too dangerous in the presence of an active streptococcal infection.

With regard to pure gonococcal infection the case is different; there is little danger to life, and in this condition I think the operation may be tried, although I have no great confidence, I am sorry to say, in approximately satisfactory results.

Undoubtedly some mild cases of gonorrhoeal salpingitis recover spontaneously. In most cases it does not appear to me likely, for the reasons given, that a cure will be effected by the operation in question, since the interstitial portion of the tube will generally be occluded. Moreover, I doubt whether incision of the tube will lead to the disappearance of the organisms located in the mucosa which is a site of election.

Mr. Bourne speaks of performing salpingectomy to save the ovary from infection. This requires great judgement, for if a tube be enlarged and adherent it is extremely difficult to remove it without damaging the blood supply to the ovary. In such circumstances, when pregnancy is impossible, I perform ovarian grafting.

Mr. Bourne's paper is most stimulating, and I think everyone must wish that success along these lines were more probable than it appears to me to be.

IV.—LEONARD PHILLIPS, M.S., M.B., F.R.C.S.,

Obstetric Tutor, St. Mary's Hospital; Obstetric Surgeon to Out-patients, Queen Charlotte's Lying-in Hospital.

THE CONCEPTIONAL VALUE OF RECONSTRUCTED TUBES.

THE following contribution is in support of the view that the tubes should be conserved in acute salpingitis. Whether this is secured by non-interference and medical treatment, or whether by incision and drainage of the tubes, the essential consideration is that the tubes should not be sacrificed. Although they are damaged by acute salpingitis they still have a real conceptional value. The closed ostial end can be reopened, the kinked and stenosed lumen recanalized, and the patency of the tubes once more established. In the last two years I have performed twenty-five laparotomies on women who had suffered from salpingitis in the past. In every case lesions indicating past salpingitis, and sufficient to cause sterility, were discovered. Reconstructive operations were performed in 20 cases, and

[1] Holden, F. C.: *Trans. Amer. Gynecol. Soc.*, 1921, xlvi, 276.

SMALL-POX AND VACCINATION IN THE PHILIPPINES.

BY

JOHN C. McVAIL, M.D., LL.D., F.R.F.P.S.

IN the BRITISH MEDICAL JOURNAL of January 27th (pp. 158–162) I discussed in considerable detail facts and questions relating to the remarkable prevalence and fatality of small-pox in the Philippines in the years 1918–20. The Report of the Philippine Health Service for 1921, which has now been received, shows a great and gratifying diminution of small-pox throughout the archipelago, though, as was to be expected, the degree of freedom from the infection varied in different parts.

In the capital city of Manila the disease was practically absent; in the Division known as the Provinces and containing perhaps nine-tenths of the total population, there were no more than between 300 and 400 cases, and only in two parts of the Division of Mindanao and Sulu (the southern islands) was there in 1921 a continuation of the epidemic prevalence of 1920. Concerning fatality rates, however, the position has not been nearly so good; they were still very high, being set down (pp. 12–13) at fully 50 per cent. in the southern islands—592 deaths in 1,160 cases. The figure for Misamis is extraordinary, for the tabulation shows 180 cases and 180 deaths. It is disappointing that the report makes no remark on this 100 per cent. case mortality. Of the 180 cases, 52 are counted as adults and 128 as infants (p. 298), these two groups comprising the whole 180 without a single case at any intermediate age. This is unbelievable, and so also is a similar classification (p. 297) of 959 cases in Bukidnon, where 403 were adults and 556 infants. It is clear that the words "adult" and "infant" require definition here, and that much more detail is necessary for any proper representation of the facts. It appears (pp. 297–8) that none of the 180 Misamis cases were treated in hospital, and that 162 of them occurred in the first quarter of the year, 14 in the second quarter, and 4 in August, when that epidemic ended. The reader may speculate whether there has not been some extensive omission of notification of the disease in the area involved to account for every recorded case having been fatal.

Vaccination.—The Philippine reports do not generally classify small-pox deaths as vaccinated and unvaccinated, and the 180 just mentioned are not so classified. But the position as to vaccination seems to be pretty much as set forth in the annual reports for 1918–20. Though the membership of each of the six vaccinating parties appointed in 1918 for the whole islands has been reduced from twenty to ten, the total vaccinations performed in 1921 were not far short of two and a half millions. But as before, not nearly the whole of them were subsequently inspected, and not nearly the whole of the inspected vaccinations had been successful. In Manila—in this respect the worst of the three divisions—the total number of vaccinations was 138,517, but the inspections numbered only 33,666, and the negative results among them numbered 11,954. Such figures are of little or no use in assessing the vaccinal condition of a population. Even in infants who could not have been protected by previous vaccination the failures among inspected cases ranged (p. 379) from about 15 to 23 per cent. in Manila, where, if anywhere, good lymph and competent vaccinators should be available. In the Provinces the percentage of failures at all ages was 34.9 (p. 247), and in Mindanao and Sulu 49.11 (p. 302). In that Division the latest reports indicate (p. 13) that dried virus has not given a high percentage of case success.

If it be permissible without offence I would like to point out to those concerned in the preparation of these annual reports the importance of taking great care that they be in every respect accurate and reliable. The volume under notice contains various statistical discrepancies. At page 13 Dr. Vicente de Jesús, Director of Health for the Philippines, states that in 1921 there were reported in the Division of Mindanao and Sulu 1,521 small-pox cases and 1,197 deaths, but in tables at pages 274 and 293 Dr. Fajardo, Chief of the Division, gives the total small-pox deaths for the year as 591. These tables relate only to deaths, not to cases. In the Division of the Provinces Dr. de Jesús says (p. 11) that there were 336 cases of small-pox, but Dr. Hernando, Chief of the Division, says at page 187 that the cases numbered 399, and in confirmation refers to Table E, but the number given in that table is 339, not 399. Dr. de Jesús gives the number of deaths as 151 and Dr. Hernando as 123. Dr. de Jesús says (p. 9) that there was one case of small-pox in Manila, but Dr. Catanjal, Chief of the Division, says (p. 165) that there was no case. A glaring discrepancy occurs with regard to the population of the Philippines. In the previous article I endeavoured to calculate it by collation of figures from various parts of the Reports. In the present Report (p. 19) the Director of Health gives an estimate of population, the figures being for 1920. Manila is said to have had 291,493 inhabitants, the Provinces (excluding Mindanao and Sulu) 8,800,526, and Mindanao and Sulu 2,075,382—a total approximate population in 1920 of 11,165,551 for the whole of the Islands. But at page 273 Dr. Fajardo gives the population of Mindanao and Sulu at July 1st, 1921, as only 618,364, or less than one-third of the Director's figure for 1920, though Dr. Fajardo says the population has increased. My own calculation for 1920 was 542,907, which agrees fairly well with Dr. Fajardo's, allowing for an increase as between the two years. As to the Division of the Provinces, Dr. Hernando (p. 183) estimates the population for 1921 at 8,939,464, which corresponds well with the Director's figures for 1920, but Dr. Hernando makes the curious reservation that "for statistical purposes only the Christian population has been considered, for the reason that sanitary control can only be exerted over this population." Whether the heathen have raged and imagined vain things over their entire exclusion or whether they have not, it is one of the oddest details in the Report. But enough has surely been said to justify appeal to the authors of the Philippine Reports to try to achieve accuracy and concord before issuing another volume, not only for their own credit but in the interests of epidemiology; if they would publish a short table of contents as well as an index they would confer a boon on reviewers. At the end of the previous article reference was made to a published statement that the Rockefeller Foundation had already, in May, 1922, entered on a medical survey of the Philippines, and it was assumed that light would in this way be thrown on the whole subject of small-pox and vaccination in the islands. I have not heard, however, that the Foundation has as yet issued a report.

CANCER.

MINISTRY OF HEALTH MEMORANDUM.

THE Ministry of Health has issued to local authorities, for their guidance, a Memorandum on Cancer, which is reproduced, substantially in full, below.* The object of the memorandum is to summarize, in non-technical terms, present knowledge regarding the etiology and incidence of cancer, and to offer suggestions which may be useful to local health authorities in their efforts to inform public opinion on this subject.

The memorandum has been prepared by the Departmental Committee on Cancer appointed by the Minister of Health, which is composed as follows: Sir George Newman (Chairman), Mr. C. J. Bond, Sir George Buchanan, Dr. S. Monckton Copeman, Dr. Major Greenwood, Professor F. Gowland Hopkins, Professor W. S. Lazarus-Barlow, Dr. J. A. Murray, Dr. T. H. C. Stevenson, and Dr. S. Wyard, with Lieut.-Colonel A. B. Smallman as Secretary.

Apart from the appointment of this Committee, the Minister has directed the medical intelligence service of the Department to keep in touch with developments of cancer investigation, and the Department undertakes the prosecution of researches of an epidemiological and statistical character, both at home and internationally, in regard to cancer. Full and careful consideration will be given to any means by which it would appear that the Ministry, from its position as the central public health authority in England and Wales, can use the resources at its disposal to aid cancer inquiries, in co-operation with the Medical Research Council or the special cancer laboratories and research institutions.

MEMORANDUM ON CANCER.

1. *Characteristic Features and Natural Course.*

In this Memorandum the term "cancer" is applied to a group of morbid conditions known to affect man and lower animals in all parts of the civilized world. The members of this group differ widely in naked eye and microscopical appearances. They also differ in the age of the individuals affected, in the rapidity with

* Circular 425. Copies may be purchased through any bookseller or directly from H.M. Stationery Office. Price 1d. net.

In some mild streptococcal or mixed infections, when the tube is separated from its adhesion, it is found that the fimbriae are rawed and bleeding but still visible, or also are able to be everted by pressure. In these cases it is wise to ligature all bleeding points with fine catgut and to pass one or more thick strands of catgut through the ostium into the tube, but this is not essential in gonococcal cases with club-ended tubes. If the fimbriae can be preserved there is a better chance of subsequent conception, but preservation of the fimbriae is not essential to success, as conception has been recorded after total salpingectomy, while in this series three of the successful cases were salpingostomies in closed tubes without fimbriae.

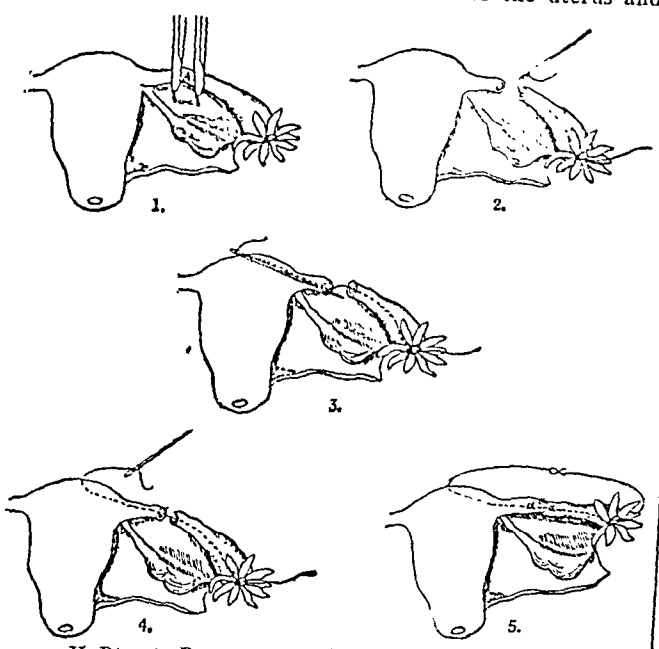
(b) *Partial Salpingectomy.*

If the ostial end of the tube is so torn or disorganized that it cannot be utilized, it can be removed and a new opening made at the free end of the remaining portion of the tube, the details of technique being similar to those already described. If much tube is sacrificed it is difficult to make a permanent opening of any size in the muscular and narrow part of the tube, and the prognosis in these cases is less favourable than in cases where the fimbriae are preserved or widely patent salpingostomies are performed. It is wiser in these cases to leave one or more strands of catgut in the tube lumen.

(c) *Resection and Anastomosis.*

If on distending the tube with air, or threading it over a needle, a definite obstruction is encountered, the affected part of the tube can be excised and the cut ends reanastomosed.

In performing this delicate operation the mesentery in relation to the obstructed part of the tube is tied and the affected piece of the tube excised. (Diagram II, No. 1.) A fine long needle threaded with thick catgut is passed through the two portions of the tube into the uterus and

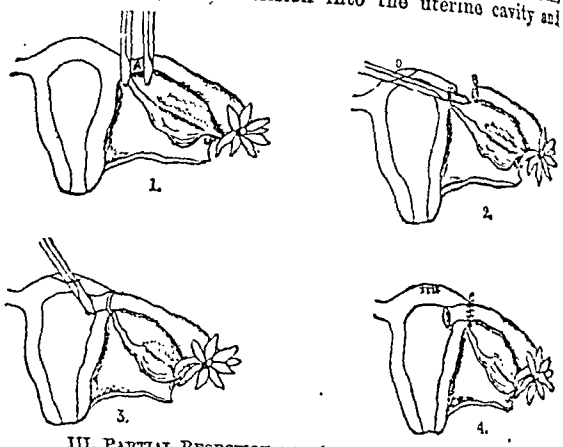


II. PARTIAL RESECTION AND ANASTOMOSIS OF THE TUBE.

1. The diseased or stenosed portion of the tube (A) is removed, the mesentery in relation to this area having just been tied off.
2. A strand of thick catgut is run through the tube as shown in the diagram.
3 and 4. The catgut is then run into the uterine cavity and out of the fundus as shown. The two ends of the catgut are tied together. 5. Then the cut ends of the tube are united by fine interrupted catgut stitches.

out through the fundus, drawing the catgut after it, the catgut at the needle end being tied to the catgut at the free end, entering the ostium of the tube. (Diagram II, Nos. 2, 3, 4, and 5.) The severed tube ends, connected now by the strand of catgut in the tube lumen, are united by a few interrupted very fine catgut sutures passed on small curved needles.

In one case (see Diagram III) with obstruction at the isthmus, the tube immediately adjacent to the uterine cornua was excised. (Diagram III, No. 1.) The proximal cut end of the tube was then drawn into a small artificially bored hole in the region of the cornua. (Diagram III, Nos. 2 and 3.) This was accomplished by making a small incision in the fundus uteri, passing a curved Spencer Wells forceps through this incision into the uterine cavity and



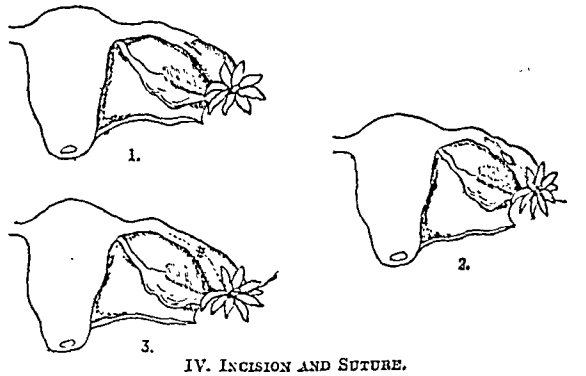
III. PARTIAL RESECTION AND ANASTOMOSIS OF THE TUBE.

1. The diagrams illustrate a method of partial resection and repair of the tube when the damage or disease is at the cornual end. In the above diagram the region A is excised.
2. A small incision is made in the fundus uteri at D, and a Spencer Wells forceps passed through it, so as to emerge at the cornua and seize the cut end of the tube (B).
3. The tube is drawn through the uterine wall.
4. The incision in the fundus is closed and the tube fixed by interrupted fine catgut sutures at C.

out through the artificially bored hole, then seizing the free cut end of the tube and drawing it into the uterus, maintaining the tube in position by a few fine interrupted catgut sutures at the point where it first entered the uterine wall. (Diagram III, No. 4.) In cases of plastic operations on the cornual end of the tube there is usually considerable tension at the point where the tube is sewn into the uterus, and possibly the sutures may cut out after the abdomen is closed.

(d) *Incision and Suture.*

In some cases, rather than excise a portion of tube, the stenosed region can be incised longitudinally and sewn up transversely—that is, across the line of the tube. To avoid recurrence of stenosis a piece of catgut can be left in the lumen of the tube by passing a threaded needle, eye fore-



IV. INCISION AND SUTURE.

1. The tube is incised at A over the area of stenosis.
2. A threaded needle is passed, eye foremost, beyond the stenosed region.
3. The incision is sewn up in the opposite direction—that is, at right angles to the line of the tube. The needle is withdrawn so as to leave a strand of catgut in the lumen, traversing the formerly stenosed portion.

most, down the tube and beyond the incised region, withdrawing the needle and leaving the catgut *in situ*. (See Diagram IV, Nos. 1, 2, and 3.)

Results.

Twenty-five cases were subjected to laparotomy and reconstructive operations were performed in 20 cases. Of the 20 cases in which a working set of reproductive organs was left, 5 pregnancies have occurred—that is, 25 per cent. of

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON, SATURDAY, SEPTEMBER 8TH, 1923.

CONTENTS.

Meetings of Branches and Divisions.

KENT BRANCH.

THE annual meeting of the Kent Branch was held at Bromley on June 14th, when the President, Dr. A. TENNYSON SMITH, gave an address to the members entitled "The Kent Branch—its Past and Future."

President's Address.

The PRESIDENT began his address by asking the audience how many members of the Association knew when the Association itself was founded, and pointed out that both the date of foundation, in 1832, and a likeness of the Founder, Sir Charles Hastings, appeared on every number of the JOURNAL. How much the medical profession owed to its eminent founder the present-day practitioners, he suggested, probably did not realize. Dr. Tennyson Smith then traced the origin of the present Kent Branch. Originally the Association met once a year, and provision was made for Branches to be formed "for the purpose of self-government and for the wider diffusion of the benefits of the Association." In 1836 the first Branch to be formed, the East Anglian, had its origin, and in 1844 the fifth—namely, the South-Eastern Branch—came into existence. This was the immediate forerunner of the present Kent Branch. In 1846, when Surrey and Sussex were ceded to the South-Eastern Branch, the Branch Council stated that "gentlemen residing in the most remote parts of the district will be enabled by railway communications to attend the annual meetings of the Branch wherever they may be appointed to be held and return home in the course of the one day, or at least within the space of twenty-four hours." Dr. Tennyson Smith suggested that this rather put the present-day practitioner to shame, when it was considered how difficult it often was to work up a successful divisional meeting.

As an instance of the enormous amount of work the medical practitioners in those early days used to accomplish, an Ashford meeting was quoted, which began at 1 p.m. and lasted without interruption until the dinner hour at the Saracen's Head! At that time keen interest was taken in medical politics; such subjects as medical reform, a vaccination bill, a registration bill, and Poor Law medical reform were among those eagerly discussed at the meetings, and resolutions were passed and petitions formulated.

The President then referred to the valuable heirloom which the Branch possessed in the form of the first minute book of the South-Eastern Branch, from the pages of which they could judge their predecessors, and also form some estimate of the enormous strides that had been made in medicine and surgery during the last eighty years. The annual meetings of the South-Eastern Branch were so successful that it soon became apparent that others were necessary, especially as the area included was very wide. In 1857, therefore, the West Kent District was formed, which had the distinction of being the first District to be recognized. The East Kent District followed in 1861, then in 1866 and 1867 East and West Surrey respectively, East and West Sussex in 1869 and 1870, and finally the North Kent District in 1896. These Districts then evolved into Divisions. When the Association was reconstituted in 1903 all members of the Association became members of the Branch in which they resided. The South-Eastern Branch became quite unwieldy, and at the meeting at Guildford in 1913 a motion was regretfully passed to divide the Branch into three, corresponding with the three counties of Kent, Surrey, and Sussex. Thus the Kent Branch came into being. Since then, partly owing to the great war, and partly to the resignations of members who disapproved of the action of the Association in connexion with the Insurance Act, the numbers had dropped. The Council might have made mistakes, but it should be recognized that the strength of the Association depended on the amount of support and loyalty it obtained from Divisions, from the Panel and Medical Committees, and from the individual members of the medical profession.

The Branch was suffering at the present time not only from fewer members but from a lack of keenness. Dr. Tennyson Smith expressed a hope that he would be allowed to welcome back to the Branch former trusted members, whose wisdom and experience would be more than helpful in moulding the reconstituted Branch to its former greatness. The Branch was under the deepest debt of gratitude to the honorary secretary, Dr. Starling, not only for his work generally, but for instituting the quarterly scientific meetings which had proved so successful. The President pointed out, however, that the Branch should not depend for ever on the keenness and hard work of the secretary, and added that all members should endeavour to bring fresh life to the Branch by introducing new members. He laid emphasis on the co-operation which should exist between the Branch and Divisions, and recommended that, as the Branch Council already referred matters to the Divisions, it would be a good plan if the Divisions could reciprocate. If this were the case, he felt that the Branch Council could do more than it did at present by focusing the opinion and influence of the medical profession, not only on county matters but also on medical politics generally. The President made a suggestion with regard to Divisional meetings, that instead of inviting a stranger to read a paper, greater numbers might be drawn if several members started a discussion on some subject of general interest. He also suggested that it would be very helpful if fixture cards were issued at the beginning of the year. Dr. Tennyson Smith briefly outlined the work that the Association was doing for the medical profession, and pointed out that £3 3s. was but little to pay, not only for the JOURNAL, but for the whole organization at 429, Strand. This organization was actively engaged in furthering the interests not only of the Association but of the medical profession generally, the benefits of which were also reaped by non-members. The President concluded his address by emphasizing his plea for more members and a greater keenness among the existing members.

METROPOLITAN COUNTIES BRANCH: FINCHLEY DIVISION.

THE inaugural meeting of the new Finchley Division was held at the Finchley Memorial Hospital on August 23rd.

The following officers were elected:

Chairman, Dr. T. W. Hicks. *Vice-Chairman*, Dr. W. S. Rooke. *Secretary and Treasurer*, Dr. W. W. Jameson. *Representative in Representative Body*, Dr. F. A. Spreat.

The Division model rules of organization were approved, and also the necessary resolution regarding the ethical rules.

sources of infection were not removed adhesions would persist. How could secondary infection down the drainage channel be avoided if the infected tube were drained? The great difficulty with all gonorrhoeal infections was that at an early stage they became mixed infections, and it seemed to him that they were courting the same result in draining the tube. Again, a persistent drainage fistula might occur which was exceedingly hard to cure. At present what was wanted was proof that early operation was of more benefit than the old-fashioned medical measures. He was not yet convinced that the results of early operation were really better. It was true that pregnancy did not occur after the older methods of treatment, but was there any evidence that it occurred after the new methods? He asked for how long had drainage to be carried out, and how many cases came back later with ventral hernia.

Dr. GILMORE CURRIER (U.S.A.) then demonstrated an apparatus which was being used at the present time in America for inflating the tubes in order to discover whether or not they were sealed without the necessity of opening the abdomen. He remarked that it was interesting to note that a certain percentage of cases actually became pregnant after being tested with this apparatus, without any other measures being adopted.

Mr. LOUIS RIVETT (London) spoke with actual experience of hte instrument just demonstrated. He was quite convinced that it offered an ideal means for discovering at operation whether tubal strictures were present or not. He thought that any woman otherwise condemned to sterility would take a five to one chance of becoming pregnant. He would go further than Mr. Bourne and conserve tubes which showed a few grey gangrenous patches. He did not think that the risk of setting up general peritonitis by operating in the acute stage was by any means great. Severe secondary haemorrhage from sloughing of the pedicle after a delayed operation was a very real risk which could be completely eliminated by the early conservative operation. Another point he wished to stress was that in the early cases the abdominal ostium was not closed, whereas stenosis of the uterine ostium probably was present. Witness the free leakage of pus from the abdominal ostium which otherwise would take place into the uterus.

Dr. HENDRY (Glasgow) agreed that it was very difficult to get cases in the early stages. He thought the President was asking for a criterion of pregnancy occurring after salpingitis which was very hard to fulfil: he required the abdomen to be opened to furnish the proof. He thought, too, that the dangers of expectant treatment had been much overdrawn. Perforation of the bowel, particularly in cases which did not follow abortion, was very rare. The only case of primary perforation of the bowel in a series of 500 cases collected in Glasgow occurred in a post-abortion case which had been for three months under expectant treatment outside. He thought that the difficulty in the delayed operation could be very much reduced by delaying it still longer than was usually done. The surrounding local lesions tended to clear up and leave the tubes much more freely movable. He advised that cases should be left absolutely alone until all temperature disturbances had long ceased. He thought that the excellent results of Mr. Phillips spoke more in favour of expectant treatment because there seemed to be a large number of cases which clinically were acute salpingitis which appeared to clear up spontaneously. Mr. Phillips's operations were very suitable where symptoms only of sterility remained.

The PRESIDENT thought that a great deal of valuable evidence had been forthcoming, but it was rather disappointing. The evidence as to the restoration of tubal function, whether by early operation or as the result of expectant treatment, was very small indeed. The chances of subsequent pregnancy appeared to be very small. Mr. Phillips's results held out a ray of hope, but his cases were as yet too few. He remained convinced that early operation should be the treatment of choice. The medical profession must be educated to send these cases earlier. The conceptional value of a tube treated by expectant methods was so poor that he certainly preferred early operation to delay.

Mr. BOURNE, in reply, said that the question turned upon the desirability of early operation, and, if early operation was practised, upon the proper procedure to be carried out. He said that the discussion had confirmed him in the belief in the wisdom of early operation, and the evidence of Mr. Phillips on the results of plastic operation on the chronic tube provided valuable support for the preservation of the acute suppurating tube by salpingostomy. The drainage tube should be removed after one or two days, thus preventing the formation of adhesions.

CERTAIN OBSERVATIONS ON THE INNERVATION OF THE UTERUS.

BY

BECKWITH WHITEHOUSE, M.S.LOND., F.R.C.S.,

AND

HENRY FEATHERSTONE, M.A., M.B.CANTAB.,

Birmingham.

THE problem of uterine innervation and the nervous mechanism controlling parturition is one which has for many years interested the physiologist, and one which is of considerable practical importance to the obstetrician.

Historical.

In introducing this further contribution to the subject, it is necessary to refer briefly to the work of other observers, a detailed summary of which will be found in the very excellent and complete article contained in Marshall's recently published *Physiology of Reproduction.*[1]

As long ago as 1867 Kehrer[2] noted that the uterus, when severed from all its attachments, underwent contractions if kept moist at the body temperature. This observation has since been confirmed by various other workers, including ourselves.

In 1871 Sir James Simpson[3] found that parturition was normal in the case of sows from which he had removed the dorsal and lumbar cord, with the exception that the last foetus of the litter in each case was not delivered. In the same year Riemann[4] recorded an experiment in which a cat was delivered of a kitten after complete destruction of the spinal cord from the third dorsal vertebra downwards.

These experiments, coupled with Amand Routh's[5] observations on the course of labour in women suffering from paraplegia, prove that an intact central nervous system is not *essential* for the uterus to complete its physiological function.

Belief in the existence of a so-called "lumbar centre" is, however, fairly general, based on the original experiments of Serres[6] in 1824 and the more recent observations of Langley and Anderson in 1891 and 1895.[7] Langley stated that the majority of efferent nerve fibres passed to the uterus "by way of the sympathetic in the region of the fourth, fifth and sixth lumbar ganglia, and that stimulation of the second, third, fourth and fifth lumbar nerves in cats and rabbits causes pallor and contraction of the Fallopian tubes, uterus, and vagina, but that stimulation of the first and sixth lumbar nerves produces no effect."

The recent work of Cushny,[8] Fellner,[9] and Keiffer[10] in 1905 and 1908, tends, however, to prove that the problem is much more complex than appears on the surface. Cushny found that stimulation of the hypogastric nerve in the rabbit as a general rule produces powerful contraction whether the uterus is pregnant or not. Fellner, on the other hand, regards the hypogastric as being motor only to the circular muscle fibres of the corpus uteri and the longitudinal fibres of the cervix. It is inhibitory, in his opinion, to the longitudinal fibres of the corpus and the circular fibres of the cervix, which are controlled entirely by the "nervi erigentes." The existence of a complicated system of sympathetic ganglia and nerve trunks in the muscular wall of the uterus has been demonstrated by Keiffer of Brussels.

Our interest in the problem was stimulated by the observation, noted by us in a previous communication,[11] of the extraordinary power of contraction possessed by the uterus in cases of Caesarean section performed under lumbar spinal anaesthesia with tropacocaine. A detailed investigation, partly clinical and partly experimental, was instituted to ascertain if possible the cause of this increased tone and contraction of the uterine musculature. The research is still in progress, and the present paper simply records the observations noted to date, based on clinical work and animal experiment. The deductions can in no sense be

is taken as the basis on which to consider the rural practitioner's position, and on this insecure foundation superstructures are erected. I would suggest that the patient and mileage should be considered together as a unit for calculation. It would involve a differential capitation fee and loading for mileage grant.

As regards the practitioner in an isolated district there is a suggestion that, in England, a grant similar to the Lowlands Necessitous Areas of Scotland grant should be asked for. It is referred to as a "relatively small grant," but if it is of the same amount as is available for distribution in Scotland it will prove a broken reed in cases of necessity. Amounts of £10 or £15 are useless. It is equivalent—if we must compare urban and rural practices—to adding 22 or 33 patients to an urban panel list.

Again, attempts have been made to estimate what a rural practitioner's income ought to be. But no one has attempted to put down a figure as the minimum income which a practitioner should have.

If that were agreed to—say a sum of £650 from private and panel work after paying motor and drug expenses—we would have a basis on which to estimate the unit value of patients and in individual cases to argue the necessity of a special grant.

My conclusions, therefore, are:

(1) That the urban practitioner's remuneration is no basis on which to settle what a rural practitioner's fee should be.

(2) If that plan is adopted and an increased mileage grant alone relied on, the expedient is doomed to failure, as a sufficiently generous mileage allowance will not be granted.

(3) If recourse must be made to a necessitous areas grant it must be sufficient to supplement adequately the income from practices in isolated areas.

(4) The final result, however, arrived at, must satisfy one essential—a sufficient income to enable a country practitioner to live and educate his children, while giving in return the best service that is asked of him. For all that the last implies I cannot do better than refer to Dr. Williams-Freeman's article.

I am quite aware that these opinions and arguments must meet with destructive criticisms. They may appear to involve preferential treatment at the expense of urban practitioners; but they do not.

Finally, I have not given figures showing how such opinions can be justified and carried to practical conclusions. I have definite ideas on the subject, but lack of space forbids a detailed exposition.—I am, etc.,

August 23rd. A RURAL PRACTITIONER.

Panel Conference Dinner.

SIR,—The third annual conference dinner will be held at the Trocadero Restaurant, Shaftesbury Avenue, W.1, on Wednesday, October 17th, 1923, at 7 p.m. The guests of the evening will be the members and principal officers of the Insurance Acts Committee, together with the medical members of Parliament. The hosts of the dinner will be the subscribing Local Medical and Panel Committees. Those committees who have not yet expressed their intention of participating as hosts are invited to inform me by September 30th, if possible, should they wish to be so included, at the same time sending me their contribution of £2 2s. (two guineas) per representative to the Conference.

The subscription entitling committees to one ticket per representative includes wines at the dinner and the cost of entertaining the guests. Morning dress will be worn.—I am, etc.,

Staple House, 51, Chancery Lane, W.C.2, Aug. 28th. ROBT. J. FARMAN, Secretary of the Organizing Committee.

Insurance.

A CORONER'S CRITICISMS.

IN the SUPPLEMENT of August 4th a summary was given of the report of the Special Subcommittee on the Medical Service in London appointed by the London Insurance Committee to inquire into the grounds for the recent criticisms made by the coroner for North-East London (Dr. Edwin Smith). When the report was received by the full committee it was felt that the answer to the charges made by the coroner might be set out still more emphatically. Accordingly, as the result of two further meetings, the Subcommittee has revised its report in this direction. After reciting again the position as to medical benefit, the result of the panel system in London in bringing about beneficial changes in the medical service available for the working-class population, and the machinery for hearing complaints against doctors and taking action upon them, it proceeds to describe the coroner's strictures as altogether too sweeping.

"In conclusion we are bound to say that the coroner's strictures are not warranted by the facts, and, moreover, in our opinion, the psychological effect of such pronouncements is extremely harmful to insured persons in receipt of treatment. So far as London is concerned, it is our considered opinion that, having regard to the improved service which is in contemplation, . . . the 'panel' system—though perhaps not the last word in the insurance medical service—cannot at the present time be supplanted by any other that would yield greater advantages to the community at large."

The Chairman of the Subcommittee was Mr. David Davis, Chairman of the Medical Service Subcommittee, and the other members numbered nine, of whom two (Dr. H. J. Cardale and Dr. Lauriston E. Shaw) were medical men.

LONDON PANEL COMMITTEE.

THE London Panel Committee has been asked by the London Insurance Committee to give its opinion on the question of instituting health lectures to insured persons. Section 60 of the National Insurance Act, 1911, empowers an insurance committee to make provision for the giving of lectures and the publication of information on questions relating to health and to arrange with the local education authorities, the universities, or other institutions for that purpose. The Panel Committee, at its last meeting before the recess, expressed approval of the giving of health lectures to insured persons, but considered that if such lectures were to be successful it would be necessary for them to be undertaken in local areas by local practitioners, and that this should be done under the aegis of the Panel Committees, provided that the necessary funds were made available.

The Committee had under its consideration a leaflet issued by the Hospital Saving Association which, in its view, suggested an attempt to reinstitute the old club system, and could not fail to be inimical to the interests of practitioners, especially those in industrial districts. It was decided to draw the attention of the British Medical Association and the Medical Practitioners' Union to the matter.

Post-graduate Courses.

Further courses of post-graduate instruction have been arranged by the London Panel Committee with the assistance of the authorities of Guy's Hospital, to take place in the coming autumn. The courses will be held in general medicine, midwifery, and gynaecology, and in the diseases of the ear, nose, and throat. Each course will consist of ten lectures of one hour's duration and will probably commence on September 20th. The classes will be held simultaneously on Thursday afternoons at 4 o'clock. The fee for each course will be £3 3s., payable in advance to Dr. Robert J. Farman, the Secretary, Staple House, 51, Chancery Lane, W.C.2, and cards of admission will be issued. There will be special instruction in the treatment of diabetes by insulin and in the treatment of tuberculosis by Dreyer's diaplytes. Early application for inclusion in either of the above courses should be made as the numbers admitted will be limited.

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE.

THE following announcements are notified by the Admiralty: Surgeon Captains F. J. A. Dalton, C.M.G., to R.N. Hospital, Haslar, temporary; W. L. Martin, O.B.E., to the *Victory*, additional for R.N. Barracks. Surgeon Commanders G. D. Walsh to the *Ajax* on recommissioning; H. B. Ormsby to the *Caledon;* E. H. Townsend to the *Calcutta* and as Squadron Medical Officer on recommissioning; W. H. Edgar to the *Cyclops;* F. E. Bolton to the *Victory* for R.N. Hospital, Haslar, and as specialist in diseases of the nose, ear, and throat; H. M. Langdale to the *Dolphin* and as Senior Medical Officer of Submarines; F. G. Hitch to the *Pembroke*, additional for R.N. Barracks, Chatham; S. W. Grimwade, O.B.E., to R.N. Hospital, Plymouth; C. V. Griffiths, D.S.O., L. Lindop, H. H. Babington, E. C. Holtom, O.B.E., E. C. Sawdy, and F. Cock to the *President*, additional for three months' hospital course. Surgeon Lieutenant Commanders H. Wilks to the *Pembroke*, additional for Sheerness Yard; J. B. Crawford to the *Victory*, additional for R.M. Division, Forton, temporary; J. T. Wilie to the *Fitzroy*; H. B. Barker, D.S.C., to R.N Hospital, Malta; A. C. Shaw to the *Valiant;* C. M. Williams to the *Warspite*. Surgeon Lieutenants N. A. H. Barlow to the *Queen Elizabeth;* J. W. Tighe to the *Campbell;* A. P. Anderson-Stuart to the *Southampton;* T. Madill to the *Victory*, for R.M. Eastney, temporary; A. G. L. Brown, D.S.C., to the *Dwarf* on recommissioning, to take passage in the *Ajax;* A. A. Pomfret to the *Tarantula;* D. H. Kernehan to the *Tamar*.

Surgeon Lieutenant J. F. Ainley has been promoted to the rank of Surgeon Lieutenant Commander.

Mr. W. Young has entered as Surgeon Lieutenant and appointed to R.N. Hospital, Haslar, for course.

ROYAL NAVAL VOLUNTEER RESERVE.

Surgeon Lieutenant Commander J. B. Ronaldson to the *Virid*, additional for R.N. Hospital, Plymouth, additional for fourteen days' training.

Late temporary Surgeon (R.N.) J. E. Purves has been transferred to the permanent list, R.N.V.R., as Surgeon Lieutenant and attached to the Scottish Division, List II.

pale and the transverse diameter being diminished. The portion of the uterus intervening between the various foetuses did not diminish and no contraction of the longitudinal fibres was observed. The lumbo-sacral cord was next exposed, and the faradic current applied to the same, and to the third and fourth lumbar nerves at the point where they left the cord. Stimulation both of the lumbar cord and of the third and fourth lumbar nerves produced marked contraction of the uterus and vagina, the contraction apparently involving the longitudinal fibres only. A longitudinal band, extending along the convex surface of the uterus and opposite to the mesometrium, became very evident by reason of its pallor, and resembled one of the taenia of the colon. The uterus diminished in length from the Fallopian tube to the vagina. No contraction of the circular fibres, however, was evident, as shown by any diminution in the transverse diameter of the uterus at the seat of each embryonic attachment.

The observations recorded in the foregoing experiments may briefly be annotated as follows:

1. When the lumbar cord of a rabbit is narcotized, the pregnant uterus passes into tonic contraction, the contraction apparently involving the circular muscle fibres only.
2. When the spinal cord of the same animal is divided in the dorso-lumbar region, and the lumbar cord is pithed, the tonic uterine contraction persists.
3. When the dorsal cord of the same animal is pithed, the uterus remains in a condition of systole.
4. When one cornu of the uterus in the same animal is isolated by section of the vessels and nerves in the mesometrium, this cornu relaxes and exhibits rhythmical peristaltic movements. The other cornu, with undivided mesometrium, as a control, remains contracted.
5. Transverse section of a pithed rabbit at the brim of the pelvis and division of all the structures supplying the uterus at this level with the exception of the aorta and inferior vena cava do not affect the continuity of the uterine contractions.
6. The excised uterus placed in warm saline solution continues to contract rhythmically in peristaltic waves for some minutes. Each wave apparently commences at the Fallopian tube and passes towards the vagina.
7. Stimulation of the lumbar cord and certain lumbar nerves produces contraction of the pregnant uterus and the vagina, but the contraction involves the longitudinal muscle fibres only.
8. Stimulation of the hypogastric nerve in the rabbit produces contraction of the pregnant uterus, but the contraction involves the circular muscle fibres only.

These facts, which in part confirm and in part differ from the results noted by other workers, are of interest when taken in conjunction with the clinical details already noted. Other observers have relied almost entirely upon laboratory experiments for their results. In this investigation with the aid of spinal narcosis we have the advantage of checking animal experiment by direct observation upon the human uterus and vice versa.

Again, most writers, with the exception of Fellner and Cushny, have been content to regard the uterus as a whole, and to observe the effect of stimulation of various nerves on the organ without reference to the individual muscle bundles involved. We regard this as a most important aspect of the problem. Fellner, to whose work we have already referred, regarded the hypogastric nerves as "motor" for the circular bundles of the corpus uteri, and the longitudinal bundles of the cervix, but "inhibitory" for the longitudinal muscle of the corpus and the circular muscle of the cervix. The lumbar cord, by way of the nervi erigentes, is, in his opinion, motor for the longitudinal muscle of the corpus and the circular muscle of the cervix, but inhibitory for the circular bundles of the corpus and the longitudinal bundles of the cervix.

Our work confirms Fellner's views with regard to the corpus uteri, but from our experiments and observations to date we differ from him on the question of the lower uterine segment and the cervix. We think that the circular fibres of the uterus, both in corpus and cervix, are stimulated by the sympathetic system and inhibited by the lumbar cord. The longitudinal fibres, on the other hand, both corporeal and cervical, also the longitudinal muscle in the vagina in the case of the rabbit, appear to us to be stimulated by lumbar cord impulses, and inhibited by the sympathetic. In other words, local paralysis of the lumbar cord, whether permanently by trauma or temporarily by spinal narcosis, produces marked contraction of the circular muscle fibres of the uterus as a whole, owing to uncontrolled sympathetic impulses, but the expulsive power is lost owing to paralysis of the longitudinal fibres.

Similarly, weak or absent sympathetic impulses produce overaction of the longitudinal fibres and increased expulsive efforts. The tone of the uterus as a whole, however, is lost and the organ is "flabby" owing to paralysis of the circular fibres. There is a good deal of evidence, both experimental and clinical, which indirectly tends to confirm these suggestions. To refer once more to Sir James Simpson's observations in the case of sows from which he removed the spinal cord before parturition. He observes that "the uterine contractions were sufficient to expel the foetuses from the uterus, and each foetus as it came into the vagina was thence extruded by the force transmitted from the foetus behind it; but when the last foetus came into the vagina it remained there, because there was nothing to transmit the uterine expulsive force." This interesting observation is probably explained by the fact that the circular muscle fibres with the mechanical advantage were sufficient to expel all the foetuses but the last. The last could not be expelled because the mechanical advantage was lost and the longitudinal expelling fibres of the uterus were paralysed.

Brachet,[12] quoted by Amand Routh, records the only case in which a spinal lesion actually involved the lumbar cord. In this patient the uterus contracted, but the contractions were not sufficient to expel the child, which had to be extracted by forceps. The placenta was also removed by hand. In Routh's cases the lesion was not in the lumbar cord and the lumbar influences cannot be regarded as being eliminated.

With regard to the influences of lumbar anaesthesia on the course of normal labour, our observation is interesting, since with the patient on whom it was tried, a multipara with a fully dilated cervix, the second stage of labour occupied one and a half hours. Further, the delivery was aided by pressure upon the uterus from the abdomen. Nevertheless, the uterus appeared to be firmly contracted for the whole time, and subsequently the amount of haemorrhage after separation of the placenta was less than normal. In other words, it was the expulsive power of the uterus which was diminished by lumbar anaesthesia.

Contraction of the circular fibres of the lower uterine segment is very evident when a Caesarean section is performed under lumbar anaesthesia, and the difficulty we experienced in one case in delivering the placenta into the vagina owing to contraction of the cervix has already been noted. Probably once the cervix is fully dilated the contractile power of the muscle is diminished by local paralysis from pressure of the presenting part. At the same time, we are of opinion that the administration of a lumbar anaesthetic before full dilatation of the cervix is a procedure attended by some risk, owing to the possibility of contraction from sympathetic influences. Any subsequent dilatation must be purely mechanical, owing to the paralysis of the longitudinal or "taking up" fibres, and may be attended by severe haemorrhage from laceration of the tissues.

The mechanism involved in the normal "systole" and "diastole" of the uterus has still to be investigated. As we, in common with other observers, have noted, the uterus when severed from all its connexions undergoes rhythmical contraction and relaxation as long as it is maintained at a normal temperature. It also responds immediately to various stimuli applied—for example, tactile, heat, faradism, etc.—behaving in this respect identically with other organs composed of involuntary muscle. Keiffer's work upon the uterine ganglia and the uterine musculature has thrown light upon the problem, but many points still remain obscure.

The present position may in general terms be summarized as follows:

1. The nervous mechanism controlling the uterus is constituted by three systems: (a) local, (b) sympathetic, (c) lumbo-sacral autonomic.
2. The "local" system is capable of producing rhythmical uterine contractions, and is independent of the sympathetic and autonomic systems, in common with other involuntary muscle.
3. The sympathetic stimuli are motor to the circular muscle fibres and inhibitory to the longitudinal bundles.
4. The lumbar cord stimuli are motor to the longitudinal fibres and inhibitory to the circular fibres.

of cancer. Cancer itself in its early stages is almost invariably unaccompanied by pain, and is sometimes painless throughout. This painlessness of cancer in its early stages is one of its most insidious dangers, since it leads the patient to delay seeking medical advice. Were cancer as painful in its early stages as toothache, there would be far fewer of those pitiable cases in which the patient first seeks advice when the cancer has reached a stage beyond all but palliative treatment.

Early diagnosis obviously depends upon co-operation between the patient and the doctor. Medical advice should be sought at once, particularly if a tumour or lump is found in the breast, if an ulcerated condition exists on the tongue, lip or skin which does not heal in a few days, if there is persistent hoarseness, if a mole or wart shows a tendency to grow, if blood or mucus is passed with the stools, if there is bloody or offensive discharge at other than the normal monthly periods, especially at the change of life or after it has passed. Even with the greatest care and still doubtful cases occur; but only after careful medical examination can it be decided whether such conditions are or are not indicative of cancer, and those who seek advice in these circumstances are taking a wise course quite apart from cancer possibilities. *An abnormality is there, and whatever it is due to, it should be treated and not nursed in secret.*

7. *Treatment.*

If a person has not recognized that something is wrong—and such cases occur—nothing more can be said. But very many persons are aware that something is wrong, fear it may be cancer and put off consulting a doctor because they think that if cancer be diagnosed an operation will be necessary. Quite apart from the facts that anaesthetics and antiseptics have robbed operations of many of their terrors, and that many such cases would not be cancerous at all, the chances of a patient must be better the earlier he or she comes under treatment. Most medical authorities believe that in cancer early operation affords the best chance to the patient, although they would not feel justified in stating that all risk of recurrence is necessarily removed by operation, even if undertaken in an early stage of the disease. But there is indubitable evidence that removal by operation, though ultimately followed by recurrence, enables many people to live a natural life in comfort for considerable periods, while in advanced cases such removal may relieve or prevent prolonged suffering. There are many cases, moreover, in which cancerous growths have been removed once and for all, the patient has lived for years afterwards without recurrence, and has ultimately died from an entirely different cause.

Evidence is accumulating that in some varieties of cancer, and in some situations, radium or *x*-ray treatment, or diathermy, carried out by expert medical practitioners, offers at least as good a chance to the patient as surgery, without the attendant disadvantages, and in other cases it may be tried when surgery is out of the question. *The essential point is that the patient should not postpone or delay seeking competent medical advice, and, above all, should not waste time or money by trying quack remedies which at best are useless, and at worst aggravate the disease. In any condition in which cancer is suspected, immediate and decisive action is necessary.*

The actual prospect of length of life after measures for the removal of cancer have been taken is not a matter for dogmatizing, but without question the earlier these measures are adopted the better.

8. *Local Health Authorities and Cancer Questions.*

Propaganda.—Many local authorities, on the advice of their medical officers of health, undertake invaluable "propaganda" in relation to certain diseases by means of public notices, advertisements, broadcast leaflets, lectures, cinemas, and the like. The considerations set out above show how greatly cancer differs, in regard to the applicability of these methods, from a disease such as small-pox, for which there is a sure preventive to be proclaimed, from other diseases of the infectious class where individuals must be urged to take precautions for the safety of their fellows, or from diseases such as the venereal group for which special and gratuitous treatment is provided out of the public funds, and requires to be advertised. Much caution is obviously needed in announcements to the public on cancer in order to avoid overstatement, the making of promises which are not warranted by evidence, or the production of needless and mischievous apprehension of cancer. If all this is realized, knowledge of some of the main facts of cancer (negative as well as positive) may usually be spread through the ordinary agencies of public health departments, notably by instruction at welfare centres, by midwives and maternity nurses, and by social welfare workers. It need hardly be added that it is important for the medical officer of health in advising on these matters to enlist the counsel and assistance of other medical men, whether specialists or general practitioners, in his area.

Facilities for Diagnosis and Treatment.—It is not contemplated or suggested that there should be established throughout the country a public cancer service, analogous to the services for tuberculosis or venereal diseases, or that for treating acute infectious diseases. Even if such a service were considered desirable, it would be out of the question until other matters, such as the improvement of undergraduate and post-graduate medical education in cancer diagnosis and treatment, have been further developed. But public health authorities, insurance committees, boards of guardians or other public bodies concerned should not feel discouraged from individual action within the competence of these bodies from assisting in securing better facilities for diagnosis or more effective treatment of cancer in the areas or institutions under their jurisdiction. It has, for example, been suggested that local authorities, in conjunction with the local representative bodies of the medical profession in suitable areas (acting through a special cancer committee or otherwise), might periodically undertake a review of such questions as the following, considering in each instance whether steps could and should be taken to meet the requirements of the area and the medical profession within it, and enlisting the help of all who are likely to be of assistance:

1. Improving the local facilities for clinical consultations and for pathological examinations;
2. *Improving the local facilities for cancer treatment* (operative, or provision of *x*-ray and radium apparatus) and considering the adequacy of arrangements for this purpose at hospitals, local institutions, etc., which serve the area;
3. Improving the facilities for transport of patients;
4. Arranging locally for post-graduate demonstrations, lectures, or courses on cancer for medical men practising in the area;
5. *Arranging locally for the education of the public.*

Should such local medical consideration of cancer problems lead to applications for the assistance or co-operation of public health authorities as well as of voluntary agencies and individuals, the Minister is confident that these applications will be considered practically and sympathetically by those to whom they are addressed. The Department will be glad at any time to receive communications on the matters above outlined in cases in which it would appear that its action would be helpful or its knowledge of local progress in dealing with cancer questions might be increased.

THE HEALTH OF LONDON.

OUR issue of August 4th contained a preliminary notice of Sir William Hamer's Report for 1922, and we proceed now to refer to it in more detail.

Vital Statistics.

The taking of the census, not in April, but in fine weather at a week-end in June, when many residents were out of London, led the Registrar-General to redistribute the census population of the country, with the result that instead of showing a decrease in London, as the uncorrected figures would have done, there is a slight increase—from 4,521,685 on April 3rd, 1911, to 4,524,000 on June 20th. The age constitution has changed, the balance of effect between a lowered birth rate on the one hand and a lowered infant mortality rate on the other being that whilst in London in 1911 there were 901,056 children under 10 years old, there were only 775,893 in 1921. In the population over 10, the increase has been predominantly in females, 82,906, against only 5,090 in males, the effect of the great war. The death rate of 13.5, when analysed into periods of life, shows a record low figure under 1 year of age, but, as compared with the previous year, a notable increase from 1 to 5 years due to whooping-cough and measles, and an increase also in every life period from 20 years upwards, attributable largely to the winter epidemic of influenza. Infant mortality has been strikingly low in the past four years, the rates being 85, 76, 81, and 75 per 1,000 births, the chief factor being reduced prevalence of diarrhoea and enteritis. In addition, deaths from prematurity and congenital defects show a remarkable fall in the past three years, a fall not attributable to low summer temperature. Sir William Hamer holds that better midwifery practice, maternity benefit, better attention to expectant and nursing mothers, decrease in drunkenness, more resort to maternity institutions, and improvement in elementary education under the Act of 1870 have all had their share in this most desirable result. In the individual London boroughs, it is surprising that Kensington had the next highest infant mortality rate to Shoreditch in 1921, and attention is called to Dr. Fenton's report for that year, in which he notes that respiratory and diarrhoeal mortality was prominent in converted mews and tenement houses; in addition, the illegitimate birth rate was high in Kensington.

Small-pox.

Passing on to the statistics of infectious disease, the medical officer deals first with small-pox. Most of the cases occurred in a public institution where vaccination had fallen into abeyance. The total in the year, all in the latter half of it, was 65, and the type was severe, probably from the Continent, London having so far escaped the mild disease from the provinces, where it is so costly to business and commerce. Of the 65 London cases, in 5 vaccination was doubtful, there being no sign of it; 3 of the 5 died and 2 recovered. Of 14 unvaccinated 7 died and 7 recovered. Of 46 vaccinated in infancy 10 died and 36 recovered. The three shortest intervals between primary vaccination

In passing, I may say that I am of opinion that where a fibroid tumour calls for treatment at all, it calls for surgical treatment—myomectomy in suitable cases, failing which hysterectomy—and that radiation should only be called upon to check the haemorrhage and restore the patient in preparation for surgical interference. On the contrary, where severe haemorrhage is the cardinal symptom and a small fibroid is only discovered in the course of examination under the anaesthetic, then I am of opinion that exposure to radium is the best treatment.

The technique was fully described in the paper already mentioned, and I would only emphasize the fact that all these patients are treated by radium *in utero* and not by irradiation through the abdominal wall, nor yet by radium left in the vagina; and that all are subjected to a preliminary exploratory curettage.

The youngest of these patients was 18 and the oldest 55 years; there were ten cases under the age of 26, three of whom have already been discussed. Two of the remainder, aged 18 and 19 respectively, were so blanched when seen that they were immediately brought in by ambulance for treatment, and therefore any further temporizing was contraindicated. Therefore 50 mg. of radium sulphate was placed in the uterus for twenty-four hours, so establishing amenorrhoea. One of these cases is of three months', the other of five months' duration, so their subsequent history will be of considerable interest. Whatever the history be, they will be better off than a nullipara, aged 24, whose uterus and appendages were recently shown as having been removed for uncontrollable haemorrhage. The other five of this group, aged 19, 20, 20, 22, and 23, were treated with 50 mg. of radium sulphate for varying times of five to ten hours. In four of these cases the period was reduced in length and less to reasonable proportions; the fifth has gone abroad, and I have not yet heard from her. The remainder of these cases followed more or less the course described in the paper already mentioned.

The sole contraindication to the use of radium is acute or chronic pelvic peritonitis. Such cases are apt to exhibit curious phenomena—namely, the onset of a subacute inflammation, terminating in abscess with the formation of large inflammatory tumours. The immediate disturbances are pelvic pain, relieved on the removal of the radium, transient frequency of micturition, and occasionally somewhat prolonged anaesthetic vomiting, relieved on the removal of the radium.

The treatment is usually successful after one exposure, but in seven cases I have had to give a second exposure, three of which were imperative. One or two periods, less commonly a third, of the nature of prolonged shows, are subsequently seen. Where a second exposure is given, anaesthesia is not necessary, except in highly nervous women.

The time at my disposal being short, I must now proceed to discuss the question of how radium acts: whether upon the ovaries, the uterus, or both.

Following tradition, we seem content to accept the German view that radium acts through the ovaries, and the statement repeated from mouth to mouth that "radium acts by castration," or "radium sterilizes the patient," grows somewhat wearisome by repetition. It is, of course, true that radium produces a menopause, but a menopause without the symptoms which are usually attributable to cessation of ovarian function. The clinical evidence in favour of this statement I argued in the paper above mentioned, and time will not allow of repetition; but I may add that the results in the increased number of cases supports the view then expressed. I propose to deal with the experimental evidence in some detail.

I conducted a series of experiments upon cats, in which the conditions which obtain clinically were reproduced as nearly as possible. The experiment was performed in this way:

A pregnant horn was opened and the foetus removed. The radium (100 mg. radium sulphate) was then implanted and the uterine horn closed around it by suture. The opposite ovary was fixed at a distance of 8 cm. from the radium, and the distance side was lightly attached to the wall of the uterine horn in which the radium was buried. The radium was removed at the end of twenty-four hours. The experiment was repeated, the animals being killed at 12, 21, and 60 days.

In all the experiments the ovary on the same side as the radium showed profound and characteristic changes, complete destruction of large and small follicles, the corpora lutea were broken up, and in the later survivals only a few of the lutein cells were recognized. In all the experiments the opposite ovary at a distance of 8 cm. from the radium showed no variation at all from the normal. The uterine horn which contained the radium showed atrophy of the endometrium, diminution in the size and number of the glands, diminution in capillaries, and later still few stroma cells and great increase in connective tissue. The only criticism levelled at the work was based on the ground that 8 cm. is an average distance between the ovary and uterine cavity, and that it was impossible to be sure that the ovary was normally situated. Since then I have conducted a further series of experiments where the ovary was fixed at a distance of 4 cm. and the animals were killed at 6, 14, 28, 35, and 49 days, the technique employed being precisely the same as before, save in the matter of the interval between the ovary and the radium. Again no microscopic change could be detected in the ovary. Now, the ovary is one of the most radio-sensitive organs, and with very limited exposures characteristic changes are observed, for which I must refer you to the Jacksonian essay.

I venture to assert that radium arrests uterine haemorrhage solely through its action on the endometrium. A prolapsed ovary lying near the uterus would be diagnosed, and, if the condition of the patient was imperative, the exposure to radium would be given with the certainty that the ovary was going to be affected, whereas any mass felt which might bear the interpretation of chronic pelvic peritonitis would be an absolute contraindication, for pelvic inflammation finally negatives the use of radium.

DISCUSSION.

The PRESIDENT said that such papers, founded on direct histological evidence, were of the greatest scientific value. There could be no doubt that radium, properly applied, did check uterine haemorrhage. In certain cases extremely good results had been obtained. He was glad to hear that Dr. Forsdike did not think that fibroids should be treated by radium. It was not by any means easy sometimes to determine the cause of these severe haemorrhages. Sometimes they were found to be due to fibroids so small as to be practically undiagnosable. Frequent curettage of one patient was a practice which could not be too strongly condemned. One curettage should be sufficient; multiple curettage was simply a sign of ignorance. It had been his practice in these cases of uncontrollable haemorrhage to open the abdomen, lay open the uterus, and inspect the inside carefully. Sometimes small fibroids would be found, or there might be a small polypus in one uterine cornu; sometimes there was simply a localized thickening of the endometrium. He then applied the curette through the uterine opening, and was able to do this far more thoroughly than ever it could be done through the cervix. The patient would then generally cease to menstruate altogether for from six to nine months. In the most severe cases, where the patient was critically ill, he thought the safest plan was to do a rapid subtotal hysterectomy. In this type of case in young women the uterus was often very small and ill developed, so that they might not be much the worse for losing the uterus. He was not yet satisfied that radium was to be preferred to hysterectomy in these severe cases. Radium, when properly applied, probably destroyed the endometrium completely and permanently. To remove the ovaries as well as the uterus in a young woman was nothing less than a crime. He thought that a red-hot poker, if it could be applied, would probably be as effective as radium. It might be necessary to apply radium several times. He thought repeated applications of radium carried a grave risk of recto-vaginal or vesico-vaginal fistulae, and cited some examples he had met with in his practice.

British Medical Journal.

SATURDAY, SEPTEMBER 8TH, 1923.

THE SERUM DIAGNOSIS OF SYPHILIS.

THE latest of the Medical Research Council's Special Report Series[1] gives the records of three different sets of workers who have compared the results obtained from the serological examination of serum by the Wassermann reaction and those obtained from the Sigma reaction, or flocculation test, of Dreyer and Ward.[2] The specimens of blood were collected from the patients, divided into two equal portions, labelled with numbers, and sent to the laboratories, where the Wassermann and Sigma reactions were carried out respectively. Clinical notes were kept by those who collected the samples of blood, but those who performed the tests had no knowledge of the source of the specimens, and were quite ignorant as to whether the blood was taken from normal persons, from cases of syphilis, or from individuals suffering from other diseases. At the completion of the comparison the records of the results were sent to the Medical Research Council by both sets of workers, and subsequently the results of both series of tests were collated with the clinical notes. The outcome is a document of much interest and value.

Part I of the report—contributed by Professor G. Dreyer, Drs. H. K. Ward, J. McIntosh, and P. Fildes—gives the analysis of the results obtained in the comparison of the Wassermann and Sigma reactions in the same serum. In all 894 specimens of serum were examined, obtained from 571 individuals. From persons definitely suffering from treated or untreated syphilis 519 specimens were taken; 55 specimens were obtained from persons who had previously given a positive Wassermann reaction, although no definite evidence of syphilis was obtainable; 115 specimens were obtained from persons in whom there was a suspicion or possibility of syphilitic infection; and 203 specimens from persons suffering from other diseases, where there was neither admitted history, suspicion, nor detected signs of syphilis. The results reported showed that an approximately equal number of positive reactions were obtained by the Wassermann and Sigma tests in untreated cases of manifest syphilis, but that in treated cases the Sigma reaction gave a larger number of positive reactions than the Wassermann reaction. A rough correlation was found to exist between strong and weak reactions with each test, but the results of the two reactions, when expressed quantitatively, did not in all cases run parallel. In supposed non-syphilitic cases one or other of the reactions was positive on seven occasions. In four of these both reactions agreed, in three the Sigma reaction was positive and the Wassermann reaction negative, and in one the opposite result was recorded.

A description is given in the report of the technical methods employed in the performance of the reactions. The technique of the Sigma reaction tests corresponded closely with the method previously described by Dreyer and Ward; the Wassermann reactions were carried out by methods similar to those described in the Special Report Series No. 14 of the Medical Research Council.

Part II of the report—contributed by Drs. Thomas Houston, S. B. Boyd Campbell, J. A. Smyth, J. C. Rankin, and Hugo Hall, working at the Royal Victoria Hospital, Belfast—gives a comparison between the results obtained by the Wassermann test (Harrison's and Fleming's methods) and the flocculation test of Dreyer and Ward. The 1,342 samples of serums examined by these three methods showed complete or almost complete agreement. The divergences in the results of these examinations usually occurred in a serum with low Sigma reactions or a borderland serum. In a number of cases Sigma readings sufficiently high to warrant a diagnosis of active syphilis were found, while the other methods gave negative findings; and, on the other hand, negative Sigma reactions with a positive Wassermann occurred in a few cases. Repeated determinations on cases undergoing treatment showed a regular fall in the Sigma findings, and the Sigma readings persisted longer than positive findings by the other tests employed. The Sigma technique seldom or never gave a false positive in non-syphilitic serums, whereas the other methods occasionally did. These workers conclude that the Sigma findings seem sufficiently accurate for all clinical purposes, they correspond in a remarkable way to the intensity of the clinical features of the disease, and provide an interesting and valuable method of determining the progress of a case of syphilis under treatment, and the effect of various remedies on the course of the disease.

Part III of the report—contributed by Professor Adrian Stokes and Dr. J. T. Wigham, working at Trinity College, Dublin—gives an account of the results of 1,500 comparative tests done by the Wassermann reaction and Sigma reaction. 1,515 reactions on identical specimens of serum from 772 individuals gave: positive with both tests, 885; negative with both tests, 571; positive Wassermann, negative Sigma, 38; positive Sigma, negative Wassermann, 21. The discrepancies thus numbered 59 in all. By analysing them evidence was obtained permitting a conclusion in 38 out of the 59 discordant results. In 23 of these the balance of evidence was in favour of the Sigma reaction and in 15 it was in favour of the Wassermann reaction. In discussing the relative merits of these two tests the authors point out that in both reactions the technique is simple, and accurate measurements are only a question of care. When large numbers of specimens have to be examined the Wassermann reaction, as usually carried out, occupies less time and is less fatiguing than the Sigma test. On the other hand, if only a small batch of serums have to be examined, the time occupied in doing the Sigma reaction is very much reduced, and time is saved by adopting the flocculation test. The Sigma method is more economical than the Wassermann method, when once the apparatus has been obtained, since no purchase and upkeep of animals is necessary. The two disadvantages of the Sigma test are that it is more laborious when large numbers of tests have to be carried out, and that more serum is necessary than for the orthodox Wassermann technique. The chief advantages of the Sigma test are (1) that only two reagents are employed instead of five, (2) that a very great amount of information may be obtained by a quantitative expression of the results, (3) that since the reagents can be standardized comparable results can be obtained by different workers,

[1] The Serum Diagnosis of Syphilis: the Wassermann and Sigma Reactions Compared. Medical Research Council Special Report Series No. 73. H.M. Stationery Office. 1923. 5s. 6d. net.
[2] BRITISH MEDICAL JOURNAL, June 11th, 1921, p. 853.

I work with 5,200 interruptions in my gas break, with an ampérage of 6 to 7 ampères, and a steady 2 milliampères through my Coolidge tube.

The unit skin dose is that dose which gives on the eighth day a just discernible erythema of the skin, and on the twenty-eighth day a slight pigmentation. It is 10 per cent. less than what we in England call an erythema dose. Having ascertained it for a given x-ray tube first by experiment on the human skin (preferably of the abdomen, as the skin on various parts of the body differs), all other tubes can be standardized from this one by means of an ionto-quantimeter. The highest homogeneity point is also ascertained by means of mathematical calculation and the use of the ionto-quantimeter. In the case of the Coolidge tube I have used for a large proportion of my cases I find the highest homogeneity point—that is to say, the best filtration—is 16 mm. aluminium. Therefore for convenience I use 0.5 zinc (= aluminium) + 4 aluminium.

The Depth Dose.

To ascertain what this is at a depth of, say, 10 cm., one places a wooden box containing either water, paraffin jelly, or mashed placenta in between the x-ray tube and the ionization chamber. For instance, if the electroscope of the ionto-quantimeter takes 14.6 seconds to discharge on the surface and 45 seconds at a depth of 10 cm., the depth dose is $\frac{14.6 \times 100}{45} \times$ coefficient of dispersion (0.51), or 16.54 per cent. By means of Voltz's tables the depth dose can be estimated for every case, for this varies not only with the focal distance of the tube from the skin, being greater the greater the distance, but also with the size of the field, or port of entry.

Sensibility Tables.

Seitz and Wintz have worked these out. They found that 110 per cent. of the unit skin dose is necessary to destroy carcinoma cells, 80 per cent. sarcoma, and 50 per cent. tuberculous growths, whereas it requires 135 per cent. to destroy intestines and bladder, 180 per cent. to cause degenerative changes in the muscles, and 35 per cent. to destroy the Graafian follicles of the ovary. (The interstitial cells are unaffected by this dose.) All the twenty cases reported were treated with 30 to 50 per cent. of the unit skin dose at a depth of 10 cm., depending upon the individual case.

In Freiburg Gauss places the flexible cable end of the ionto-quantimeter either in the vagina or rectum, so measuring the number of readings until the necessary dose is reached; but I personally feel this is unjustifiably uncomfortable for the patient, especially as it seems to me to be a still more accurate method to measure the depth dose quietly in one's x-ray room when alone, and then work under precisely the same conditions—that is, the same ampérage, voltage, milliampérage, heating current, number of revolutions of the break, time of dose, and the same focal distance and filtering.

Climacteric Haemorrhage.

The exact technique I have adopted for climacteric haemorrhage is as follows: The patient is prepared just as for abdominal operation, because the contents in the intestines or bladder may cause secondary radiation, which again may cause injury to the intestinal and bladder mucous membrane. She is put lying flat on a couch and her measurements taken—circumference of abdomen, distance between anterior superior iliac spines, crests, and Baudelocque. Of course, I assume that the usual medical examination has been made—weight measured, urine tested, blood counts made, and, if necessary, a diagnostic curetting performed. If the Baudelocque measurement is less than 20 cm. we can take it that the ovaries lie at a depth of not more than 10 cm. from the skin. If more than 20 the ovary will be a little more than 10 cm., consequently an extra field will be necessary. We have to treat each ovary with 35 per cent. of a unit skin dose, using an anatomical applicator. Therefore, with a 190,000 voltage, 9 to 10 ampérage, with a 2 milliampérage in the secondary current and a Coolidge tube at a focal distance of 23 cm., a twenty-five minute skin dose, and 17.5 per cent. depth dose, we need to give twenty-five minutes anteriorly and posteriorly to each ovary to get a 35 per cent. dose. This means a treatment of about two hours. If we are dealing with a woman under 30 years we require a 40 per cent. dose. To get this it will be sufficient to give an extra field at the side of the others, or to enlarge each field, or take a longer focal distance. In the latter cases we should have to use Voltz's tables. For instance, at 23 cm. a field of 6 by 8 cm. would require twenty-five minutes; but at 50 cm., which would give a very much better depth dose, the same field would require 4.7×25, or 117 minutes, and so on. A castration so obtained would last about two years, and, by varying the dose, we can make it last a longer or shorter time.

In cases of acute gonorrhoea, salpingitis, etc., temporary castration such as this is also being done by many gynaecologists, to avoid exacerbation of symptoms prone to occur at the monthly periods.

Fibroids of Uterus.

The technique for fibroid tumours of the uterus is very much like that for climacteric haemorrhages. If the fibroid is no bigger than a four months' pregnancy exactly the same technique is used. If the fibroid is large and the ovaries are consequently very deep-seated and difficult to localize, it is best to give one very large field (20 by 20 cm.) anteriorly, and another posteriorly. This will involve a bigger focal distance and a very much longer time, calculated by Voltz's tables. Although interstitial fibroids react best, subserous ones are also well treated by x rays.

I. According to the Frankfort school, the certain contraindications are as follows:

1. Pedunculated submucous fibroids.
2. Uncertainty in diagnosis (for example, dermoid cyst of ovary, etc.).
3. Complications that are causing symptoms themselves.

II. X rays *may* be used:

1. In fibroids complicated with chronic pyosalpinx.
2. In cystic softening with necrosis and suppuration (but no curetting and dilatation must be done).
3. In cases of very large myomata, even if there are pressure symptoms.

III. There are, however, *no* contraindications in the following cases:

1. Pelveo-peritoneal inflammation and inflammation of the tubes.
2. Cervical myomata.
3. Big myomata with some pressure symptoms.
4. Difficulty with micturition.

All these latter cases do well. In sarcomatous growths of the uterus x-ray treatment is said to help in the diagnosis. In the case of a fibroid there is a slow reduction in the size of the tumour, whereas in the case of a sarcoma a very quick reduction takes place.

ANALYSIS OF AUTHOR'S CASES TREATED BY NEW TECHNIQUE.

Age.—The youngest patient was 26, the eldest 52, the average being 43.5.

Occupation.—Nine patients were married, 7 having children, 11 were unmarried, 3 nurses, 1 head mistress, 1 secretary, and so on.

Symptoms.—Due to tumour: profuse menorrhagia, 19. Metrorrhagia, 4; pressure symptoms, 2; dysmenorrhoea, 4.

Size of Tumour.—(*a*) Size of five months' pregnancy, 3. (*b*) Smaller than five months' pregnancy, 17.

Kind of Fibroid.—(1) Subperitoneal and interstitial, 4. (2) Interstitial, 11.

Fibrosis of uterus (with slight enlargement only), 5.

Number of X-ray Treatments.—The average number given was 1.45. One treatment alone should suffice, as indeed it has in 12 of my cases, although I have only given a 35 per cent. dose in 4 cases. Of the other cases, 3 have been treated with less than 35 per cent.; indeed, in some cases only 27 per cent., and 1 have therefore needed to give two treatments. In future I intend giving the full 35 per cent. dose in all cases so as to avoid the second treatment.

Diagnostic curettings were done in four cases.

In 8 of my cases there was no further period of haemorrhage after one treatment; 4 cases had one monthly period; 4 cases had two monthly periods after, and 2 cases had three or four after. The other 2 cases are too recent to give any report on.

Roentgen sickness I have not found severe. In only one case was there sickness at the time; in three cases slight sickness some time after; one case was very sick after.

Effects of Treatment.

The effects of treatment, therefore, by this technique one can safely say are excellent. Except for the slightest pigmentation back and front there is no evidence whatever of the patient having undergone so drastic a treatment.

was from time to time chairman of various committees taking up branches of these subjects. In some cases they were formed by the Government and in others they were instituted by members of the House to encourage and stimulate policy. He was also frequently heard in debates on questions of social reform. When Mr. Bonar Law formed his Ministry Sir W. Joynson-Hicks was appointed Under Secretary at the Foreign Office, with responsibility for the Overseas Trade Department, but was quickly promoted to the office of Postmaster-General and was soon engaged in negotiations with the object of clearing the tangle over the broadcasting arrangements. On the formation of the Baldwin Ministry, the Premier asked him to become Financial Secretary to the Treasury to help him in carrying through the Budget. The transfer implied a compliment, inasmuch as Mr. Baldwin, having so many other duties, needed a very efficient Minister to act for him when he was obliged to be absent from the House. With the elevation of Mr. Neville Chamberlain to the Chancellorship of the Exchequer, Sir William was the natural choice for succession to the Ministry of Health. He had proved himself efficient in administration and a ready and capable debater. His extra-Parliamentary activities as a prominent member of so many organizations for the encouragement of temperance and the betterment of mankind, while they lay him under no suspicion of being an extremist, offer every encouragement that he will approach, with a regulated enthusiasm, the manifold problems that will now come before him.

ATMOSPHERIC POLLUTION.

THE Meteorological Office of the Air Ministry has issued the Eighth Report of the Advisory Committee on Atmospheric Pollution for the year ending March 31st, 1922.[1] The report deals mainly with highly technical matters, including the value and manner of use of appliances for observational and recording work, results obtained by the standard gauge, a new form of deposit gauge, a jet apparatus for the isolation and examination of atmospheric dust, besides notes on deposits obtained at Rochdale, automatic filter records, and a brief note on research on obscurity and visibility, which has been delayed by lack of a suitable laboratory. A deputation, including a representative of the Committee, waited on the Minister of Health to urge the need for modification of the law relating to smoke emission. At the deputation a proposal was brought forward which, the Committee thinks, should go a long way towards securing a reduction of smoke. It was that "instead of penalizing conspicuous individuals for making more smoke than their neighbours, we could substitute a method of encouraging those who made less than their neighbours, in the only way in which a materialist age understands encouragement," the way being "to reduce the rates for houses that make no smoke." This proposal is supported on the ground that seventy years of a system of inflicting penalties had produced little result, whereas the suggested scheme would act gradually and automatically. In that connexion the question naturally arises, and not for the first time, as to whether and if so what effort is being made to prevent atmospheric pollution from the chimneys of the new dwellings that are being built all over the country under State-subsidized schemes for workmen's houses. Where such schemes are within the area of gas lighting supplies, are stoves for heating by gas being provided instead of coal grates? We trust the opportunity is being seized of establishing the beginnings of a better system than has hitherto prevailed in this old country. In the section of the report dealing with the jet apparatus for detection of atmospheric dust, an interesting reference is made to Professor Tyndall's method, which received much attention a good many years ago, of examining respired air by a powerful beam of light from an arc lamp brought to a focus in the air by means of a lens. Tyndall concluded that the air from the depths of the lungs was dust-free, but it is now found that this was an error. The jet apparatus shows that expired air during ordinary breathing contains about 70 per cent. of the dust particles which were breathed in, and in quiet breathing the air from the depths of the lungs contains 2.5 to 7 per cent., but after deep breathing over 20 per cent., inspiration being in all cases through the nose.

[1] H.M. Stationery Office; large 4to, pp. 42, with charts and diagrams. (3s. net.)

THE PASSING OF CHLOROSIS.

MEDICAL men approaching the period known as middle age cannot fail to have noticed the increasing rarity of chlorosis; so much has this change of type progressed that some medical students of to-day have never seen a case of this disease, which was once so common as to account, with dyspepsia, for a large proportion of medical out-patients. That it has diminished enormously in England and in the United States of America during the last thirty years is conclusively shown by Dr. J. M. H. Campbell[1] in the study of the cases at Guy's Hospital and by statistics from other sources, some of which, especially those coming from Sheffield, were provided by Professor Arthur Hall. As he had information to the same effect from Paris and Vienna it is probable that the change is almost world-wide, though it may not be universal. After discussing various possible factors Dr. Campbell ascribes this disappearance mainly to the improved conditions of factory life and domestic service and the better opportunities for fresh air and exercise. Lack of food containing iron may contribute to the production of chlorosis, but is not of equal importance; and, as the curves of chlorosis and of the deaths from pulmonary tuberculosis do not correspond, insufficient diet probably does not exert a powerful influence. The Guy's cases from 1888 to 1922 are analysed in many directions, and show a practically continuous but irregular decline, and although there may at times have been slight differences in the meaning of the designation "chlorosis," this factor can be held responsible for a very small part of the diminished incidence of the disease. It is commonly stated that the colour index in chlorosis is lower than in secondary anaemias, but at Guy's the changes in the colour index and in the size of the red cells were found to be exactly the same in these two conditions. Examination of the gastric contents in seven cases, nearly all by the fractional method, showed a tendency to increased secretion of acid, as contrasted with the generally diminished acidity in most other anaemias and the achlorhydria of Addison's disease. Although indigestion may persist for a long time there was no evidence of any association between chlorosis and gastric ulcer. In addition to the statistics and analysis of the Guy's cases, this paper incidentally reviews much of the literature on chlorosis, and contains thoughtful suggestions on a number of points.

WORKMEN'S COMPENSATION IN FRANCE.

THE first French analogue of the Workmen's Compensation Act was passed in 1898, and the French, with their usual logic, at once set to work to frame scales of disability applicable to accidents of all kinds. Eventually a good many literary studies of the subject appeared, and among others the first edition of the *Guide pour l'Evaluation des Incapacités* by Professor Imbert of Marseilles and two colleagues. Among the many things to whose "scrapping" the late war led were numerous conceptions as to the final or economic outcome of various injuries, and this in its

[1] Campbell, J. M. H.: *Guy's Hosp. Rep.*, 1923, LXXIII, 247-297.

In the museum of St. Thomas's Hospital there is a specimen (1676A) of a clean transverse rupture of the inner coats of the upper part of the descending thoracic aorta leading to diffuse and extensive haemorrhage into the surrounding connective tissue. There is no macroscopic disease of the vessel, but microscopic examination revealed the presence of marked fatty degeneration of the intima. The patient, a lad aged 18, experienced acute pain in the abdomen for three days, but complained of nothing until the day of his death. When seen, four hours before death, there was nothing in the symptoms to suggest that he was seriously ill. Death was sudden and unexpected. No history of strain or injury was elicited; at the *post-mortem* examination the mediastinum was found full of extravasated blood and the left pleura contained three pints of it. That the rupture occurred in two stages is clear from the fact that, microscopically, the termination of the rent in the inner tunics is seen to be undergoing repair.

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[2] Muselier: *Gazette Médicale de Paris*, 1899.

[3] Oppenheimer: Ueber Aortenruptur und Arterio-Sclerosis in Kinderalter. *Virchow's Archiv*, clxxxi, 2.

[4] Sparks, *Lancet*, 1871.

[5] Scheur: *Verhandl. d. Berl. med. Gesellsch.*, Berlin, 1911, xii, 2 Teil, 112-119.

THREE CASES OF GASTRIC CARCINOMA PRESENTING UNUSUAL FEATURES.

BY

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THE following cases of carcinoma of the stomach appear to be worthy of record in view of the anomalous symptoms they presented.

1. *Simulating Chronic Intestinal Stasis.*

A man, aged 54, was sent to me for suggestions as to treatment for chronic constipation. He was a thin but muscular man, who gave a history of very severe constipation of twelve months' duration, and of failing vision for the same length of time. His appetite was good and he had only vomited twice—once three weeks before and once seven days before my examination. He had had no pain after food, no vomiting of blood, nor melaena.

On examination of his abdomen I found no distension nor tumour, nor was there any tenderness to be detected, but there was a suspicion of visible gastric peristalsis, and this was confirmed at a later examination. All further examination was negative. I referred him to an oculist, who reported early atrophy of both optic discs, and after exclusion of pituitary tumour he suggested that the condition might be due to the absorption of toxins from his stomach. A neurologist, however, put down the condition of the optic discs to early tabes dorsalis. A test meal showed the absence of free hydrochloric acid. *X* rays showed that there was marked dilatation and hypertrophy of the stomach, which was not completely emptied for twenty-four hours after ingestion of the bismuth meal. A diagnosis of pyloric obstruction, probably due to a healed ulcer, was made. At operation a tumour was found, involving the greater curvature near the pylorus (microscopical examination later proved it to be columnar carcinoma). The pylorus admitted the tip of the little finger easily. There were no enlarged glands to be felt, nor was there any other evidence that the growth had extended beyond the stomach. Partial gastrectomy was performed by the posterior Polya method, and the patient left hospital on the twenty-first day. His constipation immediately disappeared, he put on weight, and ten months after the operation he informs me that his vision has improved and that his condition is in all respects satisfactory.

2. *Simulating Gall Stones.*

A man, aged 52, with the diagnosis of gall stones. He gave a history of discomfort after food for several years, but had had no real pain after food and had never vomited until six weeks before I saw him, when he was seized with agonizing pain in the right hypochondrium, with vomiting. This pain subsided, and twenty-four hours later he became slightly jaundiced. He had had two other almost exactly similar attacks before seeing me, and in every instance these attacks occurred in the evening.

On examination I found him to be a well nourished man of healthy appearance. The abdomen moved well on respiration; no tumour was felt, but there was marked tenderness over the tip of the ninth costal cartilage, and this tenderness was accentuated at the end of inspiration. At operation a well marked carcinoma of the pylorus was found. This was adherent to the neck of the gall bladder and was separated from it with some difficulty. The gall bladder contained no stones, and its wall showed no gross pathological change. Partial gastrectomy was performed by the anterior Polya method. As there was considerable oozing from the region of the neck of the gall bladder a small drain was left in for twenty-four hours. The patient developed a slight duodenal fistula on the ninth day, which healed within a few days, and the man was discharged in a satisfactory condition on the thirty-seventh day. He has put on weight since operation, his paroxysmal attacks have disappeared, but he complains of pain in the left hypochondrium, particularly if he becomes constipated. Presumably this pain is due to pressure upon the transverse colon by the anastomosis.

3. *Simulating Acute Intestinal Obstruction.*

A woman, aged 68, came under my care with the following history. The day before admission to hospital she suddenly became ill with acute abdominal pain, vomiting, and distension. Her doctor ordered enemata without effect, and an immediate operation was advised, but this was refused. He therefore administered morphine and next day she came under my care. She was a thin anaemic woman and looked acutely ill. She informed me that her previous health had been good, but that for the last year she had been losing weight and her appetite had become poor. She complained of intense abdominal pain, chiefly in the right hypochondrium, and she vomited half a pint of dark material during my examination. Her pulse was 100 and of fair quality. The abdomen showed extreme distension, especially in its lower half, the upper abdomen being comparatively flat. Rigidity was present in the right hypochondrium, and on deep palpation a tender tumour could be felt. This did not move on respiration, but on account of its rigidity its outline could not be felt. The stomach appeared not to be markedly dilated, but splashing was easily elicited. No gastric nor intestinal peristalsis was seen. A turpentine enema produced a large passage of flatus, the distension completely disappeared, and in twenty-four hours the patient's condition had greatly improved, and all vomiting had ceased. Forty-eight hours after admission she suddenly collapsed and died. At the *post-mortem* examination a huge carcinoma of the pyloric end of the stomach was found. The stomach was markedly dilated and was full of fresh blood, which came from the splenic artery, into which the growth had ulcerated. There was no stricture nor other lesion of the intestinal tract.

These cases illustrate the difficulty of diagnosis in many cases of gastric carcinoma, and demonstrate the importance of radiological examination of the alimentary tract in obscure cases of abdominal disease. Early diagnosis of gastric carcinoma is of paramount importance. In its early stages it is very amenable to surgical treatment, while the last stages of the condition when left without operation are, alas! often terrible to the patients and very distressing to those around them, while recurrence after gastrectomy in many cases causes death from asthenia with slight or no suffering. Carcinoma of the stomach appears to be on the increase. It is a very protean disease, and from the point of view of diagnosis the cases may be divided into three classes:

1. Those with symptoms of gastric disorder—often labelled dyspepsia or gastritis until too late.
2. Those with signs of malignant disease in which the site is not discoverable—for example, cases which are at first diagnosed as pernicious anaemia, Addison's disease, etc.
3. Anomalous cases, three of which are described above.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ANTISTREPTOCOCCUS SERUM IN ERYTHEMA NODOSUM.

ERYTHEMA NODOSUM is most commonly described as a rheumatic affection, and the treatment in the many and various books I have consulted is invariably some preparation of salicylic acid. The prognosis as regards recovery is of course good, but the usual duration is about five or six weeks and appears to be almost uninfluenced by the usual treatment; recovery is followed by prolonged convalescence in which a rather intractable anaemia is conspicuous.

About three years ago I had two cases. The first was a woman, aged 48, who had a quinsy; about a week or ten days after its commencement, and when the throat was practically well, typical erythema nodosum developed; this lasted about five or six weeks; recovery was slow and more or less uninfluenced by the usual treatment. The second was a man of 28 who had follicular tonsillitis, followed in about ten days by a typical attack of erythema nodosum. He was treated in the usual way, and recovered in about five or six weeks. In neither case was there any history of rheumatism, and in both cases convalescence was prolonged. These two cases occurred about the same time,

hould be begun *de novo*, and that the value of earlier experimental findings should be examined. As is shown n the first report presented to the *Field* Distemper Council by its technical research committee (signed by its chairman, Sir William Leishman), the proposed scheme of investigation has been founded on a very broad basis, and many technical difficulties have had to be overcome. The first step will be an attempt to isolate the causal agent of the disease from specially reared puppies which have been permitted to contract distemper by contact with dogs suffering from a natural infection. Should the presence of a filter-passing virus be established a whole new field of research will be opened up which will aim at the identification of the virus by modern optical methods; the determination of its resistance to temperature, light, moisture, antiseptics, etc.; attempts to cultivate the virus artificially; the study of immunity, natural and acquired, in animals; the study of complications and sequelae of distemper, their cause and their preventive treatment. In order to secure a stock of puppies free from infection and possessing no acquired immunity the stock will be bred in a compound which is being specially built in an isolated spot on the experimental farm of the Medical Research Council. The compound will be surrounded by an unclimbable fence, and inside this area special breeding kennels will be erected. The breeding and general care of the dogs will be entrusted to two trained kennel maids, who will spend practically all their time inside the compound, and so avoid the risk of carrying distemper from outside sources. A small bungalow will be erected within the compound for the accommodation of the attendants. The only regular means of entrance to the compound will be through a cleansing room built into the walls of the compound and partitioned into two parts. Persons entering the breeding compound will be required to divest themselves of their outer garments in the first room, and then proceed to the inner room, where, after bathing, they will put on special outer clothing. Similar elaborate precautions have been devised to avoid any possible infection being carried to the dogs in the feeding of the animals; the kennel maid will receive the food, which has been suitably cooked by an outside attendant, through a small service hatch, the only communication between the preparation room and inside of the compound. During the time occupied by the erection of these buildings preliminary experiments will be carried out in temporary structures which are now rapidly nearing completion. Over £4,000 has already been subscribed to meet the expenses of this research. An American committee has been formed, several members of which have been co-opted on the British Council, and the *Field* Distemper Council is well assured that at least as much money will be forthcoming for the fund from the other side of the Atlantic as from our own countrymen.

PEKING UNION MEDICAL COLLEGE.

IN 1906 six medical missions in China, English and American, united to establish a school of medicine in Peking and thus laid the foundation of the Peking Union Medical College. In September, 1921, new buildings were dedicated, and as a result of the interest of the Rockefeller Institute in China there is now established an extensive medical centre, magnificently equipped and ably staffed, for the founding of a system of scientific medicine in the Far East. The addresses and papers in connexion with the dedication ceremonies have been printed in a sumptuous memorial volume.[1] We have received also Volume II of *Contributions from the Peking Union Medical College*,[2] which includes papers delivered at the ceremonies in 1921 and reports of further work carried out in 1922. Many of these have already appeared in English and American journals, and the volume that has come to us for notice is largely a collection of reprints. It is to the research of the Chinese workers that one is more particularly attracted in that it should show more than anything else the standard and progress of a college such as this, and we cannot but be impressed with the thoroughness of their papers, revealing, as they do, many months of painstaking investigation. Three papers by Hsien Wu on blood analysis call for special attention, for such work has already established for the author a place among the biochemists who deal with blood and its investigation. The first paper, on the separate analysis of the corpuscles and plasma, is a most interesting survey of the distribution of more particularly non-protein nitrogen in the blood tissues, and the conclusion is reached that plasma analysis should be substituted for whole-blood analysis. The second is an account of a new colorization method for the determination of the plasma proteins, and is full of experimental detail and laboratory technique. The third paper is a contribution to studies in haemoglobin. Dr. T. M. Li, an Associate in Ophthalmology of the College, contributes two interesting papers on this subject. The work of the European and American staffs is of interest, for unrivalled opportunity exists for the study of Eastern diseases, and papers on, for example, plague problems or the parasitology of China attract special notice. The volume is a valuable summary of the year's work, and is a hopeful indication that scientific medicine has already secured a foothold in China.

[1] *Addresses and Papers, Dedication Ceremonies and Medical Conference, Peking Union Medical College, 1921.* New York: Trustees and Faculty of the Peking Union Medical College. 1923. (Imp. 8vo, pp. xi+416; illustrated.)

[2] *Contributions from the Peking Union Medical College.* Vol. II, 1922. Peking: Peking Union Medical College. 1923. (Sup. roy. 8vo; illustrated.)

COLLOIDAL GOLD TEST FOR NEURO-SYPHILIS.

THE diagnosis of neuro-syphilis by means of the colloidal gold test has not come into general use, partly because of the difficulty of preparing a standard colloidal gold solution. Many different methods have been suggested by different observers, and for each of these methods particular advantages have been claimed; but it would appear that the essential detail in the preparation of a stable and sensitive gold chloride solution is the reaction of the fluids used. Mellanby and Anwyl-Davies[3] have devoted special attention to this point, and describe a relatively simple method whereby colloidal gold, neutral in reaction, may be prepared by adding 1 c.cm. of 1 per cent. gold chloride to 100 c.cm. of 0.01 per cent. boiling potassium oxalate. The water used must be freshly distilled, and all the glassware clean and of a hard variety. Experiments on the properties of the precipitating substances in cerebro-spinal fluid have led the authors to certain fundamental conclusions as to the rationale of this test. Cerebro-spinal fluid precipitates not only negatively charged colloidal gold, but also positively charged colloidal iron, indicating the presence of antagonistic colloids. It is probable, therefore, that the phenomena in the precipitation of colloidal gold by luetic fluids may be explained on the assumption of a balanced reaction between these oppositely charged colloids. The results obtained by observations on the precipitation of colloidal gold lead the authors to advance the following hypothesis: All cerebro-spinal fluids contain euglobulin and pseudoglobulin, the quantities of these substances increasing in the sequence from normal to tabetic and from tabetic to paretic cerebro-spinal fluid. Euglobulin is the active agent which precipitates colloidal gold; pseudoglobulin tends to keep the gold in solution and antagonizes the precipitating action of euglobulin, which is soluble in

[3] *Brit. Journ. of Exper. Path.*, vol. iv, p. 132.

These articles are written by Professors E. Rohde, A. Ellinger, G. Joachimoglu, and R. Gottlieb. The actions of a very large number of substances are set out. Finally, Professor H. Fühner gives a description of the pharmacological actions of the organic dyes, substances which are of importance as internal antiseptics, and have been studied chiefly from that point of view. Information as to the action of these dyes upon the host is consequently very scattered and rather difficult to obtain; hence this article is of especial value, as in it this scattered information is collected.

As we have already stated, the work will be valuable to all those engaged in pharmacological research, but from this point of view it is regrettable that the volume before us has no index. Presumably it is intended to index the work as a whole, but as it is three years since the work began to appear, and the date of its completion appears to be rather uncertain, it would have been wiser to index the volumes separately. We believe that the work was planned before the war and that its production was hindered by the war. This will account for the fact that some of the articles are not up to date. It is impossible in practice to get a whole series of monographs written and finished simultaneously, and this disadvantage is inherent in these large productions, for by the time the whole is ready many of the parts are already out of date. This is, of course, a serious argument in favour of the production of a series of separate monographs, rather than of large volumes such as that under review. Since, however, no such monographs on pharmacology exist, those interested in the experimental evidence as to the action of drugs will find Professor Heffter's handbook useful.

MINOR SURGERY.

THE fact that the ninth edition of WHARTON'S *Minor Surgery*[6] has appeared is evidence that it has filled a useful place in surgical literature. As the title implies, the intention of the author has been to describe the various manipulations and procedures which have come to be termed minor surgery; it therefore includes descriptions of bandaging, of asepsis and antisepsis, fractures and dislocations, and such emergency operations as the ligature of the larger arteries and the minor amputations. One part is devoted to the description of "minor surgery," and it deals with a wide variety of subjects, from blood transfusion to trusses.

The section which describes bandaging is particularly good: it is an exceedingly difficult thing to write a concise yet intelligible description of how a bandage is applied, and the author has succeeded admirably. The descriptive terms of "Burton's bandage" and "Gibson's bandage" will be new to most readers in this country; they apparently figure in American methods, but they are merely slight modifications of the old-fashioned trefoil.

The author recommends that in applying a plaster-of-Paris dressing alternate layers of loose fabric and moist plaster should be applied; this is neither a neat nor a satisfactory method. "Tents" are described as rolls of conical shape employed to keep wounds open and to facilitate the escape of discharge; this is not the commonly accepted definition. With the exception, however, of certain minor details of this description, the matter is excellent, and a great variety of interesting and useful information is given.

We have been specially attracted by the section in which the author deals with transfusion of blood. This procedure is now in such general use and it is so often employed in an emergency that its inclusion in a work of this description is very proper. An excellent description is given of the process—the details of "grouping" are clearly explained, and the various methods are fully explained and illustrated. There is scope for considerable criticism, however, in regard to the description of the intravenous infusion of saline solution. Normal saline is said to contain 6 to 9 per cent. of sterilized sodium chloride. Our main objection, however, is to the benefits which are claimed for this method of treatment; the consensus of opinion is that it has great disadvantages, and it is regrettable that gum infusions have not been mentioned.

A very useful section deals with enemata, but we are surprised that the author has omitted to describe the method of the "molasses enema." The chapters dealing with ligature of vessels and with fractures are good, though they contain nothing original. A considerable amount of information can be gained from the perusal of this volume, and we feel confident that it will continue to have a wide circulation as a compendium of minor surgical methods.

[6] *Minor Surgery, including Bandaging.* By H. R. Wharton, M.D. Ninth edition, thoroughly revised. London: Baillière, Tindall, and Cox. (Demy 8vo, pp. xii+647; 450 figures. 18s. net.)

SPINAL PUNCTURE.

DR. BONOLA'S book on spinal puncture and the cerebro-spinal fluid[7] is mainly a practical manual dealing with the operation and with the chemical, cytological, and bacteriological examination of the fluid. It also contains chapters on the anatomy of the ependyma and choroid plexuses, and on the alterations met with in the cerebro-spinal fluid in various diseases. The view that the choroid plexuses have a secretory function is supported by a histological study of the villi, which are shown to possess an epithelium differing from that of the general ependyma and containing globules which are held to be secretory products. The absorptive function of the plexuses and the experimental proofs of its existence, together with the so-called lymphatic circulation, receive due consideration.

The general technique of spinal puncture is described, with special details relative to the cervical, dorsal, and lumbar varieties, and to the difficulties incident to the operation. In the event of the fluid withdrawn containing blood, the author recommends, as a means of distinguishing the source of the latter, that the fluid be received into three test tubes; if the coloration in all three is of the same depth the haemorrhage is pathological, if it varies the haemorrhage is due to the operation. This test, however, is inapplicable if blood is present in large amount. In the chapters on the chemical, cytological, and bacteriological examination of the cerebro-spinal fluid the standard tests are given with clear directions for their application and for the preparation of the various solutions used. A chapter is given to a description of the Wassermann and Sachs-Georgi reactions, together with those of Boveri and Lange. In estimating the value of the Wassermann reaction the author states that a positive result, in the hands of an expert, obtained from the serum of a patient not suffering from an acute infection indicates syphilis, although it is not absolutely diagnostic. Carried out, however, with cerebro-spinal fluid the value of the reaction may be considered almost absolute. A negative result in this case is, however, of no value, since the reaction is often positive with the blood and negative with the cerebro-spinal fluid. Among the special applications of spinal puncture an account is given of its employment in spinal anaesthesia, in cases of cerebral tumour, and in the direct application of medicaments, more especially in tetanus and cerebro-spinal meningitis. In a final chapter descriptions are given of the changes in the cerebro-spinal fluid characterizing the various diseases of the central nervous system.

THE COLLECTED WORKS OF PASTEUR.

WE have already referred on more than one occasion to the fine edition of the collected works of Pasteur which is being issued under the editorship of his grandson, Dr. VALLERY-RADOT, of the Faculty of Medicine, Paris.[8] It is a library edition, in large octavo, and Pasteur's own text has been followed except that obvious printers' errors have been corrected. The bibliographical references have been verified and, where necessary, corrected or completed. When Pasteur published a similar paper in several periodicals each version is given or variations are indicated in footnotes.

[7] *La Rachicentesi ed il liquido Cefalo-Rachidiano.* By F. Bonola. Bologna: L. Cappelli. 1922. (Sup. roy. 8vo, pp. 190. L. 12.00.)

[8] *Œuvres de Pasteur.* Collected by Dr. Pasteur Vallery-Radot, Médecin des Hôpitaux de Paris. Paris: Masson et Cie. 1922. (Jésus 8vo. Tome i, pp. 480. Fr. 50. Tome ii, pp. 660. Fr. 65.)

THE MINISTRY OF HEALTH: FOURTH ANNUAL REPORT.

THE report of the Ministry of Health for the year ending March 31st, 1923, has now been issued.[1] Following a prefatory note the report is divided into five parts—(1) Public Health, (2) Local Government and Local Finance, (3) Poor Law, (4) National Health Insurance, and (5) the Welsh Board of Health.

Expenditure on health services was less than in the previous year, mainly owing to downward movement in prices and rates of interest, partly also to closer examination of institutional expenditure. The assisted housing scheme under the Act of 1919 was almost complete, over 154,000 houses having been erected at an average cost of £1,080 per house. There still remained 17,000 houses to be dealt with, of which over 13,000 tenders had been approved and over 9,000 had been started. Prevention of unemployment and supervision of relief of distress involved a total authorized expenditure of £24,000,000 by local authorities, over £8,400,000 being for works to provide employment. The Rockefeller School of Hygiene scheme is so far advanced that the transitional executive committee is to be replaced under Royal Charter by a permanent governing body, and preliminaries relating to the erection of the buildings on the site at Bloomsbury are being dealt with. The Voluntary Hospitals Commission has disbursed £421,000 of its half-million Exchequer grant, and regards the maintenance income as satisfactory, new and regular sources of revenue having been opened up in many areas. Urgent need, however, remains for additional bed accommodation. Many special inquiries have been conducted by the Ministry during the year, and have been the subject of reports separately issued.

PUBLIC HEALTH.

This section of the report covers a wide field.

Tuberculosis.—Concerning tuberculosis it is gratifying to learn that notifications and deaths, both from pulmonary and non-pulmonary forms of the disease, show a very notable diminution. In 1915 primary notifications of pulmonary tuberculosis numbered 68,309, and in 1918 a maximum of 71,631 for the period under notice was reached, but since then there has been a steady diminution, so that for 1922 the notifications are reduced to 53,422. In non-pulmonary tuberculosis 1915 had 22,283 notifications, and 1916 had 22,789. That was the highest figure, and the past three years have been well under 16,000, the exact numbers being 15,488, 15,368, and 15,837. Coming to deaths, the fall in the past five years is also satisfactory. In 1915 they numbered 40,803, and by 1918 they had risen to 45,338. There was then a remarkable drop to 35,984 in 1919, and the minimum of the period came in 1920, when the deaths were 32,791, but in 1921 they were 33,505, and in 1922 33,919. Deaths from non-pulmonary tuberculosis have diminished even at a more rapid rate, the figures for the eight years 1915-22 inclusive being as follows: 13,492, 13,089, 13,599, 12,735, 10,328, 9,574, 9,173, and 8,858. The deaths in 1922 were therefore less by fully a third than in 1915. One of the Ministry's medical officers visited Geneva in connexion with the Spahlinger treatment, and the clinical results warrant further investigation so soon as a supply of the complete serum and vaccine is available.

Venereal disease also appears to be declining. At the treatment centres in England only, the patients dealt with for the first time were in 1920, 99,000, in 1921, 79,000, and in 1922, 68,600. For syphilis the three years' figures were 40,000, 30,000, and 23,700 respectively; for gonorrhoea, 38,000, 30,500, and 27,500; and for soft chancre, 2,000, 1,500, and 900. The attendances at the centres show no diminution in 1922 as compared with the mean of the two previous years, and this indicates a laudable tendency not to discontinue treatment too soon, the same feeling being indicated by the fact that of patients submitting to examination 24 per cent. were found not to be suffering from venereal disease in 1922, as against 19 per cent. in the year 1920.

[1] H.M. Stationery Offices. (Med. 8vo, pp. xii + 164. 4s. net.)

Other infectious diseases are notable mainly for the fall in scarlet fever and diphtheria in 1922, and the increase in cases of small-pox. The small-pox cases were 979, the chief centres being Middlesbrough 240 cases, Ilkeston 108, London and neighbourhood 78, Doncaster 51, Belper Rural District 49, Oldham 46, and Saddleworth 45. In the provinces the type was extremely mild, though severe cases occurred; in London it was of extreme virulence. That outbreak is referred to in our notice of Sir William Hamer's report (p. 423).

Maternity and child welfare receives much attention in the report. In 1921 a minimum infant death rate of 83 per 1,000 births was achieved; that of 1922 is still lower, being provisionally stated as 77, and it is reasonably claimed that infant welfare work has played an important part in the reduction. While financial stringency prevents large extensions of the work, close scrutiny of expenditure and more efficient administration are being practised. The maternity and child welfare grants for 1922-23 amounted to £785,204, and 436 local authorities are administering schemes. Details are given of the qualifications now required for health visitors, of whom there were 3,508 on March 31st, 1923, being an increase of 130 during the year. Nearly 300 additional are still required to bring the number up to the Department's standard of one whole-time officer for every 400 births. On the midwives' roll there are 51,565 names in England and Wales, of whom 12,422—less than a fourth—gave notice of intending to practise. Midwives notified 54 per cent. of the births in 1921, made up of 48.2 per cent. in London, 61.3 in the county boroughs, and 49.5 in the counties. The services of a trained midwife are now available for about 73 per cent. of the rural population of England. Maternity and infant welfare centres render important services, and usually serve also for health visitors' districts. Emphasis is wisely laid in the report on the policy that the main objects are to provide advice and teaching for mothers, and supervision of healthy infants, rather than treatment of the sick or provision of drugs and food at less than cost price. Voluntary enterprise plays a large part in the work of the centres. Dental treatment for expectant and nursing mothers is encouraged, and 300 centres now make such provision. There is still a shortage of institutional maternity beds, the total known of being only 1,879, or 204 more than in the previous year, and excluding Poor Law accommodation. Homes for mothers and babies now number 100, containing beds for 1,334 mothers and 1,288 babies. The question is being considered of introducing legislation for the registration of private maternity institutions, which are sometimes a subject of complaint. Powers have already been obtained by local Acts for London, Middlesex, Liverpool, and Manchester. Milk supply at less than cost price for expectant and nursing mothers and for young children has been provided under efforts to eliminate waste and abuse; notwithstanding widespread unemployment there has been some reduction in total outlay. Infant protection under Part I of the Children Act, 1908, continues to receive attention, the approximate number of children coming within the purview of the Act being 18,500, a decline of about 20 per cent. since 1920. Charges by foster-parents have risen, and unemployment has led to more children being kept in their own homes.

NATIONAL HEALTH INSURANCE.

The report deals with many points of interest in Health Insurance. In the smaller Insurance Committees—those with twenty or twenty-five members—local Medical Committees now appoint two members instead of one as formerly. The present Insurance Committees continue in office until November 1st, 1924. In sixteen cases questions of the scope of medical benefit were reported to the Department, the Local Medical and Insurance Committees being in agreement, that in thirteen cases the disputed service was outside of benefit, and in three cases within its scope. The total cost of the service for England (Wales being reported on separately) was approximately £7,500,000, of which £5,950,000 was paid to doctors for treatment. In addition rural practitioners received £210,000 on account of mileage.

In her book entitled *How We Resist Diseases*[15] Dr. JEAN BROADHURST of Columbia University aims at providing nurses and general students with some sound knowledge of the subject. Furthermore, she has endeavoured to deal with it in as simple language as possible, and anyone who has ever essayed a similar task must know how exceedingly difficult an undertaking it is. On the whole, she may be deemed to have succeeded, despite the profundity and wide field covered by doctrines concerning immunity and the preventive and curative practices founded thereon. The circumstance that the latter are of much practical interest to nurses and that they are described in considerable detail will probably commend the work to those for whom it is intended.

Dr. LUCIEN CHEINISSE'S yearbook of treatment for 1922,[16] like its two predecessors, is divided into two parts, the first containing an account of new drugs and other methods of treatment arranged according to diseases and symptoms, and the second being a review of certain therapeutic methods. To facilitate reference the subjects are arranged in both parts in alphabetical order and by the provision of a full index. Dr. Cheinisse has not only a remarkably extensive knowledge of medical literature—in addition to French he quotes English, American, German, Italian, Spanish, Dutch, and Russian authorities—but he also possesses a fine critical faculty, to which, in deference to our review of the previous volume (JOURNAL, May 6th, 1922, p. 723), he has given much freer play than before. The little volume, therefore, is very readable, and is indispensable to those who wish to keep in touch with advance in therapeutics.

Students entering on the study of organic chemistry can choose among a considerable number of textbooks, which, however, seldom achieve the same contact with the subject that is attained in books on inorganic chemistry. The conditions that determine the progress of reactions receive too little attention; from some books the student may even receive the impression that a knowledge of structural formulae is all that is essential. In CHAMBERLAIN'S *Organic Chemistry*[17] there is displayed a more perfect intimacy with the real chemistry, the knowledge of which alone will enable the worker to achieve syntheses of his own devising or understand the chemical transactions realized in the realm of biology. Obviously, much of this knowledge can only be gained through practical work, for which appropriate textbooks are required; but it is none the less important that theoretical explanations of the successes and failures of practical methods should be provided. In this direction much remains to be done by authors of elementary works, and Dr. Chamberlain's effort is a step towards that goal. The volume contains all the matter usually needed in the course for a university degree. The arrangement is satisfactory, the printing is good, and there is a serviceable index.

[15] *How We Resist Disease.* By Jean Broadhurst, Ph.D. Lippincott's [illegible] and London: J. B. Lippincott Company. [illegible] res. 4 coloured plates. 10s. 6d. net.)

[16] [illegible] Paris: Masson et Cie. 1923. (Imp. 16mo, pp. 203. Fr. 7.)

[17] *A Textbook of Organic Chemistry.* By J. S. Chamberlain, Ph.D. London: G. Routledge and Sons, Ltd. 1922. (Imp. 16mo, pp. xliii + 959. 16s. net.)

PREPARATIONS AND APPLIANCES.

An Infants' Food.

STUDY of the diet of infants continues to stimulate commercial production. Maltose has been represented to be of exceptional value as an additional carbohydrate in the composition of artificial food. Our attention has been directed to a product from starch consisting of maltose and dextrin prepared by Messrs. Mead Johnson and Co., of Evansville, Indiana; it is sold under the name of Dextri-Maltose and is obtainable in this country from the American Drug Supply Co., Ltd. It is put up in three forms, one being the simple product of manufacture containing about 50 per cent. of maltose, the remainder being dextrins and moisture; another consists of the same with the addition of 2 per cent. of sodium chloride; and the third contains 3 per cent. of potassium bicarbonate. Analyses made at our direction have shown that these articles agree with the composition stated on the labels and that the purity of the manufactured product is satisfactory. The proprietors inform us that they supply to medical practitioners and child-welfare institutions a number of booklets and pamphlets. These are practical and useful; they include a chart for the infant's weight, a set of cards giving directions as to dietary for infants of different ages, and a booklet called *The Bottle-fed Baby*, which is a carefully considered instruction to mothers written in easy language. This bears no advertisement and no directions for feeding are supplied with the food packages. Directions are supplied to medical attendants, who alone, we are informed, are advertised of the firm's products.

A Dried Milk.

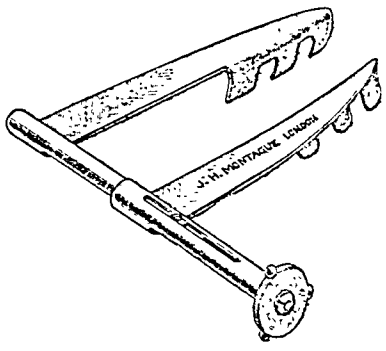
Milkal is the trade name of a dried milk prepared infants by the Dried Milk Dairy Products Ltd. We understa that Messrs. J. Lyons and Co., Ltd., who are the distributo are willing to supply sample tins on request for inspecti Milkal is stated to be produced by the spray process. sample received by us has been examined analytically at direction and the report returned is satisfactory. It is fou that the composition agrees with that stated on the label, whi represents a full-cream milk. The emulsion formed with wa is devoid of aggregated particles and the fat globules a hardly less fine than those of natural milk; this is evide that destructive heating has been avoided. A bacteriologic examination has also been made which showed the sample t be clean. It was not found to contain any chemical preservative

Standard Lactose.

Erratic results in the culture reactions of bacteria and th study of their fermentative powers are not infrequently a source of perplexity and trouble to bacteriologists. They are usually to be traced to irregularity in the quality of the materials composing the culture medium. It is a necessity of prime importance in such work to use materials of infallible purity. In attention to this need the British Drug Houses (Graham Street, City Road, N.1) are engaging in the manufacture of a highly purified lactose. A specimen has been submitted to analytical examination at our direction and has been proved to possess the high degree of purity comprehended in the term "fine chemical." We do not doubt that the utilization of this article, which is sold under the denomination of Standard Lactose B.D.H., will prove to be of material advantage in bacteriological work.

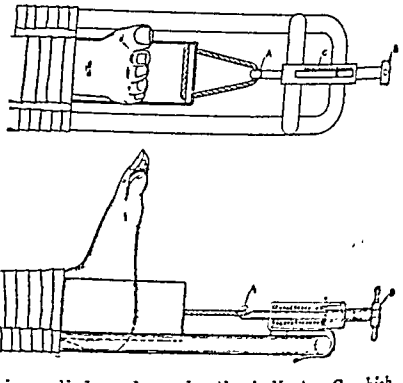
A Laminectomy Retractor.

Mr. C. P. G. WAKELEY, F.R.C.S.Eng. (London, W.), writes: One of the difficulties in performing laminectomy is to obtain adequate retraction of the erector spinae muscles on each side. If the muscles are peeled away on either side and a self-retaining retractor inserted, an excellent view of the laminae is obtained and troublesome haemorrhage is avoided. It was with this object in view that Messrs. J. H. Montague, of 69, New Bond Street, have made to my design the laminectomy retractor here described. It consists of two stout steel blades with wide base and tapering towards the top. The inner edges of the blades have three curved hooks which are inserted under the erector spinae muscles when the retractor is closed. The extension of the retractor blades is manipulated by a quick travelling screw revolving in a telescopic steel tube. On rotating a wheel at the opposite end of the tube the blades will open to five inches. I have found the retractor a very useful instrument; the adjustment is good. The whole of it is heavily nickel-plated.



A Simplified Extension Appliance.

Mr. WM. RUFUS HARRIS (Assistant Surgeon, Gloucester Royal Infirmary) writes: The following appliance is intended for use with a Thomas's knee or arm splint or any modification of it. It obviates the use of any weights, pulleys, or uprights, and does not pin down the patient when extension is applied to a limb. Adhesive strapping is first applied to the limb in the ordinary way, the wooden stirrup having two holes instead of one. Through these holes a loop of strong blind cord is threaded. This loop is slipped on to the end of the extension rod A. The thumb-screw B is then turned until the required amount of extension is applied as shown by the indicator C, which is graduated into pounds. The appliance can be used in most conditions requiring extension, and is particularly useful in conjunction with Thomas's knee-splint for the transportation of cases of fractured femur. The appliance is made by the Leeds Surgical Supply Company, Ltd., Park Lane, Leeds.



Latin, but there were a few in Greek. It is interesting to note the four English folios (all published in London); they were Wirtzung's *Practice of Physic* (1598); Richard Wiseman's *Chirurgery* (1676); Edward Tyson's *Anatomy of a Pygmie* (it was really a chimpanzee), bearing date 1699; and William Coles's *History of Plants* (1657). The French folio was Guillemau's *Oevres* [*sic*] *de Chirurgie*, published in Rouen in 1649. There was a little more variety among the quartos and octavos. In English one meets with Thomas Cogham's *Haven of Health* (1636), *The Secrets* of M. Alexis of Piedmont (London, 1558), Barrough's *Method of Physic*, Alexander Read's *Chirurgery* (London, 1650), Pitt's *Preservative of Health and Life* (London, 1704), Tippermalloch's *Receipts* (Edinburgh, 1716), Paxton's *Essay* concerning the Body of Man (London, 1701), Roger Bacon's *Cure of Old Age* (1683), Manwaringe's *Treatise of the Scurvy* (1669), Culpepper *Of the Rickets* (1651), W. Hugh's *American Physician* (London, 1672). The subjects of all these might be matched from publishers' lists to-day, and it is very modern to find books on scurvy and rickets. We should not, however, to-day expect a book to be published with the title of Harvey's *Case of a Nobleman deceased* (1685). In French are to be found Le Clerc's history of medicine (1702), Mauriceau's *Maladies des Femmes Grosses et Accouchés* (1675), Franc. Thevenin's surgical works (1669), Nicholas Lemery's lectures on chemistry (1683), *Le Médecin des Pauvres* (Paris, 1674), a book on the treatment of hernias (Paris, 1678), and Massard's *Sur les Panacées* (Amsterdam, 1686). There are works in Italian too: Bacci's *del Tevere* (Venice, 1576), the *Flagello della Peste* by Conte Castello (Messinae, 1656), a lecture on podagra by Matteo Soriano (Palermo, 1635), Mercurio's *La Commare* (1604), and the *Secreti della Signora Isabella Cortese* (Venice, 1584); there were a few books in Dutch, such as Leeuwenhoek's *Ontledingen en Outdekkingen* (Leyden, 1686).

It is an interesting thing to find among Sir Robert Sibbald's books the works of another medical knight, Sir Thomas Browne of Norwich. Thus, among the books classified as miscellaneous was "Dr. Brown's [*sic*] *Religio Medici*," but not in an early edition (1678); the *Vulgar Errors*, however, is represented by the first (folio) edition of 1646 (it sold for 2s.). In the same section is Burton's *Anatomy of Melancholy* in the fifth edition (1638), surely the most medical work ever written by one who was not himself a medical man; it seems to have fetched the modest sum of 1s. 5d. at the sale.

As one turns over the pages of this 1723 catalogue and as the great medical works of the past catch the eye along with so many which are now unknown one cannot but reflect on the exceeding transitoriness of the fame which was theirs some two or three hundred years ago. One book here and there has still a slight appeal; for instance, the purchaser who bought the 1555 copy of the anatomy of Vesalius for 27s. is to be envied, and him also who got Ambroise Paré's *Opera Chirurgica* (1582) for 3s.; but Caspar Bravo's *Resolutiones medicae* (1664) and Joannes Philippus Ingrassia *de Tumoribus* (published at Naples in 1552) leave the reader cold, and Thome de Garbo's *Summa Medicinalis* does not attract.

It is more interesting to find that Sir Robert Sibbald had on his shelves the masterpieces of English literature. He had, for instance, John Milton's works and his *Paradise Lost* and *Regained* (1697, 1688); he had also the quarto edition of *Paradise Lost* (first edition of 1669); he had Gavin Douglas's Virgil (1553), a Boethius of 1493, Du Bartas's "weeks" both in French and in Sylvester's strange English verse, Spencer's [*sic*] *Fairy Queen*, Dryden's Juvenal (1713), Sir Thomas More's *Utopia* (1684), Bocace's *Decameron*, Tasso's *Gierusalem liberata* (1582), Rabelais's Works Englished, Don Quixote (in French), Montaigne's *Essais* (1617), Geoffrey Chaucer's Works (1561), and Drayton's *Poly-olbion* (1613); and he was far in advance of many of his time in the possession of "Poema di Dante" (1613). In his library, therefore, there were lodged the aristocracy of general literature as well as the great works of his and of past times in theology, geography, history, as well as in medicine and surgery. Further, he was no mere book collector, for his letters to Wodrow, which were fortunately preserved and published in 1837, show a love of authors and an interest in the contents of the volumes which stood in his case far above those of the ordinary bibliophile. In his autobiography, in speaking of his medical attendance upon the Earl of Perth, he says:

"I, by his order, acquainted him with the curious books, especially pieces of divinity, history, poemes, memoirs of ministers of state, and discoveries in Philosophy . . . few weeks passed without letters, either when he was in England or here" (it would have been good fortune if these had been preserved). "He not only wrotte ane excellent style of English, but upon occasions made verse, and translated some psalmes of Buchanan, and some odes of Horace."

From his memoirs and his library it is possible to get a not inexact picture of Sir Robert Sibbald as the learned physician, the scientist, the man of affairs, and the lover of belles lettres, and so to reconstruct a portrait of him and his work which is both inspiring and pleasing. J. W. B.

OF PHYSICIANS AND BEARDS.

In these clean-shaven days, when rude remarks are shouted in the streets at bearded men, it is curious to turn to a little essay entitled "Wherefore Physitians affect to weare great Beards," which forms one of a collection of *Accademical Discourses, upon several choice and pleasant subjects*, "written originally in Italian by the learned and famous Loredano, Englished by J.B." and printed at the Blew Bible in Bedford Street, London, in 1664. From internal evidence the translator appears to have been Joshua Baildon, who acknowledged himself as translator of an earlier volume entitled *The Rarities of the World*. For the opportunity of examining these old books we are indebted to Dr. F. J. Baildon of Southport, who comes from the same stock as the erudite "J.B." John Francis Loredano, according to Lemprière's *Universal Biography*, was a senator of Venice, author of a *Life of Adam*, *History of the Kings of Cyprus*, some comedies, etc., collected in six volumes. He was born in 1606.

"The Beard," we read in the opening sentence, "is an ornament to the face, which adds handsomeness and veneration to the person. . . . From hence it is that physitians . . . do take an especial care to have great beards." So far the author is as urbanely respectful to the medical profession as he is to *promissa barba*. But the chance of poking a little fun at the physician was too good to miss. Might it not be that the medical beard was worn to impress the public? Loredano develops this idea with sly gravity:

"Physitians would fain make others believe that they have the skill and art to bestow health, and to prolong the thread of life in despite of fate; and therefore fearing least the reproach of *Medice cura te ipsum* should be cast in their teeth, there is a kind of necessity they should maintain themselves in perfect sanity and a robust agedness, to which purpose . . . they are induced to nourish great beards, which in outward appearance makes them appear much older than they indeed are. Or else the knowledge of their art, requiring a long and laborious study, they by a long beard would fain be thought more ancient, and by consequence more experienced in their art, than otherwise would appear."

On the other hand, the explanation might be simpler and less unkind. Perhaps, after all, it was out of respect for philosophy that physicians "imitating philosophers, do nourish great beards." Or again, it might be due to consideration for the patient. The beard was a sign of sorrow or grief among the Romans.

"Who knows but that physicians willing to show themselves deeply interested in their patients' sickness and pain, do wear those long beards in token of sorrow?"

It is possible to detect in this a tincture of irony, but in his concluding passage Loredano allows a transparently generous phrase to escape him:

"The beard signifies or betokens (nay adds) confidence and courage. No wonder therefore that they are so much worn by physitians, who are every hour forced to combat and struggle with desperate diseases, nay with death itself."

On every page of these discourses, the author's ingenious arguments and speculations are supported by many quotations from the classics.

The preface to the volume ends with a touching appeal to the reader to overlook misprints. Although the translator contributes his own introductory epistle, we have a feeling that the last sentence, at any rate, of the preface, with its English epitaph flavour, may have been added by Joshua Baildon himself:

"The errors of the press which like other corruptions of this age, are very rife and spreading, are left to thy civility for pardon. Bear with them, judicious reader, and remembring what thou art, consider how much humanity is subject to mistake."

which they run their course and in their liability to become generalized throughout the body. But they all agree in that (i) they are manifestations of disordered overgrowth of some tissue of the body, (ii) they are at first local, (iii) they are not encapsuled, (iv) they progressively invade the deeper parts, (v) they readily undergo degenerative changes, (vi) they tend to become disseminated to distant parts of the body, (vii) they lead sooner or later to the death of the individual in the vast majority of cases.

From the standpoint of preventive medicine and public health administration, there is a conspicuous contrast between cancer and groups of other morbid conditions, such as the acute infectious diseases or tuberculosis, for which the fundamental principles of prevention are well established. From the mass of medical evidence and literature on cancer, old and new, we have an extensive knowledge of its natural course and pathological anatomy; from mortality and other records we know much about its occurrence and geographical distribution. But knowledge useful for its prevention is still far from complete. The root cause or causes on which the occurrence of cancer depends remain obscure. We do not possess any specific means of producing immunity against cancer, as we have against small-pox, nor have we any specific means of curing the disease analogous to quinine for malaria or arsenobenzol compounds for syphilis. In all these directions much valuable research work has been undertaken, both within laboratories and outside them, and such research is being further pursued. Study with this object ought to receive every possible support from central and local health authorities, from those responsible for hospitals and other institutions, from voluntary agencies and from the general public.

2. *Extent of Cancer Mortality and its Increase.*

In a population of 37,885,242 persons in England and Wales in 1921, a total of 46,022 deaths were attributed to cancer. These figures imply that out of each average million persons 1,215, and out of each thousand 1.21, died of cancer. The death rate per 1,000 of the population attributed to cancer in England and Wales has gradually increased from 0.32 in 1851-60 to 1.12 in 1911-20, and 1.21 in 1921. To some extent this fourfold increase is due to the fact that a larger proportion of the population than formerly is now of those ages at which deaths from cancer commonly occur; but when full allowance has been made for this ageing of the population, the increase is from 0.33 in 1851-60 to 0.97 per 1,000 in 1911-20, and 1.01 in 1921, so that in the space of two generations the recorded mortality has trebled.

It has long been matter for discussion to what extent this increase has been due to improved diagnosis and more accurate certification of cause of death. There can be little doubt that these factors have been contributory, but unfortunately it has now to be recognized that they will not account for the whole of the recorded increase. Superficial cancers, such as those of the tongue or the female breast, were readily recognizable as such even sixty years ago, by the time death occurred. Yet in the twenty years' period 1901-21 (after making allowance for the ageing of the population) the mortality of males ascribed to cancer of the tongue has increased from 38 per million living in 1901 to 53 in 1921, and that of females from cancer of the breast from 148 in 1901 to 190 in 1921—increases of 39 and 28 per cent., respectively, in twenty years. During the same period the mortality, similarly stated, of the total population from all forms of cancer increased from 841 per million in 1901 to 1,007 in 1921, or by 20 per cent. There is only one part of the body frequently attacked by cancer, the womb, in respect of which significant increase in mortality is not recorded during these twenty years—a fact which may in some degree be attributed to the fall in the birth rate.

During this period of twenty years, from 1901 to 1921, in which cancer increased by 20 per cent., the general death rate fell by 32 per cent., that of infants by 45 per cent., and that from tuberculosis by 38 per cent., while substantial declines were recorded in respect of most other causes of mortality. An increase of mortality attributed to cancer is the common experience of modern civilization.

The frequency with which different parts of the body are attacked by fatal cancer differs greatly in different countries; it may differ over a period of years even in the same country; and changes are occurring not only in respect of the parts of the body attacked by cancer, but also in regard to the ages at which deaths occur. In this country the tendency is for deaths from cancer to occur later in life than formerly, and this change has been going on, at least amongst females, for many years. The latest available returns show that the death rate from cancer is not increasing for males up to 45 years of age, and for females up to 60. The most rapid increase is occurring in extreme old age.

Great differences in regard to the parts of the body attacked by cancer also exist between the sexes. The excess of deaths of females (over males) from cancer is entirely due to malignant disease of the breast and generative organs; in most other parts of the body a considerable excess is recorded for males. There is a great difference between the relative frequencies of different forms of cancer amongst married and single women. Cancer of the womb is more fatal to married and widowed, and cancer of the breast and ovary to single women. In 1911-20, for every 100 deaths of single women from cancer of the breast, there were 392 deaths of married women, for every 100 deaths of single women from cancer of the ovary there were only 272 deaths of married women, but for every 100 deaths from cancer of the uterus in the single women there were as many as 1,009 amongst the married women. During this period there were 463 deaths of married and widowed for every 100 deaths of single women, so the excess of deaths for the married is much larger than normal in the case of cancer of the womb, but smaller than normal in those of the breast and ovary. The death rates for 1911-20 corrected for age distribution are not yet available, but for the years 1911-13 we have the following figures, which are death rates per million women living corrected for age distribution:—Cancer of the womb: unmarried women 163, married and widowed 293; Cancer of the breast: unmarried women 346, married and widowed 238; Cancer of the ovary: unmarried women 60, married and widowed 31.

3. *Proclivity to Cancer.*

The large majority of people go through life, even to old age, without suffering from cancer, but the geographical and social distribution of cancer mortality shows that the risk of being attacked by cancer is one which is widely disseminated. In a broad sense, liability to cancer is not an attribute of any particular social class, profession or occupation. It is to be inferred, therefore, that the occurrence of cancer depends, to an important degree, on personal predisposing factors. There would be no advantage in detailing or summarizing studies or speculations on the nature of those factors, on the specific, general or constitutional antecedents of cancer, or on the meaning of "proclivity" to cancer. Knowledge is not far enough advanced. It is right, however, to point out that *hereditary* predisposition to cancer has not at present been proved to be of any practical importance in man; that it cannot be asserted with scientific authority that the use of any particular article of food increases the liability to cancer, or prevents it from appearing; that no known drug or preparation will prevent its appearance or cure it when present; and that no danger of cancer has been proved to result from inhabiting houses or districts in which cancer happens to have been exceptionally common. There is no evidence to show that cancer is an infectious or contagious disease.

4. *Chronic Irritation as a Determining Factor.*

One certain fact about cancer is that it frequently follows on chronic and prolonged irritation. Not all tissues, however, are equally liable in this respect. The palm of the hand, for example, in spite of its exposure to chronic irritation of all kinds, is probably never the seat of cancer. In the female breast cancer occurs far more commonly in the deeper parts of the gland than in the nipple, which is more exposed to injury. Some tissues show a special liability to develop cancer during chronic irritation, such as the skin of the face, the lips, insides of cheeks, tongue, lower part of bowel, neck of womb. Certain varieties of chronic irritation, too, are more liable to be followed by cancer than others. Thus, in the lip, long continued irritation by a clay pipe is particularly dangerous; in the tongue, irritation by a jagged tooth or badly fitting toothplate; in the womb, the chronic ulceration which may follow confinement. Again, syphilitic disease affecting the tongue or female external generative organs, or tuberculosis of skin (lupus) affecting the face, particularly if it has necessitated prolonged treatment, is liable to end in cancer. And lastly, workers in tar, such as briquette makers, workers with anilin or paraffin, chimney sweeps, and mule-spinners are apt to suffer from cancer in special parts of the body as a consequence of repeated irritation by the particular agent concerned.

This liability of cancer to follow chronic irritation of so many different types is remarkable, and leads to the supposition that beneath them all there lies some common factor—as yet unrecognized—which is fundamental to the passage of a chronic inflammatory and non-cancerous condition into one that is definitely cancerous. In one variety of cancer (rodent ulcer) the distribution of the new growth is such that it suggests a close relationship with the nerve supply of the affected part. How far this is true and how far modifications of the body itself as distinguished from the chronic irritant play a part in the ultimate production of the cancer it is impossible to say in our present state of knowledge.

5. *Prophylaxis.*

While considerations such as those in Section 3 above show how far we are from being able to say how cancer is to be avoided, those in Section 4 indicate that there are at least some provocative causes of cancer which can be guarded against. Since cancer occurs more commonly in certain sites, it is prudent to notice and remove causes of chronic irritation in these sites. Apart altogether from cancer, people should attend to these conditions in the exercise of common care for their general health and fitness.

In this category, for example, and for reasons just given, come the removal of rough stumps of teeth or replacement of badly fitting dentures; a change of habit if pipe-smoking is found to produce soreness on the same spot of the lip or tongue; an alteration of clothing which causes irritation of particular regions of the body—for example, the breast; the avoidance of constipation and other like matters. On the same basis the possibility of establishing a chronic irritation in a region liable to cancer gives an additional reason for obtaining advice and treatment in disorders of the stomach, bowels, or womb. Finally, special precautions, the nature of which is well known to those concerned must be adopted in certain occupations known to entail superadded and specialized risks of cancer.*

6. *Diagnosis of Cancer.*

For reasons that are indicated in the next section early diagnosis is of the greatest importance. This means not only diagnosis of the actual existence of cancer, but, even more, diagnosis of the existence of abnormal conditions that are common precursors

* Every medical practitioner attending on, or called in to visit, a patient whom he believes to be suffering from (*a*) *epithelomatous ulceration* due to tar, pitch, bitumen, mineral oil, paraffin, or any compound, product or residue of any of these substances, or (*b*) *chromic ulceration* due to chromic acid or bichromate of potassium, sodium, or ammonium or any preparation of these substances, occurring in a factory or workshop, is required to notify the case to the Chief Inspector of Factories at the Home Office.

Harrison were invited to set forth their views. Mr. Bond favoured the establishment of a Central Hospital Information Bureau for the area, with close association between the central voluntary hospital and the peripheral institutions, in order to reduce the waiting lists of patients in some institutions. He thought that small but efficient out-patient clinics attached to cottage hospitals would eliminate the expense involved in attending a central institution. He suggested that cottage hospitals might make provision for convalescent patients from the central institution, and he submitted for consideration the establishment of a consultation fund in connexion with Hospital Saturday Society or the friendly societies. Mr. Cumberlidge desired to bring paying hospitals into close touch with the traditions and stimulus of the voluntary hospitals with a view to making modern methods of investigation and treatment available for every member of the community. Mr. Harrison looked to the use of Poor Law hospitals for the purpose of relieving the pressure on the voluntary hospitals.

The report concludes with a complaint that there is little financial recognition by insurance committees of the services of the voluntary hospitals of the area. Approximately 48 per cent. of the in-patients passing through the central voluntary hospital are insured persons. For these patients some contribution is received from approved societies. But for out-patient work, such as eye and dental treatment, the approved societies make no financial recognition at all.

LEEDS MATERNITY HOSPITAL.

The medical report of the Leeds Maternity Hospital for 1922 shows that during the year 2,945 maternity patients were treated—1,039 in their own homes and 1,906 in the hospital. Of the 1,906 in-patients, 1,531 were delivered at or near full term, 41 cases were admitted after delivery, 30 were cases of abortion, 1 was an ectopic gestation, and 303 were discharged undelivered. The total number of births was therefore 2,570, which is an increase of 20 from the previous year. Of the 1,906 in-patients 23 died, but this does not imply that 23 of the cases delivered in the hospital died, because 41 were cases admitted after delivery, the greater number of which were cases of puerperal sepsis. Of the 23 deaths 6 were due to puerperal sepsis, 5 to heart disease, 3 to eclampsia, 2 to pneumonia, while placenta praevia, adherent placenta and *post-partum* haemorrhage, albuminuria and concealed *ante-partum* haemorrhage, toxaemic vomiting, intestinal obstruction following Caesarean section for contracted pelvis complicated by eclampsia, pelvic peritonitis following Caesarean section, and phthisis, accounted for one each. The standard of morbidity adopted was a rise of temperature (during the first eight days of the puerperium) exceeding 100°, occurring twice within twenty-four hours, irrespective of the pulse rate and excluding the first twenty-four hours after delivery. Of the 1,531 cases delivered in the hospital 55 were morbid (excluding abortions), which is a percentage of 3.5. Septicaemia and sapraemia were the causes of 20 of these cases of morbidity, mastitis the cause of 14, and scarlet fever the cause of 6. Of the 303 cases discharged from hospital undelivered, 246 were sent home because they were not in labour; 57 were treated for various conditions, including 14 for albuminuria, 5 for hyperemesis, and 5 for threatened miscarriage. The infantile mortality for the year, including premature children, was 246, or 15.9 per cent. The report gives interesting analyses of all the abnormal cases treated in the hospital.

PLAGUE AND CHOLERA SUSPECTS.

The Ministry of Health has issued a circular dated August 31st, 1923, and addressed to port and riparian sanitary authorities in England and Wales, on the subject of suspected cases of plague and cholera. This states that in several recent instances the Minister has not been informed promptly of the occurrence of suspected cases of plague on ships arriving in ports, and there has also been delay in forwarding to the Ministry for bacteriological investigation material obtained from such cases, thus causing loss of valuable time. Port and riparian sanitary authorities are reminded that under the International Sanitary Convention of Paris the Governments of all participating countries must immediately be notified by His Majesty's Government of the occurrence of any case of plague or cholera in this country. In order that the Minister of Health may fulfil his obligation under the Convention every suspected case of plague or cholera should at once be reported to him, and material from such cases, if obtainable, or from rats suspected to be suffering from plague, should, as soon as practicable, be forwarded to the Ministry for bacteriological investigation. Any failure in this respect not only renders investigation more difficult, but may make confirmation of the suspicion impracticable. Examination of such material by the Ministry is carried out free of cost to the authorities. A memorandum containing directions for the taking and transmission of such material has been forwarded to the medical officers of health concerned.

Ireland.

PUBLIC ECONOMY IN NORTHERN IRELAND.

THE Home Ministry (Northern Ireland) has notified the Banbridge Guardians of applications for renewal of several maternity and child wefare schemes. The Home Ministry further stated that it is considered desirable to remind local authorities and others administering such schemes that in accordance with the policy of the Imperial Government, which is being followed by the Northern Government, it was determined that as far as possible no fresh commitments involving expenditure out of Government funds should be undertaken for the present. This decision applies to existing schemes as well as to proposals for new schemes. The Ministry accordingly requests that all authorities administering these schemes will exercise the utmost economy and endeavour to keep their expenditure for the current year within the limits of their expenditure for the year ended December 31st, 1921. The guardians, after a long discussion, by a majority, voted £10 to Guilford Nursing Society.

ORGANIZATION OF ARMY MEDICAL SERVICES (IRISH FREE STATE).

In a recent publication of the organization of the different services and departments in the Irish Free State there is given an interesting account of the formation and rise of the Army Medical Services and the part played in their organization by the leading medical officers. It is stated that the present strength of the Medical Corps is: one major-general, who is a director of medical services, three colonels, seven commandants, twenty-five captains, seventy-nine lieutenants, eleven dentists, and twelve chemists. A badge has been designed and is being issued to all officers in the Medical Corps. It was selected and designed by the veteran antiquary Dr. Sigerson, F.R.C.P.I., and Commandant McKinney, M.D., A.M.S. The following is the description of the badge:

> It consists of a silver hand inset in a bronze oval. The silver hand recalls the tradition that Nuadad, Chieftain of the Tuatha de Danaan, lost his hand in the battle of South Moytura, near Cong, about 1,000 years B.C. The loss of a limb constituted so serious a blemish in those days that a maimed person could not be king, and consequently Nuadad had an artificial hand of silver made by the artificer, Credne Ceard, and fitted by the physician, Diancecht, so that he might succeed to the sovereignty. For that reason he was known as "Nuadad Airgead Lamh." The bronze oval consists laterally of a staff round which a serpent is twined. The staves are joined above by a scroll containing the superscription "Oglaig na hEireann"; below by a second scroll on which appears the motto "Comraind Legis."

ACCORDING to a survey by the New York Society for the Relief of the Ruptured and Crippled, there are 36,000 cripples in New York, about 50 per cent. of whom are under 16 years of age; nearly half the cripples are not receiving any treatment. About 3,700 of the cases have been diagnosed as due to poliomyelitis, Pott's disease, and tuberculosis of the joints.

METROPOLITAN COUNTIES BRANCH: GREENWICH AND DEPTFORD DIVISION.

THE annual general meeting of the Greenwich and Deptford Division was held on June 26th. The annual report was presented and approved. It was stated that three meetings of the Division and seven of the Executive Committee had been held during the year. The following subjects were dealt with: (1) The Insurance Medical Service was discussed, including the advisability or otherwise of establishing a public medical service should the terms of service under the Insurance Act for 1924 be unacceptable. (2) Representatives of the Division were co-opted on their Tuberculosis Care Committees by the boroughs of Greenwich and Deptford following a request by the Executive Committee of the Division. (3) An interesting and lucid paper by Dr. Morgan (a member of the Division) recommending the formation of a local Advisory Medical Council was fully considered. The underlying idea of having one all-inclusive medical body or committee capable of representing the various medical societies and isolated practitioners in their relations with lay bodies was held to be impracticable.

The following officers were appointed for the ensuing year:

Chairman, Dr. Beatrice F. Lovibond. *Vice-Chairman*, Dr. J. D. Clay. *Honorary Secretary and Treasurer*, Dr. Patrick Quinn. *Representative in Representative Body*, Rev. Dr. S. D. Bhabha.

SOUTH MIDLAND BRANCH: BEDFORDSHIRE DIVISION.

THE annual meeting of the Bedfordshire Division was held at Bedford on July 11th. Prior to the meeting the members were entertained to luncheon by the Chairman, Mr. C. I. HARMAR.

After the annual report had been adopted the following officers were elected for the ensuing year:

Chairman, Mr. W. K. Parbury. *Vice-Chairman*, Dr. G. T. Birks. *Honorary Secretary and Treasurer*, Mr. E. R. Fasnacht.

Professor LEONARD GAMGEE, surgeon to the Birmingham General Hospital, gave an instructive address entitled "Considerations on some of the clinical aspects of diseases of the gall bladder." The delivery of the address was followed by a good discussion.

Association Notices.

COUNCIL, 1923–24.

VACANCIES.

NOTICE is hereby given of the following vacancies in the membership of the Council:

(i) *Indian Group*, comprising the Assam, Baluchistan, Bombay, Burma, Ceylon, Hyderabad and Central Provinces, Mesopotamia, North Bengal, Punjab, and South Indian and Madras Branches, owing to no nomination having been received at the time of the annual election.

(ii) *Canadian and West Indian Group*, comprising the Halifax (Nova Scotia), Montreal, St. John (New Brunswick), Saskatchewan, Toronto, Trinidad and Tobago, Barbados, Bermuda, British Guiana, Grenada, Jamaica, and Leeward Isles Branches, owing to no nomination having been received at the time of the annual election.

The by-laws empower the Council either to fill such vacancies itself or cause them to be filled by means of an election by the Branches concerned. The Council has decided to adopt the latter course in the present cases.

Nominations in respect of either group must be signed by not less than three members of any Branch in the group, and must be in the following form, or in one to the like effect, and should be received by the Medical Secretary not later than Saturday, October 20th, 1923:

COUNCIL, 1923–24.

NOMINATION FORM FOR ELECTION OF A MEMBER BY THE GROUPED ..... BRANCHES.

By Not Less than 3 Members of the Grouped..... .....Branches.

We, the undersigned, hereby nominate .....
of .... *(Full name and address to be given)*
for election by the (Here insert the names of all the Branches in the particular Group) Branches as a member of the Council of the Association for the Session 1923–24.

Signatures and Addresses of Nominators .....
Branch(es) ....
Date ....1923.

The election, if a contest occurs, will be by VOTING PAPERS, containing the names of all duly nominated Candidates, issued from the Head Office, 429, Strand, London, W.C.2, to each Member of each Branch in the Group.

ALFRED COX, *Medical Secretary.*

Correction.—In the list of members present at the meeting of the Council at Portsmouth on July 25th (SUPPLEMENT, August 11th, p. 98), Mr. A. W. Nuthall's name should have appeared.

Insurance Correspondence.

Remuneration of Rural Practice.

SIR,—At the Conference of Rural Practitioners held in London on July 12th last there was considerable discussion as to the most satisfactory means of ensuring that the mileage grant should be fairly distributed to the really rural practitioner.

The mileage grant originally was intended for doctors practising in mountain, moorland, and fen districts, and industrial practitioners and townsmen did not participate. Since this grant was considerably increased it was made a rule that all doctors attending panel patients at over two miles from their residence should be entitled to claim.

The result of this is that the mileage grant is no longer intended purely and simply for the rural practitioner, as I understand the term "rural." Now we have doctors in all country towns, many with considerable panel lists in and close about the town, and industrial men with large panels all round them, travelling miles into the surrounding country districts. Year by year more and more claims for mileage are being made, and I contend that in many cases it is possible an undue amount of this grant is passing from the pockets of the really rural man who most needs it into those of the men who need it least, and, as a matter of fact, are hardly entitled to it.

There are doubtless many country doctors working single-handed in sparsely populated districts whose practice is grossly encroached upon on all sides by practitioners from towns and collieries, and one can conceive some of these practices becoming derelict and not worth carrying on. My definition of a really rural doctor is a man working single-handed in a sparsely populated district, or say two men in a small country town where there is a large thinly populated country round about; and where a doctor has, say, fewer insured persons within a mile of his house than he has outside a mile or even two.

The mileage at present is paid from two miles from the doctor's residence, whether he is a really rural man or a semi-rural one, but the doctor living in a village or elsewhere in a thinly populated area does a deal of travelling within those two miles, and for which he gets no mileage. A man may have hills and dales within a mile of him. I am not thinking of my own county of Northumberland, but of what I heard at the London Conference. From what I heard there it is supremely evident that some rural practitioners in some parts of England are shockingly paid as regards mileage, considering what they do. It would seem some of these men are not clearing their travelling expenses under the Insurance Acts work.

I hold that the first claim on any mileage grant ought to be these really rural practitioners—the class of men for whom mileage was first granted at the inception of the Act. In other words, I want it seen to that the money goes to the man who most need it, and who work for it, the class of men to whom mileage is vital. To the semi-rural man mileage is a thing apart; to the ultra-rural man it is his whole existence.—I am, etc.,

Felton, Northumberland, Sept. 2nd. ROBERT A. WELSH.

SIR,—Rural practitioners are greatly indebted to Dr. Williams-Freeman for the able manner in which he has put forward their claim for special consideration under the Insurance Act. As a rural practitioner in a scattered district, with previous considerable experience in industrial areas, I would like to put forward some arguments in furtherance of that claim.

In the first place the question is: Are these practitioners indispensable? During the war they were regarded as indispensable or placed in the last group, while endeavours to join up before called on were discountenanced. If they are indispensable they are entitled to an income adequate to the present cost of living and their social standing.

Urban practitioners do not, as a rule, know how rural practitioners live; and, I might add, do not care. That attitude is as natural as the tolerant contempt of an urban practitioner with a 2,000 panel towards a rural practitioner with 500 panel patients. For the criterion of success is not the manner of work done but the size of a panel list. Some, however, do realize our difficulties and are willing to help, but they seem to me to be going on wrong lines. In the first place a tendency often shows itself to argue, apparently on an arithmetical basis, that two rural patients are equivalent to one urban patient. There is a danger that loose statements like that may, by reiteration, be accepted as facts.

In my opinion, the remuneration of urban practitioners, of rural practitioners, and of practitioners in scattered areas are three separate and distinct problems. You cannot compare a practice having an average mileage to patients of four miles with an urban practice. Yet the urban practitioner's position

to see if savage races are likewise involved. At present no man knows the far-reaching effect of tonsillar infections, but it is quite certain that they are responsible for untold ills.—I am, etc.,

SYDNEY PERN, M.R.C.S., L.R.C.P.Lond.

Melbourne, July 7th.

INTERMEDIARY HOSTS OF SCHISTOSOMA HAEMATOBIUM AND MANSONI IN NYASALAND.

SIR,—I have received a letter enclosing two tubes containing specimens of five species of fresh-water molluscs from Captain W. H. Dye, R.A.M.C., medical officer, Karonga, Nyasaland, British Central Africa. He writes: "I think I can say that the enclosed specimens represent all the fresh-water molluscs to be found in this district as I have searched most thoroughly."

Captain Dye was able to infect two of the species experimentally with *Schistosoma haematobium* and *Schistosoma mansoni* respectively. The molluscs have kindly been identified as follows by Mr. G. C. Robson, Zoological Department, Natural History Museum, South Kensington.

1. *Lanistes affinis* Smith (full-grown and young).
2. *Viviparа robertsoni* Frauenfeld.
3. *Limnaea natalensis* Krauss.
4. *Physopsis sc. globosa* Morelet.
5. *Planorbis*, sp. near *sudanicus* Martens.

Captain Dye writes of 4 (*Physopsis sc. globosa* Morelet):

"They are very common in the marshy pools, although rather difficult to find owing to their predilection for the muddy undersides of reeds, etc., and their habit of dropping off when the plant is touched. They appear to attract *S. haematobium* readily, and large numbers of miracidia disappear out of the tube in which they are put, against the control."

He goes on to describe in detail the experiments he made. He finds that the mollusc dies in two days when heavily infected with the miracidia of *S. haematobium* after taking precautions to keep the water as free from decomposition matter as possible. The experiments were repeated several times with the same results. The snails were "not killed by *S. mansoni*, but one cannot get such concentration of eggs from faeces as from urine."

In regard to 5 (*Planorbis*, sp. near *sudanicus* Martens) he writes: "The one and only species of planorbis in this part of the world (I have most thoroughly searched)." This species is not killed by a heavy infection of *S. haematobium*; but they were "infected from a good heavily infected stool with *S. mansoni*."

Captain Dye sent infected snails, but they died on the journey and were too decomposed for sectioning on arrival. He appears to have discovered that *Physopsis sc. globosa* Morelet is the intermediary host of *S. haematobium* in Nyasaland, and possibly he has also found the intermediary host for *S. mansoni* in Nyasaland (*Planorbis*, sp. near *sudanicus* Martens).

The other snails which he sent had, he wrote, no attraction for either *S. haematobium* or *mansoni*.—I am, etc.,

J. B. CHRISTOPHERSON, C.B.E., M.D., F.R.C.P.

London, W., Sept. 1st.

SCHISTOSOMA INFESTATION.

SIR,—The account by Drs. Sinderson and Mills in the BRITISH MEDICAL JOURNAL for June 9th (p. 968) of rectal papillomata in a patient at the Baghdad Hospital harbouring *Schistosoma haematobium* raises several points of interest.

First, the recent recognition of cases in Palestine, Mesopotamia, and Turkish Arabia suggests the possibility of the introduction of bilharzia disease to new countries, although the thoroughness with which this disease is now being studied would account for the recognition of cases in countries where until recently it was unknown. Severe manifestations of *Schistosoma haematobium* in a comparatively early stage of the disease might suggest that the parasite has but recently been introduced on to new soil. I have noticed slight manifestations of *Schistosoma mansoni* in two patients in Natal who have never left the country. It may have been that the condition had only recently been acquired, for both of them came complaining rather from the effects of *Schistosoma haematobium* which complicated the condition. Nevertheless, the finding of *Segmentina kanisaensis* Preston at Merebank, Natal, a shell which was previously known only from the Upper Nile, supports the assumption that *Schistosoma mansoni* infestation has been introduced from Egypt.

Secondly, a very high eosinophilia may occur in the acute stage of bilharzia disease. In my own case it rose to 39.5 per cent. during the hepatic invasion of the flukes, but fell to 12 per cent. in the next few months without treatment. It is not common to find such high eosinophilia in chronic cases, even where the infestation is a high one; a relatively high eosinophilia may persist even after the parasites have been successfully destroyed, although it generally returns practically to normal.

Thirdly, it is to be regretted that intravenous antimony could not have been employed before surgical measures were adopted in the case at Baghdad; for extensive bilharzia tissue rapidly subsides as the adult parasites and their ova are destroyed.—I am, etc.,

Durban, Natal, July 27th. F. G. CAWSTON, M.D.Cantab.

ORAL HYGIENE.

SIR,—The views of Sir John O'Conor on the use of the tooth-brush reiterated in your issue of August 25th are so diametrically opposed to the opinion and experience of the great majority of dental surgeons that they must not be allowed to pass unchallenged.

Sir John states his conclusion that the cause of "dental caries, pyorrhoea, gastric pollution, appendicitis, and organic decomposition in general"—a catalogue reminiscent of the "cancer, cataract, and consumption" of the quack medicine vendor—is to be found in the "inane daily scrubbing of teeth with bristles and by the insane use of chemical dentifrices."

Regarding "gastric pollution, appendicitis, and organic decomposition in general," whatever that may mean, I express no opinion, but the experience of thirty-five years has convinced me that the thorough and intelligent daily scrubbing of the teeth, and more particularly of the gums, and the reasonable use of a dentifrice, though this is far less important, reduces the incidence of dental caries and pyorrhoea to an enormous degree; and every day my belief is strengthened by results.

Dental caries is produced by the action of fermenting food particles on the teeth, which, with the progress of civilization, have acquired an increased susceptibility to this form of attack. The débris of the soft food of the present day lodges around and between the necks of the teeth, and in the crevices of their crowns, and until the cause of this susceptibility and the means of combating it shall have been discovered, or until the diet of the people shall have reverted to a more primitive type, thorough and careful removal of these particles with the tooth-brush remains the most efficient means of preventing caries and pyorrhoea; for pyorrhoea, like caries, begins as a dirt disease.

Débris lodging upon the gum margin infects it and sets up a marginal gingivitis. The gum margin becomes tender, swells, and stands a little way from the tooth instead of being closely applied. This affords lodgement for more débris, while the tenderness leads to avoidance of the contact of any cleansing agent; more accumulation increases, and a vicious circle is established.

Friction of the gum margin, provided by Nature when man lived on uncooked hard food, is essential to the health of teeth and gums alike; it removes the débris and stimulates the circulation in the gum margin and keeps it firm, pale, and healthy. As the cooked artificial diet of civilization no longer supplies it, it must be provided artificially. Carefully persevered with in spite of some soreness at first it will cure even a long-standing gingivitis, while it will prevent or arrest caries on all surfaces to which it is applied. For the application of this friction nothing is so good as a bristle brush, because nothing else penetrates so well between the teeth and reaches the interdental papillae, though when the gums are tender a rubber brush may be used until they are hard enough to tolerate bristles. A badger-hair brush is altogether too soft to effect this.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Colonel H. F. Shea, D.S.O., is restored to the establishment.

Major W. W. Browne, O.B.E., relinquishes the temporary rank of Lieutenant-Colonel.

Captains H. D. Lane, M.C., and P. Carney, M.C., retire receiving a gratuity and are granted the rank of Major.

Captain T. P. Buist is restored to the establishment.

Temporary Captain R. R. Law relinquishes his commission and retains the rank of Captain.

The following to be Lieutenants (on probation): F. J. O'Meara, W. B. F. Orr, T. W. Davidson.

ROYAL AIR FORCE MEDICAL SERVICE.

F. K. Wilson is granted a short service commission as a Flying Officer with effect from, and with seniority of, August 8th, 1923, and is seconded for duty at the Bristol Royal Infirmary.

Flying Officer J. D. Leahy, M.C., is granted a permanent commission.

Flight Lieutenant A. F. Rook to R.A.F. Central Hospital, Finchley.

Flying Officer G. Clark to R.A.F. Hospital, Cranwell.

REGULAR ARMY RESERVE OF OFFICERS.

ROYAL ARMY MEDICAL CORPS.

Major and Brevet Lieut.-Colonel A. J. Chambers, having attained the age limit of liability to recall, ceases to belong to the Reserve of Officers.

INDIAN MEDICAL SERVICE.

The following Captains to be Majors: E. S. Goss, M.C., C. J. Stocker, M.C., A. W. Duncan, L. F. Brandenbourg, E. A. Penny, R. H. Candy, J. C. Bharucha, H. Hingston, F. J. Anderson, M.C., R. V. Morrison.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captain F. B. Chavasse, M.C. (late R.A.M.C.), to be Captain, with precedence as from November 1st, 1918.

VACANCIES.

BRISTOL ROYAL INFIRMARY.—House-Surgeon to the Ear, Throat, and Nose Department. Salary £120 per annum.

CARNEGIE DUNFERMLINE TRUST.—Assistant Medical Officer (male). Salary £550 per annum.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn Road, W.C.1.—(1) Two Assistant Surgeons. (2) Three Registrars.

CHESHIRE JOINT SANATORIUM, near Market Drayton.—Dental Surgeon.

EAST AFRICAN MEDICAL SERVICE.—Medical Officers. Salary £600 per annum, rising to £900 with efficiency bars at £700 and £800.

EXETER: ROYAL DEVON AND EXETER HOSPITAL.—Assistant House-Surgeon. Salary £150 per annum.

GLOUCESTER: BARNWOOD HOUSE HOSPITAL FOR MENTAL DISORDERS.—Second Assistant Medical Officer. Salary £350 per annum.

HALIFAX: ROYAL HALIFAX INFIRMARY.—Third House-Surgeon. Salary £150 per annum.

LONDON COUNTY COUNCIL.—Seventh Assistant Medical Officer in the Mental Hospital Service. Salary £300 per annum, rising to £400.

MANCHESTER: ANCOATS HOSPITAL.—(1) Resident Medical Officer. (2) Medical Registrar. Salary £200 and £100 per annum respectively.

MANSFIELD AND DISTRICT HOSPITAL.—(1) House-Surgeon. (2) Assistant House-Surgeon. Salary £175 and £150 per annum respectively.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2.—House-Physician and Casualty House-Surgeon. Salary £100 per annum.

ROYAL CHEST HOSPITAL, City Road, E.C.1.—(1) Resident Medical Officer; (2) House-Physician. Salary £200 and £120 per annum respectively.

ROYAL EARLSWOOD ASYLUM, Redhill.—Junior Assistant Medical Officer (male). Salary £250 per annum, increasing to £280.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.1.—House-Surgeon. Salary £150 per annum.

ROYAL NORTHERN HOSPITAL, Holloway, N.—(1) Out-Patient Medical Officer. (2) House-Surgeon. Salary at the rate of £150 and £100 per annum respectively.

ST. PETER'S HOSPITAL FOR STONE, Henrietta Street, W.C.2.—House-Surgeon. Salary £75 per annum.

SALFORD ROYAL [illegible] e-Physician. (2) House-Surgeon. (3) Casualty [illegible] for (1) £200 per annum, for (2) £150 per annu[illegible] £50 a year from V.D. Clinic, and for (3) £150 per annum.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone Road, N.W.1.—House-Surgeon. Salary £100 per annum.

SEAMEN'S HOSPITAL SOCIETY, Greenwich.—House-Surgeon and House-Physician at Dreadnought Hospital. Salary at the rate of £150 per annum each and a proportion of fees.

SHROPSHIRE ORTHOPAEDIC HOSPITAL, Gobowen, near Oswestry.—Girl Students to learn orthopaedic work. Salary, first year £16, and £20 second year.

WEST AFRICAN MEDICAL STAFF.—Medical Officers. Salary £600 per annum, rising to £720, and if confirmed in appointment after probation £720, rising to £920.

WEST BROMWICH AND DISTRICT HOSPITAL.—Resident Assistant House-Surgeon (male). Salary £180 per annum.

WEST LONDON HOSPITAL, Hammersmith Road, W.6.—One House-Physician and two House-Surgeons (male). Salary at the rate of £100 per annum.

CERTIFYING FACTORY SURGEONS.—The following vacant appointments are announced: Cerrig-y-Druidion (Denbigh), Polesworth (Warwick), Staveley (Derby), Stowmarket (Suffolk), Kirkwall (Orkney), and Maidenhead (Berks).

MEDICAL REFEREE.—Applications for the appointment of Medical Referee under the Workmen's Compensation Act, 1906, for the County Court Circuit No. 57 (attached more particularly to the Barnstaple, Bideford, South Molton and Torrington County Courts) should reach the Private Secretary, Home Office, by September 19th.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column advertisements must be received not later than the first post on Tuesday morning.

APPOINTMENTS.

HELLIER, Mary, M.B., Ch.B.Leeds, Resident Medical Officer at the Semi-Convalescent Hospitals at Cookridge, Leeds General Infirmary.

LINELL, Eric A., M.D.Manch., Assistant Professor of Anatomy in charge of Department of Neurology, University of Toronto.

LUND, J. R., M.R.C.S., L.R.C.P., Certifying Factory Surgeon for the St. Just District, co. Cornwall.

MACKENZIE, Miss Ella, M.A., M.B., Ch.B.Edin., D.P.H., Woman Assistant Medical Officer of Health at Blackburn.

SAUNDERS, W. E. Roper, M.R.C.S., L.R.C.P., D.P.H., Medical Officer of Health for the Urban District of Ashby-de-la-Zouch.

MANCHESTER ROYAL INFIRMARY.—House-Physicians: L. J. Witts, M.D., Ch.B.Manch., A. Coleman, M.B., Ch.B.Manch., A. Barlow, M.B., Ch.B.Manch. House-Surgeons: M. Parkes, M.B., Ch.B.Manch., E. J. Fouldes, M.B., Ch.B.Manch., T. Latham, M.B., Ch.B.Manch., B. Bowman, M.B., Ch.B.Manch., W. A. J. Fleming, M.B., Ch.B.Manch. House-Surgeon (Special Departments): C. J. Sharp, M.B., Ch.B.Manch. Surgical Registrar: A. G. Bryce, M.D.Manch., F.R.C.S.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester Square.—Consultant Physicians: Sir Malcolm Morris, K.C.V.O., and Dr. James H. Stowers. Honorary Physicians: Wilfrid Fox, M.A., M.D., M.R.C.P., Henry MacCormac, C.B.E., M.D., F.R.C.P. Director of the Pathological Department: J. M. H. Macleod, M.D., F.R.C.P.

British Medical Association.

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Diary of the Association.

SEPTEMBER.

11 Tues. London: Insurance Acts Committee, 12 noon.
21 Fri. London: Science Committee, 2.30 p.m.
25 Tues. London: Organization of Medical Students Subcommittee, 2.30 p.m.
London: Grants Subcommittee, 3 p.m.
26 Wed. London: Hospitals Committee, 2.30 p.m.
28 Fri. London: Public Health Committee, 2.15 p.m.

POST-GRADUATE COURSES AND LECTURES.

WEST LONDON POST-GRADUATE COLLEGE, Hammersmith, W.—Mon., 12 noon, Mr. Simmonds: Applied Anatomy. Tues., 12 noon, Dr. Burrell: Chest Cases. Wed., 3 p.m., Dr. Pernet: Skin Department. Thurs., 2 p.m., Mr. MacDonald: Genito-Urinary Department. Fri., 2 p.m., Mr. Sinclair: Surgical Out-patients. Sat., 10 a.m., Dr. Paterson: Medical Diseases of Children. Daily, 10 a.m. to 6 p.m., Sat., 10 a.m. to 1 p.m., In- and Out-patients, Operations, Special Departments.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

BIRTHS.

FERGUSON.—At a nursing home, Edinburgh, on Wednesday, August 22nd, the wife of W. Haig Ferguson, M.C., B.A., M.B., Ch.B., Captain R.A.M.C., of a son.

ROPER-HALL.—On August 25th, at Llanberis House, Moseley, Birmingham, the wife of Dr. H. T. Roper-Hall, M.B., M.R.C.S., L.D.S., a son.

MARRIAGES.

DALLOW—HAM.—On the 30th ult., at Wolverhampton (by special licence), John R. Dallow, M.B., Ch.B., B.Sc., of Kinver, Staffs, elder son of Mr. and Mrs. Tom Dallow, West Bromwich, to Agnes H. S. Ham, youngest daughter of the late Mr. and Mrs. N. Ham, Chipping Norton.

INKSTER—COX.—At St. Alban's, Holborn, on August 27th, John Inkster, M.D., M.R.C.P., of Middlesbrough, to Olive Mary, daughter of B. H. Cox, Esq., of Toronto.

JONES—FRANKLIN.—At St. Mary's Church, Ajmer, India, on August 6th, 1923, by the Reverend S. P. Marris, Chaplain of Ajmer, James Walker, D.S.O., Captain, Indian Medical Service, second son of the late Sir Henry Jones, C.H., and Lady Jones, Tighnabruaich, Argyleshire, to Doris Marjorie Marion, eldest daughter of Lieut.-Colonel G. D. Franklin, O.B.E., I.M.S., Chief Medical Officer in Rajputana, and the late Mrs. G. D. Franklin.

DEATHS.

HART.—On September 1st, George Simpson Hart, M.D., of Measham, Burton-on-Trent, aged 55.

HILL.—On August 3rd, at a nursing home, George Hill, L.R.C.P., L.R.C.S.Edin., L.R.F.P.S.Glas. 1894, Bromfield, New Ferry, Cheshire.

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into a bronchus or that run by the patient with status lymphaticus are possibly more common with ether. These cases and the occasional fatality in a bad case of shock, in a circumcision case, or during a throat operation, account for the chief number of deaths. To them should be added the post-operative pneumonia and bronchitis cases, the acidosis cases, and the deaths following imperfect operation traceable to difficulty with the anaesthetic, such as some cases in which the wound bursts open from the difficulty of perfect suturing.

The question of the vitiation of the atmosphere of the operation theatre by anaesthetic vapours needs consideration, because the conditions are often such as would not be tolerated by the workers or even allowed by law to exist in any ordinary factory. The chief dangers are the production of phosgene gas from the decomposition of chloroform vapour by a flame or cautery, and the presence of an excess of ether vapour in the atmosphere.—I am, etc.,

G. H. COLT,
Surgeon, Royal Infirmary, Aberdeen.

August 27th.

SPASM OF THE LARYNX.

SIR,—In the condensed report of the discussion on spasm of the larynx in the Section of Laryngology and Otology (BRITISH MEDICAL JOURNAL, August 11th, 1923, p. 241), I am credited with associating laryngitis stridulosa with rickets. I need hardly say that in this I am incorrectly reported, and that my insistence was on the well known association of laryngismus stridulus (" spasm of the larynx ") with rickets and on its distinction from laryngitis stridulosa (subglottic laryngitis or common " croup ").

My reference to the production of closure of the glottis and restoration of voice in some cases of functional aphonia by faradization of the lingual tonsil was only apposite to the question under discussion in so far as it suggested a particularly sensitive " motor point " for the glottis closers. It supported Mr. Mark Hovell's contention as to the rôle of the lingual tonsil in the production and treatment of spasmodic laryngeal cough.—I am, etc.,

JAMES DUNDAS-GRANT.

London, W.

*** The full report of the discussion will be published in a subsequent issue.

CANCER RESEARCH.

SIR,—I only saw Dr. J. A. Murray's letter in your issue of August 18th to-day. I am quite aware that the British Empire Cancer Campaign is distinct from the Imperial Cancer Research Fund, and I do not think my letter would lead anybody to suppose that they were identical. I am also aware that the latter has been in existence for twenty years, and that the former has not yet become established.

My statement that the Treasury grant to the Imperial Cancer Research Fund is utterly inadequate would be quite correct if the word " Fund " were left out. That, of course, was my clerical error.

I do not know who was guilty of the libel referred to in the last paragraph of Dr. J. A. Murray's letter. As far as I am concerned I never made such a suggestion or wrote anything that would bear that construction.—I am, etc.,

LEONARD MOLLOY.

Blackpool, Aug. 25th.

TAR WATER.

SIR,—In the article on this subject in the JOURNAL of August 25th (p. 332) it is said that " all that remains of tar water in the memory of man is covered by a phrase "—namely, " to cheer but not inebriate." But popular beliefs die very slowly and I have known those in whom the faith was strong and who used tar water as a household remedy. As to its employment during the nineteenth century many references might be given. One need only instance the amusing scene in which Uncle Pumblechook is made the unwitting victim of its virtues. Across the Channel, however, the reputation of tar water was much more firmly established, and even among medical men.

As to its household use in Paris in 1889, I can speak from personal experience. In the modest restaurants which I frequented in the Quartier Latin, a jug of tar water stood on every table, and, like the bread, it was supplied *à discretion*. It was drunk alone or mixed with wine just as if it had been ordinary drinking water. The latter was then under grave suspicion. When my purse could not afford Vichy I preferred tar water to the untreated issue from the tap. I need scarcely add that this *eau de goudron* was not prepared according to the Codex method. The inside of the vessel was simply smeared with tar and when so treated was used as a water jug. With successive fillings the film of tar grew thin and a fresh coating was applied. Whether this custom still continues I cannot say, but it is many years since I patronized a Paris restaurant of the same description.—I am, etc.,

G. MATHESON CULLEN.

Edinburgh, Aug. 29th.

TREATMENT OF TETANUS.

SIR,—It may be of interest to record the case of a young lady, aged 16, who on the afternoon of May 15th fell on a paved garden path and cut the left knee just below the patellar tubercle. A small crescentic flap of skin and subcutaneous tissue about two and a half inches across was torn downwards and this wound was shortly afterwards attended to by a surgeon who inserted four catgut sutures, applied dressings, and sent her home with the knee on a back splint.

The patient was seen by me the same evening; the dressing was changed on account of some rather free oozing of blood, the area of the wound painted with 2 per cent. iodine, and a silkworm gut suture inserted at a spot where the edges were not adequately apposed and from which the bleeding was taking place. The wound was dressed on the 16th, 17th, and 19th, and appeared perfectly healthy and dry, and the patient comfortable.

On the evening of the 20th, the fifth day after the accident, she became somewhat restless and anxious, and complained of stiffness of the lower jaw, which was attributed to a tender tooth.

I saw her early on the 21st: temperature and pulse normal, wound almost healed, free from discharge, slightly tender along margins, appearance somewhat anxious and scared, and the mouth could only be opened for three-quarters of an inch with considerable effort and overaction of the retractor muscles. Masseters firm, neck movements normal. Upper molars left side were tender on pressure, but no sign of decay or alveolar inflammation. As her symptoms were suspicious I obtained and injected in the afternoon 4,500 units tetanus antitoxin intramuscularly.

On the 22nd, symptoms no longer doubtful: the mouth could only be opened half an inch, there was difficulty in swallowing on account of spasm, saliva ropy with frequent efforts to expel it, masseters rigid, and neck muscles stiff, recti abdominales contracted, face anxious with slight but definite risus sardonicus. In the afternoon, in consultation with Mr. Nitch, an anaesthetic ($CHCl_3$) was given, and 7,500 units antitoxin injected intrathecally. While recovering from the anaesthetic, and as her position in bed was being adjusted, a violent convulsion occurred with marked opisthotonos, respiration stopped, the face became intensely livid and engorged, and she appeared to be moribund, but on commencing artificial respiration the spasm relaxed, and breathing slowly recommenced.

On the 23rd there was extreme restlessness and insomnia, swallowing impossible on account of spasm, tongue severely bitten, mouth firmly closed, neck and back muscles rigid. Chloral gr. xv and ammon. bromide gr. xxx every four hours by rectum had very little effect. Temperature 100.6°, pulse 128. Morphine gr. 1/3 at bedtime. Antitoxin 8,000 units at 10 a.m. and 11,000 units at 10 p.m. intramuscularly. Rectal saline three-quarters of a pint night and morning. The wound in the meantime had been opened up, and the surfaces swabbed with 2 per cent. iodine. During the night another violent and protracted opisthotonic convulsion took place.

On the 24th, morphine gr. 1/4 every four hours controlled the restlessness, and gave some sleep; swallowing still impossible, and mouth firmly closed. Temperature 101.4°, pulse 120. Irritation of skin but no rash. Calcium lactate 1 drachm twice daily added to salines. Antitoxin 16,000 units at 10 a.m., 9,500 units at 10 p.m.

On the 25th, swallowing fluids by teaspoonfuls possible, but exciting spasms, tongue frequently bitten in efforts to expel saliva; mouth can be opened a quarter of an inch. Masseters and neck muscles rigid. Temperature 100.2°, pulse 112. Morphine gr. 1/6 every four hours. Antitoxin 8,000 units at 10 a.m., 4,000 units at 10 p.m.

On the 26th, patient quieter and less anxious, sleeping at intervals; small quantities of nourishment by mouth. Masseters and neck muscles rigid; attempts to open mouth cause marked overaction of facial muscles. Temperature 99°, pulse 112. Morphine gr. 1/4 at bedtime. Antoxin 4,000 units 10 a.m., 4,000 units 10 p.m.

On the 27th, 28th, and again on the 29th, 4,000 units were given. The mouth could now be opened one-third of an inch with difficulty, the masseters and neck muscles still very rigid; spasm on swallowing still present, but less frequent. Mouth in fetid condition, and tongue swollen. Patient quiet. Temperature 99.5°, pulse 108. Morphine discontinued on the 28th; a marked urticarial rash appeared on trunk and limbs. (Calcium lactate still being administered per rectum.)

Slow improvement took place after the 30th. The temperature and pulse became normal on June 4th. Rash disappeared on

and attack by small-pox were 14, 16, and 16 years; the three shortest intervals between primary vaccination and fatal attack were 43, 44, and 49 years, the other fatal attacks in the primarily vaccinated being at ages from 58 to 73 years. Thus every outbreak of small-pox tells in its own way the value of vaccination. In October and November over 25,000 children in the Council's schools were vaccinated. Sir William Hamer states that the London outbreak of nearly 10,000 cases, which began in 1901, cost £500,000, or about £50 a case.

Tuberculosis.

The phthisis death rate in London in 1922 was 1.08 per 1,000, made up of a 1.35 male rate and 0.84 female rate. This is a little higher than in the two immediately previous years, but lower than any of the earlier rates. It is pointed out that during the war the civil population contained practically all men suffering from phthisis, those developing phthisis in army and navy being as far as possible sent back to England, the tuberculosis mortality in the British troops in France and Belgium in 1918 being only 5 per 100,000. After reference to the age incidence of the disease, the movement of population in relation to the phthisis death rate is discussed, in continuation of what was said in the previous year's report, and in relation to Dr. Greenwood's Milroy lectures, in which he considers the influence of internal migration from country to town, contributory causes being change of diet, diminished exercise, and change of atmosphere, Dr. Bulstrode's Milroy lectures of 1903 being also noted in support of the general case.

Influenza.

The epidemic of the winter of 1921-22 was dealt with in Sir William Hamer's previous report, and this year he discusses the epidemicity of the disease since 1890, as well as the question of its varied manifestations—the scarlatiniform rash which accompanied it in London and Manchester in 1920-21, and an outbreak among students at Minnesota regarded as scarlet fever, but coincident with an epidemic of influenza. There is also mention of an epidemic of 30,000 cases of dengue at Galveston, Texas, accompanied by a toxic rash, at a time when there was also widespread influenza. Sir William Hamer is a keen epidemiologist, and sees relationships between such concurrent epidemics which would give much material for exposition of his views on the whole subject of epidemiology, if only he could find time to set it all down for the benefit of medical study in general.

Enteric Fever.

The subject of typhoid fever is dealt with at considerable length. There were in the year only 264 notified cases and 45 deaths. Of 141 cases admitted to hospital, 65 were found not to be typhoid fever. Multiple cases occurred in 14 houses, the largest number in one house being six. In 181 traced cases, shellfish is mentioned in 15, fried fish in 8, other fish in 10, watercress in 6, and other food in 33. In 25 cases contact with previous cases is mentioned. Seven nurses contracted the disease. Of the 181, 47 were not typhoid. As noted in our previous article there has been for eleven years past almost complete absence of the autumnal rise of typhoid in London. By a process of exclusion the medical officer reduces the question of origin practically to fish and shellfish. The disease has left its favoured haunts of twenty years ago. Up to 1911 certain poor areas, in a population of some half-million within the classes in question, were specially infected, multiple attacks in houses were common, and children and young adults were notably numerous among the cases. Then Sir William puts the proposition that if it be assumed that infected food was sold for many years round about the beginning of the century in this population, especially about the latter part of August and in September and in early October, and if this sale was gradually restricted in the first few years of the century, and practically discontinued about 1909 and 1912, the decline of typhoid and of its autumnal rise is largely explained. Other considerations in support of this view are submitted, and finally it is pointed out that fish has been definitely incriminated in more than a dozen outbreaks. A detailed tabulation of such occurrences is contained in the report. The question between fish and shellfish is discussed, and the latter have rather fallen out of the picture, though cockles, and especially mussels, are by no means excluded. Going back over outbreaks attributed at the time to water or milk, Sir William is inclined to the view that in certain of them fish was probably the agency. Immature flat fish, generally plaice, fried but often ungutted, are ultimately found guilty in this most interesting argument. An area near the mouth of the Elbe was specially incriminated, and its disuse from 1912 tallies closely with the disappearance of the autumn typhoid rise, the danger of mines in this part of the North Sea being a deterring influence even since the end of the war, besides earlier voluntary agreements by fishermen to keep off these grounds. Sir William Hamer's whole argument is of compelling interest, and is indeed a romance of the prevention of disease.

Venereal Diseases.

The number of new cases dealt with at the hospitals in 1922 was 23,811, of which 6,809 were syphilis, 10,632 gonorrhoea, and 321 soft chancre. As compared with 1921 there is a decrease in every class—1,379 in syphilis, 77 in gonorrhoea, and 150 in soft chancres. Cases of syphilis are being earlier disinfected since the clinics were established. The total attendances were 529,003, a notable growth, showing that the ratio of attendances to new cases continues to increase. Many cases come after exposure and are found not infected. Examinations of pathological specimens have largely increased, the number from treatment centres being 75,351, besides 18,507 from private practitioners. Failure to complete treatment is not so frequent as would appear, because the definition of cure is now much more strict than formerly.

Medical Inspection of Schools.

As school medical officer Sir William Hamer's report covers the usual ground. At the beginning of the year there was considerable prevalence of infectious disease, and "prevalence of throat maladies, scarlet fever, and diphtheria followed in 1921 at the usual interval of seven years upon the preceding waves, which had culminated in 1907 and 1914." Also there was "the usual periodical measles wave," its maximum mortality (115 deaths) being attained in the fourteenth week of the year. In addition, whooping-cough was unwontedly prevalent in the early months. Unemployment was abundant, and for retrenchment's sake compulsory day continuation schools were discontinued. In the first half of the year there was a falling off in attendance at treatment centres. However, three particularly satisfactory influences were at work: (1) Notable activity in "following up," especially as to tonsils, adenoids, and teeth; (2) increased progress in the personal hygiene of children; and (3) a comprehensive review by the Board of Education of school medical inspection and treatment in London.

Of 199,812 children examined at the three statutory age groups, 75,874 required treatment of some sort, and for one reason or another there were over 90,000 additional examinations. The number of children treated was under 200,000, or less by nearly 20,000 than in 1921. In dental treatment there was a decrease of nearly 10,000, and of nearly 7,000 for ear, nose, and throat defects, owing to the steady progress made in the previous years. Reinspections numbered 178,964, and the very satisfactory percentage of 77.7 was found to have been treated.

These are the principal statistics, and it is not proposed to enter here into further details of the year's work in London, but all who are engaged in school medical inspection and treatment will find much that is interesting and important in Sir William Hamer's report. What the Board of Education says may be noted in conclusion:

"Medical inspection and treatment have secured the sympathy and interest of parents. It is satisfactory to see the large groups of mothers at inspections, keen to know what they should do for their children and prepared to pay according to their means. It is an eloquent reply to critics who urge that the school medical service tends to diminish the responsibility of the parent in the home."

So long as that represents the position, so long as parents are keenly interested, and education authorities require that they pay according to their means, the scheme will be a success; and the sense of responsibility will not be diminished but increased by the education parents receive in the upbringing of their children, and in their own financial and family duty to the new generation of whom they are the natural guardians.

carried on haphazardly in an atmosphere of speculation, and experimental methods of inquiry had scarcely been invoked. Bashford came at the time when Jensen had demonstrated the transplantability of animal tumours, and with imaginative foresight he seized on this primary discovery. He was more fortunate still in securing as his colleague Dr. J. A. Murray, the present director, and the two of them literally slaved in the upper rooms of the old Examination Hall on the Embankment. It is impossible for an outsider to apportion to each his separate share in that successful partnership, but between them in quite a short time they made the laboratory the Mecca of cancer research. Workers interested in the subject came from all parts of the world to study. Bashford was a tireless enthusiast, endowed with a keen brain and highly critical faculty, a ready and resourceful speaker, and a writer with the gift of clear exposition. Placed as he was in such a position, scornful of the old methods, he had more than the necessary pugnacity to force the new work and the new ideas into merited prominence, and his name soon became world-famous. His contributions to the study of tumour growth are mentioned in the Scientific Reports of the Imperial Cancer Research Fund and in many scientific periodicals of this and other countries. They embraced much more than purely experimental or biochemical research: statistical investigations, the comparative pathology of tumours, the ethnographical and zoological distribution of the disease, and numerous other departments of cancer research yielded their due portion to the harvest. In the nature of things clinical pursuits and utilitarian researches in surgical pathology were beyond the scope of the organization, but for those who have not closely followed the developments of our knowledge of cancer, and more especially those who are inclined to be impatient with progress, and who publicly proclaim the need for the exploration of all possible (and impossible) avenues of advance, a reading of the Scientific Reports should be a revelation. It must not be imagined that the laboratory study of medical problems, attractive though it may be, is pursued in academic calm and cloistered ease, or that results are the outcome of God-given inspirations. There is the haunting fear that sustaining ideas and fertile resources may fail; and especially in a subject which so directly affects the lay mind there is no wonder that many retire from the struggle. Bashford's work on cancer extended over little more than ten years; there were signs before the war that the old brilliance and resource were fading, and he dropped away. We are reminded of Meredith's lines:

> Be steadfast in that which impelled, for the peace
> Of Earth he who leaves must have trust:
> He is safe while he soars, but when faith shall cease
> Desponding he drops

But when all has been said in adverse criticism of him, his work still remains brilliant and intense, finished and accurate, suggestive and inspiring. He dominated cancer research, and had he continued until the experimental production of cancer—a thing he longed for—became practicable, he would still have been the foremost figure in the adventure. To me, who knew him not very intimately during his heyday, he leaves behind none but pleasant memories, and I am grateful to have known him. He was, I think, a genius, and he did great work.

GEORGE E. RENNIE, M.D., F.R.C.P.,

Consulting Physician, Royal Prince Alfred Hospital, Sydney, New South Wales.

WE have already expressed our deep regret at the announcement of the death on August 10th of Dr. George Edward Rennie of Sydney. He was a distinguished student of University College, London; he graduated M.B. at the University of London in 1887, and M.D., winning the gold medal, in 1888. Shortly afterwards he settled in Sydney, and was elected physician to the Royal Prince Alfred Hospital there. He devoted his attention specially to neurology, and in that subject in particular was one of the most trusted consultants in New South Wales. Dr. Rennie was also visiting physician to the Mental Hospital, Sydney, and took a deep interest in the institution of a clinic in connexion with the Royal Prince Alfred Hospital for early cases of mental disorder; he lived to see it established under the direction of Sir John Macpherson, formerly Commissioner of Lunacy for Scotland, who a little over a year ago was appointed professor of psychiatry in the University of Sydney.

Dr. Rennie did not publish many papers, but all that he wrote was marked by wide knowledge, large experience, and an almost meticulous desire for accuracy. In order to refresh his knowledge he spent some time in this country about fifteen years ago, and took the opportunity of attending the practice of the National Hospital in Queen Square, and many members of its staff remember the courteous retiring man, whose wide acquaintance with neurology had to be discovered, as it was never paraded. Dr. Rennie discharged all the duties of physician to the Royal Prince Alfred Hospital with punctilious care, and when he retired last November under the age rule, on attaining the age of 60, he was appointed honorary consulting physician, and along with Dr. Pockley, who retired at the same time from the post of senior ophthalmic surgeon to the hospital, was entertained to a complimentary dinner by the members of the honorary medical staff. He was deeply interested in the British Medical Association, and was President of the New South Wales Branch in 1903; for many years he acted as correspondent of this JOURNAL in New South Wales. He was also for a long period editor of the *Medical Gazette* variously known as Australian and Australasian; he only vacated office at the time of the amalgamation in 1914 which resulted in the establishment of the *Medical Journal of Australia*. His assiduity in earlier days paved the way for the success which has attended the *Medical Journal of Australia*.

Dr. Rennie can have had no enemies. He had many friends, who respected him for his high character and rich attainments, and loved him for his gentle spirit and large charity.

THE REV. D. W. TORRANCE, O.B.E., M.B., C.M.,

Medical Missionary of the United Free Church of Scotland at *Tiberias*.

THE death of Dr. David Watt Torrance at Tiberias on August 25th has removed one of the most striking personalities from the ranks of medical missions and a distinguished member of the medical profession. It is no mere metaphor to say that his life was a romance, and happily the story has been most effectively told in a volume published by Hodder and Stoughton entitled *A Galilee Doctor*. Here we see him as the brilliant student and then as house-surgeon at Glasgow Infirmary, the resourceful pioneer, the successful surgeon, the sanitarian combating cholera epidemics, the friend of Jew, Turk, Moslem, or Christian, and above all the devoted disciple of Him who was known as the Great Physician on the shores of Galilee, where Dr. Torrance planted his hospital. Many members of the profession will be interested to read this thrilling story of one of their number who heard the call to service in one of the most difficult districts in the world.

Two remarkable adventures indicate the spirit of this intrepid missionary. In the first instance he went out in one of his small boats, the *Clyde*, in the teeth of a furious storm on the lake to find his second boat, the *Kelvin*, which had slipped from its moorings. The second incident tells of his motor car held up on a level crossing in front of an approaching train, and of his efforts to drag it from the line lest the train should be derailed. He was knocked down and rendered unconscious and suffered from shock.

Torrance was born at Airdrie on November 6th, 1862, the son of a skilful surgeon and oculist, and the hereditary love for the medical profession has passed to his family, one son and two daughters having received their qualifications. His son, Dr. Herbert Torrance, had joined his father at Tiberias.

Like all pioneer medical missionaries he began his work by attempting skilled work in the most hopeless surroundings, but he has left behind him well equipped hospital buildings. Only those who know the Turkish régime can have any idea of the difficulties which were placed in his

(4) that it is very simple and inexpensive, (5) that by its routine employment it will probably be possible to make treatment less empirical and more in accordance with the requirements of individual cases.

STATISTICS AND PUBLIC HEALTH.

THE receipt of a copy of the second edition of Professor Whipple's manual on vital statistics[1] starts a train of reflections. Here is a volume of nearly 600 pages, almost wholly devoted to the illustration of statistical methods applied to the data of public health services. It has none of the general epidemiological features which would recommend such books as those of Prinzing or Sir Arthur Newsholme to the general medical reader; it displays no such mastery of modern mathematical theory as secures to Mr. Udny Yule or Professor Czuber a wide circle of readers. The outstanding merit of the book is its assumption that the medical reader will wish to acquire as practical a knowledge of this subject as he would expect to gain of any other essentially practical technique in the field of medical science. The student is told—no doubt not always quite accurately—what method he should apply to the study of a particular class of problem, and his progress is tested by real exercises. One finds such questions as these: "How would you find out what proportion of all children born have whooping-cough at some time in their lives?" "Do the statistics of infant mortality justify the continuance of the milk stations in New York City?" "Is there a higher correlation between flies and diarrhoeal diseases among children than between diarrhoeal diseases and other factors?"

One wonders, or rather one does not wonder, what sort of answers such questions would elicit from candidates for an English diploma in public health. But, in America, it has taken less than four years to exhaust an edition of such a book written, as the author says, "for students who are preparing themselves to be public health officials and for public health officials who are willing to be students." Nobody in this country could advise a student preparing himself to be a public health official to read such a book as Professor Whipple's; it would not help him to pass his D.P.H. examination. It is true that "vital statistics" are an item of the curriculum and that the General Medical Council has decreed that no less than twenty lectures shall be devoted to vital statistics and epidemiology. But since, so far as we are aware, the Council has not decreed that candidates shall be required to give practical proof that they have learned anything from the twenty lectures, the effect upon their actual statistical education will be precisely that of the reforms in the Inns of Court of sixty years ago, when the student might either pass an examination or attend lectures, but need not do both, the view being—as Bagehot said—that "to examine those who have already attended lectures would be impertinent; it would seem as if we doubted whether they had learnt from those lectures or not." In fact, in England, the serious academic study of medical and vital statistics is almost wholly confined to non-medical students. We believe that only at University College, London, is a distinct course of instruction in medical statistics offered, and that, in the last four years, it has been almost exclusively attended by non-medical undergraduate students for the B.Sc. and by non-medical post-graduates.

[1] *Vital Statistics: An Introduction to the Science of Demography.* By George Chandler Whipple. Second edition. New York and London: Chapman and Hall. 1923. (Pp. 579. 20s. net.)

In America the state of affairs is different. At l two of the great universities—Johns Hopkins Harvard—maintain whole-time professors of v statistics, and from the department of the Jo Hopkins Professor, Dr. Raymond Pearl, have iss a long series of medico-statistical studies. If it w not for the Ministry of Health and the Med Research Council, there would be no whole-t medical statisticians in this country—all med statistical research would necessarily be the leis employment of men engaged in other fields; neither the Ministry nor the Council can confident that it will be possible to maintain succession of trained men. Yet this lack of encoura ment is a serious matter, because in most branc of medicine, and in that of preventive medic above all, the power rightly to use the statisti method, whether as an instrument of resea or of critical evaluation, is a most valuable acco plishment. Indeed, the unquestionable fact t the power of the statistical method may be ov estimated is an additional argument for a wider c semination of knowledge of its strength and weakne It is always dangerous for important knowledge to the exclusive property of a small minority. In th days of collective and international investigations comparisons, many of the data upon which act is based must partake of the statistical character a be adjudicated upon by methods of statistical logic.

There is a very wide difference between t standards both of material accuracy and scienti analysis reached in the presentation of data of m tality and morbidity in different countries. In mar perhaps in all, the less advanced nations, there is need of and desire for instruction. America can of that instruction in her universities. What do we here? The intelligent foreigner, recognizing that is to great Englishmen—to such as Farr and Pr fessor Karl Pearson—that modern practical statisti owe their greatest improvements, but noting th we ourselves seem to attach little material impo tance to statistical knowledge, might be pardon if he concluded that England was not the country which to study medical statistics. Whether the ne School of Hygiene can help to remove this reproa we do not know, but it is certain that a new professo or a new army of professors, cannot change th internal situation unless it is made manifest that pays a student to acquire a sound knowledge of medic statistics. Satisfactory teaching facilities might me the needs of foreign or overseas post-graduates, b few of our own students will study a subject know ledge of which neither carries marks in an examinatio nor credit in candidatures for public appointments.

THE NEW MINISTER OF HEALTH.

IT is unfortunate that Mr. Neville Chamberlain's ve success as Minister of Health should have led to h transfer to an office generally and by tradition held to b one of the highest in the Government. It is unfortunat also that the office of Minister of Health should so fr quently change hands, and Mr. Chamberlain has himse expressed his regret that he should have to leave work i which he was strongly interested before he could comple schemes he had instituted or developed. Sir Willia Joynson-Hicks, who has now become Minister of Health brings to his office a reputation greatly strengthened an enlarged during the last few months. During some te years as a private member of Parliament he interested himself particularly in air service and road transport, an

systematic practical training in the inspection of meat at a cattle market. A course for health visitors and child welfare workers begins on October 1st; the course of lectures is arranged as a preparation of the health visitors' examination of the Royal Sanitary Institute, and is not part of the scheme prepared by the Board of Education; the course is open to all students who wish to attend, but only those who hold the nursing and midwifery qualifications set out in the regulations can be admitted to the examination. An introductory lecture to the students of the various courses will be given at the institute by Professor H. R. Kenwood, C.M.G., on September 24th, at 5.30 p.m.; admission is free. Particulars may be obtained from the secretary of the Royal Sanitary Institute, 90, Buckingham Palace Road, London, S.W.1.

THE Medical Branch of the Board of Education has been transferred from Nos. 5 and 6, Clement's Inn, Strand, W.C.2, to 54, Victoria Street, S.W.1. (Telegraphic address: "Meducation Sowest, London.")

THE annual general meeting of the Medical Sickness, Annuity, and Life Assurance Society will be held at the offices of the company, Lincoln House, 300, High Holborn, W.C.1, on Monday, *October* 1st, at 4 p.m.

A COURSE of elementary lectures on infant care, for infant welfare workers and others, will be given by Dr. J. S. Fairbairn and Lady Barrett, M.D., in the Lecture Hall of the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy, Carnegie House, 117, Piccadilly, W.1, on Mondays, at 6 p.m., from October 1st to December 3rd.

THE Scottish Board of Health (121*a*, Princes Street, Edinburgh) announces the opening of its *Register of Health Visitors*. Persons discharging on behalf of a local authority all or any of the duties of a health visitor under a scheme of maternity service and child welfare or of tuberculosis or otherwise, or of a school nurse under a scheme of school health administration, may apply for certification and registration.

A NATIONAL gas exhibition, demonstrating the service of gas in the home and industry, will be held at the Bingley Hall, Birmingham, from September 17th to October 3rd.

AT the International Congress against Alcoholism held at Copenhagen from August 19th to 24th it was decided to appoint a small committee to draw up a scheme for an International Federation of Medical Abstainers. The members of the committee were Dr. Holitscher (Czecho-Slovakia), the convener of the meeting, Dr. C. F. Harford (England), Dr. M. Legrain (France), Dr. Kh. Neytcheff (Bulgaria), and Professor R. Vogt (Norway). A constitution was agreed upon which is to be submitted to the existing societies of medical abstainers in different lands. The object of the Federation is to unite these societies: (1) to promote total abstinence in the medical profession; (2) to study alcohol and alcoholism; and (3) to organize the scientific attack on alcoholism. It is proposed that the Federation shall hold its chief meetings on the occasion of the International Congress against Alcoholism, but would meet also at international medical congresses.

A PRACTICAL post-graduate course in gynaecology will be held at the Hôpital Broca, Paris, from September 17th to 29th. The fee is 150 francs.

AN amendment has been made to the law controlling medical practice in Ontario, which has closed the door against osteopaths, chiropractors, and other "drugless healers," unless they hold the qualifications which the Medical Council requires of medical practitioners.

A VACATION course will be held at the Hôtel-Dieu, Paris, from September 10th to 21st, on recent medico-chirurgical work on alimentary diseases.

PROFESSOR UHTHOFF, the well known ophthalmologist, who recently resigned the chair of ophthalmology at Breslau owing to his reaching the age limit, celebrated his 70th birthday on July 31st.

DR. SEBASTIAN RECASENS, the well known gynaecologist, and dean of the Madrid Faculty of Medicine, has left Spain to visit the universities of South America, where he will lecture on gynaecology.

THE late Dr. Flora Murray, who died on July 28th, left estate of the gross value of £3,941, with net personalty £3,335. She left all her property to Dr. Louisa Garrett Anderson, desiring her to dispose thereof as she may think best, retaining for her personal use all or any part of it as she might wish.

DR. ALEXANDER MARMOREK, the well known bacteriologist, died recently in Paris at the age of 58.

THE German Pediatric Society will hold its annual meeting at Göttingen on September 21st and 22nd, when a discussion will be held on endocrine glands, in which Drs. Schiff of Berlin, Birk of Tübingen, Thomas of Cologne, and Goett of Munich will take part.

A PRESENTATION of books and instruments was recently made to Dr. Charles J. Gordon Taylor by the medical men of Nuneaton on his leaving that town to take up practice at Bridlington.

ACCORDING to a statement received from the information department of the Russian Trade Delegation in London, typhus reached its maximum in Russia in 1920. The number of cases in 1918 is said to have been 130,164; in 1919 there were 2,119,549, and in 1920 there were 3,354,056 cases. The People's Commissariat for Health then organized special commissions to combat the spread of typhus, and summoned seven all-Russian congresses of bacteriologists and epidemiologists. "Workers' commissions for cleanliness" were set up and 250,000 isolation beds were organized. In the following year (1921) 633,250 cases were registered. The famine of that year, however, again assisted the development of the epidemic, and in 1922 1,401,145 cases were registered. It was only possible to localize the epidemic at the end of 1922, but by the beginning of the present year only rare individual cases were being registered throughout Russia. The statement adds that during the same years (1918–22) there was a great epidemic of relapsing fever.

DETAILED information is as yet incomplete regarding the fate of British residents in Tokyo and Yokohama during the disastrous earthquake of September 1st and 2nd. It is reported that although the British Embassy building was wrecked there was no loss of life among the staffs of any of the embassies and legations; it is hoped, therefore, that Dr. H. Crichton Starkey, O.B.E., of the British Embassy, is safe. A message from Karuizawa, in the *Times* of September 6th, reports Dr. Anne Borrow as safe; but we regret to state that Dr. Edwin Wheeler, who practised for many years in Yokohama, is reported killed. Dr. Wheeler was one of the oldest British residents in Japan; he graduated M.D. of the Queen's University of Ireland in 1864, and had been a member of the British Medical Association for the past thirty-three years.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—*of course not necessarily for publication.*

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS *desiring reprints of their articles published in the* BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediacera, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4757, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

TREATMENT OF COELIAC DISEASE.

DR. S. A. MONTGOMERY (Cleethorpes) asks for suggestions for treatment in a case of coeliac disease with stunted growth in a young girl who is passing three or four pale, evil-smelling, semi-liquid stools in twenty-four hours. Abdomen swollen and tympanitic; not much elevation of temperature or severe pain; no signs of glandular swelling in abdomen or omental thickening.

VARICOSE VEINS.

"M. J." writes: I have for many years suffered from varicose veins below the knee. The vein over the dorsum of foot is considerably swollen. There is considerable aching and discomfort, and undue fatigue is experienced on comparatively slight exertion. Two operations have been performed, sections of superficial veins having been removed. Elastic stocking gives only partial relief. Is there any appliance that can be used or can any means of lessening the discomfort and sense of weight in the limb be adopted? For suggestions I should be grateful.

turn has led to a thorough recasting of the book in its second edition.[1] It aims to provide a clear statement of the considerations that arise when a binding estimate has to be made of the incapacity arising from any and every accident or occupational disease, and to show in each case the percentages of disability which so far have been accepted as sound either by the law courts or by other authorities. The standpoint is, of course, French, and neither ideas nor the law on the subject in France are quite on all fours with their equivalents in Great Britain; nevertheless both lawyers and medical men in this country may derive from it some useful hints when specific cases are in question. In the early years following the passage of the French law there seems to have been considerable difficulty in reconciling legal and medical views concerning the results of accidents, owing in part to the medical view that no assured prognosis of the economic results of an accident was possible, and in part to a difference of opinion as to what the term "accident" meant. The legal view was that an accident meant any lesion arising from the violent and sudden action of any cause external to the body. The medical view, on the other hand, was that an accident was any sudden and unforeseen occurrence which produced a lesion or temporary or permanent functional trouble. It was the former view that eventually prevailed and its acceptance was finally imposed on the medical profession by a decision of the court of appeal in 1912. Since then legal views on the subject of compensation cases appear to have almost eliminated any consideration of accident in the common sense of that term, with the result that any lesion or disorder which can be attributed to work, however normally performed, is now regarded in France as an "accident" and as *ipso facto* entitling the individual to compensation. A further point of some interest is that French law clears the decks of all questions of contributory negligence or responsibility for an "accident." The French employer is in every case liable to pay up to half the employee's normal wage, not only to the employee himself during his life, but also in the case of his death to any persons who may have been dependent on him. The workman is urged to avoid accidents if he can by the fact that whatever may have been the cause of the accident he can in no case and whatever the degree of his resulting disability obtain more than half his previous wages. The authors refer to disability scales in use in some foreign countries and point with approval to the principle underlying one adopted by the Germans in 1920. This is that every injury shall be assigned at least two percentages in any scale of resulting disability. Hence when an injured person, although to some extent disabled, is still capable of pursuing his original occupation only the minimum allowance for his particular degree of disability is assignable. The maximum for that degree is reserved for cases in which the disability, although no greater in itself, necessitates the adoption of some other means of livelihood than that pursued by the individual previous to his injury.

SPIRITUAL HEALING.

IN the *Times* of August 27th there was a report of an address given in Westminster Abbey by the Rev. R. C. Griffith, vicar of St. Benedict and of St. Martin-at-Palace, Norwich, on "Spiritual healing." The address was noticed also in some other papers. The vicar stated that the spiritual healing work of the Church is a really live thing in this country. "I myself," he said, "have seen blind people see. We have seen one with a withered arm for sixteen years hanging at her side suddenly shoot it out perfectly whole. We have seen cancers disappear in twenty minutes. . . . The enemy who deliberately attack this work say that to try and encourage people to expect to be healed and then find that they are not healed is a wicked thing because the people lose their faith. That is a blasphemous lie." Mr. Griffith added that he had seen thousands of people waiting outside two little slum churches from 9 a.m. to 11.15 p.m., kneeling in the gutters and praying for those on whom hands were being laid in the two little shrines. It is not surprising, perhaps, that an address of this kind should occasionally be given by Anglican clergymen, but it is surprising that it should be given in Westminster Abbey. Before the war a Committee of Inquiry into Spiritual, Faith, and Mental Healing, consisting of clerical and medical members, used to meet at Westminster under the chairmanship of the Dean. In its report, published in 1914, the Committee stated that "they are forced to the conclusion, after the most careful inquiry, that 'Faith' or 'Spiritual' healing, like all treatment by suggestion, can be expected to be permanently effective only in cases of what are generally termed 'functional' disorders. The alleged exceptions are so disputable that they cannot be taken into account." The first signature to this report is that of Bishop Ryle, Dean of Westminster. The publicity given to such addresses is harmful for the reason which the vicar puts into the mouth of the "enemy." The person who is led to expect to be healed and then finds he is not healed, even though his religious faith be too strong to be disturbed, will be apt to lose hope. As Mr. McAdam Eccles has said in a letter to our contemporary, there should be co-operation between clergy and ministers and members of the medical profession, but the diagnosis at least should be in the hands of the doctor. We would suggest strongly to Mr. Griffith that he would be wise in making very sure of his evidence before he makes dogmatic statements with regard to cure; especially if the statements are such as may lead other sufferers to neglect early treatment by operation or otherwise. We do not for a moment deny the benefit derived in suffering from faith. Nor do we dispute the occasional happening of unexpected cure in apparently hopeless cases. The Westminster Committee proposed, after issuing its preliminary report, to direct its attention to a careful inquiry "into the evidence for cases of asserted cure by 'Spiritual' or 'mental' healing of organic or other serious disorders submitted for investigation." Unfortunately the activities of the Committee were cut short by the war; but Mr. Griffith and those among the clergy who are disposed to accept his teaching will find food for reflection in the evidence of certain faith healers who appeared before the Committee.

THE INVESTIGATION INTO DISTEMPER.

As has been previously noted in this JOURNAL, an organized attempt is being made by the *Field* Distemper Council, with the co-operation of the Medical Research Council, to discover the cause of distemper in dogs in order to arrive at the control or cure of the disease. Distemper is a disease which has puzzled pathologists for many years, and many different theories have been advanced from time to time to explain its ravages. Many observers have described a bacillus, commonly found in distempered dogs, and have looked upon it as the cause of the disease. Others, again, have regarded the bacilli so found as secondary invaders and not the causal agent of distemper; the primary infection they consider to be due to some hitherto unrecognized agent. The experimental work of Carré appears to show that the disease is due to an ultra microscopic filtrable virus. The confusion existing at present makes it desirable that the research now proposed

[1] *Accidents du Travail: Guide pour l'Evaluation des Incapacités.* By Léon Imbert, C. Oddo, and P. Chavernac. Second edition. Paris: Masson et Cie. 1923. (Imp. 16mo, pp. 936; 96 figures. Fr. 40.)

er treatment for the same length of time. This remark-e difference may have been partly due to the disease ng on the average more serious in the in-patients than in e out-patients, but the upshot of the authors' comparison hat less depends on the character of the treatment given n on the nature of the disease itself. At the present ie the admission must be made that the value of any every treatment is very doubtful. There are two kinds pyuria: the first is benign, clearing up with or with-t treatment; the second is severe, persisting with or thout treatment. Removal of such distant foci of in-tion as septic tonsils may be followed by the dis-pearance of the pyuria, and this line of treatment is rth further exploring.

173. Cardiotomy and Valvulotomy for Mitral Stenosis.

C. CUTLER and S. A. LEVINE (*Boston Med. and Surg. Journ.*, ne 28th, 1923, p. 1023) record a case of mitral stenosis in uman subject operated upon, with recovery. The method attack was one evolved after years of laboratory investiga-n concerning the surgery of the heart. The patient was irl 12 years old whose chief complaints were dyspnoea and ody sputum. The child was fairly comfortable when in d, but it was impossible to get her up. The heart was posed by a median sternotomy and the two halves of the ernum held open by a Tuffier's rib-spreader, perfect expo-re of the pericardium being thus obtained. The valvulo-me, an instrument somewhat similar to a tenotome, was ken in the right hand and plunged into the left ventricle out one inch from the apex. The knife was pushed wards to the mitral orifice and turned mesially, a cut ing made into what was thought to be the aortic leaflet, e resistance encountered being very considerable. A cut as then made in the opposite direction. Mattress sutures ere tied over the point where the knife was inserted. The ernum was allowed to come together and the wound closed. e patient subsequently made a satisfactory recovery. The astolic thrill and murmur previously present diminished; pericardial to-and-fro friction rub arose.

174. Death following Infusion of Ether in General Peritonitis.

WEBER (*Zentralbl. f. Chir.*, July 28th, 1923, p. 1157) ggests that there is no doubt that the chances of recovery om general suppurative peritonitis have considerably nproved since the introduction of injections of ether into e abdominal cavity. Numerous cases have been recorded the favourable local and general effect of these injections d of the surprisingly good results often observed in most hopeless cases without any harmful after-effects. ike most surgeons Weber at first used only small quantities ether (50 grams), and removed most of it later by swabbing, t the good results obtained and the absence of any nfavourable symptoms made him bolder, so that he subse-uently employed 80 to 100 grams even in children and eakly individuals. After good results in nearly a hundred ses he has recently had a fatal case in a woman aged 21 whom general peritonitis was secondary to gangrenous ppendicitis. After intra-abdominal injection of 80 grams of her symptoms of intoxication developed with paralysis of e respiratory centre in the medulla, and death took place spite of intracardiac injections of strophanthin, artificial espiration, and intravenous injections of saline. The fatal esult was possibly due to the heart having been damaged by a ecent attack of influenza, but in any case Weber no longer elieves that intra-abdominal injection of ether in general eritonitis is an entirely harmless procedure, as is main-ained by some surgeons, and urges that in weakly individuals nd children special precautions should be taken as regards e amount given.

175. Tuberculosis of the Breast.

. C. ELKIN (*Annals of Surgery*, June, 1923, p. 661) points out hat tuberculosis of the breast is a comparatively rare dis-ase as compared with tuberculosis elsewhere in the body; bout two hundred cases have been reported up to the resent. In so far as can be determined, it may exist as primary infection. It is essentially a disease of the female reast, only eleven male cases being reported; the vast najority of cases occur during the period of reproductive ctivity—between the ages of 20 and 50. Trauma may activate latent focus. The most frequent initial symptom is a pain-ess lump; pain, present in the later stages, is rare at the nset. Mammary tuberculosis tends to suppurate early; fter a few months the lump softens, the skin becomes ed, and finally ruptures with the formation of a persistent inus. The axillary glands increase rapidly in size and often how the signs of tuberculous adenitis, but rarely suppurate. is usually limited to one side, but involvement of both breasts has been noted. Primary tuberculosis is nearly always curable provided early and radical operation is carried out. Amputation of the breast, together with dissection of the axillary glands if involved, is the treatment advised by the author.

Obstetrics and Gynaecology.

176. Ante-natal Treatment of Pregnant Syphilitic Women.

CH. LAURENT and DUJOL (*Bull. Soc. Française de Derm. et de Syph.*, June, 1923, p. 324) report that during a period of fifteen months—from January, 1922, to April, 1923—they have treated 55 women at the clinic for pregnant syphilitic patients at St. Etienne. Before treatment these patients had had 48 miscarriages, 32 stillbirths, and 21 living children. Since treatment these women have had 1 miscarriage, 2 stillbirths, and 22 living children. These patients have been treated exclusively with intravenous injections of novarsenobenzene (billon or rhodarsan). They have had more living children in one year than in the whole of their past. Both of the stillbirths followed obstetrical manipulations.

177. Some Primiparous Maternity Statistics.

FROM a series of 5,915 primiparae confined in the Maternity Hospital in Amsterdam between 1892 and 1918, R. REMMELTS (*Gyn. et Obstét.*, vol. vii, No. 6, p. 476) derives some interesting statistics. In regard to the duration of labour the author finds that the time increases gradually from 19 till 29 years of age—from 16.4 hours at 19 to 20.5 hours at 29; from 30 to 37 years the longest time is spent in labour, the average being 30.2 hours; but from 38 to 43 years the time spent diminishes to 24.8 hours; for girls under 19 years the time spent is more than between the ages of 19 and 22. Forceps deliveries are required more frequently the older the primipara is—2 per cent. of primiparae at 17 requiring forceps, 45.4 per cent. from 38 to 48 years of age; but at ages 32 to 38 only 25.3 per cent. required forceps, so the necessity for forceps is greatly increased from 33 years onwards. In primiparae under 27, forceps were only required in under 10 per cent. of cases. The percentage of cases of albuminuria increases gradually up to the age of 29 years and then remains fairly stationary up to 48 years, the percentage between 29 and 48 years being just over 29. Eclampsia, on the other hand, shows itself to be most common at the age of 26 years, 4.2 per cent. developing eclampsia at that age, whereas at 25 only 2 per cent. developed eclampsia, and from 27 to 48 years about 3.5 per cent. There was a gradual increase in the cases of eclampsia up to 25 years, being first found at the age of 18, when 0.6 per cent. developed the toxaemia.

178. Morbid Histology and Prognosis of Carcinoma of the Cervix.

KARL H. MARTZLOFF (*Bull. of the Johns Hopkins Hospital*, May, 1923, p. 141, and June, 1923, p. 184) examines the morbid histological findings in 203 operable and 54 inoperable cases of carcinoma of the cervix uteri with a view to tracing a connexion between the characters of the neoplastic cells and the degree of malignancy as shown by the clinical course in different cases. He classifies the squamous-celled carcinomata in the following groups according to the predominant cellular type manifested. Group 1 consists chiefly of the "spinal type of cancer cell," resembling both the cells of the upper portion of the ordinary cervical epithelium and also the prickle cells of the skin; Group 2 of the "transitional type of cancer cell," resembling the well defined layer of cells in the cervical epithelium which intervene between the spinal cells and the stratum germinativum; and Group 3 of the "fat spindle type of cancer cell," which would correspond to the "basal cell cancer" of many authors. Tumours of the first group numbered 15.5 per cent.; of the second, 66.8 per cent.; of the third, 12 per cent.; there were also 5.4 per cent. of cases of adenocarcinoma. The outstanding observation resulting from the analysis is that the "spinal cell type" (Group 1) appears to be relatively least malignant; next comes the "transitional cell type"; and the "fat spindle cell type" proves to be the most malignant of all, in spite of the fact that it is this type which most nearly resembles the "basal cell cancer," which in other regions has been shown clinically to possess a low degree of malignancy. Inoperability in an early stage of the malady was most frequently noted in the series of "transitional" and "fat spindle" cell types; least frequently in Group 1, in which one case only was inoperable before the fifth month, and in the adenocarcinomata. The only significance to be attached to the presence of epithelial pearls is that when associated with cancers of the Group 1 type they indicate

electrolytes, tending to come out of solution on dilution; its precipitating action is therefore augmented on dilution; pseudoglobulin, on the other hand, is soluble in water, and therefore its capacity to hold gold in solution is diminished by dilution. The increased precipitating action of euglobulin in dilution appears to be responsible for the precipitation curve which has been described as typical of tabes. Probably all cerebro-spinal fluids contain a constant quantity of pseudoglobulin, but variable quantities of euglobulin. The tabetic curve is due to a small increase in euglobulin, which manifests its action only in the intermediate dilutions, when its tendency to come out of solution is augmented to a maximal extent by dilution. In general paresis, on the other hand, the euglobulin is increased to such an extent that it overcomes the inhibitory action of the pseudoglobulin, and precipitates colloidal gold in the first dilution of the gold sol test. It is possible also that pseudoglobulin as well as euglobulin may be increased in certain luetic conditions. This hypothesis would explain why precipitation of neutral colloidal gold is always produced by paretic cerebro-spinal fluid, sometimes by tabetic fluid, but never by normal fluid; and also why cerebro-spinal fluid obtained from definite cases of general paresis often gives the precipitation curve assumed to be characteristic of tabes. Other experiments carried out by these authors have shown that the precipitating substance is non-dialysable, is precipitated by half saturation with ammonium sulphate and by 50 per cent. alcohol at 0° C., and is destroyed by heat at temperatures depending upon the reaction of the fluid and the duration of heating.

FUNGI OF FROZEN MEAT.

THE department of Scientific and Industrial Research of the Food Investigation Board has just issued a report, by F. T. Brooks and C. G. Hansford, on mould growths upon cold-store meat.[1] The more detailed and technical part of their report has already appeared in the *Transactions* of the British Mycological Society; but the six pages give a clear and useful account, in plain language, of the kind of mould that grows under conditions of cold storage. Putrefactive bacteria, whose growth is inhibited by low temperatures, cause meat to go bad, but the moulds that grow at temperatures about or below freezing point are harmless, although they give the meat a disagreeable appearance. The best known, the most unsightly, and the most serious from the economic standpoint is the *Cladosporium herbarum*, which causes what is known on cold storage meat as "black spot." It will grow at a temperature of 18° F. Other characteristic moulds are the white and the bluish-green moulds. The former are of two varieties—one, the *Sporotrichum carnis*, which has not hitherto been described scientifically, causing small white spots, and the other the moulds which give rise to the profuse growths known in the meat trade as "whiskers." These growths project for more than an inch beyond the surface of the meat, but collapse when exposed to a relatively dry atmosphere. The bluish-green moulds belong to the well known genus *Penicillium*, commonly found in cheese and on rotten apples and oranges. Another form of growth, that almost invariably arises on meat exposed to a temperature a degree or two above freezing point, consists of small colonies of certain yeasts, either pink or white in colour. When dry the white colonies frequently assume a brown colour, the "brown spot" referred to by other workers on meat moulds. These colonies of white yeast are difficult to distinguish from groups of bacteria, although in view of their relative significance in condemning meat or otherwise it is important to do so. The practical lessons which are learnt f report are the necessity of cleanliness in abatt cooling the meat as rapidly as possible after slaug so as to avoid mould spores settling on it before it i in cold storage, and the maintenance of a temp in cold storage chambers of 10° to 15° F. Where chambers get badly contaminated with mould spor meat should be removed and the chamber thor cleansed with disinfectants before fresh meat is pl it. But it is comforting to know that the mould grow innocuous, and can be removed easily from the sur the meat, or can be cut away when they grow in skin, as in the case of "black spot."

[1] "Mould Growths upon Cold Store Meat." Food Investigation Board Special Report No. 17. By F. T. Brooks, M.A., and C. G. Hansford, B.A. H.M. Stationery Office. 1923. (Pp. 142; 9 figures. 1s. 6d. net.)

INTERNATIONAL CONFERENCE OF RED CROS SOCIETIES.

THE eleventh International Conference of Red Societies, organized by the International Red Cross mittee of Geneva, began at Geneva on the afterno August 28th, and ended on September 1st. The confe opened with a meeting of special delegates, one from National Society, and of members of the International mittee, to form a bureau and draw up a programm business. This was followed by the opening general mee presided over by the venerable international jurist, M. A once President of the Swiss Confederation, and for n years President of the International Red Cross Commit In the course of his address M. Ador referred to the w of the Red Cross and touched on the efforts that had b made during the past year, but without success, to com an agreement with the League of Red Cross Societies. animated discussion followed the reading, by Dr. Dep of the Belgian Red Cross Society, of a letter from the th delegates of the United States, intimating their reasons not attending the conference. A committee of fifteen w appointed to study the question of amalgamation and rep on it by June, 1924, and there the matter rests for the ti being; the views of delegates regarding this committee we expressed at a private meeting held on the morning August 30th. In other respects, the business transact during the conference was uncontroversial. Committe were set up to study and report on such questions as gener Red Cross finance and the formation of a special reserve o funds, and the drawing up of a code for dealing with civ populations in occupied enemy territory or civilians interne in enemy belligerent territory. Senator Ciralao, Presiden of the Italian Red Cross, gave an address on the personne and stores needed for use during sudden calamities. Th various committees met in the afternoons; at the morning sessions a delegate from each Red Cross society gave a summary of the work carried out by his society since the last international conference in April, 1921. This year's conference at Geneva was attended by delegates from forty-four national Red Cross societies and from thirty-eight Governments, and twenty-two representatives of charitable and humane societies attended by invitation. Two receptions were held, one on the evening of the opening day and another on the evening of August 31st.

A COURSE of lectures on problems of personal and public health will be delivered in the lecture hall of the Royal Institute of Public Health, 37, Russell Square, London, W.C.1. The first lecture will be delivered on October 17th, at 4 p.m., by Dr. Alfred Greenwood, M.O.H. for Kent, and subsequent lectures will be given on succeeding Wednesdays at the same hour. The lecturers will include Professor J. C. Drummond, of University College, London, Major H. Graeme Anderson, Dr. W. A. Bullough, Dr. Kate Platt, and others. The Harben lectures will be given by Professor C. Levaditi, of the Pasteur Institute, Paris, on December 11th, 12th, and 13th, on (*a*) neurotropic virus (encephalitis); (*b*) neuro-vaccine; and (*c*) new discoveries in the treatment and prophylaxis of syphilis.

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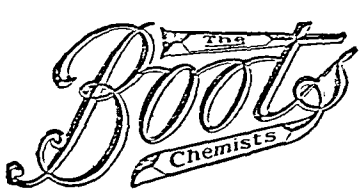

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Drugs.—For drugs and appliances about £1,212,000 was paid to chemists and about £180,000 to doctors. Prescriptions were unusually numerous in the first quarter of the year, and the total dispensed by chemists was about 33,400,000, or 3,200,000 more than in 1921-22. Arrangements for standard dressings of superior quality came into force on March 1st. In respect of inquiries into extravagant prescribing, arrangements are being made which it is hoped will lead to more uniform administration.

Standard of Treatment.—Supplementary grant voted to provide a satisfactory standard of service was withheld from 121 doctors and 16 chemists, the total withheld being £2,175. In one case £300 was withheld from a practitioner for failure to notify the Insurance Committee that he had ceased to employ a permanent assistant, and £200 was withheld later from the same practitioner for not employing a whole-time permanent assistant. Sums of £100 and £80 were withheld for failure to provide proper treatment, £75 and £50 for not keeping records, and £50 for irregular certification. These were the largest amounts withheld. Among chemists, sums of £1 to £5 were withheld for various offences, such as refusal to dispense, alteration of a prescription, and inaccurate dispensing. During the year the Minister of Health received six representations for removal of doctors from the panel and five for removal of chemists. In two of the six medical cases the name was removed, one of them on a conviction for manslaughter. Two of those not removed had £100 supplementary grant withheld. There were only twenty-nine appeals against decisions of Insurance Committees regarding medical benefit. Of eighteen cases where doctors or chemists were the appellants, nine were dismissed, four allowed, three withdrawn, one decision was varied, and one appeal had been made outside the prescribed time.

Schemes of Additional Benefits.—The schemes adopted by approved societies with valuation surpluses have mostly been in operation for a year and nine months. Extra cash benefits have been easily administered, but other benefits have passed through a tentative and experimental stage, and in about fifty cases variations have been sanctioned. Until recently, indeed, many societies have found difficulty in spending the whole of the sums available. It is a common practice for societies with limited resources to require the member to pay a part of the charge made by the dentist, optician, etc., but during a period of excessive unemployment some members could not meet their obligation in that respect, and the Department has allowed societies to disburse for the time the whole amount, recovering the member's share by instalments. It appears from the report that the favourite non-cash benefits have been dental treatment and optical treatment, hospital or convalescent home treatment, and the provision of medical and surgical appliances. Amongst these, the provision of dentures stands easily first, and it is remarked in the report that looking to long years of neglect it is not to be wondered at. Societies are not entitled to set up clinics for the purpose, the benefit taking the form of payment for treatment. Also, there are no panels of dentists. The societies can, within their means, pay directly to members on their production of receipted bills, or pay in accordance with arrangements with any selected registered dentists, or through institutions or agencies. The Department cannot interfere in disputes arising out of arrangements to which it was not a party. Similarly, it is pointed out, the best way to utilize the £280,000 a year available for hospitals and convalescent homes is to be determined by the committee of management of each society. The larger societies have arranged with the British Hospitals Association on a basis of the duration of indoor treatment of members, and some smaller societies have arranged with local hospitals, also in respect of in-patients only, all the others being outside the scheme. Some societies, having members whose occupation involves eyestrain, have found optical benefit of particular use, and not very costly. The popularity of non-cash benefits has led to proposals for their extension; massage, radiant heat, electrical treatment, brine baths, and laboratory facilities have all been suggested. In concluding this part of the report, the Ministry holds it clear that such additional benefits have been most useful, and will react favourably on the prevention of sickness, and eventually reduce the claims on the benefit funds. Insured persons and societies are reaching like conclusions as to the advantage of extending treatment benefits rather than cash benefits, and it is confidently believed that when the second valuation of societies is made the schemes adopted for utilizing surpluses will show a substantial advance in the provision of such facilities. That valuation, it may be noted, is to be made for some societies as at the end of 1922, and for others as at the end of 1923, the object being to spread over a longer period the heavy departmental work involved.

Regional Medical Officers.—This is the last matter of which we propose to make mention. When these officers were appointed in 1920 they were intended to deal not only with questions of capacity or incapacity, but also to consult with the practitioner in cases of admitted incapacity, as to restoration to health. Only the former function was undertaken at first, and only in urban areas containing about three-fourths of the total population of the country. The service was extended in the autumn of 1922 in respect of both these limitations. The references to the regional medical officers in England in 1922 totalled 103,010, of which 36,749 related to men and 66,261 to women; 101,023 were referred by societies, 1,426 by practitioners, and 421 by Insurance Committees. However, 23,022, or 22.3 per cent., failed to present themselves for examination; 19,361, or 18.7 per cent., declared off the funds without attending for examination; 18,918, or 18.4 per cent., were found capable of work, and 41,745, or 40.5 per cent., incapable of work. In Wales, for which the statistics are given in Part 5 of the report, the corresponding percentages were: failed to appear, 23 per cent.; declared off the funds without examination, 20 per cent.; capable of work, 22 per cent.; incapable of work, 35 per cent.

Nova et Vetera.

A MEDICAL LIBRARY TWO HUNDRED YEARS AGO.

IN a previous contribution* to Nova et Vetera some account was given of a remarkable sale of books belonging to Sir Robert Sibbald, the noted founder of the College of Physicians and the Botanic Garden of Edinburgh. The sale by auction took place in 1723; it must have aroused considerable interest in the medical profession and amongst scientists at the time; and it may even have led London buyers to face the dangers of the Great North Road to attend it. It will not be uninteresting to glance at some of the books which tempted bidders on that winter's day (February 5th, 1723) in Edinburgh two hundred years ago.

The distinctively medical works in Sir Robert Sibbald's library numbered 799; there were 136 folios, 274 quartos, and 389 of octavo size or smaller. Seventeenth-century works predominated; but there were also many of the sixteenth century and one or two of the fifteenth.

The highest price (£10 18s.) was obtained for the Paris edition of the works of Hippocrates and Galen; it was entered as "Hippocratis et Galeni Opera Gr.Lat. cum Notis Charterii, in 10 vol. Lutetia, 1679"; and it may be that it was bought for the Royal College of Physicians, which has this edition; it bears no trace of Sibbald's name, but this may be due to the fact that it has been rebound. Another edition of Hippocrates was that of Geneva (1657); it was entered as "Hippocratis Opera Gr.Lat. cum Notis Foesii." From the marginal prices in ink and pencil in the copy of the catalogue which the present writer has before him it would appear that the original owner of the catalogue had been ready to bid a guinea for the work, but it was sold for £1 7s. Another book which brought a good price was a Stephanus edition of *Medicae Artis Principes post Hippocrat. et Galen.* of 1567; it was bought for £2 10s. Most of the medical works, however, even among the folios, brought only one or two shillings, the quartos and more especially the octavos went for less, sevenpence being a not uncommon figure.

The languages in which most of the medical works of two hundred years ago were written were clearly revealed by the catalogue: among the 136 folios only four were in English and one in French; the remaining books were nearly all in

* BRITISH MEDICAL JOURNAL, June 3rd, 1922, p. 883.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF MEDICINE.

Sir THOMAS J. HORDER, Bt., M.D., F.R.C.P., President.

DISCUSSION ON DIABETES AND INSULIN.

PRESIDENT'S INTRODUCTORY REMARKS.

WHEN the Committee of this Section met to arrange the discussions which form its chief business, one subject occurred to all of us as being apposite. The fact which led us to choose diabetes for our first discussion was, of course, the introduction of insulin as a remedy for the disease. If we do not discuss insulin at this meeting of the Association our patients will be much surprised, and with good reason. If we do not discuss it they will probably assume, and again with reason, that we are quite satisfied that in insulin we possess a "cure" for diabetes, and that nothing more needs to be said on the matter. I am afraid a good many persons have already assumed this, and perhaps such an assumption is not surprising in view of certain generalizations that have got abroad and which, if they do not carry the hall-mark of authority, at least have not been authoritatively contradicted.

It is notoriously difficult to control popular ideas about new remedies. The wish is so much father to the thought. The very fact that such epoch-marking events as the discovery of insulin are rare takes popular credence, when they do come, farther than facts justify, and farther than the discoverer claims. And when the disease is a common one, as diabetes is; when it often baffles our best efforts, and terminates in dramatically lethal fashion, as diabetes does; then the public is on the tiptoe of expectation so soon as even a preliminary announcement is made of a remedy which promises specific results. The problem is regarded as being already solved, whereas it may well be that the successful preparation of this internal secretion of the pancreas will prove to be as great an asset to medical science by assisting the interpretation of phenomena hitherto obscure, as in the provision of a therapeutic agent in diabetes.

Only a superficial hearer will read into these remarks a detraction from the great value of Dr. Banting's discovery; in reality such remarks enhance its value. Has not the essence of the problem of diabetes hitherto been the almost certain fact that under that name we have been dealing not with one biochemical disturbance only, but with several? It seems probable that the use of insulin, controlled by careful observations, will not only still further establish this fact but will also help to mark off, much more clearly than before, certain very different types of cases of diabetes met with in practice. One result of this segregation we are already observing: certain cases of diabetes are benefited much less by insulin than are others, and this is so even when we make due allowance for all those collateral points in the dietetic part of the treatment, attention to which we know to be so important. Certain cases will, doubtless, be found not to be benefited at all. And if we do not make this position quite clear we shall see many patients suffer the bitter Nemesis of disappointment after entertaining a false hope for which we may, quite unwittingly, have been partly responsible.

Some very fundamental questions will be discussed to-day, and we shall hear the opinions of men who are well qualified to speak upon them. (1) If, as someone has aptly put it, insulin acts as a walking-stick to a lame pancreas, will some of the cases of diabetes that show such striking improvement under treatment by this remedy recover their lost power of maintaining a normal "blood sugar," so as to carry on without its help? (2) This question is bound up with another, of considerable significance: is diabetes necessarily a progressive disease? If it is, it follows that the outlook, even with the specific help of insulin, is still not good for the young diabetic. But if it is not, then the future need not be so gloomy, now that we are armed with this new therapeutic measure. (3) At what level should the "blood sugar" be maintained in order that the use of insulin shall be most effective? Should it be at the normal level, or should it be a little below the normal level, or should it be as low as possible, consistent with producing no untoward symptoms?—aiming, in this latter case, at resting the pancreas very thoroughly, and thus hoping for restoration of function. (4) Allowing that blood-sugar estimations have been imperative and essential to the proper study of insulin in treatment and to the control of dosage, will such estimations continue to be necessary in every case? (5) And, if so, can the general practitioner consider that either of the methods at present in use is practicable, and at the same time accurate? (6) If he may not, will it be a safe criterion by which to control the efforts he is making to increase the patient's diet to adopt the older method of estimating the urinary sugar? (7) And, if not, at how long intervals is it safe to seek the more scientific control of a blood-sugar estimation? (8) Can any general guide be given as to the best proportions of the main food principles which it is wise to employ in venturing upon an increase of diet when, by the use of insulin and by starvation, the blood sugar has kept within a normal range for several days? Should it be, for example, protein 4, fat 2, and carbohydrate 1, or some other ratio? Or, in this matter, must each case be regarded as a law unto itself? (9) Another question may arise: is there not a hope that the active principle of insulin may be isolated in such fashion as to enable us to administer the internal secretion of the pancreas by mouth, protecting it from the gastric juice by some suitable shield? Such a method of treatment would, of course, be a great boon, for not only would it obviate the necessity of such frequent hypodermic injections, it is highly probable that the ill effects of overdoses of the remedy, which are nowadays by no means seldom seen, would be much reduced both in frequency and in intensity. There is, I understand, such a preparation actually on trial. It will be interesting to hear of any results that have followed its use. (10) We shall, doubtless, hear about the abuses of insulin: how that the greedy glycosuric, despite expert advice, wheedles a less informed practitioner into administering it, with the hope that he (the patient) may thereby escape from the tedium of even a reasonable dietetic restriction, and how he may pay the penalty of his gluttony. We may also hear of undesirable symptoms produced by the use of insulin in cases of renal glycosuria. (I am glad that, at last, we are getting rid of that contradictory term "diabetes innocens.") It would probably be quite a vain request if I asked that in this discussion some consideration should be given to other aspects of diabetes than those concerned with insulin. (11) I refer to such matters as the relation of sepsis to diabetes, the question of the ultimate causation of the pancreatic cases—whether, for example, any here present have observations to offer (12) concerning the hypothesis that the disease is of infective origin—and the factor of (13) heredity, which is so mysterious. I do not propose to make any such request. Insulin is probably the greatest contribution yet made to the study of diabetes, whether we regard it as a remedy or as an incentive to further inquiry. If I were asked to name the two contributions next in significance I should instance the modern conception of diabetes in relation to treatment, and the establishment of the prime importance of "blood-sugar" estimations as the cardinal guide to our control of the disease, with the new and simplified methods of carrying out such estimations. I should like, in passing, to honour the men whose labours and whose genius have, by laying such a sure foundation in respect of these two things, helped so much to make Dr. Banting's discovery possible. These same principles are to-day enabling us to extract the greatest possible efficiency out of insulin. In face of these facts I cannot well ask for a discussion of other matters. Let us talk insulin.

Scotland.

CHANGES IN EDINBURGH UNIVERSITY CURRICULUM.

CONSIDERABLE changes in the course of study for medical students have been introduced as a result of relegating inorganic chemistry and physics to a preliminary examination which must be passed before the student registers for medical studies. The period thus gained is to be devoted towards utilizing the latter part of the curriculum for a more intensive study of medical subjects proper, as distinguished from the subjects of general medical science such as physiology, anatomy, pharmacology, and pathology. A considerable gain both in arrangement of study and in the length of time devoted is obtained for the clinical subjects, to which the student will in future devote three hours daily in the third year, the greater part of each day in the fourth year, and the whole day in the fifth year. According to the old arrangement, by which medicine and clinical medicine were taken in the third year along with pathology and pharmacology, the student, being confronted with the immediate prospect of examination in the two latter subjects, paid little attention to medicine and found himself at a corresponding disadvantage when the time of the final examination in due course arrived. By the new arrangement, which comes into force in October, 1923, the year of study is divided into three terms, autumn, spring, and summer, which are of equal importance. At the end of his second year, and before he approaches the clinical subjects, it is intended that the student should have a short course in "human" as distinct from "scientific" physiology, and in applied anatomy. In the third year the student will approach the study of medicine with an elementary course of fifty lectures in the autumn term, and will have a similar introductory surgical course of fifty lectures in the spring term, and a similar course of lectures on clinical therapeutics in the summer term. For clinical work in the third year, the whole number of students of the year will be divided into two sections, so that in small groups they will have introductory courses in clinical medicine, in minor surgery, and in clinical pathology, microscopy, and chemistry. Each of these three introductory clinical courses will occupy the hours from 11 to 1 throughout one term. The afternoons throughout the third year of study will be occupied by materia medica and pathology, in which the student is examined at the termination of this year. In the fourth year the students of the year will be divided into three groups to be known as the medicine group, specialties group, and surgery group respectively. All of these groups will attend together fifty lectures on midwifery in the autumn term, fifty lectures on advanced medicine in the spring term, and fifty lectures on advanced surgery, as also lectures on public health and on forensic medicine, in the summer term. As regards the clinical work of the fourth year, in the autumn term the medicine group will spend the hours from 11 to 1 in medical ward work and will attend clinical courses in fevers and vaccination in the afternoons. The surgery group will occupy itself from 11 to 1 with surgical ward work and anaesthetics, and with out-patient visiting in the afternoons. The specialties group will devote the hours from 11 to 1 to special clinics, such as those in the ear, nose, and throat, skin, and ophthalmological departments. In the spring term of this fourth year the students previously constituting the medicine group will become the surgery group, and those who in the autumn term formed the surgery group will change over to the specialties group. A similar change will be made at the beginning of the summer term. In this way every individual student of the fourth year will have had three periods of three months concentrated successively upon the study of clinical medicine, clinical surgery, and clinical specialties. During the fifth year there will be no systematic lectures to attend. There will be again a division into three groups, which will in rotation for three months each take up clinical medicine, clinical surgery, and clinical midwifery with pediatrics. The clinical medicine group will, in addition to clinical ward work, attend tuberculosis clinics and visiting of out-patients; the clinical surgery group will include in its work venereal diseases and operative surgery; and the clinical midwifery group, in addition to attending deliveries, will study ante-natal clinical work and diseases of children. With this intensive clinical work, which frees the final year from systematic lectures and aims at preventing that dissipation of thought and energy which is incidental to studying widely different subjects in the successive hours of each day, the student ought to be better fitted to meet his final examination and much better fitted for the subsequent responsibilities of practice.

England and Wales.

VOLUNTARY HOSPITALS COMMITTEE FOR LEICESTERSHIRE AND RUTLAND.

WE have received from the Voluntary Hospitals Commission, Ministry of Health, the first report, dated July, 1923, of the Voluntary Hospitals Committee for Leicestershire and Rutland.[1] The Commission's opinion that the grouping territorially of the two counties would produce an efficient working unit seems to be borne out both by the report and by a map embodied in the report showing the places from which patients were received into the Leicester Royal Infirmary during the year 1922. Mr. T. Fielding Johnson was appointed chairman of the Committee. The Leicester City Council was represented by Mr. C. J. Bond, F.R.C.S.; the consulting staffs of hospitals by Mr. W. I. Cumberlidge, F.R.C.S.; the medical profession of the city and county of Leicester by Drs. W. Moffat Holmes and R. R. W. Logan; and the Rutland medical practitioners by Dr. F. H. Wallace. Dr. R. H. Fagge was one of the representatives of the Voluntary Hospitals Commission.

The Committee dealt first with its duty of advising the Commission on applications from voluntary hospitals within its area for a share in the Government grant of £500,000. Of eleven hospitals approached on the matter, only two made application for a grant. In the case of the Leicester Royal Infirmary, the Commission approved the recommendation of the Committee, and made a grant upon conditions which were accepted by the Infirmary authorities. In the second case no grant was made. The Leicestershire and Rutland Committee then turned its attention to the next two terms of its reference: first, to collect information as to the needs of the area; secondly, to further co-operation between hospitals. Six tables are given in the report showing the accommodation and possibilities of service in the area, in addition to the map to which we have referred. From this map the Committee notes the well known tendency of patients to seek treatment from a central institution, passing by local sources of help in their journeys thither. The unique position of Leicester as a hospital centre and the facilities for co-ordination of service and for transport by ambulance are also shown. The Committee states that although the services in the counties are numerous and extensive no serious attempt has been made towards co-operative medical service or unification. Especially is this the case with regard to the auxiliary hospitals which might play an important part in an efficient hospital service for the area. These hospitals have no definite standard to which they can be called upon to conform. In some cases a local hospital fails to attract all the patients it might attend because only a portion of the medical practitioners of the area are attached to it. There is a disinclination to place patients under the care of a rival practitioner in the local hospital, and the waiting list of the central institution becomes congested. A contributory factor may perhaps be the feeling that such an institution must be better equipped both in personnel and material for dealing with serious cases—to the patient his own case is always serious.

To assist the Committee in considering hospital co-operation and co-ordination Messrs. Bond, Cumberlidge, and

[1] Leicester Co-operative Printing Society, Ltd., 99, Church Gate.

repeated at fifteen-minute intervals for the first hour and subsequently at the end of each hour, for four or five hours, and the results were plotted out in a graph. In a healthy individual and in certain forms of glycosuria, the percentage of sugar and the hydrolysis value of the blood were practically the same, the difference value never exceeding 0.01 per cent.; but in ordinary cases of diabetes the difference value curve was much higher, either fasting or at some period after the meal. By comparing the curves from a large number of cases with those exhibited by animals in which hyperglycaemia had been experimentally induced by various procedures, it had been possible to divide them into three main groups: (1) reversed curves, in which the difference value was abnormally high fasting but fell as the percentage of sugar in the blood increased after the meal, to rise again as it diminished later; (2) concurrent curves, where the rise and fall in the blood sugar after the meal were associated with a corresponding rise and fall in the difference value, starting from a normal fasting level; (3) unrelated curves, in which the difference value was normal in the fasting state, but rose to an unusual level several hours after the test meal, generally as the percentage of sugar is falling. The first type was characteristic of deficiency of the internal secretion of the pancreas, the second was met with where there was hyperactivity of the thyroid, pituitary, or other ductless glands, and also in disturbances of the nervous system; the third group embraced cases where defects in the storage powers of the tissues, and particularly of the liver, for carbohydrate existed. Various combinations of these types were met with, and particularly a combined concurrent or unrelated curve with a pancreatic curve, for it would seem that deficiency of the internal secretion of the pancreas eventually developed in all untreated cases of persistent hyperglycaemia, whatever the initial cause might be. Taking a consecutive series of 250 cases it was found that there was a pancreatic factor in 202, or 80.8 per cent., but that in only 114, or 45.6 per cent., was pancreatic deficiency the sole cause of the glycosuria and hyperglycaemia; in another 69, or 27.6 per cent., the liver was apparently mainly at fault, and in 61, or 24.4 per cent., simple concurrent curves were found; in addition, there were 6 cases (2.4 per cent.) of "renal glycosurias" showing normal relations between the curves.

These findings were of more than theoretical interest; they had an important bearing on treatment, for it was well known that the Allen fasting treatment was based upon experiments with depancreatized dogs, and the benefits arising from the use of insulin in diabetes were due to the supply of the internal secretion of the pancreas introduced into the circulation at each injection. So long, therefore, as there was a pancreatic element in the condition they should expect improvement to result from fasting or insulin, and if the pancreatic deficiency was due to functional and not organic changes in the gland permanent benefit would follow; but if the hyperglycaemia was associated with advanced destruction of the elements forming the internal secretion of the pancreas or was entirely dependent upon non-pancreatic causes permanent benefit would not be induced either by fasting or insulin, however long continued. His experience with the fasting treatment tended to support these conclusions, and, although it was as yet too early to make definite statements regarding insulin, it seemed probable that they were equally applicable.

Insulin might be used in the treatment of diabetes in three ways: (1) as a temporary aid to metabolism in emergencies, (2) to enable the patient to take a diet permanently in excess of his natural tolerance, (3) as a remedial measure. In the treatment of diabetic coma, in the control of serious acidosis, and as a prophylactic in surgical procedures, insulin was of inestimable value. It was also of great assistance as a permanent aid to the defective metabolic power of patients who without its help were unable to take a bare maintenance diet; but its use merely in order that a luxury diet might be indulged in, as was now very commonly the case, was both wasteful and unscientific. Excepting in emergencies and in special circumstances insulin should be employed solely as a remedial agent and only in properly selected cases and under carefully controlled conditions. By means of the diagnostic methods to which he had referred it was possible to determine whether a particular patient was, or was not, likely to benefit permanently from the treatment, and so to avoid unnecessary expense and the risk of failure with all its consequences in unsuitable cases. Essentially treatment with insulin was a means by which the effects of fasting might be obtained without the discomforts and dangers attendant upon prolonged abstinence from food, the injections enabling the work of the pancreas to be carried out vicariously and thus providing the physiological rest required for the recovery of its functions. Obviously, therefore, it was best employed in conjunction with the fasting treatment, or some modification of it, as Graham and Harris (*Lancet*, 1923, 204, p. 1150) had suggested. A permanent improvement of the food tolerance was only to be expected in those cases where experience had shown the fasting treatment to be of permanent benefit—that was, mainly in children and young people, where purely functional deficiency of the internal secretion of the pancreas was most commonly met with. Insulin was not a universal cure for diabetes, and he agreed with Joslin when he said (*Journ. Amer. Med. Assoc.*, 1923, 80, p. 1581) that "it is cruel for prominent individuals to make such a statement and arouse false hopes." In his opinion it was the most valuable means at our disposal for controlling defects of metabolism due to deficiency of the internal secretion of the pancreas, but it should not be looked upon as an empirical remedy to be given indiscriminately to all cases at present generally classified as diabetes. When its limitations and dangers, as well as its sphere of usefulness, were realized it would no doubt take its true place as a powerful aid in helping the recovery of a special form of metabolic defect.

Dr. GEORGE GRAHAM (London) spoke of results of experiments on patients in the medical professorial clinic of St. Bartholomew's Hospital. One patient, a severe type, who was always passing sugar in spite of starvation, was put on a diet of protein and fat up to 1,360 calories with 16 grams of sugar in the form of vegetables. In twelve days the urine was sugar-free and the morning blood sugar had fallen to 0.20. After six weeks the blood sugar was normal and remained so, although the calorie value was increased to 2,000 with additional protein and fat, and 80 grams of bread were tolerated. So far 20 cases had been treated on these lines; in 17 cases the blood sugar had fallen to normal, while in 3 other cases the blood sugar, although lower than before, had not yet fallen to normal. It was important to keep the blood sugar within normal limits, as Allen's experiments on diabetic dogs had shown that overworking of the β cells of the islands of Langerhans by doses of sugar caused degeneration of these cells. The aim should be to keep the blood sugar normal. The blood sugar should fall below 0.08 per cent. each day so as to rest the pancreas as much as possible. The results in cases of coma were so far good, two cases out of three having recovered; the third, who had a large abscess of the parotid, died three hours later in spite of 30 units of insulin; sepsis should always be thought of, as another case of coma had an acute otitis media. The dose of insulin varied in different patients; some would respond rapidly to 10 to 15 units, whereas others would need 40 to 60 units, and this could only be determined by cautious trial. Blood-sugar determinations were of assistance, but were not absolutely necessary. So long as sugar was present in the urine blood sugars could be dispensed with, but when the urine was sugar-free it was important to make estimation of the blood sugar occasionally as there was no other means of telling whether the blood sugar was 0.10 or 0.18 per cent. For blood-sugar estimations at this stage the blood should be collected either immediately before the insulin injection or about twelve hours after the last one. It was better to estimate the blood sugar as soon as possible, but the blood might be collected and preserved by the addition of potassium oxalate and one drop of 40 per cent. formalin per 5 c.cm.

Dr. J. A. NIXON (Bristol) said that it was a memorable occasion, which would mark the Portsmouth meeting in the history of the British Medical Association. They would be able to say, "I heard Dr. Banting's address on insulin." He proposed to take advantage of his presence to get enlightenment for his own ignorance. He had treated only

Correspondence.

MEDICAL CHARITIES.

SIR,—Under the above heading, during the past few weeks, I have watched wistfully the expressions of individual and collective beneficence; at long last, as one officially interested in the welfare of the Medical Foundation of Epsom College, I venture to plead on its behalf for a share of the publicity that, for better or for worse, has been monopolized by the very excellent Royal Medical Benevolent Fund. Like it, Epsom College dispenses many pensions—168 this year, if I remember rightly—to aged or disabled medical men, or if deceased to their dependants. But our greater work, and that that makes the more intimate appeal to the sympathies of our profession, is the bestowal of fifty foundation scholarships on the needy sons of deceased or disabled medical men. These afford, free of any charge whatsoever, a complete school education at Epsom College, which otherwise is a public school of the ordinary type, open to all, like Eton, Winchester, and the rest. The competition for these is keen and widespread. Writing away from London, I think I am correct in saying that the first boy on this year's list of six was the son of a widowed medical woman practising in India; and two other boys were the sons of fathers who held Scottish qualifications; this seems to guarantee the catholicity of our benefactions. For the maintenance of these scholarships, and for all that they imply and involve, we depend in the main on the generous support we receive from the annual subscriptions of members of the medical profession. With increased pecuniary support we could do much more, and do it better also.

Information as to the purpose and needs of the Medical Foundation will be gladly supplied by our Secretary, at 49, Bedford Square, London, W.C.1, or by myself, and the Secretary would also receive most gratefully any such help as has been foreshadowed in the letters that have appeared in your recent issues. My mind's eye looks forward to the day when my professional brethren, one and all, will come to look on the Medical Foundation of Epsom College with the same pride of possession as do the great societies that control and endow Tonbridge, Oundle, and other such schools, and I believe that they will help this vision to materialize. I have deliberately avoided allusion to matters of controversy; suffice it to say that if good will and good sense in concert cannot succeed by careful deliberation in determining or developing some *via media* satisfactory to all, I should despair of human nature.—I am, etc.,

August 26th. RAYMOND CRAWFURD.

VOLUNTARY BOARDERS IN MENTAL HOSPITALS.

SIR,—The 1922 report of Barnwood House Registered Hospital, by Dr. Townsend, is well worthy of your comment in your issue of August 25th (p. 337), and especially so are his remarks concerning voluntary boarders.

I have for years advocated:

1. That the report of the voluntary boarders for admission should contain the clauses of the Lunacy Act relating to their status, and that they should sign a statement that they have read and understood them.
2. That voluntary boarders should be kept apart from the chronic dements and noisy and dirty patients (I am afraid my experience tells me this is not always carried out).
3. That the period during which the medical superintendent could detain them, after they had given written notice of leaving, should be increased, in order to give adequate time for communication with the relatives.
4. That the Board of Control should be very broad-minded in their views as to "certification or discharge," and especially so with recoverable patients.

The recent suggestions of the Board of Control that voluntary boarders should not be placed under certificates while in residence in the mental hospital are no doubt the result of the well known law case of Miss Lilian Gaul *v.* St. Andrews Mental Hospital, which was carried to the House of Lords and dismissed in all the courts because the lady had not brought her action within the statutory period. Had she done so I venture a surmise that she might have obtained a verdict, and then the clauses relating to voluntary boarders might have been amended.

These clauses, if carried out as I have mentioned, and in no way abused, are most excellent, and the history of the cases in Barnwood House, as described by Dr. Townsend, speaks volumes as proof of their kind and successful treatment in this admirable institution. Nothing redounds more to the credit of a mental hospital than the contentment of its voluntary boarders.—I am, etc.,

Bournemouth, Aug. 26th. LIONEL A. WEATHERLY, M.D.

HEART DISEASE AND TONSILLAR INFECTION.

SIR,—I read with interest Dr. F. J. Poynton's lecture on the prevention of heart disease in your issue of June 2nd, 1923. Concerning the matter of focal infections which he refers to there are several points which I think might well be amplified.

He remarks that removal of tonsils does not prevent further attacks of rheumatic fever. Here one might suggest that the tonsils are not alone responsible, as focal infections, in the production of rheumatism. Under such conditions the removal of the tonsils will not benefit the case much. The antra and nasal accessory sinuses are not infrequently involved, also the mass of adenoid tissue in the nasopharynx. Again, the tonsils may not have been completely removed, for quite a small piece is sufficient to carry on the infection. Where recurrence has occurred careful investigation would probably have revealed some such condition, as it is not a matter of removing tonsils but of removing the breeding grounds of the organisms and doing away with their portal of entry.

Dr. Poynton is likewise not in favour of removing tonsils in rheumatic children when there is no evidence that they are diseased. The first point is to define what is a diseased tonsil. This, to my knowledge, nobody has been brave enough to attempt. If a mother has infected tonsils, how many months or days will it be before the child's tonsils are harbouring the same organisms?

Because nearly everybody's tonsils contain virulent organisms we have been apt to take it for granted that it is natural they should do so. This has resulted in a popular idea that the functions of the tonsil are to allow certain toxins to pass into the body to help build up its resisting powers. But there is nothing to warrant such an assumption, as people with infected tonsils are certainly not healthier than those without, which they would be if this assumption were true. The removal of tonsils does not lay people open to danger of having their resisting powers lowered, as experience shows us that they are very much improved in health after this has been done.

If, then, it is not the duty of the tonsils to act as a breeding ground for virulent organisms, it is very unwise of us to breed such dangerous things, as we never know the moment when they will turn on us and rend us. Such being the case, is it not better to exterminate, root and branch, such localities? Surely our lives are beset with enough evils without adding the dangerous pastime of seeing who can the longest breed the most virulent strain of streptococci and escape the undertaker. Unfortunately almost the whole population has become infected with certain pathogenic organisms, which are rapidly passed on from parents to children, as under present modes of living it is practically impossible for children to escape infection from their parents.

The appearance of the tonsil has very little to do with its infection, nor has its size. The whole point turns on, Are there any crypts capable of harbouring bacteria? If so, and the child is suffering from some rheumatic infection, failing to find any other possible focus the best treatment would be removal of the tonsils. There is very little risk incurred by so doing, very little inconvenience, and the benefits conferred are usually great.

There is so much hinged on tonsillar infection that a most thorough investigation should be made into the matter, particularly as to the age at which infection of tonsils takes place. Investigations should be made into the infection or otherwise of the tonsils in lower animals as well as the different races of mankind, for it would be interesting

From the figures quoted it would be apparent that an improvement might be looked for in the great majority of cases treated by the "Allen" method, a result quite in accordance with that of all others by whom it had been employed. But while the immediate prognosis was good, experience had shown that in hospital patients the end-results were far from satisfactory. It was rare to find a patient of that class who did not lose ground after discharge from hospital. Almost all who had been readmitted had shown a distinct loss of weight and a decreased carbohydrate tolerance, not infrequently accompanied by thirst, polyuria, etc. Unwillingness to adhere to the diet was responsible in many cases; but an inability to understand the rationale in some and the conditions of life, particularly at the present day, in others made it very difficult, even for those who were most anxious to keep well. Among private patients the prognosis was, of course, much better. It should be remembered that it was necessary to insist upon these patients reporting for examination from time to time. It was not uncommon to find a zealous patient grossly under-feeding himself without regard to his general condition in an endeavour to remain sugar- and acetone-free at all costs. One patient, a woman of 35, who had been under treatment two years before with good results carried on unaided until six months ago, when a recent but persistent cough and spit again brought her under observation. She confessed to long periods of semi-starvation with deliberate loss of weight, but she was proud of the fact that she had remained sugar- and acetone-free. The general condition had greatly deteriorated and there was an obvious tuberculous lesion at the right apex.

3. *Insulin.*—Ten cases had been treated with insulin and the result in each case had been a distinct improvement. All save two were cases of severe prolonged diabetes. With one exception they had all previously been in the wards under "Allen" treatment, four of them on more than one occasion. It was originally intended to put each patient upon what had been his optimum diet when last dismissed from hospital, but all had retrogressed considerably and this procedure could not be followed. Four cases, however, commenced treatment in this way, but in each case it was found that there was a considerable reduction in the carbohydrate tolerance, much sugar in the urine, some acetone and a high blood sugar. All had lost weight. An effort, not always successful, was made to render each sugar-free by starvation methods and thereafter to work up to what was considered a sufficient diet, using insulin to keep the patient sugar-free. The method adopted in determining the requisite dose of insulin was, briefly, as follows. To each patient was given a meal of known carbohydrate, protein, and fat content, called a "fixed meal," with increasing doses of insulin, and this procedure was continued until satisfactory blood sugar and urinary sugar results were obtained. From the information thus obtained a sufficient dose for an adequate diet was calculated in each case. A chart showed the effect of such a meal—carbohydrate 20, protein 18, and fat 25—upon the blood and urinary sugar curves obtained by hourly estimations in (1) a normal individual, (2) a diabetic without insulin, (3) a diabetic with insulin, in that particular instance 10 units. The fall in the curves in (3) was very striking. This method of treatment was most suited to chronic cases with a low carbohydrate tolerance. These patients were kept under their best weight and the blood sugar tended to run above normal limits. Two patients, adjudged to be cases of comparatively recent origin, were treated on the usual "Allen" lines, but the carbohydrate tolerance was low and acetone readily appeared in the urine. Sufficient insulin was given to keep the patients sugar- and acetone-free with a normal morning blood sugar and at a reasonable weight. This method, on the lines of that described recently by Graham and Harris, seemed to be most satisfactory in "early" cases. Four cases showed so pronounced a degree of acidosis that insulin administration with abundant carbohydrate had to be commenced at once. In these patients the urinary sugar was entirely disregarded during the earlier treatment, attention being directed to the urinary acetone and diacetic acid, the alveolar CO_2, and the ammonia-nitrogen ratio. Large doses of insulin, 40 to 60 units in the day, were given, the results being controlled by blood-sugar estimations 3½ to 4 hours after injection. In no case did any untoward symptoms follow such doses at this stage of treatment, and it would appear that so long as sugar and acetone were present in the urine the estimation of the blood sugar was unnecessary. When rendered acetone-free the treatment of these patients followed lines similar to that of those described above. All patients treated by insulin increased in weight, the gain varying from 1 to 8 kilograms. All showed a very definite improvement in general condition, mental as well as physical. In all save one case, sugar and acetone rapidly disappeared from the urine, the acetone sometimes with dramatic suddenness. The exception was a man admitted with marked acidosis, to whom insulin was given in large doses, but the urine was not rendered acetone-free for twenty-one days nor sugar-free for thirty-eight days. Attempts subsequently to reduce the dose of insulin in that case had always been followed by a return of sugar and acetone to the urine. He would appear to have no pancreatic tissue capable of recovery. A typical result of treatment was illustrated by another chart, which represented the later period of residence of a patient who on admission had shown 85 grams of sugar, much acetone and diacetic acid on a diet of carbohydrate 60, protein 25, and fat 5; he weighed 51 kilos. With an initial dose of 30 units of insulin and gradually decreasing doses he was kept sugar-free and acetone-free for twenty-two days upon carbohydrate 90, protein 80, and fat 100. During that time the blood sugar fell from 0.35 per cent. on admission to 0.10 per cent. fourteen days later, and thereafter the pre-breakfast blood sugar remained within normal limits. The dose of insulin was reduced to a single morning dose of 5 units upon an unchanged diet, but at that point the patient began to add unauthorized carbohydrate to his diet, and sugar appeared in the urine. Home circumstances compelled him to leave hospital, but subsequently he was able to continue on a diet of carbohydrate 80, protein 80, and fat 100, with a weekly starve day, without insulin, sugar- and acetone-free. His weight on dismissal was 52 kilos. The chart showed an undoubted increase in carbohydrate tolerance as the result of insulin treatment. It might be argued that a similar result could have been obtained in this case by "Allen" treatment alone, but on previous admissions the patient had shown a decreasing carbohydrate tolerance and a general downward tendency. So satisfactory a result would have been most improbable.

The effect of insulin had been to allow restoration of pancreatic function, but this would seem to occur not only in cases treated on low diet and with a normal blood-sugar level, but also in those who for one reason or another were given a full diet with larger doses of insulin and in whom the blood sugar was above normal. He had seen this strikingly illustrated in one private case so treated in which symptoms of hypoglycaemia had led to a gradual reduction of insulin dosage without increased urinary sugar and with very considerable general improvement. The morning blood sugar in this case was 0.18 to 0.22 per cent. and the diet had remained unchanged. A third chart contrasted the results of "Allen" and insulin treatment in a telegraph boy, aged 13, first admitted three years before. The acetone, blood sugar, urinary sugar, weight, and dismissal diet were charted in that order. It would be seen that the first period of treatment was very satisfactory. The second period, two years later, was not so good, although the urine was rendered sugar- and acetone-free and the patient gained slightly in weight; but the dismissal weight did not equal that of two years previously in a growing boy. The carbohydrate tolerance, too, had considerably decreased. His third stay in hospital six months later was entirely unsatisfactory. It was now found impossible to prevent his adding to his diet, and he was dismissed irregularly with acetone and sugar in the urine and his carbohydrate tolerance never discovered. The blood sugar, however, was brought below 0.15 per cent. In March of this year the patient was readmitted to hospital. He was now 16 years old and terribly emaciated, weighing only 24.5 kilos (3 st. 11 lb.). The blood sugar was 0.5 per cent. The urine contained acetone and diacetic acid and was loaded with sugar. He was incapable of moving himself in bed, all the reflexes were absent; and the skin was so tightly stretched over the bones that great difficulty was experienced in administering the comparatively

Space will not admit of a detailed description of how the brush should be used; it is enough to say that its stroke should be applied in the long axes of the teeth as one would brush the teeth of a comb, beginning on the gum margin, and that the brushing should be applied as carefully on the lingual as on the buccal surfaces of the teeth, the bristles being pushed between the teeth from inside and from outside to reach the interdental papillae. A dentifrice is of little importance in comparison with friction. Common salt is the oldest in the world and probably remains the best, but to keep the teeth clean, especially in the mouths of smokers, the occasional use of some paste or powder is a necessity. The tooth-brush, properly used, I believe to be the most powerful weapon we possess to-day in our fight against two diseases which are among the most prolific causes of ill health among civilized man.—I am, etc.,

London, W., Sept. 3rd. J. H. BADCOCK, L.D.S., M.R.C.S., L.R.C.P.

ACIDOSIS AND ACIDAEMIA.

SIR,—Dr. Cammidge's paper on acidaemia (August 25th, p. 318) is of great interest, and will go far to dispel the idea that the presence of acetone is indicative of acidosis.

The majority of children suffering from any febrile disease excrete acetone in their urine, and it seems probable that it is a more or less constant product of bacterial invasion in childhood.

If the measure of acidaemia is the amount of sodium bicarbonate required to alkalinize the urine, the test is surely of no clinical value. Dr. Cammidge gives half a gram per kilo of body weight as the necessary amount.

In a man of 10 st. this would involve a dose of 32 grams—more than an ounce—and for a baby of 11 lb. nearly 40 grains. Such doses are impracticable. They would need eleven times as much water to dissolve them, and they might have to be doubled. Less than a twentieth part of these doses of potassium bicarbonate is all that is necessary to render the urine strongly alkaline. Would not this drug be much more effective in neutralizing an acidaemia?—I am, etc.,

London, E., Aug. 25th. A. CAMPBELL STARK.

ETHER *VERSUS* CHLOROFORM.

SIR,—The correspondence on this subject could perhaps be prolonged with advantage because any advance in general abdominal surgery in adults is likely to be due in great measure to the work of anaesthetists. During my short experience as anaesthetist, involving some five thousand cases of general anaesthesia, it often seemed to me that the increased risk of complications arising from the use of ether was more than counterbalanced by the increased facilities obtainable surgically with chloroform. At that time open ether was just coming into extensive use in this country, but the semi-closed methods had not been employed to any great extent. Gas and oxygen, combined with suitable muscular relaxants, had not been employed, or not employed extensively in general abdominal work, so that I was unable to have any experience of it.

It will be generally admitted that with the exception of certain fracture cases, deep muscular relaxation is not required in operations on the limbs, nor in cranial, neck, or thoracic cases, so that in these almost any suitable method may be used. The question of muscular relaxation, to which I wish mainly to refer, relates to abdominal and perineal operations, and also includes the setting, extension, and completion of splintage in fracture cases. In the usually simple and rather mechanical procedures of most such operations it rests with the anaesthetist rather than with the surgeon to secure efficiency. When relaxation is good anyone of average ability and practice can do the operation with some degree of efficiency and speed, *but when relaxation is bad no one can do it properly.* For instance, I have had my hand so tightly gripped in a loin incision for nephrotomy that I could not remove it without tugging, and I have seen the sac of a left femoral hernia come down into the wound a further one and a quarter inches as relaxation progressed. Had this last operation been completed without relaxation being attained the whole of the sac would not have been removed and any recurrence of the hernia might have been attributed to non-employment of some special technique. Conversely credit does not belong to the anaesthetist in a gall-bladder case if the liver happens to be of the type that with rotation can be drawn out of the abdomen, or in a case if the kidney has a long pedicle and is non-adherent, but in the ordinary operations on these organs good muscular relaxation is essential.

The chief disadvantage of the etherized patient from the surgeon's point of view is that a really first-class degree of complete muscular relaxation is seldom attained. That it *may* be attained by relatively inexperienced administrators is well known, though it cannot be achieved with sureness by the experienced. The muscles of the etherized patient almost always have a marked degree of tone. This may render a systematic examination of the abdominal contents through an incision just large enough to admit the hand difficult. Under these conditions efficient closure of the wound may be a lengthy and tiring process, with a correspondingly increased liability to ventral hernia or to adhesion of the omentum or intestine to the scar, and with a distinct element of risk to the operator and his assistant from a needle prick in a septic case. Increased haemorrhage also may be a minor disadvantage of the administration of ether, from vaso-dilatation or from respiratory obstruction causing slight but cumulative cyanosis; but with the modern types of incisions a discount is necessary for the increased blood supply which they carry and also for any degree of inflammation that may be present. In intracranial operations increased haemorrhage or congestion may cause great difficulty. There seems to be a greater difficulty in maintaining a free, noiseless airway with ether than with chloroform, even when atropine has been given.

Until large figures for the bronchitis rate taken postoperatively for ten days by independent observers in different institutions are available we cannot assess the risks. I believe them to be much greater than is generally supposed.

When anaesthetists are prepared to measure muscular relaxation scientifically by means of a tonometer they will be able to improve greatly the purely surgical side of the matter. Such a tonometer could be made part of a wound retractor or could be adjusted on a limb away from the site of operation. Readings would be required for the different stages of the operation and the device would be of immense advantage to the anaesthetist himself. One practical way of estimating a medium degree of relaxation at the close of an operation is that in the absence of inflammation a continuous suture through the peritoneum and posterior sheath with a round-bodied needle just does not cut out as it is pulled taut.

There is a danger of the art of chloroform anaesthesia being lost. The student is taught it less and less and perhaps is overwarned of its dangers. Often chloroform is the method of choice, especially in outlying districts, or in certain operations involving a large exposure of a surface likely to ooze such as in a radical operation for carcinoma of the breast. Apart from spinal analgesia there is no greater degree of operative comfort to be obtained than by a skilled chloroform administration uncomplicated by any other drug. The slight degree of abdominal movement, the absence of excessive haemorrhage, and the high degree of muscular relaxation all materially shorten the operation and enable completeness to be attained. Any operator of experience knows that under these conditions the abdominal contents can be examined with ease and the abdominal wall can be accurately sutured in layers with considerable speed, whereas when the conditions are modified the process may become lengthy, tiring, and likely to cause shock.

It is a question how far the supposed increased risk, if any, from chloroform when given by an expert is operative in a patient whose lungs and heart are sound and in whom the airway is clear, especially if oxygen is given at the same time. In bad obstruction cases regurgitation may occur with any anaesthetic, even quite shortly after stomach lavage. Other risks such as rupture of an empyema

necessary at the outset of treatment. When two doses a day were required the larger should be given in the morning; the ideal dose just corrected the deficiency. It was easier to maintain the balance in long-standing elderly diabetics than in recent cases of the disease in young people. An attempt should be made to maintain the blood sugar at a normal level; a raised blood sugar furnished a stimulus to the pancreas and was to be avoided. When a patient was discharged from hospital in Toronto a long detailed letter was sent to the family physician, but by the time the patient left hospital he was thoroughly *au fait* with the routine.

The symptoms of hypoglycaemia included a feeling of uneasiness of impending disaster and trembling, incoherent speech, sleepiness, and hunger. In children, pallor, a rise in pulse frequency, and sweating were common. The rate of fall of blood sugar was potent in determining the onset of symptoms, which might not occur until the blood sugar reached 0.05 per cent., but it had been recorded as low as 0.032 per cent. before symptoms appeared. If the patient was comatose from an overdose of insulin consciousness was usually restored in two minutes by 10 to 15 minims of adrenaline, given subcutaneously, adrenaline having the power of rapidly turning out glycogen from the liver. When consciousness was restored by this means 10 to 20 grams of glucose might be given by the mouth.

Insulin kept at room temperature retained its potency for at least six months, but Dr. Banting had no knowledge as to the effect of the Indian climate on its activities. He said that there was no reason why diabetic patients should not be treated as well by the general practitioner as the specialist.

SECTION OF VENEREAL DISEASES.

Sir ARCHDALL REID, K.B.E., M.B., President.

DISCUSSION ON PREVENTION AND TREATMENT OF CHRONIC GONOCOCCAL PROSTATITIS AND VESICULITIS.

OPENING PAPERS.

I.—KENNETH M. WALKER, F.R.C.S.,

Lecturer in Venereal Diseases, St. Bartholomew's Hospital; Surgeon in Charge of Genito-Urinary Department, Royal Northern Hospital and Miller Hospital for South-East London.

CHRONIC GONOCOCCAL PROSTATITIS.

IN opening this discussion I do not propose to deal methodically with the routine treatment of this condition nor to discuss matters on which we are probably all agreed, but rather to select certain points which I believe to be important ones, and which I hope may furnish material for an interesting discussion.

No one will deny that the subject to which we are devoting our attention at this year's meeting of the Venereal Diseases Section of the British Medical Association is of the very greatest importance, not only on account of the complications which may arise during the course of a chronic prostatitis, but also because of the difficulties which we encounter in its treatment. The prostate furnishes for organisms an easy gate of entry into the blood stream, with the result that practically any structure in the body may become the seat of a metastatic lesion. Personally I am of the opinion that from an infected prostate a spread of organisms may take place by means of the lymphatics as well as by means of the blood stream. This opinion is based on an investigation I carried out a year ago on the subject of the lymphatic spread of infection after the operation of prostatectomy. By cutting sections and staining for organisms in the tissues I was able to trace the course of infection in fatal cases of prostatectomy by following the infecting organisms from their point of entry in the lymphatic spaces of the prostatic capsule to their arrival in such situations as the epididymis, the periureteral lymphatics, and the capsule of the kidney. While not wishing to suggest that the patient who has been left with a torn and infected capsule after the operation of prostatectomy is entirely comparable to the patient suffering from a chronic prostatitis, I think that the analogy is sufficiently close to render it probable that in addition to the spread of infection from an infected prostate by means of the blood stream infection may also be carried by the lymphatics. This spread, as we all know, is particularly common in the direction of the epididymis, but I believe that if a careful look-out be kept in all cases of prostatitis it will be found that infection of other portions of the genito-urinary tract is not so uncommon as is sometimes presumed. For example, if a microscopic examination of the urine be repeatedly made in all cases of chronic prostatitis renal casts will not infrequently be found for a short period of the disease, indicating that a transient infection of the kidney has occurred. This infection is rarely gonococcal but due rather to secondary organisms.

Chronic prostatitis, as the title of the subject for this year's discussion suggests, is almost invariably associated with a certain degree of infection of the vesicles. In this connexion I should like to point out an error in diagnosis which I believe to be a common one, and that is the error of labelling what is mainly a case of vesiculitis one of prostatitis. This mistake is in great part due to the anatomy books, in which the vesicles are described as two obliquely placed sacs that start at the mid-point of the upper border of the prostate, and pass upwards and outwards at an angle of from 30 to 45 degrees to the horizontal. A dissection of half a dozen bodies in the *post-mortem* room will be sufficient to convince anybody that the vesicles do not occupy the oblique position generally ascribed to them, but are *horizontally* placed organs lying along, and for the most part in intimate contact with, the upper border of the prostate. As a result of this close relationship with the prostate it is extremely easy for the examining finger to mistake the induration of a vesicle for an induration of the upper part of the prostate, and I have frequently found cases diagnosed as chronic vesiculitis which in my opinion were clearly cases of chronic prostatitis. Fortunately the treatment of the two conditions is in the main the same, so that the error in diagnosis is not of such importance as it otherwise would be.

TREATMENT.

I suppose that we are all agreed that of the therapeutic measures available for the treatment of chronic prostatitis prostatic massage is the most important, so that I may be pardoned if I dwell at some length on this subject. Massage of the prostate from the rectum achieves three objects:

1. It empties the prostatic follicles of inflammatory products, and thus assists in the drainage of that organ.
2. It brings fresh blood and lymph to structures that are the seat of chronic inflammation, and hastens processes of repair.
3. It drenches the blood stream with antigen and provokes a reaction similar to that produced by the injection of a vaccine.

As these points are of the greatest practical importance in the treatment of chronic prostatitis they will be considered in further detail.

I believe that it is generally supposed that the action of prostatic massage in emptying the prostatic follicles is a direct one—that is to say, that the finger directly expresses the accumulated contents of the gland. However, I am one of those who subscribe to the view that this is not the case, but that the emptying is mainly accomplished by the contraction of the muscle fibres surrounding the follicles. The prostate is a gland remarkably rich in muscle fibres. These are arranged circularly around the fundus of the prostatic glands and longitudinally in the neighbourhood of its duct, so that they are ideally disposed for the emptying of the gland. The fact that the muscle of the prostate is stimulated by the massaging finger is sometimes shown clinically by the sudden hardening of the prostate that is felt during massage. It is obvious that emptying of the glands will be accomplished much more effectively by the co-operation of the muscles than by the mere mechanical pressure of the massaging finger, and for this reason the question of whether the muscle of the prostate contracts during massage is not one of merely theoretical interest.

If emptying of the follicles is best accomplished by the action of the prostatic muscle, one is tempted to speculate whether a stimulus cannot be employed that is more effective than the massaging finger. I do not refer to such

June 2nd. The mouth could not be opened to its full extent until June 15th, and a quite perceptible "risus" continued till about this date. The neck muscles also remained hard, and the gait on walking was stiff and constrained for more than six weeks.

Tetanus fortunately is not common in civil practice, considering the number of wounds of daily occurrence in which there must be a risk of infection. Its unexpected onset after a trivial wound, the dramatic symptoms, the dread so evident in the mind of the patient, the dismay of the relatives, and the frequently fatal result make up a combination which taxes at the time one's resources to the uttermost, and leaves a lasting impression on the memory.

Theoretically every patient who suffers from a soiled or lacerated wound should be injected with a prophylactic dose of tetanus antitoxin as a matter of routine, and as is the practice in military service in time of war; but in civil practice, when the risk of infection may appear to be slight, one is apt to trust to a careful disinfection of the wound, and spare the patient the pain, trouble, and expense of the injection, the annoyance of the subsequent rash, and the possible risk of anaphylaxis should serum have to be employed at a later date for some other infection—for example, diphtheria. Is it justifiable to take this risk?

If unfortunately infection has occurred, at the earliest onset of any suspicious symptom antitoxin should be injected and pushed to extreme limits. In this case I used 88,500 units in the course of nine days, with no untoward results except the rash. The supposed advantage of intrathecal injection must be balanced against the risk and disturbance of the necessary anaesthetic. Chloroform had to be given freely to obtain sufficient relaxation of the spinal muscles, and the first and most violent convulsion occurred immediately its administration was stopped. Morphine gr. 1/4 subcutaneously every four hours was far more effective than chloral and bromide given by rectum in controlling spasms and inducing sleep. Constipation was a marked feature throughout. The catgut used in suturing the wound was at my request examined bacteriologically, and found to be sterile.

It would be interesting to hear the views of those with experience of tetanus:

1. As to the routine use of prophylactic injections of antitoxin in all soiled wounds, slight or otherwise.
2. The advantages of intrathecal as opposed to intramuscular injection of the antitoxin, and the dosage and length of time during which the injections should be continued.
3. The incidence of tetanus in special districts—for example, certain parts of Essex, from which several cases have lately been reported.

In conclusion I must add that the recovery of this patient was chiefly due to the devotion and resourcefulness of her two nurses, Miss Tillot and Miss Thompson, to whom it is impossible to be sufficiently grateful.—I am, etc.,

Wimbledon, Aug. 27th. JOHN A. HAYWARD.

The Services.

DEATHS IN THE SERVICES.

Surgeon Major Thomas Beard Farncombe, Bengal Medical Service (retired), died on May 16th last. He was the son of George Farncombe, was baptized at Bishopston, Sussex, on August 4th, 1830, and took the M.R.C.S. in 1851 and the L.S.A. in 1852, over seventy years ago. Entering the I.M.S. as assistant surgeon in February, 1854, he became surgeon-major in 1873, and retired in February, 1875. He served in the Sonthal insurrection of 1855-56, and in the Bhutan campaign on the North-East Frontier of India in 1865-66. At the time of his death there were only two officers senior to him on the retired list of the I.M.S., the late Surgeon-General Sir Benjamin Simpson, who died on June 27th last, and who, though senior in rank and length of service, was several months younger, and Deputy Surgeon-General Clarence Cooper.

Lieut.-Colonel Henry Armstrong, Madras Medical Service (retired), died at Thun, Switzerland, on August 14th, aged 68. He was born on October 29th, 1854, educated in Dublin, and took the L.R.C.S.I. in 1877 and the L.K.Q.C.P. in 1878. He entered the I.M.S. as surgeon in March, 1878, became lieutenant-colonel after twenty years' service, and retired on June 30th, 1908. He served in the Rumpa rebellion of 1879-80, in the Afghan war in 1879-80 (medal), and in the China war of 1900 (medal).

Obituary.

ERNEST FRANCIS BASHFORD, O.B.E., M.D.,

Adviser in Pathology, British Army on the Rhine; formerly Director of the Imperial Cancer Research Fund.

WE regret to record the death of Dr. E. F. Bashford, which took place suddenly from heart failure on August 23rd at Manderscheid, Eifel, Germany.

Ernest Francis Bashford was the eldest son of William Taylor Bashford, and was born at Bowdon, Cheshire, in 1873. He was educated at George Heriot's School and Edinburgh University, graduating M.B., Ch.B. in 1899, and M.D. (with gold medal) in 1902, after a very distinguished academical career. He had been Vans Dunlop Scholar in anatomy, chemistry, zoology, and botany, Mackenzie Bursar in practical anatomy, Whitman Prizeman in clinical medicine, Houldsworth research scholar in experimental pharmacology, Stark Scholar in clinical medicine and pathology, and Pattison Prizeman in clinical surgery. After graduating he travelled to Germany as holder of the McCosh Scholarship for study and research in the medical schools of Europe. At Berlin he studied bacteriology and pharmacology; later he was awarded a Grocers' Research Scholarship and studied at Frankfort under Professor Ehrlich at the Institute for Experimental Therapeutics. For a short period he was assistant to Professor Liebreich in the Pharmacological Institute of Berlin. In 1901 he won the Milner Fothergill Gold Medal in Therapeutics of the University of Edinburgh, and returned in the following year to Edinburgh as assistant to the late Sir Thomas Fraser. While there Bashford published his well known monograph on the pharmacological antagonism of atropine and morphine.

In 1902 he was appointed director of the newly founded Cancer Research Fund, a position which he held till 1914, when he resigned through ill health. During these twelve years he held a prominent position in cancer research in this country and on the Continent, and built up the organization of the Imperial Cancer Research Fund as an experimental research institute. He was president of the International Congress on Cancer held at Heidelberg in 1906. His work at the Imperial Cancer Research Fund will best be remembered by the numerous contributions on the zoological and ethnological distribution of cancer, national and hospital statistics, the phenomena of transplantability of animal tumours and the induced resistance to them. Into the controversies which raged around these topics he threw himself with enthusiastic energy.

Bashford served in the R.A.M.C. from 1915 till the end of the war, first in the Mediterranean Expeditionary Force, then in France, and afterwards in the Army of Occupation, holding the post of adviser in pathology up to a few months before his death. He was mentioned in dispatches and received the O.B.E. He leaves a widow and one daughter, to whom the greatest sympathy will be extended by all who knew him.

We are indebted to Dr. ARCHIBALD LEITCH, Director of the Cancer Hospital Research Institute, for the following appreciation:

Though he gave up cancer research nearly ten years ago we are saddened by the news of Bashford's death. As a comet suddenly appears out of space, blazes gloriously across the sky, and fades rapidly out of sight, so did that forceful and brilliant and wayward personality impress us. It is true that he had considerable experience of medical research in Edinburgh, Frankfort, and Berlin, but when he was chosen to be the first superintendent of the newly instituted Imperial Cancer Research Fund he was a young man almost wholly unknown, and certainly untried in the responsibilities of such an office as he was to occupy. But the choice of the selection committee was superlatively justified by the results he was to achieve. Speaking from an imperfect book acquaintance with the state of cancer research at the time, I should say that the outlook was not hopeful; the solid work of pathological anatomy and histology had been completed to the limits of usefulness, the chemistry and biochemical investigations of tumours offered little scope, the exploration of numerous hypotheses was

the operation of prostatotomy. Exactly why the incision of inflamed tissues should bring about a cure may not be readily explicable, but incision undoubtedly has a place, although a very small place, in the treatment of chronic prostatitis. In three out of the five cases referred to a small pocket of pus was found in the substance of the prostate, and the beneficial action of drainage was easily explained.

CONCLUSIONS.

Before I close I would again draw attention to the fact that in the preceding remarks I have not attempted to summarize the treatment of chronic prostatitis, but have contented myself with bringing forward certain points which I hope may serve as a basis for a discussion. I am fully aware of the fact that I have not even mentioned such important subjects as the prevention of prostatitis, the avoidance of complications, and the general treatment of the patient. Nor have I touched on that vital question, the standard of cure—a question that is certainly of paramount importance and one on which I shall look forward to hearing others speak. I have long been convinced that the value of these meetings lies in the discussion that follows rather than in the introductory paper, and I am sure that this year's meeting will prove no exception to the rule.

II.—DAVID WATSON, M.B., C.M.GLAS.,
Lecturer on Venereal Diseases, Glasgow University; Surgeon, Glasgow Lock Hospital; Surgeon, Venereal Department, Glasgow Royal Infirmary.

GONOCOCCAL VESICULITIS.

MY duty to-day is to introduce the subject of the prevention and treatment of gonococcal vesiculitis. The question of prevention resolves itself into the proper treatment of the primary urethral infection. If infection of the vesicles occurs after treatment has been begun, that method of treatment has failed in one of its essentials—namely, in the prevention of complications. It is therefore necessary to discuss the principles involved in the local treatment of gonococcal urethritis.

Let us consider first those cases which come under treatment apparently before infection of the posterior urethra has taken place. We are at once faced with the important question, Are we justified in relying upon local treatment applied only to the anterior urethra? Two main difficulties, it seems to me, prevent us from following that course. First of all, there is always some uncertainty as to the freedom of the posterior urethra from infection. There is an incubation period after implantation of the gonococcus in the posterior urethra, during which no recognizable signs present themselves. By the time pus is present in quantity sufficient to show in the second urine glass, a posterior urethritis is well established, and quite possibly the gonococcus is already within the vesicle. Then again, are we aware of any method of purely anterior treatment which not only will cure an anterior urethritis but will prevent backward spread? I cannot say that I am. It is always with reluctance and only when forced by the patient's circumstances that I prescribe treatment limited to the anterior urethra. While it is successful in the majority of chosen cases, there is a considerable percentage in which it fails to prevent infection of the posterior urethra, and then, the posterior infection being untreated, the risk of complications is increased.

Prevention of vesiculitis is, to my mind, prevention of posterior urethritis, and this I believe can be ensured once the anterior urethra has become infected only by local preventive treatment applied to the mucous membrane of the posterior urethra. All cases of gonococcal urethritis coming under treatment should as a matter of choice be subjected to treatment by the *grand lavage* of Janet. An antiseptic should be used which has been proved to be gonococcicide in a strength which is unirritating, and the lavage should be carried out at intervals which will maintain the mucous membrane in a state resistant to the gonococcus. Have we an antiseptic available which will satisfy these conditions? I think it will be generally admitted that potassium permanganate does so in strengths of from 1 in 8,000 to 1 in 4,000, applied at first every twelve hours in the weaker solution, and later every twenty-four hours in the greater concentration. My own preference, both from laboratory and clinical experience, is very strongly in favour of acriflavine, using 1 in 4,000 in physiological saline once in twenty-four hours. Experience has taught me that if this treatment is properly carried out and if the patient follows instructions as to his general conduct, extension of the infected area can be prevented almost with certainty, and that a posterior urethritis with its risk to the vas and vesicle will not occur.

It is true that with *grand lavage*, in spite of previous cleansing of the anterior urethra, gonococci would probably be carried into the posterior urethra and bladder, but they will be only in small numbers and intimately mixed with a gonococcicide solution, and the great majority, if not all of them, will be expelled when the bladder is emptied at the end of the treatment. Should any gonococci remain within the posterior urethra, they are in contact with a mucous membrane saturated with a solution which both experiment and experience have shown converts it into a medium unsuitable for the growth of the gonococcus. The clinical test is, however, the crucial one, and experience has proved not only that *grand lavage* is safe in use but that it is the most effective treatment for an anterior urethritis and that it acts as a preventive of posterior urethritis.

Now to consider those cases of gonococcal urethritis which come under treatment after infection of the posterior urethra, I think there is little difference of opinion as to the method of treatment to be adopted. *Grand lavage* is indicated in all except in hyperacute cases. But we can have no assurance that the gonococcus is not already within one or both common seminal ducts, and possibly beyond the reach of the irrigating fluid. It was shown by Low and Oppenheim that reversed peristalsis along the common seminal duct and vas deferens, induced by local excitation of the posterior urethra, is the means by which infection usually reaches the vesicles and epididymis. Infection of the vesicles through the lymphatic or circulatory system is possible, but must be relatively uncommon.

Protection of the whole region from any traumatism is therefore most important. No treatment involving the passage of any urethral instrument is permissible in acute urethritis. The only exception is in retention of urine which cannot otherwise be relieved, and then special precautions must be observed. Rectal examinations must be conducted with the utmost gentleness. The patient must be impressed with the need for protection of the perineum and scrotum from the slightest injury, and should be advised to rest as much as possible. A run on a motor cycle, or any similar excitation, is almost certain to result in conveyance of infection along the seminal duct. In addition to rest, I think atropine is of distinct value. Schindler proved that the tendency to reversed peristalsis can be inhibited by the use of atropine, and insertion into the rectum night and morning of a suppository of 1/100 grain of atropine has for some years been my routine practice in all cases of posterior urethritis. I have now much confidence in relying on the atropine to prevent complications. I find almost invariably that where vesiculitis or epididymitis develops in cases under treatment the use of the atropine suppositories for one reason or another has been neglected.

To recapitulate, the main point in prevention of vesiculitis is the adoption of a suitable treatment for the urethral infection, and in my experience the best has proved to be *grand lavage* with 1 in 4,000 acriflavine combined with the use of atropine, and, of course, protection from injury.

As to the treatment of vesiculitis, the means at our disposal may be divided into expectant and operative measures. In an acute case, rest in bed is essential. Hot sitz baths and hot rectal irrigations are useful for their sedative effect, for relieving pain in the early stages, and also for promoting absorption in the later stages. Diathermy is perhaps the most useful of all methods of treatment. Atropine as a sedative and as a prophylactic to prevent extension to the other vesicle or to either epididymis is also indicated. Vaccines as ordinarily prepared I have found more frequently to be harmful than helpful, but the detoxicated vaccines now available I believe may be used with safety, and occasionally they seem to be beneficial. Antigonococcal serums appear to vary in their qualities and to give unequal results.

way, all of which he was enabled to surmount. Dr. Masterman, with his long experience in Jerusalem, knew Dr. Torrance well and bears high testimony to his professional skill and his missionary qualifications. As a surgeon he was particularly successful and always kept abreast of the times; before the war he was regarded as one of the leading surgeons in the Near East. The onset of war with Turkey meant the break-up of his work, as of all missions in Palestine, and Torrance did valuable service at home in the R.A.M.C., being in charge of a Scottish hospital with the rank of major. On his return to Palestine he was able once more to reopen his hospital, and was awarded the O.B.E., a recognition by those in authority of the great value of his work.

The sudden death of Dr. CLARENCE ROBINSON from angina pectoris while on holiday at Ramsey, Isle of Man, on August 29th, caused much sorrow in the Warrington district. Dr. Robinson was a native of Cork, and received his medical education there; he took the diplomas of L.R.C.P. and L.R.C.S.I. and L.M. in 1903. He was for a time house-surgeon at the Ramsgate Infirmary, and afterwards visiting surgeon to Ramsgate and St. Lawrence Dispensary; subsequently he was for nearly two years in practice at Camberwell Green. In 1908 he took over a practice in Latchford, Warrington, near the Cheshire boundary, and very soon his professional skill and assiduity built up an extensive practice. He became an honorary surgeon to the Warrington Infirmary, and his skill as an operating surgeon was recognized by his colleagues. He was also surgical specialist to the Warrington Pensions Board. During the war he acted as a visiting surgeon to the Lord Derby War Hospital and to the Red Cross Hospital at Thelwall Heyes. He was a loyal member of the British Medical Association and of the Warrington Panel Committee. Dr. Robinson has been cut off suddenly in the prime of life—he was only 42—and in the height of success, and much sympathy has been extended from all classes to his widow and her two sons.

Dr. WALTER SMITH CHEYNE, V.D., died in Aberdeen on August 19th, aged 70, having been taken ill while on holiday at Dinnet, on Deeside, and removed to his home. He was born in Aberdeen, and educated at Stevenson's School, Aberdeen, and at the grammar school and university of that city, where he graduated as M.B. and C.M. in 1876, and as M.D. in 1884. He started in practice in Aberdeen in 1882, and at the same time joined the old Volunteer Force as surgeon, serving first in the Volunteers and later in the Territorial Force, up to 1916, when he retired in the rank of colonel. During the recent war he served as medical officer in the Highland branch of the R.F.A., and later in the Aberdeen Volunteer regiment. He received the Territorial Decoration in 1901. Dr. Cheyne was a member of the Aberdeen Division of the British Medical Association. He is survived by three daughters and one son, Captain D. G. Cheyne, M.C., R.A.M.C.

Dr. RIDLEY MANNING WEBSTER died on August 30th at Ealing, where he had resided since 1901. He was born in London in 1847, entered the Middlesex Hospital as a dental student in 1868, and duly qualified as L.D.S.Eng. Relinquishing dentistry, he took up medicine in 1874, and obtained the diplomas of M.R.C.S.Eng. and L.S.A., and later L.R.C.P.Edin. In 1881 he held two resident appointments at the Middlesex Hospital, under the late Drs. Cayley and Hall-Davis, and then settled at Muswell Hill, where he established a large practice and gained a high reputation as a medical practitioner. In 1884, under the stress of professional work, he contracted pleuropneumonia, from which he never really recovered, for it left him with the remains of an empyema, and a recent perforation of a crippled lung led to septic bronchitis. In 1900 he had the misfortune to fracture a patella, and as some disability following a delayed recovery he relinquished practice. A colleague, H. A. S., writes: Dr. Webster was a many-sided man, for beyond his professional gifts he was a naturalist, a skilled mechanic, an antiquary, and an authority on church architecture. A Cartesian in search of truth, though silent as to nature's mysteries, in his broad outlook he was a humanitarian, altruistic, humble, and self-denying. He did good work for the St. John Ambulance Association, and he was a member of the British Medical Association and of the North London Medical Society. He never married.

Dr. ALAN EVERLEY TAYLOR, surgeon of the s.s. *City of Calcutta*, died of heart failure after heat-stroke, at sea, towards the end of August. He was the son of Dr. Everley Taylor, of Langholm, Dumfriesshire, late of Scarborough, and was educated at Oxford, where he graduated as M.A., M.B., and B.Ch. in 1910, and at the Universities of Gottingen and Leeds. After graduating he filled the posts successively of house-surgeon, house-physician, and resident ophthalmic officer of Leeds General Infirmary. He took a temporary commission as lieutenant in the R.A.M.C. on December 28th, 1914, was promoted to captain after a year's service, and served as officer in charge of Ophthalmic Centre No. 82.

Universities and Colleges.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

Parkin Prize.

IN terms of the bequest made to the College by the late Dr. John Parkin, a prize of the value of £100, and open to competitors of all nations, is offered for the best essay, "On the curative effects of carbonic acid gas or other forms of carbon in cholera, for different forms of fever and other diseases." Essays (written in English) must be received by the secretary not later than December 31st, 1923. Each must bear a motto, and be accompanied by a sealed envelope bearing the same motto outside, and the author's name inside. The successful candidate must publish his essay at his own expense, and present a printed copy of it to the College within three months after adjudication.

CONJOINT BOARD IN IRELAND.

THE following have been approved at the examination indicated:

FINAL PROFESSIONAL.—Jane A. Brennon, F. S. Bourke, H. Bugler, P. J. Clarke, S. L. Christie, S. B. Carlisle, Dorothy M. Coulson, S. H. Ervin, F. B. Harrison, P. Kilcoyne, P. S. McCabe, P. J. C. MacDonnell, Iris P. Nelis, Mary R. Nolan, T. V. C. Nolan, D. M. F. O'Connor, J. F. O'Connor, Anne O'Connor, A. T. O'Grady, C. B. D. O'Hennaghan, Helen P. Regan, Mary A. Ryan, J. D. Sayers, R. E. Sadlier, S. L. Simon.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—E. N. C. Annis, E. E. E. Attale, A. Cawadias, H. S. Chadwick, H. T. Chiswell, C. J. Fox, K. P. Hare, G. A. Lord, H. Maclachlan, M. A. E. Somers, J. N. Wheatley.

MEDICINE.—E. E. E. Attale, A. Cawadias, J. H. Cooper, J. B. Couche, J. Crawford, C. J. Fox, K. P. Hare, *M. S. Mahmud, W. R. H. Pooler.

FORENSIC MEDICINE.—E. E. E. Attale, A. Campbell, A. Cawadias, K. P. Hare.

MIDWIFERY.—E. E. E. Attale, E. N. C. Annis, A. Cawadias, H. S. Chadwick, R. S. Chambers, K. P. Hare, G. A. Lord, Y. Nadan Lal, H. J. Powell, J. N. Wheatley.

* Section II.

The diploma of the Society has been granted to Messrs. E. E. E. Attale, A. Cawadias, H. S. Chadwick, and K. P. Hare.

Medical News.

THE annual dinner of the past and present students of St. Mary's Hospital Medical School will take place at the Connaught Rooms, Great Queen Street, W.C., on Monday, October 1st, 1923, at 7 for 7.30. Mr. V. Warren Low, C.B., F.R.C.S., will be in the chair. The honorary secretary is Dr. Hope Gosse.

THE Governors of St. Bartholomew's Hospital have appointed Sir Robert Armstrong-Jones, C.B.E., M.D., to be consulting physician to the department of psychological medicine.

A SERIES of lectures and demonstrations will be delivered at the Royal Sanitary Institute during the coming autumn. A course for sanitary officers will commence on Tuesday, September 25th, comprising the subjects scheduled for the examination of the Institute and the Sanitary Inspectors' Examination Board; inspections and demonstrations have been arranged in connexion with this course, including visits to public and private works illustrative of sanitary practice and administration, with demonstration of the routine of an inspector's office work and duties. A course for meat and food inspectors begins on October 5th; the course consists of

in suppository antifebrin gr. iv in the place of morphine, to relieve pain; in the subacute and chronic cases I combine with it ichthyol m v, to aid in resolution of the perivesiculitis and prostatitis. In some hyperacute cases, for example, with retention or extreme frequency I have found protein therapy of great assistance in giving rapid relief, and have a preference for sulfarsenol, 18 to 24 cg., repeated if necessary in forty-eight hours. The method of artificially reversed peristalsis which he suggests I have tried in two cases and have no doubt that in both the condition was made worse. Like Dr. Watson, I am of opinion that few cases call for either vesiculectomy or vesiculotomy. In some five cases which I have seen, in which the latter operation had been performed, the results were not good, and there are few cases that will not clear up with more conservative methods of treatment. Vasostomy or vasopuncture is a much simpler procedure, and in cases which fail with other methods it is often helpful, if only from the protein reaction to the collargol or other chemical injected. The best operation for vasostomy is Clinton Smith's modification of Belfield's operation.

Mr. Kenneth Walker's paper is replete with important histological, anatomical, and pathological information, and stimulating in the many suggestions it offers for new lines of therapy. Lymph spread of infection is, I agree with him, more common than is generally accepted. The anatomic relationship is an important one, and vesiculitis is often undiagnosed; but as the treatment of prostatitis is on the same lines, and as in quite 75 per cent. of cases both tissues are affected, accurate diagnosis is not an absolute necessity. For accurate diagnosis the knee-elbow position is essential during rectal examination, and during massage and bimanual palpation it is of great assistance. Prostatic and vesicular massage is almost the most important and certainly the least practised method of therapy among the general body of practitioners. In a chronic case with resultant fibrosis the cellular infiltration in and around the prostate lessens the normal and fairly good blood supply, and massage certainly improves this by causing absorption of the deposit. In addition to the three objects mentioned by Mr. Walker, it also improves the general body tone by introducing into the general circulation a better supply of the internal secretion of the prostate. I cannot subscribe to his theory of faradic stimulation of the muscle fibres of the prostate and periprostatic tissues being nearly so efficient as digital massage, which not only acts mechanically but in addition stimulates any striped muscle fibre present. I should like to ask Mr. Walker if he considers the index of efficiency of any method of massage to be the amount of secretion appearing at the meatus subsequently. Is not this dependent more on the position of the patient and on the thorough technique of the operator? There is the added objection to the electric masseur that it is not within the reach of the average general practitioner. It is of interest to find Mr. Walker in one paragraph having a new and rather alarming-looking electrode made for him for therapeutic purposes, in the next faintly damning the Great Metallic Age. Overinstrumentation, especially in posterior urethritis, is no doubt bad, but in diagnosis and in the observation of the effect of treatment the urethroscope is invaluable in the lower genital tract, and in the treatment of the anterior urethra the expanding and flushing anterior Kollmann is a great advance on solid instruments and much more scientific in its method of action. The posterior instrument is not so generally useful. I agree with him, however, that bacteriological methods combined with biochemical hold out a greater hope of finality in treatment and in permanance of cure. I referred to the value of sulfarsenol in acute vesiculitis; in chronic cases I have tried this drug, but not with great success. Non-specific serums and aolan have not been any more successful in my hands. Iodides by mouth and intravenous injections of collosol iodine in combination with prostatic massage are helpful and in conjunction with vaccine therapy will clear up most cases. In chronic vesiculitis and prostatitis mixed infection is so often present that an autogenous vaccine is very helpful, and if possible in a chronic case I combine a polyvalent detoxicated gonococcal vaccine with the autogenous prepared from the prostatic and vesicular contents. The vaccine should, as Mr. Walker states, be given on a different day from the prostatic massage.

The value of diathermy has been emphasized by both Mr. Walker and Dr. Watson; I had the privilege yesterday of hearing Dr. Cumberbatch and Dr. Robinson's excellent papers on their work at St. Bartholomew's Hospital. I was more impressed with the results in mild cases of acute epididymitis than in those of chronic prostatitis and vesiculitis. The results in urethritis of the male were, they admitted, disappointing. What is difficult for me to reconcile is Dr. Cumberbatch's statement that diathermy in the doses given is a mild sedative and does not irritate, with its reputed action in what is essentially a chronic fibrotic condition. There must be, as Dr. Robinson suggests, more than the production of deep-seated heating, and it may be the frequency of the oscillations or it may be the action of the heat on the cellular elements. The important points, I gathered from Professor Russ, were: (1) the strength of the current, (2) the time applied, and (3) the current density, and probably the interaction of all three. It is no doubt a possible and very helpful adjuvant to the treatment of chronic lesions of the posterior urethra, but after discussing it with Dr. Robinson I must say candidly that I am not yet convinced that it will supplant other more simple and time-honoured methods, such as careful digital massage in combination with specific vaccine therapy, which relieves and clears up the great majority of cases.

Mr. A. CAMBELL (Portsmouth) said:

I would like to express my appreciation of the papers read by Mr. Kenneth Walker and Dr. David Watson. We have been given much food for thought and much help in treating such obstinate conditions as chronic prostatitis and vesiculitis. To a large number of our medical brethren these two terms are mere names, and their connexion with metastatic lesions such as iritis, muscular rheumatism, and fibrositis is often overlooked. In my experience a very large number of men from 35 onwards suffer from these complaints, and I think, therefore, the subject is of the utmost importance and we are justified in selecting it for discussion.

I would like to deal with a few practical points in prevention and treatment. In the first place, in spite of all attempts that have been made to find a drug which will attack the gonococcus through the blood stream similar in action to arsenobenzol, at present we have no means in our possession which will cut short an attack of gonorrhoea by a single day. We still have to rely on the natural forces of the body to overcome the infection, and we can only aid them by local treatment. At the same time, we have to apply what remedies we possess in a careful and judicious manner in order not to aggravate the disease and produce the complications we are dealing with to-day. It is well known to all of us that too strong and too violent irrigations frequently have the effect of increasing the severity of the attack. Too early and too vigorous massage may bring on epididymitis and may produce prostatic and vesicular abscess. I have laid down the following rules in treating acute gonorrhoea:

1. Never to force irrigation on unwilling or nervous patients. The urethra in them may be so sensitive that the introduction of a foreign body—which after all every fluid is—may set up severe irritation and congestion of the posterior urethra, favouring an extension of the inflammatory process.

2. Never to attempt posterior irrigation for the first week and not to irrigate at all whilst the attack is in a very acute stage with oedema of the penis or blood-stained discharge. At the clinic, where the patients carry out their own irrigations, they can be trusted generally not to do anything that will cause them pain or discomfort, and I think these should be regarded as certain signs of intolerance.

3. Never to massage the prostate and vesicles for diagnostic purposes until the urine is clear, except, of course, for threads and flakes, and until the discharge has ceased for fourteen days. In the acute stage, when the urine contains a large amount of pus, I merely examine the prostate lightly, and if there are any signs of acute prostatitis or vesiculitis the patient does not irrigate until the acute stage has subsided.

infant and remains so for at least three months, and, allowing for the handicap of time, less heat is produced on its expected birthday than is the case with the full-term infant during the first week of life.

168. Clinical Studies on Insulin.

N. G. RUSSELL, B. D. BOWEN, and G. W. PUCHER (*Buffalo General Hospital Bulletin* (U.S.A.), April, 1923, p. 41) record their results in the insulin treatment of severe cases of diabetes mellitus. The preparation used was "iletin"—the name given to the insulin manufactured by Messrs. Lilly, by agreement with the University of Toronto Insulin Committee. The results in six cases of severe diabetes are recorded in detail. They show the power of insulin in checking temporarily the glycosuria. Their results are in accord with those of other investigators, showing that we now possess another means of managing diabetic cases, in addition to the restriction of diet, especially in the severe stages of the disease, where dietary treatment alone is unsatisfactory and often without avail. The sugar tolerance was quite definitely increased in one case, and slightly increased in a second case; but the authors think that if these patients had received dietary treatment prior to the administration of iletin an increase in tolerance might not have been effected. In their small series of cases the glucose-iletin ratio appeared quite constant—2 to 3 grams of glucose equalled 1 unit of iletin. No bad results of the iletin treatment were noted; but the authors point out that the iletin was apparently carefully standardized, the cases treated were all severe, and care was taken to keep the blood sugar well above normal. The majority of their patients injected the iletin themselves. Four cases of diabetic coma are recorded in which insulin treatment was tried. Only in one case could the treatment be carried out fairly promptly, and in this case the patient was twice restored to consciousness from deep coma by the use of iletin; but unfortunately the patient died of intercurrent pneumonia. In two other cases of diabetic coma temporary improvement followed, but both ended fatally. In a fourth case the iletin was given very late; no improvement followed, and the case ended fatally. Two charts of blood sugar in a case of diabetes are given showing the striking effect of iletin upon the utilization of glucose given by mouth.

Surgery.

169. Rupture of the Intestine without Immediate Symptoms.

A. FLACH (*Schweiz. med. Woch.*, July 12th, 1923, p. 673) records the case of a man who was upset from a bobsleigh, and who cut his face somewhat. He got up at once and walked without help to hospital to have his cuts attended to. They were sutured under local anaesthesia, and a nurse was instructed to give him morphine if the pain of the cuts became excessive after the effects of the local anaesthetic had worn off. When the author saw the patient two hours after attending to his wounds he was informed that the nurse had given him morphine. He had vomited blood ten minutes later, but as he had fractured the septum of his nose it was thought that the blood might come from the nose. The temperature was only 35.8° C. and the pulse of 72 was strong. The abdomen was somewhat retracted and painful, but not very hard, and there was no definite dullness; the liver dullness was normal. The patient could not pass urine, and a catheter specimen was clear. While waiting for a consulting surgeon the patient had severe abdominal pain, for which an injection of pantopon was given. He vomited ten minutes later. By now the temperature in the rectum had risen to 100.2° F., and there was slight dullness in the left iliac fossa. It was agreed in consultation that an exploratory laparotomy was indicated, but the patient no longer felt any pain, and when he got on the operation table he enforced his protests against an operation by drumming vigorously with both fists on his abdomen. The operation was, however, performed, and a 20 cm. rent was found in the jejunum. Resection of the gut was followed by complete recovery.

170. Resuscitation by Intracardiac Injection of Adrenaline.

P. B. CHAMPLIN (*Journ. Amer. Med. Assoc.*, July 21st, 1923, p. 202) reports a case of resuscitation by the injection of adrenaline chloride directly into the heart. Following caudal injection of 0.5 per cent. novocain, preliminary to performing the second stage of a suprapubic prostatectomy, the patient stopped breathing. Unsuccessful attempts were made at resuscitation by the aid of artificial respiration, oxygen, camphorated oil, and atropine sulphate. The radial pulse was imperceptible, and no cardiac sounds could be elicited over the precordium. The patient's arms were slightly spastic and the pupils were contracted. A 10 c.cm. syringe, with a long spinal puncture needle, was procured, and an injection of 10 c.cm. of a 1 in 1,000 adrenaline chloride solution was given directly into the left ventricle of the heart through a puncture about 5 cm. to the left of the sternal margin, in the fifth intercostal space. This was done about five minutes after the patient had collapsed. The result was almost instantaneous. The heart began beating so vigorously that the pulsation of the abdominal aorta was seen through the abdominal wall within thirty seconds of the injection. There was a strong rapid radial pulse and, at first, feeble respirations, which later became full and strong. The blood pressure, taken about five minutes after the injection, was 200 systolic and 110 diastolic, the same as on entrance to the hospital, but the systolic pressure was 40 mm. higher than it was just preceding the operation. The patient showed no ill effects, except for a single instantaneous sharp shooting pain over the precordium late in the following day. The operation was completed about a week later, under caudal anaesthesia. The prostate was found to have a malignant growth, which on *x*-ray examination showed metastases in the lungs. The patient was discharged twenty-five days after the second operation with symptoms of lung metastases, but able to be up and about.

171. Gastro-colic Fistula.

G. P. PRATT (*Annals of Surgery*, April, 1923, p. 433), in considering the etiology of these fistulae, classifies the causes in the following order of frequency: cancer, ulcer, following gastro-enterostomy, abscess, and tuberculosis. When due to cancer the primary lesions are more common in the stomach than the colon; generally the viscera are united on a fairly large surface. In other cases there is an intermediate cavity surrounded by adhesions through which the stomach and colon communicate. When due to cancer it is between the transverse colon and pyloric end of the stomach, as a rule. Abdominal pain, discomfort and distension, offensive eructations, faecal vomit, and the similarity of the vomitus and the stools should arouse suspicion of a gastro-colic fistula. Confirmation can be made by the following procedures: Loss of fluid by gastric lavage, as may be seen in hour-glass stomach, recovery of faecal material by lavage, recovery from the stomach of material administered as an enema. Barium meal with *x*-ray examination and a barium enema are useful aids in diagnosis. On account of the symptoms and digestive disturbance with its inevitable fatal issue laparotomy is indicated, but when carcinoma is the etiological factor little can be done. The gastro-colic fistula following gastro-enterostomy due to ulcer or peritoneal infection offers a better prognosis. There is always the possibility that the causative condition may be removed and the openings successfully closed.

172. Treatment of Pyuria in Childhood.

E. FAERBER and D. LATZKY (*Deut. med. Woch.*, June 23th, 1923, p. 847) comment on the confusion which still exists as to the etiology and the best treatment of pyuria in childhood. The pus probably comes in most of these cases from the kidneys rather than the bladder, and only in 2 out of 3 cases coming to necropsy did the authors find extensive changes in the lining of the bladder. Cystoscopic examination of 20 children suffering from pyuria invariably showed cloudy, purulent germ-laden urine escaping from the ureters, and only in 2 of these 20 cases was the bladder appreciably affected. Of late years there has been a growing tendency to associate pyuria with general infections such as influenza, measles, and scarlatina, and localized infections such as naso-pharyngitis, and in about half the authors' cases some such general or local infection preceded the outbreak of pyuria, the interval between the two being so short that there could be little doubt as to their relationship. The treatment of pyuria in childhood is still most unsatisfactory, the more so because the standards by which the effects of treatment are judged are remarkably loose and shifting. Some writers claim cures in cases in which the urine is still infected, while others believe only in cures being complete when the bacteriological as well as the clinical evidence is in their favour. The authors have analysed the results of their treatment of 164 children, classifying them according as they were infants or older children, and according as they were in-patients or out-patients. The out-patients were treated only with salol, urotropine, acids, or alkalis, other treatment being seldom given. The in-patients had a greater variety of treatment, and when salol, urotropine, and other urinary disinfectants proved futile, vaccines, salvarsan, and other remedies were tried. It would be natural to expect the in-patients to show better results than the out-patients; but while only 25 per cent. of the in-patients were cured after six weeks' treatment, 56 per cent. of the out-patients were cured

summation of signs and symptoms which go to make the basis of our prognosis.

After a considerable experience in the use of electro-cardiography as a purely clinical method, some conceptions have seemed to be helpful in conveying to students our ideas as to what exactly is the information we obtain through this galvanometric record. In the first place, it is to be recognized that we have a galvanometric record which represents the summation of all the fluctuations of electric potential that occur between the sites of application of our electrodes. If we consider this fluctuation of potential from the point of view of the electronic theory—which theory is fundamental in modern molecular physics, and is the accepted basis of all practical teaching in "wireless"—we may look upon the electro-cardiogram as representing merely an electronic pulsation in the body. We also must realize that we can pick up this electronic pulsation by electrodes placed on the body in any such position that the heart influences the circuit between them. The electro-cardiogram obtained varies in its form according to the position the electrodes occupy relatively to the heart, but in all cases it is to be remembered that the galvanometric record can only be a summation curve of variations of potential which occur during the cardiac cycle.

It may be added that where the electrodes are in a fixed position the electro-cardiogram may be altered by a change of the position of the heart relatively to the electrodes; this, for instance, occurs markedly in the third lead (left arm—left leg) in some people where the heart moves considerably with respiration.

As a result of the work of Sir Thomas Lewis and others this electro-cardiogram has been analysed with most illuminating results. To follow this analysis is difficult for those not well versed in electro-cardiography, but to-day all students who come to the bedside have a working knowledge of the "mechanism of the heart beat" due to the efforts of these investigators. Thus we know that the starting-point of the heart beat is at the sinus node or "the pace-maker," spreads over the auricle, reaches the auriculo-ventricular junction, and inaugurates there the changes which lead to ventricular contraction. This stimulus for ventricular contraction first traverses the bundle of His, the A-V bundle, which bundle divides into right and left branches to supply the respective ventricles. In dealing with the conduction of the impulse in this A-V bundle system it may be noted that Keith Lucas mentions the work of Mines and Rocke, which suggests that the whole system may be analogous to an enormous myoneural junction.[1] At any rate, the ventricular conducting system, as known to-day, consists of four distinct portions—namely:

A. The undivided A-V bundle.

B. The right and left branches of the bundle.

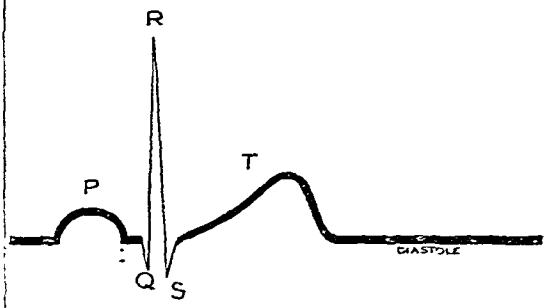
C. The enormous arborization formed by the division and redivision of these branches into an interlacing network of fibres lying beneath the endocardium all over the inner surface of each ventricle.

D. Extending from the arborization, filaments of this conducting tissue pass in amongst the branched fully striated true muscular fibres of the myocardium, to end in relation with the semi-striated Purkinje fibres.

It is necessary to visualize this conducting mechanism, and this may be helped by comparing it to the ignition system in a two-cylinder motor engine, but remembering that the cylinders (that is, right and left ventricular chambers) must be ignited simultaneously. We have two wires, one leading to each cylinder. These represent the A-V bundle branches. When we consider the cylinders, we have, not one point of ignition, but we have innumerable points all over the myocardium which represent, as it were, the sparking plugs. In order that these sparking plugs may be ignited simultaneously we have the tremendous arborization formed by branching of the A-V bundle. The advantages of this enormous anastomosis are obvious. It means that it would be extremely difficult to block the impulse once it has got past the larger branches of the bundle, and also that if there is a block in the anastomosis at any point it will need to be of very considerable magnitude to have any effect upon the igniting stimulus.

To follow up the analogy, and by means of it to interpret what Lewis and others have shown us experimentally, we have to form the conception that once an impulse reaches the arborization it will spread all over the myocardium in what we recognize as a relatively short period of time. We also have to realize that if the impulse arrives or starts in one cylinder or ventricle, it will spread almost simultaneously through the arborization into the other cylinder or ventricle. This allows us, therefore, to explain why the heart will contract, apparently normally, so far as all our clinical findings go, after there has been a lesion which completely destroys one of the branches of the A-V bundle. It was by accurate and scientific tracing of the spread of the electrical excitation over the living ventricle that these investigators have shown us how the stimulus spreads, and how an electro-cardiogram can be made to alter as the result of the injury of one or other branch of the A-V bundle. It seems to-day that the electro-cardiogram has placed us in such a position that we are able to localize a lesion which occurs in the ventricular conducting system of the heart.

The recognition of a complete heart-block—that is, a lesion in the undivided A-V bundle, where the auricular impulse fails to pass to the ventricle, and the ventricle beats at its idiopathic rate—is a simple matter when an electro-cardiogram is available. The certainty of the presence of a complete, incomplete, or partial heart-block is, of course, a very great factor in forming a prognosis.



"P" IS DUE TO THE AURICULAR CONTRACTION

Q R S AND T ARE DUE TO THE VENTRICULAR CONTRACTION

FIG. 1.—Diagram of normal electro-cardiogram.

Without going into a very detailed consideration of the electro-cardiogram, it may be sufficient to say that in the diagram above (Fig. 1) the Q.R.S. group of deflections are taken to represent the summation of the changes which follow the flow of the impulse along the right and left branches of the A-V bundle. How much of this electric change is due to the spread in an arborization of the branch we do not think can be taken to-day as settled. There is no doubt, however, that amongst those using the electro-cardiograph it has become recognized that certain changes in the electro-cardiogram indicate a lesion, either temporary or permanent, in the right branch of the bundle, and an opposite variation indicates a lesion in the left branch. Figs. 2 and 3 show the electro-cardiograms in such a lesion.

From a practical point of view in clinical medicine the importance of these electro-cardiographic records lies in the fact that, taken statistically, they indicate a very grave prognosis, and it must be borne in mind that there is no other means at present except the electro-cardiogram of diagnosing such a lesion.

Dr. Willius, of the Mayo Clinic, recently published a most important set of statistics bearing upon the value of the electro-cardiogram from a prognostic point of view.[2] Taking his figures in connexion with this physical sign of a bundle-branch lesion or arborization block lesion, he gives the following summary of 112 cases:

"The cardiac mortality attending aberration of the Q.R.S. complex in all derivations of the electro-cardiogram practically trebles that of the control series.

a somewhat lessened malignancy. Other points of clinical interest which emerge from the analysis are that no fewer than one-third of patients seen within six months of the first symptom being noticed by them already showed (the spinal cell group being excepted) extension of the new growth to the broad ligament, and that fewer than 10 per cent. of such patients lived more than one year after operation. In almost one-half of cases in which the entire length of the cervix was affected by cancer, secondary involvement of the corpus uteri was noted. In 97 per cent. of the patients the first symptom noted was some unusual form of vaginal discharge (bleeding or leucorrhoea); and the first symptom in 87 per cent. consisted in some form of vaginal haemorrhage. The study affords no confirmation for the view (which has been advanced from comparison with cancer of the breast) that it is harmful to perform diagnostic curetting some days before radical operation.

179. Myomectomy during Pregnancy.

A CASE recorded by FRUHINSHOLZ and HAMANT (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, 1923, 4, p. 311) shows how tolerant the pregnant uterus may be of myomectomy. The myoma, which was the size of the foetal head, arose in the anterior portion of the cervix, had caused dilatation of the os externum to more than 1 inch in diameter, and had displaced backwards and elongated the cervical canal. The patient's general condition had been reduced by continued metrorrhagia during the fifth and sixth months of pregnancy; symptoms of vesical or rectal compression were absent. The myoma was enucleated per vaginam at the beginning of the seventh month; it weighed 250 grams. The patient was delivered spontaneously at term of a healthy infant. The opposite side of the picture is seen in a case described (Ibid., p. 306) by PLANCHU and GAUDON: during the seventh month of pregnancy a primipara aged 30 was found to have a pediculated subserous myoma inserted near the left tube. Thirty-six hours after ablation of the myoma during the eighth month the patient was prematurely delivered of an infant weighing 2,350 grams.

Pathology.

180. Serology in Brain Tumours.

F. P. MOERSCH (*Journ. of Nervous and Mental Disease*, July, 1923, p. 16) gives statistics of and observations on a series of cerebral tumours. He notes the absence of any uniform serological criteria and, at the outset, emphasizes the need for combined pathological and clinical investigation if the former is to be estimated at its true value. He finds that the type of tumour does not appear to exercise a definite influence on the serological characteristics of the cerebrospinal fluid, and though the invading forms such as glioma give the more unusual results, this is not so much from their nature as in virtue of extension to the membranes. Locality seems unrelated to serology, but invasion of the membranes or ventricles may be factors in the production of a high cell count. The influence exerted by inflammatory conditions on the cell count does not appear to warrant special attention. The author considers that a high cell count, while contraindicating, should not altogether exclude a diagnosis of tumour of the brain. The latter is to be differentiated from inflammatory conditions, vascular disease, multiple sclerosis, and migraine, most of which should cause little confusion, but in the more acute types with cranial nerve involvement the symptoms simulate those of cerebral tumour, and similarity in the serological findings may create further doubt. Acute abscess gives the general signs and serological reactions of a meningitis. This rule, however, does not always obtain, and in blood-borne abscesses or in those originating in otitis media the findings are occasionally negative. Chronic abscess may produce results varying from the normal to a polymorph or lymphocyte reaction, and the author considers it inadvisable to make a diagnosis of abscess unless the focus of infection can be determined. He notes that a positive Wassermann reaction on the spinal fluid in cases of brain tumour is not unknown, but advocates careful investigation before submitting a patient to antispecific treatment. On the contrary, a negative finding should not cause the possibility of concurrent syphilis to be overlooked.

181. The Histology of the Cure of Uterine Epithelioma.

THE changes produced by irradiation—chiefly, but not exclusively, radium—on cancer cells of uterine baso-cellular epithelioma are detailed by Professor Dr. FRANS DAELS (*Arch. of Radiol. and Electrother.*, June, 1923, p. 1). They commence after a latent period of ten to fifteen days, and are not met with in cases of spontaneous degeneration. The action first affects the nucleus, causing either an actual rupture or a destruction, sometimes with eosinophilia or megakaryocytic degeneration in consequence of nuclear fusions from loss of karyokinetic power. Rapid and extensive karyorrhexis of the cancer cells occurs without any participation by blood cells or degeneration of the normal tissues. A phenomenon characteristic of irradiation results: it is a progressive necrosis caused by pyknosis or achromatosis accompanied by eosinophilia or vacuolization of the protoplasm and phagocytosis by polynuclear blood cells, and it results in the destruction of a large number of alveoli. The cancer cells become transformed into giant cells and giant nuclei, the effect of which may be necrosis with polymorph leucocyte invasion or atrophy with fatty degeneration and without leucocyte infiltration. The author admits that polymorph leucocytes occur only in association with spontaneous degeneration or in irradiation transformations as a result of concomitant infection or the necrosis of cancer cells, and play no active part in the regression process, in which connective tissue is likewise inactive. On the other hand, infiltration of lymphocytes would appear to be essential to effective reaction against cancerous proliferation. The detection of giant cells of a non-malignant type and of normal follicles as a result of irradiation led the author to adopt the hypothesis of the liberation of substance to which the tissues react by lymphocytic infiltration and giant cell formation, and he draws attention to the close resemblance in this connexion with the histological picture found upon the healing of the follicle arising after experimental injection of killed Koch bacilli.

182. Hepato-nephritis.

CHAUFFARD (*Arch. de med., cir. y esp.*, June 23rd, 1923, p. 524) states that this term was introduced by Richardière to designate certain forms of severe icterus. Although it is applied to a simultaneous inflammation of the liver and kidneys, certain conditions must be fulfilled. In the first place, the hepatic and renal lesions must be the predominant feature in the clinical picture, so that the simultaneous involvement of the liver and kidneys which occurs in acute infections such as typhoid fever or pneumonia is not an example of hepato-nephritis. Secondly, the lesions of the liver and kidneys must be due to the same cause. Thirdly, the hepatic and renal lesions must be definitely synchronous. Under these conditions hepato-nephritis occurs in only a small number of diseases. Two of them—namely, spirochaetosis icterohaemorrhagica and syphilis—occur in our climate; another two—namely, yellow fever and bilious haemoglobinuric fever—are tropical diseases; and the fifth—hepato-renal amyloid disease—is a condition very rarely met with nowadays, due to chronic suppuration or syphilis.

183. Variations of the Blood Count due to Mechanical or Nervous Causes.

J. TINEL (*Arch. Mal. du Coeur, des Vaisseaux et du Sang*, July, 1923, p. 521) remarks that the results of blood counts are not only falsified by various errors of technique; they may be disturbed equally by many physiological factors which may greatly modify the blood formula. It has been shown that the blood formula obtained by pricking a finger never corresponds, except relatively, to the actual composition of the blood. Remarkable variations are observed when blood is collected from the finger, the lobule of the ear, from a vein, from the heart or other internal organs. Actually one never finds any variation at all resembling that of the venous blood and of the heart blood, where occasionally the numbers may be reversed. Widal, Bezançon, and Labbé describe this as the "leucocyte exodus." Chiray (1906) found that after injections of egg albumen in a rabbit there was a considerable excess of cells in the peripheral blood without alteration of that of the heart. The same rapid "hyperglobulie" of the peripheral circulation occurs in aeronauts. The author has found that the leucocyte count may be greatly modified by testing the oculo-cardiac reflex for a few seconds. Tinel gives several examples of profound alterations in the leucocyte count occurring during and after compression of the eyeball. Furthermore, vaso-constriction (for example, by a spray of ethyl chloride) produces a relative leucopenia especially affecting the polynuclears. Vaso-dilatation, on the contrary, is accompanied by immediate hyperleucocytosis, with excess of polynuclears. Raising the hand and allowing it to fall causes a leucocytosis, particularly of polymorphs and large mononuclears, and a similar change is produced by moderate compression of the arm by the brassard of a sphygmomanometer. In hemiplegia there is a marked polymorph leucocytosis in the cold, cyanosed, and paralysed hand. The author concludes that all these facts prove that, beside important errors in technique, capable of falsifying a blood count, there exist numerous physiological causes of error, resulting more particularly from vaso-motor phenomena. These observations show that the peripheral "blood formula" is never more than relatively correct and is susceptible of variation by many influences—mechanical, emotional, and nervous.

Final Summary of Dr. Willius's and Royal Victoria Hospital Figures.

nversion of T Wave in Lead I alone:

Dr. Willius	mortality 61.4%	in 8.5 months	...	115 cases.
R.V.H.	" 69.9	in 12.7 "	...	19 "
Control (Dr. Willius) ...	" 26%	in 10.8 "	...	93 "

nversion of T Wave in Leads I and II:

Dr. Willius	mortality 65.3%	in 12.7 months	...	49 cases.
R.V.H.	" 84%	in 9.7 "	...	19 "
Control (Dr. Willius) ...	" 17.5%	in 23 "	...	40 "

nversion of T Wave in Leads I, II, and III:

Dr. Willius	mortality 62.5%	in 12.7 months	...	40 cases.
R.V.H.	" 55.5%	in 23 "	...	9 "
Control (Dr. Willius) ...	" 20.5%	in 13 "	...	39 "

nversion of T Wave in Leads II and III:

Dr. Willius	mortality 57%	in 11.2 months	...	149 cases.
R.V.H.	" 53%	in 10 "	...	17 "
Control (Dr. Willius) ...	" 22.3%	in 19.2 "	...	110 "

We wish to thank Dr. S. Picken for having accomplished the difficult task of following up the Royal Victoria Hospital patients. We cannot submit figures of a control series, but would mention that Dr. R. Marshall with one of us followed up about an equal number of Royal Victoria Hospital patients suffering from auricular fibrillation and found the mortality 68 per cent. in twelve months.

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[1] Keith Lucas: *The Conduction of the Nervous Impulse.* [2] Electrocardiography and Prognosis, *Arch. Int. Med.*, October, 1922, pp. 434-450.

CONSERVATIVE GYNAECOLOGY.*

BY

ARTHUR E. GILES, M.D., B.Sc., F.R.C.S.

IN discussing some of the lines along which operative gynaecology is proceeding it may be well at the outset to emphasize the fact that preservation of organs is of little use unless it goes hand in hand with preservation of function. Two examples will make my meaning clear. Thus, conservative treatment of pus tubes might be praiseworthy in a woman of 20, but it would be futile in a woman of 50. A myomectomy for uterine fibroids is a desirable operation in a young married woman, but it would be uncalled-for in the case of a woman, whether old or young, who had had a double ovariotomy performed on her.

The function that stands out most conspicuously as one to be preserved whenever it is possible is that of child-bearing. The next in importance is the ovarian function. We do not know fully the part that is played in the economy of the body by the ovary as an organ of internal secretion, but there is every reason to believe that it is a considerable part. Two other functions are to be regarded as of secondary, though still definite, value; they are the menstrual and the marital functions, and we may dispose of these first.

The marital function is, of course, primarily bound up with the purpose of child-bearing. But it may happen in the case of a married couple, still young, that the wife has to lose her uterus on account of fibroid tumours. Pregnancy is no longer to be looked for; but it may be very conducive to domestic happiness, or even essential to it, that married life should still be possible. If the vagina can be left unaltered, by doing a supravaginal hysterectomy, the object aimed at is more likely to be attained than it would be if a total hysterectomy were done, involving a shortening and narrowing of the vaginal vault. Conservative gynaecology would therefore choose the former operation, other things being equal. So also, in a case of total procidentia, requiring plastic operations on the vagina: in the case of a widow or a woman advanced in years, it does not matter how much the vagina is narrowed, and, for the purpose of the operative result, the narrower the better. But in the case of a woman who is called on to lead a married life, the operation must be sufficiently conservative to allow of this purpose being fulfilled.

In regard to menstruation, a man might suppose that any woman would be only too glad to be relieved of such an inconvenient phenomenon. But if he did, it would mean that he did not fully apprehend the feminine psychology. For while no doubt many women would gladly escape the inconvenience and pain of menstruation they would be conscious that they were not as other women. So it may be desirable by proceeding on conservative lines to preserve this function even when there is little or no hope or prospect of its leading to its natural corollary, pregnancy. For example, a woman of menstruating age may have a bilateral pyosalpinx, of a type necessitating the removal of both tubes. If an ovary can be preserved, or even a portion of one, menstruation will go on and the patient will be saved from the sense of mutilation; moreover, the internal secretion of the ovary will also, in some measure, be preserved.

For the rest of our subject it will be convenient to approach it from the operative standpoint, and to review in turn the conservative surgery of the ovaries, of the tubes, and of the uterus.

Conservative Surgery of the Ovaries.

The ovaries are the only organs that have a share in all the four functions under consideration. Their control of menstruation has just been referred to, and is quite definite: no ovaries, no menstruation. Their influence on sex instincts and sex feelings in married life is not so constant. Investigation of the after-results of double ovariotomy led me to the conclusion that if the ovaries are removed in girlhood, before the waking of sex, the sex feelings may remain undeveloped. But after a woman has arrived at her full maturity, the removal of the ovaries has not a constant effect. In some women desire and feeling disappear; in some they are diminished; in some they remain unaltered. But the last group is certainly in the minority; and so, if we wish to ensure as far as possible that a woman's sex feelings shall remain active, we must leave her at least some portion of ovarian tissue. That the ovaries are indispensable for the functions of child-bearing and internal secretion is obvious.

How then is surgery to adapt itself to these demands?

1. When the uterus has to be removed on account of benign conditions, such as fibroid tumours, fibrosis, or chronic metritis, healthy ovaries should always be left behind; a special effort should be made to retain at least one. In this case two functions have to go—pregnancy and menstruation; but two will remain—internal secretion and the marital function.

2. When the Fallopian tubes have to be removed, the ovaries may be so infected that they also have to go. But in many cases one ovary can be saved; this will mean the retention of the three functions of internal secretion, menstruation, and nubility. Pregnancy will not be possible, but at least its possibility will not have been destroyed by the operation, the disease itself having already settled the question.

3. There may be an ovarian tumour on one side, or a tubal pregnancy necessitating the removal of the ovary with the affected tube. The tube of the other side may be healthy, but the second ovary may be affected by cystic disease. Here it may be possible to resect the cystic part of the ovary leaving a small portion of healthy ovarian tissue. This will allow all the ovarian functions to be carried on, including pregnancy. I have records of several cases in which pregnancy occurred under these conditions.

4. Transplantation of the ovarian tissue can be included in our conservative procedure, though it is strictly reparative rather than conservative. The operation is still in the experimental stage, but cases have been recorded that have been successful not only from the operative point of view, but also in the matter of restoring the functions of menstruation and pregnancy.

Conservative Surgery of the Tubes.

The tubes are not essential for the performance of the menstrual and marital functions; and as far as we know they have no value in the matter of secretions. Their one function is to convey the spermatozoa up to the ovum, and the zygote or oösperm down to the uterus. By reason of occlusion at one or other end this function may be in abeyance, and the aim of conservative surgery is to restore communications. Obviously this is worth doing only under certain conditions: the patient must be of the child-bearing age and the uterus and one or both ovaries must be healthy. Three procedures are in vogue.

* An address delivered at the North-East London Post-Graduate College, Tottenham

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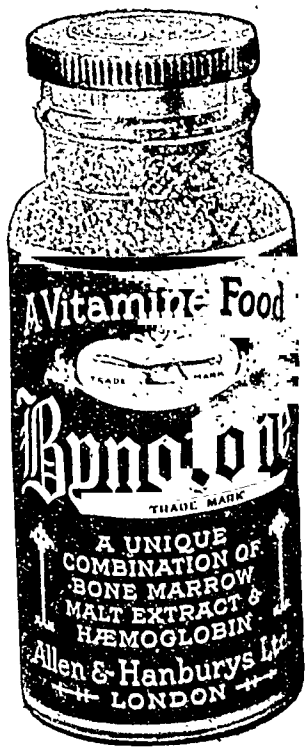

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At the end of the x-ray treatment there was no perceptible thickening, movement was free from pain, and there was a complete range of passive movement although active movement was a few degrees short of full. (See Fig. 2.)

Although this is a recent example it is by no means unique. During 1921 I was engaged in the investigation of the effects produced by the action of x rays on various conditions in which the effects of fibrous tissue formation were responsible for certain symptoms which failed to react to other physiotherapeutic remedies.* However grouped there was one outstanding feature in all the cases in this series—namely, the marked softening of excessive fibrous tissue by a comparatively short treatment with hard filtered x rays. Clinical improvement was shown by such evidence as (1) the relief of pain when a nerve was being strangled by cicatricial tissue in cases of superficial scars and in certain cases of neuromata in amputation stumps; (2) by greater and more rapidly secured freedom of movement in such a joint as the shoulder after prolonged suppuration and extensive operations in its neighbourhood; (3) by a greater range of action in cases of transplanted tendons for injuries of the musculo-spiral nerve; (4) by improvement in peripheral circulation where the brachial vessels were being constricted by scar tissue following gunshot wounds. Even in some cases of Dupuytren's contraction of long standing there was considerable softening of some of the lateral bands although the central

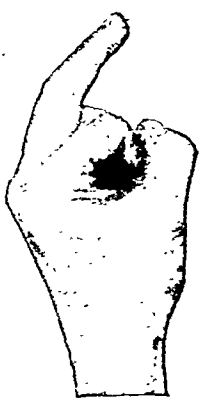

FIG. 1.—Before treatment.

FIG. 2.—After treatment.

palmar mass held out and so no clinical improvement resulted.

Although the majority of these observations were made on cases of war injury, a sufficient number of cases have been treated in civilian practice to prove that the same treatment is applicable. The action of radiotherapy which is now under consideration has been observed by others beside myself, but it does not appear to be at all widely known.

In post-operative radiotherapy of cases of amputation of the breast the softening effect on the scar tissue left after extensive dissection is so striking that its use for this purpose alone—apart, that is, from any prophylactic effect—would almost be justified.

As another example we may take the action of radiotherapy on keloidal tissue; it was in fact this action that first suggested to me the investigation on fibrous tissue generally. On consulting such references as came readily to hand I discovered that radium treatment on scar tissue had been carried out by Dr. W. Stevenson of Dublin, and that the results had been published by him in two subsequent papers.[1] It is hardly necessary to point out that the only essential difference between radium therapy and x-ray therapy is in the wave-lengths employed in each case. Since radium is not so generally available as x-ray apparatus this reference to Stevenson's work confirmed me in my resolution to use intensive x-ray treatment. The formul resolved upon has not since been changed. It is 4 to 5 ma through a 3 or 4 mm. aluminium filter; Coolidge tube spark-gap of 8 inches; 12 inches distance; time 12 minute Any attempt to cut down the dosage has led to disappoint ing results. No injurious results have ever been noticed.

It was not until a few months ago that I accidentall discovered a short note by Dr. A. W. Williams on this sam subject.[2] It appears that the attention of Dr. William was also drawn to this matter by the action of x rays o keloidal tissue. The war injuries treated by him were mor superficial, and his technique differed accordingly from tha adopted by myself, but his published results were just a successful. Laquerrière (France) has reported two cases i which intensive radiotherapy, undertaken primarily for th treatment of uterine fibroids, resulted not only in a cur of this condition but also in marked freeing of intra abdominal adhesions, as shown by increased mobility of th uterus.[3] I do not, therefore, claim any originality i applying these methods of treatment, but the experienc of others here mentioned emphasizes the fact that w have at our disposal a treatment which seems to har great advantages over other methods.

So far I have been dealing with conditions which ar similar inasmuch as we can group them as traumatic i origin. I should like to close by pointing out that othe morbid conditions end in a fibrosis which is not alway beneficial to the patient. Our nomenclature of disease is too often purely topographical. Attention is distracte from the fact that such apparently disconnected affection as chronic arthritis, lumbago, pleurodynia, sciatica, an brachial neuritis, at any rate as regards their later stage are in reality often the manifestations of that inflamma tion of the connective tissue known as "fibrositis." I matters little for our present purpose what the precis etiology of such cases may be provided that we realize tha under the heading of "fibrositis" we are including al those cases in which the morbid process is essentially th inflammation of the white connective tissue, be the situa tion muscular, aponeurotic, synovial, or perineuritic. Whils medicinal treatment or a masterly inactivity may effect physical cure, functional restoration can only be obtaine by local treatment. The numerous cases of relief of pai by treatment by x rays in certain forms of sciatica an neuralgia may be explained by the softening action o various adhesive bands.

I believe that there is scope for radiotherapy in certai other diseases. I would quote especially two cases whic have been treated, apparently successfully, by this metho of treatment. The first was an instance of chronic mastiti in a male patient aged 17; the symptoms were greatly relieved after four treatments, although the condition ha resisted other measures for nine months. The second cas was one of obstinate empyema which had lasted for tw years and had resisted all methods of treatment, includin operation. Further surgical measures being considere inadvisable on account of the patient's general condition radiotherapy was begun. The cavity was injected wit bismuth emulsion, and that side of the thorax was treate twice weekly for a period of three or four weeks. Was i merely a coincidence that the condition began to improve and within a few weeks was healed and has remained s down to the present time? Is it not just as reasonable t suggest that collapse of the suppurating cavity has been helped by softening on the one hand the surrounding chronic fibrous tissue, and on the other the constricting bands which caused the double sausage pattern shown in the x-ray film of this case? I may be wrong in this contention, but I would urge the trial of this method in a very similar condition, mechanically—namely, chronic bronchiectasis. Through the kindness of one of my colleagues a trial is about to be made of this method and the results, i any, shall be brought to notice on some future occasion.

* These results were published in the *Archives of Radiology and Electrotherapy* for August, 1921.

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[1] BRITISH MEDICAL JOURNAL, July 4th, 1914, and *Lancet*, March 23rd 1913. [2] BRITISH MEDICAL JOURNAL, December 2nd, 1916. [3] *Journal d Radiologie et d'Electrologie*, May, 1921.

May I, on your behalf, accord a very hearty welcome to Dr. Banting, who has so kindly consented to join in our discussion? As our very distinguished visitor, I will ask him to speak first. If he has anything new to tell us, we shall be very interested to hear it. If he has nothing new, then we shall like to hear the old story again from his own lips. I hope that Dr. Banting will avail himself of some of the time usually allowed to the opener of a discussion, and which, upon this occasion, I have not felt it necessary to utilize.

OPENING ADDRESS

BY

F. G. BANTING, M.D.,

Toronto.

DR. BANTING said that Mr. Best and his associates thanked the medical profession for the way in which it had received the result of their experiments. He outlined the story of the research which led to the preparation of insulin in sufficient quantity. Many attempts were made to prepare extracts of the pancreas to furnish the active principle. Following ligation of the pancreatic ducts, dogs did not become diabetic and the acinous cells of the gland alone degenerated. They had ligatured the ducts and ten weeks later the degenerated pancreas was removed and extracted with saline. In a depancreatized dog the blood sugar rose perhaps 20.40 per cent. in a few days, the wound broke down, a scum formed at the inner canthus of the eye, the animal weakened, developed great hunger and thirst, underwent a rapid loss of flesh and was therefore most suitable for experimental purposes. The injection of the above [illegible]ct into such a dog caused a fall in the blood sugar, [illegible] in strength, and the animal lost its ravenous appetite. [illegible] was not a suitable method of preparing insulin. [illegible]ong continued injection of secretin with a view to [illegible]usting the acinous cells and thereby destroying trypsin [illegible] found to be uncertain. An extract was then prepared [illegible] the pancreas of foetal calves; up to the fourth month the acinous cells contained no trypsin granules. This extract was found to be very potent in lowering the blood sugar, and the second dog was killed by an overdose, and died with symptoms which are now known to be those of hypoglycaemia. The problem, then, was to extract the internal secretion from the whole pancreas by some chemical means which would destroy the proteolytic ferment and leave the insulin unharmed. Alcohol in certain percentages was tried. Dr. Cobb succeeded in fractionating out the active principle with 82 per cent. alcohol. Since then rapid progress had been made, and the product now contained no protein, was non-irritating, and more easily standardized.

Insulin in proper dosage in the laboratory reduced the blood sugar to normal or less; it rendered the urine sugar-free and by its means a depancreatized dog could be kept alive at least three times as long as without it. Without insulin such a dog would live from eight to twenty days. Dr. Banting with insulin had kept a dog alive for seventy days; the animal was then killed and no islet tissue was found. The liver of a depancreatized dog did not contain more than 0.5 per cent. of glycogen, but after insulin and glucose as much as 18 per cent. of glycogen might be present; insulin therefore enabled the dog to store glycogen in the liver. Fat replaced glycogen in the liver of depancreatized dogs. Four days after the operation the liver might contain 11 to 12 per cent. of fat and no glycogen, whereas four days' treatment with insulin might lead to the disappearance of fat and the appearance of 12 to 15 per cent. of glycogen. Adequate doses of insulin would control all forms of hyperglycaemia. The effects of overdose as seen in a rabbit accompanying the fall in blood sugar were hunger, the animal chewing the woodwork of its cage; it then became dull, had periods of intermittent convulsions and unconsciousness followed by coma. If given glucose the symptoms were relieved or prevented.

The clinical work had been done by Professor Duncan Graham and Drs. Campbell, Gilchrist, and Fletcher. There was no fixed method at present of managing diabetic patients. We were still in the course of experimental work. In Toronto if the case was at all severe it was admitted to hospital for three weeks for training in routine and the working out of tolerance. During this time a careful history was taken, special stress being laid on the question of heredity or the possibility of infection. The patient was kept for twenty-four hours on his usual diet to judge of the severity of the case. He was then put upon the "basal requirement diet": 3/4 gram of protein per kilo body weight was given per diem; a larger allowance of protein was made if the patient was not fully grown. The remaining calories were made up of carbohydrate and fat in the proportion of 1:1.3 (modified Woodyatt diet). The patient was kept on this for three or four days. If a mild case he became sugar-free; if severe, the sugar output became more constant. If sugar-free the carbohydrate was raised. If the patient could take 500 calories over and above the basal requirement insulin was not given.

The output of sugar was of value in estimating the initial dose of insulin. One unit of insulin might be regarded as metabolizing 2 to 2½ grams of carbohydrate in a severe case, but the exact quantity varied in different cases and in the same case at different times. Where infection was present the amount was also less. In mild cases one unit of insulin might metabolize 5 or 6 grams. The initial dose of insulin should not be sufficient to render the patient sugar-free; there was not sufficient glycogen in the liver to act as a buffer. As a rule 5 units might be given to begin with, unless the patient was comatose. The dose should be given one hour before meals, and never more than once a day. It was given before meals because in a normal individual the presence of carbohydrate in the blood stream stimulated the islet cells of the pancreas. It was advisable to keep the patient sugar-free by dieting and insulin; when sugar-free the pancreas tended to produce insulin. One patient, who was taking a diet of 620 calories, including 20 grams of sugar, passed 15 grams of sugar; but after treatment with insulin he was sugar-free on a diet of 980 calories containing 40 grams of sugar. There was evidence in many cases of an increasing tolerance as the result of insulin treatment, but this was not so marked in those cases who had been adequately controlled by diet. The frequency of blood-sugar estimation necessary to control treatment was still uncertain.

DISCUSSION.

Dr. P. J. CAMMIDGE (London) said that for many years the name diabetes mellitus had been generally applied to any condition in which sugar was passed in the urine, but as glycosuria might arise from a variety of causes its significance in that sense was merely symptomatic, like albuminuria or fever. Recently an attempt had been made, particularly by Allen, to restrict the term to glycosuria dependent upon disease of the pancreas, but in the absence of some reliable diagnostic sign by which pancreatic might be distinguished from non-pancreatic cases during life such a classification was merely juggling with words. Fortunately, however, the means were now available, and by appropriate analyses of the blood, urine, faeces, etc., it was possible to determine with considerable certainty whether a deficiency of the internal or external secretion of the pancreas existed in any particular case, and also to recognize or exclude most of the other causes known to give rise to hyperglycaemia.

Time would not permit him to deal with all the various analytical methods by which one form of glycosuria might be differentiated from another, full details of which were given in his book, entitled *New Views on Diabetes Mellitus*, which would shortly be published by the Oxford University Press; he therefore confined his attention to one, the relation of the "hydrolysis and difference values" of the blood to its sugar content before and after a standard breakfast. In this test a specimen of the patient's blood was taken from a finger prick, fasting, and part was used to determine the percentage of sugar by the Folin and Wu process in the ordinary way; the other part, after being freed from protein, was boiled with dilute hydrochloric acid, neutralized, and its reducing power determined by the same process. The figure indicating the latter he termed the "hydrolysis value," while the difference between this and the original sugar was called the "difference value." After the patient had taken the test breakfast, examination of the blood was

Reviews.

MAN, MAGIC, MYSTICISM, AND MORALS.

In his *Primitive Mentality*[1] Professor LÉVY-BRUHL of the Sorbonne takes as a working hypothesis his previous work set out in *Les Fonctions Mentales dans les Sociétés Inférieures*, published in 1910. As the translator, Miss CLARE, states in the preface to the English version, the earlier book laid special stress upon the law of participation, considered in relation to the principle of identity, and also upon the fact that the primitive has little perception of the law of contradiction. In his new book Professor Lévy-Bruhl aims at showing what causation means to primitives and the inferences to be derived from their idea of it.

In his introductory remarks the author argues that the primitive's distaste for the discursive operations of thought, the restriction of his ideas to a small number of objects, and his lack of reflection, are not due to inherent incapacity or natural inaptitude; to understand the problem properly, we must recognize that the primitive makes no distinction between this world and the other, between what is actually present to sense and what is beyond. He actually dwells with invisible spirits and intangible forces, and to him it is these that are the real and actual. Professor Lévy-Bruhl asks us to abandon the belief that primitive minds are orientated like our own and react as ours do to the impressions made upon them; for, when we find they fail so to do we are apt to explain this failure by such hypotheses as the feebleness and torpidity of their minds, stupidity, perplexity, child-like ignorance, etc. This merely leads to defining beforehand the mental activity of primitives as a rudimentary form of our own, and consequently to considering it as puerile and almost pathological.

The primitive's indifference to secondary causes; his fear of mystic and invisible forces, dreams and omens; his practices of divination; his firm faith in the test of ordeal; the mystic meanings he puts into accident, misfortune, and the causes of success; the equally mystic meaning of the white man's appearance and of the things he brings with him; his dislike of the unknown and his reluctance to abandon old customs in favour of new through fear of giving offence to ancestors and spirits by too ready acceptance of change, with his consequent attitude to European remedies—are all dealt with in a highly attractive manner throughout the fourteen chapters of a most erudite book.

In interesting chapters discussing the subject of omens the author deals, amongst many other things, with the primitive's fear of facts or events which are unusual, or of individuals who are more or less teratological, like the *monstra* and *portenta* of the Romans. When an omen of this kind appears the universal plan is to cancel it as quickly as possible: to guard against that which the monster portends it must be made to vanish. Abnormal presentations are dealt with by the primitives as a dangerous portent—for example, in footling births the child is slain, while if a goat is giving birth to a kid and the head appears first the animal is slaughtered. Where a woman, in labour for the first time, gives birth to twins "an old woman of the village (amongst the Kikuyu of East Africa), generally the midwife, stuffs grass into their mouths until they are suffocated, and then throws them out into the bush. If a cow or a goat bears twins the first time, the same practice is observed." In British East Africa, if a child is born feet foremost it is smothered. The reasons given are that if the infant is permitted to live their crops will all wither up from drought, their cattle will die, and many other evils befall them. Especial fear is shown of children who cut their upper teeth first, as they prevent the rain from falling. To counteract this, such children are buried alive in wet ground. It is interesting to note the survival of a feeling of "uncanniness" about such an event in Scotland, although there the belief is attenuated and the risk falls on the child itself:

> "They that cut their teeth abune,
> Will never wear their marriage shoon."

In the Belgian Congo these children are the children of woe, and are either thrown into water or exposed to wild beasts. If mother-love saves the unfortunate infant, it is later sold into slavery, for, if living in the village, it causes all the misfortunes that occur there, and the father and mother are continually twitted with the fact of having brought such a being into the world, and held up to universal derision. The abnormal child is on the same level as the possessor of an evil eye, and to the native mind there is no cruelty in the slaying of it; it is merely a measure undertaken for the public safety; the social group must no longer be kept in contact with it. Throughout its pages *Primitive Mentality* is a book full of interest and should find its place on the shelves of those interested in the lore of the human family.

[1] *Primitive Mentality.* By Lucien Lévy-Bruhl, Professor at the Sorbonne. Authorized translation by Lilian A. Clare. London: George Allen and Unwin, Ltd. 1923. (Demy 8vo, pp. 453. 16s. net.)

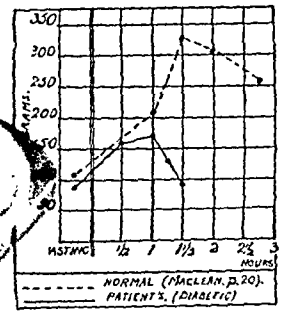
DISSEMINATED SCLEROSIS.

THE American Association for Research in Nervous and Mental Diseases has published a report of the papers and discussions at its meeting at New York on December 27th and 28th, 1921, on the subject of *Multiple Sclerosis*,[2] which is on the same general lines as the report issued in 1921 on acute epidemic encephalitis (lethargic encephalitis). In the present volume there are four sections, dealing with general and historical considerations, general and special symptomatology, the differential diagnosis, course, and treatment, and the pathology of disseminated sclerosis, to which twenty-six medical men have contributed. Dr. W. Timme's historical retrospect is illustrated by the frontispiece showing Sir Robert Carswell's drawing of the spinal cord, which appeared in his work on *Pathological Anatomy* (1838). In America the distribution of the disease resembles that of simple goitre in being high in the region of the great lakes, and Dr. C. B. Davenport, who deals with its geographical and racial incidence, suggests that the Scandinavian race is specially subject to it, and that the hereditary factor, whatever may be found to be the exciting cause, may play a part in its development. The commission does not share the view that the disease is so infrequent in America as some authorities have stated. A plea is put forward by Dr. C. L. Dana for the prolonged application to the etiological problems of this disease of the methods of ecology, or the science of the relation of a living organism to its environment, which was originally linked up with botany but is now applied to animal life.

According to Dr. B. Sachs, the differential diagnosis from hysteria has not been a matter of difficulty and does not often arise. Reference is made to Klingmann's detection by means of very small test objects of as many as sixteen minute multiple absolute scotomas in or near the point of fixation and rather more numerous in the temporal than in the nasal portion of the field of vision, in patients in whom other examiners might have only noted a large diffuse relative scotoma. The commission did not find any evidence of implication of the sympathetic system or of the endocrine glands, and ascribes this immunity to the automatic action the segmental mechanism of the spinal cord is able to assume in relation to the visceral functions when cut off from higher influences. The difficult question whether the morbid process is primarily degenerative or acutely inflammatory is left open; if the acute cases cannot be removed to some other category, such as encephalitis, two forms of the disease would have to be recognized—one with an acute inflammatory commencement and later changes of a purely degenerative nature, the other which never presents any evidence of inflammation, and the process is degenerative from start to finish. Search for a causal spirochaete or other organism gave negative results, and the Wassermann reaction of the cerebro-spinal fluid was uniformly negative, but a paretic type of colloidal

[2] *Multiple Sclerosis* [*Disseminated Sclerosis*]. Association for Research in Nervous and Mental Diseases—A Series of Investigations and Reports. Vol. ii (1921). New York: Paul B. Hoeber. 1923. (Med. 8vo, pp. xvi+241; 1 plate, 22 figures. 3.75 dollars.)

five cases of diabetes with insulin, and allowing for a large measure of enthusiasm it had appeared to produce almost magical effects. Dr. Banting seemed to have already answered one of his questions: Was a patient any better off for being sugar-free if the blood sugar remained considerably above normal? Such a patient might be metabolizing more carbohydrate and gaining in weight and well-being, but with hyperglycaemia was he safe? Possibly if it had been ascertained that glycosuria occurred with a low blood-sugar threshold, they could make use of a trace of glycosuria as the guide to insulin dosage. Dr. Banting had advocated Woodyatt's "basal requirement diet." Dr. Nixon had found that a most practical standard diet. It enabled them to adjust the insulin dosage to a diet which was adequate. Moreover, Woodyatt's formula for calculating the proportion of fat to carbohydrate and protein had proved most useful. As an example, a woman with glycosuria on whom the surgeon wished to perform myomectomy was rendered sugar-free in the urine by diet, but had a high degree of acetonuria. The diet was recalculated, so that the fat was equivalent to twice the carbohydrate *plus* half the protein. In three days she was acetone-free and the operation was successfully performed. He had had an example of the personal factor in tolerance of insulin. A man, aged 29, was rendered sugar-free (in the urine) by complete starvation, but he developed glycosuria on a diet containing only 300 calories. He was given 5 units of insulin during starvation and he was not given a meal until one and a half hours later. Before this meal his blood sugar was again estimated. His fasting blood sugar was 0.3 per cent. One and a half hours after insulin, while still starving, his blood sugar was 0.29 per cent. This man was ultimately enabled to take a diet containing 1,679 calories with a daily dosage of 40 units of insulin injected as 20 units twice a day.



Blood sugar after 50 grams of glucose by mouth.

The symptoms due to overdosage of insulin were difficult to determine. A man of 40 receiving 20 units of insulin daily for three days developed sudden partial aphasia; he was given glucose before his blood sugar could be estimated. By the next day his aphasia had practically recovered; but this patient had previously shown symptoms of angina pectoris. This case rather frightened him, but he was not convinced that his aphasia was due to insulin. Another man, aged 35, receiving 20 units of insulin daily, told him that since the injections his feet suddenly become swollen at night and he felt tinglings in his legs; but this patient's blood did not show hypoglycaemia. A girl, aged 14, presented an example of the difficulty occasionally experienced in deciding whether a patient was a true diabetic. Five weeks before she came under observation she complained of thirst, polyuria, weakness, wasting, and glycosuria. She was put on a diet before her blood sugar was estimated. The glycosuria disappeared and her blood sugar was no more than 0.13 per cent. In hospital her blood sugar fell to 0.8 and 0.75 per cent., although she was supposed to be taking 7 ounces of bread a day. She had also ketonuria. She was tested with 50 grams of glucose, given by mouth, and her blood-sugar curve was characteristic of true diabetes. Then she admitted that she had been afraid to eat the bread permitted in her diet. Ultimately she was found able to take a diet containing 3,000 calories; her blood sugar remained about 0.1 per cent., and she had been sent home as not needing insulin treatment. She was a potential diabetic with a high sugar tolerance. An excessive indulgence in chocolate had produced her first symptoms of diabetes.

Dr. J. K. RENNIE (Glasgow) said that the treatment of diabetes had undergone so marked a change during the past few years that a consideration of the results obtained under the various methods of treatment was not without interest. The following figures were obtained from the records of admissions to Dr. Cowan's wards in the Glasgow Royal Infirmary, and covered a period of thirteen years. For convenience he had divided the cases into (1) old, (2) Allen, (3) insulin, the terms applying to the type of treatment adopted in each group. So far as possible only cases of undoubted diabetes had been included, but as all the "old" and a few of the "Allen" cases were under treatment before the routine use of blood sugar and glucose tests the records in these groups were necessarily less trustworthy. Needless to say, information had been received from time to time of the subsequent death of many of these patients, but as much of that information was unreliable it had been disregarded. Only cases which died in hospital were included in the following table:

	Patients Treated.	Improved.	Stationary or Worse.	Died.	Mortality.
1. Old	49	29	12	8	16.3%
2. Allen... ...	47	39	6	2	4.2%
3. Insulin ...	10	10			

1. "*Old*" *Cases.*—This group included all cases treated under the various dietetic régimes in vogue before the introduction of the well known starvation methods of Allen and of Graham. A reference to the ages of the "improved" group showed that 11 cases were under 35 years of age, while in the stationary group 9 of the 12 cases were under that age, and 3 of these under 20. Of the deaths all 8 occurred in coma; 7 of these patients were under 35, 4 under 20.

2. "*Allen*" *Cases.*—Forty-seven cases were treated on "Allen" lines, and an improvement, more or less marked, occurred in 39. In this group, however, the average age was rather less than in the corresponding group of "old" cases, 17 being under 35 years. Of the 6 cases in the stationary group 3 became dissatisfied with restricted diet and left hospital irregularly, a happening which was becoming increasingly less common—probably the only good result of the publicity which the treatment of this condition had received of late in the public press. One case had a progressive pulmonary tuberculosis on admission and went to a sanatorium; and one, a girl of 17, suffered from mitral disease with failing compensation. The sixth case, an elderly man with long-standing diabetes and gangrene of the toes, made no progress under treatment. Of the two patients who died, one was admitted with air hunger, and died in coma in thirty-six hours. The second case was that of a youth of 17 in whom symptoms had first manifested themselves five weeks prior to admission. He was poorly nourished, but bright and alert, and nothing abnormal was found on physical examination. The urine contained sugar in amount, acetone was present, but there was no reaction with tinct. ferri perchlor. A liberal carbohydrate diet was ordered, but he had little appetite and took only about carbohydrate 30, protein 36, and fat 50 in twenty-four hours. Thereafter he became somewhat restless and drowsy. Thirty-six hours after admission he suddenly collapsed, the pulse becoming imperceptible. He recovered slightly under stimulation, but improvement was transient and he died ten hours later. At no time was there any suggestion of air hunger, the breathing throughout being easy, regular, and natural. A positive tinct. ferri perchlor. reaction was never obtained in any sample of urine. Another case seen more recently, a man aged 50, gave a history of having taken little food for three weeks prior to coming under observation. The urine contained much sugar but no acetone or diacetic acid; the blood sugar was over 0.4 per cent. There was some twitching of the muscles of the neck and upper chest and the breathing was slightly Cheyne Stokes in type. The pulse was rapid and of poor quality. Despite stimulation, liberal carbohydrate, and insulin in large doses he died, apparently of cardiac failure, thirty-six hours later. Cardiac failure was certainly an important factor in these cases and was a complication for which one must watch in all severe diabetics. Two of the cases admitted for insulin treatment showed signs of cardiac weakness, so that the routine "starvation" diet until sugar-free had to be stopped and replaced by feeding *plus* insulin.

science of physiology and its clinical applications, and at giving the medical student a sound practical basis for his clinical work when he passes into the hospital. Thus, under the heading of gastric secretion, the production of a gastric fistula and the method of obtaining pure gastric juice are considered; also the formation of the stomach pouch for the study of the nervous mechanism of gastric secretion and the chemical action of food substances. Following on this are directions for the collection of gastric juice in man and the analysis of the test meal, the student learning how to determine the total acidity, the free hydrochloric acid, the combined acid, the pepsin and rennin, and the hydrogen ion concentration, and to apply the test for lactic acid. Again, under the heading of the visual sense, in addition to matter of theoretical interest, are studied such practical subjects as the use of the perimeter and the mapping of the field of vision, the pupillary reflexes, the determination of the dioptric strength of a lens, the determination of the power of accommodation, and the use of the ophthalmoscope and retinoscopy. Similarly, with all the great organic systems, the lessons are so arranged as to afford both theoretical insight and practical aptitude, and the student who takes the trouble to master them will find, when he commences his purely medical studies, that his power of assimilating medical facts is vastly facilitated.

It is probable that in the teaching of pathology there is too great a tendency to regard each disease as an entity, having its own particular cause and lesions, characteristic course, and characteristic symptoms indicating its presence. That point of view is, doubtless, correct, but it is equally important that the habit should be acquired of regarding disease as a deviation from the physiological norm, and the practical course laid down by the authors will enable the student who follows it to approach the study of disease from that standpoint. Professor Starling, in his introduction to the book, states that "the time allotted to physiology is too short. It seems ridiculous that at the present time students should be expected to learn the whole of anatomy, physiology, and pharmacology in five terms, whereas thirty years ago they devoted two years to the same subjects, when we consider that, in the meantime, the content of physiology, as well as the importance of its practical study for clinical medicine, have increased three or four times. The effect of shortening the curriculum has been to send the student into the wards tired and confused, and to rob him of that freshness of outlook and keenness of interest which are essential if he is to make the most of his clinical studies."

HEALTH AND THE HUMAN SPIRIT.

THE quality of Mr. KEITH MONSARRAT's little book *Health and the Human Spirit*[8] may be measured by a quotation from its closing pages: "What is truth? The question is no longer unanswerable. We need only to turn and look at the continuity of progress of which we are a part, all that wonder of activity which is going on around us and in us." From which it appears that the author is an optimist. But he is even more hopeful than this quotation implies, for while admitting that answers will not come easily, he yet thinks that "we may even find an answer to the question as to what the future holds for man's vitality when it can no longer use the body as a means of expression." Putting aside religious considerations, we may perhaps prefer to think of mankind as a collection of personalities rather than vitalities. We cannot think that vitality is a word happily chosen to connote the human spirit; it does not, for one thing, differentiate a man from a black-beetle.

For Mr. Monsarrat the health and salvation of the human spirit depend upon the acquisition of a knowledge of reality. "The time will come," he says, "when all the voluntary activities of man will find guidance from a knowledge of the process of life," and again, "it is becoming clear that the new faith will rise out of interpretation by consciousness of things human and things natural, of fact and reality, and will call to devotion not to some superhuman idol, but to the expansion of human life and the perfecting of its home, the earth." Belief, he says, "is a decision to ascribe some event or some perceived phenomenon to a cause dictated by emotion in a mind in which the critical consciousness of reality is still dominant." Reality, he holds, is the lamp from which emanates what light there is, and the essential source of all illumination. By this light the darkness of philosophy and the shadows of mysticism disappear, speculation takes wings and flies away, only the real remains.

The author is at his best in his fourth chapter, which treats of the awakening of medicine and its quickening and emancipation by the scientific spirit. Health is our goal and to that end all our energies are bent. "We have cast off all superstitions in this matter, and apprehend the fact that only by discovery, classification, and interpretation of the realities of the body can health be grasped." And so, by parity of reasoning, health of the spirit is to be achieved by similar means; the psychopath is to be cured by teaching him natural law. The trouble is that his mental state often prevents him from apprehending the significance of what he is being taught. Mr. Monsarrat is on firm ground when he applies his principles to science; whether they are true enough to run the whole world is a matter of belief—or doubt.

[8] *Health and the Human Spirit.* By K. W. Monsarrat, F.R.C.S.Edin. London: J. Murray. 1923. (Sup roy. 16mo, pp. 132. 5s. net.)

NOTES ON BOOKS.

WE welcome the second edition of Dr. ANDRÉ CROTTI's work on *Thyroid and Thymus*,[9] the first edition of which was reviewed in the JOURNAL nearly five years ago. Every chapter, as we remarked at the time, shows an intimate knowledge of the subject, which is dealt with exhaustively from the medical, surgical, and pathological standpoints. There is, unfortunately, another side to the picture. In spite of the fact that the writer asserts in the preface that he has tried to take into consideration the criticisms of the first edition, the work is still marred by the defects to which we drew attention. There is the same inexcusable confusion in the arrangement of the first half of the book, and the English is still sadly in need of revision, nearly all the errors which we noticed before being reproduced. Lastly, although in deference to our suggestion a bibliography has been added, its bibliographical style is not uniform, many names and references are incorrectly spelt, and many names, some of considerable importance, which are mentioned in the text are omitted.

The medical practitioner is not usually a man of much leisure, and he is apt—quite rightly—to devote what leisure he has to such lighter forms of recreation as golf or bridge, although there are, of course, a goodly number of exceptions. Among them is Dr. WILLIAM MCCALLIN of Southampton, who finds in writing a pleasant recreation from medical work, and who has recently published a book of excellent short stories entitled *Ulster Fireside Tales*.[10] Dr. McCallin is himself an Ulsterman and an old student of Queen's College, Belfast. He is a bold author who writes his stories throughout in dialect, as does Dr. McCallin in nearly all his, but they gain, rather than lose, from being told in racy words redolent of the soil of Ulster. They are put into the mouth of an old Ulsterman, weaver and fiddler, and the author shows himself to be a keen observer and a philosopher of strong common sense. Most of the stories are about the varying fortunes of farmers, shopkeepers, and peasants—of wills, sales of farms, bargainings, and bankruptcies. Money, indeed, appears from these stories to play a very important part—if not the most important part—in the lives of Ulster folk. There are also, however, some pleasant little snatches of verse scattered among the stories. The author must be congratulated on an interesting and amusing volume of stories, but he would probably reach a wider public if he were content to keep the dialect for dialogue only, as he does very successfully in one story.

The sixth edition of the colossal work on therapeutic technique[11] edited by Professor J. SCHWALBE differs from the last, which was published in 1921, mainly by the addition of a section on obstetrical methods by Professors von Jaschke and Siegel and a considerable enlargement of the section on radiotherapy: the other sections have been revised. The section on urological technique, originally written by the late Professor Zuckerkandl, has been revised by Professor F. König of Würzburg.

[9] *Thyroid and Thymus.* By André Crotti, M.D., F.A.C.S., LL.D. Second edition, thoroughly revised. London: Henry Kimpton. 1923. (Imp. 8vo, pp. 774; 32 plates, 105 figures. 75s. net.)

[10] *Ulster Fireside Tales.* By William McCallin. London: Heath Cranton, Ltd. 1923. (Cr. 8vo, pp. 253. 7s. 6d. net.)

[11] *Therapeutische Technik für die ärztliche Praxis: Ein Handbuch für Ärzte und Studierende.* Herausgegeben von Prof. Dr. Julius Schwalbe. Sechste, verbesserte und vermehrte Auflage. Leipzig: G. Thieme. 1923. (Roy. 8vo, pp. 1132; 635 figures. Paper, £1 0s. 10d.; bound, 24s.)

large injection of insulin which alone was available at that time, even over the abdomen. To-day, as the result of prolonged insulin treatment, the boy was running about the ward and in appearance compared not unfavourably with many of his fellows. His weight was now 32 kilos (5 st. 8 oz.), diet carbohydrate 70, protein 80, and fat 100, insulin dosage 30 units a day, and he was sugar- and acetone-free with a blood sugar of 0.15 per cent.

All results proved abundantly the great value of insulin in acutely ill patients. It would seem to hold out hope of cure in "early" cases and undoubtedly it alleviated the lot of the more chronic. Unfortunately the treatment was expensive, and for hospital cases the "Allen" treatment must remain for the present the most useful despite its somewhat unsatisfactory results. It was a doubtful kindness to a patient to assure him that a diet had been found for him which would keep him well and satisfied provided he obtained a drug which he was unable to afford and whose administration was outwith his capabilities. In conclusion, Dr. Rennie referred briefly to another chart, which illustrated one of some experiments which were made in the administration of insulin by inunction following Telfer's rabbit experiments recently recorded. The chart showed the blood-sugar curves obtained in a diabetic following a meal (a) without insulin, (b) with insulin injected in the usual way, (c) with insulin inunction. No reduction in blood sugar was found, a result confirmed on other occasions both with an ointment of crude insulin prepared by Dr. Telfer and similar to that used by him on rabbits and with other preparations. No dose of insulin which Dr. Rennie was able to give in that way—and he had endeavoured to give 100 units in one inunction—produced any effect upon the blood sugar. Insulin appeared not to be absorbed through the skin.

Dr. E. P. POULTON (London) spoke of the effect of insulin on relatively mild cases—those which became sugar-free on diet restriction. An attempt had been made to discover if any increase of tolerance took place after prolonged treatment. The rise of blood sugar was estimated after giving 25 grams of sugar, and the experiment was repeated after a period of treatment. The quantity of the diet was chosen so that in-patients felt satisfied; about 40 calories per kilo was allowed; the protein was about 1.5 grams per kilo, and during treatment the patients were walking about. After receiving 60 units a day for thirty days one case showed a gain in weight, but no evidence of improved tolerance. In one there was distinct improvement, in another perhaps a slight improvement; in one case after eighteen days' treatment there was a slight but definite improvement.

Dr. OTTO LEYTON (London) referred to the probable curative properties of insulin in diabetes mellitus of comparatively recent origin, and due to defect of the pancreas. Many had found that overworking the cells of the islets of Langerhans was followed by progressive degeneration. They had reason to think that whatever cause led to the sudden onset of diabetes mellitus, the destruction of the pancreas was, as a rule, not complete; some cells survived unchanged, some were destroyed, and some had their vitality reduced. Evidence of this consisted in the fact that a dog with a small fraction of pancreas, but of healthy pancreas, might be submitted to a general anaesthetic time after time without causing any recognizable deterioration of the pancreas, while the tolerance of the majority of diabetics was decreased by the administration of chloroform, ether, and sometimes of nitrous oxide. When there was a probability that damaged cells were present, it was thought worth while to attempt to nurse them back to health by rest. Rest of the pancreas was procured by giving sufficient insulin to maintain a slight hypoglycaemia. This might lead to symptoms of hypoglycaemia, but these were controlled by the administration of sugar. There was reason to believe that the tolerance of early cases improved. An attempt was being made at the London Hospital to obtain evidence by comparing the curve of the blood sugar while and after giving dextrose intravenously over a period of three hours, before and after a course of treatment.

Dr. A. P. THOMSON (Birmingham) said that he treated over 30 cases of diabetes with insulin, and he observed definite increase in tolerance after a peri treatment in two cases that had been previously rigor dieted for a considerable time. He mentioned these specifically, as Dr. Banting himself seemed to doubt wh such a thing could occur. As the result of his experi Dr. Thomson believed that it was quite impossible to t diabetic patients who could not learn to take care of th selves to a large extent or those patients who lacked determination necessary for the limitation of their d unless, of course, continuous control could be arran Hospital practice was frequently disappointing. W reference to the value of blood-sugar estimation in control of treatment, Dr. Thomson found that it possible in the average case to get along with very estimations during the preliminary period of standardi tion in a nursing home, and that afterwards he had found them necessary providing the urine was examin frequently enough and that the diet was properly controll He believed that the liability to toxic symptoms aft insulin decreased with the improvement in the condition the patient. He mentioned as unusual complications insulin treatment the occurrence of acute cataracts in patient who was otherwise doing well and two instances transient haematuria after large doses. He agreed wit Dr. Leyton that the so-called hypoglycaemia crisis fre quently occurred when the blood sugar was above th normal, and he believed that the sudden change in leve was more important than the exact value.

Dr. F. A. ROPER (Exeter) detailed an incident in the case of a male patient, aged 54, whose general condition, blood-sugar curve after glucose meal, and acidosis estimations showed diabetes of a considerable severity. He had some few months ago had diabetic coma and there was considerable albuminuria. Starvation was badly borne, so that on the fourth day despite considerable glycosuria he was placed on a diet of about 600 calories containing 16 grams carbohydrate, while insulin 20 units per diem was commenced. On the third day of this diet the insulin was increased to 30 units given in three equal doses. The urine was closely watched for disappearance of sugar. On the fifth day the urine at 9 a.m. contained sugar, and the blood sugar on the day preceding was 0.20. Lunch was taken at 1.15 preceded by insulin. An hour later he expressed himself as feeling "very fit." A quarter of an hour later he was found comatose—unconscious—with deep abdominal breathing tending later to become irregular (Cheyne Stokes). From the first he was unable to swallow, and, glucose per rectum failing in any way to improve his condition, in fifteen minutes or so 2½ drachms of glucose in a pint of saline were administered intravenously. Ten minutes after commencing the injection he began to yawn, and in half an hour could speak and thereafter quickly recovered. A urinary specimen passed at noon that day was found to be sugar-free, this being the first time it had been sugar-free since he had come under observation. The incident was related (1) in support of the contention that at present all patients requiring insulin should be under hospital conditions of observation and treatment until their basal dietetic requirements and proper insulin dosage had been determined, and (2) as emphasizing the advisability during this initial period of frequent blood-sugar determinations inasmuch as hypoglycaemia in this case supervened within five hours of cessation of glycosuria with a moderate insulin dosage.

LIEUT.-COLONEL E. E. WATERS, I.M.S., asked Dr. Banting if the temperature at which insulin was stored had any effect on its potency; and Dr. CLARKE BEGG (Swansea) inquired what instructions should be given to patients on leaving hospital. Should they be sugar-free or discharged with a small degree of glycosuria?

Dr. Banting's Reply.

Dr. BANTING, in reply, said that the cause of deficiency of the islets of Langerhans was not known. Patients requiring continuous treatment were trained to give their own injections. Larger doses of insulin were always

25 and no deaths; the white and red lead manufacture 22 cases and 2 deaths; and a considerable number with few deaths, are attributed to the use of paints in various industries. Attention is directed to the disproportionate mortality in pottery cases, as compared with the rest, and to the difference in the pottery figures themselves since the Workmen's Compensation Act of 1906 came into force and allowed compensation for deaths due to such sequelae as chronic Bright's disease. The differences are graphically shown in a case mortality table. Another interesting point is the higher paralysis (12.2 per cent.) among men than among women (4.7 per cent.), and the converse in cases of encephalopathy, which shows 2 per cent. for men and 3 per cent. for women. Reference is made to the increased safety in the rubber trade through being able to purchase the necessary lead already incorporated with rubber and other materials instead of introducing it dry into the mixer. The use of oxy-acetylene flame in the breaking-up of battleships has again accounted for a number of cases. Leaflets showing the dangers of lead absorption and the means of preventing this have been drawn up for the use of the Joint Industrial Councils of the Printing and Allied Trades and the Paint and Decorating Trades respectively. No cases of arsenic or phosphorus poisoning were notified, but there were 6 cases of mercurial poisoning, with 1 death, and 3 cases of toxic jaundice.

Anthrax.

Anthrax accounted for 45 notifications, 5 cases being fatal. That only three notifications came from Bradford is ascribed to the disinfection of East Indian goat hair at Liverpool. The mortality is only about half what it was prior to 1906 owing to modern expeditious treatment with Sclavo's serum. The Advisory Committee of the International Labour Organization resolved, in December, that hair for brush-making and upholstering should be disinfected before using industrially, and that hair and wool for textile purposes should also be so treated except in certain specified circumstances; also that flocks should be dealt with by compulsory notification and verification, isolation, disinfection, preventive inoculations, and complete destruction of infected carcases. This committee recognizes the impossibility of complete disinfection of hides and skins at the present time, and strongly recommends grants-in-aid for international research in this direction.

Poisonous Chemicals.

Forty-two cases of chrome ulceration had been reported, 10 in the manufacture and 32 in the use of potassium or sodium chromate, but Dr. Legge anticipates a diminished incidence with a better understanding of the Chrome Dyeing Welfare Order by the workers. There were 32 cases, with 3 deaths, from epitheliomatous ulceration, and under this heading reference is made to the value of the discussion at the Glasgow meeting of the British Medical Association in showing the importance of the figures now available in their bearing on the experimental work being carried on. It is stated that more and more time has to be devoted by medical inspectors to investigations of dermatitis; celluloid substitutes, shellac varnish, sugar, teak wood, "Accelerene" (rubber vulcanizer), cracking of Brazil nuts, orange peeling, lubricating oil, and phosphorus sesquisulphide all produced cases during the year.

Cases of poisoning from accidental escape of fumes and gases were 194, of which 20 proved fatal, carbon monoxide with 111 and 14 deaths heading the list. Defective fittings and inadequate ventilation of gas stoves accounted for 28 cases of CO poisoning in workrooms. Of the 10 cases of chlorine poisoning, 6 occurred from the use of cylinders of this gas in the bleaching of flour. Sulphuretted hydrogen, ammonia, benzine derivatives, naphtha, petrol, nickel carbonyl, carbon bisulphide, and sulphur dioxide were other causes of poisoning. Owing to a request from the International Labour Office an inquiry was made into the alleged ill effects of photo-engraving, but occurrence of serious illness was not confirmed, a material improvement of conditions having undoubtedly been brought about since the introduction of specially designed baths. A very similar result followed an investigation by Dr. Middleton into the etching of stainless steel.

Industrial Hygiene and Welfare.

The standard of first-aid and ambulance arrangements under Welfare Orders is considered to be well maintained. There is, however, complaint of irregularity in keeping up the supply of sterilized dressings in first-aid boxes; also Dr. Henry has noted that of the ambulance rooms in charge of a trained nurse, out of 42 visited, only 5 were under the supervision of a medical man, so that consequently medical inspectors have been called upon to discourage the indiscriminate use of drugs which was getting quite a practice where such are stocked in the ambulance room. It is also thought that much more propaganda work is needed. Of the 267,864 young persons examined for certificates of fitness a table shows that the detailed diseases and physical defects demanded the rejection of 5,318 and the imposition of conditions on 6,673, also that attention was directed to unsuitable attire (and loose hair) in 1,031 cases. It is stated that the increasing general interest in the effects of industrial employment on health is manifest in the greater importance attached by both employers and employed to the examinations by the certifying surgeons. It is, however, regarded as unsatisfactory that the surgeon's function does not extend to re-examinations. Note is made of the very desirable co-operation existing between welfare supervisors and certifying surgeons and the valuable assistance rendered by Dr. Henry in bringing this about.

Siliceous Dust.

Dr. Middleton reports on his investigations into the dust content of the atmosphere of workplaces for the grinding of metals and cleaning of castings. Using the very effective dust-counting apparatus recently invented by Dr. J. S. Owen of the Meteorological Office, Air Ministry, he collected a very large number of samples from the air of workrooms in which these processes are carried on, and his results, being the first obtained from this method of collection, are necessarily important. He confirms the view that silica derived from sandstone or other natural rock is the prime cause of fibroid phthisis and shows that it is the very small particles, invisible under ordinary conditions of indoor illumination, which causes the damage. These minute spicules diffuse through the air and are thus dangerous to others as well as to the actual grinder. He states that they are thrown off very extensively in wet sandstone grinding and that the dressing of grindstones causes an intense saturation of the atmosphere. A copious application of water at the point of contact of metal with abrasive and the association of dry grinding with an efficient exhaust are regarded as the most effective means of securing a minimum pollution. The cleaning of castings does not appear to be associated with the evolution of large quantities of fine silica dust.

Weight Carrying by Women.

Dr. Eileen Hewitt reports on her investigations into the comparative physiological costs of different methods of weight carrying by women. She used in her experiments the Douglas-Haldane method of collecting, measuring, and analysing expired air. The carbon dioxide output and oxygen consumption at different times were thus determined and the energy expended in calories was calculated. Various methods of carrying were used in the experiments, and she concludes that no one method should be employed continually when transporting weights of over 35 lb. She states that heavy loads carried at the front, especially when helped by a neck strap, tend to cause round shoulders, and that shoulder carrying on a board tends to create lateral curvature. Adolescents should not use this latter method and adults should learn to utilize each shoulder alternately. The method of loading and laying down is believed to be of great importance, and the unloading level should, as near as possible, be in line with the shoulder. So far as could be ascertained the physiological cost of work is not objectively affected by menstruation.

mechanical masseurs as have been introduced as a substitute for the finger; for we are probably all agreed that nothing is so effective for the carrying out of massage as the finger. I refer rather to electrical stimulation of the prostate by means of an electrode placed within the rectum. An excellent electrode for this purpose is that which has been made for me by Messrs. Schall, according to instructions supplied by Dr. E. P. Cumberbatch. It consists of a metal spoon with rounded edges mounted on a vulcanite rod and with a screw for attachment to the source of electricity. Although a static machine, such as the Wimshurst, is probably the best source of current for use with this electrode, a more convenient one is the physio-faradic wave apparatus, supplied by the Medical Supply Association, which gives a slowly interrupted faradic current, the interruptions being spaced at intervals of about one per second. This instrument is at present in use in the venereal department of St. Bartholomew's Hospital for the treatment of cases of chronic prostatitis. It is employed in certain cases as a substitute for prostatic massage, with very satisfactory results. Its efficiency is shown by the amount of secretion that appears at the meatus during its use. The precise action of the current is, however, a matter of doubt, for it is generally agreed that a faradic current has no direct action on unstriped muscle. If this is so one can only suppose that the stimulus to the contraction of the prostate is supplied by the vigorous action on the striped muscles in its neighbourhood. However, it is interesting to note in this connexion that Wallace has asserted that in addition to unstriped muscle the prostate contains a small amount of striped muscle. In spite of the somewhat alarming appearance of the electrode the treatment is not in the least distressing, and the discomfort experienced is very little greater than that usually complained of in the case of digital massage. I am aware that others have tried electric massage before me, notably Hogg and Courtride, and that the majority of those who have experimented along such lines have ended by abandoning electrical in favour of digital massage. Nevertheless, I am convinced that massage of the prostate is of such overwhelming importance in the treatment of prostatitis that no efforts should be spared to explore every possible method of carrying it out, and I mean to persevere with the treatment.

That massage of the prostate causes an absorption of bacterial products by the blood stream is rendered evident by the reaction that follows it. This reaction is generally noted on the two days following the treatment, the patient complaining of lassitude, headache, fever, increased local discomfort, and, where the prostatitis is associated with chronic rheumatism, of an increase of pain in the joints. On account of this it is advisable when vaccine therapy is being employed, as well as massage, to arrange that the injection of the vaccine does not coincide with the massage, otherwise a double reaction may be provoked. It is true that all cases do not show this general reaction after massage, but it occurs sufficiently often to show that the massage has an important general action in addition to its local one.

Dilatation of the Posterior Urethra.

Dilatation of the prostatic urethra by large-sized bougies, or by special dilators, is another therapeutic measure that is extensively used in the treatment of chronic prostatitis. The action is generally considered to be a mechanical one, the pressure of the instrument on the prostate resulting in the expression of the retained contents of the follicles. Again I am inclined to differ from the orthodox view, and to express the opinion that the bougie's action is an indirect one exerted through the muscle fibre of the prostate. For this reason as well as for others I am strongly against any attempt being made to dilate the prostatic urethra by means of a Kollmann's dilator, or by any other instrument than a bougie. No instrument has yet been invented, or is likely to be invented, that is capable of dilating so irregular a cavity as that of the posterior urethra, and the use of a curved Kollmann for the purpose can only result in trauma.

I am inclined to think that already a reaction is taking place against what I may term the Great Metallic Age of the history of the treatment of gonorrhoea. For the last fifteen years the ingenuity of urologists has been employed on the invention of a whole armoury of instruments for the detection and treatment of urinary conditions, and the gonococcus has been ruthlessly pursued by the enthusiastic inventors of various forms of urethroscopes, dilators, electrical cauteries, electrodes, flushing bougies, and a host of other instruments. But the more closely one keeps in touch with the pathology and bacteriology of gonococcal infections the more forcibly it is impressed upon one that final victory over these infections will not be achieved through the instrument-maker but through the biochemist or the bacteriologist. Far be it from me to underrate the value of urethral instruments in the precise diagnosis and treatment of the more superficial lesions of gonorrhoea. I would even concede that they are of service in the treatment of more deeply placed infections such as prostatitis; but while recognizing the aid they lend, I am convinced that there is a very grave danger at the present time of employing instruments too freely, especially in the case of posterior infections, and of thereby actually prolonging the course of the disease we are attempting to cure.

Treatment through the Blood Stream.

Under this heading I would include such measures as vaccine therapy and the use of intramuscular or intravenous injections of drugs. Of vaccine therapy I cannot speak with any great enthusiasm, although, like everybody else, I have had cases which have undoubtedly received benefit from the use of an autogenous vaccine. In those cases in which prostatic massage produces a reaction I do not as a rule use a vaccine, as I consider that massage is an excellent substitute. It is in the very chronic and stubborn case in which a reaction does not occur after massage that the use of a vaccine is specially indicated, and in the same type of case I not infrequently employ "shock therapy." We have probably all had cases of this description which have improved materially as the result of an added infection such as an attack of influenza, and I am sure that "shock therapy" has a definite sphere of utility in the treatment of chronic prostatitis.

Of the various drugs that have been employed in the treatment of chronic prostatitis I can only speak from personal experience of sulfarsenol and of silver-salvarsan. The results obtained from their employment in obstinate cases, and especially in cases complicated by rheumatism, have been such as to encourage me to continue their use, for it is by working along such lines and by increasing one's knowledge of the bacteriology of gonococcal infections that I anticipate that future progress will be made.

Diathermy.

At the last meeting of this Section I reported favourably on the use of diathermy in the treatment of gonococcal infections of the cervical canal. Since that time we have turned our attention in the venereal and electrical department of St. Bartholomew's Hospital to the use of diathermy in chronic prostatitis. The applications have been made by means of the spoon-shaped rectal electrode already described. The cases submitted to treatment have been those in which the gonococcus was either present when treatment started or had been found at some previous date. The majority of cases suffered from rheumatism as well as from chronic prostatitis. The results, on the whole, have been very satisfactory, and have already been published by Dr. E. P. Cumberbatch. Some of the cases were referred to the electrical department on account of the joint affections alone, but it was found that improvement in the joints was more rapid if the prostate was treated at the same time. Indeed, in certain cases diathermy to the joints was abandoned and attention wholly centred on the application of diathermy to the prostate. The treatment has the advantage of being painless, and even when it fails, as it certainly does in many cases of staphylococcal infection, no harm has been inflicted on the urethra. Throughout the treatment a thin mucoid discharge occurs from the urethra, but this generally disappears after the applications have ceased.

Surgical Measures.

Although the vast majority of cases of chronic prostatitis yield finally to the above-mentioned methods of treatment, I can recall some five or six cases encountered during the last twelve years in which I have had to have recourse to

SUPPLEMENT
TO THE
BRITISH MEDICAL JOURNAL.

LONDON, SATURDAY, SEPTEMBER 15TH, 1923.

CONTENTS.

GENERAL PRACTICE AND ITS UNBLAZED TRAIL.*

BY

ARTHUR J. MARTIN, M.D.

WE general practitioners are the infantry of the medical army, we are its first line of defence and offence against disease. To us alone is given the opportunity to watch disease from its beginning, through its gradual development, to its clinical end. This especially applies to those who work in rural districts where the population is more fixed, less nomadic, than is the industrial population of urban areas.

Then why is it that we, whose clinical opportunities are so unrivalled, take so little part in the advancement of our art? Why is it that only here and there a heroic soul arises with a genius for hard work and an uncanny persistence in seeking answers to all the whys and wherefores that come into (or should come into) our minds as we watch diseases and see their symptoms and physical signs? Sir James Mackenzie is a living monument of what can be done if only we have the will to do, and I doubt if any one of us works under greater difficulties than he did whilst he was patiently working out the causes and prognosis of irregularity of the heart beat. We are handicapped, and we handicap ourselves.

We are handicapped in an industrial area such as this by the mass of work we have to undertake in order to live. In the rush of each day we lose the power to think clearly. We think loosely and only little, when we should do so clearly and much. We give a condition a name and are then quite happily convinced we know all about it. Sometimes this is so much the case that when symptoms or signs arise and tell us our label is wrong, either we do not hear or are inclined to look upon them as rather impertinent vagaries of the condition we have baptized, and only tardily—perhaps too late—listen to the story they have to tell.

Case Notes: Post-mortem Examinations.

Habitual and careful note-taking will get rid of this difficulty. Some may say there is not time to do this. There is time. True, it takes a little longer when one first sees a patient, but once the record is made it is there for all time. When one sees the patient again, one takes up the record where one left it: the facts are there, no need to fence until they come back to mind. We must concentrate on a thing before we can write about it. If a diagnosis is difficult, careful methodical notes will help to solve the problem. We can go over them at our leisure, notice what we have left undone, where pieces of what is often a jig-saw puzzle are missing, and so perhaps be fortunate enough to complete the picture. When a patient dies we can go again over the whole story, try to see when and how the train of events began which ended in death, where perchance we went wrong, and what to do or not to do in a similar case in future. I know my own notes are hopelessly inadequate, but nothing has been a greater help to me in my own practice and nothing, on balance, taking all things into consideration, has saved me so much time. I would like to lay especial stress on one point: When making notes of a case it is of the greatest importance to record anything that seems anomalous or unusual. We should never ignore an observation just because it does not appear to fit into the picture as we imagine we ought to see it.

We are handicapped, again, by the fact that we rarely see a *post-mortem* examination of any case that has been under our care and are thus unable to check our clinical diagnosis. The "last chapter" of our cases is often mere speculation or is never written. The ideal would be, in all cases of doubt, one death certificate to be given by the medical attendant for burial, and one (which, of course, would have to be "confidential") by a pathologist after autopsy for registration, for the benefit of medical science in general, and for the benefit of the "accessory before the fact" in particular. I can imagine nothing which would be of so great a stimulus to medical progress as a more frequent opportunity to "look inside" and to be able to compare clinical and pathological findings. This may be an unattainable ideal; it certainly terrifies one by the cruelty of the truth it would at times bring to light, and its general acceptance is for many years to come unlikely. Still many things are accepted now, many burdens borne with only passing comment, which would have seemed just as impossible of social acceptance or sufferance a few years ago. Let us discuss the idea amongst ourselves, then with our patients, especially educated patients to avoid invidious comparisons with those of the hospital class: a necropsy is merely an operation after death. Let us ask for a necropsy oftener, when we think any good could come of it, or there is any chance of consent. This would put us on the right road; the rest, perhaps, would follow in time.

Team Work in Practice.

Again, we need a closer co-operation between the general practitioner and his local hospital. As a matter of routine, reports on all cases admitted should be sent to the doctor under whose care the patient was before admission, giving date of admission, diagnosis, treatment, and finding at any operation, the result, date of discharge or death—if the latter the finding at necropsy. When possible, an opportunity

* Abstract of Presidential Address to the Staffordshire Branch of the British Medical Association.

We still await the appearance of a safe and reliable specific vaccine or serum. Foreign proteins—electrargol, sulfarsenol, etc.—have been successful only in the hands of a few. But expectant treatment will in the majority of cases bring about a subsidence of the acute symptoms in a week or ten days, and thereafter the vesicles can be treated by regular massage until their expressed contents are free from gonococci and pus. I have already spoken of the important causative factor, reversed peristalsis starting from the posterior urethra. Could not this be used in treatment—for example, might we inject into the posterior urethra an antiseptic sufficiently irritating to set up this reversed peristaltic wave but not strong enough to damage the delicate epithelial lining? This is a suggestion which I have not tried.

Vesiculitis has, in my experience, been a comparatively rare complication. I have been unable to understand the contention, so vigorously maintained by many American writers, that vesiculitis is a constant accompaniment of gonococcal rheumatism. I have found it present only in a minority of these cases, and even then not the vesiculitis, but rather the accompanying prostatitis has proved to be the main disturbing factor, both as regards causation and amenability to treatment. If one compares gonococcal infection of a seminal vesicle with a gonococcal salpingitis, one finds a main point of difference, which is that a gonococcal vesiculitis has not the same tendency to closure of its exit. In salpingitis closure of both ends of the tube and its conversion into a retention abscess is the rule, and while this may occur also in a vesiculitis it does not happen in the majority of cases. In most cases some drainage is maintained during the acute stage, either by overflow or by involuntary emissions, and after the acute stage drainage can be ensured by massaging the vesicles. Even in cases where closure of the vesicle duct does occur the same sequence of events as takes place in salpingitis may be anticipated. After an acute process lasting a week or ten days the pus sac becomes sterile owing to the destruction of the gonococci by the products of their own metabolism, and thereafter absorption of the surrounding inflammatory exudate and of the vesicle contents gradually takes place. This process of repair can be assisted by appropriate treatment—namely, rest, diathermy, hot rectal irrigations, and rectal suppositories of glycerin.

As regards surgical treatment, so far I have not personally encountered a case which demanded it; but just as in gonococcal salpingitis rare cases occur which call for operation in the acute stage on account of the hyperacute reaction, so in gonococcal vesiculitis we may at any time require to operate. This is a very different viewpoint from that of the American writers to whom I have already referred; their preference seems to be for a vesiculectomy or a vesiculotomy whenever a diagnosis of vesicle involvement is made, and some seem to favour an exploratory investigation in all cases of gonococcal rheumatism. A review of published statistics of operation cases has failed to convince me that the results achieved are superior to those we get without subjecting our patients to surgical risks.

One operation requires, perhaps, some special consideration — namely, Belfield's vasostomy for irrigation and drainage of the seminal duct and vesicle. Under local anaesthesia the vas is isolated from the other structures of the spermatic cord, pressed against the scrotal skin, and fixed by passing a curved needle behind it. A half-inch incision is made through the skin and coverings of spermatic cord, the vas is exposed, and a small opening is made into the canal. A blunted hypodermic needle is passed into this minute channel, and a watery solution to the extent of 20 or 30 minims of any desired agent may be injected. The fluid will pass along the vas and distend the seminal vesicles. Belfield maintains that by this method not only can chronic infection of the vesicles be rationally treated, but an impending epididymitis may be aborted or recurrent attacks prevented. The difficulty seems to be to find an antiseptic one or two injections of which will sterilize the infected vesicle without damaging the very delicate epithelium of the vas and of the vesicle sacs.

To sum up, my views on operative treatment are that only on a very rare occasion will it be necessary to drain a vesicle abscess from the perineum; and as regards Belfield's vasostomy—it is an interesting suggestion, but I do not know of any preparation one or two injections of which can be relied on to be effective and non-destructive.

DISCUSSION.

Mr. DAVID LEES (Edinburgh) said:

I have listened with great interest and pleasure to the papers on vesiculitis and prostatitis, and I should like to congratulate Mr. Kenneth Walker and Dr. Watson on their clear presentation of a very difficult subject. Although I am in general agreement with the majority of their views there are one or two points on which my clinical experience is at variance with their views, and one or two questions which I should like to ask. It is, I think, a healthy sign that there should be differences of opinion among scientific workers on any given subject, in that it stimulates us to search for something better in the way of treatment, for most of us will admit that we have not yet reached finality in the treatment of the complications of gonorrhoea even with diathermy. As Dr. Watson has dealt more with the preventive aspect of the subject than Mr. Kenneth Walker it is, perhaps, better to discuss his paper first.

I do not think he stresses enough the function of rest in preventing the extension of the infection from the anterior to the posterior urethra, nor the function of diuresis in establishing drainage of the infected area. Hard work entailing mobility of the pelvic and perineal muscles and the old familiar cotton-wool plug are two of the outstanding causes of posterior urethritis. He spoke also of the value of detoxicated vaccines in the treatment of established vesiculitis, but in my experience these vaccines exercise a greater influence in the early stages in ameliorating the course of the disease and in preventing the onset of complications, and are invaluable in acute gonorrhoea if carefully given and their action in each case watched.

On the question of urethral lavage I am afraid that I do not altogether agree with Dr. Watson, but not chiefly for the reasons which he puts forward—the uncertainty of diagnosing a posterior urethritis during its incubating stage, and the lack of certainty of confining the infection to the anterior urethra by treating the infected area alone. By careful methods it is possible, I think, to diagnose most cases accurately, and in the large majority to confine the infection to the anterior urethra if treated early. My chief reason, however, for differing from him is that in the majority of cases of early anterior urethritis the treatment is carried out by the patient or by a more or less skilled orderly, and I think the trauma to the urethra of unskilled lavage or forcible lavage is a big factor in setting up complications. I have no objection in any case to the gravity lavage of Janet in competent hands, but until I am satisfied that the patient can do it comfortably and has acquired the art of so doing it, it is better left alone by him in anterior urethritis, except when he is seen at hospital or in the consulting room under expert guidance. I agree with Dr. Watson that in established posterior urethritis it is always an essential, apart from the few hyperacute cases, in which it is preferable to wait for two or three days before commencing it. Of the antiseptics advocated by Dr. Watson I do not find acriflavine any more potent or any less irritating than either alkaline potassium permanganate or albargin, and none of those three is so potent or causes so little irritation as mercurochrome 220, which retains its potency in urine but has the same objection in private work as acriflavine—namely, its staining propensities. Recently I have had quite favourable results with nizin, 1 in 250 to 1 in 500. There is one other point in connexion with lavage which Dr. Watson mentions—namely, the interval between its applications. On the analogy of the eye infection I am strongly of opinion that the more frequent the urethra is washed out in anterior urethritis and the less the pus is allowed to accumulate, the more quickly will you eradicate the infection and the less will be the damage to the surface epithelium if the antiseptic is not too strong.

I am in complete agreement with Dr. Watson as to the value of atropine in treatment, but prefer larger doses, 1/75 grain, and always in the acute stage combine with it

September, 1922, and communicated to the South African Committee for executive action (see SUPPLEMENT, November 25th, 1922, pp. 194-196):

1. That this meeting of Congress advises that the formation of a new association, affiliated with the British Medical Association, be deferred until a referendum of the Branches indicates that a majority of the votes of the members of the British Medical Association in South Africa are in favour of such formation.

2. That a referendum of the British Medical Association be taken as soon as may be found possible.

3. That, in view of the unsatisfactory return of the last referendum, this Congress is of opinion that another referendum be taken (under some new method to be decided upon), to the result of which all members of the profession pledge themselves to subscribe and agree, provided 66 per cent. of the registered practitioners in the Union vote.

4. That it be an instruction to the South African Committee to form a committee to deal with the above resolution and to co-opt a representative from each Province, who is not a member of the British Medical Association, to act with them.

5. That means be adopted whereby the greatest possible number of votes may be cast; if necessary, by means of canvassers.

The South African Vice-Presidents.

Our contemporary the *South African Medical Record*, in its issue of July 28th, contains the following appreciative paragraph:

"Drs. W. Watkins-Pitchford and D. Campbell Watt have been apointed Hon. Vice-Presidents of the British Medical Association. This is a life appointment, and only conferred upon members who have rendered exceptional service to the Association. At present only about half a dozen hold it. We congratulate them, especially as we regard the honour as not only personal and well deserved, but an honour to South Africa."

Handbook for Recently Qualified Practitioners.

The Editor and General Manager of the *Journal of the American Medical Association*, in acknowledging to the Medical Secretary a copy of the British Medical Association's *Handbook for Recently Qualified Medical Practitioners*, writes: "It is full of just the kind of information that we want and the young physician starting in to practise medicine ought to have." He goes on to say that the British Medical Association has given them a hint, and they must do something similar. Coming from such an authority as Dr. Simmons this is a great compliment.

Statistics of Insurance Work.

Insurance practitioners are again reminded of the necessity for the Insurance Acts Committee to be supplied with statistics of insurance work done in 1922. Information under the following heads should be sent to the Medical Secretary, 429, Strand, W.C.2.

Name.	Address, and Insurance Area or Areas.	No. of Insured Persons on List.	No. of Insured Persons Attended during 1922—that is, No. of Patients.	No. of Consultations.	No. of Visits.

Association Notices.

COUNCIL, 1923–24.

VACANCIES.

NOTICE is hereby given of the following vacancies in the membership of the Council:

(i) *Indian Group*, comprising the Assam, Baluchistan, Bombay, Burma, Ceylon, Hyderabad and Central Provinces, Mesopotamia, North Bengal, Punjab, and South Indian and Madras Branches, owing to no nomination having been received at the time of the annual election.

(ii) *Canadian and West Indian Group*, comprising the Halifax (Nova Scotia), Montreal, St. John (New Brunswick), Saskatchewan, Toronto, Trinidad and Tobago, Barbados, Bermuda, British Guiana, Grenada, Jamaica, and Leeward Isles Branches, owing to no nomination having been received at the time of the annual election.

The by-laws empower the Council either to fill such vacancies itself or cause them to be filled by means of an election by the Branches concerned. The Council has decided to adopt the latter course in the present cases.

Nominations in respect of either group must be signed by not less than three members of any Branch in the group, and must be in the following form, or in one to the like effect, and should be received by the Medical Secretary not later than Saturday, October 20th, 1923:

COUNCIL, 1923–24.

NOMINATION FORM FOR ELECTION OF A MEMBER BY THE GROUPED ..... BRANCHES.

By Not Less than 3 Members of the Grouped..... .....Branches.

We, the undersigned, hereby nominate .....

of .... (*Full name and address to be given*)

for election by the (Here insert the names of all the Branches in the particular Group) Branches as a member of the Council of the Association for the Session 1923–24.

Signatures and Addresses of Nominators .....

Branch(es) ....

Date ....1923.

The election, if a contest occurs, will be by VOTING PAPERS, containing the names of all duly nominated Candidates, issued from the Head Office, 429, Strand, London, W.C.2, to each Member of each Branch in the Group.

ALFRED COX, *Medical Secretary.*

BRANCH AND DIVISION MEETINGS TO BE HELD.

NORTH WALES BRANCH.—A special meeting of the North Wales Branch will be held at the Imperial Hotel, Llandudno, on Friday, September 21st, at 2.15 p.m. Agenda: Minutes of meeting at Barmouth, July 10th. To receive the report of the Branch Council. Sir Ewen Maclean, M.D., F.R.C.P., Professor of Obstetrics and Gynaecology, Welsh National School of Medicine, Cardiff, will deliver an address on "Puerperal Sepsis in Wales."

Insurance.

PRESCRIPTIONS IN SOUTH-WEST LANCASHIRE AND CHESHIRE.

THE South-West Lancashire and Cheshire Joint (Prescriptions) Committee in its report for 1922 records a steady increase year by year in the number of prescriptions priced, but notwithstanding the growing volume of work it has been possible to reduce the staff. The total numbers of prescriptions priced each year since 1916 have been as follows: 1916, 1,687,625; 1917, 1,609,463; 1918, 1,792,808; 1919, 1,722,931; 1920, 1,819,350; 1921, 1,923,456; 1922, 2,227,761. The average cost per prescription during the same year is shown in the following table:

	1916	1917	1918	1919	1920	1921	1922
	d.	d.	d.	d.	d.	d.	d.
Ingredient prices ...	3.75	3.69	4.26	4.60	5.27	4.31	3.97
Dispensing fees ...	2.84	2.79	3.28	3.71	4.93	5.42	4.92
Total cost	6.59	6.48	7.54	8.31	10.20	9.76	8.89
Cost per person on lists	17.37	15.68	20.68	21.16	25.10	25.40	26.37

Panel Committees are now furnished monthly with copies of every prescription to which it is considered their attention should be directed by reason of its unusual and/or expensive character. The report gives an indication of the principal items to which attention has thus been directed. For the most part these are for appliances of various kinds, particularly elastic web, india-rubber, and crêpe bandages. Dressings and protectives are often ordered in large quantities; one patient was ordered dressings costing 8s. a day for a lengthy period. Prescriptions for as much as 7 lb. of malt and oil have been noted. Preparations of cocaine and other dangerous drugs are scheduled without exception, as are those for serums and vaccines. During the year 264 articles ordered by various doctors were disallowed; the principal articles thus struck off were camel-hair brushes, eye shades and droppers, and finger stalls. The net yearly cost of pricing increased steadily year by year from £1,514 in 1916 to £3,054 in 1920; it had fallen to £2,236 in 1922, and the estimate for the current year is still lower.

The following Insurance Committees are included in the area of the Joint Committee: Birkenhead, Bootle, Cheshire, Chester, Liverpool, St. Helens, Southport, Stockport, Wallasey, Warrington, Wigan.

4. Never to pass any instruments into the bladder in a recent uncomplicated case. In the army my experience was 13 per cent. of all cases of gonorrhoea had epididymitis—6.5 before admission and 6.5 after—and many of the cases in the latter portion were due to treatment. By keeping to the rules I have mentioned I very rarely see epididymitis after treatment has commenced.

The symptoms of chronic prostatitis and vesiculitis can almost always be relieved by treatment, but these conditions are practically incurable if the test of cure is complete absence of pus cells in the secretion expressed by prostatic massage. It is possible to divide them into two classes. First there is the man who without symptoms of any kind has pus in the expressed secretion. He gives a history of gonorrhoea some years previously and generally the only thing he complains of is an occasional discharge; or else he wishes to be examined to find out his fitness for marriage. Treatment is essential in these cases, as many of them will develop sexual or urinary disturbances or metastatic lesions later on. For them I prescribe prostatic massage for three months. Although most of them will still have pus at the end of this time, I think the treatment is beneficial and likely to ward off later symptoms. The other class may have a persistent urethral discharge, frequency of micturition, iritis, muscular rheumatism, fibrositis, pain during sexual intercourse, blood-stained ejaculation, and neurasthenic symptoms. Treatment should be continued till these symptoms are cured. The patient should also be instructed to live a careful and regular life, avoiding alcoholic and sexual excess, constipation, and other irregularities. For years I have relied on massage alone, but latterly I have combined it with application of heat by a water-heated applicator in the rectum. Water at a temperature of 120° F. flows from a container through the applicator for twenty minutes. The heat brings an increased flow of blood and lymph to the tissues and a much greater quantity of fluid can afterwards be expressed by quite lightly applied massage. Dilatation of the prostatic urethra by solid instruments or by mechanical dilators is, in my experience, useless, if not harmful. Certainly it is so with a Kollmann's posterior dilator. In the first place, it is only too easy to produce severe damage to the mucous membrane and it does not dilate the urethra. A few years ago I experimented with four blades the same size as those of the Kollmann fixed to the end of a urethroscope. I passed the instrument into the deep urethra and there I saw the mucosa in folds round the blades meeting in the centre of the urethra, but very slight air pressure was sufficient to expand these folds and form a tube. It seems to me that the action of Kollmann's dilator is merely to press certain portions of the mucosa against the deeper firmer structures. I know of two cases where extensive bleeding followed the use of this mechanical dilator.

As regards treatment by vaccines, I do not think that for Class 1 they have any beneficial action at all. I have used ordinary and detoxicated stock vaccines and autogenous vaccines without any effect on the quantity of pus cells obtained in the secretion. For Class 2, with metastatic lesions, I always use Thomson's detoxicated mixed vaccines. The dosage varies for each patient; 2,000 million in one may produce a marked local and general reaction, whereas a much larger dose in other cases has no appreciable effect.

Surgeon Commander PARNELL emphasized the importance of the prevention of secondary injection. He agreed with Mr. David Lees that vaccines (detoxicated) were of most value in the acute early stages. Internally ichthyol (pil. gr. 3 t.d.s.) was of value. Less than 5 per cent. of cases at Haslar had vesiculitis. In metastatic gonorrhoea a chronic glandular prostatitis was more often the infecting focus than vesiculitis. Glandular prostatitis was often asymptomatic, could not be diagnosed by palpation, and was only detected by the microscope. Massage was the great stand-by in treatment—controlled by microscopic examination of the expressed secretions. Sulfarsenol in his hands had shown no appreciable benefits in any metastatic complications of gonorrhoea.

Dr. G. L. EASTES (London) said that he had hoped to have heard the views of bacteriologists on the subject of chronic prostatitis. Vaccines and vaccine treatment had received some hard knocks from previous speakers, but a vaccine to be effectual must be complete. It must include all the secondary organisms as well as the patient's own strain of gonococcus, and in addition, for reasons adduced, the best polyvalent stock gonococcus available; and by this best he wished to emphasize that the age of the stock vaccine should not exceed six months. The secondary organisms must comprise the Gram-positive bacilli so frequently present as well as the cocci. In acute urethritis vaccines were, in his experience, of very great use in effecting a cure without complications.

Dr. JAMES HUDSON (Newcastle) called attention to the frequency with which potassium permanganate was employed in too strong a solution, with the result that the urethral mucous membrane was burnt. In his opinion it should never be used in higher concentration than 1 in 4,000. He had found sodium salicylate of use when given in an alkaline mixture as a means of avoiding such complications as chronic prostatitis and epididymitis.

Mr. KENNETH WALKER and Dr. DAVID WATSON then briefly replied to the questions that had been put to them by the various speakers. Mr. Kenneth Walker agreed with Dr. David Lees that the success of prostatic massage could not be entirely gauged by the amount of discharge that appeared afterwards at the meatus. This amount depended on numerous factors, and sometimes when a patient emptied his bladder a large amount of discharge was found in the distending fluid even although but little had appeared at the meatus.

Sir ARCHDALL REID, in closing the proceedings, congratulated the Section on the excellent discussion that they had listened to, and said he considered that the meeting had been a very great success.

THE VENTRICULAR COMPLEX OF THE ELECTRO-CARDIOGRAM AS A PHYSICAL SIGN IN CARDIAC PROGNOSIS.*

BY

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AND

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IT is well recognized that our understanding of cardiac disease requires a sound knowledge of the anatomy, physiology of the circulation, and that without such knowledge it is impossible to interpret rationally most of the ordinary symptoms and signs associated with diseases of the heart. It has been the custom, therefore, to impress on the student the necessity of understanding thoroughly the physics of the cardio-vascular system. In recent years electro-cardiography has come to be a method of clinical application in most teaching hospitals, and the student both in the physiological classroom and at the bedside has to understand what an electro-cardiogram represents. As is usual, the novelty attracts the student, but, I am afraid, also somewhat deters the practitioner when it comes to be a question of the use of such a method in general practice. It has been recognized by most of the men who use the electro-cardiograph that its application to-day must be mainly for the purposes of investigation or where an especially full cardiac examination is called for. There is no doubt that, from a prognostic point of view the electro-cardiogram has a right to be classified as a physical sign of considerable importance. As a physical sign, the electro-cardiogram has a definite place in

* Summary of demonstration at a clinical meeting of the Medical Association at the Royal Victoria Hospital, Belfast, June

British Medical Journal.

SATURDAY, SEPTEMBER 15TH, 1923.

BACTERIAL TYPES AND VARIANTS.

THE close comparison of individual strains of certain pathogenic bacteria that has been carried out of recent years has brought about a revision of ideas previously current with regard to the constitution of these micro-organisms. Only a short time ago the frontier of pathological knowledge was reached when we were able to ascribe lobar pneumonia to the pneumococcus, cerebro-spinal fever to the meningococcus, and diphtheria and tetanus to the well known bacilli causally related to these diseases. As a result chiefly of the application of modern developments of serological technique, we now know that within each of these pathogenic representatives of the schizomycetes there exist a number of separate groups or types antigenically distinct from one another, which appear to breed true and to maintain at any rate the chief portion of their antigenic individuality for an indefinite period, since attempts so far to convert one type into another have failed. The majority of those who have investigated this matter are agreed that each case of pneumonia, cerebro-spinal fever, diphtheria, or tetanus is brought about by a single type of the infective micro-organism; and carriers also exhibit a similar loyalty to the particular type infecting them. The pneumococcus and meningococcus have been the most thoroughly studied from the present point of view; though a considerable number of different types exist, a comparatively small proportion of them are responsible for the majority of the cases.

This internal differentiation of infective units previously assumed to be indivisible is not only of bacteriological and epidemiological interest; for the pneumococcus and meningococcus it has been found to be of cardinal importance as regards success in specific therapy. According to present observations, patients suffering from disease brought about by these micro-organisms are not benefited by serum unless it has been prepared against a strain of exactly the same type as that infecting the patient. In diphtheria and tetanus, on the other hand, where the chief pathogenic factor is a toxin which is readily soluble and diffusible, the question of type is far less important, since here it has been found that antitoxin prepared against the toxin of one type neutralizes that of all the others. From the careful studies of Tulloch, however, on the distribution of types of the tetanus bacillus in the wounded during the war it seems possible, if not probable, that the difference in antigenic constitution obtaining between the various types of the tetanus bacillus is not entirely without influence in the genesis of that disease.

Are these types fixed and permanent, or is a process of evolution and natural selection going on, younger and more virulent types coming to the fore while the older and attenuated go to the wall? At present we have not sufficient knowledge to answer this question. All we can say is that so far as the [illegible] that have been most studied seem to be fixed variants of a parent strain of unknown antiquity.

Bacterial variation in one form or another has been familiar for a long time past to bacteriologists, who, when dealing with an organism which, as the result of prolonged culture on artificial media, has lost some of its characters, are accustomed to restore them by the time-honoured expedient—first devised by Pasteur—of passing it through an animal. The systematic study, however, of bacterial variation by serological as well as other methods of investigation is of quite recent date. Thus some two years ago it was found by Arkwright that in pure cultures of dysentery, typhoid, and paratyphoid bacilli, two forms can be distinguished by the roughness or smoothness of their colonies, and that these forms also present some differences in antigenic respects. Andrewes similarly found evidence of some antigenic variation within pure cultures of examples of the Salmonella or food-poisoning group, and has submitted the matter to elaborate study.

The latest contribution is by Dr. F. Griffith of the Ministry of Health,[1] who has found that virulent pneumococci become attenuated by growth in homologous immune serum, and that the rough colonies of the attenuated cocci are distinguishable from the smoother colonies of the virulent forms, and further that these two forms present some differences in antigenic respects. He notes that on subculture the attenuated strain may either revert to the other or remain unchanged. In a paper issued with the same report Dr. Eastwood gives a sketch of the present somewhat slender knowledge of bacterial variation, and boldly discusses its relation to the phenomenon of transmissible autolysis of Twort and d'Herelle. Whatever may be the ultimate verdict as regards the mutual relationship of two processes so apparently distinct, this latest contribution to the study of bacterial variation cannot fail to promote interest in a subject of practical as well as academic importance.

THE NUCLEAR ATOM.

EVERYONE who has followed even in the most genera way the progress of what may be called the physics o the atom is aware that ideas have been revolutionized and that the revolution dates from the discovery o x rays and of the radio-active elements. We have a been aware that physicists during the last quarte of a century have eagerly used the new methods o research these discoveries placed in their hands t probe into the constitution of matter and the natu of the atom, but we shall all be grateful to Sir Erne Rutherford, who has had so large a part in th acquisition and the interpretation of the discoverie for telling the story, defining the present positio and indicating the directions which research w probably take in the near future. The abstract of h presidential address to the British Association which he did this is published this week (p. 474); gives a complete account of his general argume with details sufficient to show the line of reasoning followed in relating the astonishing results alrea reached.

The atom was defined in a popular textbook of l century as the "smallest and chemically-indivisi particle of each element which can exist . . . uni with other particles either of the same or of differ elements, but which is not known in a separate form

[1] Ministry of Health. Reports on Public Health and Medical Sub No. 18. London: H.M. Stationery Office. 1923. 1s. net.

"Aberrant Q.R.S. complexes in all derivations—cardiac mortality 62.9 per cent. in 14.2 months.

"Control series—cardiac mortality, 21.3 per cent. in 13.7 months.

"In cases where T negativity was added to the aberrant Q.R.S. complex the death rate is increased up to 86.7 per cent. in 12.7 months."

At the Royal Victoria Hospital, Belfast, we followed up the history of fifteen patients treated in hospital who showed a bundle-branch lesion, and found all were dead within twelve months. Of course, it must be understood that this is only a statistical return, and that there are some cases of bundle-branch lesion in which the patient seems to go along wonderfully well. Take, for example, a patient of one of us, aged 70, who has had this lesion for at least five years, and who during that period has successfully weathered an acute attack of pneumonia.

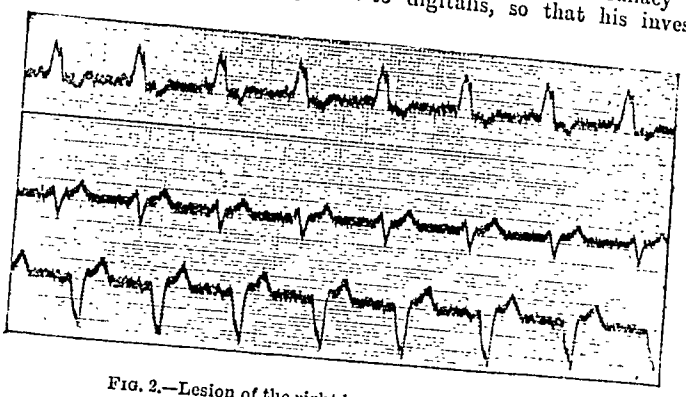

FIG. 2.—Lesion of the right branch of the A-V bundle.

INVERSION OF "T" WAVE.

To consider next the alterations which occur in the T wave of the electro-cardiogram is to enter upon the discussion of a physical sign the complete meaning of which we cannot as yet determine. On the other hand, it is a physical sign which we are able to recognize without difficulty; and again, from a statistical point of view, Dr. Willius has given us figures which, we think, are of most exceptional value. In the ordinary electro-cardiogram the T wave, which synchronizes with the systole of the ventricle, is upright in the first and second leads. It may be well to explain that in the first lead the heart lies in the circuit between the right and left hands; while in the second lead the heart lies in the circuit between the right hand and the left leg. As stated above, it is taken that the T wave is always upright in the normal individual in these leads, whereas in the third lead, between the left hand and the left leg, its direction may be below the horizontal line—that is, T negativity is present, or, we may say, the T wave is inverted (Fig. 4). Dr. Willius has divided his cases into four groups, and we have used this classification for a number of the patients we have been able to follow up at the Royal Victoria Hospital, Belfast. We give in detail, similar to that in Dr. Willius's papers, our results, which appear to be very comparable to his, if we remember that all our patients were in hospital in bed, seriously ill, whereas, no doubt, many of those of Dr. Willius were of the ambulatory type. We make this reference on account of our high death rate. We give also Dr. Willius's figures, including those he took from a control series of cases which did not show T negativity, carefully selected to be as clinically similar as possible to those which showed this electro-cardiog change.

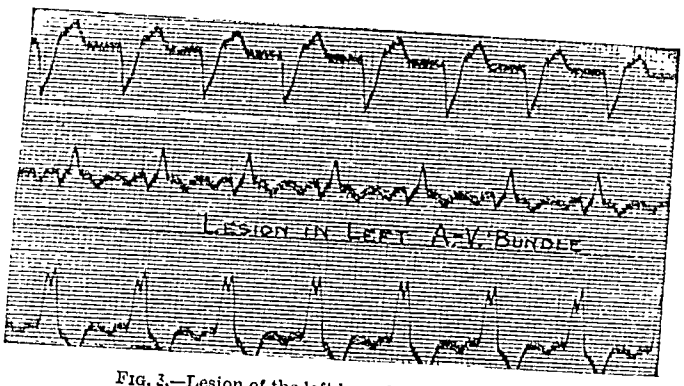

FIG. 3.—Lesion of the left branch of the A-V bundle.

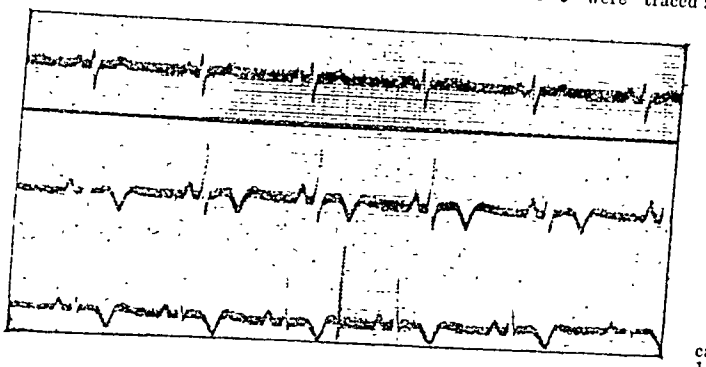

FIG. 4.—Inversion of the "T" wave in leads II and III.

These figures show how remarkable in prognostic is this T negativity or inversion of the T wave. Dr. W excludes the possible fallacy of the inversion being to digitalis, so that his investigations confirm wha been always a very d impression—namely, the physical sign permanent inversio the T wave in leads I II is of grave progn significance.

SYNOPSIS OF ROYAL VIC HOSPITAL CASES.

Inversion of "T" W in Lead I.

Twenty cases—males 16 females 4.

Clinical Diagnosis: E carditis with mitral regu tation 5; mitral stenosis aortic regurgitation 2; ac and mitral regurgitation myocarditis 1; after angina pectoris 1; auricul sclerosis 2; syphilitic aortitis 3; fibrillation 1.

Of these cases 19 were traced: 2 (1 of syphilitic aortitis a 1 of mitral regurgitation) were still alive; the remaining 17 we dead, after periods varying from three years to one month. Th average duration of life after the initial examination was 12 months. The mortality is 89.47 per cent.

Inversion of "T" Wave in Leads I and II.

Twenty-two cases—males 13, females 9.

Clinical Diagnosis: Endo carditis with mitral regurgi tation 6; mitral stenosis 2, aortic regurgitation 2; aortic and mitral regurgitation 2; myocarditis 4; arterio-sclero 1; aortitis 1; hypertensio 2; angina pectoris 1; auricu lar fibrillation 1.

Of these cases 19 were traced: 3 were still living—namely, 1 of aortitis, 1 o mitral regurgitation, and 1 o angina pectoris; the remain ing 16 were dead, after period varying from twenty-seve months to one month. Th average duration of life aft the initial examination was 9.7 months. The mortality is 81.2 p cent.

Inversion of "T" Wave in Leads I, II, and III.

Eleven cases—males 6, females 5.

Endocarditis with mitral stenosis 1; aor and aortic regurgitation 1; myocarditis

Of these cases 9 were traced: 4 were still alive—namel 1 case of mitral regur tation, 1 of myocardi and 2 of auricular fibril tion; 5 were dead, aft periods varying from years to one year. The av age duration of life af the first examination 28.5 months. The mortal is 55.5 per cent. This grou of course, very small in nu bers for statistical purpo

Inversion of "T" Wave Leads II and III.

Twenty-two cases—males females 15.

Clinical Diagnosis: E carditis—mitral regurgita 1; mitral stenosis 9; ac regurgitation 1; aortic mitral regurgitation 1; m carditis 2; syphilitic aortit angina pectoris 1; auricular fibrillation 5; pericarditis 1.

Of these cases 17 were traced: 7 were still alive—namely suffering from mitral stenosis; 1 from myocarditis, 1 from ac regurgitation, 2 from auricular fibrillation, and 1 from pericard 10 were dead, after periods varying from three years to month. The average duration of life from the first examina was 10.1 months. The mortality is 58.5 per cent.

Wales Branch on October 24th. In Melbourne he will be the guest of the Governor of Victoria, Lord Stradbroke, and afterwards of Lord Forster, the Governor-General of the Commonwealth. The arrangements for the congress are now far advanced, and everything gives promise of a most successful gathering. There will be twelve sections, the presidents being selected from the various States of the Commonwealth and from New Zealand. An exhibition of trade products, including medical and surgical instruments, books, drugs, foods, and other articles of direct interest to the medical profession, will be held in the new anatomy department of the University of Melbourne during the congress. This new department, the erection of which was begun in January, 1922, will be very complete. It will have two dissecting rooms, each capable of accommodating 300 students, a well equipped museum, and a large theatre. It will also provide a histological laboratory to accommodate 250 students, and special rooms for operative surgery, neurology, and physical anthropology. It is hoped that Sir William Macewen will accept the invitation of the University Council to take part in the opening ceremony during the congress.

THE RED CROSS AND ORDER OF ST. JOHN.

THE third report of the Joint Council of the Order of St. John of Jerusalem and the British Red Cross Society[1] contains an account of the services conducted by the Council, the report of the finance committee, and a financial statement. The departmental reports record a very large amount of useful work done on behalf of ex-service officers and men. The Department of Auxiliary Hospitals for Officers has dealt with 359 new cases, bringing the total number of officers assisted since August, 1914, to 16,862. Many of the patients suffered from tuberculosis, and these have been assisted in obtaining sanatorium treatment at home or abroad. Other patients have been treated at the Officers' Hospital at Brighton. The Emergency Help Committee was set up by the Council in December, 1920, with an initial grant of £100,000, for the purpose of granting temporary relief in emergencies to ex-service men suffering from sickness or disablement attributable to or aggravated by their war service. The committee has tided many men over the period of delay in settling their claims for pensions. The administration of the emergency help scheme is carried out through county and borough directors. In many places there are committees representing kindred charitable organizations under the chairmanship of the director. The Emergency Help Committee works in constant touch with the Ministry of Pensions, and brings to its notice all cases in which decisions appear to be unreasonably delayed or in which interpretations placed on the Royal Warrant have operated harshly. The total expenditure in grants during the year was £124,700. At the beginning of this year the Central Joint V.A.D. Committee was reconstituted by the Army Council, in order that the voluntary aid detachments might be called upon to supplement not only the Territorial Army, but also the Royal Navy, the Regular Army, and the Royal Air Force. The Central Joint V.A.D. Committee now includes representatives of the Admiralty, the War Office, the Air Ministry, the Territorial County Associations, as well as of the Order of St. John and the British Red Cross Society. The chairman of the Committee is Sir Humphry Rolleston. During the year a new convalescent Home has been opened at Eddlewood, Weybridge, the funds for which were presented by the United Services Fund. There is also a holiday hotel at Folkestone and a residential club in London. The last unit of general service V.A.D. members returned from Constantinople in May, 1922, and was demobilized. The report of the Stores Department will no doubt captivate popular imagination with its millions of cigarettes, thousands of pounds of tobacco, its gramophones and Christmas parcels distributed to pensions hospitals. But a more solid achievement from the medical point of view is the development of the home ambulance service. There are now over 320 ambulance stations established throughout the country, a large number being operated entirely by voluntary workers, and the ambulances are carrying over 1,000 patients a week, for many of whom treatment would have been out of reach owing to lack of means of transport. Thirty-three new ambulance stations were established during the year. The work of the service is confined to the provinces, because the provision of ambulances for the public service in London is vested in certain public authorities. It is to be hoped that the Council's appeal for support in order that old ambulances may be replaced as required will meet with success, if only for the purpose of comparing the results of voluntary effort in the provinces with municipal and other departmental organization in London. The work of the Joint Council seems to be extremely efficient, and even on the financial side the position seems not unsatisfactory.

[1] Third Report of the Joint Council of the Order of St. John of Jerusalem in England and the British Red Cross Society, from April 1st, 1922, to March 31st, 1923. 19, Berkeley Street, W.1.

EDIBLE AND POISONOUS FUNGI.

AN interesting note on edible and poisonous fungi, their characteristics and composition, appears in the introduction to Mr. John Ramsbottom's *Handbook of the Larger British Fungi*, recently published by the Trustees of the British Museum.[1] In this country only the field-mushroom (*Psalliota campestris*) and the horse-mushroom (*P. arvensis*) are commonly eaten, though many of our common toadstools have a much more delicate flavour. But indiscriminate eating of toadstools is not a pastime to be indulged in, for, although there are far fewer poisonous species than is popularly supposed, some are extremely dangerous. In order to tell whether a fungus is edible or poisonous one must be able to distinguish it and know its record. Nevertheless, there is a prevalent idea that by subjecting a fungus to one or other simple test it can easily be ascertained whether it may safely be eaten. Though the belief in many of these tests is common throughout the world, we have Mr. Ramsbottom's word for it that not the slightest reliance can be placed upon any of them. He then proceeds to demolish, one by one, four of the most common of these beliefs. The remaining rule-of-thumb methods are equally useless; the only way in which to benefit from the experience of others is by learning to recognize the species concerned, and by never eating a fungus until its identity is certain. This manual should prove very useful in helping people to acquire the necessary knowledge. The author groups the poisonous effects of these plants under four headings: (1) natural idiosyncrasy; (2) simple indigestion, due to bad cooking or overindulgence; (3) poisoning by old and altered fungi; (4) specific poisoning. Under the second heading he remarks on the unwisdom of making a heavy meal of mushrooms on returning from a long walk fatigued and hungry, and adds that fungi should never be eaten alone. Though a complete food, their nutritive value has been much exaggerated; the amount of nutriment is very small compared with their bulk, and their chief value is as appetizers, giving variety and flavour to other more nutritious foods. The most deadly of the poisonous varieties is the common *Amanita phalloides*, which accounts for 90 per cent. of the deaths caused by fungi. A paper on the poisonous constituents of this toadstool was read by Dr. W. W. Ford in the Section of Pathology of the Annual Meeting of the British Medical Association in Montreal.[2]

[1] *A Handbook of the Larger British Fungi.* By John Ramsbottom, O.B.E., M.A., F.L.S. London: Printed by order of the Trustees of the British Museum. 1923. (Demy 8vo, pp. iv+222; 141 figures. 7s. 6d. net.)

[2] BRITISH MEDICAL JOURNAL, December 1st, 1906, p. 1541.

1. *Salpingostomy.*—As the result of a mild inflammation the tubal ostium may be sealed up, without evidence of other gross changes in the tube. An artificial ostium can be formed by making a longitudinal incision in the tube, as near to the ovary as possible, and oversewing the cut edges with fine silk to prevent reunion.

2. *Drainage of Pus Tubes.*—In cases of pyosalpinx the plan has been tried of laying the tube open from end to end and leaving it open to drain. This is done instead of removing the tubes. From the point of view of pregnancy, the chances can at least be no worse, as the result of drainage, than they were before; theoretically, they may be better. But it remains a question whether a tube that has been a pus sac for some time can ever regain its function. Personally I should not be at all sanguine about it; but only time can determine whether the experiment is sometimes worth trying. It may be found that the result as regards pregnancy is *nil*, and that the damaged tubes remain a source of danger and ill health. It would be necessary, when laying open tubes for drainage, to make sure that the uterine ostium of the tube was patent.

3. *Restoration of an Occluded Uterine Ostium.*—Where the tube is not too badly damaged but its uterine end is impervious, attempts have been made to restore this channel. The method adopted has been to pass a long straight needle, threaded with several strands of catgut, along the tube, through the isthmus, into the uterine cavity, and then across through the isthmus of the opposite side into the other tube. Another plan is to open the fundus of the uterus from the front and pass the strands of catgut from the uterine cavity into the tubes. The wound in the uterus is then closed. These ingenious methods are, of course, experimental; and here, again, time alone will show whether they have any practical value. If only one case of pregnancy followed the operation it would be worth while persevering with the attempts, since the alternative to operation is a hopelessly incurable sterility.

Conservative Surgery of the Uterus.

Perhaps the first warning that should be uttered in this connexion is against meddlesome surgery of the cervix. It is the fashion in some quarters to amputate the cervix for prolapse and procidentia. No doubt it happens occasionally that amputation is required for elongation of the vaginal portion of the cervix. In prolapse there is an appearance of elongation of this portion, and perhaps some operators have mistaken this for a true hypertrophy, and they have thus been led to do an amputation, with results that can only be regarded as very bad from a conservative point of view.

1. *Repair of a Torn Cervix.*—This is eminently a conservative and prophylactic measure. A deep bilateral tear of the cervix is unfavourable to conception, partly because it is nearly always associated with "erosion," and this in turn causes a muco-purulent discharge, which is noxious to spermatozoa. If pregnancy does occur it is very liable to end in a miscarriage. Repair of the torn cervix is favourable to pregnancy. It is also a sound prophylactic procedure, because such a cervix is in a highly favourable condition for the development of carcinoma.

2. *Uterine Fibroids: Preservation of the Uterus.*—There are many cases in which uterine fibroids can be treated by myomectomy instead of hysterectomy. Several factors must be considered when deciding between the two operations; but they may be summarized by saying that myomectomy should always be done when it is surgically possible in a woman of child-bearing age, provided that other conditions are favourable for child-bearing, and that the operation does not leave a battered and useless uterus. After the age of 40 to 45 myomectomy seldom has any practical value. Papers advocating the more frequent performance of myomectomy were read by Mr. Bonney and myself at the meeting of the Obstetrical and Gynaecological Section of the Royal Society of Medicine in October, 1922.

3. *Radium in Chronic Metritis.*—There are cases of chronic metritis that prove refractory to repeated curetting and to vaccine treatment, and it has been found necessary in the past to do a hysterectomy in order to overcome excessive losses or constant purulent discharge. In a woman under 40 one hesitates to resort to this extreme step, and an alternative plan is now offered by radium. A tube containing 110-115 mg. of radium is introduced into the uterus after a slight dilatation and left for twenty to twenty-four hours. Many good results have been reported. The treatment is not devoid of the risk of inducing permanent atrophy of the ovaries, in which case the functional results would be even worse than those following hysterectomy. But even where the ovaries have been affected it has sometimes been found that this result is transient, and menstruation has been renewed after some months, showing that the ovarian activity has been restored. A course of repeated applications of x rays seems to have a more damaging effect upon the ovaries than a single application of radium.

4. *Preservation of Cervix in Hysterectomy for Benign Conditions.*—A reference has already been made to this. There are, of course, cases where the condition of the cervix necessitates a total hysterectomy. But I am convinced that when the cervix can safely be left the subtotal hysterectomy is a better operation; and this partly for the reason that the vagina is left unaltered and so is better adapted for the continuation of married life.

THE AFTER-EFFECTS OF CERTAIN INDUSTRIAL INJURIES, AND THEIR TREATMENT BY X RAYS.*

BY

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CERTAIN forms of industrial injury often result in limitation of function owing to the formation of an excessive amount of fibrous tissue during the process of repair. Examples of such injuries are those involving the tendons of the wrist or fingers after either primary or secondary suture; extensive lacerated wounds or burns of muscle, and even the less serious condition of teno-synovitis. One has only to recall the usual course of treatment in such cases —namely, a prolonged period of after-treatment in the massage and electrical department—to realize that there is a serious economic factor involved, for during this period the patient is being paid compensation and too often the end-results are not at all satisfactory.

It is apparent, therefore, that any treatment which will shorten this period of convalescence and which may possibly improve the end-results deserves to be widely known and extensively practised. The object of this paper is to urge the claims of radiotherapy in such cases. I venture to assert that the final results of suitable x-ray treatment are better and more quickly obtained than by the older and more usual methods of massage, movement, and negative electrolysis, all of which I have practised and have definitely discarded.

Whilst fibrous tissue is necessary for the restoration of function, the formation of such tissue in excess of actual requirements leads to that limitation of function which is so often a marked feature of these cases. The difficulty would be solved if we could change this scar tissue into a supple vascular tissue which would not interfere with function. This, I believe, is what is done by radiotherapy. I find that it is by no means uncommon for these cases to be discharged within a period of two or three weeks from commencing treatment. The treatment is carried out on three days a week only—in other words, an average of nine attendances of thirty minutes each is the only tax on the man's time. The more recent the injury the more easily will the final result be obtained. But the term "recent" is purely relative. It would be more accurate to say that the less fully organized, the more vascular the tissue, the more satisfactory the results. One case has been selected for a detailed report as it is a typical example of limited function resulting from just such an accident—namely, limitation of movement following on tendon suture and persisting in spite of two months' treatment by massage and movement. It was finally converted into an almost perfect functional result by eight treatments in the x-ray department spread over a period of two and a half weeks.

The patient had an extensive cut of the second finger of the left hand extending round the front and side of the proximal interphalangeal joint and severing the flexor tendons. The tendons were sutured and the patient was submitted to after-treatment in the massage department for two months. At the end of this time the condition was as shown in Fig. 1, the movement being limited and the finger thickened and painful.

*A paper read before the Yorkshire Branch of the British Medical Association, June 1st, 1923.

and went to 107, Piccadilly the following year. From its earliest days many prominent members of the medical profession have belonged to it. Andrew Clark was the largest subscriber amongst the original guarantors. Ernest Hart figures amongst such historic names of original members as Thomas Hughes of *Tom Brown's Schooldays* fame, Henry Sidgwick, Sir W. Anson, James Bryce, Sir Samuel Baker, Earl Brassey, Lord Dufferin, the Marquess of Lorne, Stafford Northcote, and several others well known in the scholastic, literary, and political worlds. Drs. Bastian and Pye-Smith and Sir Michael Foster were also original members; they served on the earlier committees, as did subsequently Dr. Corfield, Sir Bryan Donkin, and Sir Lauder Brunton, and in later years Sir George Makins, Sir Seymour Sharkey, Sir Isambard Owen, Sir Arthur Whitelegge, Sir Squire Sprigge, Sir David Prain, and other prominent members of the medical profession. The reminiscences, as revealed by the historian, tell us little or nothing about their individual characters as members of the Club, but, judging by the company they kept, their conversation must have been on a high level of learning, brilliancy, wit, and entertainment. The Savile was a happy family, where none were strangers to one another. Simplicity in all arrangements and the maintenance of a table d'hôte, at which members partook of the same meal at the same table in order to preserve mutual acquaintance and friendship, was and is the guiding principle, well expressed in the Club's motto, "Sodalitas Convivium." "By this means," as a member once said, again quoting the *Spectator* of April 9th, 1711, "I am furnished with the greatest variety of hints and materials, and know everything that passes in the different quarters and divisions, not only of this great city, but of the whole kingdom," and he added "of the whole world."

WEST AFRICAN CONGRESS OF TROPICAL MEDICINE.

THE first Congress of Tropical Medicine in West Africa was held from July 16th to 23rd, 1923, at Loanda, by the invitation of the Government of Angola. Those who know West Africa, and the difficulties of finding accommodation for 120 guests in one town, will appreciate the magnitude of the test put upon Portuguese hospitality. But the hosts rose splendidly to the occasion. Each delegate realized that he was not only a welcome but an exceptionally favoured guest, and this hospitality was extended also to wives and children of the "congressistas." The object of the congress was to discuss the ways and means of attacking the medical and sanitary problems, more particularly with regard to the native inhabitants, of the colonies represented. The first session was devoted to sanitary organization; the following five were given over to practical methods in the prophylaxis and treatment of the prevalent diseases; and at the remaining sessions communications were read on the results of scientific research. At the opening meeting the municipal council formally offered its welcome and its magnificent chambers, and at a later stage the High Commissioner of the Republic in Angola—General José Mendes Ribeiro Norton de Matos—officially, and in his capacity of honorary president of the congress, opened the proceedings. Eighty-three communications were read and discussed, main interest being centred on sleeping sickness, tuberculosis, leprosy, schistosomiasis, and malaria. Other subjects included blood and intestinal protozoa, pathogenic fungi, climatology, and anthropology. Seventy-six delegates attended the meetings, representative of Angola, Portugal, Belgian Congo, San Tomé, Cameroun, French West Africa, French Equatorial Africa, Portuguese India, Mozambique, Paris, the Union of South Africa, and Nigeria, and the London School of Tropical Medicine. At the final meeting resolutions dealing with intercolonial public health reports, sleeping sickness, tuberculosis, and other diseases were passed. A full report of the proceedings will shortly be published by the executive committee, under the chairmanship of Dr. Damos Mora. Two prizes of 10,000 francs each were offered, one for the paper on the best practical methods of hospital treatment of the native, and the other for the most outstanding work in the proceedings of the congress. The social side of the congress was a series of official receptions, dinners, luncheons, dances, and garden parties. Fireworks, illuminated displays at night, a cinematograph entertainment, an excursion into the interior at Humabo, a hunting expedition at Mossamedes, and visits to local factories and places of interest, including hospitals, contributed to make the delegates' life a very crowded one, and full of interest. Not only at Loanda was entertainment provided, but also at Novo Redondo, Lobito, Benguela, and Mossamedes, and two enjoyable days were spent at the beautiful island of San Tomé. The next congress is fixed for the year 1927 at Dakar.

MAUDSLEY HOSPITAL COURSES.

THE second part of the sixth course of lectures and demonstrations for the Diploma in Psychological Medicine will open at the Maudsley Hospital on October 8th. Dr. Edward Mapother will deliver eight lectures on morbid psychology, on Mondays at 2.30 and 4.30 p.m., beginning on October 8th. Dr. Bernard Hart will give eight lectures on the psychoneuroses on Mondays at 3.30 and 5.30 p.m., beginning on November 5th. Sir Frederick Mott will give six lectures on the pathology of mental diseases, including brain syphilis, its symptomatology and treatment, on Tuesdays at 4.30 p.m., beginning on November 6th. Dr. C. Hubert Bond will give eight lectures on the legal relationships of insanity and treatment on Tuesdays, October 9th, 16th, and 23rd, at 4.30 p.m., and on Thursdays, October 11th and 25th, at 4.30 p.m. Dr. F. C. Shrubsall will give eight lectures on the practical aspect of mental deficiency on Wednesdays at 2.30 p.m., beginning on October 10th, and on Tuesdays at the same hour, beginning on November 6th. Dr. W. C. Sullivan, medical superintendent, Broadmoor Asylum, will give six lectures on crime and insanity on Wednesdays at 4.30 p.m., beginning on October 10th, and on Thursdays at the same hour, beginning on November 8th. Dr. Mapother will give six lectures in clinical psychiatry on Wednesdays at 2.30 p.m., beginning on November 7th. Sir Frederick Mott and Dr. F. L. Golla will give twelve clinical demonstrations in neurology on Thursdays at 2.30 p.m., beginning on October 11th; the first six demonstrations will be given by the former at Camberwell Infirmary, and the second six by the latter at the Hospital for Paralysis and Epilepsy, Maida Vale, on Thursdays at 2.30 p.m., beginning on November 22nd. The fee for the whole of Part II of the course is ten guineas; for a single series of lectures, two guineas. The Fellowship of Medicine (1, Wimpole Street, W.1) will collect fees from, and issue tickets to, medical men intending to take the course who are introduced by the Fellowship. All inquiries regarding lectures, etc., should be addressed to the Director of the Pathological Laboratory, Maudsley Hospital, Denmark Hill, S.E.5.

THE Canadian Medical Association is arranging for a Lister Oration to be given once every three years. The first of these will be given next year at the annual meeting in Ottawa by Dr. John Stewart of Halifax. Dr. Stewart was one of Lister's house-surgeons in the early days in Edinburgh.

DR. ANDREW BALFOUR, C.B., C.M.G., who for the past ten years has been Director-in-Chief of the Wellcome Bureau of Scientific Research, London, will resign that position on October 31st. His successor is Dr. C. M. Wenyon, C.M.G., C.B.E.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

THE TREATMENT OF SPRUE.

THE clinical resemblance between coeliac disease and sprue has been noted by several observers. Dr. Spence, who was at the time working on the former disease at the Hospital for Sick Children, Great Ormond Street, was good enough to see a case of sprue with me, and suggested that the comparatively fat-free diet used in cases of coeliac disease might be tried. The results of this treatment have proved satisfactory.

DIET.

5 a.m.—Cup of weak tea, 1 round of dry toast.
8 a.m.—1 oz. casein, 1 pint machine-skimmed milk, and 1/2 pint of tea (without sugar), 4 rounds of dry toast, and 1 oz. cheese.
11 a.m.—1/2 pint machine-skimmed milk, 1/2 oz. casein.
11.30 a.m.—Juice of one orange.
12 noon.—1 pint liver soup, 2 oz. minced chicken, 2 rounds dry toast, 4 oz. junket, 4 oz. calves' foot jelly. (*Note.*—The junket is made with skimmed milk. Liver soup is made by simmering 1 lb. of fresh liver with two pints of water for two hours, and then grating the liver into the liquid.)
4 p.m.—1 oz. casein, 1 pint skimmed milk (machine), 1/2 pint of weak tea (without sugar), 1 oz. cheese, 2 cream crackers.
8 p.m.—1 pint machine-skimmed milk, 1 oz. casein, 4 oz. junket, 1 oz. calves' foot jelly.
10 p.m.—Juice of one orange.

The notes of the cases are as follows:

Case 1.—A. B., when admitted on December 4th, 1922, was seriously ill with sprue. Diarrhoea had begun in October, 1919. This had continued with intervals of slight improvement till June, 1922, when he had to give up work and remain at home on account of weakness and diarrhoea. He was extremely emaciated, weighing only 7 st. 3 lb. He was anaemic, the tongue was red, raw, and there were numerous superficial ulcers on it, and on the buccal mucous membrane. The abdomen was distended and tympanitic, and the liver dullness was considerably diminished. The stools, of which he was passing three or four daily, mainly in the early morning, were bulky, frothy, foul, and pale in colour, and contained 43.7 per cent. of fat. Attacks of tetany were frequent, and prevented him from sleeping. On the diet he improved rapidly; the tetany disappeared within two weeks, and in three weeks the motions had become solid, light brown in colour, and one or two in twenty-four hours. In the first week he gained 2½ lb., in the second week 2½ lb., and then an average of about 6 lb. a week till on April 23rd, 1922, he weighed 12 st. 2 lb. His general condition is now excellent.

Case 2.—C. D., admitted on February 1st, 1923, had suffered from morning diarrhoea since August, 1920. His condition was similar to that of A. B., except that there was no tetany. The tongue was red, raw, and with several painful ulcers. The stools were typical of sprue. His weight was 8 st. 12 lb. When put on the diet he improved rapidly, and at the end of eight weeks [illegible]ched 12 st. 7 lb.

[illegible] 3.—E. F., invalided out of the navy with sprue on [illegible]mber 31st, 1919, had had all sorts of treatment in various [illegible]pitals. When admitted he had ulcers on the tongue and buccal mucous membrane, tympanitic abdomen, diminished liver dullness, and large, pale, foul, frothy stools. On the diet he rapidly improved, put on 14 lb. in weight, and now writes that he is looking and feeling exceedingly well.

I am indebted to the Director-General of Medical Services, Ministry of Pensions, for permission to publish this note, and to Drs. J. G. Wilmore and A. G. Wilkinson for the care they took in supervising the treatment.

T. H. JAMIESON, M.D., M.R.C.P.Edin.,
Visiting Physician, Ministry of Pensions Hospital, Orpington.

HYPERSENSITIVENESS TO QUININE.

THE following case seems worth recording on account of the extreme severity of the symptoms occasioned by so small a dose as three-eighths of a grain of quinine, and of the divergence of those symptoms from those usually described as resulting from cinchonism.

Mrs. C., a spare woman of neurotic type, aged 50 years, married, two children, came under my care in June last, for the first time, suffering from a mild attack of influenza. Her past history presented no feature of clinical importance with the exception, as I subsequently learned, of her intolerance of quinine. This was discovered sixteen years ago, but the symptoms then were slight and the account now obtainable too vague to be of any value. Twelve years ago she was given a tonic containing iron and quinine citrate, and after taking a few doses she became very ill, with vomiting, diarrhoea, and erythema of the lower extremities, which was followed by desquamation. Three years ago she was given a mixture containing ammonia and 20 minim doses of compound tincture of cinchona. A few doses again produced gastro-intestinal disturbances, and intense erythema of the lower extremities extending as high up as the iliac crests. In from twenty-four to forty-eight hours the skin in this region presented a mottled purple appearance such as that of extensive ecchymosis, and later underwent dry desquamation. There was also a slighter and more patchy affection of the arms.

Unaware of these details, during her convalescence in June I prescribed for the patient iron and quinine citrate in 5-grain doses. She thought she recognized the mixture as similar in appearance to that which caused the trouble before, and therefore took only half a dose, which represents three-eighths of a grain of quinine. This was followed almost immediately by faintness and giddiness. She took brandy and went to bed. Within an hour she began to complain of a burning sensation in the upper abdomen accompanied by vomiting and diarrhoea which lasted for twenty-four hours. There was severe irritation of the lower extremities, the itching of which she described as intolerable. Within a few hours the legs became deep red up as high as the iliac crests, at which level the erythema definitely ceased. The hands and forearms were affected somewhat later and in a lesser degree. After twenty-four hours the erythema gave place to vesiculation; the entire surface of the thighs and buttocks presented, in fact, the appearance of a burn of the second degree. The legs, feet, and affected parts of the upper extremities did not vesiculate, but after a few days underwent desquamation. The temperature varied between 99° and 101° F. For treatment, calcium lactate was given by mouth and the skin lesion was treated as if it were a burn. The condition cleared up in about fourteen days.

It is noteworthy that with each attack the susceptibility to the drug has increased and lasted in spite of one interval of nine years; also that there has been on each occasion the same definite demarcation between the affected and the healthy skin areas.

Rye, Sussex. FRANCES E. BELL, M.B., B.Ch.

A "PRIVY" BIRTH.

THE following notes of a "privy" birth seem to be of value, especially from a medico-legal point of view.

About 3.15 a.m. on May 13th last I was called up to visit a woman who lived about two miles out in the country. I arrived at 3.45, and was met at the door by a neighbour of the woman, who was in a state of great trepidation. She stated that "something had happened" in the closet, but that she was too frightened to go and see what had happened. Finding that the woman was then in bed and apparently fairly well I went at once to the closet, about fifty yards away. This turned out to be a small open privy of a most primitive type, with two side walls, a back wall, a galvanized sheet of iron for roof, but with no door. On looking into the privy I saw the face of a child about half a yard below the level of the seat, the rest of the body being embedded in the contents of the pit. The child made a feeble inspiratory effort. I lifted the body out with cord and placenta attached, and carried it into the house. When nearing the house I noticed another slight inspiratory effort. The child was mature, pulseless as far as I could ascertain, stone cold, and with the appearance of a cadaver. The birth had taken place a full two hours before my visit. The ground around was covered with a hoar frost at the time. After a hurried removal of some of the filth the child was wrapped in warm flannel and artificial respiration started. I had two women assistants; one I instructed to massage the feet, the other to apply friction to the vertex. After about fifteen minutes of this four or five regular spontaneous respiratory movements were made, followed by an interval before they were again resumed. This continued for a considerable time, and it was not until an hour had passed that they became definitely continuous. The child was then put into a warm bath; the body was still cold when taken out of this, but breathing was regular and the child did well, and is well at the present date.

When doing artificial respiration I made gentle pressure and release movements over the epigastrium, which I had found effectual in other cases of resuscitation of the newborn. It was noticeable that, if the woman who was applying friction to the vertex stopped doing so during the time that regular respiration was being established, an arrest of the respiratory movements at once occurred. This seemed to give a valuable reflex stimulus.

The following points seem notable: (1) the child was in the privy for two hours; (2) the privy was an open one and the outside temperature below freezing point; (3) the cord and placenta were attached; (4) the child was dying when I arrived, was pulseless and stone cold; (5) resuscitation occupied one hour.

Llansantffraid, Montgomery. W. H. LEWIS, M.B., B.Sc.

The Electron and the Proton.

We know that the electron has a negative charge of one fundamental unit, while the charged hydrogen atom, whether in electrolysis or in the electric discharge, has a charge of one positive unit. But the mass of the electron is only 1/1840 of the mass of the hydrogen atom; no evidence has been found of the existence of a positive electron of small mass like the negative. In no case has a positive charge been found associated with a mass less than that of a charged atom of hydrogen. The small mass of the negative electron is to be associated with the energy of its electrical structure, so that the electron may be regarded as a disembodied atom of negative electricity. The hydrogen atom is the lightest of all atoms, and is presumably the simplest in structure, and the charged hydrogen atom, which is to be regarded as the hydrogen nucleus, carries a unit positive charge. It is thus natural to suppose that the hydrogen nucleus is the atom of positive electricity, or positive electron, analogous to the negative electron, but differing from it in mass. There is the strongest evidence that the atoms of matter are built up of these two electrical units—namely, the electron and the hydrogen nucleus or proton, as it is usually called when it forms part of the structure of any atom. It is probable that these two are the fundamental and indivisible units which build up our universe.

The Nuclear Atom.

Professor Rutherford described the conception of the nuclear atom according to which the heart of the atom consists of a minute but massive nucleus, carrying a positive charge of electricity and surrounded at a distance by the requisite number of electrons to form a neutral atom. In a heavy atom like that of gold the radius of the nucleus, if supposed to be spherical, is less than one-thousandth of the radius of the complete atom surrounded by its electrons. These outer electrons are in some way held in equilibrium by the attractive forces of the nucleus, and their arrangement and motion must be governed entirely by the magnitude of the nuclear charge. Since the ordinary chemical and physical properties are to be ascribed mainly to the configuration and motion of the outer electrons, it follows that the properties of an atom are defined by a whole number representing its nuclear charge.

Moseley's Law and Bohr's Theory.

Professor Rutherford went on to explain Moseley's law, which fixed the number of electrons in all the atoms, and showed that the properties of an atom are determined not by its atomic weight but by its nuclear charge. He dealt briefly with the quantum theory, and sketched the method by which Bohr has sought to determine the distribution of the electrons around the nucleus of any atom and to fix the quantum numbers that characterize the motion of each electron, and to form a rough idea of the character of the orbit.

The first element, hydrogen, he continued, has a nuclear charge of 1 and 1 electron; the second, helium, has a charge 2 and 2 electrons, moving in coupled orbits. These two electrons form a definite group, known as the K group, which is common to all the elements except hydrogen. For increasing nuclear charge the K group of electrons retain their characteristics, but move with increasing speed, and approach closer to the nucleus. As we pass from helium of atomic number 2 to neon, number 10, a new group of electrons is added consisting of two subgroups, each of four electrons, together called the L group. This L group appears in all atoms of higher atomic number, and, as in the case of the K group, the speed of motion of the electrons increases, and the size of their orbits diminishes with the atomic number. When once the L group has been completed a new and still more complicated M group of electrons begins forming outside it, and a similar process goes on until uranium, which has the highest atomic number, is reached.

A Vizualization of the Planetary System of the Atom.

It may be of interest to try to visualize the conception of the atom we have so far reached by taking for illustration the heaviest atom, uranium. At the centre of the atom is a minute nucleus surrounded by a swirling group of 92 electrons, all in motion in definite orbits, and occupying but by no means filling a volume very large compared with that of the nucleus. Some of the electrons describe nearly circular orbits round the nucleus; others, orbits of a more elliptical shape whose axes rotate rapidly round the nucleus. The motion of the electrons in the different groups is not necessarily confined to a definite region of the atom, but the electrons of one group may penetrate deeply into the region mainly occupied by another group, thus giving a type of interconnexion or coupling between the various groups. The maximum speed of an electron depends on the closeness of the approach to the nucleus, but the outermost electron will have a minimum speed of more than 1,000 kilometres a second, while the innermost K electrons have an average speed of more than 150,000 kilometres a second, or half the speed of light. When we visualize the extraordinary complexity of the electronic system we may be surprised that it has been possible to find any order in the apparent medley of motions.

Bohr's theory not only offers a general explanation of the optical and *x*-ray spectra of the atom, but it accounts in detail for many of the most characteristic features of the periodic law of Mendeléef. It gives us for the first time a clear idea of the reason for the appearance in the family of elements of groups of consecutive elements with similar chemical properties, such as the groups analogous to the iron group and the unique group of rare earths. The theory of Bohr, like all living theories, has not only correlated a multitude of isolated facts known about the atom, but has shown its power to predict new relations which can be verified by experiment. The power of Moseley's law to fix the atomic number of an element is well illustrated by the recent discovery by Coster and Hevesy in Copenhagen of the missing element of atomic number 72, which they have named "hafnium," and Bohr's theory rendered it possible to predict its chemical properties with great accuracy, and so gave the necessary incentive to search for it.

Chemical Combination.

So far no reference has been made to the very difficult question of the explanation on this theory of the chemical combination of atoms. In fact, as yet the theory has hardly concerned itself with molecular structure. On the chemical side, however, certain advances have already been made, notably by G. N. Lewis, Kossel, and Langmuir, in the interpretation of the chemical evidence by the idea of shared electrons, which play a part in the electronic structure of two combined atoms. There can be little doubt that the next decade will see an intensified attack by physicists and chemists on this very important but undoubtedly very complicated question.

The Nucleus of the Atom.

The nucleus of the atom is still a comparatively unexplored territory, though the study of radio-active bodies has provided us with very valuable information on the structure of the nucleus, for we know that the α and β particles must be expelled from it, and there is strong evidence that the very penetrating γ rays represent modes of vibration of the electrons contained in its structure. In the long series of transformations which occur in the uranium atom, eight α particles are emitted and six electrons, and it seems clear that the nucleus of a heavy atom is built up, in part at least, of helium nuclei and electrons. It is natural to suppose that many of the ordinary stable atoms are constituted in a similar way. It is a matter of remark that no indication has been obtained that the lightest nucleus—namely, that of hydrogen—is liberated in these transformations, where the processes occurring are of so fundamental a character. At the same time, it is evident that the hydrogen nucleus must be a unit in the structure of some atoms, and this has been confirmed by direct experiment. Dr. Chadwick and I have observed that swift hydrogen nuclei are released from the elements boron, nitrogen, fluorine, sodium, aluminium, and phosphorus when they are bombarded by swift α particles, and there is little room for doubt that these hydrogen nuclei form an essential part of the nuclear structure.

Professor Rutherford then gave a short account of the theory of "isotopes," which, he said, strongly supported

gold curve was obtained in 50 per cent., and the luetic type of curve in about 16 per cent. of the cases. Arsenical treatment is stated to be the most successful method, and the use of neo-salvarsan and mercury is mentioned, but without any enthusiasm. There is a copious bibliography, which adds to the value of this book as a useful source of reference.

TWO FRENCH TEXTBOOKS OF PSYCHIATRY.

THE sixth edition of Dr. J. ROGUES DE FURSAC's well known *Manuel de Psychiatrie*[3] contains much new material. He points out that the last few years have furnished mental pathology with a number of facts of considerable practical and theoretical interest. Amongst these he refers to the harvest of clinical data which has resulted from the discovery of lethargic encephalitis. Actually, the account he gives of this disorder is scarcely adequate in view of its importance to psychiatry, and only eight lines are devoted to encephalitis in children. Recent developments in the treatment of general paralysis are discussed at length. The author regards the results of antisyphilitic treatment as distinctly encouraging, and his own experience has led him to the view that the most severe symptoms can be alleviated by active therapy. He regards Von Wager's methods of treatment also as promising, and has personally observed remarkable improvement in general paralysis after infective fevers. The section dealing with constitutional psychopathic states (hypermotivity, psychasthenia, obsessions, hypochondriasis, etc.) has been considerably augmented, and includes, rather unfortunately we feel, under the same category the congenital group, idiots, and imbeciles. On the whole, the French school of psychiatry would appear to stress unduly the constitutional factor in the various forms of inadequacy. There must be very few people, indeed, who are not subject to episodes of anxiety, feelings of inferiority, mild obsessions, and so on, as a result of other than constitutional factors. The ability to cure and overcome such psychoneurotic symptoms probably depends largely on the degree of constitutional weakness, a fact which was revealed in a striking manner in the war psychoneuroses. Dr. de Fursac is specially interested in the problems of medico-legal psychiatry, and a section is devoted to this subject. The book is comprehensive, and the additional material has brought it thoroughly up to date. We have no doubt it will continue to maintain its position as one of the leading French textbooks of psychiatry.

Psychiatrie du Médecin Praticien[4] is one of a series of volumes intended for the use of the general practitioner rather than the specialist. The initial difficulty experienced by the practitioner in dealing with mental cases is to place them into categories which carry with them some notions as to causation, development, and prognosis. Diagnosis is much more difficult in the psychoses than in physical diseases, where the symptoms can usually be referred to some special organ or system. Recognizing this, the authors of the book before us, Drs. M. DIDE and P. GUIRAUD, have sought to furnish clear clinical descriptions of the various forms of mental disorder in order that the practitioner may be in a position to recognize the category to which a case belongs. A number of excellent plates depicting the main clinical types are included in the volume, and serve to illustrate and vitalize the written descriptions. The opening chapter deals with the subject of unconscious mentation, but in the sections which follow the authors confine themselves to a descriptive rather than an interpretative account of their cases, and they do not appear to have been influenced to any notable extent by Freudian theories. The book is excellently printed and the arrangement of headings and paragraphs renders it clear and readable. The French practitioner should find the volume useful and suited to his needs. It will also give the English psychiatrist a good general outline of French psychiatry, though it cannot be said to include any new facts or theories of interest to the specialist.

[3] *Manuel de Psychiatrie.* By J. Rogues de Fursac. Sixth edition revised and augmented. Paris: Félix Alcan. 1923. (Cr. 8vo, pp. xvi + 966; 4 plates. Fr. 30.)

[4] *Psychiatrie du Médecin Praticien.* By M. Dide and P. Guiraud. Paris: Masson et Cie. 1922. (Cr. 8vo, pp. 415; 8 plates. Fr. 20 net.)

PEDIATRICS.

WE are not surprised to learn from the preface to the second edition of Dr. H. C. CAMERON's excellent little book on *The Nervous Child*[5] that some have found fault with the title, maintaining that the book should have been called, not "The Nervous Child," but "The Normal Child," presumably on the ground that the manifestations with which the author deals are found in all normal children. Perhaps such a title as "The Mental Hygiene of Childhood" would have been best, though it might not have been so attractive as that actually chosen. The keynote of the book is to be found in the concluding lines—"The hygiene of the child's mind is as important as the hygiene of his body; both are studies proper for the doctor." The present edition contains a new chapter on management and conduct, in which the author, while acknowledging the value of Freud's contribution to psychology, deprecates the indiscriminate application of his teaching to abnormal conduct in children, and by several striking examples shows how these faults may be due to mismanagement by parents or nurses. Timidity, anxiety, and fears are particularly apt to develop in the children of very devoted parents, especially in the only child, on whom all the care is concentrated. Again, bad temper, disobedience, and negativism are most likely to arise as the result of an unrestful atmosphere in the home in response to attempts at control which are at once ineffectual and persistent. We can cordially recommend this work to the family practitioner and to all interested in the management of children.

The ninth edition of Dr. LOUIS FISCHER's textbook on *Diseases of Infancy and Childhood*,[6] the first edition of which was published in 1907, differs from the previous issues in that it is divided into two volumes. The first volume is in six parts, devoted respectively to infant feeding, the development and hygiene of the infant, diseases of the newborn, alimentary diseases, diseases of the heart, liver, spleen, pancreas, peritoneum, and genito-urinary tract, and diseases of the respiratory system. The second volume also consists of six parts, which deal with infectious diseases, diseases of the blood and ductless glands, nervous diseases, diseases of the ear, eye, skin, and abnormal growths, diseases of the spine and joints, and miscellaneous subjects, including developmental exercises, anaesthesia, disinfection, and administration of drugs. Numerous changes have been made in the text and additions to the illustrations, which, as we pointed out in our notice of a previous edition (BRITISH MEDICAL JOURNAL, March 22nd, 1913, p. 617), are of great value. Special attention has been given to the home modification of milk; the chapter on vitamins has been rewritten, and those on the diagnostic and therapeutic value of x rays and the diagnostic importance of lumbar puncture revised. A chapter on transfusion has been added. The work, which is provided with an index in each volume, will prove a useful addition to the practitioner's library.

PRACTICAL PHYSIOLOGY.

Practical Physiology,[7] by ANREP and HARRIS, is a laboratory manual, not intended for self-tuition, but for use under the guidance of qualified teachers. In planning the book no account has been taken of examination requirements; some of the exercises given could be set at a practical examination, while others, much more important, would be inappropriate. It embraces the work suitable for junior and senior medical students and advanced students of physiology.

In making their selection of laboratory experiments the authors have aimed at striking a balance between the

[5] *The Nervous Child.* By Hector Charles Cameron, M.A., M.D., F.R.C.P. Second edition. London: Henry Frowde, and Hodder and Stoughton. Oxford Medical Publications. (Cr. 8vo, pp. vii+224. 7s. 6d. net.)

[6] *Diseases of Infancy and Childhood: Their Dietetic, Hygienic, and Medical Treatment: A Textbook Designed for Practitioners and Students of Medicine.* By Louis Fischer, M.D. Ninth revised edition; 2 volumes. Philadelphia: F. A. Davis Company. 1922. (Med. 8vo. Vol. I, pp. xxvii+603; 146 figures, 37 plates. Vol. II, pp. ix+605; 247 figures, 43 plates. 12 dollars the 2 volumes.)

[7] *Practical Physiology.* By G. V. Anrep, M.D., D.Sc., and D. T. Harris, M.B., B.S., B.Sc. Introduction by Professor E. H. Starling, O.M.G., M.D., F.R.C.P., F.R.S. London: J. and A. Churchill. 1923. (Roy. 8vo, pp. x+212; 197 figures. 10s. 6d. net.)

In order to obtain the best results certain conditions must, however, be fulfilled. It is necessary that our universities and other specific institutions should be liberally supported, so as not only to be in a position to train adequately young investigators of promise, but also to serve themselves as active centres of research. At the same time there must be a reasonable competence for those who have shown a capacity for original investigation. Not least, peace throughout the civilized world is as important for rapid scientific development as for general commercial prosperity. Indeed, science is truly international, and for progress in many directions the co-operation of nations is as essential as the co-operation of individuals. Science, no less than industry, desires a stability not yet acheived in world conditions.

There is an error far too prevalent to-day that science progresses by the demolition of former well established theories. Such is very rarely the case. For example, it is often stated that Einstein's general theory of relativity has overthrown the work of Newton on gravitation. No statement could be farther from the truth. Their works, in fact, are hardly comparable, for they deal with different fields of thought. So far as the work of Einstein is relevant to that of Newton, it is simply a generalization and broadening of its basis; in fact, a typical case of mathematical and physical development. In general, a great principle is not discarded but so modified that it rests on a broader and more stable basis.

It is clear that the splendid period of scientific activity which we have reviewed to-night owes much of its success and intellectual appeal to the labours of those great men in the past, who wisely laid the sure foundations on which the scientific worker builds to-day, or to quote from the words inscribed in the dome of the National Gallery, "The works of those who have stood the test of ages have a claim to that respect and veneration to which no modern can pretend."

EXHIBITION.

Following the example of the British Medical Association and some other associations which hold annual meetings, the British Association has this year, for the first time, arranged an exhibition of scientific appliances, illustrating the apparatus used in research laboratories and in the industrial application of scientific investigations. It is displayed in the Central Technical School.

The exhibition was opened by Sir Charles Sherrington, President of the Royal Society and retiring President of the British Association, on the afternoon of September 10th. In a short address he said that instruments used in the service of natural science were becoming inevitably far more complex. The connexion between the tool and the man was so close that it was difficult at times to unravel the share the scientific tool had in the process. Though discovery was not synonymous with invention the connexion between the two was very close. The proverb said that necessity was the mother of invention, but it might be truer that curiosity was the mother of invention, for apparatus had come into existence to satisfy what might be called the divine curiosity of man, who was not satisfied with understanding only the appearances of things. Invention was sometimes belittled in comparison with discovery, but invention was the potential birth of discovery. The intellect saw the principle and rough-hewed the design.

The exhibition was then inspected. Special interest was shown in the demonstration by Dr. A. O. Rankine, professor of physics in the Imperial College of Science, South Kensington, of an instrument by which sounds of any kind, including spoken words, are transmitted by light. A beam of light is sent through space by a special transmitter, and the fluctuations of the beam are reproduced as sound at the receiving station. In the demonstration at Liverpool the space covered was about 200 yards, but as long a distance as a mile and a half has been traversed. The distance appears to be limited only by the curvature of the earth, and Professor Rankine suggested that there were great possibilities for the invention, especially in synchronizing speech with the picture in cinematography.

INDIGENOUS SYSTEMS OF MEDICINE IN INDIA.

AYURVEDA, SIDDHA, UNANI.

ON February 21st, 1921, the Madras Legislative Council passed a resolution recommending the Government to take early steps to encourage the indigenous systems of medicine. Under G.O. No. 1351, P.H., Press, dated October 17th, 1921, the Government appointed a committee to report on the question of the recognition and encouragement of indigenous systems of medicine in vogue in the Presidency. The object of the Government in ordering the inquiry was to afford the exponents of the Ayurvedic and Unani systems an opportunity to state their case fully for scientific criticism, and to justify State encouragement of these systems. With this end in view a questionary was prepared and sent round to all persons interested in this matter. No less than 182 replies were received from all parts of India, including Indian States. Further, forty representative witnesses were orally examined in Madras, and a special subcommittee visited important centres of the indigenous systems of medicine and conferred with the leading exponents of these systems and other persons interested in their promotion. On February 17th, 1923, the committee presented its report, consisting of 150 pages, of which nearly one hundred are devoted to a description of the indigenous systems. Much of the remaining portion of the report has reference to such practical matters as registration, the organization of medical education, and finance; questions of this nature appear to be outside the scope of the inquiry and need no comment.

Statistics.

For a population of more than 42,300,000 inhabiting the Madras Presidency, the total number of practitioners following the European system is not more than 3,000; the number following the Indian systems is reckoned at 21,000 by the committee and at about 4,000 by the local authorities. Commenting on the discrepancy between the last two figures the committee states that "apparently the standard of our local authorities in judging our Ayurvedic and Unani practitioners is very high, otherwise we would not have '*nil* returns' sent to us in large numbers; for it is the general belief that there is hardly a village, especially in the south, without its own vydiars or hakims. These, however, do not apparently count in the judgement of our local authorities." The point is one of importance because the main object of the inquiry was to ascertain the value of the Indian systems as seen in present-day practice, and not merely in its historical aspect which figures so largely in the report. If four-fifths of the native practitioners are considered to fall below a certain undefined standard, it is desirable to know what degree of medical erudition they possess. If it is true that Ayurveda has practically died out among them there would appear to be no reason, except, perhaps, a sentimental one, why the modern European system should not be introduced in place of the ancient one, if it is superior to the latter. The report furnishes very little information in this connexion, but scattered references lend support to the view that the local authorities were not actuated entirely by prejudice. Thus:

> "It would be self-deception on our part to think that we still sit on a high pedestal. The fact is unfortunately the other way. The number of Ayurvedic physicians in India is legion, but the soundly educated exponents of the ancient systems are not numerous."
>
> "Our old methods of study might have been of a high order, but we must not be timorous to admit that the present methods by which so-called Kavurajas are manufactured of idle pupils or compounders in many cases, are fit to be mercilessly condemned."
>
> "As practised at present the Indian systems are not self-sufficient."

It will, therefore, probably not be incorrect to assume that the indigenous systems have so far decayed as, generally speaking, to be non-existent, except in a few educational centres.

> "Can it be denied that the art has at present decayed to such an extent that it is not equal to the task of ministering to the surgical needs of our teeming millions?"
>
> "Even assuming for a moment that such branches of Indian medicine as surgery and midwifery were not merely the forgotten arts that they are now . . ."

In his book on the Villemin military hospital during the war[12] Professor FÉLIX LEJARS, who succeeded the late Professor Gaucher as officer-in-charge, has given an interesting account of the valuable work performed during the war in a Paris hospital which, though it had been condemned as out of date for over thirty years, possessed the great advantage of being near two important railway stations serving the front. In addition to instructive statistics relating to gunshot wounds, gas gangrene, amputations, tetanus, antityphoid inoculation, and influenza, the volume contains a vivid description of the difficulties attending the administration of such an antiquated hospital as well as of the important events in the life of the hospital during the war, such as the visits of Clémenceau during the bombardment by "Big Bertha," the decoration of dying men, the funeral of Gaucher, and the celebration of armistice day. The book, which is written in a mildly satirical vein, will particularly appeal to those surgeons who, like Professor Lejars, suddenly found themselves during the war placed in charge of a military hospital without any previous military training.

The second volume of Richter's *Organic Chemistry* dealt only with the class of substances termed carbocyclic, or those formed from ring nuclei containing no atom but carbon in the ring. The third volume[13] now issued treats of the heterocyclic compounds of organic chemistry, or ring compounds of carbon in the formation of which atoms of the inorganic elements participate. These comprise the furane and thiophene derivatives; the indole group, under which heading are given the various syntheses of indigo which have been accomplished; the pyrazolines, of which antipyrin is a member; the pyrones, which include the meconic acid of opium; and also the pyridine and quinoline series, among the members of which are found most of the important alkaloids. The composition and style of compilation are as in the preceding volumes, leaded type being used for the names of substances under description and italics for those coming incidentally under reference. Condensation continues to be a conspicuous feature of the work: it is the inevitable result of an endeavour to mention every substance registered in original treatises. But the drawback resulting from condensation is repaired very well, first by the arrangement, and secondly by the skill shown in selecting for mention the most salient facts. When tested by referring to specific subjects it is found that nothing of outstanding importance is omitted. The whole is very completely indexed. No book could be more desirable for general reference on the chemical constitution and relationships of organic materials.

In a popular Sunday afternoon lecture at the Harvard Medical School, which formed one of the series of the Harvard Health Talks, Dr. F. T. LORD, physician to the Massachusetts General Hospital, gives in clear language a thoroughly up-to-date account of *Pneumonia*,[14] which in the United States of America is responsible for 10 per cent. of all deaths, and was therefore called by the late Sir William Osler "the captain of the men of death," the phrase applied by John Bunyan to pulmonary tuberculosis. This lecture gives a description of the types of pneumococci, Types I, II, and III being the fixed types, and Type IV a heterogeneous group; Types I and II are rarely present in the normal mouth, whereas Types III and IV are common, more than 50 per cent. of healthy persons having some kind of pneumococcus in their mouths. Sixty per cent. of the cases of lobar pneumonia are due to pneumococcus Types I and II, and as these organisms are rarely normal inhabitants of the mouth the disease is due to infection, whereas the 40 per cent. of pneumonic cases due to Types III and IV may be regarded as due to auto-infection under conditions of increased virulence. About a third of the cases of pneumonia Types I and II prove fatal, nearly a half of Type III, and only one-eighth of the cases of Type IV pneumonia. The mechanism of the crisis in lobar pneumonia is explained as due partly to a progressive rise in the general resistance to the pneumococcus, and partly to a local increase in the acidity of the lung whereby the acid death point of the sensitive pneumococcus is reached. In bronchopneumonia Types III and IV are more common than the other two. The prevention of pneumonia by various precautions and also by inoculation with a pneumococcus vaccine is described, and an account of the treatment both by general measures and by the Type I pneumococcus serum is given. Although intended for lay hearers, the lecture provides medical men with a short and useful summary of the most modern conception of the pneumonia question.

[12] *Un Hôpital Militaire à Paris pendant la Guerre, Villemin 1914–1919.* By Félix Lejars. Paris: Masson et Cie. 1923. (Imp. 16mo, pp. 354. Fr. 10.)

[13] *Organic Chemistry, or Chemistry of the Carbon Compounds.* By V. von Richter. Edited by Professor R. Anschütz and Dr. H. Meerwein. Vol. iii: Heterocyclic Compounds. Translated from the eleventh German edition by E. E. Fournier D'Albe, D.Sc., A.R.C.Sc. London: Kegan Paul, Trench, Trübner and Co., Ltd. 1923. (Demy 8vo, pp. xviii+326. 25s. net.)

[14] *Pneumonia.* By Frederick Taylor Lord, A.B., M.D. Harvard Health Talks No. 9. Cambridge, Mass., and New York City: Harvard University Press; London: H. Milford, Oxford University Press. 1922. (Fcap. 8vo, pp. 69. 4s. 6d. net.)

FACTORY HYGIENE.

ANNUAL REPORT OF THE CHIEF INSPECTOR.

IT is becoming increasingly noticeable with each successive year of publication of the Annual Report of the Chief Inspector of Factories how much the work of the Department is altering in its character and scope. The introduction of scientific medical investigation into the factory, a great forward movement in itself, has brought to light so many definite causes of ill health that experts of various kinds have had to be extensively requisitioned to devise methods and means for affording the necessary protection for the workers. The fillip given during war time to the intensive study of the physiology and pathology of fatigue and of the human factor in accident causation has had its influence in the production of welfare schemes and "safety first" movements, and the rapid progress made by electricity as a motive power quite recently brought about the necessity for creating a special section of the inspectorate. It is, therefore, not surprising that Mr. G. Bellhouse, in this his first report (for the year 1922)[1] as Chief Inspector, should make a point of explaining that his object is to give a general picture of the work of his department and to enlarge more particularly upon subjects that have been occupying the special attention of his staff. This he has done very satisfactorily.

The low ebb at which trade conditions have remained has apparently accounted for the marked decrease in routine work, but *pari passu* this circumstance appears to have provided not only more time and opportunity for special investigations by the department but has been taken advantage of by firms to modernize their plants and improve their methods against the turn of the tide, distinct signs of which are said to be in evidence.

Some indication of the extent of trade depression is provided by comparing the numbers of examinations during the year for certificates of fitness, 267,964, with the pre-war figure of 529,491 for 1913. Medical examinations under special rules and regulations were 212,195, as against 175,735 for 1921 and 225,678 for 1920; the number of accidents was 97,986 (including 843 fatal), an increase of 5,421 over the previous year. It does not appear likely that any of these figures have been materially affected by the formation of the Irish Free State.

In dealing with the safety problem mention is made of the attention again devoted to trade agreements respecting fencing and precautions, and there is an excellent section describing the risks of bursting of revolving discs, wheels, and centrifuges due to centrifugal stress. Under the heading of dangerous trades it is stated that twenty-nine codes of regulations were in force at the end of the year, the recent ones being those for aerated water, hides and skins, celluloid, india-rubber, and chemical works. There is the usual chapter on the dangers from electricity and two special chapters by the senior engineering inspector, one of the latter dealing with the risks arising during repairs to oil-carrying ships.

The work of the medical section is, as usual, described by Dr. T. M. Legge, but in addition there are two special reports, one by Dr. E. L. Middleton and the other by Dr. Eileen Hewitt. Dr. Legge gives his usual table showing the number of notifications of industrial poisoning, epithelioma, and anthrax during the year, and comparing these with the yearly incidence since 1900.

Lead Poisoning.

The lead cases were 247, with 26 deaths, as compared with 1,058, with 38 deaths, in 1900. The pottery trade heads the list with 42 cases and 17 deaths; the accumulator industry provides 32, with no deaths; plumbing and soldering

[1] (Cmd. 1920.) To be purchased through any bookseller or directly from H.M. Stationery Office. Price 5s. net.

The changes undergone by food in the body may be mentioned in illustration of the Ayurvedic conception of metabolism. The food is projected down the gullet and into the stomach and intestines by Vata, and is there acted on by Pittha in the menstruum of Kapha and converted into chyle. In a similar way, by the repeated action of Vata, Pittha, and Kapha, chyle is converted into blood, blood into muscle, muscle into fat, fat into bone, bone into marrow, and marrow into the reproductive elements.

Ayurvedic Pathology.

Such is the physiology of Ayurveda. Its pathology is no less singular, and is built on the foundation of the Thrimatu theory of Vata, Pittha, and Kapha above outlined. Persons are broadly marked off into three classes characterized by the predominance of one or other Dhatu in their constitutions, and infinite minor variations in the Thrimatu equilibrium are possible, all of which are classifiable under the three primary groups of Vata-, Pittha-, and Kapha-temperaments. In Ayurveda it is considered to be of vital importance to know the temperament or Prakriti of a person, since his life-activities, both in health and disease, have to be judged and adjusted with reference to his own particular type of inherited Dhatu-constitution. Considering the importance of the subject it is to be regretted that the method of diagnosing the Prakriti or temperament is not mentioned, it being merely stated that the characteristic features of each group are set down at length in works on Ayurveda.

As long as the three Dhatus are in normal equilibrium the body is in health; when the equilibrium is disturbed, the body is ill, the Dhatus being then spoken of as Doshas, because they are the cause of "faults" in the body health.

"From the clinical experience of ages recorded in our books and added to from time to time by various acute observers, we are able to diagnose the exact nature of the doshic disturbance, whether it is essentially a morbidity of one, two, or three Doshas, whether it indicates their increase, and so on. The teachings of our Rishis help us in diagnosing which of the Dhatus is primarily at fault. Once a knowledge of the morbid Doshas and Dhatus is gained the rest is easy."

It will be noticed from the above that disease is conceived as a disturbance of the normal equilibrium of the vital activities; it is regarded from the standpoint of the physiological norm, rather than as a series of body changes resulting from the action of an external cause. The latter point of view is by no means lacking in Ayurveda, but the former receives an exaggerated emphasis and may be regarded as the principal characteristic of Ayurvedic doctrine. So strongly is the view held that doshic disturbance constitutes the very essence of disease, that a lesion produced by injury, poisons, micro-organisms, etc., is not regarded as a disease unless or until doshic derangement becomes manifest. But even in its conception of etiology the subjective point of view is strongly marked. Among the recognized external causes of disease are included the "incompatible correlation of the senses with their object." This is explained as follows:

"Physical objects cannot make for health or ill health without coming into relationship with our bodies, and this can only occur through the five senses. With regard to the sense of taste, for instance, there may be excessive, defective, or perverted correlation by tasting (that is, eating or drinking) too much, too little, or unsuitable articles."

Among external causes acting, as it were, from within are such as lead to faulty understanding and so to abnormality of Dhatu-balance. Intrinsic causes are held to be of two kinds: abnormality in the Dhatu-equilibrium and abnormality in the Guna-equilibrium. Among the latter are included the mental Doshas, such as cupidity, anger, jealousy, indolence, etc., which may become the causative factors in disease.

Ayurvedic Diagnostic Methods.

The general methods of diagnosis pursued by Ayurvedists are more or less similar to those used by European doctors and are classified under the six headings of Auscultation, Palpation, Inspection, Smell, Taste, and Interrogation. With what degree of precision these methods are conducted by the native practitioners, and what is the nature of the information they afford, is not readily deducible from the report. "The main difference," it is stated, "between the two systems (Western and Indian) is accounted for by the use of the newly invented instruments. To ascertain the temperature of the body . . . we feel the patient's pulse, whereas the allopaths have recourse to the thermometer for the same purpose." That the clinical examination by means of these apparently European methods is not precisely similar to our own is shown in the following quotation:

"Next only in importance to the Nadies is the examination of the urine, in which they have discovered five tests—namely, colour, density, smell, froth, and quantity. It is to be noted that they have so perfected the system of urine examination that they are able to state clearly by this means alone the corresponding derangement of Vata, Pittha, and Kapha. In addition, they have a system of testing the urine with the help of Thailams (the explanation of this term is omitted), which greatly helps the diagnoses. This science is called the Neer-Nerakkuri-Naikkuri Shasthram."

Ayurveda in Practice.

Such in outline is the scientific basis of Ayurvedic medicine, from which the fundamental principles of treatment are deduced. It would be a mistake, however, to suppose that this comprises the whole of Ayurveda. Doubtless through the ages common sense and ordinary observation, apart from Ayurveda or any other system, have accumulated a store of knowledge of value, which may, not improbably, constitute the best part of Indian medicine. Moreover, the practical application of Ayurveda is probably a relatively simple matter as compared with the comprehension of the doctrine itself, running off, as it does, into the regions of theological speculation. For instance, the Ayurvedist claims to be able to tell beforehand whether a patient suffers from quinine idiosyncrasy: he ascertains the patient's Prakriti according to the Ayurvedic method, and he knows that a drug like quinine, with its peculiar Rasa, Veera, etc., must, according to Ayurveda, be used in small doses in certain Prakriti—for example, Vata Prakriti. In plain language this probably means that persons of robust habit are likely to show an excessive reaction to a drug having such a powerful taste as quinine. Western medicine, it is said, "has at present no means of recognizing a patient's Prakriti." This is a mistake; physiology is the science of the human Prakriti, and although it studies man in the mass and cannot at present measure the delicate shades of difference that distinguish one temperament from another or produce a final and cut-and-dried classification of temperament into three groups as Ayurveda does, it will in due time, no doubt, define the limits of variability within the normal, upon which temperament depends. Physiology has hardly approached the threshold of this subject, but even now it has advanced far ahead of anything that is possible under Ayurveda.

Conclusion.

The opinion is expressed in the report that no Western scientist should think of criticizing Ayurveda until he has learnt the Sanskrit language and studied the subject for some years under a competent Acharya. But the Western scientist has no need of any such prolonged and detailed study; he will, without the least difficulty, recognize the familiar features of the phase of development reached by Ayurveda, when he recalls the history of his own science. Similar unsupported metaphysical and theoretical dogmas were to be found in both. The "authority of the Scriptures" was regarded as equivalent to the truth in the one as in the other; and our grandfathers accepted without a doubt the account of the creation of the universe given by Moses, and regarded the first chapter of Genesis as the word of God. In the last hundred years science has emerged from the metaphysical stage into the clear light of positive knowledge, and if the Madras Government has the interests of the Indian people genuinely at heart, it will expend its energies in planting modern science in the country, by the agency of scientists and teachers trained in Western methods, instead of endeavouring to stimulate the belated indigenous systems into renewed activity.

There are many indications in the report that Ayurvedists feel the need of European methods—the microscope, bacterial

THE HEALTH HISTORY OF MANCHESTER.

On his retirement after nearly thirty years' work as medical officer for Manchester, Dr. James Niven has put the city permanently in his debt by writing a history of its public health.[1] Locally the volume will be invaluable, not only for its careful and detailed account of the work of the health authorities in Dr. Niven's time and that of his predecessors, but also for his frank and shrewd observations made on the methods of local government, and for advice as to the future. These parts of the history will be of special interest and profit to his colleagues throughout the public health service of Britain. The book is a plain, straightforward story, entirely free from rhetoric. The title of the first section is "Forms of Dirt," whilst the smoke nuisance is dealt with under a heading consisting of the single word "Blacks." In the first paragraph of his introduction Dr. Niven plunges at once *in medias res*, and regrets that he has not been able to exterminate the elusive house fly, with its large responsibility for summer diarrhoea. Generous appreciation of the work of his assistants and colleagues is a feature of his writing, especially perhaps as to the aid which he received from the late Professor Delépine, who conducted many valuable laboratory investigations. That Dr. Niven kept himself always up to date in his acquaintance with the progress of scientific research on matters in his own sphere has helped to make him a wise and safe guide in the health administration of one of the great cities of the empire.

After his initial discourse on the influence of dirt, he goes on to write about Manchester's hospitals and sanatoriums, its infectious diseases, devoting separate sections to venereal diseases and tuberculosis; then he proceeds to milk, foodstuffs, and food poisoning, including an account of the great outbreak of arsenical poisoning in beer drinkers at the beginning of the present century. He next takes up the history of housing in Manchester, and maternity and child welfare, and concludes (apart from some observations on statistics) with an important section on the evolution and present constitution of the Public Health Department.

Within the limits of this article it is impossible to follow the volume through all its sections, but everything about housing is of special present interest. Dr. Niven says:

> Manchester is a city of cottage dwellings, the prevailing type being the four, five, or six-roomed house. Houses therefore cover a large area in proportion to the number of persons to an acre, as the tenement dwelling has found no acceptance and no home outside the centre of this city. One effect of this is an aspect of dreary monotony.

It is well to remember, therefore, that even cottage dwellings may be monotonous, and to take note of this in new building schemes. Ultimately, of course, there comes the rival claim of convenient nearness and accessibility to daily work, to be met so far by travelling facilities. Manchester's first building by-laws were in 1868, and did not require even damp-proof courses, but insisted on a minimum street width of thirty feet. Even these by-laws were of some use, while those of 1890 and 1908 were better, but the latter were passed just before the building slump. In the older parts of the city back-to-back houses abounded, usually of two apartments, with filthy privies standing in stacks in courts or at street ends. Various areas were dealt with under the Housing Acts, and ground was bought for buildings, but an experiment of a five-story tenement was a failure and not repeated, two stories being much more acceptable. The problem of the 10,000 back-to-back houses was tackled, and vast improvement effected. So the story of constant effort goes on, and Dr. Niven records that an immense result has been achieved, though over considerable areas houses are deteriorating, and ought to go "not one by one but in areas." In Manchester, however, as elsewhere, "private building of cottages appears for the time to have been extinguished, and the State has accepted the obligation," but State-aided houses are up till now few in number, and almost restricted to discharged service men, so that the general body of the people are little better off than before, and if the new houses were there "most persons could not pay the rents." How, then, is the situation to be met? In answer to that question Dr. Niven asks another: "Can we not resolve to follow the example of America and go dry? Can there be any doubt that the liquor trade paralyses the hands of the social reformer and keeps the people poor?"

Of all the great cities of Britain Manchester can less than any other be regarded as a unit independent of its neighbours. If a man goes outside of Glasgow he may straight away find himself at the Kyles of Bute, or on Lochlomond-side, or in Strathendrick; if out of Edinburgh he is into the Scott country or at Dunbar or Gullane. But if he gets out of Manchester it is only to transfer himself to Salford or Bolton or Oldham. And so, even in housing reform Manchester could act only very incompletely by itself, and Dr. Niven justly congratulates himself that over a hundred sanitary authorities within fifteen miles of Manchester have joined with it to make their town-planning arrangements and main roads and transport fit into one another.

Dr. Niven's volume shows throughout that he has not confined his work within narrow or official limits. He has been in co-operation with the social activities of Manchester, as with a guild established by ladies in 1908 to assist mothers in various ways, by lessons in hygiene, sewing, cookery, and medical consultation centres. Valuable service was rendered in feeding mothers and children in the distressed period 1915-16, and subsequently under an order of the Local Government Board, but questions arose as to such relief being given where not justified, and on investigation the system had to be changed. Even yet "it is no easy matter to be sure that public money is properly expended," and in a passage which illustrates Dr. Niven's strong common sense he writes:

> "It is a pity that the work of the centres should be inwoven with a scheme for the sale of milk under cost, as it makes it difficult to determine when an advance in the popularity of the centres is due to appreciation or to material aid. Such aid should, as far as possible, be confined to periods of distress. In my opinion, the maternity and child welfare centres are now strong enough to keep their hold when this form of assistance is withdrawn, or rather when it is reduced to a minimum and kept strictly controlled."

Similar experiences have led to similar conclusions in America.

In the latter part of his history Dr. Niven has a good deal to say about health visitors and the value of their work, which was a subject of special investigation in 1911. At that time the training would be more elementary than now, and the period inquired into was too short to allow a final conclusion, but "the investigation brought home to us the vital need for constant supervision and unceasing training of the whole staff." He was struck by failures to appreciate the importance of regular and accurate weighing of children, and he concludes epigrammatically that "a good portable weighing machine is the clinical thermometer of the health visitor." In reviewing the present position, however, he holds that much success has been due to the house-to-house visits of health visitors, and the associated education of mothers at the maternity and child welfare centres.

There is temptation to add to these notes, but space forbids. The Corporation of Manchester is to be heartily congratulated on having had Dr. Niven as its medical officer for nearly thirty years, whilst Dr. Niven is to be congratulated on the completion (officially only) of a splendid life-work, and on the health annals which he has put on permanent record at its conclusion. His colleagues, we are sure, will miss him sorely, but they will hope that he may be long spared to encourage and advise those who are still in the fighting line.

[1] *Observations on the History of Public Health Effort in Manchester.* By James Niven, M.A., M.B., LL.D. Manchester and London: John Heywood, Ltd. 1923. (Med. 8vo, pp. 230.)

ACCORDING to recent statistics the mortality from diabetes in the United States is much higher in the white population in the north-eastern States than in the south and west. New York has 22 deaths per 100,000 inhabitants due to this cause annually, while Tennessee has only 6. Negroes show little susceptibility to diabetes in contrast with the Jews and Irish, who pay a heavy tribute to the disease in New York and New Jersey.

contributors may be accorded representation, but not on any fixed basis. The first two methods appear to be more popular than the third.

Modes of Publicity.

The methods of advertising the schemes show great variety; circulars, posters, leaflets, and notices in the press are common means of publicity. One hospital authority reports with quiet confidence that its contributory scheme "advertises itself." The utility of public meetings is generally recognized, particularly in villages. In industrial areas addresses at trade union meetings are frequently adopted. A feature common to the great majority of schemes is the holding of meetings, with the permission of the management, in the various workshops, at which the workpeople are addressed.

Lastly, the promoters of contributory schemes were invited to state any special features which they considered directly responsible for the success of their schemes, but the replies do not seem to afford material for any single generalization.

THE TRAINING OF MIDWIVES.

DR. JANET CAMPBELL'S REPORT.

THE Ministry of Health has issued this week a report on the training of midwives by Dr. Janet M. Campbell, senior medical officer for maternity and child welfare at the Ministry of Health, and chief woman medical adviser to the Board of Education.[1] This report supplements Dr. Campbell's previous memorandum on the teaching of obstetrics to students in the medical schools of Great Britain, reference to which was made in our issue of April 21st, 1923 (p. 692).

In a short prefatory note the Chief Medical Officer, Sir George Newman, explains that the facts on which the present report is based have been elicited as part of the larger inquiry by Dr. Campbell into the prevention of maternal mortality. More than 50 per cent. of the cases of childbirth occurring in England and Wales are attended solely by midwives. For the proper performance of this function it is obviously essential that the training of the midwife should keep pace with growing knowledge and with the requirements of modern midwifery practice.

Dr. Janet Campbell's report discusses the whole position and the present needs, and includes relative comparisons with the conditions of training in other European countries. In her introductory section she quotes the maternal mortality figures associated with childbirth, which during the past sixteen years have remained almost stationary. In 1907 there were 3.83 maternal deaths per 1,000 births, and in 1922 3.80. The lowest rate during that period was 3.55 in 1918, and the highest 4.12 in the two following years. Upon this the author observes:

"During the present century the general death rate has steadily declined, and the standard of sanitation and general and personal hygiene of the country as a whole has been raised. It is, therefore, disappointing and surprising to observe that the improved training of midwives and the wider knowledge and application of methods of surgical cleanliness have not had more effect in reducing the maternal mortality and associated morbidity. This suggests that both doctor and midwife are still imperfectly educated in obstetrics."

Other sections of the report discuss in detail the training of pupil midwives and its effectiveness in equipping them for their subsequent work. In Dr. Campbell's opinion the period of training should be lengthened, the curriculum should be revised and reconstructed, and the training schools should be suitably graded. She recommends, further, the institution of a teacher's certificate, and also the registration by local supervising authorities of the monthly nurses and unqualified attendants who assist in the nursing of maternity patients. With these recommendations Sir George Newman expresses his concurrence.

In her concluding section Dr. Campbell summarizes her reasons for desiring a longer training for midwives and for the more general employment of midwives to the exclusion of unqualified women. These all turn on the prevention of maternal deaths and disease due to childbirth. She writes:

"Unless we are content to leave matters much as they are and merely to hope for the slow and gradual improvement which will no doubt take place in time in relation to the general improvement of public health, energetic action in various directions is needed. The problem of maternal mortality is an extremely complex one. It cannot be solved by any one means, but rather by correlated action in several directions, medical, nursing and social. An essential factor is more competent professional attendance for women before, during and after childbirth than exists at present, and this can only be obtained by the better education of the medical student and the pupil midwife."

The five recommendations put forward by Dr. Campbell for raising the standard of training and practice for pupil midwives have been briefly indicated above. In regard to the period of training, her suggestion is that for unqualified women this should be extended from six months to twelve, and for trained nurses from four months to six, the examination for the certificate of the Central Midwives Board being taken at the end of the course. Revision and reconstruction of the curriculum should aim at organizing the midwife's education upon a broader basis so as to include clinical and theoretical instruction in the management of labour, both in maternity wards and on "the district." The grading of midwifery training schools should correspond with the facilities they are able to offer for a complete or partial training; the smaller institutions should be affiliated for teaching purposes with institutions able to offer complementary facilities, so that midwifery pupils, wherever they decide to train, may be sure of receiving reasonably uniform instruction in all parts of the curriculum. The "teacher's certificate" should ensure that those midwives who possess it have actually practised as midwives for a specified period, that they have not only received instruction in the theory and practice of their profession, but understand the relation of midwifery to the public health service and the social circumstances of the patients, and that they are themselves competent to teach students. The suggested registration of all monthly nurses, and of all handy-women practising maternity nursing for gain, would have the advantage of bringing these unqualified persons within the supervision of the Inspector of Midwives.

In conclusion Dr. Campbell maintains that as long as the employment of midwives is an essential and integral part of the midwifery service of the country, it is the duty of the State and of local authorities to ensure that as far as possible a midwife is a competent and safe practitioner. In view of this responsibility she suggests that midwives should receive such official encouragement and financial help as may be necessary to enable them to follow their profession under conditions of reasonable comfort and security. It can scarcely be doubted that the enforcement of a better standard of midwifery and maternity nursing would materially assist in reducing the unduly high incidence of maternity mortality and of morbidity due to childbirth.

[1] Ministry of Health. Reports on Public Health and Medical Subjects. No. 21. London: H.M. Stationery Office. 1923. 1s. 3d. net.

Nova et Vetera.

HIPPOCRATES.

WE hear often enough, and perhaps truly enough, that the classics of medicine are little studied, but few years pass without the payment of some tribute to the mighty dead. Early this year, Professor Georg Sticker of Würzburg published a translation of the *Epidemics* 1 and 3 of Hippocrates with an introduction,[1] and now Mr. W. H. S. Jones issues the first instalment of his translation of the complete works for the Loeb series.[2] These books are complementary. The scholarly attainments of Professor Sticker are well known, but his point of view is that of the physician and epidemiologist—he is even a trifle contemptuous of the mere philologist; Mr. Jones demonstrated in an earlier work that his knowledge of the subject-matter of medicine was by no means despicable, but his point of view is that of the trained, exact scholar. In his introduction, Professor Sticker has given rein to a disciplined imagination and created a Hippocrates fit to inspire affection as well as reverence. He would be a pedant indeed who was not charmed by the story, but it would hardly be

[1] *Klassiker der Medizin.* Herausgegeben von Karl Sudhoff. Bd. 23. 1923. Leipzig: J. A. Barth.

[2] *Hippocrates*, with an English translation by W. H. S. Jones. Vol. I. London: W. Heinemann; New York: G. P. Putnam's Sons. 1923. (Fcap. 8vo, pp. ix+561. Cloth, 10s.; leather, 12s. 6d.)

should be given to the practitioner to be present at all operations and *post-mortem* examinations in which he is personally interested. This would not only help us in our work, but would bring us into such closer touch with the hospital that its success and welfare would be of much keener interest to us all.

Where a hospital is staffed only by general practitioners it could with advantage be affiliated with one or more of the larger hospitals of our great towns. Some of the junior members of the staffs of the latter could be asked to join those of the smaller in a consulting capacity for the benefit of the staff and the local practitioners. The pathological, clinical, and biochemical resources of these larger hospitals could also be made more available than they are now for the smaller and there should be the closest co-operation between us—the general practitioners—and them.

Medicine becomes more complex year by year; all sciences have become ancillary to it, and the full understanding of our present-day knowledge or theories has long been an impossibility to any one intellect. At the best the light of new discoveries is dimmed before it reaches us, submerged as we are by the needs of those around us. Specialization has become a necessity and will ever become more so. Team work is the solution of our difficulties, and the closer the interlocking of the general practitioners, the hospitals, and our teaching centres with their laboratories, the more efficient this will be. With this we need increased keenness amongst ourselves, and a better knowledge of general practice amongst the specialists gained (may I suggest it in all humility?) by graduation in the hard school of general practice itself.

We handicap ourselves, too, by insufficient study; indeed, many of us have little time for it and so must try to read wisely. Our JOURNAL each week keeps us up to date. Then we should never let our knowledge of surface anatomy get rusty, and a knowledge of modern physiology in its relation to practice is now a necessity.

Within our domain there are many forests of ignorance through which no trail has yet been blazed. Many have worked hard to find a pathway and yet success has not come. Why? In some instances, it may be, because they have not had the advantages we general practitioners have, they have not been able to see, as we do, the beginnings of things. We have failed because very few have ever tried. We all absorb a certain amount of clinical knowledge, we all gain experience, but how few make any record of such knowledge or experience. We just wander on, leaving no trace of our steps, and, who knows, perhaps often touching great ths we do not feel or looking at discoveries we do not see. a we alter this?

)f course, medicine and its practice is more than a means live to most of us; it is a hobby. No men talk more p amongst themselves than general practitioners. Let go further and have a hobby within our hobby and use Association for its purpose. Each Division, or better, h Branch, could make some subject its special study as a vision or Branch. Certain meetings could be set aside for consideration of that study. Every member could collect ie useful information to be reported and discussed at se meetings. One or more members could act as registrs for the collection and classification of the information plied. One line of investigation after another could be efully followed out and the proper teams chosen to carry any part of the work which was beyond our capabilities. r meetings would become real live things in which everyone who would could have a share; the British Medical Association would be not a thing apart from us but of daily interest to us and its power for good unassailable.

Suggestions for Collective Investigation.

What kind of work should we take up? Under the directorship of Sir James Mackenzie at St. Andrews an attempt is being made to understand the mechanism of early symptoms. Could we help? We have a large field, a great organization behind us, and in any such endeavour could, I hope, have the co-operation of many keen young men in active general practice, especially of those in rural districts who have or are likely to have the opportunity to watch the same patients for a long series of years. In addition our experience is not only clinical but therapeutic as well.

The type of disease we meet with is changing. Why? Some diseases are becoming less frequent, others more so. Why? Is the diminution in the frequency of rheumatic fever a result of the more efficient treatment of disease of the nose and throat in children? Are those who specialize in the removal of tonsils and adenoids greater benefactors than some may think? What is the influence of tonsil and adenoid operation on subsequent attacks of diphtheria? Is there any familial relationship between migraine and epilepsy? Why not study a symptom—for instance, cough; or rhythm in disease; or hypertension and its sequel arterio-sclerosis? How do they begin and what are their antecedents?

But I think that for us the great problem of all is malignant disease. Is it becoming more frequent as a whole? Is cancer of the skin diminishing and that of other organs increasing in frequency? What are its antecedents? What kind of person becomes its victim: rich or poor, hard-working or indolent, healthy or weakling? What about environment? Are there after all such places as cancer houses? Cancer is a problem at which many have worked hard for a large number of years and yet remains unsolved. Perhaps if we general practitioners were to take a hand in the game, investigate its antecedents much more carefully than we have ever done before, and pool the results of our clinical experiences, we might be of some service and able to throw some ray of light on the problem which would lead to the prevention of the disease if not its cure.

How should we set to work? I would suggest that we form a small committee to discuss this and draw up a scheme for submission to the Divisions of our Branch. The Branch could undertake some investigation as a whole or the Divisions work independently, each at subjects which perhaps for some local reason made a greater appeal to their members. The next step would be to define carefully our terms so that all those taking part would have the same perception of our subject and all travel the same road. Next we should have to draw up carefully as complete a questionary as possible, modifying it afterwards according to the dictates of experience. These forms would be sent out to all those willing to join in the work and when completed would have to be returned to the acting registrars, who would briefly report on them at our meetings; special meetings could be set apart for their discussion.

To carry on an investigation of the kind I have tried to sketch is the birthright of our profession, particularly of our Association. It is ours for the taking; it means hard, persistent, conscientious work, spread, maybe, over many years. It is in the power of each of us, if we try, to cut some notch in the trail through the forest of our ignorance by which those who follow can see their way and finally make a broad sunlit highway where now is only darkness.

British Medical Association.

CURRENT NOTES.

The Referendum in South Africa.

THE result of the recent referendum to the medical profession of the Union of South Africa has been announced as follows by the Referendum Subcommittee of the South African Committee:

Total number of votes recorded	1,288
Neutral or "Prefer not to vote"	7
Returned "Address unknown"	76
Not returned in any way	299
Total number of voting cards sent out ...	1,670
Votes in favour of S.A.M.A., with affiliation to the B.M.A.	739
Votes in favour of B.M.A., *status quo*	549
	1,288
Majority in favour of S.A.M.A., with affiliation ...	190

It will be remembered that the following resolutions were adopted by the South African Medical Congress in

affections, of the happenings of an illness rather than of its symptoms, of falling sick instead of being attacked, of a decision instead of a crisis, of a recognition and a distinction rather than of a diagnosis and a differential diagnosis. In truth we physicians have carried to a pitch of perfection the art of which Nietzsche speaks, the art of hiding from ourselves the things with the words and names we tack to them. This art will not help us with Hippocrates. He unconditionally demands sincerity and simplicity. His language, in which every word has its particular primary connotation, deliberately avoids the technicalities of a medical guild; he uses only such designations as were intelligible throughout Hellas—which is why, for instance, he chooses the natural seasonal signs and not the civil names of months, which varied from state to state. Hence he can hardly be misunderstood, not even after thousands of years, if one only has the good will to take him as he stands. This also is why it is so hard to translate him into a foreign speech burdened with a vocabulary of borrowed words."

England and Wales.

SHEFFIELD JOINT HOSPITALS COUNCIL.

THE Sheffield Joint Hospitals Council was formed for the purpose of developing the "penny in the pound" scheme of employees' contributions to hospitals. The first annual report of the council has just been issued, and from this and from pamphlets and news sheets published for propaganda purposes it is possible to obtain information as to the nature and extent of the scheme. The council includes representatives of the corporation, the Cutlers' Company, the University, the hospitals, the Edgar Allen Institute, boards of guardians, the Trades and Labour Council, the Insurance Committee, the British Hospitals Association, the Hospital Sunday Fund, the press, and the contributors, together with six "general" members. The work of the council is managed through seven committees. The president of the council is Councillor M. Humberstone, J.P.

The "penny in the pound" contributions are collected by the employers, who are invited to add not less than one-third to their employees' contributions. Large firms are asked to send the contributions monthly, small firms quarterly. The contributions from firms and employees are pooled by the hospitals, and, if desired, the penny in the pound contributory fund takes the place of existing contributions to voluntary hospitals. Books of vouchers or letters of introduction are supplied to the firms, entitling contributors and their dependants to treatment free of maintenance charges at any of the Sheffield hospitals. Contribution confers no guarantee of treatment at a voluntary hospital. There is no income limit, but contributors who are able to pay nursing home fees are asked not to avail themselves of the free facilities under the scheme. Non-contributors, if admitted to a hospital, are requested to pay a charge of not less than 35s. a week towards their maintenance. Necessitous persons are admitted free. Arrangements are being made to extend the scheme to shopkeepers and small traders. A "Sheffield and District Association Hospitals' Contributors' Council" has been formed for the purposes, amongst others, of nominating agreed representatives of contributors to the managing boards of hospitals and of safeguarding generally the interests of subscribers. Each contributing firm is asked to form its own hospitals committee, which will elect representatives to attend delegates' quarterly meetings arranged by the contributors' council. The Joint Hospitals Council also offers to contributors convalescent benefits, nursing facilities, and motor ambulance transport. In areas lying outside the city of Sheffield the management and employees of firms are encouraged to distribute their contributions under the "penny in the pound" scheme to all hospitals *pro rata* to the cost of hospital service rendered to their contributors.

Thanks to the support of the "penny in the pound" scheme the income of the four voluntary hospitals of Sheffield is now equal to the current expenditure. But the hospital accommodation is inadequate; and it is hoped shortly to increase the number of beds by 50 per cent. The Hospitals' Contributory Scheme aims at the enrolment of 250,000 new and permanent contributors, and every effort is being made to induce every professional, commercial, and municipal establishment in the area to adopt the scheme. The Joint Hospitals Council of Sheffield has distributed the grant made by the Voluntary Hospitals Commission to Sheffield hospitals; has set up the Sheffield Voluntary Hospitals Committee to advise the Commission; arranged during last winter a series of health lectures through a joint advisory committee on health education; and carried out active propaganda in connexion with its activities. The work of the Sheffield Joint Hospitals Council will be watched with great interest, the more so because in many particulars it transgresses the lines laid down by various bodies for such efforts; but in any case the experience of Sheffield will be of great value to voluntary hospital managers generally.

POST-GRADUATE COURSES IN LONDON.

The Fellowship of Medicine and Post-Graduate Medical Association announces that a fortnight's "refresher" course in general medicine and surgery will be given at the London Temperance Hospital in conjunction with Bethlem Royal Hospital, North-Western Fever Hospital, and the Royal Westminster Ophthalmic Hospital, from October 8th to 20th. The course will include daily lectures and clinical demonstrations in the wards and out-patient departments. A course on genito-urinary diseases will be given at St. Peter's Hospital from October 1st to 27th. In addition to demonstrations in the out-patient department a series of lectures will be given on various aspects by the members of the staff. A course of eight lectures on tropical diseases will be given by Dr. Low and Dr. Manson-Bahr at the School of Tropical Medicine, beginning on Tuesday, October 2nd. The subjects considered will be the more important diseases of tropical countries. A course in laryngology, rhinology, and otology, consisting of clinical demonstrations and lectures, will be given at the Central London Throat, Nose, and Ear Hospital, from October 8th to 26th, from 9.30 a.m. to 5 p.m. on each day. Courses on children's diseases will be given at the Victoria Hospital for Children, from October 8th to 28th, and in ophthalmology at the Royal London Ophthalmic Hospital, from October 8th to November 3rd. The National Hospital for Diseases of the Heart will give a fortnight's course on cardiology, and St. Mark's Hospital for Diseases of the Rectum on proctology, respectively, from October 15th to 27th. Copies of the syllabus and further particulars regarding any of the above courses will be forwarded on application to the Secretary to the Fellowship of Medicine, at No. 1, Wimpole Street, London, W.1.

SMALL-POX IN LONDON.

Small-pox has again appeared in the metropolis, eight cases having been recognized between September 7th and 11th. They are widely distributed, in Camberwell, Westminster, Paddington, Finsbury, Greenwich, Lewisham, and Willesden. A common source of infection has so far been discovered in four of them. A lady recently arrived from Spain and stayed for a short time at an hotel in the West End. She was indisposed, but was not seen by a medical man, and suspicion was not aroused until a maid who had waited on her was found to be suffering from small-pox. The lady had left the hotel, but was discovered staying with relatives. The house was visited by the medical officer of health, who found that the lady's sister was also suffering from small-pox. Further inquiry resulted in the finding of two other cases, contacts with the hotel case. At the time of writing the source of infection of the three additional cases has not been ascertained, but one of them may belong to the group in question. Meantime, all the known cases have been removed to hospital. No official statement has been made as to the type of the disease, but certain of the cases are said to be severe, and the fact that the infection came from the Continent makes it not difficult to believe in severity of type. It may be safely assumed that inquiries are being actively made as to contacts and that every precaution is being taken by the authorities. In the meanwhile it ought not to be necessary to emphasize the crucial

Naval and Military Appointments.

ROYAL NAVAL MEDICAL SERVICE

THE following appointments are announced by the Admiralty: Surgeon Commanders R. H. St. B. E. Hughes to the *Excellent*, temporary; F. G. H. R. Black to the *Pembroke* additional for Chatham Dockyard, temporary. Surgeon Lieutenant-Commanders G. L. Ritchie, M.C., to the *Impregnable*, W. H. Sinclair-Loutit, R. Buddle, O.B.E., P. N. Button, O.B.E., W. J. Morris, J. F. Pace, J. F. M. Campbell, M. B. Macleod, and G. W. Woodhouse to the *President* additional for five months' course of instruction at R.N. College, Greenwich. Surgeon Lieutenants R. W. Higgins to the *Queen Elizabeth*. Mr. K. V. Francis has entered as Surgeon Lieutenant for short service and appointed to the *Victory*, additional for R.N. Hospital, Haslar, additional for course.

ROYAL ARMY MEDICAL CORPS.

The following Captains are seconded for service with the Egyptian Army: D. C. Bowie, J. C. Collins, J. J. Magner, M.C.

Temporary Captain N. Leonard relinquishes his commission and retains the rank of Captain.

ROYAL AIR FORCE MEDICAL SERVICE.

Flight Lieutenant J. J. Walsh to No. 7 Squadron, Bircham Newton.

TERRITORIAL FORCE.

ROYAL ARMY MEDICAL CORPS.

Captain N. M. Fergusson to be Major.

Captains W. M. Wilson and E. W. Herrington, having attained the age limit, are retired and retain the rank of Captain.

Lieutenant (temporary Captain) F. J. Cleminson relinquishes his commission and is granted the rank of Captain.

Stanley McC. Kirk to be Lieutenant.

General Hospitals.—Lieut.-Colonel Sir Ewen J. Maclean, having attained the age limit, is retired and retains the rank of Lieut.-Colonel. The following officers relinquish their commissions and retain their rank except where otherwise stated: Major E. C. Bevers, Major F. C. Pybus, Captain H. M. Clarke, Captain P. H. Green and is granted the rank of Major, Captain J. A. Gunn.

Sanitary Companies.—Captain H. Duguid relinquishes his commission and retains the rank of Captain.

VACANCIES.

ABERYSTWYTH INFIRMARY AND CARDIGANSHIRE GENERAL HOSPITAL.—House-Surgeon. Salary £200 per annum.

BIRMINGHAM: QUEEN'S HOSPITAL.—Third Physician for Out-patients. Honorarium £50 per annum.

CARLISLE: CUMBERLAND INFIRMARY.—Honorary Officer for the Ear, Nose, and Throat Department.

CENTRAL LONDON OPHTHALMIC HOSPITAL, Judd Street, W.C.1.—(1) House-Surgeon, salary £150 per annum. (2) Junior House-Surgeon (non-resident), salary £50 per annum. (3) X-ray Officer, small honorarium.

CHESTER ROYAL INFIRMARY.—Assistant House-Surgeon. Salary £150 per annum.

CHURCH OF SCOTLAND FOREIGN MISSION COMMITTEE.—Medical Missionary (male) for Mission in Nyasaland.

EAST AFRICAN MEDICAL SERVICE.—Medical Officers. Salary £600 per annum, rising to £900 with efficiency bars at £700 and £800.

HACKNEY BOROUGH COUNCIL.—Medical Practitioner in connexion with Infant Welfare Centres. Remuneration £1 11s. 6d. per attendance.

IPSWICH COUNTY BOROUGH.—Senior Assistant Medical Officer of Health and Assistant School Medical Officer. Salary £600 per annum.

LONDON COUNTY COUNCIL.—Seventh Assistant Medical Officer in the Mental Hospital Service. Salary £300 per annum, rising to £400.

LONDON JEWISH HOSPITAL, Stepney Green, E.1.—(1) Honorary Assistant Physician. (2) Honorary Surgeon. (3) Out-patient Assistant, salary £100 per annum.

MANCHESTER: ANCOATS HOSPITAL.—(1) Resident Medical Officer. (2) Medical Registrar. Salary £200 and £100 per annum respectively.

MANCHESTER ROYAL INFIRMARY.—Surgical Tutor (non-resident). Salary £30 per annum.

MIDDLESEX HOSPITAL, W.1.—Radium Officer. Salary £300.

MOUNT VERNON HOSPITAL FOR DISEASES OF THE CHEST, Northwood.—Assistant Physician.

NATIONAL SANATORIUM, Benenden, Kent.—Resident Assistant Medical Officer (male). Salary £250 per annum.

NEWCASTLE-ON-TYNE DISPENSARY.—Honorary Physician.

PRINCE OF WALES'S GENERAL HOSPITAL, Tottenham, N.15.—(1) House-Surgeon. (2) House-Physician. (3) Junior House-Surgeon. (4) Junior House-Physician. Salary for (1) and (2) £150 per annum, and for (3) and (4) £110 per annum.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney Road, E.2.—House-Physician and Casualty House-Surgeon. Salary £100 per annum.

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.1.—House-Surgeon. Salary £150 per annum.

ST. PANCRAS DISPENSARY, 39, Oakley Square, N.W.1.—Honorary Surgeon for Throat, Nose, and Ear Cases.

SALFORD ROYAL HOSPITAL.—(1) Resident Medical Officer, £200 per annum. (2) House-Surgeon, £150 per annum. (3) House-Surgeon, £150 per annum with £50 a year extra for V.D. Clinic. (4) Casualty House-Surgeon, £150 per annum.

SEAMEN'S HOSPITAL SOCIETY, Greenwich.—House-Surgeon and House-Physician at Dreadnought Hospital. Salary at the rate of £150 per annum each and a proportion of fees.

SHROPSHIRE ORTHOPAEDIC HOSPITAL, Gobowen, near Oswestry.—Girl Students to learn orthopaedic work. Salary, first year £16, and £20 second year.

WALSALL COUNTY BOROUGH.—Assistant Medical Officer of Health (male). Salary £650 per annum, rising to £750.

WESLEYAN MISSIONARY SOCIETY.—Doctor for service in a Leper Hospital, Dichpalli, Haidarabad, South India.

WEST AFRICAN MEDICAL STAFF.—Medical Officers. Salary £600 per annum, rising to £720, and if confirmed in appointment after probation £720, rising to £920.

WEST BROMWICH AND DISTRICT HOSPITAL.—Resident Assistant House-Surgeon (male). Salary £180 per annum.

WINCHESTER: ROYAL HAMPSHIRE COUNTY HOSPITAL.—House-Physician (male). Salary £150 per annum.

WOLVERHAMPTON AND STAFFORDSHIRE HOSPITAL.—Resident Medical Officer. Salary at the rate of £150 per annum.

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column advertisements must be received not later than the first post on Tuesday morning.

APPOINTMENTS.

PANTING, Laurence C., M.D., B.Ch.Oxon., M.R.C.P.Lond., F.R.C.S.Eng., Honorary Consulting Surgeon to the Helston and District Cottage Hospital.

ROBERTS, Charles, M.B., F.R.C.S., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 5 and 8, and to be attached more particularly to the Oldham, Salford and Manchester County Courts vice Sir William Thorburn, deceased.

CERTIFYING FACTORY SURGEONS.—H. Foxton, M.B., Ch.B.Leeds, for the Uttoxeter District, co. Stafford; W. M. Mackay, M.B., Ch.B.Edin., for the Crook District, co. Durham.

British Medical Association.

OFFICES AND LIBRARY, 429, STRAND, LONDON, W.C.2.

Reference and Lending Library.

THE READING ROOM, in which books of reference, periodicals, and standard works can be consulted, is open to members from 10 a.m. to 6.30 p.m., Saturdays 10 to 2.

LENDING LIBRARY: Members are entitled to borrow books, including current medical works; they will be forwarded if desired, on application to the Librarian, accompanied by 1s. for each volume for postage and packing.

Departments.

SUBSCRIPTIONS and [illegible] ary and Business Manager. Teleg [illegible] don).

MEDICAL SECRETARY [illegible] London).

EDITOR, *British M* [illegible] iology, Westrand, London).

Telephone number for all departments: Gerrard 2630 (*5 lines*).

SCOTTISH MEDICAL SECRETARY: 6, Rutland Square, Edinburgh. (Telegrams: Associate, Edinburgh. Tel.: 4351 Central.)

IRISH MEDICAL SECRETARY: 16, South Frederick Street, Dublin. (Telegrams: Bacillus, Dublin. Tel.: 4737 Dublin.)

Diary of the Association

SEPTEMBER.

17 Mon. London: Library Subcommittee, 2.30 p.m.

21 Fri. London: Science Committee, 2.30 p.m.
North Wales Branch: Special Autumn Meeting, Imperial Hotel, Llandudno, 2.15 p.m. Report of Branch Council. Address by Sir Ewen Maclean, M.D., F.R.C.P., on "Puerperal Sepsis in Wales."

25 Tues. London: Central Ethical Committee, 2 p.m.
London: Organization of Medical Students Subcommittee, 2.30 p.m.
London: Grants Subcommittee, 3 p.m.

26 Wed. London: Hospitals Committee, 2.30 p.m.

27 Thurs. London: Arrangements Committee, 2.30 p.m.

28 Fri. London: Public Health Committee, 2.15 p.m.

OCTOBER.

2 Tues. London: Organization Committee.

3 Wed. London: Medico-Political and Parliamentary Committee, 2.30 p.m.

4 Thurs. London: Insurance Acts Committee, 12 noon.

5 Fri. London: Dominions Committee, 2.30 p.m.

POST-GRADUATE COURSES AND LECTURES.

WEST LONDON POST-GRADUATE COLLEGE, Hammersmith, W.—Mon., 12 noon, Mr. Simmonds: Applied Anatomy. Tues., 12 noon, Dr. Burrell: Chest Cases. Wed., 10 a.m., Dr. Saunders: Medical Diseases of Children. Thurs., 10 a.m., Dr. Grainger Stewart: Neurological Department. Fri., 2 p.m., Dr. Burrell: Medical Out-patients. Sat., 10 a.m., Dr. Saunders: Medical Diseases of Children. Daily 10 a.m. to 6 p.m., Sat. 10 a.m. to 1 p.m., In- and Out-patients, Operations, Special Departments.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

BIRTHS.

CARTER.—On September 5th, to Gladys, wife of O. C. Carter, M.B., B.S.Lond., of Bournemouth—a daughter.

GALLOWAY.—To Dr. and Mrs. Galloway, Western House, Southall, a daughter on September 6th, 1923.

HUGHES.—On September 6th, at Heylands, Chagford, Devon, to Armorel, the wife of Dr. H. Ll. Glyn Hughes, D.S.O., M.C., a daughter.

MARRIAGE.

HAIGH—KRUGER.—On September 8th, at Geneva, William E. Haigh, F.R.C.S., D.T.M., Epidemic Commission, Health Section, League of Nations, to Catherine Marguerite, daughter of the late Pastor Frederic H. Kruger, Société des Missions Evangéliques, Paris, and of Madame Kruger, 22, Schertlinggasse, Basle.

DEATH.

WOODHOUSE.—On September 9th, at Dawley, Shropshire, Charles Herbert (Tommy) Woodhouse, only son of H. C. Woodhouse, M.B., and Mrs. Woodhouse.

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intention of taking a census in 1926. A notable feature of the report is its indication of a diminishing death rate from pulmonary tuberculosis in Belfast. For four years in succession the mortality has declined. In 1922 it was 1.5 per 1,000, a reduction of 45 per cent. as compared with 1918, and of 68 per cent. as compared with 1890, when the death-rate was 7.4 per 1,000. A corresponding fall occurred also in non-pulmonary forms of tuberculosis; here the rate now stands at 0.36 per 1,000, as compared with 0.74—a reduction of more than 50 per cent. since 1918. These figures reflect credit on the department and give promise of still greater success in the future, both among adults and children. Dr. Trimble prefaces his tabulated analysis of the year's work with a brief outline of the history of the movement for combating tuberculosis in Belfast, the method by which patients come into touch with the department, and the resources at his disposal for the treatment of the disease. It is now seven years since an agreement was entered into between the Belfast Corporation and the Belfast Insurance Committee, whereby the Corporation undertook the treatment of all tuberculous insured persons within the area. In 1918 the present Central Tuberculosis Institute was opened; in 1921 the Municipal Hospital for Tuberculous Children, with an open-air school in its grounds for contacts of tuberculous patients, was established. Each patient before being examined at the tuberculosis institutes must bring with him a letter from a medical practitioner stating that in his opinion the person named is suffering from tuberculosis and requires treatment. If, after examination, the patient is found to be suffering from tuberculosis, or from suspicious symptoms, he is placed under treatment either with his own doctor, or at one of the institutes, or at the sanatorium. Of the patients found to be suffering from tuberculosis during the year more than 42 per cent. had had an admitted personal association with tuberculosis amongst other members of their families. In many cases, as the result of inter-infection, whole families in Belfast have been wiped out by the disease, though such disasters are becoming less frequent. But (adds Dr. Trimble) the fact that so large a percentage of detected tuberculosis is apparently traceable to association with other known cases makes the continuous supervision of the home conditions by the nurse all the more necessary. As might be expected, tuberculosis falls most heavily on the older, poorer, more land-locked, and more densely populated districts of the city. During the year an educational propaganda was continued by means of illustrated lantern lectures, and Dr. Trimble looks forward to the development of this into a much more ambitious and more comprehensive scheme in the near future. His report ends on a hopeful note:

"When time is given for the work which is now being done amongst children to mature, I am confident that the death rate from tuberculosis will decline with increasing rapidity, and that which to-day is designated a 'problem' will to-morrow take its place along with the 'problems' of plague, typhus fever, and small-pox."

Scotland.

SCOTTISH ASYLUMS' PATHOLOGICAL SCHEME.

THE Board of the Scottish Asylums' Pathological Scheme in its report for 1922 records high appreciation of the valuable research work carried out by the late Dr. Ford Robertson, whose lamented death took place on July 17th of this year (an obituary notice appeared in our issue of August 11th, p. 264). Dr. Ford Robertson had acted as superintendent of the Laboratory since the commencement of the Scheme in 1897; under his able direction the Laboratory increased its scope and usefulness and attained its present important position. His report indicates that the work of the Laboratory proceeded along the usual lines during the year under review. Many specimens sent from the contributing asylums were examined and reported on: these examinations consisted of a complete bacteriological analysis of the flora of the intestinal tract, urine, and naso-pharynx, representing a vast amount of detailed work. Several visits were paid by Dr. Ford Robertson to asylums, to guide and advise as to bacteriological examinations and treatment. His research work in 1922 was mainly directed to further investigations into the toxic origin of dementia praecox. As a result of his extended study and experience he was able to report considerable progress in the treatment of this malady by therapeutic immunization with suitable vaccines. His own observations confirmed very fully the great frequency of deep alveolar infection of the dental roots in dementia praecox reported by Dr. Henry A. Cotton of New Jersey. The bacteriological investigations carried out by Dr. Ford Robertson during recent years in the Scottish Asylums Laboratory convinced him that in all cases of dementia praecox there was a severe condition of chronic intestinal infection by anaerobic bacteria with distinct neurotoxic properties. "I cannot carry these investigations much further in the Laboratory alone; the time has come when the efficacy of the therapeutic measures that seem to be clearly indicated must be tested on a large scale in the asylums." He therefore appealed to the Board to provide him with a laboratory or wards for therapeutic investigation, in order that early cases of dementia praecox could be treated by the methods found successful in private cases.

Correspondence.

THE INNERVATION OF THE UTERUS.

SIR,—The paper published in your issue of September 8th by Messrs. Beckwith Whitehouse and Featherstone appears to represent a definite advance in our knowledge of the neuro-musculature of the uterus, and their work is worthy of the greatest attention. It is unnecessary to stress the physiological interest of the subject and its far-reaching importance in obstetric and gynaecological practice; but the complexity of the problems involved only becomes apparent on serious consideration of the conflicting evidence and the difficulties of attack.

Having quite independently noted the same phenomena in performing Caesarean sections under spinal anaesthesia at different stages of pregnancy, I can fully endorse their observations in that direction. One must also admit the obvious attraction of their interpretation and general hypothesis. It is only an appreciation of the intricacy of the question that prompts a plea for the more exact record of detail, for uniformity of nomenclature, and for extreme caution in elaborating a theory.

Unfortunately there are serious objections to the direct experimental line of research. In the first place, uterine innervation varies considerably in different animals: in the rabbit, the sympathetic nerve is motor to the uterus, whether pregnant or non-pregnant; in the cat it is motor to the pregnant but inhibitor to the non-pregnant uterus; and in the guinea-pig it is inhibitor to both. Moreover, there are such variations in the anatomy of the autonomic nervous system and particularly in the general conformation of the uterus in animals as to make it exceedingly difficult to express experimental results in terms of the human uterus. Monkeys very rarely breed in captivity, and are therefore not available for the purpose, at any rate in this country.

For obvious reasons we must generally reject pharmacological and other experiments *ad hoc* on the human subject; there are also technical difficulties in recording scientific observations thereon. I have considered electro-myographic methods; but at the present time there appear to be inevitable sources of error. Anatomical and histological studies in this direction are not inspiring, nor are the recorded movements of isolated muscle strips from various parts of the human uterus and under various forms of stimulation. All this implies that we must respect the clue discovered by Messrs. Whitehouse and Featherstone, and I trust that a few minor criticisms may not be out of place.

There is a tendency to assume *a priori* that the uterus, in common with non-striated muscle in general, has a double nerve supply: sympathetic (hypogastric) and parasympathetic (sacral). This assumption is supported by the naked-eye appearances of the human pelvic plexus. Nevertheless, such responsible observers as Langley and Anderson,

It possessed certain properties and a certain mass, and was the ultimate piece of stuff of that particular element; it was regarded by the general student and investigator as not only indivisible but homogeneous. The new work has proved that the atom is not homogeneous, but is built up of particles of positive and negative electricity arranged in an orderly way. Moseley, whose death was among all the losses to science inflicted by the war probably the greatest, had found a new order for the elements in atomic number, mounting by a whole number which varied by unity in passing from hydrogen 1 to uranium 92; it revealed a relation of unforeseen simplicity between the elements. Most of the numbers between 1 and 92 were occupied by known elements, and among the blanks one at least has been filled by hafnium, to the discovery of which Coster and Hevesy of Copenhagen were led by the vacancy for the atomic number 72 disclosed by Moseley's law. This law has thus already not only explained old facts, but pointed the way to the discovery of new—the two supreme tests of the validity of a scientific hypothesis.

Moseley worked on the theory of the nuclear atom, which is that an atom consists of a very dense nucleus, a particle of positive electricity (proton) surrounded by a planetary system of particles of negative electricity (electrons). The first atomic number is occupied by hydrogen, which has a nuclear charge of one, and one electron moving in an orbit, approximately circular, around it; the second, helium, has a nuclear charge of two, and two electrons. These two electrons, the "K" group, are common to all the elements with an atomic number above hydrogen; new groups are added as the atomic number rises until we reach uranium, which we must conceive as having at its centre a minute nucleus surrounded by swirling groups of 92 electrons moving at varying rates, the speed depending on their closeness to the nucleus. So that while the outermost electrons have a minimum speed of something over 1,000 kilometres a second, the innermost "K" electrons have a speed of more than 150,000 kilometres a second, or half the speed of light.

The electrons occupy, but do not fill, a volume very large compared with that of the nucleus. Dr. Aston, in an address to the British Association when it met in Hull last year, said that even in the heaviest atom known the constituent charges failed to fill even the million-millionth part of this whole volume. The theory of the nuclear atom was put forward by Rutherford in 1911, and the nucleus must be conceived as extremely small compared with the whole atom; thus Dr. Aston said: "If in the atom of helium (atomic weight 4, atomic number 2) we take the nucleus consisting of four protons and two electrons as represented by a rather large pea, its planetary electrons may be represented on the same scale as two rather smaller peas revolving around it at a distance of a quarter of a mile." As this quotation from Dr. Aston suggests, physicists are carrying their inquiries still further and are attempting to ascertain the structure of the nucleus. Already certain investigations by Sir Ernest Rutherford himself and Dr. Chadwick leave very little room for doubt that hydrogen nuclei form the essential part of the nuclear structure. The conclusion is forced that the nucleus of a heavy atom is a very complicated system. When the mass of the nucleus is compared with its volume it seems certain that its density is many billion times that of our heaviest element, yet it is probably a discontinuous structure occupied but not filled by the incredibly minute building units, the protons and electrons, in ceaseless rapid motion controlled by their mutual forces.

It has been supposed that hydrogen may be built up into helium; were this to occur energy would be set free, and calculation shows that the amount so liberated would be prodigious; if the hydrogen contained in a pint of water could be transmuted the energy furnished would, Dr. Aston has estimated, be sufficient to propel a big liner across the Atlantic and back again at full speed. But there is no certain experimental evidence that helium can be formed from hydrogen; the process may be going on in the sun, and it has been calculated that this synthesis of helium need only take place slowly in order to maintain the present rate of radiation from the sun for periods of the order of a thousand million years. Sir Ernest Rutherford discourages the extravagant hypotheses put forward some ten years ago with regard to the stores of energy hidden in the atoms of an element. He, on the contrary, suggests that uranium and thorium represent the sole survivals in the earth to-day of types of element common in the long-distant ages when the atoms now composing the earth were in course of formation. Some atoms of uranium and thorium have, owing to their slow rate of transformation, survived, and may be regarded as having not yet completed the cycle of changes which the atoms of other elements have long since passed through. On this view the presence of a store of energy ready for release is not a property of all atoms, but only of a special small class, like the radio-active atoms, which have not yet reached the final state for equilibrium.

Though Sir Ernest Rutherford dealt with an extremely complicated subject, involving conditions of matter very difficult to visualize, it is stimulating to read at first hand the views of one who has himself had so large a part in the astonishing progress which has been made. Every civilized nation has taken an active part in the study of the problem, but, as he said, "we may be justly proud that this country has made many fundamental contributions." He did well to include the British dominions overseas, where workers have not been behindhand with their contributions; and it is, we may hope, significant of the oneness of the British Empire that Professor Rutherford himself is a New Zealander, and that he was Professor of Physics in McGill University, Montreal, before he became professor in the same subject in the University of Manchester, a post he only vacated four years ago to succeed Sir J. J. Thomson as Professor of Experimental Physics and Director of the Cavendish Laboratory of the University of Cambridge.

THE AUSTRALASIAN CONGRESS OF THE BRITISH MEDICAL ASSOCIATION.

THE Australasian Medical Congress—the first to be held under the direction of the Federal Committee of the British Medical Association in Australia—will open in Melbourne on November 12th; it will meet under the presidency of Mr. G. A. Syme, M.S., F.R.C.S., and the parent Association will be fitly represented by Sir William Macewen, F.R.S., the distinguished Regius Professor of Surgery in the University of Glasgow, and President of the British Medical Association last year. He is expected to arrive in Sydney about October 17th, by the mail boat from San Francisco, and will be the guest of Sir Walter Davidson, Governor of New South Wales. He will be entertained at dinner by the members of the Glasgow University Club on October 22nd, and by the New South

out and the nature of their diseases mentioned; short intervals were allowed for private prayer. It was also stated that one or two persons who had been prayed for on a previous occasion were in better health. There was no rhetorical or emotional appeal.

The position of the medical profession is undoubtedly difficult. On the one hand, it is anxious not to offend the faith of many of its own members or of the general public; on the other hand, it will be generally disposed to accept the conclusion of the Committee of Inquiry into spiritual, faith, and mental healing, which made a preliminary report in 1914 to the effect, as was recalled in the JOURNAL of September 8th, "that 'faith' or 'spiritual' healing, like all treatment by suggestion, can be expected to be permanently effective only in cases of what are generally termed 'functional' disorders. The alleged exceptions are so disputable that they cannot be taken into account."

The object of this letter is to suggest that the Committee, which stopped its inquiry owing to the war, should now be reconstituted, and, as was suggested in the report of 1914, go on to direct its attention to a careful inquiry "into the evidence for cases of asserted cure by 'spiritual' or 'mental' healing of organic or other serious disorders submitted for investigation." I do not at the moment recall the constitution of the original Committee, but it contained both clerical and medical members, and I believe I am right in saying that Bishop Ryle, Dean of Westminster, was its chairman. He has shown that his interest in the matter continues by allowing an address on the subject to be given in the Abbey by the Rev. R. C. Griffith. Would it not be well to ask Bishop Ryle to start the Committee again?—I am, etc.,

September 9th. M. D.

SIR,—In your annotation (September 8th, p. 428) on the above subject you refer to the address by the Rev. R. C. Griffith delivered in Westminster Abbey, and give the following quotation from his remarks: "'I myself,' he said, 'have seen blind people see. We have seen one with a withered arm for sixteen years hanging at her side suddenly shoot it out perfectly whole. We have seen cancers disappear in twenty minutes.'" I cannot help feeling that a great boon would be conferred upon all interested in the subject—and the circle of inquirers is a world-wide one, including many of a very perplexed profession—if the challenge, for such it might reasonably be regarded, were taken up and Mr. Griffith asked for some reasonable proof of the statements he makes regarding the three particular classes of cases he quotes. I presume the first stage of the inquiry would be for Mr. Griffith to supply the names and addresses of the patients cured. These could be given in strict confidence. This information obtained, the patients would be asked to give the names of their medical attendants prior to their cure.

As medical men we know that such statements as those made by Mr. Griffith cannot wholly be accepted on the basis which he wishes or intends should be ascribed to them, however much we may be in sympathy with such supernatural intervention if it can only be proved to be real. As Mr. McAdam Eccles indicates, diagnosis is an essential factor in determining what value may be attached to cures that on the face of them appear to be miraculous. The question, therefore, is primarily and essentially a medical one.—I am, etc.,

A. ERNEST MAYLARD.

Kelvinside, Glasgow, Sept. 10th.

THE DIFFERENTIAL DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

SIR,—I am fully able to corroborate the points emphasized by Dr. Brand in your issue of July 28th (p. 160), on the differential diagnosis of small-pox and chicken-pox, from my experience of these affections, comprising almost 14,000 cases of small-pox and over 2,000 cases of chicken-pox, during thirty-four years at the Arthur Road Hospital, Bombay.

The diagnosis of chicken-pox does not rest upon the absence of early constitutional disturbances, nor upon the number of vesicles, nor their distribution, but solely upon the characteristics of the eruption. These are: (*a*) The more or less elliptical or oval shape, that may or may not be surrounded by an angry reddish areola; (*b*) the unilocular character of the vesicle, that can be emptied of its serous contents by a single puncture, completely flattening it out, leaving the thin epidermis over its base; (*c*) the simultaneous presence, on one and the same part of the body, of papules, early and late vesicles, dried-up and encrusted vesicles, and even falsely umbilicated vesicles—a combination that has never been noted, to my knowledge and experience, in small-pox; (*d*) the desiccation of the vesicles without suppuration within two or three days or even earlier; and lastly, (*e*) the appearance of successive crops of vesicles over three to five days, each such crop of eruptions being preceded or accompanied by elevation of temperature that may reach 103° to 104° F., especially in children.

One of the chief stumbling blocks, for those unfamiliar with chicken-pox, is the presence of false umbilication. That phenomenon occurs in chicken-pox from the rupture of the vesicle, with or without purulation, through friction with the clothes or scratching, and if examined closely it will be found that the vesicle is not full as in small-pox, but empty, and the epidermis becoming incurved over the flattened base of the eruption presents this deceptive appearance, which is further accentuated by the dark crust of the apex of the vesicle in its centre.

Chicken-pox, as at times observed in Bombay, is by no means such a mild infection. Often and often one meets with severe constitutional disturbance, high fever, delirium, and even convulsions in children, and when followed by the eruption the physician may be led away into declaring it small-pox. But the early vesiculation and drying up, the persistence of pyrexia in some cases after the eruption is fully out, and the characteristics above referred to, should enable one to arrive at a correct diagnosis. *Per contra*, in the preponderatingly larger number of cases, the patient appears at the hospital with a copious crop of vesicles without any previous history of high fever, or even any fever at all preceding it. Such eruption may also be observed on the palate and buccal mucous membrane simultaneously.

As to the gravity of small-pox, it is a factor well known to all who have to deal with it, that the initial appearance of even serious symptoms is no criterion of the severity of the disease, and that many a case that begins with apparently threatening symptoms eventually turns out to be a mild case. Lastly, the presence of lumbar pain is of indefinite significance in the diagnosis of small-pox among the generality of Indian patients, who will complain of pains all over the body.—I am, etc.,

N. H. CHOKSY, C.I.E., M.D.,
Late Assistant Health Officer in Charge
Arthur Road Infectious Diseases and
Maratha Plague Hospitals, Bombay.

Bombay, Aug. 25th.

TESTS FOR DRUNKENNESS.

SIR,—Would some of your readers who have had special experience give us the benefit of their advice on the best tests for drunkenness? It is very important that doctors, who are so often called upon to decide the question of intoxication in motor drivers and others, should be sure of their ground. Recently a case was withdrawn by the police after their doctor had failed to satisfy the magistrate that the tests he had made were adequate. Do any of your readers know the nature of the tests recently devised by the Danish Medico-Legal Society?—I am, etc.,

L. A. PARRY.

Hove, Sept. 6th.

*** The tests for drunkenness recently devised by the Danish Medico-Legal Society are the outcome of the law of 1921, which provides for the permanent withdrawal of the licences of motorists convicted of drunkenness while driving. In co-operation with the police, the Danish Medico-Legal Society decided that it would be impracticable to carry out such tests as the examination of the blood or urine for alcohol, and the system to which our correspondent refers is based on the ordinary clinical tests. The chief merit of the system would seem to be its orderly

At that time (seventeen years ago) well over 300 fatalities from eating it had been recorded in medical literature. Dr. Ford concluded that the active principle of the plant was an alkaloid—"amanita toxin"—a heat-resistant substance devoid of haemolytic properties. Unfortunately no antidote is known, and treatment must follow general lines; a vivid account of the toxic symptoms is given in Mr. Ramsbottom's book. *Amanita muscaria*, with its bright red top studded with red spots, is of course unlikely to be eaten in mistake for the common mushroom; it contains muscarin, mycetto-atropine, and choline, and is therefore very poisonous, though far less so than *A. phalloides*.

ANTHRAX IN TANNERIES.

THE International Labour Office, as a result of a resolution passed at the third session of the International Labour Conference held at Geneva in 1921, set up an Advisory Committee on Anthrax, which, at a meeting in London in December, 1922, proceeded to examine the problem of disinfection of hides and skins. It has long been known that the principal risks of infection from anthrax arose from handling these articles of commerce, but hitherto no process of disinfecting them which offered adequate protection against anthrax spores has been determined. The International Labour Office consequently secured the collaboration of Dr. H. Leymann of the Federal Ministry of Labour, Berlin, for many years recognized as a leading authority in the field of industrial hygiene, to report on the occurrence of anthrax among workers in the tannery industry and on the most modern methods of disinfecting hides before or during the process of tanning. His investigations are now published by the International Labour Office.[1] The statistics of the incidence of anthrax tabulated by Dr. Leymann, although they refer to Germany only, are of much interest and value. They show clearly that the chief sources of infection are imported ox-hides and cow-hides; and that during the years of the war and after, when the importation of hides practically ceased or was greatly restricted, the cases of anthrax decreased to a remarkable extent. In the period 1910-21 there were 1,575 cases, of which 249 were fatal, but while the number yearly from 1910 to 1914 was approximately 200, in 1915 there were only 67 cases, and in 1919 only 18. In Germany compulsory notification of anthrax is in force, and from information obtained in this way it was shown that outbreaks occurred amongst cattle pastured in valleys of rivers and streams on whose upper reaches tanneries which dealt with imported hides and skins were established. Incidentally we may note that many years ago a similar observation was made in connexion with the pollution of the river Severn in England. Micro-organisms from town drainage found their eventual resting place in the vegetation of the river banks many miles down stream, and anthrax from tanneries in this way infected the cattle grazing on the river pastures. The problem, therefore, is how hides can be effectively disinfected before they are handled for tanning. Dr. Leymann tested three processes: the Seymour-Jones, which consists in dipping the hides for twenty-four hours in a solution of 0.02 per cent. of mercury chloride and 0.9 per cent. of formic acid; the pickling process of treating them with a solution of 1 to 2 per cent. of hydrochloric acid to which 10 per cent. of common salt has been added, and kept at a temperature of 20° to 40° C., and the lye process, the basis of which is a 0.5 per cent. soda lye with 1 to 10 parts in 100 of common salt added. Dr. Leymann's conclusions are that the Seymour-Jones process is uncertain, that the pickling process gives good results, and is eminently suitable for disinfection at ports of entry and at industrial centres where there are special establishments, and that the lye process, which also gives good results, is simpler and more economical and consequently offers considerable advantages to smaller establishments. Detailed instructions for disinfection of hides by both these latter processes are given as appendices to the report, and the pamphlet thus contains matter that is of great importance not only to the tannery industry, but also to medical officers of health. Further practical measures of dealing with imported hides will depend on the drawing up of a list of countries in which anthrax is prevalent, and this is being considered by the Advisory Committee. The general subject is being discussed at a meeting this week of the international committee of experts appointed at the Labour Conference of Washington in 1919, to deal with matters affecting the health of workers. The committee is composed of medical inspectors of factories and others possessing technical and scientific knowledge of industrial hygiene, drawn from a dozen countries; among the representatives of this country is Dr. T. M. Legge, chief medical inspector of factories. Another subject to be discussed at the meeting this week is the preparation of a schedule of unhealthy processes. This involves not merely the examination of the dangers to health involved in various processes, but the collection and study of all the available scientific and statistical information relating to each process. The list is already in an advanced stage, but before it is published the experts forming the present committee are to be asked to examine it in detail and to collaborate in ensuring its scientific completeness and accuracy.

[1] *Anthrax in the Tanning Industry.* By Dr. H. Leymann. Studies and Reports, Series F (Industrial Hygiene and Accidents), No. 7. International Labour Office, Geneva. August, 1923. (Pp. 30. 1s.)

THE SAVILE CLUB.

LAST year the Savile Club completed forty years of residence in 107, Piccadilly, a house bought from Lord Rosebery in 1882, although its existence under the name of the Savile dates from some ten years earlier. To celebrate the club's jubilee a history of its origin and development,[1] with a list of all who have been or are its members, and entertaining reminiscences of many of them, has been prepared, evidently by a loving hand, for it is a club beloved of its habitués. The handsome volume contains much that is of interest to medical men. It was the "Medical Club" to which the Savile may be said to owe its origin. In 1868 the Medical Club offered the Eclectic Club—incidentally both these clubs are defunct or have been submerged in other names—"a very pleasant and complete set of rooms" at 9, Spring Gardens, overlooking Trafalgar Square. The Eclectic, a night club but not of the modern variety, declined the offer, but some of its members thought better of it and took over the delectable premises with a view to forming a club "of such persons as are engaged in different ways of life, and deputed as it were out of the most conspicuous classes of mankind." The quotation, which is from the *Spectator* of April 9th, 1711, is given in a short preface to the history as indicating the dominant principle on which the Savile Club was founded—namely, the mixture of men of different professions and opinions, and a careful process of election. The list of members bears this out to a remarkable degree, for it contains the names of men who have become famous as statesmen, authors, editors, artists, composers, bishops, doctors, scientists, soldiers, and explorers. There is an imposing array of Fellows of the Royal Society. It has been said elsewhere that the Club was "a little place" for those aspiring to the dignity of membership of a certain club, reputed to be duller and more austere, to wait in. It has become a little place for them to return to for relaxation and conviviality. In 1871 the new club moved from Spring Gardens to 15, Savile Row, and took its present name then. It outgrew the premises in 1881

[1] *The Savile Club, 1868-1923.* Privately printed for the Committee of the Club. 1923. (Pp. 205.)

We regret to record the sudden death of Dr. WILLIAM WHITE, of Hadfield, Glossop. Dr. White was born at Laxton, Notts, and educated at the University of Aberdeen, where he studied anatomy under John Struthers and surgery under William Pirrie. He graduated M.B., C.M., "with honourable distinction," in 1876, and M.D. in 1878. After having held the post of house-surgeon at Ashton-under-Lyne Infirmary, he began practice, first at Woolley Bridge, and afterwards at Hadfield, in the borough of Glossop. He was a member of the British Medical Association and a justice of the peace for Glossop and for the county of Derbyshire. He was mayor of Glossop for a year, and deputy mayor for several years during the war. A colleague writes: "The chief feature of Dr. White's character was his devotion to work, evidenced by his popularity and influence among his patients. He leaves a widow, two sons, and a daughter, but his loss is felt by many outside his own family. There is no doubt that he never fully recovered from the shock of losing a son who, as an officer in the Machine Gun Corps, was killed in battle during the war. Dr. White's death removes one of the most prominent personalities in Glossop and the surrounding district."

The death took place on September 1st, after a long illness, of Dr. G. S. HART, Measham, near Burton-on-Trent. He was born in county Londonderry, Northern Ireland, and was educated at Queen's College, Belfast, graduating M.B., B.Ch., R.U.I. in 1891, and M.D. in 1900. He settled in Measham nearly thirty years ago, and for practically the whole of that time carried on a large practice unaided. By his sterling honesty and remarkable devotion to the welfare of the people, he gained the affection and respect of those with whom he had professional dealings, whether patients or medical men. He approached nearly the ideal type of country doctor depicted in fiction by some of the masters of the craft. A skilful practitioner who never spared himself, a wise adviser to those who laid their troubles before him, he was endowed with a quietly humorous turn of mind which charmed his intimate friends. That his unselfish life's work received due appreciation was shown by the large number of those who paid their tribute to it on the day of his funeral. Dr. Hart leaves a widow, two sons, and a daughter, with whom much sympathy is felt.

Medical News.

THE King has granted to Dr. James Ferguson Lees, C.B.E., Director-General of the Egyptian Public Health Administration, authority to wear the Insignia of Grand Officer of the Order of the Nile, conferred upon him by the King of Egypt in recognition of valuable services rendered.

DURING the forthcoming session of the Royal Society of Medicine certain subjects will be discussed by the whole Society, on dates to be announced later. The first of these general discussions will be on the possible substitutes for cocaine; the second on the grading of the population from the point of view of bodily fitness; the third on chronic abdominal pain in nervous women. There will also be joint discussions by the Sections concerned on the following subjects: The treatment of severe gastric and duodenal haemorrhage; birth injuries; the uses and limits of vaccine therapy; vertigo; the surgical treatment of pulmonary tuberculosis; post-operative and puerperal mental disorders. The Society's annual dinner, to be attended by H.R.H. the Prince of Wales, will be held at the Hotel Victoria on Tuesday, December 11th.

AT the National Milk Conference on pasteurization to be held at the Guildhall, London, on November 21st, the chair will be taken in the morning by Viscount Astor, when the methods in use and the physical and the chemical changes produced will be discussed. At the afternoon session Lord Dawson of Penn will be in the chair, and a discussion on bacteriological changes will be opened by Professor Beattie of Liverpool and continued by Captain S. R. Douglas, F.R.S., I.M.S. (ret.) (Medical Research Council), Dr. Thomas Orr, and Mr. Stenhouse Williams of the National Institute for Research in Dairying, Reading. This will be followed by a discussion on biochemical changes, introduced by Professor F. G. Hopkins, F.R.S. The last discussion, on financial and commercial aspects, will be followed by a general discussion. Members of the conference will pay a subscription of 1 guinea, which will include a copy of the report of the conference. Further particulars can be obtained from Miss H. M. Willans, 3, Bedford Square, London, W.C.1.

THE opening ceremony of the winter session at King's College Hospital Medical School will be held at 2.30 p.m. on Wednesday, October 3rd, at Denmark Hill. The introductory address will be given by Mr. H. J. Waring, Vice-Chancellor of the University of London, and Vice-President of the Royal College of Surgeons of England. The annual dinner of past and present students will be held at 7 for 7.30 on the same day at the Connaught Rooms, Great Queen Street, W.C.2, with Professor Arthur Whitfield in the chair.

THE People's League of Health, with the sanction of the Home Office, has arranged for health lectures to be delivered at Oxford, Wormwood Scrubs, and Holloway Prisons during this autumn by Professor Louise McIlroy, Dr. Christine Murrell, Dr. Octavia Lewin, Sir Bruce Bruce-Porter, Sir James Cantlie, Sir John Collie, Professor C. S. Myers, Dr. Marcus Paterson, and Dr. W. J. O'Donovan.

A PARTY of British medical students has recently completed a Continental tour under the auspices of the National Union of Students of Great Britain, a body affiliated to the International Confederation of Students. The party comprised members of the Universities of Oxford, London, Manchester, Liverpool, Leeds, Edinburgh, and Glasgow; and the medical centres visited included Paris, Brussels, Vienna, Prague, Berlin, Munich, Leyden, and Zürich.

A COURSE of six lectures on the social aspect of mental defect will be given by Dr. W. A. Potts at the Tavistock Clinic for Functional Nerve Cases, 51, Tavistock Square, W.C.1, on Mondays, at 5.30 p.m., beginning on October 1st. The fee for the course is 1 guinea.

THE fifth French Congress of Tuberculosis was held recently at Strasbourg. The following papers among others were read: The association of syphilis and tuberculosis, by Professor Sergent; tuberculosis and associated infections, by Dr. Cordier of Lyons; secondary infections in tuberculosis, by Professor Teissier of Paris; anatomical and bacteriological investigation, by Drs. Piery, Mérieux, and Glishmann of Lyons; the tubercle bacillus and associated micro-organisms, by Professor Letulle and Dr. Halbron; tuberculosis and malaria, by Dr. G. Lemaire of Algiers; insurance and tuberculosis, by Dr. Weil of Strasbourg; and housing and tuberculosis, by Dr. Moutet of Paris. The next congress will be held at Lyons in 1926 under the presidency of Dr. Mouisset, president of the departmental committee of the Rhône for combating tuberculosis.

THE twenty-seventh Cookery and Food Exhibition will be held at the Royal Horticultural Hall this year from October 22nd to 26th.

DR. MATTHIAS NICOLL, jun., has been appointed to succeed the late Dr. Hermann Biggs as New York State Commissioner of Health.

A POST-GRADUATE course in pulmonary tuberculosis, including lectures, clinical instruction, and laboratory work, organized by Professor Léon Bernard, will be held in Paris from October 1st to 28th, at the Faculty of Medicine, Hôpital Laënnec, and Dispensaire Léon Bourgeois. The fee is 150 francs.

MESSRS. WILLIAM HEINEMANN announce for early publication a revised edition of the late Dr. R. Murray Leslie's work on *Pneumonia*, by Dr. J. Browning Alexander.

THE Norwegian Government has ordered that the number of registrations of medical students at the University of Christiania shall in future be limited to sixty in each year.

A RECENT Italian law has authorized directors of university clinics and hospital chiefs to override opposition to a necropsy if it is considered scientifically necessary.

Two cases of rabies occurred in Holland during July, both in the province of Gelderland.

IN the first six months of 1923 there were 9 cases of smallpox in Germany, as compared with 199 in the same period of 1922.

THE medical profession of Frankfurt has dedicated a drinking-fountain to the memory of the Frankfurt physician, Dr. Heinrich Hofmann, the author of *Struwwelpeter*, familiar to many generations of English children.

THE first number, dated October, 1923, of the *British Journal of Experimental Biology* has been issued. The publishers are Messrs. Oliver and Boyd, Tweeddale Court, Edinburgh, and the annual subscription is 40s. post free.

A LECTURE on the treatment of diabetes mellitus by insulin will be given by Dr. Otto Leyton in the anatomical theatre of the London Hospital Medical College on October 15th, at 4.15 p.m. The lecture is intended for senior students of the hospital and post-graduates, to whom a cordial invitation is given.

THE BRITISH ASSOCIATION, LIVERPOOL.

PRESIDENT'S ADDRESS
ON
THE ELECTRICAL STRUCTURE OF MATTER.

THE annual meeting of the British Association for the Advancement of Science opened in Liverpool on Wednesday, September 12th, when Sir Ernest Rutherford succeeded Sir Charles Sherrington as President.

INTRODUCTORY.

Sir ERNEST RUTHERFORD began his presidential address by recalling that when the British Association last visited Liverpool, in 1896, it met under the presidency of the late Lord Lister, whose memory is held in affectionate remembrance by all nations. His address, which dealt mainly with the history of the application of antiseptic methods to surgery and its connexion with the work of Pasteur, that prince of experimenters, whose birth has been so fittingly celebrated this year, gave in a sense a completed page of brilliant scientific history. At the same time, in his opening remarks, Lister emphasized the importance of the discovery by Röntgen of a new type of radiation, the x rays, which, as is now realized, marked the beginning of a new and fruitful era in another branch of science. The discovery had been published to the world in 1895, while the discovery of the radio-activity of uranium by Becquerel was announced early in 1896. Even the most imaginative of scientific men could never have dreamed at that time of the extension of our knowledge of the structure of matter that was to develop from these two fundamental discoveries; but in the records of the Liverpool meeting were to be seen the dawning of a recognition of the possible consequences of the discovery of x rays, not only in their application to medicine and surgery, but as a new and powerful agent for attacking some of the fundamental problems of physics.

In applied physics, too, 1896 marked the beginning of another advance. In the discussion of a paper which I, Sir Ernest Rutherford said, had the honour to read, on a new magnetic detector of electrical waves, the late Sir William Preece told the meeting of the successful transmission of signals for a few hundred yards by electric waves which had been made in England by a young Italian, G. Marconi. The first public demonstration of signalling for short distances by electric waves had been given by Sir Oliver Lodge at the Oxford meeting of this Association in 1894. It is startling to recall the rapidity of the development from such small beginnings of the new method of wireless intercommunication over the greatest terrestrial distances. In the last few years this has been followed by the even more rapid growth of the allied subject of radiotelephony as a practical means of broadcasting speech and music to distances only limited by the power of the transmitting station.

The rapidity of these technical advances is an illustration of the close interconnexion that must exist between pure and applied science if rapid and sure progress is to be made. The electrical engineer has been able to base his technical developments on the solid foundation of Maxwell's electromagnetic theory and its complete verification by the researches of Hertz, and also by the experiments of Sir Oliver Lodge in this university. The benefits of this union of pure and applied research have not been one-sided. If the fundamental researches of the workers in pure science supply the foundations on which the applications are surely built, the successful practical application in turn quickens and extends the interest of the investigator in the fundamental problem, while the development of new methods and appliances required for technical purposes often provides the investigator with means of attacking still more difficult questions.

This important reaction between pure and applied science is particularly manifest in the development of x-ray radiography for therapeutic and industrial purposes, where the development on a large scale of special x-ray tubes and improved methods of excitation has given the physicist much more efficient tools to carry out his researches on the nature of the rays themselves and on the structure of the atom. In this age no one can draw any sharp line of distinction between the importance of so-called pure and applied research. Both are equally essential to progress, and we cannot but recognize that without flourishing schools of research on fundamental matters in our universities and scientific institutions technical research must tend to wither. Fortunately there is little need to labour this point, for the importance of a training in pure research has been generally recognized. Those who have the responsibility of administering the grants in aid of research for both pure and applied science will need all their wisdom and experience to make a wise allocation of funds to secure the maximum of results for the minimum of expenditure. It is fatally easy to spend much money in a direct frontal attack on some technical problem of importance when the solution may depend on some addition to knowledge which can be gained in some other field of scientific inquiry, possibly at a trifling cost. It is not in any sense my purpose to criticize those bodies which administer funds for fostering pure and applied research, but to emphasize how difficult it is to strike the correct balance between the expenditure on pure and applied science in order to achieve the best results in the long run.

THE ELECTRICAL STRUCTURE OF MATTER.

Sir Ernest Rutherford then entered upon the main topic of his address, the great advance in knowledge of the nature of electricity and matter which justified the description of the period since the last Liverpool meeting as the heroic age of physical science.

Before the beginning of that period, he said, it had been perceived by the more philosophically minded that the periodic variations of the properties of the elements brought out by Mendeléef were only explicable if atoms were similar structures in some way constructed of similar material. At the same time the idea was generally gaining ground that an explanation of the results of Faraday's experiments on electrolysis was only possible on the assumption that electricity, like matter, was atomic in nature. The name "electron" had been given to this fundamental unit by Johnstone Stoney, and its magnitude roughly estimated, but the full recognition of the significance and importance of this conception belongs to the new epoch. In the early development of this subject science owes much to the work of Sir J. J. Thomson, both for the boldness of his ideas and for his ingenuity in developing methods for estimating the number of electrons in the atom, and of probing its structure. He early took the view that the atom must be an electrical structure, held together by electrical forces, and showed in a general way lines of possible explanation of the variation of physical and chemical properties of the elements, exemplified in the periodic law. The discovery of radium was a great step in advance, for it provided the experimenter with powerful sources of radiation specially suitable for examining the nature of the characteristic radiations which are emitted by the radio-active bodies in general. It was soon shown that the atoms of radio-active matter were undergoing spontaneous transformation, and that the characteristic radiations emitted—namely the α, β, and γ rays—were an accompaniment and consequence of these atomic explosions. The proof that the α particle is a charged helium atom for the first time disclosed the importance of helium as one of the units in the structure of the radio-active atoms, and probably also in that of the atoms of most of the ordinary elements.

Not only, then, have the radio-active elements had the greatest direct influence on natural philosophy, but in subsidiary ways they have provided us with experimental methods of almost equal importance. The use of α particles as projectiles with which to explore the interior of the atom has definitely exhibited its nuclear structure, has led to artificial disintegration of certain light atoms, and promises to yield more information yet as to the actual structure of the nucleus itself.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

184. Treatment of Kala-azar.

H. E. SHORTT and RAM TARAN SEN (*Indian Med. Gaz.*, July, 1923, p. 289) record the results obtained in the treatment of kala azar in the special kala-azar hospital at Shillong during the year 1922. Only those cases were treated which submitted to spleen puncture and in which the result of the latter was positive. The routine treatment adopted was a course of intravenous injections of a 1 per cent. solution of sodium antimony tartrate in normal saline. These were given on every second day, commencing with 3 c.cm. and rising to a maximum of 8 c.cm. at a single injection, which was generally the sixth. Thereafter the above maximum dose was continued until the appearance of symptoms of intolerance, when treatment was abandoned or the dosage diminished according to individual indications. No intolerance was displayed in 36 per cent. of the cases, and in these administration ceased when signs of cure were manifested, as judged by gain in weight, diminution in size of the spleen, continued absence of fever, improvement in general blood condition, and negative microscopic and cultural results. Out of about fifty cases 30 per cent. were cured and 8 per cent. died; the remainder were relieved or discharged otherwise. With ammonium antimony tartrate three cases were treated and cured, but there was nothing to indicate that this was superior in action to the sodium salt. To five cases urea stibamine was administered with striking results. The intravenous route was employed and the initial dose was 0.1 gram in cold sterile water, increasing at each injection, given on alternate days, by 0.05 gram, until a dose of 0.25 gram was reached and continued for subsequent doses. The advantages of this drug, in the cases observed, appeared to be the rapidity with which symptoms of the disease disappeared, the short period required for cure to be obtained—only two to three weeks as against an average of three months when sodium antimony tartrate is employed—and the absence of symptoms of intoleration. Intravenous injection of 1 in 1,000 formalin was tried in six cases without any apparent effect, and two cases in which trypan blue was used terminated fatally. The authors consider that most cases of relapse are due to insufficient treatment in inherently obstinate types, and stress the necessity of the individual treatment of cases and the avoidance of any fixed or standard dosage and duration of treatment. For the preliminary diagnosis of a case spleen puncture, followed by microscopical examination of the slide, is recommended as the method of choice; cultural methods are chiefly of value in doubtful cases.

185. Tuberculous Paronychia.

J. H. STOKES (*Arch. of Derm. and Syph.*, July, 1923, p. 44) reports a case of tuberculous paronychia with unusual features. The history commenced with what appears to have been an erythema nodosum of the legs, which disappeared in three or four days. Its appearance marked the beginning of a decline in general health, and fully two years later a lesion of the lower lip and paronychia of the right thumb developed. The infection spread progressively to several fingers on both hands. The process began at the tip of the digit (not in the base of the nail) and extended round the nail, which eventually became raised above the matrix by a growth of horny material. There was no special tendency to ulceration, no inflammatory areola, and the condition did not at any time suggest a tuberculous one. At this period there was no cough, no chest or throat lesion, and of the tuberculin reactions the von Pirquet alone was positive. Death occurred three years from the onset of the erythema nodosum, and only during the last year did definite signs of tuberculosis develop in the abdomen and chest. This is one of several cases reported by the author, which, commencing in erythema nodosum, terminated in death by tuberculosis.

186. Albuminuria in Adolescents.

S. FANCOURT MCDONALD (*Med. Journ. Australia*, May 26th, 1923, p. 571) discusses clinically that form of albuminuria in adolescents in whom no renal disease is suspected. An otherwise unexplained headache, chronic indigestion, or general malaise may be associated symptoms, and the albumin may be postural, or only appearing when the patient is run down, and with or without the presence of casts, which, especially granular casts in any number, indicate renal disease. In Australia primary interstitial nephritis is a frequent familial disease, and albuminuria occurring in a child must be seriously regarded when others in the family have died from renal disease. In later stages rise in blood pressure, a urine of low specific gravity with frequency of micturition, and the occurrence of albuminuric retinitis are of grave import. The etiology is frequently obscure, and may be associated in some instances with some form of sepsis, repeated sore throats, or plumbism. With the exception of urea (15 grams thrice daily in water) drugs are of little use, the main indications being to ward off invalidism by adopting an optimistic attitude, with recommendations for fresh air, fairly generous diet, exercise, and freedom from worry and anxiety. Diet should aim at a minimum of protein, the caloric value being made up mainly by carbohydrates, and a small amount of fat, the protein intake being easily digestible and low in purin-rich bodies, in order to give as little nitrogenous residue as possible for the kidneys to excrete. Eggs are useful provided they can be digested, and, in the absence of fluid retention, patients should be allowed to drink as much as they like in the way of cocoa, mineral waters, effervescing drinks, and barley water. Further evidence is required before it can be shown what tendency there is for adolescents with postural albuminuria to develop nephritis in later life, but in the presence of chronic interstitial nephritis the prognosis is bad.

187. Bronchial Asthma and Hay Fever.

M. A. RAMIREZ (*New York Med. Journ. and Med. Rec.*, June 20th, 1923, p. 727), in considering bronchial asthma and hay fever, with special reference to the treatment of non-specific cases, urges the necessity for obtaining a careful personal and family history and complete physical and x-ray examination, with laboratory examination of the urine, stools, and sputum, and, if indicated, the taking of cultures from the nose and tonsils. Although only about 20 per cent. of asthma cases give positive reactions to protein tests, these should be performed as a routine for purposes of classification. Deep breathing exercises are essential in treatment, and sodium iodide intravenously, at first daily and then once or twice a week, affords distinct relief to cough and expectoration. Diathermic treatment two or three times a week for half to one hour is one of the best palliative measures, and hypodermic injections of 1/2 to 1 c.cm. of a 10 per cent. peptone solution give more or less permanent relief. Diet should be regulated upon the data derived from the stool examination, cutting down the protein intake where there is much albumin putrefaction and eliminating starch and sugar in carbohydrate fermentation. Injections of histamine to immunize actively against albumin putrefaction have been tried with encouraging results, but at present the cases are insufficient in number to warrant a definite statement. Small doses of autogenous vaccines from the sputum are often effective. In hay fever treatment with a view to immunizing against the various pollens should be commenced three months before the attack is expected and continued through the pollen season, failures being frequently due to insufficient immunization. J. P. DE RIVER (Ibid., p. 730) calls attention to the psychology of hay fever, and urges the importance of combining medical and surgical treatment of any local conditions which will afford symptomatic relief with the intelligent use of psychotherapy.

188. The Digestion of Tablets and Pills.

WINSLÖW (*Ugeskrift for Laeger*, July 12th, 1923, p. 425) points out that at present little is known as to the rate at which tablets and pills break up in the gastro-intestinal tract. A tablet containing reduced iron and not breaking up within an hour of swallowing is practically useless, and Easton's syrup tablets, which do not decompose within a day or more, are not only useless but may be dangerous, for if they are taken over a considerable period by constipated patients deposits of strychnine may form in the intestinal tract. The author has carried out tests with pills and tablets of reduced iron and of other drugs such as digisolvin and digalen. The pills and tablets were put in water at room temperature and the time taken to dissolve them was noted. The preparations tested were made by several Danish chemists and one foreign firm of manufacturing chemists. The pill containing reduced iron and sold by this foreign firm was quite intact after three hours' soaking in water, whereas the home-made pills dissolved in half an hour to two hours. The tablets of reduced iron broke up, as a rule, in only a few minutes, but a tablet of Easton's syrup sold by the foreign firm still showed a hard nucleus after twenty-four hours. It is doubtful

and extended the view that the nuclei of all atoms are built of protons of mass nearly 1 and of electrons. The nucleus of a heavy atom, he said, is undoubtedly a very complicated system, and in a sense a world of its own, little, if at all, influenced by the ordinary physical and chemical agencies at our command. When we consider the mass of a nucleus compared with its volume it seems certain that its density is many billions of times that of our heaviest element. Yet, if we could form a magnified picture of the nucleus, we should expect that it would show a discontinuous structure, occupied but not filled by the minute building units, the protons and electrons, in ceaseless rapid motion controlled by their mutual forces.

Energy Relations involved in the Formation and Disintegration of Atomic Nuclei.

For example, it is well known that the total evolution of energy during the complete disintegration of one gram of radium is many millions of times greater than in the complete combustion of an equal weight of coal. It is known that this energy is initially mostly emitted in the kinetic form of swift α and β particles, and the energy of motion of these bodies is ultimately converted into heat when they are stopped by matter. Since it is believed that the radio-active elements are analogous in structure to the ordinary inactive elements the idea naturally arose that the atoms of all the elements contained a similar concentration of energy, which would be available for use if only some simple method could be discovered of promoting and controlling their disintegration. This possibility of obtaining new and cheap sources of energy for practical purposes was naturally an alluring prospect to the lay and scientific man alike. It is quite true that, if we were able to hasten the radio-active processes in uranium and thorium so that the whole cycle of their disintegration could be confined to a few days instead of being spread over thousands of millions of years, these elements would provide very convenient sources of energy on a sufficient scale to be of considerable practical importance. Unfortunately, although many experiments have been tried, there is no evidence that the rate of disintegration of these elements can be altered in the slightest degree by the most powerful laboratory agencies. With increase in our knowledge of atomic structure there has been a gradual change of our point of view on this important question, and there is by no means the same certainty to-day as a decade ago that the atoms of an element contain hidden stores of energy.

It is possible by means of electron bombardment or by appropriate radiation to excite an atom in such a way that one of its superficial electrons is displaced from its ordinary stable position to another temporarily stable position further removed from the nucleus. This electron in course of time falls back into its old position, and its potential energy is converted into radiation in the process. There is some reason for believing that the electron has a definite average life in the displaced position, and that the chance of its return to its original position is governed by the laws of probability. In some respects an "excited" atom of this kind is thus analogous to a radio-active atom, but of course the energy released in the disintegration of a nucleus is of an entirely different order of magnitude from the energy released by return of the electron in the excited atom. It may be that the elements, uranium and thorium, represent the sole survivals in the earth to-day of types of elements that were common in the long distant ages, when the atoms now composing the earth were in course of formation. A fraction of the atoms of uranium and thorium formed at the time has survived over the long interval on account of their very slow rate of transformation. It is thus possible to regard these atoms as having not yet completed the cycle of changes which the ordinary atoms have long since passed through, and that the atoms are still in the "excited" state where the nuclear units have not yet arranged themselves in positions of ultimate equilibrium, but still have a surplus of energy which can only be released in the form of the characteristic radiation from active matter. On such a view, the presence of a store of energy ready for release is not a property of all atoms, but only of a special class of atoms like the radio-active atoms which have not yet reached the final state for equilibrium.

Calculation shows that the energy released in the formation of one pound of helium gas is equivalent to the energy emitted in the complete combustion of about eight thousand tons of pure carbon. It has been suggested that it is mainly to this source of energy that we must look to maintain the heat emission of the sun and hot stars over long periods of time. Calculations of the loss of heat from the sun show that this synthesis of helium need only take place slowly in order to maintain the present rate of radiation for periods of the order of one thousand million years. It must be acknowledged that these arguments are somewhat speculative in character, for no certain experimental evidence has yet been obtained that helium can be formed from hydrogen.

POSSIBILITIES OF THE FUTURE.

In the short time at my disposal it has been impossible for me, even if I had the knowledge, to refer to the great advances made during the period under consideration in all branches of pure and applied science. I am well aware that in some departments the progress made may justly compare with that of my own subject. In these great additions to our knowledge of the structure of matter every civilized nation has taken an active part, but we may be justly proud that this country has made many fundamental contributions. With this country I must properly include our Dominions overseas, for they have not been behind-hand in their contributions to this new knowledge. It is, I am sure, a matter of pride to this country that the scientific men of our Dominions have been responsible for some of the most fundamental discoveries of this epoch, particularly in radio-activity.

This tide of advance was continuous from 1896, but there was an inevitable slackening during the war. It is a matter of good omen that, in the last few years, the old rate of progress has not only been maintained but even intensified, and there appears to be no obvious sign that this period of great advances has come to an end. There has never been a time when the enthusiasm of the scientific workers was greater, or when there was a more hopeful feeling that great advances were imminent.

The Scientific Imagination.

In watching the rapidity of this tide of advance in physics I have become more and more impressed by the power of the scientific method of extending our knowledge of Nature. Experiment, directed by the disciplined imagination either of an individual, or better still, of a group of individuals of varied mental outlook, is able to achieve results which far transcend the imagination alone of the greatest natural philosopher. Experiment without imagination, or imagination without recourse to experiment, can accomplish little, but, for effective progress, a happy blend of these two powers is necessary. The unknown appears as a dense mist before the eyes of men. In penetrating this obscurity we cannot invoke the aid of supermen, but must depend on the combined efforts of a number of adequately trained ordinary men of scientific imagination. Each in his own special field of inquiry is enabled by the scientific method to penetrate a short distance, and his work reacts upon and influences the whole body of other workers. From time to time there arises an illuminating conception, based on accumulated knowledge, which lights up a large region and shows the connexion between these individual efforts, so that a general advance follows. The attack begins anew on a wider front, and often with improved technical weapons.

Conditions Necessary for Progress.

The intellectual interest due to the rapid growth of science to-day cannot fail to act as a stimulus to young men to join in scientific investigation. In every branch of science there are numerous problems of fundamental interest and importance which await solution. We may confidently predict an accelerated rate of progress of scientific discovery, beneficial to mankind certainly in a material but possibly even more so in an intellectual sense.

hard and solid and liable to injure the mucosa; this allows pathogenic organisms to enter and set up all the phenomena of inflammation, suppuration, and perhaps perforation. These conditions are analogous to those found in the appendix. Often diverticula do not reveal their presence by any symptoms during life, being only found after death. Acute inflammation shows symptoms similar to those found in an attack of acute appendicitis. The chronic type may give rise to pain and alternate attacks of constipation and diarrhœa. The diagnosis is assisted by the x rays after a barium meal and injection. Treatment is entirely surgical and consists in resection of the affected bowel or an ileo-sigmoidostomy. Where this is not feasible it may be advisable to make an artificial anus to relieve the condition.

195. Diverticula of the Jejunum.

F. HELVESTIRE (*Surg., Gyn., and Obstet.*, July, 1923, p. 1) points out that diverticula occur in the jejunum and ileum less frequently than in any other portion of the intestinal tract. When containing all the coats of the intestine they are classed as true diverticula. A false diverticulum usually has no muscularis layer in its wall. He records two cases which disclose three factors operating conjointly in their formation: (1) traction by the mesenteric vessels or traction following adhesions, (2) degeneration of the intestinal musculature, and (3) intra-abdominal pressure. Acquired diverticula develop first as true diverticula, but later lose their muscular coat and become false. The diverticula are usually seen in old individuals, and occur along the mesenteric border of the intestine. Where straining or coughing is present an increase of intra-abdominal pressure is produced. This pressure would be intermittent and reach a maximum suddenly. A sudden pressure upon a full section of intestine would be likely to produce a protrusion of the gut wall at a weakened spot. Such a type would be a true diverticulum at first; later, probably by atrophy, the muscle fibres disappear and a diverticulum of the false type is formed. Local traction on the gut by adhesions may also be the initial cause in some cases.

196. The Ultimate Results of Renal Tuberculosis.

C. R. BULL (*Norsk Mag. f. Laegevidenskaben*, May, 1923, p. 449) has investigated the ultimate fate of the 24 cases of renal tuberculosis treated in a Norwegian hospital in the period 1900–21. The lesson of this investigation is that the prognosis is excellent when nephrectomy is performed for unilateral disease. The prognosis is practically hopeless when the disease is inoperable on account of both kidneys being involved. But the histories of some of these inoperable cases showed that, though no treatment was adopted, great and prolonged improvement occurred, the patients being able to return to work of a strenuous character. One of these patients was a woman, aged 42, whose first symptoms appeared early in 1913. The disease being considered bilateral, no special treatment was adopted. She improved so greatly that she was able to return to work as a teacher, working from March, 1915, to the end of November of the same year. During this period she felt perfectly well; and there were no urinary symptoms. It was not till March, 1916, that the disease flared up again, terminating fatally in June, 1923. Another case was that of a man, aged 24, whose disease was betrayed in 1916 by a short attack of haematuria. Bilateral renal tuberculosis being diagnosed, operative treatment was not attempted, and he was discharged from hospital as a hopeless case. He improved rapidly, and about a year later he was symptom-free. When last examined about four and a half years after discharge he was passing water only three or four times by day and never at night. He felt perfectly well, and the heavy manual labour in which he was engaged gave rise to no discomfort. The urine, which had contained albumin, did so no longer, but there was still a trace of pus.

197. Dislocation of the Fifth Lumbar Vertebra.

S. WIDERÖE (*Norsk Mag. f. Laegevidenskaben*, July, 1923, p. 640) gives an account of 5 cases of traumatic displacement of the body of the fifth lumbar vertebra in relation to the sacrum. In 3 cases treatment by extension alone was sufficient to effect partial or complete recovery. In the remaining 2 cases he performed Hibb's bone-grafting operation, securing the last lumbar vertebra to the sacrum by bony union. Complete restoration to health was achieved in both cases. Referring to the literature of spondylolisthesis, the author notes that as early as 1890 Neugebauer was able to collect 101 cases, only 47 of which were correctly diagnosed during the patient's life. Hitherto this condition has been much neglected, and while obstetricians have long been familiar with it as a cause of obstructed labour, surgeons have not paid it the attention it deserves. Yet by the aid of a bone-grafting operation, such as Hibb's or Albee's, the distressing pain and general invalidism of this condition, which is often due to a sudden strain or fall, may be completely banished.

Obstetrics and Gynaecology.

198. Plugging the Uterus for Post-partum Haemorrhage.

O. A. BOIJE (*Finska Läkaresällskapets Handlingar*, July–August, 1923, p. 451) has come to the conclusion that skilful plugging of the uterus with gauze is a far more satisfactory treatment for post-partum haemorrhage than irrigation of the uterus with hot water, which may, or may not, be sterile. In support of his advocacy of plugging he gives the following statistics. Among 11,442 confinements there were 114 cases in which plugging of the uterus was performed for post-partum haemorrhage. The prospects for these 114 cases were not bright, for in as many as 31 forceps had been applied, in 11 manual detachment of the placenta had been undertaken, and in 4 embryotomy had been performed. There were also 2 cases in which there had been fever and malodorous liquor amnii before the completion of labour. Yet among these 114 cases of plugging of the uterus there was not one terminating fatally, and the total puerperal morbidity was only 13.1 per cent. (15 cases). In a considerable proportion of these 15 cases the puerperal fever was only slight and transitory, and was traceable to other causes than the presence of gauze in the uterus. The author removes this gauze in eight to ten hours, and attaches great importance to the method (Stille's) by which it is introduced: the hollow instrument used to plug the uterus from the fundus downwards is fed from a closed reel from which the gauze runs direct into the hollow instrument without coming into contact with the vulva or other structures which may contaminate it.

199. Pyelitis in Pregnancy.

V. CANTONI (*Rivista d'Ostetricia e Ginecologia Pratica*, May, 1923, p. 241) publishes records of 25 cases of pyelitis in pregnancy and 6 of pyelitis in the puerperium; cystoscopic findings and the results of ureteral catheterization are also given. The vesical mucosa, especially in the trigonal region, was found very frequently to participate in the inflammatory condition, of which the most important causative organism was *B. coli*. On the affected side (most frequently the right) the ureteral orifice in the bladder was dilated and showed thickening of the surrounding tissue and marked post-ejaculatory rigidity; the urine entered the bladder with greatly diminished force, and passage of indigo carmine into the bladder was often notably retarded as compared with the opposite side. In the majority of cases retention of urine in the pelvis was demonstrable by ureteral catheterism and amounted to from 10 to 70 c.cm. Reflux along the ureter was observed in nearly all cases; it may be concluded that ascending infection of the urinary tract is possible, and the ease with which infection of the renal pelvis takes place is thus made explicable. In the author's cases the symptomatology was fairly characteristic—pain and tenderness, usually unilateral, in the lumbar region, sometimes referred along the course of the ureter; pyrexia following the pain; turbidity of the urine; and a variable degree of disturbance of the vesical function. The most effective mode of treatment, in the author's hands, consisted in intravenous injections, made every third or fourth day, of 2.2 to 4.4 grams of urotropin. In cases in which the inflammation was limited to the pelvis and ureter, lavage of the pelvis with silver nitrate (1 in 1,000 or 1 in 2,000) or 3 per cent. boric acid solution was beneficial. Administration of alkalis appears to have played an inconspicuous part in the treatment of this series of cases.

200. Menorrhagia in Young Girls.

E. DOUAY (*Gyn. et Obstét.*, tome vii, No. 6, p. 591) divides cases of excessive bleeding in young girls into three classes: (1) where some definite pathological condition is present—for example, sarcoma, polypi, and especially tuberculosis of the uterus, which the author deems to be of more frequent occurrence than is generally supposed; (2) where the bleeding is due to hepatic, renal, or cardiac disease, etc.; (3) where no pathological lesion is found, but there is some loss of equilibrium among the internal secretions, due probably to the initiation of the ovarian secretion. In the third group of cases the histological findings in the uterus and ovaries are very varied, and this type of bleeding has been called essential metrorrhagia. As regards treatment, the author advises that rest in bed, hot vaginal douches, subcutaneous ergotin, horse serum per rectum, etc., should first be tried. If this is of no avail an examination of the internal genitalia should be made per rectum, and, though it is hard to make out anything very definite from such an examination, gross lesions can be recognized and a vaginal examination under anaesthesia may then be made. If, as is usual, no lesion is found, then treatment by means of ductless gland extracts should be tried. To do this efficiently the excess or deficiency of one or more of these glands should be recognized; hypo-ovarianism

On the other hand, there is good evidence that the native practitioners perform a useful service in the villages, more especially on the medical side of practice and in the treatment of ordinary diseases, although in the absence of adequate scientific training they must often have the character of "medicine men."

The Demands of the Indigenous Practitioners.

From these considerations it would seem that the ground is clear either for the introduction of the European system or the resuscitation of the indigenous system, whichever may be deemed preferable. Doubtless there exists among the more educated Ayurvedists a natural and praiseworthy desire to retain their national systems, and it is, moreover, probable that European scientists are inclined to ignore the force of the religious element. That there is a strong religious feeling intermingled with the purely practical part of the question can hardly be doubted, and it becomes evident in such statements as the following:

"Every system of Hindu thought is at once philosophy, science and religion, all in one and one in all."

"Ayurveda will never consent to lose its characteristic of thinking in terms of its own peculiar religious philosophy of Satwa, Rajas and Tamas."

To wound this feeling and unnecessarily run counter to it is undesirable and would be bad policy, and for this reason alone the Government would be well advised to give such temporary support to the systems as will prevent their entire decay and enable them to continue their present services, in face of the impossibility of immediately replacing them by anything better.

The demand of the Ayurvedists is that their system shall be resuscitated and recognized by the States as constituting a sound basis of medical education and practice. The demand can be fairly considered only by those who possess a competent knowledge of Ayurveda, and the report purports to furnish the means of acquiring this knowledge. It is, however, stated that much misunderstanding and unfair criticism have resulted in the past through the mistranslation of scientific terms by European writers on the subject of Ayurveda. The following account is, therefore, based solely on the information contained in the report, and is an attempt at an unbiased interpretation.

It will be admitted on all hands that Ayurveda was a great science in its day; but it does not follow, as the report, in dealing with the Unani system, seems to imply, that what was useful centuries ago is necessarily profitably retained at the present time. It is asked:

"Can Europe forget the time when European students derived instruction in their medical colleges for centuries together from the self-same Unani books which they were then hugging to their bosoms and which in Arabic find a place to-day in the syllabus of our medical colleges? . . . All evidence points to the allopathic system being the transformed Unani system. Can any sensible man, in the circumstances, declare the Unani system to be crude and unscientific?"

The reply is that it may well be so according to modern standards. The three systems—Ayurveda, Siddha, and Unani—have much in common and, so far as description is concerned, what is stated with regard to Ayurveda, the most important of the three, may be held to apply to the other two.

General Principles of Ayurveda.

Ayurveda means, literally, the science of Ayus, a name denoting the momentum of vital activities, upon which the duration of life, or the expectation of life, depends. The Ayus varies in different individuals according to their inherited constitution, and is modified by internal and environmental conditions. On its practical side Ayurveda lays down rules for adjusting our circumstances to our constitutions, in order that our Ayus may suffer no diminution and life may have its normal duration.

Behind material things there exists an All-Intelligence, Soul or Spirit (Purushu), from which all matter emanates and which constitutes the generating force of every phenomenal activity. Everything in Nature, including mind, is matter—the emanation or "expression" or "function" of the spirit. But matter is not to be conceived of in the abstract as dead, but always as endowed with various potential activities, such as vibrational energy, taste-energy, smell-energy; and it is of two kinds, Bhuta and Guna, differing in the character of their inherent energies. Bhuta-matter is endowed with energies that reveal themselves in the several physical states, and it exists in five forms—Prithvi (solid), Ap (liquid), Vayu (gas), Thejas (radiant matter), and Akash (ether). Guna-matter appears to be a more direct emanation of Spirit (Purushu), and is, in fact, the substance into which primal matter differentiated itself when the universe first came into manifestation. It exists in three forms—Rajas, Satwa, and Tamas—corresponding to the Trinity of the Spirit, and it imparts this threefold nature, as a fundamental characteristic, to every manifested existence in the phenomenal universe. Combined with and operating upon Bhuta-matter it constitutes the living body, which is itself permeated with the Soul, forming the living being. All things are thus constituted; all are living beings, and the distinction between animate and inanimate objects does not exist; but inasmuch as the Soul is independent, absolute, and uninfluenced by the activities of the body, it may be disregarded in the study of bodily processes. Although the constitution of all things is identical, the degree of organization—the position in the evolutionary scale—varies, the mode in which Gunas and Bhutas react and interact on one another giving to each being its particular individuality, Ego, or Jiva, the human Jiva being that Guna-Bhuta combination which is peculiar to man.

The specific energies residing in Bhuta-matter tend, as before stated, to the manifestation of physical states (liquid, solid), and although they may, presumably, modify one another when acting in combination, the correlation of energies is not their function. On the other hand, correlation may be considered as the characteristic function of the three Gunas. When they are in equilibrium there is no revelation; when the equilibrium is disturbed the manifest universe appears, and all things result from their peculiar arrangement and combination. In general terms the energy of Rajas may be said to be creative or dynamic; that of Satwa, sustentative or transformative; that of Tamas, conserving or static.

When acting on Bhuta-matter the threefold influence, before referred to, of the Gunas becomes evident, and three substances result—Vata, Pittha, and Kapha—representing the primal constituents of the living body. The relation of these three substances to the several forms of Guna- and Bhuta-matter is that Vata contains Akash (ether) and Vahu (gas), and is under the predominant influence of Rajas; Pittha contains Thejas (radiant matter), and is under the predominant influence of Satwa; and Kapha contains Ap (liquid) and Prithvi (solid), and is under the predominant influence of Tamas.

Ayurvedic Conceptions of Metabolism.

From the foregoing details regarding the energies inherent in the various forms of matter it is possible to deduce the physiological relations of the three substances or Dhatus, as they are called. Vata is concerned with those physical and mental processes which are creative or dynamic in nature; hence its presence is to be inferred in such mental phenomena as enthusiasm, concentration, etc., and in such physical phenomena as respiration, circulation, voluntary action, excretion, and in the activities of the nervous system as a whole. Pittha is concerned with sustentative or transformative processes; hence its presence is to be inferred in such mental phenomena as intellection and clear conception, and in such physical phenomena as digestion, assimilation, heat production, the activities of the nutritional system as a whole, secretory activities of all kinds, and metabolism generally. Kapha is concerned with processes that are conserving or static in nature; hence its presence is to be inferred in such mental phenomena as courage, forbearance, etc., and in such physical phenomena as promotion of bodily strength, the integration of the structural elements of the body into stable structures, the smooth working of joints, and the activities of the skeletal system as a whole. It is also concerned in thermo-regulation, the tissues being liable to be consumed by the "internal fires of Pittha" unless protected by the "waters of Kapha."

A British Medical Association Lecture

ON

SOME PITFALLS IN THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

BY

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HAVING been offered the wide subject-matter of pulmonary tuberculosis for my lecture, it has seemed to me that the best I can do is to concentrate on certain matters which are, in my opinion, of primary practical importance. These, almost of necessity, come within the two headings "Diagnosis" and "Treatment," and we naturally begin with the former. I do not propose to waste time over ordinary points of diagnosis, important though these may be; I am anxious instead to face some special pitfalls which await us, not in the ordinary straightforward case, but in the exceptional case which—paradoxical as it seems—is really the commonest one to meet us in private practice. Most serious among these is the case which develops and progresses without physical signs, or without such physical signs as any self-respecting case of pulmonary tuberculosis ought to present—in other words, the case which is *not* a case of apical phthisis. Let us start with this.

The Example of Childhood Tuberculosis.

It has been my good fortune to be physician to a large children's hospital, and, taking always a great interest in lung disease, to have had much experience of pulmonary tuberculosis as it affects the child. In early life, as you know, a primary lung focus gives rise to secondary infection of glands, and from these the lung is again infected in a case where disease progresses further. Nearly always immunity has by this time reached a high level, the lung infection is a slight one and confined to the neighbourhood of the roots and larger bronchi, and life is in no wise threatened. Here and there we find a case where from early age or other reason immunity fails, and disease spreads outwards, showing itself in the radiogram first as mottling round both roots, later involving a larger and larger area of lung, till, in late stages, it appears to reach out to the periphery. This is the condition, whether slight or serious, which we speak of as hilus tuberculosis, or glandular and hilus tuberculosis. However the spread is accomplished, it has begun deep in the lung, and has only at a late stage reached the periphery over which our stethoscope is hovering.

What, then, is the clinical aspect of tuberculosis in childhood? A child is brought to you with symptoms suggestive of tuberculosis—what do you find on examination? If you examine carefully you will find in practically all cases that the percussion note is slightly against the right lung both front and back, and that there is a right paravertebral dullness disposed as a semicircular area against the spine. You may also find an increase of parasternal dullness, blowing breath sounds over the upper vertebral spines, and various other signs; but what you do *not* find (except in advanced stages of disease) is the presence of crepitations. Indeed, the stethoscope may tell you nothing at all, and this is, in my experience, the rule. Do you therefore say there is no disease of the lungs? Not if you have learnt wisdom from experience. No; having found the signs referred to above you may say with confidence, "This is a case of glandular or hilus tuberculosis," but you cannot tell in the least from physical signs whether the disease is of no account and healing or healed, or whether both lungs are half filled with active bronchopneumonic tubercle. The physical signs are the same or similar in both cases, and the really vital part of the diagnosis has to be deduced from symptoms and the amount of illness, helped—and greatly helped in many cases—by the study of a radiogram.

And here let me digress for a moment to say a word about that radiogram in childhood. In infancy and up to the age of 5 years or so the lung picture is pretty clean in the healthy child, and a superadded tuberculosis or bronchopneumonia or suchlike is very clear and apparent. But the radiogram of a child of school age—especially from 8 or 9 years upward—is already greatly shadowed with past sins, whether in the shape of silicosis, or of healed tubercle, and other chest infections, and it requires a lot of experience to interpret it correctly in a case of doubtful tuberculosis. In slight and recoverable disease, such as we have mentioned, often it can only be said that the radiogram is "consistent" with a slight active tuberculous lesion. Fortunately in the more serious cases the radiogram is reliable—really active tubercle round the hilus throws shadows which are hardly mistakable, and the *x* rays are very valuable in following the course of the disease.

Deep Lung Tuberculosis in the Adult.

Now I have lingered so long over hilus tuberculosis of the child because it illustrates what I have to say of the adult. The child is father to the man, and no small proportion of the tuberculous outbreaks of early adult life (and even in later years) are a spread from these deep areas round the roots of the lungs. Hilus tuberculosis, which is the rule in the child, is also by no means uncommon in the adult. Just as in the child, there is nothing discoverable to the stethoscope, and, as the stethoscope is still the instrument of choice with most physicians, nothing may be found in these cases to suggest a diagnosis of pulmonary disease.

What happens to an adult who develops deep-seated or hilus tuberculosis? Let us hope, for his sake, that he coughs, for otherwise his chances of recognition are small. Unfortunately it is by no means uncommon for such cases to cough but little in the earlier stages, or to take small heed of it, and the main symptoms complained of are often those of neurasthenia—it is, indeed, a neurasthenia, but of toxic origin! Many of these cases, in my experience, have been given rest cures as frank neurasthenia at the outset, and if a careful temperature chart were taken in the nursing home and duly studied this might, indeed, be a step of value. But often in these cases the temperature is not such as to lead to suspicion, and having received the neurasthenic label they are very apt to go further on this journey. It has been my experience of recent years to be asked by a distinguished neurologist to exclude tuberculosis in cases of neurasthenia, so the lesson of these cases has evidently been learnt in high places.

How can we escape the pitfall of deep-seated or hilus tuberculosis simulating other conditions, and especially neurasthenia? First, and especially, by recognizing its possibility, and using means to exclude or confirm it. Among these are a careful temperature chart, *x* rays, which help but do not always decide the matter, and the search for certain physical signs, among which narrowing of the apical resonance (Krönig's) on both sides—for disease is generally double—is important evidence. Suspicion is the first stage on the road to diagnosis, and full recognition of the fact that a lung may be full of deep disease without giving any definite physical signs at the surface. Recognize frankly that your stethoscope may be as useless in these cases as if you applied it to the wall of the patient's house! Develop your powers of percussion, and do not despise the help of the radiologist.

In these days, when the value of artificial pneumothorax is beginning to gain recognition in this country, it is quite common to be presented with a case in which the stethoscope finds moist crepitations over the whole of one side, and the other side appears to be entirely clear. In such cases when a radiogram is taken it may often be found that disease is active and advanced on both sides, although the stethoscope could only find it on one. The spread on one side is only a bit more advanced than the other, and has reached the surface; presently, in weeks or months, crepitations will appear on the apparently clear side and rapidly spread over the surface. These cases, in fact, present a somewhat different aspect of the same diagnostic

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technique, etc. What they really need is an altered scientific outlook; they need to understand the difference between metaphysical and positive knowledge, between the study of facts through the coloured glass of theological dogma and their study in the plain daylight of science. The Madras Government is apparently at the parting of the ways. It will be interesting to see whether it decides to set things moving in the path of progress by the encouragement of European scientists, or pushes the country back into the old metaphysical rut.

HOSPITAL CONTRIBUTORY SCHEMES.

AN ANALYSIS BY THE VOLUNTARY HOSPITALS COMMISSION.

AT the request of a conference of representatives of local voluntary hospital committees, held in July, 1922, the Voluntary Hospitals Commission undertook to issue a questionary on the methods pursued in various areas to obtain contributions, and to circulate to the local committees a summary of the information received. Replies were furnished in regard to 73 contributory schemes affecting 102 hospitals, and a statement summarizing the particulars given has now been circulated for the information of local committees and the hospitals in their areas.[1]

This summary is in narrative form, with little if any comment. It comprises sections dealing respectively with the machinery for working a contributory scheme, methods of collection, amount and remittance of contributions, the cost of collection, allocation of contributions, privileges of contributors, effect of schemes upon patients' payments, representation of contributors, methods of publicity, and factors influencing success.

Machinery of Contributory Schemes.

Local circumstances largely determine the machinery for working a particular contributory scheme. Whether the scheme will be worked for one institution, or in common for several, depends on the relations between the hospitals in the area; some are accustomed to acting alone, others to co-operating with neighbouring institutions. Another important factor is the nature and extent of local charitable organizations. Even more important is the character of the area served by the hospital—that is, whether the area is mainly rural or mainly industrial; and, if the latter, whether it is covered by a few highly organized industries. The variety of local conditions is reflected in the variety of methods that have been adopted for working contributory schemes; these range from a scheme worked by a single hospital through its own secretary and treasurer, to one worked by a highly organized hospital council on which there are representatives of all the hospitals in the area, of the city corporation, and of various trade associations and public bodies. Between these two extremes many kinds of organization are found.

Methods of Collection.

Almost every scheme known to the Commission relies for its contributions mainly upon deductions from wages, with the consent of the wage-earners and the active co-operation of their employers. An area containing a few highly organized industries offers the best field for this procedure. As a rule the weekly deduction is made by pay clerks at the works, and sometimes the employers add a contribution of their own. This is the usual and principal method of collection. But there are in addition other avenues through which funds are collected, and many schemes use them concurrently with the weekly deductions from wages; thus the residential population may be canvassed by systematic house-to-house collection, or by applications through the post. In many areas valuable help is given by trade unions and employers' associations. Collection in a rural area presents much greater difficulty, and even more difficult is the gathering in of regular contributions from the "self-employer."

Amount and Allocation of Contributions.

Many schemes have fixed twopence a week as the sum payable by each contributor. Others, however, permit the amount to vary between one penny and threepence, in some cases at the choice of the contributor. Sometimes the larger contribution covers privileges for the employee and his family, while the minimum sum would cover only the employee himself. Here and there the amount of contribution varies with the wages earned, upon a graded scale. In most schemes the services of a voluntary collector are available. Where it is shown separately in the accounts the cost of collection has not been observed to exceed 3 per cent. of the amount collected.

In the simplest forms of contributory schemes the whole of the contributions are paid to the hospital and are allocated to meet maintenance expenditure; they are rarely applied to capital purposes. In a number of schemes the hospital does not take the whole of the amount subscribed, but some allocation is made to other services, a percentage going, for example, to convalescent homes, nursing associations, and in one instance to dental services.

Privileges for Contributors.

Priority of admission for contributors, or free maintenance or treatment, as an inducement to attract members, is perhaps the most important and the most difficult feature in framing a contributory scheme. Many hospitals feel the necessity of offering some special inducement in return for the assured income obtained from regular contributors. On the other hand, it is generally recognized, and indeed often required by trusts and endowments, that the first claim on a voluntary hospital's accommodation and resources should be that of the necessitous poor. Moreover, the governing condition in the admission of patients should obviously be the urgency of the medical or surgical need of the case. With these considerations in mind most hospital authorities have been careful to avoid holding out any inducement which would bind them in a contractual obligation. But in one or two instances the hospital authorities have taken the risk of guaranteeing to all their contributors certain definite benefits, such as free maintenance or immediate admission and treatment. Some schemes, without pledging themselves to the admission and free maintenance of contributors, provide as an inducement certain special benefits and facilities not available to non-contributors. A very common form of inducement is the simple practice whereby contributors when admitted to hospital are maintained and treated free of charge without being asked to make a donation. In regard to eight of the contributory schemes, the promoters state that no inducement or privilege is accorded to the contributors, the hospital authorities relying, and with success, on the charitable instincts of their contributors, the sole criterion of admission being the urgency of the case. Thus, while a very small minority of schemes attempt to guarantee something in the nature of an insurance benefit, most of them rely upon the charitable instincts of the public and maintain the principle that the necessitous poor and the medically urgent cases must have the first call upon the resources of the hospital. Subject to that, the contributors in practice get facilities for admission and are not usually asked to make any further donation to the hospital. Sometimes additional privileges are provided; among these, facilities for convalescent treatment are very popular. It is noted that of all the schemes examined only four indicated that payments by patients have diminished as a result of the operation of a contributory scheme.

The representation of workpeople contributing upon the governing bodies of hospitals is recognized as an important element in contributory schemes, and very few make no provision for such representation. The manner of election and the basis of representation vary much, more particularly in relation to the machinery adopted for working the scheme. The bodies on which the workpeople's representatives serve also vary; in some places they have seats only on the board of management, in others they are eligible for election to the committee of management and the house committee. The contributors may have representation upon a purely financial basis, the contribution of a given sum entitling to the nomination of a governor or member of the managing committee; or the contributors as a body may be entitled to a fixed number of representatives; or, again, the

[1] Voluntary Hospitals Commission. Ministry of Health. 1923. V.H. Cmn. 10. To be purchased through any bookseller or directly from H.M. Stationery Office. Price 3d. net.

Said Hermann Weber once in days gone by, "I would not willingly undertake to treat a case of phthisis without the help of exercise," to which Penzoldt retorted, "I would not willingly undertake to treat a case of phthisis without rest, keeping exercise as an exceptional measure." Whereupon Dettweiler settled the dispute with the remark, "The truth lies really in the proper application of both measures to suitable cases, though rest is, to my seeing, the primary factor." The key to success lay, he opined, in the "correct dosing of rest and exercise," and that is much where the matter remains to-day.

Theory and experiment have, however, come to the assistance of empiricism, and have provided a working basis—the blessed word "auto-inoculation" has filled our minds with peace, and our mouths with a plausible explanation of many perplexing problems. Almroth Wright revealed to us the great game of "antigen" and "antibody"; he showed us how the resisting power of the body to chronic infections depends on a proper balance between them, how a suitable supply of bacterial products (antigen) is needed to produce an immunizing response (production of antibody), and how excessive and uncontrolled dosage may overcome antibody formation, with the result that symptoms appear and disease spreads; how, further, once the balance is disturbed it can only be recovered by control of the bacterial toxins let loose (control of auto-inoculation) by rest and similar measures. At a later stage there may be brought about a gradual training of the body to resist larger and larger doses (tolerance), while at the same time "immune reactions" are developing to every adequate dose of exercise. For auto-inoculation may follow upon "all active and passive movements which affect the focus of infection, and upon all vascular changes which activate the lymph stream in such a focus." Here is our working hypothesis, and it has been to the work of Paterson and Inman in particular that we owe its full application to the case of pulmonary tuberculosis. The rôle of rest and exercise in its treatment resolves itself, in the words of Paterson, into two aims:

1. "Control of auto-inoculations when the protective substances are unable to deal with them."
2. "The artificial inducement of auto-inoculation adjusted to the resisting power of the protective substances."

It is, of course, the former alone which applies to the newly discovered or still half-diagnosed case—it is a case with symptoms, and these are evidence of a breakdown of immunity which only rest can straighten.

The Rationale of Rest.

The main reason for rest is fever—it provides "control of auto-inoculations when the protective substances are unable to deal with them," and enables us to reach eventually a fresh formation of antibodies. Not only does uncontrolled dosage with antigen defeat the formation of antibodies, it also acts deleteriously by "activating" all tuberculous lesions within reach of the blood stream. Just as an overdose of tuberculin will let loose "focal reactions" in company with a "general" or febrile reaction, so is fever in tuberculosis accompanied by a disastrous flooding of the tuberculous areas with blood deficient in antibodies, and a further washing out of toxins and waste products into the blood stream. This leads to further fever, and thus a vicious circle is kept up, which can be broken only by rest, unstinted and sufficient.

But a further task awaits the tissues in the erection of "fortifications" round the areas of disease with a view to their encapsulation, and this, again, requires a period of rest after all fever has subsided. It has been shown that the injection of a chemical irritant into the lung excites the formation of inflammatory zones whose nature varies with the concentration of the irritant—thus a central necrosis, then a fibrinous layer, next serous inflammation, and lastly, around all, a zone of proliferating fibrous tissue. A similar process occurs in response to the toxins of the tubercle bacillus. When the parts are at rest a zone of fibrous tissue will form at the spot of "optimum irritation," and good encapsulation ensue. If much movement is allowed there will be no fixed optimum, and a wider spread of less well developed fibrous tissue instead of a limiting capsule. In addition to this it may be further expected that immobilization acts by reducing the lymph flow to the diseased area and thereby diminishing the introduction of nutriment and the extraction of waste products till the growth of bacilli and the formation of toxins cease.

In connexion with this argument, and perhaps with those to come, it is but fair to point out that immobilization of the lung acts as a two-edged sword in its application to tuberculosis. While collapse and immobility of the organ are, on the whole, unfavourable to the development of tuberculosis, there is a phase of expansion and movement between this and complete activity which is very favourable to the development of tubercle. This shows itself in the more rapid growth of tubercles in the apical regions of the lungs than in the more greatly aerated basal areas in cases of miliary tuberculosis where we know all tubercles are of equal age.

As a matter of experience it appears that the control of auto-inoculation is of vastly more importance than any accidents of extension or movement in portions of lung tissue, and it is primarily to this that our therapeutic rest should be applied.

Nevertheless, on the mechanical side there seem to be two other arguments in favour of rest while disease is still active. One is the increased movement and extension, the result of exercise of an organ doomed of necessity to some amount of this. It must be difficult enough for a wound or inflammatory area to heal under the peculiar conditions of elastic tension and continual movement always present in the lung. If these are increased by talking and exercise it must necessarily make the process still more difficult. The other point is the peculiarity of the pulmonary blood supply which puts it at the mercy of the systemic circulation. Provided with but little vasomotor control, with no power of stopcock action such as obtains in the greater circulation, the lungs are doomed to pass through, with no protection of diseased areas unless by mechanical blockage, whatever mass of blood the systemic circulation sets in motion. Especially does muscular activity increase this circulation, and a patient moving about is all the time flushing his inflamed lung areas with blood. This may not lead to fever (the patient may have developed "tolerance"), but even apart from this such intermittent flushings are not the best treatment of tuberculous areas as long as these are active. This, in my opinion, is one of the pitfalls in treatment: the belief, commonly held, that exercise is harmless so long as it does not cause fever—that is, so long as there is "tolerance."

Now it is especially where large areas of exudative inflammation exist—that is, in cases of fairly acute type—that flushing and movement very certainly do harm. We are familiar with the softening and discharging of caseous cervical glands where heat and unrestricted movements are applied. In the neck this may shorten the cure, but in the lung it means "cavitation," a disastrous method of removing diseased material since the tissues kept at tension cannot close the breach. Hence for all cases of active disease tending to the formation of areas of bronchopneumonia or exudation which may become caseous and soften, prolonged rest is surely indicated. But it must also be remembered that in every tuberculous lung such areas on a smaller scale are present; Dettweiler has compared it to a mulberry tree on which are found at the same time flowers, and fruit both green, red, and black together—in the tuberculous lung we may have areas of fibrosis and softening near together, and also all stages of inflammation, exudation, bronchopneumonia, formative processes, etc., in the same organ. This mixed process must be borne in mind in treatment. But what must also be specially kept in view in relation to this is the fact that absence of fever is not evidence that disease has become inactive. The physical signs clearly indicate that activity is still present, and only slowly abating, for months after rest in bed has reduced fever and symptoms to a minimum. Such patients *can* be got up and tolerance established, but as long as disease is active, if it is of any extent or seriousness (and it needs much skill to know what cases are not) there is no

suitable as the preface of a non-medical writer's edition. Mr. Jones includes seven of the Hippocratic treatises in the present volume, among them that on Ancient Medicine, on Epidemics (1 and 3), and on Air, Waters, and Places, which are, next to the Aphorisms, the best known of the collection. Of the scholarship of his work, in the technical sense, we have no pretensions to speak. The days of the omniscient journalist are long past. Whether Mr. Jones is right in saying that "there are two common words for pain in the *Corpus*, πόνος and ὀδύνη. They seem practically synonymous," or Professor Sticker is right in asserting that πόνος does not mean simple pain but effort (*Anstrengung*) or painful effort (*Mühe*), is one of many points which none but an expert can decide. Mr. Jones says that in his work he has been "constantly impressed, and depressed, by the truth of the proverb, 'translators are traitors.'" It is a depressing thought because Hippocrates must be read in translation by the vast majority of those who wish to read him at all. Mr. Jones's version is at least readable, praise which can by no means be given to all translations, some of which, as Professor Sticker says, are harder to understand than the Greek text. Neither German nor English, perhaps, is so good a medium as French for the representation of Greek, and, while Mr. Jones is much more readable than Fuchs and quite as good as Adams, he is not, we think, so good as Littré. But Littré is a book for the library and to Mr. Jones belongs the privilege of interpreting Hippocrates' message to the rising generation of English students and physicians. What is that message? In the *Corpus* there is material for intellectual pleasure of many varieties. To the ripe scholar of the school of Sir Clifford Allbutt, to gather up the threads of philosophical thought, to observe their intercrossings, to note the influence of hypothesis upon practice, must ever be a fascinating hobby. To the epidemiologist, attempts to reconstruct the whole method of which the first and third Epidemics are a fragment must always give pleasure and instruction. On a much lower plane, the identification of Hippocrates' "diseases" appeals to the Sherlock Holmes in each of us. But none of these appeals is universal; Hippocrates does not belong to the company of the immortals merely because he stimulates our intellectual curiosity. It is not hard to show in what way Hippocrates is much greater than all this implies. Many passages might be quoted in illustration; we content ourselves with one.

"But medicine has long had all its means to hand, and has discovered both a principle and a method, through which the discoveries made during a long period are many and excellent, while full discovery will be made, if the inquirer be competent, conduct his researches with knowledge of the discoveries already made, and make them his starting-point. But anyone who, casting aside and rejecting all these means, attempts to conduct research in any other way or after another fashion, and asserts that he has found out anything, both deceives and is deceived."

Bishop John Wordsworth once spoke of the difficulty of reconciling the Jewish idea of the ordering of events in an historical and spiritual progress, the world conceived as a whole in time, and the Greek idea, the world conceived as a wonderful order, a harmony of parts of which the individual man is the centre or at least the proper spectator, and implied that Pauline Christianity effected the reconciliation. In the philosophy of medicine there has always been a similar conflict—in effect, the conflict of empiricism and rationalism, in the narrow sense of the words. Hippocrates saw how to reconcile these philosophies. He saw that the data of observation should be, for the physician, ultimates, and that the task of reason was to discover the relations between these ultimates and to infer secondary consequences. He relied, as Mr. Jones put it, "on careful observation and critical examination of phenomena, hoping thereby to reach, not the complete and perfect knowledge Plato hoped to attain through his Ideas, but an approximation to truth." The philosophical harmony which Hippocrates fashioned was soon destroyed. Among the intellectuals, "the transcendent genius of Plato, strong in that very power of persuasion, the use of which he so much deprecated, won the day. The philosophic fervour which longed with passionate desire for unchangeable reality, that felt a lofty contempt for the material world with its ever-shifting phenomena, that aspired to rise to a heavenly region where changeless ideas might be apprehended by pure intelligence purged from every bodily taint, was more than a match for the humble researches of men who wished to relieve human suffering by a patient study of those very phenomena that Plato held of no account." On the other hand, empirics, alienated from philosophy, became—mere empirics. What ruined Greek medicine and ultimately reduced it, as Mr. Jones well says, from "rational treatment to wild speculation and even quackery and superstition," was intellectual vanity, belief in the all-sufficiency of reason. The reconciliation which, in the religious sphere, Paul sought to effect by the conception of the union in Christ of power (δύναμις) and wisdom (σοφία) Hippocrates had already effected in our humbler sphere. Not by the mere politician's method of compromise; if one party shouts white, the other black, it takes no genius to proclaim that grey is best; Horace was not a first-rate thinker. The real harmonization was to show how that potent instrument, man's conscious reason, should be employed upon phenomena. In the tractate from which we have quoted, Hippocrates showed the evolution from and dependence upon physiology—the physiology of diet—of treatment; he was already in possession of a method which we esteem a product of modern times, which indeed was utterly neglected for more than a thousand years.

It will be said, all this is obvious, we have learned the lesson now. Have we? Perhaps of the essentials of medical knowledge, study of gross anatomy and study of the human mind diverge farthest one from the other. Let us see how far, in the judgement of the Chief Medical Officer of the Ministry of Health, the Hippocratic synthesis has been effected in our schools of medicine in each of these branches of knowledge. Of anatomy he writes:

"Lastly, there has been in many cases insufficient explanation and application of the principles of Anatomy, and hence the meaning and purpose of its study have been lost. It has been robbed of its heritage and reduced to the routine and detailed analysis of a scrapped machine, and the only goal has all too frequently been the examination test."

In other words, a narrow empiricism without philosophy. Of the mind, Sir George Newman writes:

"Pure psychoneuroses or bodily derangements coloured by a psychoneurotic element will provide the general practitioner of medicine with a very large proportion of his most difficult cases. Yet at present we teach the student nothing of the make-up of the normal mind; we give him no help in separating the false from the true in the wordy strife as to the nature, etiology and treatment of psychoneuroses. . . . The mental hospital deals mainly with advanced disease or end-results, the practitioner should meet with incipient conditions. But his undoing is his helplessness *because of his lack of training*. He has often been taught in a perfunctory and theoretical way regarding the gross forms of melancholia, mania or dementia, but he has not had the whole subject presented to him in a broad and comprehensive way as something which *may* concern the recovery of every patient who consults him."

Here we have a narrow philosophy uninformed by rational empiricism. So, it would seem, the Hippocratic doctrine is even yet imperfectly assimilated. The reader may still learn from Hippocrates truth which he does not know or does not obey. But if he would learn this truth he must take to heart a little sermon, preached indeed to Germans, but having a message for Englishmen, which we extract from Professor Sticker and may fitly use as a peroration.

"For every word of the living Hippocrates there must exist a living German word. The translator's best hope of finding that word is if he is ignorant of the perverse, would-be elegant, technical jargon with which qualified doctors in the twentieth century, especially in Germany, torment themselves and, more's the pity, must employ, or if he has the force to rise clear of this fog of medical jargon. No doubt, in German-speaking countries we shall be found unintelligible or affected if we use homely German words, say flux instead of catarrh, talk of hot and tedious sicknesses instead of acute and chronic

COMPLEMENT FIXATION IN TUBERCULOSIS:

A CRITICAL SURVEY.

BY

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EVER since Wassermann and Bruck demonstrated in 1906 the presence in the serum of tuberculous animals of substances capable of fixing complement in the presence of tubercle bacilli a vast amount of work has been done in an endeavour to make use of this fact to obtain a reliable biological test for tuberculosis in human beings.

The present authors have for the last two and a half years been investigating the reliability of a method of performing the complement fixation test for tuberculosis devised by one of us (A. L. P.) as a means of diagnosis and exclusion of pulmonary tuberculosis.

The results upon which we originally formed our opinion that "a positive result is an indication of an active tuberculous lesion in the body, and that a negative result is a reliable indication, with a few rare exceptions to which we shall refer later, of the absence of such lesion" are briefly as follows.

In all, the test was performed in approximately 1,000 pulmonary cases and controls. Of these some 160 were definite cases of pulmonary tuberculosis, the criterion for a definite case being the undoubted presence of tubercle bacilli in the sputum. All save 5 of these gave a positive result. Of the 5 that gave a negative result 3 subsequently gave a positive.

Some 140 presumably healthy people or patients suffering from non-tuberculous diseases were taken as negative controls. Three gave a positive result. Of these 3, in one definite evidence of enlarged presumably tuberculous glands in the neck was subsequently discovered, in another on more careful examination it was impossible definitely to exclude a tuberculous lesion in the lungs, while in the third no evidence of tuberculosis could be discovered. Of the remaining 700 cases some 220 gave a positive result and some 480 gave a negative. These were doubtful cases clinically, so that no definite conclusion could be drawn from them. All that could be said at the time without later investigation was that there seemed to be a reasonable correspondence between the clinical condition on the one hand and the negative or positive result on the other.

The subsequent history of 50 of the cases which were suspicious of pulmonary tuberculosis, but which gave a negative reaction, was then investigated. After the lapse of from ten to twenty months 49 of them showed no further evidence of tuberculous infection. The one exception was a man who was living for a year subsequent to his first examination with a brother suffering from consumption, and it is reasonable to suggest that he became infected while under observation. In the 49 cases the test was negative at the second as well as the first examination.

Finally, we investigated the subsequent histories of 50 cases in which the complement fixation test was positive but in which tubercle bacilli had never been found in the sputum, as far as we were able to determine, prior to the examination of the blood. These were unselected cases and were consecutive as far as the above conditions of a previous absence of tubercle bacilli in the sputum and a positive test were concerned.

Of the 50 cases a reply was received from relatives that 8 had died. In 3 tubercle bacilli had been found in the sputum. Of the remaining 42 cases, 29 attended for re-examination. Ten failed to reply, and 3 replied but were unable to attend. No less than 13 out of these 29 cases had been proved definitely tuberculous between the first and second examinations by the finding of tubercle bacilli in their sputa. An analysis of the 16 as yet unproved cases showed that 5 were cases of pleurisy when first examined; in 3 no sputum was available; in 8 there were still symptoms and in some further physical signs were present. In 2 there were no symptoms at the second examination.

Since this work was done the test has been carried out in a large number of cases amounting in all to some 2,500. The results of these have fully confirmed our opinion as to the value of the test.

Since 1906 the amount of work done on this subject has been very large and the publications are very numerous. The results have been somewhat variable.

In scientific investigations of this description, as the number of workers increase and the publications multiply and conflicting views are expressed, there is perhaps a tendency for the salient points to be lost sight of and become obscured in a fog of side-issues.

The object of this paper is twofold: (1) By a study of the literature on the subject to determine what, if any, definite advance in knowledge has been made on the subject since 1906—that is to say, what points of agreement have been arrived at by the various workers, and to determine if possible the causes of their points of disagreement. (2) To determine whether the method which we have employed of performing the test might reasonably be expected in the light of ascertained facts to give the reliable results we have obtained.

VARIABILITY OF RESULTS DUE TO EMPLOYMENT OF DIFFERENT ANTIGENS.

There can, we think, be little doubt that the variability of the results obtained can be partially explained by the variety of the antigens used.

Miller[1] has classified the antigens used into four main groups:

1. Suspensions of whole or ground-up tubercle bacilli.
2. Antigens that may be classed as tuberculins.
3. Extracts of derivatives of tubercle bacilli.
4. Extracts of normal or tuberculous tissues.

Has any uniformity of opinion been arrived at as to the relative value of these four groups of antigens? We think we can say without fear of contradiction that antigens belonging to Group 4 are useless as antigens for this test. The relative value of the three other groups of antigens remains to be considered.

This article does not pretend to be a complete review of all the literature upon the subject, but merely aims at indicating the conclusions we have arrived at after a perusal of much of it, so that no attempt will be made to give anything like a complete list of all the workers and their results. We shall be content here to give our conclusions with reference to the work of others which appears to us to be illustrative of the bulk of the work in this field of investigation.

Group 1.

It would appear to us that generally the most reliable results have been obtained with antigens belonging to this group. It is antigen of this type—that is to say, a dilute emulsion of living tubercle bacilli—that we have used in our investigation. It is especially in relation to their specificity that antigens of this type appear to be superior.

Dudgeon, Meek, and Weir,[2] using an antigen belonging to this group, obtained 86 positive results out of 102 "definite cases of pulmonary tuberculosis." But of the 16 cases that gave a negative result, in 4 tubercle bacilli were said to have been present in the sputum two months previously, but were not present at the time the test was performed, and no symptoms or physical signs of pulmonary disease were present. One was a case of old tuberculous leprosy, one was diagnosed by a febrile reaction only. In 2 physical signs and symptoms of pulmonary disease were present, but no tubercle bacilli were present in the sputum. One was in a moribund condition. In 7 tubercle bacilli were present in the sputum. So that excluding the case that was moribund, only 7 could be said definitely to be suffering from pulmonary tuberculosis at the time the test was performed.

McIntosh and Fildes,[3] using an emulsion of living tubercle bacilli as antigen, obtained 76 per cent. of positive

consideration, that no one at present unprotected or insufficiently protected need have the least fear of the disease if only he will undergo vaccination or revaccination.

Ireland.

MEDICAL REPRESENTATIVES IN THE DAIL.

OF five medical representatives who sat in the last Dail three have been re-elected in the last election—namely, Sir James Craig, M.D., Dr. Richard Hayes, and Dr. Myles Keogh. Sir James Craig was one of the three representatives elected, without a contest, for Dublin University. Dr. Hayes was elected at the head of the poll for Limerick, and Dr. Keogh was elected for South Dublin. These three members are keen medical reformers. Sir James Craig and Dr. Richard Hayes have outlined, from time to time, important schemes of medical reform, and in this way have done a great deal to enlighten the public with regard to the urgent necessity there is in Ireland for far-reaching measures of medical legislation. Amongst the anti-treaty party elected there are no fewer than five members of the medical profession, two of whom are dispensary doctors. These members include Dr. Kathleen Lynn, who has done a great deal of medical work amongst the poor in Dublin. It is, however, understood that she and her colleagues will not sit in the present Dail, and therefore cannot help within that body in the formulation of any medical schemes. It is to be regretted also that Sir James Craig is the only member of the profession amongst the six representatives elected for Dublin University and the National University. The other five university members are members of the professorial staff, and it is believed they are all quite alive to the pressing necessity there is to bring the Free State abreast, in medical affairs, with other countries in Western Europe and America. The Labour party has not come back to the Dail as strong as was expected. The Labour party, more than any other organized body, took the keenest interest in medical legislation in the last Dail.

SALARIES OF TUBERCULOSIS OFFICERS.

At a recent meeting of the Kildare County Council a letter from the Local Government Department was read relative to the proposal to increase the salary of Dr. J. P. Daly, tuberculosis officer, to £700 per annum, rising by annual increments of £20 to £900 per annum. The letter pointed out that Dr. Daly's present remuneration of £500 compared favourably with the salaries of the great majority of the tuberculosis officers in other counties, some of whom were responsible for the supervision of local institutions. Moreover, there had been but little development of the county tuberculosis scheme, which was still in an imperfect condition, without a central tuberculosis dispensary or suitable provision for the accommodation of advanced cases. The Ministry considered that the character of the scheme would not in any case justify the proposed increase of salary, which seemed to be framed on an excessive scale, and having regard to the existing conditions no adequate case had been made out at present for revision of the tuberculosis officer's remuneration of £400 yearly salary and £150 bonus. The Ministry suggested that it would be desirable to defer further consideration of the matter pending the carrying out by the council of the necessary extension of the county scheme, when a further proposal involving a reasonable adjustment of Dr. Daly's basic salary might be submitted. Having considered this letter, the council unanimously decided to allow the full civil service bonus.

HEALTH OF BELFAST.

Dr. Bailie, superintendent medical officer of health for the city of Belfast, has presented his report for the year 1922. It is a well printed volume of 86 pages, with thirty-four tables of statistics, numerous minor tables, and a good index.

No census was taken in 1921, so that the population of 425,000 is an estimate; and estimates of population, as is pointed out, become more unreliable with every year from an actual census. The birth rate calculated on the estimate was 25.1, a decrease of 1.2 from that of the preceding year; and the death rate was 14.8, a very satisfactory figure when comparison is made with the rates of twenty years ago, but still an increase of 0.4 on 1921. There was a reduction of 0.8 per 1,000 of population in the death rate from zymotic diseases (0.6 per 1,000 of population in 1922, and 1.4 in 1921), and an increase of 0.4 in deaths from chest affections. Deaths of children under one year old per 1,000 births were 94, which is 21 per 1,000 less than that for 1921.

The centres established in 1917 under the maternity and child welfare schemes are working satisfactorily, and are well attended by expectant mothers; 2,746 medical examinations of babies were made. The scheme for the medical inspection of school children, which had been hung up by the war and post-war difficulties, was finally adopted in October, 1922, approved by the Ministry of Home Affairs, and put into operation. The town has been clear of small-pox now for two years. Scarlet fever, diphtheria, whooping-cough, and measles still figure as chief executioners in the "massacre of the innocents."

Excellent reports are included from the heads of departments, one from Dr. Gardner Robb, visiting physician in charge of the Purdysburn Fever Hospital, full of valuable information, but unfortunately not including his views or recommendations as to how to lessen the prevalence of diphtheria and scarlet fever; both diseases are a real danger, a horrid cause of anxiety to everyone, and of serious economic loss to the community. The report from Dr. N. C. Graham, city bacteriologist, from the City Bacteriological Laboratory, shows that 4,351 specimens were received for examination, and there is a report also from Professor Symmers, of the Queen's University Laboratory. It is presumably a slip in including "Vaccines" (161) and "Tuberculin diluted" (22) under the same heading as "examinations" of "ice cream," "cockles," "roast chicken," etc. In the report of Captain Barry, M.R.C.V.S., the city veterinarian, on meat inspection, one figure alone—"320 cows condemned"—shows the necessity of this department; the carcasses of 255 tuberculous cows were totally destroyed.

The whole report affords evidence of activity and advance; and it is a pity that the inhabitants generally do not take more interest in the health of their city; however, the educative effects of the daily newspapers in their articles on the report, combined with the gradual spread of the study of "civics," will in time ensure for the authorities more and more support. Dr. Bailie refers to the necessity of having all cases of throat trouble promptly examined and treated; no one will gainsay such a statement, but it would have more weight if there had been a table from Dr. Gardner Robb reiterating in actual figures the evil effects of delay, especially in very young children; and such proof should be sent to the public press, and to every medical man, clergyman, and babies' club in the city. These annual reports, or part of them, being a stocktaking of the health of a community, should be made appetizing, and so educative, for the general public.

A slip or minor flaw appears in the third column of Table 2, page 7; the decimal point changes its position several times in the column; this tends to confusion on rapid reading. The figures under the "total" column, Section VI, page 14, are wrongly placed. A graver omission is the want of fuller reference to cancer, which caused 347 deaths, to bronchitis and pneumonia, 1,153 deaths, and to heart disease, 675 deaths. Are there no preventive measures, no warnings to the public, as regards these diseases?

TUBERCULOSIS WORK IN BELFAST.

In his report on the work of the Belfast Tuberculosis Department in 1922, the chief tuberculosis officer, Dr. Andrew Trimble, expresses regret that the Government of Northern Ireland has not found it yet possible to take a census of the numbers and condition of the people. In the absence of accurate figures it is only possible to calculate rates on estimated figures. He notes, however, with pleasure that the Government recently announced its

It would appear to us that the work above described gives clear proof of the great value of the complement fixation test in the diagnosis and exclusion of active or recently active pulmonary tuberculosis.

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COMPLEMENT FIXATION TESTS AND TUBERCULOSIS.

BY

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THE present contribution continues some work published previously,[1] but some modifications of the technique originally used have been made.

For the present purpose two antigens were used.

Antigen Wang was an extract prepared after the method of Wang and Crocket,[2] and was practically the same as the one used for the former work. It was made from seven strains of tubercle bacilli grown on glycerine veal broth—three human (sputum, adults), three human (bone), one bovine (milk). It is essentially the residue of a mass of bacilli left after repeated alternate extraction with alcohol, ether, and chloroform.

Antigen Besredka was prepared from a culture of one human strain grown on Besredka's medium[3] consisting of egg yolk and water for three weeks. The contents of the flask were sterilized in the autoclave and shaken as recommended by Besredka and a little phenol added.

The dilution in which each antigen could be used was found by a technique similar to that used in testing extracts for Wassermann tests. The dosage for routine work was determined by finding the lowest dilution which was devoid of anticomplementary action. Thus Wang could be used 1 in 40; Besredka, 1 in 20.

In the previous work most of the tests were made with a dose of complement determined for each set by a preliminary titration of the guinea-pig serum used, in the presence of antigen. In the present series this preliminary titration was omitted and the tests were made with a constant dose of 0.5 of 1 in 10 serum. This plan incurs the risk of missing some cases not capable of giving a strong reaction, but probably eliminates some fallacious reactions. The complement was obtained from the pooled serums in three or more healthy male guinea-pigs. Its minimum haemolytic dose was always at least 1 in 40 (0.5 of 1 in 40 in 2.5 fluid) and frequently higher. None of the antigens were used in such concentration as would fix 1 minimum haemolytic dose of whatever complement was in use for the day's work, in the absence of patients' serum. The patients' serums were inactivated by heating for thirty minutes at 56° C. Whenever possible they were examined soon after collection or were kept in a refrigerator and heated a second time for ten minutes on the day of examination. The serum dosage was 0.5 of 1 in 5. Most of the specimens of blood were taken from either the finger or the ear of the patient.

Cerebro-spinal Fluid.—These specimens were not heated but were kept in a refrigerator if they could not be tested when quite fresh. Some specimens had to be rejected because they were found to be anticomplementary. There is no reason why cerebro-spinal fluid should not be heated, and probably heating would have saved some specimens which were found unsatisfactory.

The following scheme shows the routine method of performing the tests:

	Tube 1.	Tube 2.	Tube 3.
Serum dilution 1 in 5 or cerebro-spinal fluid undiluted	0.5	0.5	0
Complement 1 in 10...	0.5	0.5	0.5
Antigen dilution	0	0.5	0.5
Saline	0.5	0	0.5

Incubation one hour at 37° C. Sensitized corpuscles, 1 c.cm. added. Reincubation thirty minutes. The sensitized corpuscles were prepared by mixing a 5 per cent. suspension of washed sheep's corpuscles with an equal volume of diluted haemolytic rabbit-sheep serum of such concentration that at least 10 minimum haemolytic doses were present in each cubic centimetre of the mixture.

The results were recorded as positive, negative, or doubtful. A positive result was recorded when there was either no haemolysis in Tube 2 or only a trace, a negative when haemolysis was complete, and a doubtful when haemolysis was incomplete. In the various tables some of the doubtful reactions are included as positive, but none were regarded as positive in which there was not clear evidence that some fixation of complement had occurred. The method of reading tends towards the inclusion of some negative results as positive, but as the amount of complement used was large it appeared better to adopt this interpretation of the results.

Table I shows the results obtained with specimens of blood. The patients were under treatment in hospital and most of them were under observation for many months. They were all children aged 15¾ to 6 years—twenty-six boys and thirty-one girls, suffering from some form of chronic tuberculosis of bones or joints or lymphatic glands (one case only of cervical adenitis) including spine, hip, ankle, knee, finger (one case only), tuberculous pyelitis (one case), without evidence of visceral lesions and none of them having tuberculin treatment. Each specimen was tested with two antigens.

TABLE I.—*Blood; Tuberculosis of Bones and Joints: Children.*

	Positive.	Negative.	Percentage of Positives.
Wang	27	39	40.7
Besredka	37	20	64.9

Some disagreements were noted on comparing the results given by the two antigens, but in every instance where Wang gave a positive Besredka was also positive. No Wassermann tests were made with these specimens.

Control Specimens.—Eight serums from cases of various conditions, including hydrocephalus, anaemia, rheumatic fever, synovitis, cerebral tumour, mastoid disease, and malnutrition, gave negative results with both antigens. Two serums with a strongly positive Wassermann also gave negative results. In four instances, all giving a negative reaction, the clinical diagnosis of tuberculosis was open to some doubt. One patient, F., aged 8 years, had pyelitis, but no tubercle bacilli were found in the urine; when 6 years old she had an abdominal operation and a tuberculous lymphatic gland was removed; there was no other evidence of tuberculosis. One patient (aged 1 year and 4 months) had a tuberculous dactylitis (M., aged 1 year and 4 months); tubercle bacilli were not found in scrapings. Another case (aged 8 years) was diagnosed clinically as abdominal tuberculosis, but not confirmed. The fourth case was diagnosed as tuberculous meningitis, but a definite tuberculous infection could not be established; the cerebro-spinal fluid gave a positive result. In all the other cases the diagnosis of tuberculosis of some form was not open to doubt.

Cerebro-spinal Fluid.—These specimens were from cases of meningitis or suspected meningitis, and in ten instances

Gaskell, and Dale and Laidlaw have been quite unable to find any evidence whatever in the cat, rabbit, or guinea-pig of a sacral supply, although certain of the sacral nerves definitely afford parasympathetic innervation to the bladder, rectum, etc. There is certainly evidence to show that motor and inhibitor influences reach the uterus even in these animals, but they both appear to travel via the hypogastric plexus.

In the human subject it is commonly recognized that the efferent sympathetic fibres of the hypogastric plexus have their direct or indirect origin from the cord at levels not lower than the second lumbar nerve. They are ultimately reinforced by fibres from two of the sacral nerves, usually the second and third, which afford the parasympathetic element. Between the second lumbar and the second sacral no fibres are supplied from the cord to the autonomic system. Are we to assume from the observations under consideration (1) that in woman, as opposed to the above mentioned animals, the uterus receives a sacral supply, (2) that the observations of Langley, etc., are incomplete, or (3) that the spinal anaesthetic, and presumably the pithing, eliminates one element only of the sympathetic supply proper which emanates from the cord above the second lumbar level? The only other possibility, as far as one can see, is to postulate an autonomic reflex over and above the purely local system, and independent of the central nervous system. I imagine that the latter would not be accepted by physiologists without very definite evidence.

It would appear most important, in view of these considerations, to note the exact level of anaesthesia attained in each case. It would also appear advisable to conform to the commonly accepted terminology, in order to avoid misunderstanding: thus the term "autonomic" is usually applied comprehensively to include the visceral nerves in general—that is, (*a*) the sympathetic proper, and (*b*) the parasympathetic (bulbo-sacral) system. Such a term as "lumbo-sacral autonomic" inevitably creates some confusion, and is difficult to interpret in view of the facts.

Such points are not of merely academic interest. The whole subject is as important as it is difficult of approach; consequently it demands the utmost precision and clarity of expression at every step. The satisfactory demonstration of a definite and tangible form of reciprocal innervation would at once suggest a wealth of therapeutic applications in the fields of obstetrics and gynaecology alike. On this account alone there is every reason deliberately to chain our imagination to the established facts.—I am, etc.,

FRANK COOK,
Guy's Hospital, S.E., Sept. 9th. Beit Memorial Research Fellow.

COLOSTOMY AFTER TRANSPLANTATION OF URETERS.

SIR,—There is no condition, I think, in the catalogue of human ills which causes more distress both to mind and body than those ailments of the bladder which are characterized by incontinence of urine. It is needless to dilate upon the horrors of such a condition.

Quite recently, to relieve this condition, I implanted both ureters in the upper end of the rectum, using the transperitoneal method. The operation was not by any means difficult and in its results most gratifying. It was when the operation was finished that the idea occurred to me of making the operation of greater benefit in the future than it has been in the past by adding a complete colostomy with division of the colon to the original procedure.

The great objection to the transplantation of the ureters hitherto has been the fear of infection spreading from the bowel to the kidneys via the ureters. This danger would certainly be diminished if the whole of the lower segment of large intestine was definitely converted into a reservoir for the urine and no longer employed for the storage of normal bowel contents. Free irrigation of this reservoir for a week or two would probably rid it of a large proportion of the organisms normal to it as a rectum. Experience alone can show whether the colostomy should precede or follow the implantation.

My own idea, based upon a limited experience, is that the implantation will be easier to do if the colon is untouched, but that immediately the implantation is finished, at the same sitting, the colon should be divided, the upper end brought out through the abdominal wall, and the lower end invaginated into the rectum. A large rubber tube fixed in the anal aperture for the first forty-eight hours will allow the urine to escape as fast as it is secreted, and so prevent leakage at the site of implantation.

Of course, my suggestion adds another risk to the operation, but the added risk is not very great, and when the incontinence is not due to a rapidly growing tumour it holds out a hope of prolonging the patient's life and diminishing his or her suffering before the oft-prayed-for end comes.—I am, etc.,

Dublin, Sept. 10th. THOMAS MYLES.

DIATHERMY IN PULMONARY TUBERCULOSIS.

SIR,—I have been interested in reading, in your issue of August 25th, the reports of the papers by Drs. E. P. Cumberbatch and F. Howard Humphris on medical diathermy, more particularly in the references to the treatment of pulmonary tuberculosis by this method. I have been using diathermy in the treatment of pulmonary tuberculosis for some two years, with very encouraging results. A paper of mine was published in the *Practitioner* in October last.

When I first began to use diathermy for this disease I was unaware that it had been previously tried. But I have since heard of other workers in both the United States and Germany who speak highly as to the results obtained. In a recent communication Dr. Burton B. Grover, of Colorado Springs, U.S.A. (the Mecca of the American tuberculous), informs me that he has found diathermy give far better results than any other method of treatment in this disease. Even advanced cases receive benefit, whilst early and moderately advanced cases show a good proportion of "arrests." My own results confirm this. I have treated advanced cases with cavitation, but have not seen haemoptysis result.

It might interest Dr. Humphris to know—having regard to the last paragraph of his reported paper—that the Ministry of Health sent their representative to inquire into my technique and results by this method in January last, and that as a result the Hull Corporation (of which I am a member) have recently installed the apparatus in their tuberculosis sanatorium at Cottingham, E. Yorks.

I might add that for the last few months I have been treating my cases of this disease with ultra-violet radiation in addition — exposing gradually increasing areas of the trunk to the tungsten arc lamp for a few minutes twice or thrice weekly. By these means, I believe, I have still further improved my results.

I do most strongly urge that this method should be brought more prominently before the notice of the profession, and be given a reasonable trial throughout the country.—I am, etc.,

Hull, Aug. 27th. PERCY HALL.

SPIRITUAL HEALING.

SIR,—There seems good reason to doubt whether the medical profession generally has appreciated the extent of the movement towards the establishment of spiritual healing as a definite part of the work of the clergy. The position of the Roman Catholic Church seems to be quite clear. It teaches—I believe has always taught—that miracles may still occur, but that they must be preceded by an act of faith on the part of the sufferer. The ceremonies at Lourdes, and others derived from the practice at Lourdes, appear to indicate that the Church holds that the sufferer's faith may be sustained and comforted by the expression of a similar faith by others around him. This doctrine seems to be frankly accepted by a certain section of the Anglican Church at least; but a similar belief, not quite so frankly stated or so loudly proclaimed, appears to be entertained by other sections not generally credited with holding extreme views.

I took the opportunity recently of attending a special service, held weekly, in one of the principal churches of a large seaside town. It was very quietly conducted. After the Lord's Prayer the minister read a short address in which the efficacy of prayer was insisted upon. A long list of persons desiring the prayers of the congregation was read

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF TUBERCULOSIS.

Sir HENRY J. GAUVAIN, M.D., M.Ch., President.

DISCUSSION ON THE ARTIFICIAL LIGHT TREATMENT OF LUPUS AND OTHER FORMS OF TUBERCULOSIS.

OPENING PAPER

BY

DR. AXEL REYN,

Medical Superintendent, Finsen's Medicinske Lysinstitut, Copenhagen.

(*With Special Plate.*)

I SHOULD like first to tender my thanks to you for having invited me to speak on the treatment of tuberculous disease with artificial light. I deeply appreciate the honour, and I shall, in the time allotted me, try to sketch the more important principles of this treatment and show its great value.

You know, as well as I do, that the creator of the light treatment was the late Professor Finsen. Time does not allow me to mention all Finsen's different investigations on which he based the light treatment, and, indeed, greatly helped the rapid development of all radiotherapy. I must restrict myself to mentioning only the light treatment and its results in different forms of surgical tuberculosis and tuberculosis of the skin.

After a lengthy series of investigations Finsen proposed to utilize light concentrated through lenses for local treatment, and non-concentrated for exposing the whole body to light baths. These two forms of treatment are entirely different, not merely in their principles but also in their mode of action. In the local treatment with concentrated chemical light one is treating a very small portion of the part that is affected, with an extremely powerful chemical light. The treatment is based on the light's qualities of being able to destroy the bacteria and of producing inflammation in the skin, which qualities we utilize to bring about the direct destruction of all affected parts of the tissue. The light bath, on the contrary, is a universal irradiance; thus, in irradiating the whole body by chemical rays we endeavour to play upon the whole organism and to cure different diseases. No stress is laid on irradiating the affected parts, but great weight is laid on giving the surface of the human body as much light as possible.

LOCAL TREATMENT.

At the beginning of his experiments Finsen used the sun as a source of light; but it was clear to him that if light treatment was to be of any great value at all in northern countries, where there is a lack of sunshine, it would be necessary to make use of artificial light. Finsen chose as an artificial light source the carbon arc light, as being, among the whole class of artificial light, that which in its properties and composition comes nearest to the light of the sun, having almost a continuous spectrum.

In further experiments Finsen showed that the ultra-violet rays have the strongest effect, and consequently he gradually employed only artificial light, for the carbon arc light contains far more ultra-violet rays than the sun, the ultra-violet rays of which are absorbed by the atmosphere. The installation used for local treatment with concentrated chemical light is composed of a 50-ampère carbon arc light lamp; hanging around the lamp there are four apparatus with four convergent lenses for concentrating the light; these lenses are made of rock-crystal, which, unlike ordinary glass, does not absorb the ultra-violet rays. Along with the chemical rays the heating rays also are, of course, concentrated. For absorption of these a layer of distilled water is placed between some of the lenses.

Chemical rays have the power of penetrating the body, but as soon as the rays get at the tissues filled with blood, all chemical light will be absorbed by the blood; consequently if you want the light to have any effect in the deeper parts of the body the skin must be made bloodless. Finsen therefore constructed a compressing apparatus, by means of which he pressed away the blood from the spot to be irradiated. The lenses in the compressor are made of rock-crystal.

By this installation four patients can undergo treatment at one and the same time; furthermore, we have constructed an apparatus for treating a single patient (the Finsen-Reyn apparatus). The principles are quite the same as by the larger installation.

LIGHT BATHS.

I have already told you that Finsen proposed utilizing the sun or artificial light to irradiate the whole body. He was of opinion that the general effect of light on the organism could be utilized in curing a series of diseases, amongst others tuberculosis. He died, unfortunately, before he could finish his work on light-bath treatment, and it was left to others to carry out the experiments first laid down by him. In Switzerland, Bernhard, and, somewhat later, Rollier, and in England Sir Henry Gauvain, were the first to use the sun bath for surgical tuberculosis.

Having seen the excellent results that Rollier obtained, I decided to try light baths in treating lupus vulgaris and various forms of surgical tuberculosis. But we are at a natural disadvantage in regard to sun baths in the northern lowlands, because the chemical power of the sunlight is only very small, owing to atmospheric absorption; furthermore, bright sunny days are very few and far between. Heliotherapy, therefore, can only be used in the summer months and at the seaside, where the value of the sun is enhanced by the reflection of light from the mirror surface of the sea. In winter there is next to no chemical power in the sunlight and the weather is too bleak to allow patients to be out of doors in a naked state, and to use sun baths in closed rooms behind window panes is of no value, on account of the glass absorbing the chemical rays which escape atmospheric absorption. If the light bath treatment is to be of any benefit at all in northern countries artificial light must take the place of sunlight.

The results we have obtained at the Finsen Institute in Copenhagen have shown that this is feasible. In the beginning we only used carbon arc light simply because this light has a spectrum almost like the spectrum of sunlight. The carbon arc-light lamps that we are using, both in local light treatment and in light baths, are burning with direct current, for the light we utilize is coming from the crater on the positive carbon, and if one would use alternating current no crater would be formed.

The most favourable voltage is 50 to 52 volts in the lamp; by this voltage most chemical light is obtained, as was proved by Finsen. The voltage necessary in the conducted current has to be 70 volts, for the lamp will only burn quietly and steadily if there is a small surplus in the current; this surplus has to be absorbed by a resistance. The carbons are perpendicular and the focus has to be fixed; the dimensions of the carbons are also of greatest importance and a point not to be overlooked.

For a 75-ampère lamp the upper carbon must be 31 mm. and the lower 22 mm. in diameter; for a 50-ampère lamp 24 mm. and 17 mm.; and for a 20-ampère lamp 12 mm. and 8 mm. in diameter. Special lamps should therefore be constructed for both local treatment with concentrated light and for the light baths, and ordinary kinds of carbon arc-light lamps should not be used, for good results will not then be obtained. In the Finsen Institute we have constructed such lamps. The lamp must never, as I have seen in some places, be enclosed in an envelope of any kind of glass, for this will simply absorb chemical light.

If we want to treat more patients at one time we use two 75-ampère lamps hanging side by side; the space

classification of various tests; the police surgeon who carries them out methodically takes, on the average, about three-quarters of an hour for each case. He has to make notes on the appearance, behaviour, and gait of the alleged drunkard, and conduct him through a series of tests of the memory and capacity to describe incidents and pictures. Simple sums in arithmetic must be done and many other things requiring a certain degree of mental and physical co-ordination. The Danish Medico-Legal Society has expressed the opinion that, provided this scheme be conscientiously followed, any medical practitioner is capable of giving a satisfactory opinion as to a motor driver's sobriety. In practice, however, the police of Copenhagen have thought it advisable to employ a medical officer, who is available for this work at every hour of the day and night, and who is therefore in a position instantly to investigate a case of alleged drunkenness. This new system seems to have worked satisfactorily on the whole, and it has been found advisable to distinguish between "drunkenness" and "being under the influence of drink." The fate of the licences of the drivers in the latter class is presumably decided according to the circumstances of each case, but the licence of a driver convicted of "drunkenness" is cancelled permanently.

MEDICAL MISSIONS.

SIR,—The sympathetic tone of the paragraph headed "Medical Missionaries" in the Educational Number of the JOURNAL encourages the hope that you may find space for this letter, which is written to expose two common fallacies which one often hears uttered about medical missions.

The first is that some young graduates are "too good for the mission field." (*The last time I heard this was on the* journey from Dieppe to London last week.) A moment's reflection will show that it is not the more competent but the less competent who should be kept at home, for, here in England, they can, in any emergency, rely on the help of a neighbouring colleague, and in the more obscure cases specialists can be called in. On the other hand, in China the medical man may be absolutely alone to treat patients who have made journeys of hundreds of miles to secure his advice and submit to his treatment. The daily activities of a doctor thus situated may embrace anything from operative obstetric work, and operations for the relief of cataract or intestinal obstruction, to the prophylaxis of plague or other epidemics and the diagnosis and treatment of obscure medical complaints—a variety of work that surely calls for the ablest and best equipped man that can be obtained. I have never met a medical missionary who thought himself "too good" for his job; on the contrary, most of us have often and often longed for the presence of one or other of our old teachers.

The second fallacy is that "only the jobs in the big teaching hospitals (for example, Peking and Chinanfu) are worth a medical man's while." While not wishing to belittle the value of an appointment to such an institution, I do protest most emphatically against the idea that these have any monopoly either of (*a*) interest or (*b*) opportunities for specialism.

(*a*) A friend of mine—a medical missionary in sole charge of a busy hospital—was recently offered a chair in one of these large teaching hospitals, an offer which included not merely a larger salary, but also, what was far more attractive, two years' leave at full salary before taking up the appointment, so that he might visit leading hospitals in Europe and America and familiarize himself with the recent and most advanced work on the subject he was to teach. He declined the offer, finding in his "one man" hospital in a small Chinese city (far away from a treaty port with all *that* holds of civilization and congenial society) need and scope for all he could give, both of ability and of experience.

(*b*) Specialism, while rendered possible by the extraordinary teachableness and ability of the Chinese hospital staff, must depend not less on the doctor himself, on his power of organization and especially of devolution. I believe that medical missionaries specializing in surgery have held world records for the number of successful operations done for chronic intussusception, vesical calculus, and deformed pelvis (that is, Caesarean section for malacosteon disease). The pages of the *Chinese Medical Journal* (and doubtless of the corresponding journals for other countries) will show that even in the smaller mission hospitals physicians have been able to develop research work on specialist lines both for research and for treatment.—I am, etc.,

G. DUNCAN WHYTE, M.D.Edin., M.R.C.P.Lond.

London, N.W., Sept. 10th.

AN UNFORTUNATE BROTHER.

SIR,—Dr. F. A. Storr, of Knowle Cottage, Mirfield, has recently had a serious recurrence of illness. As a result of thrombosis of the right femoral artery gangrene of the leg occurred, and this has necessitated amputation in the upper third of the thigh. A long illness in 1921-22 involved him in crushing expenditure for nursing and the provision of a locumtenent in the endeavour to keep his practice together. This recurrence of illness has strained his already depleted financial resources to the limit, and in addition his physical capacity for professional work in the future has been very seriously reduced by the loss of his leg.

The West Riding Medical Charitable Society has made him a generous grant, but we feel that if possible some thing more should be done to help him over the period which will necessarily intervene until he is able to resume some professional work. Any assistance to the fund which we are endeavouring to raise would be gratefully accepted.

Subscriptions may be sent to the London Joint City and Midland Bank, Limited (Mirfield Branch), or direct to any of the undersigned Mirfield practitioners.—We are, etc.,

T. W. SPROULLE.
LESLIE J. MILNE.
H. W. ELWELL.
H. J. DAWSON.

Mirfield, Yorkshire, Sept. 8th.

Obituary.

GUSTAVUS HARTRIDGE, F.R.C.S.,

Consulting Surgeon, Royal Westminster Ophthalmic Hospital.

WE regret to record the death on September 8th, in his 74th year, of Mr. Gustavus Hartridge, F.R.C.S., at his house in Wimpole Street. He was a son of Mr. James Hartridge, of Yalding, Kent, and was educated at King's College, London; he took the diploma of M.R.C.S. in 1872, that of L.R.C.P.Lond. in 1873, and became F.R.C.S.Eng. in 1874. After serving as clinical assistant at Moorfields and acting as Hunterian Prosector at the Royal College of Surgeons of England, he was for a time assistant surgeon to the Central London Ophthalmic Hospital; he was then appointed surgeon to the Royal Westminster Ophthalmic Hospital; he was also lecturer on ophthalmology in the Westminster Hospital, and consulting ophthalmic surgeon to St. Bartholomew's Hospital, Rochester. He gave particular attention to refraction and was the author of a manual on the subject, which reached its sixteenth edition; he also wrote a *Manual on the Ophthalmoscope* and a book on *Retinoscopy*, and was joint author with Mr. C. N. Macnamara of a *Manual of Diseases of the Eye*. Mr. Hartridge was secretary of the Section of Ophthalmology at the Annual Meeting of the British Medical Association in 1889 and vice-president at the Annual Meeting in Newcastle in 1893.

Mr. Hartridge was possessed of kindly qualities of sympathy and gentleness which endeared him to those with whom he was familiar. There was a certain vein of shyness in his character which perhaps accounted for the rarity of his participation in the more social sides of professional work. But once this shyness was forgotten the kindliness of his manner made him greatly beloved. As a clinician he possessed a sureness of observation and judgement which was enviable.

Table showing Results in Closed Uncomplicated Cases, and Cases Complicated with Sinuses or Abscesses.

	Number.	Over 15 Years.	Duration beyond Six Months Before Light Baths.	Changes in Skiagram.	Recovered.			Improved.	Unchanged.	Died under Treatment.	Treatment Abandoned by Patient.	Controlled.			Relapses.	Cured later.
					Free Mobility.	Partial Mobility.	Without Mobility					Total.	Over 1 year.	Over 3 Years.		
Closed uncomplicated cases.																
Dactylitis	22	5	1	20	22	—	—	—	—	—	—	21	8	8	—	—
Tuberculosis of wrist	23	19	19	21	15	3	—	2	1	—	1	21	8	13	1	1
" of elbow	17	12	9	16	9	4	2	—	2	—	—	14	7	5	—	—
" of shoulder	7	7	5	6	3	2	2	—	—	—	—	7	5	2	—	—
" of ankle	14	8	10	9	9	1	4	—	—	—	—	13	7	3	—	—
" of knee	42	28	34	24	15	7	5	2	8	1	4	29	10	11	5	1
" of hip	7	2	3	5	1	1	3	—	—	—	2	5	1	3	1	—
" of spine	7	5	4	4	4	—	—	1	—	—	2	4	4	—	—	—
Tenosynovitis	8	7	6	—	1	—	—	—	7	—	—	—	—	—	—	—
Peritonitis	8	4	5	—	6	—	—	—	—	—	—	6	1	3	1	—
Genito-urinary tuberculosis	3	3	—	—	2	—	—	—	1	—	—	2	1	1	—	—
Cases complicated with fistula or abscess.																
Dactylitis	55	21	29	47	41	5	3	—	—	1	6	9	26	14	4	2
Tuberculosis of wrist	24	22	21	21	6	12	1	1	1	—	3	13	9	2	1	1
" of elbow	31	23	23	24	10	17	3	—	1	—	—	22	15	6	5	4
" of shoulder	8	6	8	8	1	4	2	—	1	—	—	6	2	1	2	2
" of ankle	33	26	30	29	14	12	2	2	—	2	1	30	14	11	1	—
" of knee	14	11	14	12	1	1	7	2	2	—	1	9	3	6	2	—
" of hip	15	12	15	10	—	4	4	—	5	1	1	8	2	4	2	—
Tuberculous disease of ribs and sternum	32	29	24	4	25	—	—	—	5	—	4	23	11	6	4	—
Osteitis (60 patients)	73	47	63	33	63	—	—	2	1	1	1	63	41	13	2	2
Pelvic osteitis	11	8	10	5	6	—	—	—	3	2	—	6	1	2	—	—
Tuberculosis of spine	20	16	16	5	11	—	—	1	3	3	2	11	7	2	1	—
Subcutaneous tuberculosis	42	30	25	—	37	—	—	2	1	—	2	36	25	7	—	—
Tenosynovitis	8	7	8	—	7	—	—	—	—	—	1	5	3	—	—	—
Peritonitis	7	2	7	—	4	—	—	1	2	—	—	4	3	1	—	—
Genito-urinary tuberculosis (female)	6	6	6	—	4	—	—	2	—	—	—	6	2	3	2	1
" " " (male)	16	16	11	—	12	—	—	2	—	—	2	12	5	4	—	—

I shall refer later on to the conclusions to be derived from this fact, but here I would like to request your attention to the conclusions that Dr. Ernst comes to in his last report:

"If, in conclusion, I attempt to state which cases of surgical tuberculosis adapt themselves best to light-bath treatment, this will be most easily done by recapitulating the cases which have proved refractory. These are the uncomplicated tenosynovitis cases, and the very old fistulous bone affections in the spinal column, pelvis, and hip, while the later cases (of about twelve months' standing) are not particularly unfavourable to treatment.

"As regards the knee, I have become more conservative in my treatment of adults with whom a fixed condition of flexion has already set in or where there are very severe capsular changes. In many of these cases it will end in resection.

"Slight tuberculosis of the lungs is no contraindication for light-bath treatment, but one must, of course, consider the general state of health, especially the condition of the lungs, heart, and kidneys."

The time spent in curing a patient naturally differs according to the nature and locality of the affection. Broadly speaking, one can say that children get cured more rapidly than adults, and affections of the small joints are more quickly and easily healed than those in the large joints. Very excellent results and quick recovery is obtained in tuberculosis of the soft tissues and bones.

The shortest time we have needed for a cure was one month, but often the cure has taken six months, and in some cases even two years and more; but to a doctor accustomed to treating tuberculosis this is quite natural.

As a separate group I wish to mention tuberculous glands. In the first years, owing to lack of space, I treated only a very few cases, but later on the number of patients treated by radiotherapy increased more and more. You are well aware that x rays are applied to a considerable extent in the treatment of tuberculous glands; medical authorities find that hyperplastic forms give the best results, while the glands with sinuses give less favourable results.

For some time I had treated the glands entirely with x rays, and only in very serious cases, with formation of sinuses, have I employed light baths; however, as soon as the accommodation permitted it, I utilized light in addition to x rays, for I found out that the results obtained by x rays alone were less satisfactory.

The results I have obtained by the combination of carbon arc light baths and x rays and by light baths alone have been excellent, not only in cases of hyperplastic glands, but also in sinus cases; about 95 per cent. of 500 cases have been cured, among which were many severe cases of several years' duration.

The results illustrate to an eminent degree the great value of carbon arc light baths in the fight against tuberculosis.

THE next congress of French-speaking pediatrists will be held at Brussels under the presidency of Professor V. Pechère from October 4th to 7th, when the following subjects will be discussed: Prolonged pneumonia in children, introduced by Dr. Charles Gardère of Lyons; diagnosis and treatment of intussusception, introduced by Dr. Raphael Massart of Paris; medico-pedagogic treatment of abnormal children, introduced by Dr. Decroly of Brussels. Further information can be obtained from the general secretary, Dr. Albert Delcourt, 78, Rue de Trèves, Brussels.

THE twentieth congress of the Italian Society of Laryngology, Otology, and Rhinology will be held at Bologna from October 8th to 10th, when a discussion will be held on otitic pyaemia, introduced by Professors Federici and Torrini. Further information can be obtained from the secretary of the executive committee, Dr. A. Fabbri, Via Santa 2, Bologna.

A SPECIAL two weeks' course in cardiology will be held at the National Hospital for Diseases of the Heart, Westmoreland Street, W.1, from October 15th to 27th. The fee for the course is £7.

THE National Association of Railway Travellers (79, Queen Street, Mansion House, E.C.4) has issued a circular asking for financial support with which to contest the case of season-ticket holders and other travellers by rail before the Railway Rates Tribunal.

THE Eyesight Conservation Council of America has announced that it is about to undertake a national survey of eye conditions; a previous investigation by this organization showed that in the United States 25,000,000 persons employed for gain had eye defects.

A COMMITTEE has been formed to erect a statue in memory of Charles Gabriel Pravaz, the orthopaedist and inventor of the syringe which bears his name, at his birthplace, Pont de Beauvoisin, Isère. His work as an orthopaedist was recently reviewed in this JOURNAL (August 18th, p. 288).

PROFESSOR MAX WOLFF, formerly director of the Berlin University Clinic for Diseases of the Lungs, has recently died.

THE festival of the medical saints Cosmas and Damian was recently celebrated at Luzarches, a commune in Seine-et-Oise, where relics of these saints are preserved.

THE next international congress of thalassotherapy will be held at Arcachon in 1925, when the marine treatment of rickets will be discussed.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

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1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361 Central).

QUERIES AND ANSWERS.

"R. C." asks for information regarding Moutier's solar syndrome.

"S. M. P." asks where in London he could gain experience in the "twilight sleep" method of treatment.

INCOME TAX.

"F. E." supplied the inspector of taxes last year through a firm of chartered accountants with certified accounts of his practice. This year he has filled in his income tax return himself and finds that the inspector is pressing the accountants to supply a copy of his accounts for 1923.

*** When "F. E." made his return for 1923-24 he presumably made it on the basis of the average of the result of the certified accounts for 1921 and 1922 and the profit shown by a statement prepared by himself of his receipts and expenses for 1923. We suggest that our correspondent should send the inspector a copy of this "1923" statement, first certifying it to be a full and correct statement of his earnings to the best of his knowledge and belief, and point out that as the previously supplied accounts did not show him to be undercharged to tax, the inspector may be reasonably satisfied with his own statement of account for 1923.

"J. G." keeps a motor car for professional purposes but used it for a fortnight's motor holiday and occasional outings with friends; the inspector of taxes purposes to disallow 10 per cent. of the total motor expenses.

*** Our correspondent is entitled to deduct only those expenses which he incurred for professional purposes and cannot properly include in his expenses for income tax purposes the costs incurred by his private use of the car. Whether those costs are fairly represented by 10 per cent. of the total expenditure must depend on the facts of the case.

"A. B." arrived in the United Kingdom on April 4th on twelve months' leave; will he become liable to tax if he stays here less than six months, goes abroad for a period, and then returns?

*** Yes, if he spends more than six months in this country in the same financial year—ending April 5th. It has also to be remembered that any person coming to this country with the intention of establishing a residence here is liable even though he is here for a shorter period than six months. Staying temporarily in a borrowed or hired flat would not constitute establishing a residence; that would depend on whether the circumstances as a whole showed that the person concerned had severed his connexion with the foreign place and had formed plans for remaining in the United Kingdom on a permanent or semi-permanent footing.

LETTERS, NOTES, ETC.

DR. A. D. WOOLF (13, The Avenue, Highams Park, E.4) *writes:* I am anxious to obtain an "etherometer" as manufactured by the late Etherometer Co. of America. I have tried the usual channels in this country but without success, and would be glad to know whether any of your readers has one which he would care to dispose of.

SYMPATHETIC MAGIC?

"M. O." writes: I heard recently of a patient who, being refused information by her doctor as to methods of procuring abortion, inquired "whether it was true that stuffing a pad of cotton-wool into the mother's umbilicus would kill the child by suffocation"! It would be interesting to learn whether this superstition is common. It appears to indicate a belief in "sympathetic magic," but it is difficult to understand how anyone sufficiently acquainted with elementary physiology to realize that the umbilicus has any connexion with foetal respiration could also believe that a proceeding of this sort could affect the child in any way.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 30, 34, 35, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *121*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

FIG. 1.

FIG. 2.

Lupus vulgaris before and after treatment with concentrated chemical light and light baths.

FIG. 3.

FIG. 4.

Lupus vulgaris before and after treatment with concentrated chemical light and light baths.

FIG. 5.

FIG. 6.

Arthritis of wrist before and after light-baths treatment, cured with partially free mobility.

FIG. 7.

FIG. 8.

Spina ventosa treated for many years at a seaside sanatorium without any result, cured by light baths with complete free mobility.

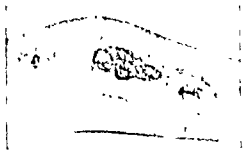

FIG. 9.

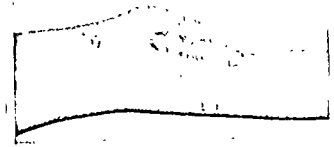

FIG. 10.

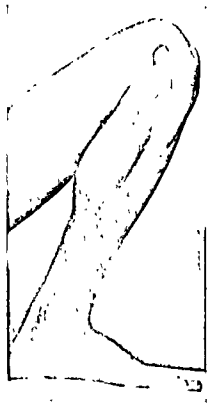

FIG. 11.

Arthritis of knee before and after treatment with light baths, cured with complete free mobility.

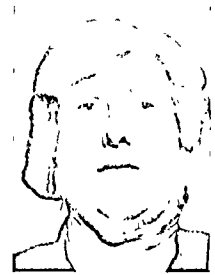

FIG. 12.

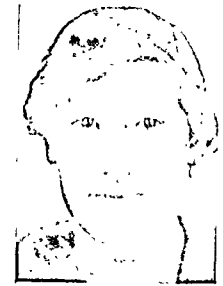

FIG. 13.

Tuberculous glands of five years' standing with sinus formation before and after treatment, cured by light baths and local light treatment.

if such a tablet is of much use, and the author concludes that the potency of various preparations sold in pill or tablet form depends to a considerable extent on the ease with which they break up, and this is a matter to which the manufacturing chemist should pay more attention.

189. Mercurial Treatment in Encephalitis Lethargica.

E. BILLIGHEIMER (*Klinische Wochenschrift*, June 25th, 1923, p. 1215) points out that all drugs employed in the treatment of encephalitis lethargica have failed hitherto to check the disease, though scopolamin and atropine have been found of service in the secondary conditions associated with muscular rigidity and motor impairment. But the good effects of these two drugs are only temporary and only continue so long as the drugs are given. The author has tried the effects of mercury, usually in the form of an inunction treatment (up to 5 grams daily); in a few cases in the form of injections of mercury salicylate. The therapeutic effects, which followed very rapidly, were remarkable and in most cases surprising. Records of eight cases are given and the results mentioned in four other cases. In all of his acute and subacute cases mercury had a distinct beneficial effect, and the good results were noted very soon after the commencement of the treatment. In only two of his chronic cases were good results obtained. In the most severe chronic cases either the mercury had no action or the patients were oversensitive to the drug and tolerated it badly. In the acute and subacute cases the symptoms very rapidly subsided after the use of the mercury. The author strongly recommends the treatment in all acute and subacute cases.

190. The Stigmata of Late Hereditary Syphilis.

B. BARKER BEESON (*Paris méd.*, June 30th, 1923, p. 565) states that one of the most complete reports on this subject was made by Sir Herbert Smalley on 941 prisoners at Borstal, aged from 16 to 21, of whom 153, or 16.2 per cent., showed evidence of late hereditary syphilis. Beeson's observations were made on 100 male prisoners at the Chicago House of Correction. As complete a family and personal history as possible was obtained, and a Wassermann reaction was performed in each case. Special attention was given to the ocular and tendon reflexes; 61 per cent. of the cases were white and the rest were coloured; 22 were aged from 17 to 20, 51 from 20 to 30, and the rest from 30 to 65; 39 (26 white and 13 black) presented stigmata of late hereditary syphilis. The most characteristic stigmata, such as Hutchinson's teeth, Argyll Robertson pupil, Romberg's sign, and loss of knee-jerks, were rarely found, whereas less pathognomonic stigmata, such as the highly arched palate, and minor dental anomalies, such as vicious "implantation" and marked separation of the teeth, were relatively frequent. The Wassermann reaction was positive in 29 cases. It may be of value in detecting obscure cases, but it may be negative in spite of the presence of important stigmata of late hereditary syphilis. A family history of numerous deaths during infancy was obtained in 9 cases.

191. Treatment of Psoriasis.

K. HERXHEIMER (*Klinische Wochenschrift*, July 6th, 1923, p. 1369) records his experience of the treatment of psoriasis. As regards internal treatment, he is of opinion that, if possible, intermittent courses of arsenic should be tried. But often this treatment fails; and, if long continued, long pauses should be allowed between the separate courses. Sachs in Vienna has recently recommended intravenous injections of 10 to 20 c.cm. of a 20 per cent. solution of sodium salicylate. From his own experience, the author thinks this treatment is of service, but its effect is only symptomatic. The results obtained by Brock's method of treatment of psoriasis (the action of x rays on the thymus gland) have varied much. For external treatment many authors regard chrysarobin as the best application, but the author prefers certain coal-tar preparations. In the last thirty years he has tried the action of various new coal-tar preparations in 500 cases of psoriasis, and found that three of these deserve to be specially recommended—lithantrol, carboterpin, and carboneol. The first two can be employed in ointments of 10, 20, 30, or 50 per cent. strength; also in 5 to 50 per cent. spirit solutions. The time required for successful treatment does not exceed that for chrysarobin. The linen is little stained by lithantrol, somewhat more by carboterpin, but the stains are removed without much trouble. Tar acne is very seldom and tar eczema and nephritis almost never observed. For long persisting patches, carboneol is recommended, but it stains the linen. The author recommends that carboneol should be used as a paint, though it may be also employed as an ointment or paste. The old pix liquida preparations have also a very good action; and, on account of its cheapness, oleum fagi (oil of birch tar) is to be recommended, but the staining and smell are objections to its general use.

Surgery.

192. Diagnosis of Carcinoma of the Tail of the Pancreas.

Two cases of carcinoma of the tail of the pancreas are reported by T. SCHOLZ and F. PFEIFFER (*Journ. Amer. Med. Assoc.*, July 28th, 1923, p. 275). The x-ray findings in both instances were so characteristic of gastric malignancy that a definite diagnosis of carcinoma of the stomach appeared justified. The clinical findings, on the other hand, were not very typical of any organic lesion of the stomach; in fact, there were, in the clinical picture of these two cases, several points which spoke against such a diagnosis. In both cases surgical intervention disclosed a tumour of the pancreas. An interesting clinical point is mentioned with regard to one of the cases. Schmidt has stated that bronzing of the skin in pancreatic lesions is always accompanied by sugar in the urine (bronze diabetes), this being due to an interstitial inflammation of both the pancreas and the liver. An exception to this rule was the case in which there was a most characteristic bronzing of the skin without sugar in the urine at any time. A plea is made for a closer co-operation between clinician and radiologist, and an interpretation of x-ray findings along clinical lines.

193. Plating in the Treatment of Fractures.

A. STILLMAN (*Annals of Surgery*, July, 1923, p. 75), reviewing the advantages and disadvantages of metal plates in the treatment of fractures of the long bones, finds that statistics confirm the general opinion that union is delayed by plating, though the time elapsing after fracture before operation is performed may be as much a cause of delayed union as the plating. Since the original fracturing injury affords the greatest stimulus to repair, operation, by disturbing such repair after it has begun, renders it necessary for repair to start afresh with the original stimulus somewhat spent. It is difficult to decide when union has actually taken place after plating, since the plates give firmness to the fracture, but it may be estimated by the amount of callus as shown by x rays. The time of union after plating is of secondary importance to the production of an anatomically and functionally correct limb, which is of more frequent occurrence after platings than after treatment by the closed method. The three main indications for the use of plates are: (1) when reduction cannot be properly maintained without direct fixation; (2) when non-union results from too great separation of the fragments; and (3) when faulty union has taken place. From an experience of 66 platings (once of the clavicle, 4 times of the humerus, 5 times of the ulna, 9 times of the radius, 15 times of the tibia, and 32 times of the femur) the procedure is justifiable in competent hands, but now that fractures of the femur are usually treated by suspension and traction plating is not so frequent, but when limited to the smaller bones should become more useful.

194. Diverticula of the Large Intestine.

R. BENSAUDE, A. CAIN, and P. HILLEMAND (*Ann. de Méd.*, May and June, 1923, pp. 432 and 547) show that diverticula of the large intestine consist of herniae of the mucosa through the muscular coat. Sometimes these are obvious to the naked eye, in other cases they are only seen on microscopic examination. Three points in their etiology are well established: they are more commonly seen in males, they are only found at an advanced age, and they attack obese subjects. They are rarely seen before the age of 40. Diverticula may be only discovered at autopsy or during the course of an operation, or they may become inflamed and give rise to a condition of "diverticulitis," while sometimes a diverticulum perforates into the peritoneal cavity. Diverticula are most commonly found in the sigmoid, at the point where the vessels from the mesosigmoid perforate the walls of the intestine. They may be present in considerable numbers; exceptionally they are single. Frequently there is a considerable deposit of fat around them. The condition known as "peri-diverticulitis" is due to chronic inflammation developing round a diverticulum which may be lost in the centre of the tumour. They may be congenital in origin or may arise from the glandular element of the gut, perhaps due to obstruction of their lumen in cases of chronic constipation. Others consider they are due to mechanical causes similar to the diverticula found in the oesophagus. The authors consider that diverticula may be produced occasionally by traction of a tumour or adhesions; more often they are due to increased pressure within the bowel associated with weakening of the walls. The sigmoid appears to be the site of election for their appearance, as it is affected with violent peristaltic movements during defaecation, especially in constipated individuals. If the walls of the gut are weak the conditions are favourable to the development of diverticula. Further, the faecal material in this situation is

thirty to forty minutes' duration; then we generally give the patient light baths every other day, increasing the time as we go on, so that after a fortnight's treatment fully two and a half hours are reached, but this time is seldom exceeded. This method is used only when patients are not feverish or suffering from serious complications such as tuberculosis of the lung; in such cases we begin with baths of only fifteen to twenty minutes' duration, increasing slowly. With the mercury light we begin with five to ten minutes, increasing slowly, for the erythema brought about by this light is extremely painful. During the irradiation the patients have to turn their bodies round, so that all parts of the body are irradiated.

In conclusion, I should like to say some few words about local treatment. This, as has already been stated, is used in the treatment of lupus vulgaris and other kinds of skin tuberculosis; but many sinus cases in patients suffering from surgical tuberculosis also undergo local light treatment with excellent results. Especially in cases of tuberculous glands with sinus formation is local light treatment of great importance, for it hinders the development of lupus vulgaris in the scars and brings about a more rapid and certain cure of the sinus.

The Finsen light installation for local treatment with concentrated chemical light is somewhat expensive and complicated; other apparatus have therefore been constructed to take the place of the Finsen one. In Germany, for example, Kromayer's mercury lamp has been much in general use; but in treating lupus vulgaris and other kinds of skin tuberculosis locally all these other kinds of lamps are much inferior to Finsen's.

In the investigations made by Jansen it is shown in a very exact and careful manner that the effect of Finsen's light treatment in lupus is to destroy the pathological cells. To bring about this destruction a rather penetrating light is necessary, but the concentrated carbon arc light is the only one that has the power of penetrating right into the depths of the tissue, as Finsen, Jansen, Hasselbalck and Maar, after their numerous experiments, have pointed out. If we desire to utilize this relatively deep effect, the tissue in question must be made bloodless, as Finsen has shown us by experiments on rabbits, and also in trying to irradiate lupus vulgaris without employing a pressure apparatus. In this last mentioned mode of treating lupus vulgaris Finsen obtained some improvement, but a real cure was, practically speaking, never brought about. If we follow up Jansen's histological experiments on lupus vulgaris, after repeated radiations, we can well understand that compression is absolutely imperative if a real cure is to be brought about.

At the Finsen Institute we observe every day proofs of the correctness of this opinion, for quite a number of our patients are suffering from lupus vulgaris to such an extensive degree that for a long time we have to restrict ourselves to local treatment in the face alone, the other spots on the body merely undergoing strong radiation by the carbon arc light during the process of light baths. These spots show great improvement in accordance with the general effect brought about by the light baths, but a real cure is exceptionally rare, and, later on, these spots have to undergo local treatment, while the face, which has been treated with concentrated chemical light simultaneously with light baths, is already cured.

I emphasize this because in France Dr. Benoit has recently stated in print that he treats lupus vulgaris with local irradiation of ultra-red rays together with ultra-violet rays, without making the tissue bloodless by pressure. Dr. Benoit takes it for granted that in this manner he influences the blood, which should again influence the local disease. Benoit, in my opinion, is quite wrong in his views, and confounds the effect of local light treatment with the effect of general treatment. With this method of irradiation he will obtain improvement, but never—or at any rate very seldom—bring about a complete cure of lupus vulgaris, because he only gets quite a superficial effect of the local process, as we have seen in treating lupus vulgaris with light baths without any local light treatment. By this treatment we irradiate the spots with a powerful carbon arc light, and this, as you are aware, gives a great mass of both red and ultra-violet rays simultaneously; but a cure, as I have already told you, can hardly ever be obtained in this way.

Summary.

1. The non-operative treatment is the principal one in cases of surgical tuberculosis, not only in children but also in adults.
2. Light baths (sun or artificial) are indispensable in the non-operative treatment of surgical tuberculosis.
3. The carbon arc light can fully replace sunlight, and is much superior to the mercury arc light.
4. Sanatoriums in mountain heights, as well as at the seaside, should have artificial light baths at their disposal.
5. In the treatment of lupus vulgaris concentrated chemical light is absolutely indispensable, and it is of the greatest value to combine local treatment with light baths.

TREATMENT OF CUTANEOUS TUBERCULOSIS.

BY

J. H. SEQUEIRA, M.D., F.R.C.P., F.R.C.S.,

Physician to the Skin and Phototherapy Departments, and Lecturer on Dermatology, London Hospital.

(With Special Plate.)

I ESTEEM it a great honour to follow Professor Reyn in this discussion. Nearly twenty-four years ago I had the privilege of attending the practice of the Light Institute at Copenhagen, under Professor Finsen, and Dr. Reyn was then Director of the Clinic. Since then I have followed with the greatest interest the developments of phototherapy and as opportunity offered these developments have been introduced into my own clinic at the London Hospital.

My contribution to this discussion must necessarily be brief, but I would like to direct special attention to some points which are in my experience frequently forgotten.

To get the best results in the treatment of tuberculosis of the skin, and, particularly its most common variety, lupus vulgaris, one cannot rely on local measures only. I venture to urge, and Professor Reyn's communication supports my contention, that it is necessary to make our attack on the disease a combined one. We must use local measures, and on their importance I hope to say a few words shortly, but we must also use general measures.

Local Treatment.

In lupus vulgaris we have to deal with two very distinct types of case—(1) the type which we, in practice, recognize as dry lumps, and (2) ulcerative lupus distinguished by the earlier writers as lupus exedens and lupus non-exedens. It is essentially the dry type, the type in which the lesions are characteristic, yellowish-brown, often sharply circumscribed spots or nodules imbedded in the skin, which reacts most satisfactorily to the local application of concentrated light, usually described as the Finsen treatment. I need not enter into the details of this measure, but it is established that if the lesions are comparatively limited in area and in a situation where the character of the cicatrix is of importance we can get better cosmetic results by the Finsen treatment than by any other form of therapy. Where the character of scar is of less importance we can use caustics such as strong creosote and salicylic plasters, the acid nitrate of mercury, and in some regions we can excise a patch with or without grafting.

All these measures give highly satisfactory results in a number of cases of dry lupus, provided the area is not too extensive. In extensive cases the time required is the chief drawback. With the more careful inspection of our school children and the co-operation of tuberculosis officers the disease will be recognized earlier and extensive lupus will be very rare in the future.

I should like to give one word of warning as to the treatment of dry lupus. One should never try to cure it by x rays. I agree that you can destroy a patch of dry lupus by repeated x-ray exposures, but you run a grave risk of causing cancer. We, fortunately, learnt the lesson early and for years we have endeavoured to bring to the notice of officers of hospitals and tuberculosis dispensaries

is associated with late puberty, tendency to obesity, dull intellect, the necessity for a large amount of sleep, no resistance to fatigue either mental or physical, etc.; hyperovarianism is suggested in a small, active, well developed girl, quick of eye and untiring. Hypothyroidism may be recognized by puffiness of face, dryness of skin, etc., and deficiency of pituitary and suprarenal by arterial hypotension and asthenia. For these cases 10 to 20 cg. of ovarian extract is given with either thyroid or adrenaline for ten to twelve days. (Thyroid should not be given if rheumatism is present, as it is apt, says the author, to aggravate this.) If this treatment fails, dilatation and curettage should be done, the scrapings being examined, when a diagnosis of tuberculous endometritis may be made. This may cure the condition, but if the bleeding returns in two to three months then radiation should be tried, though Delbet's method of injecting zinc chloride (1 in 10) into the uterus may be tried first, as it is often successful. As regards radiation, radium holds the advantage of acting less on the ovaries, but x rays require no intrauterine manipulation. In many cases treated by x rays congestion first occurs and the bleeding is increased momentarily; it is best, therefore, to administer the first dose just after a period. Though normal periods usually return after a certain period of amenorrhoea, it has yet to be proved that radiation does not produce sterility in many cases; in the author's opinion, therefore, radiation should only be performed in such cases as a last resort to prevent the necessity of hysterectomy.

201. Etiology of Puerperal Morbidity.

IN connexion with a statistical study of about 400 cases of puerperal morbidity found among about 7,000 deliveries, E. ENO (*Surg., Gynecol., and Obstet.*, June, 1923, p. 797) notes that primiparae were twice as frequently affected as multiparae; that in about one-third of the former and two-thirds of the latter the course of the reaction was very mild and no definite etiological factor could be detected which would explain the pyrexia following delivery; and that in no fewer than 36 per cent. of primiparae and 20 per cent. of multiparae bacteriological or definite clinical evidence of gonorrhoea as an etiological agent was present. A "flare-up" of gonorrhoeal infection appeared to be produced *post partum* in cases in which there had been no prolongation of labour and no undue number of vaginal examinations. After spontaneous delivery morbidity was more common in primiparae as compared with multiparae, and the figures furnished evidence pointing to an etiological influence of long labour and repeated vaginal examinations.

Pathology.

202. Intolerance of Oxygen by Anaerobic Bacteria.

J. W. MCLEOD and J. GORDON (*Journ. of Path. and Bact.*, July, 1923, pp. 332–341), in studying the problem of intolerance of oxygen by anaerobic bacteria, have shown that anaerobes cannot tolerate more than very slight concentrations of oxygen because they produce hydrogen peroxide as soon as oxygen is available, and being very sensitive to this substance they die. When cultivated in the presence of liver catalase little or no evidence was obtained that catalase favoured the growth of tetanus, but it was found that unheated liver extract containing plenty of active catalase favoured the growth of *B. welchii*. Heating the liver extract to 70° to 80° C. to destroy catalase either removed or diminished its power of favouring growth, but all attempts to get anaerobes to grow in the air on plates heavily charged with liver catalase failed. This does not involve the abandonment of the theory that the anaerobes cannot tolerate oxygen on account of the formation of peroxide, since there is a limited range of oxygen concentration in which it is possible to demonstrate the value of catalase. It is possible also that at low concentrations of hydrogen peroxide there may be a tendency for catalase to synthesize hydrogen peroxide from water and oxygen. These authors consider that the sensitiveness of anaerobes to hydrogen peroxide is not due to their inability to produce catalase. Media about to be used for the growth of anaerobes should not be exposed to light. About eight hours' exposure to diffuse light sufficiently charges an agar plate with hydrogen peroxide to prevent the growth of *B. tetani*; a slightly longer period is required to kill off a culture which has already grown. A considerably greater exposure is required to prevent the growth of *B. welchii*, which is less sensitive to hydrogen peroxide. In all probability hydrogen peroxide is produced during the growth of anaerobes. This production of peroxides by anaerobes is probably the explanation of the green discoloration of heated blood media which anaerobes produce under certain conditions.

203. The Bacteriology of Pemphigus.

F. EBERSON (*Arch. of Derm. and Syph.*, August, 19 has added yet another to the already long list organisms which have been incriminated in the p of pemphigus. Isolation was effected from the blood patients suffering from chronic pemphigus; in on was recovered from a bullous lesion of the skin Morphologically it is an extremely small, ovoid, s pleomorphic bacillus, occurring in pairs and in ch arranged in parallel bundles consisting of two or t viduals. It is non-motile, Gram-positive, and, w isolated, strictly anaerobic. The most satisfactor medium was found to be a meat infusion broth, c 0.5 per cent. glucose, together with some brain ti a few pieces of chipped marble. Only after severa tions on this broth could growth be obtained o medium—one of glucose ascitic agar. Serological shown that the blood of patients suffering from th was able to agglutinate the organism, and experim was possible to prepare serums from rabbits whi similar agglutinating property. The study of the i strains, though imperfectly carried out, seemed to s there was a close relation between them. Inje animals, the organism proved to be pathogenic guinea-pigs and rabbits, especially the former, t definite lesions simulating the clinical picture of p in human beings could be observed. The orga provisionally been named *Bacterium pemphigi*.

204. The Etiology of Sarcoma.

ILLUSTRATED by observations on four recorded c etiology of sarcoma is discussed by J. PATRICK an BURTON (*Glasgow Med. Journ.*, July, 1923, p. 8). In there was a history of some form of trauma or irrit respective natures of which were (*a*) the application (*b*) the use of CO_2 snow, (*c*) scraping by means of a Vo spoon, (*d*) a blow by a mass of coal, all operatin presence of a certain degree of infection. Thes appeared either to determine the actual origin of th or the transformation of an originally benign r process into a malignant overgrowth of embryo The authors note the difficulty that is frequently ex in distinguishing the cells of an inflammatory or r process from those of a sarcoma, and that each obs his own standard of what constitutes the latter. growths were not necessarily malignant from the o possible of conclusive proof in at least one of t reviewed, both by the clinical features and repeate pathological examination. It is suggested that might profitably be directed not so much to the di tion of cellular elements as to variations in individu ing power and capacity of rapid complete repair and of tissues against irritation and trauma.

205. Blood Pressure in Students.

W. C. ALVAREZ, R. WULZEN, and L. J. MAHONEY *Int. Med.*, July 15th, 1923, p. 17) investigated th pressures in 14,934 students (6,000 men and 8,934 w entering the University of California. The observati prise two periods, 1918 and 1920–21, the findings in th series confirming in the main those of the first series found that the blood pressures of women are more than those of men and are on the average 11 mm. lo that the average pressure for both men and wom gradually during the first years of adult life. For pressures ranged mainly about 127 mm. at the a and about 118 mm. at 30, while for women the about 118 mm. at 16, about 111 mm. at 24, and about at 40. Among younger men hypertension is very 45 per cent. exceeding 130 mm. and 22 per cent. e 140 mm., while among women 12 per cent. exceeded and 2 per cent. exceeded 140 mm. Since most of were under war service age it is doubtful to wha the war influenced the pressures, if at all, and altho were low in 1918 and high in 1919 they returne original figures in 1920–21. Even the influenza epi not explanatory, and though the low ebb in 1918 ma a possible predisposition to an epidemic further needed for confirmation. The conditions of hyp cannot be regularly ascribed to injections or to s living, and it appears rather to be an inherited pe its appearance being suppressed in women with ovarian function, while in those developing mal teristics, as evidenced by the distribution of administration of corpus luteum extract has a re influence on the development of hypertension, a suggested that ovarian extracts might be of us treatment of high blood pressure in men.

With regard to the duration of the treatment, our present experience seems to show that in three to five months we are able to obtain a satisfactory result. We think it may possibly be advisable to repeat the course after an interval, and on that we should like to know the experience of Professor Reyn, who has had his cases longer under observation.

Conclusions.

1. We must carefully distinguish between the local application of concentrated light to lesions and the light bath.

2. The best results in the treatment of lupus vulgaris are obtained by a combination of local and general treatment. The local treatment is carried out by the application of concentrated actinic light to the lesions. The light bath is the exposure of the nude body and limbs to the rays of a large arc lamp.

3. The best illuminant is a large carbon arc working at 50 ampères. The spectrum of such an arc more nearly approaches that of the sun than that of any other lamp. The carbon arc must not be enclosed; an envelope of any kind cuts out some portion of the rays.

4. The amount of pigmentation is an index of the reaction of the body to the radiation. We do not, however, imply that the production of pigment is the cause of the improvement in the general health of the patient or of the healing of his lesions. So far as we know at present it is merely an index.

5. As a general rule the more the patient's skin becomes pigmented the better the results.

6. We feel justified in stating that 90 per cent. of all cases can be cured by combining the light bath with local phototherapy. The efficacy of local treatment is intensified by the application of light to the whole surface.

7. In addition to the healing of tuberculosis skin lesions, sinuses, etc., the patients increase in weight, their general health improves to a remarkable degree and their mentality is most favourably influenced.

8. It appears likely that in certain subjects the treatment may require repetition at intervals.

9. Apart from tuberculosis the light bath can be recommended as a general tonic.

I have to acknowledge my indebtness to Dr. W. J. O'Donovan, my chief assistant, and the nursing sisters in the Light Department at the London Hospital for their enthusiastic co-operation in the development of a branch of therapeutics which for all time must be associated with the name of Neils Finsen.

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DISCUSSION.

Professor S. RUSS (London) said that the address of Professor Reyn had been extremely interesting, for it was a record of work carried out in the Institute at Copenhagen bearing the name of Finsen, the originator, in a scientific sense, of heliotherapy. Professor Reyn's clinical observations served to clear up some issues which were of rather long standing as regards their solution, and it appeared that just as in the domain of x rays so in the régime of the visible and ultra-violet radiation it was necessary to refer very explicitly to the particular radiation which was in question. This explicitness was now possible, for the wave-lengths of all the radiations in medical use had been measured by the physicist, and there was much to be said for referring to the rays used in terms of their wave-lengths. The difficulty up to quite recent times had been to know which portions of the spectrum had been responsible for the clinical effects observed, but the ground was gradually becoming cleared, and it now appeared to be quite possible to assign many of the reactions of the tissues to radiation of specifiable wave-lengths. For most medical purposes it was sufficient to consider that region of ultra-violet radiation which extended on the short wave-length side of violet light—namely, $\lambda = 3{,}800$ A.U. down to about $\lambda = 2{,}000$ A.U. Experiment showed that the wave-lengths ranging from 3,000 to 2,000 A.U. were very easily absorbed by vegetable and animal tissues, causing in the process of absorption some very marked actions, extraordinary germicidal action, and also causing marked pigmentation of the human skin. Such radiation as he had mentioned was very easily absorbed by the tissues; practically speaking, no radiation comprised between 3,000 and 2,000 A.U. could penetrate as much as 1 mm. of the skin. If, then, it was attempted to explain the beneficial effects of ultra-violet radiation in surgical tuberculosis in regard to this group of wave-lengths, there were very serious obstacles to overcome. There were still the group of wave-lengths ranging from 3,800 to 3,000 A.U., and he thought that there was very considerable evidence to show that to this region, together with the visible region, they must look for the effective part of ultra-violet radiation in the form of therapy now under discussion. The reasons which could be advanced for this view were as follows:

1. The full radiation from the sun or from artificial sources was beneficial.
2. The radiation filtered of the very short wave-lengths—namely, those less than 3,000 A.U.—was still beneficial.
3. The radiation filtered still further so as to exclude wave-lengths shorter than 3,800 A.U. was not nearly so beneficial.

There was little doubt, he thought, that this conclusion had been delayed by the finding that the patients who pigmented readily were those who reacted favourably to this form of treatment; it seemed only natural to go one stage further and say that the process of pigmentation was a necessary part of the treatment, and that the rays which caused the pigmentation were the beneficial ones. In the light of subsequent work it seemed that this assumption was unjustified and that the observation must be taken, perhaps, as a useful one, but not one which could be called interpretative.

Sir STCLAIR THOMSON (London) described his visit to the Finsen Institute and his observations of the results obtained in tuberculosis of the larynx. His own results, from sanatorium treatment, showed 25 per cent. of cures from silence, whispers, and the galvano-cautery. In Copenhagen he heard that they secured 50 per cent. of arrests, and he thought this was very possible as, there, they employed local measures in addition to the arc lamp baths. He asked for further direction as to technique and precaution. He thought it well, however, to point out that tuberculosis in the larynx was, next to meningitis, the most dangerous complication of pulmonary tuberculosis. Of some 500 cases of laryngeal disease he had treated in ten years, no less than 75 per cent. were dead. They were dead from their pulmonary disease. It was, therefore, useless to hope for a large proportion of cures of laryngeal tuberculosis; the laryngeal invasion showed an acute primary infection or a lowered resistance. Still, the light baths might secure better general and local results, and he welcomed it as a promising help.

Dr. J. M. JOHNSTON (Tor-na-Dee Sanatorium, Aberdeenshire) said that he wished to refer only to the use of carbon arc lamps in the treatment of certain tuberculous conditions. One of his colleagues had visited Copenhagen last year and was so impressed with the results of the treatment of painful tuberculous laryngitis by exposure of the body to the light of the carbon arc lamps that it was decided to put in an installation at Tor-na-Dee Sanatorium. This was done recently, but so far he had treated only two patients, suffering from painful tuberculous laryngitis. In both, the laryngeal disease was severe and there was great pain, preventing the patients from taking sufficient nourishment. In the first case relief of pain was obtained in two weeks, and although the treatment was abandoned at the end of that period owing to the occurrence of pyrexia, there had been no recurrence of the pain in the larynx for four months. The patient had advanced pulmonary disease which was progressive, and the outlook was very bad, but at all events the carbon arc lamp treatment had given her comfort and had thereby prolonged her life considerably. The other patient had moderate pulmonary disease and was almost afebrile, but he had an exceedingly painful larynx and was sent to Tor-na-Dee for treatment by the carbon arc lamps. He had been having large quantities of morphine together with local anaesthetic insufflations, sprays and lozenges, without which

pitfall—namely, deep-seated disease without surface evidence. Many years ago, when I first started doing artificial pneumothorax, I had no x-ray installation at my hospital on which to rely for help. In one case in particular I remember collapsing a very bad lung where the other lung appeared to be clear, with the result that oedema developed in the apparently clear side and the patient died. At the autopsy it was painfully disclosed to me that the "better lung" was full of deep excavation and abundant disease, none of which gave signs at the surface. At the time this came to me as somewhat of a shock, but experience has taught me that it was an excusable accident. Given advanced hilus tuberculosis and one-sided signs, it is practically impossible to tell from physical signs what may be happening in the depths of the other lung. On the other hand, with symptoms which may or may not be due to tuberculosis, and with absence of stethoscopic signs, it is fortunately quite possible to exclude or confirm hilus tuberculosis—that is, we can diagnose the disease, but details as to its distribution in the depths of the lung are quite another matter.

What I want to emphasize in the matters I have discussed is the pitfall which deep-seated tuberculosis presents to the unwary. Fortunately this form of the disease is often of mild aspect, and a holiday rest and some attention to health may get the patient well, undiagnosed. But this is by no means always the sequel, and if you wish to catch your case early, and to avoid the risk of hearing that your favourite "neurasthenic" has died of tuberculosis, you must keep this pitfall in mind. Never be put off by absence of stethoscopic signs; this means nothing. Take the symptoms seriously until it can be clearly demonstrated what is their cause, or at least that it is not tuberculosis. My experience is that it is deep-seated disease which especially provides advanced cases and swells the mortality table in tuberculosis, and this solely, I think, because the condition remains undiagnosed and hence untreated in its earlier stages. Undoubtedly the disease may spread slowly with but slight disturbance of health, and only after years may it be recognized, too late, that the patient's resistance is finally overcome.

Deceptive Signs.

And now I will turn to a quite opposite aspect of tuberculosis, with the object of reminding you that stethoscopic signs, on which we physicians are very apt to rely, may also deceive us at the other end of the scale—that is, that in cases of tuberculosis crepitations do not always indicate active disease. Many are my patients, or former patients, going about their ordinary avocations with an area of crepitations over the site of their most advanced lesions. For the most part such cases harbour a deep cavity, but this is not always the case. The condition is generally due, in my opinion, to a dilatation of small bronchi or bronchioles—a bronchiolectasis—brought about by the contraction of underlying or surrounding tissues. Often the sound is a dry crackle, but at other times, particularly in conditions of catarrh or after a haemoptysis, moist crepitations may be heard. Such signs are very apt to be taken for those of active disease—indeed, good observers may differ as to their significance in a given case. Particularly difficult is it to exclude activity, or to persuade others that tuberculous activity is absent, in cases of haemoptysis or of fever in such cases. Nevertheless a prolonged experience of tuberculosis has convinced me that in cases of long standing, and where disease has reached to stages of cavitation, haemoptysis, febrile attacks, and moist crepitations may all be found in the entire absence of tuberculous activity. Not a few of such cases have recurrent attacks of haemoptysis without further disturbance. The febrile attacks are due to secondary infections and are often periodic, sometimes recurring to a day every three or four weeks. If such a case, being known as tuberculosis, has retained crepitations over a large area of one lung, it may be difficult to decide and difficult to persuade others that, *qua* tuberculosis, the condition is arrested. Where, moreover, disease has been widespread, it must be admitted that it is unwise to rely too much on such arrest where secondary infections are constantly disturbing the balance.

Another sign of tuberculosis which may persist in an embarrassing way long after the disease is in abeyance is the presence of sputum containing the tubercle bacillus. Patients are known to me who have been well and at work for periods up to eight years at least with no relapse, but with tubercle bacilli still present. I suppose in such cases there exists an unhealed sinus leading to a caseous area at some spot. Truly in tuberculosis things are not always what they seem, but it was especially the possibility of crepitations without activity to which I wished to direct your attention. Do not, however, bank too much on this possibility in individual cases, or they may let you down.

The Stethoscope as a Pitfall.

Now I have taken two pitfalls in the diagnosis of tuberculosis and its activity, both directed towards warning you against too great reliance on the stethoscope as opposed to other means of diagnosis. The stethoscope is a valuable instrument, so long as there are no holes in the rubber, no wax in the meatus, and no prejudice in the mind of the user, but it is not, or should not be, the alpha and omega in the diagnosis of pulmonary tuberculosis. It may, as I have pointed out, "omit to mention," and it may even deliberately lie. I do not, on this account, recommend its abolition, for in the hands of those who fully grasp the situation its silence will not deceive, and its lying, like most lying, will not sound quite like the truth. But it should be put in its due place as one only of the sources of information as to what is happening in the organs of the chest.

TREATMENT.

Dangers to the Early Case.

I will now turn to the subject of treatment, and the point which above all others I wish to stress is the harm which the patient may do himself during the stage when he is awaiting a definite diagnosis, or at any rate awaiting treatment. The wise practitioner will confine his patient to his home or even his room where he suspects tuberculosis but has not yet confirmed his suspicion. This may be done on the excuse of a rest temperature chart, and if this shows fever the patient should be kept to bed or couch. I am convinced that the active stage could be vastly shortened, with the result that disease would spread less far and recovery be more complete, if cases were treated thus for acute illness, as indeed it is, at the immediate outset. What, instead, happens as a rule? The patient goes about his occupation for weeks or months after definite symptoms have commenced, and thereby greatly prejudices his chances of recovery. This is often, of course, the fault of the patient alone—he may never have visited his doctor during these early stages, or he may refuse to follow advice. But such advice must be insistent, and pressed with real conviction, and with the force of massed medical opinion behind it. All those who speak with authority are at one on this need of rest at the outset, only they do not speak loudly enough. The cry is for early diagnosis, and rightly enough; but the doctor who has started precautionary treatment before he can deliver his diagnosis has gone one better, and has earned, even if he does not get paid, the real gratitude of his patient. If a mistake has been made his conscience will be easy—he has done the right thing, and whatever was wrong with the patient other than tuberculosis the rest was probably beneficial.

When the case has been diagnosed start a resting régime right away; remember that the case came to you for "symptoms," and these mean active disease whether there is fever or not, and active tuberculosis, like any other active inflammation, needs, above all things, rest.

The lung is a difficult organ to rest, but its movement can be curtailed by bodily rest and absence of talking, and its blood supply lowered by damping down the systemic circulation with which it is in continuity.

The Therapeutics of Rest and Exercise.

Let us inquire a little into the rationale of rest, and incidentally of exercise, in the treatment of pulmonary tuberculosis.

no practical value at the present state of development. I consider it my task on this occasion to sketch the main lines upon which, according to the experiences gained by ourselves and others, we are now working at the Vejlefjord Sanatorium.

General Remarks on Indications.

When a case of advanced tuberculosis does not show any improvement or any hope of lasting cure by ordinary sanatorium treatment, and when other special remedies are out of the question or have been tried in vain, then only do we venture to consider whether the case is fit for collapse treatment. This is settled in accordance with the rules which for many years have been laid down by the leading pneumothorax experts. If the decision is taken in favour of lung collapse, this is always tried at first in the most ideal method available—namely, by artificial pneumothorax. Whether this method can be carried out or not can only be fully ascertained by a considerable technical and clinical experience.

The result of such careful attempts is the only means by which the case can be classified into one of the three groups mentioned above. In many cases a prolonged observation is necessary, and transitional cases are common. Nevertheless, the three groups of cases form a natural index for our further discussion, in which the question to be solved is: How can we provide the best possible conditions for the single cases belonging to each one of the three groups?

I. Cases with Complete Pneumothorax without Noteworthy Adhesions.

Cases of this group, when not complicated with active disease in the other lung or in any other organ, generally prove successful, showing a marked improvement of the general condition and disappearance of the local symptoms (cough, sputum, tubercle bacilli). Examination by the stethoscope and by *x* rays shows a complete lung collapse, with an endopleural pressure of zero.

Provided no complication occurs, no further operation is done. In such a case the optimum pressure and the length of interval between the insufflations are settled according to the clinical observations. The time when the patient is allowed to start work and continue the treatment as an out-patient is decided according to the circumstances of the case. The duration of the treatment is fixed individually; but as a rule the pneumothorax is maintained for at least three to five years in order to avoid relapse. While the treatment is being discontinued the patient is kept under close observation (preferably as an in-patient) so as to enable us to re-establish the pneumothorax, if there is any sign of recurrence, before the pleura is obliterated by the adhesions which unavoidably arise after a long pneumothorax treatment.

Should any complication occur, particularly a pleuritic effusion in the pneumothorax, special care is taken to avoid any injurious effect. By frequent fluoroscopic examinations of the patient in different positions of the body it is observed whether any secondary adhesion of the lower lobe is threatening complete collapse. If this—or any other local or general symptom—indicates an evacuation of the exudate, that operation is performed in combination with successive insufflations according to the special technique worked out for this purpose. Thus attended to, effusions do not ordinarily influence the result of the treatment.

This last point leads us to a digression which, however, is of much importance—namely, the bearing of the pneumothorax treatment upon the treatment of ordinary pleurisy with effusion. The facts revealed to us from pneumothorax experience have forced us to revise the indication as well as the technique of aspiration in such cases.

We have adopted, as the normal method for evacuation of pleural effusions, a replacement of this with an artificial pneumothorax. This method presents very beneficial conditions, not only in cases with serous effusion, but also in cases of empyema. Even when mixed infection (for example, pyopneumothorax) was present we have been able by this means to treat purulent effusions without operations which result in a chronic fistula with continuous or periodical discharge. Besides the great technical and clinical advantages, this method is of prophylactic value in cases of advanced lung affection, for which a continued lung collapse might later on be demanded. The addition of insufflation to the ordinary aspiration has in such cases checked the development of adhesions and thus we have been able to introduce pneumothorax treatment successfully before unavoidable adhesions had been formed.

II. Cases with Complete or Almost Complete Pneumothorax but with Localized, Extended Adhesions—Thoracoscopy with Cauterization.

In continuation of the cases of the former group we find here a certain number deriving the full benefit of artificial pneumothorax in spite of adhesions visible on the screen. In such cases we do not consider any further operation justified. On the other hand, if in spite of the establishment of the largest possible pneumothorax continued observation shows that the result is a failure, we endeavour to have the adhesions removed so as to neutralize their injurious influence. Thus far several different methods have been published for this purpose. Having challenged the more or less risky operations which have been tried, we find that the only method of endopleural operation which we can recommend is the one published by Jacobaeus (Sweden). This method has a double value—namely, diagnostic and therapeutic.

Although the *x*-ray examination in some cases affords a fairly clear diagnosis of the endothoracic conditions, the introduction of thoracoscopy by Jacobaeus has enabled us to obtain a direct localization, which has often corrected or at least supplemented the picture presented to us by mere *x*-ray examination. With sufficient practice it is possible to obtain a surprisingly large field of view, and it is relatively easy to see the existing adhesions and their attachments to the lung and to the chest wall.

This diagnostic method has proved its particular value since Jacobaeus* was led by his experiments to work out a method of removing the adhesions under the guidance of the thoracoscope. By means of a platinum wire at the end of a long metal rod inserted into the pneumothorax cavity through a separate cannula Jacobaeus found it possible in certain cases to cauterize through the adhesions, and thus to secure the complete collapse of the lung.

This method has been adopted by us since 1918. Our experiences concur with those published by other authors who took advantage of Jacobaeus's happy idea. Thus far we feel justified in stating with Jacobaeus that "although it has been impossible by this method to obtain as high a percentage of clinically improved cases as in cases of simple pneumothorax without adhesions, the procedure is of permanent value in a limited number of pneumothorax cases with string-like or membrane-like adhesions."

In order to ascertain whether this method can be used in a particular case put before us we perform a thoracoscopy. If we then find the case to fulfil the conditions for cauterization, or, at least, to justify an attempt, the operation is done at the same sitting. In some cases we find it very easy during one short sitting to cut the adhesion; in other cases a larger adhesion or a system of adhesions is difficult to reach and so difficult to sever that we have to operate in two or more sittings. In some other cases we have to give up the attempt owing to technical difficulties; and finally, in some cases mere thoracoscopy immediately reveals that the operation should not be tried at all.

Apical adhesions which kept the lung tied up to the cupola were usually difficult to reach: lateral adhesions, on the other hand, could easily be dealt with when they had been extended to the highest possible degree by the pneumothorax. String-like, hour-glass shaped, or membranous adhesions of considerable thickness were severed without much difficulty, and also basal adhesions when properly extended. On the other hand, we did not consider it advisable to enter upon the cauterization of surface adhesions, as the cauterization of lung tissue may involve the risk of haemorrhage and the opening of tuberculous foci and cavities with a consequent infection of the pleura.

This last complication of the operation is the most serious one which so far we have experienced. Other authors have published cases of more or less profuse haemorrhage from the burnt-off stumps; this complication should always be kept in mind, and, if it occurs, should be treated according to the technical rules (cauterization of

about the indication, technical details, com- s referred to Jacobaeus's recent publications— *necology and Obstetrics*, June, 1921, pp. 423-500; "*uberculosis*, vol. vi, No. 10, 1922. See also ovember 25th, 1922, p. 10-3, and December 2nd, i, No. 1, and vol. ii, No. 9; *Acta Chirurgica* ; 1923, iv, No. 5-6.

doubt that movement and intermittent flushing with blood are the wrong treatment for them. We have taken as our text disease but recently, or even incompletely, diagnosed, but it must not be supposed that all such cases are really "early," or that disease may not already be of a serious nature at the moment of its discovery. If it is deep-seated, especially, it may already be extensive.

There still remains a further reason for rest at the beginning of the illness called pulmonary tuberculosis—namely, the need of the body for its physical recuperation. "It needs a given amount of energy," remarks Joslin, "to meet the demands of ordinary metabolism; it requires an extra amount to meet the extra demands made by a disease like tuberculosis; and it requires still more to fight the infection and bring about a healing." Pottenger says, "The disease-fighting power of a patient will depend on his ability to maintain an excess of energy after meeting the natural metabolic requirements of the body," and for this adequate rest is required.

Practical Considerations.

And now what does all this "boil down to," to use a colloquial phrase? That pulmonary tuberculosis, and the suspected case also, should be treated as a serious matter unless, or until, it can be shown to be otherwise. That bed, or at least rest on a couch, is the right place for it at the outset, and pending complete diagnosis, and that this should be continued as long as, and beyond, the period of active symptoms. Especially must the patient be prevented, where possible, from "settling up his affairs," which means, in many cases, a strenuous attempt to put several weeks' business into a few fevered days. If it is put to him frankly that this may mean a serious prolongation of his illness, or worse, it often becomes apparent that this "settling up" is not so indispensable as it at first appeared, and a relative or friend can be deputed to carry it through. In cases where fever is a prominent symptom—cases, therefore, which will probably require the training of a sanatorium course—it is necessary to carry on bed treatment for a considerable period. If the conditions are suitable this early rest period can sometimes be advantageously carried on at home, if the friends can be trusted, or a reliable nurse is obtainable. Sanatoriums do not provide for many bed cases, and therefore it is convenient to get through a good part of this period before the patient is sent. There is also this to take into consideration—that in institutions for the treatment of pulmonary tuberculosis, whatever class they serve, there must always be a bias towards getting their patients up and about, and pushing onwards towards convalescence. Convenience, economic forces, and generally the patient's desires all push in this direction, and whatever the doctor's views may be they are likely to get carried in this direction also. The tendency is to curtail the initial resting period.

And now I feel you will be mentally asking what I consider this period of rest should run to. And this I find very difficult to answer in general terms—it is so very much a question for individual consideration. For cases running fever one may perhaps say *double* the febrile period, but in no such cases should the resting period be shorter than a couple of months. In cases of slight exacerbation in an old tuberculous case the resting period may often be more curtailed than in a first attack. With disease of decided amount and activity a period of four to six months' rest is none too long; and for the hospital class, in particular, owing to their ignorance of the dangers, and inability to obtain frequent medical observation, a long resting period at the outset is most vital. It is to be presumed, though I have not mentioned it, that the maximum of open air is combined with this rest in all cases. Rest may be in bed (and should be in febrile cases) beside the open window (preferably with the sashes removed), or on a balcony, or in many cases divided between bed and an outside couch (but stairs must not be allowed). A matter worth mentioning with regard to rest treatment is that the patient's "tolerance" to auto-tuberculin is apt to fall low during prolonged rest, so that but slight causes may lead to rises of temperature. This can generally be ignored, and "tolerance" can be readily built up again when it is decided that rest has been carried far enough.

When the bed period has been carried through, then will begin the period where constant attention, resource, and knowledge are most necessary—namely, the period of graduated movement and re-establishment of tolerance. This time, in cases of any seriousness, is most safely carried through in a sanatorium, where daily supervision is possible, and where conditions and surroundings are arranged to facilitate this end. Where rest has been carried on till disease is really quiescent, then the period of graduated convalescence can be carried through with more confidence and safety.

Pratt's Class Method.

At the conclusion I might add a few words on the most modern application of rest—namely, what is known as "Pratt's class method" of treatment, practised with success among the tuberculous poor of Boston, and also since in Montreal and elsewhere. The patient is put to bed in his own home under the maximum of open air allowable, and remains there for several months. He is visited at regular intervals by a visitor, generally a nurse, records are kept of his progress, and when it is considered safe for him he attends once weekly at a centre or "class," where he is seen by the doctor, weighed, and the names of those who have gained most weight, and those who have spent longest in the open air, are chalked up on a board. The patients chat among themselves and are given a short "talk" by the doctor, and then return to their beds. Each class is limited to twenty-five, and competition among them in the battle for health becomes very keen. Adami noted that in Montreal these patients gained twice as much weight as did similar cases treated in a sanatorium under more rural conditions. The average bed rest among Pratt's cases was four months, of "graduated exercise" combined with bed rest four to seven months, and the whole treatment ran up to a year and sometimes longer. When we remember that recovery from tuberculosis must take at least a year and often two or three years, according to what hold it has been allowed to get at the outset, it will be seen that this is not over long for treatment.

And now what were the results? Comparing them to those of Frimley and of Midhurst Sanatoriums in this country, they may be stated as follows:

Years after Discharge.	Frimley (at Work).	Midhurst (Well or Alive).	Pratt (at Work).
1	61 per cent.	69 per cent.	95 per cent.
5	39 "	39 "	71 "
10	—	35 "	50 "

These are striking figures, and though Pratt's cases (though unselected and all positive to tubercle bacilli) amount to but 191, and hence are over small for statistical valuation, still the superiority seems too marked to be accidental. If this claim is substantiated, and I see no reason to doubt that it will be, there seems little doubt of where the secret of success lies—namely, in the institution of rest at the outset. These patients went to bed when otherwise they would have been walking about, and perhaps trying to work, and they remained in bed over the dangerous period of active disease. It is as an illustration of this point that I have introduced this system and these figures to your notice at the end of this talk, and it is on this note that I should like to finish. Let tuberculosis be treated, however mild the symptoms, as an acute illness at the outset, and I feel sure we shall notably reduce its mortality. Do not wait for the diagnosis to be established; especially do not wait for tubercle bacilli, which can never be trusted to keep an appointment; do not wait for such further investigations as the diagnosis may necessitate; do it now, as the advertisers say! Put your patient at rest and keep him there till your suspicions are confirmed or otherwise, and you can greet him hereafter with an easy conscience in the Elysian fields.

In two of these, however, the pneumothorax had to be cancelled soon after the operation, as the continuation of insufflations was not possible. Nevertheless, the result remained good. In the third case post-operative exudate developed inside the pneumothorax and caused an expansion of the soft part of the chest wall, thus hindering the collapse; the patient died a few months later.

We have come more and more to the conclusion that in cases of universal affection of the lung a partial and ineffective pneumothorax should be discontinued in favour of a complete thoracoplasty. The plan of a complete operation, however, has often to be modified according to the extent and to the special localization of the disease. In the case of a particular lobe which involves the main part of the affected tissue the removal of the ribs should be done to a larger extent. If, on the contrary, the upper or lower lobe respectively is only slightly affected, the plan of the operation indicated is a relatively slight resection corresponding to the better parts of the lung. In the same way a universal affection of the lung may need a different degree of universal collapse. In cases of large cavities and serious disease all over the lung, a more radical removal of all the ribs is indicated. For a universal, but nowhere very destructive, chiefly fibrotic affection a smaller resection (after Wilms's method) may be sufficient for an effective collapse.

(2) The problem of whether a complete thoracoplasty should be performed in one, two, or even three stages, has caused a good deal of discussion. We have been wavering rather and thither on account of the different experiences gained during our work with the operations. Our present standpoint is to individualize in this respect too. In making our plan of operation we consider the general condition of the patient as well as the condition of the lungs to be the deciding factors in this respect. If the patient is a tall person with strongly adherent muscles, causing difficult and violent manipulation during the operation, this should always be done in two stages. On the contrary, a lean person enjoying fair general health may very well be operated upon in one stage. A weakened and intoxicated patient with a rapid pulse is always operated on in two stages. A doubtful condition of the "good" lung is in favour of two stages, as a gradual collapse of the diseased lung is likely to be tolerated better in such cases than a sudden one.

If we feel any doubt as to the decision we consider the two-stage operation to be less risky. In some cases we leave the question open until, during the operation itself, it is seen whether the patient is certain to tolerate the completion of the operation in one stage.

Having settled the plan of operation for a particular case according to the above lines, the details of the technique form the next problem to be solved. Very careful attention to all the special details of the operation and the post-operative treatment is of great importance. For further information in this respect the reader is referred to an article by Saugman in *Tubercle* (1920, vol. i, No. 7),* in which a full description of our technique is given. Since that article was published no noteworthy modification has taken place in our technique, except with regard to the anaesthesia. In addition to the local anaesthesia with novocain-adrenaline, which we are now less inclined to use in as large doses as recorded in the article mentioned, at the end of the operation (when the more painful resection of the upper ribs begins) we administer a light ether anaesthesia, pushed far enough to neutralize the pain but not to abolish the cough reflex. This modification, when properly administered, does not cause any serious complication. At the same time it has made the operation less feared by the patients; it also assures the operator of more convenient conditions during the most difficult part of the operation.

A critical survey of our results with thoracoplasty shows the following figures: Death from the operation occurred in 9 cases. Of the remaining 86 patients, 64 obtained a positive result (43 were relatively cured or much improved, 21 improved); 2 of these patients died later on of epidemic influenza; 32 patients did not derive any benefit from the operation, and the majority of these cases have since died. These figures may be tabulated as follows:

Positive results	60.9 per cent.
Negative results	30.5 " "
Operation mortality	8.6 " "

In 41 cases the tubercle bacilli disappeared permanently from the sputum.

Still greater interest is connected with the following figures, showing the fate of 69 patients discharged more than two years ago, after thoracoplasty. From two to seven years after the operation the condition of health was reported as follows (all cases, including those of death resulting from the operation, are recorded):

Fit for work	31 = 44.9 per cent.
Unfit for work on account of tuberculosis	7 = 10.1 " "
Died of tuberculosis	29 = 42.1 " "
Died from other causes	2 = 2.9 " "

These results, compared with those recorded in the former tables (p. 506) have led us to the conclusion that although a greater risk and a smaller result are to be expected from thoracoplasty than from successful artificial pneumothorax, the former operation results in a great improvement in the prognosis in such cases as are deprived of the effect of the pneumothorax treatment.

IV. *Cases of Insufficient Collapse with Simple Thoracoplasty*

An additional group of such cases has still to be considered. The fullest possible extension of resection of the ribs from the posterior incision (Sauerbruch's "hook incision") might fail—particularly in cases of large apical cavities we have found the collapse of the lung to be insufficient. In such cases we have added to the plan of operation a resection of the anterior ends of the upper ribs (except the first, which is usually inaccessible for removal from the front aspect). This resection may be done either together with the second stage of the posterior operation or as a separate third stage of the operation. Even when this precaution is taken complete collapse was, in a very few cases, not yet established; x-ray examination still showed a cavity, though considerably diminished; the discharge of sputum with tubercle bacilli continued.

Influenced by such observations we have in a few cases added to thoracoplasty an extrapleural apicolysis from the anterior incision. In two of the cases the cavity thus produced was plugged with gauze and was allowed to heal gradually by granulation and retraction. In one case the cavity was filled with fat, transplanted from the abdomen of the patient (Tuffier, Bull). Of the two former cases, in one we did not succeed in causing the bacilli to disappear from the sputum (the patient died very soon afterwards of rapid development of the disease), whereas in the other case a positive result was obtained—the bacilli disappeared, but an influenzal pneumonia later on handicapped the effect. In the case in which fat-transplantation was performed in addition to the thoracoplasty, the tubercle bacilli disappeared and the patient is practically cured.

In one of our cases, which is not included in the above figures because of its unique position, we accomplished a satisfactory collapse by an apicolysis only (through an anterior resection of the second rib), together with transplantation of fat into the artificial extrapleural cavity. The disease (small cavity) was in this case so well localized to the apex that it was considered possible to avoid the extensive resection of ribs. The patient got on well, the sputum and bacilli ceased, but the lasting result is still uncertain as the patient was discharged only very recently. Cases like this are very rare indeed, and we do not believe that this method has any large field of indication compared with thoracoplastic resections. By anticipation we have so far kept aloof from the method of apico- and pneumo-lysis with the modification of plugging the extrapleural cavity with paraffin (Baer). Neither has phrenicotomy (recommended by Sauerbruch as a preparatory procedure for thoracoplasty in order to supplement the effect of that operation) so far been employed by us.

I cannot close these remarks without a few words in commemoration of my great teacher and friend, the late

*A later article by Gravesen is published in *Tubercle*, 1921, vol. ii, No. 9.

results in definite cases of pulmonary tuberculosis. Of 82 controls, all were negative save 3. Of these 3, 2 were cases of leprosy. (We might mention in parenthesis that we have also found cases of leprosy giving a positive result with tuberculous antigen; one was a case of Addison's disease and was therefore in all probability suffering from an active tuberculous lesion.) Miller,[4] using an antigen made by grinding up tubercle bacilli with salt, obtained a very high percentage of positive results (96.8 per cent.) in cases with tubercle bacilli in the sputum, while of 243 Wassermann positive serums, 7 only gave fixation of complement with tuberculous antigens; of these a diagnosis of tuberculosis was subsequently established in 5 and could not be excluded in the remaining 2.

Moon,[5] using Miller's antigen, found that 85 per cent. of cases diagnosed clinically as tuberculosis gave a positive result, although 38 out of 100 Wassermann positive serums gave a positive reaction with his tuberculous antigen.

Other workers using antigens of this group have obtained similar results.

Group 2.

The best known of these antigens is Besredka's antigen. He has obtained a high percentage of positive results in definite cases of tuberculosis. But many other workers, including Inman,[6] Debains and Jupille,[7] and Bronfenbrenner,[8] have brought forward evidence to show that this antigen is not specific in that Wassermann positive serums may give a positive reaction when tested with this antigen. The work of the last named is of special interest.

It is well known that the complement-fixing substance in syphilitic serums is not an antibody specific to the spirochaete but a lipotropic substance, and this lipotropic substance may bind complement in the presence of lipoidal substances present in tubercle bacilli. Moreover, the addition of alcohol and other substances to tubercle bacilli may intensify this non-specific lipoidal action of tubercle bacilli.

Bronfenbrenner's experiments are complicated, but they appear to prove that the complement-binding substances present in tuberculous serums are specific antibodies to tubercle bacilli, and not lipotropic in character. In cases where a double infection with the *Spirochaeta pallida* and the tubercle bacillus was present he appears to have been able to demonstrate the presence in the serum of both the lipotropic substances due to the spirochaetal infection and also the specific antibodies to the tubercle bacillus.

In view of these facts it appears to us that a dilute suspension of tubercle bacilli in saline is undoubtedly the best antigen for this test. In such an antigen the lipoidal substances are not present in a sufficient amount to cause any fixing of complement in the presence of lipotropic substances, nor is there any alcohol or other substance added which would intensify this non-specific action. Another and very great advantage that it would appear to us that this antigen possesses lies in the fact that it is not to any appreciable extent anticomplementary. There can be very little doubt that many of the false positives that some workers have obtained have been obtained owing to their antigen giving rise to non-specific summation effects in virtue of slight anticomplementary properties.

Group 3.

Different workers have used various extracts and derivatives of tubercle bacilli as antigens. Calmette and Massol[9] have used water and peptone soluble preparations. Corper[10] used tubercle bacilli autolysed for ten days at incubation temperature in salt solution; Dudgeon, Meek, and Weir,[11] an alcoholic extract of tubercle bacilli; Wang and Crocket[12] tubercle bacilli heated with alcohol, ether, and chloroform; Wilson[13] an alcohol and ether extract dried and suspended in saline.

The remarks that we have made with regard to Group 2 apply with equal force to this group.

CAUSES OF DIFFERENCES OBTAINED BY DIFFERENT WORKERS USING THE SAME ANTIGEN.

The varying results obtained by different workers using different antigens is no doubt due in part to the difference of the antigen. The differences obtained by various workers using the same antigen do not at first sight seem easy to explain. But a little consideration will, we think, show certain possible contributory causes.

1. In the first place, and especially in regard to antigens of Groups 2 and 3, it appears to us that the description of the methods of their preparation are often wanting in details, and are frequently impossible of constant preparation, so that it is often impossible to be certain that one is using exactly the same antigen as that employed by the author whose technique one is endeavouring to follow.

2. In their publications many authors do not give a detailed description of the technique they have employed. They mention the antigen they have used, but they do not give in detail any quantitative data of the other reagents used in the test. Now Dean[14] has pointed out that there is a definite favourable quantitative relationship between antigen, antibody, and complement. It is not surprising, therefore, that variable results have been obtained by various workers if the technique is not adhered to in every detail.

3. A third manner in which differences of opinion as to the exact reliability of the test may arise is through incomplete control of the cases on the clinical side and through the employment of incomplete and inaccurate classifications of the cases. In all our cases we have investigated, as far as lay in our power, most carefully the clinical aspect of the patients, and we feel that part of the success in the results we have obtained has been due to this very careful clinical control. As an instance of what we mean, Stoll and Newman,[15] using Wilson's antigen, state that 58 per cent. only of cases of definite pulmonary tuberculosis gave a positive result. But among their cases of definite pulmonary tuberculosis they include a considerable number of cases without tubercle bacilli in their sputum. Now, for the purpose of controlling a test for pulmonary tuberculosis the only definite criterion for a case of phthisis should be the presence of tubercle bacilli in the sputum, for there is no combination of symptoms and physical signs which is pathognomonic of tuberculosis and which cannot be simulated by other diseases.

4. Finally, there is one other point in connexion with the method of performing the test we have adopted which is of importance in explaining the high degree of accuracy attained by this method. This relates to the amount of fixation of complement necessary for the reaction to be regarded as positive. Having, as we believe we have, in a dilute emulsion of tubercle bacilli an antigen possessing no non-specific complement fixing properties, we might reasonably expect to be able to detect relatively small amounts of specific antibodies. There can be no doubt that in some cases of active pulmonary tuberculosis the antibodies are present in the serum in small amounts only. We have found that any appreciable inhibition of haemolysis in the presence of one and a half H.D. of complement as estimated by titration in the presence of antigen should be regarded as a positive reaction.

There is one point upon which nearly all workers appear to agree. No test is likely to give 100 per cent. degree of accuracy in all cases. In our series some 2 to 3 per cent. of definite cases of pulmonary tuberculosis have given a negative result. It is the very acute and advanced case which may give a negative result. Many other workers have found also that moribund cases may react negatively.

CONCLUSION.

We have tried to suggest some of the possible causes of the uncertainty which up to the present time has existed as to the value of the complement fixation test in tuberculosis. In spite of much contradictory evidence we think there has been a steady improvement in the method employed and the results obtained. The work that we have done appears to be in line with the work that has gone before, to which it gives merely the finishing touch.

more film-like. He wished to make it clear that thoracoscopy was not attended by any appreciable pain, nor was it followed by any evil after-effects, except perhaps slight surgical emphysema in the region of entrance. The actual cauterization was very rarely felt by the patient, but any touching of the parietal pleura was definitely painful. The cauterization should be done with the cautery red hot, not at white heat, as the latter was apt to cause subsequent haemorrhage. One of the main objects of thoracoscopy was, therefore, the examination and adhesion of the band-like adhesions, preventing collapse of a cavity after the production of artificial pneumothorax; it was also of great value as a means of diagnosis, especially with regard to pleural and mediastinal conditions. He considered that cauterization was contraindicated where tuberculosis of the pleura was present, even in the early stages, and was impossible where large surface adhesions were present. These were especially found at the apex. It would be seen, therefore, that there was only a limited field of usefulness with respect to cauterization, but even the limited number of cases would justify the retention of this method of treatment. Thoracoscopy would also be found of increasing value as a means of diagnosis in selected cases of pulmonary, pleural, and mediastinal conditions of an obscure nature.

The second surgical method of treatment which he discussed was the production of collapse of the lung by means of operations on the chest wall. Attempts at partial collapse did not appear to be entirely satisfactory. He had no personal experience of apical displacement, but the filling of the space created between the parietal pleura and the endothoracic fascia had offered some difficulty. Paraffin wax appeared to act as a foreign body, and might require subsequent removal, whereas fatty tissue for purposes of filling was only obtained with difficulty. Introduction of gauze and subsequent healing by granulation could only result in the eventual adhesion of the separated layers and the re-establishment of the pre-operative relations; for this reason the latter method did not appear to him to hold out any hope of permanent benefit. With regard to thoracoplasty, the indications were practically confined to those cases where artificial pneumothorax had been tried without success or with only partial success. There was only one exception, and that was where artificial pneumothorax had been successfully carried out with considerable improvement over a long period, the disease was considered cured, and the lung had been allowed to expand. In such cases, if symptoms recur, resumption of artificial pneumothorax would be found impossible owing to generalized adhesions over the whole surfaces of the pleura, and further gas displacement was impossible. He had performed thoracoplasty in six cases up to the present—three for tuberculosis, two for bronchiectasis, and one for pulmonary abscess. In the first three, one patient had definite extension to the opposite side, was confined to bed and was generally debilitated, with persistent vomiting and pyrexia. Artificial pneumothorax had previously been done with benefit, and further artificial pneumothorax was impossible owing to the thickness of the pleura. Improvement was marked, with disappearance of bacilli and amelioration of all symptoms. This was maintained for some months, but he had heard recently that the condition was now less satisfactory. The second case was a young man with marked symptoms of advanced disease and in a state of extreme debility. The blood pressure for several days before and during the operation was only 90 mm. systolic, and the temperature was high and inverse in type. The actual operation was withstood quite well, and for the first two days the temperature and pulse were almost normal. Collapse occurred suddenly on the third day from heart failure, and was followed by death in two hours. The third case had only recently had the first stage completed. The outlook was definitely more favourable, attempts at artificial pneumothorax were not successful, and the patient had been confined to bed owing to high fever on movement. The blood pressure in this case was measured before operation, and was found to be 121 mm., and the pulse rate 140. At the completion the pressure was 119 mm. and the pulse rate unchanged. With regard to bronchiectasis, in one case only lower half thoracoplasty was done several months before, with decided benefit up to the present. The other, in which complete decompression was performed with a seven weeks' interval between the stages, had not shown more than temporary improvement, but there was involvement of the opposite lower lobe. The point he wished to bring out very strongly was that unless the operation was performed at a reasonably early period of the disease it could not be hoped in this country to get from these measures the results which were being obtained on the Continent and in America. The operations, when done under local anaesthesia and in two stages, were accompanied only by a minimum of shock. There was one exception, and that applied more especially to cases of bronchiectasis. Shock arose from the change of position of the mediastinum, in the absence of pleural adhesions, and was shown chiefly by cyanosis and some dyspnoea. It was well illustrated by the two cases of bronchiectasis described. The one, where adhesions were present, showed no disturbance following the rib resection, whereas the other, with a free pleura, became cyanosed and dyspnoeic at the same stage, a condition which persisted in a modified degree for the ensuing forty-eight hours, but was eventually followed by the better result. All the cases had been done in two stages posteriorly, the lower ribs (5 to 11) in the first, and the upper four, including the first rib, after an interval of not more than three weeks. Local anaesthesia was invariably used. Phrenicotomy has been performed five times, either by direct division of the nerve, by crushing, or by direct intraneural injection of alcohol. He considered this measure to be of comparatively little value alone, and rarely required when the major operation was performed. He hoped that in the course of time these procedures would become more generally adopted in this country, as they were abroad. There was no doubt that they had passed beyond the experimental stage, and in the state of our knowledge to-day they offered a distinct advance in the treatment of certain forms of pulmonary tuberculosis.

Dr. CLIVE RIVIERE (London) said that they had become so accustomed to look to Vejlefjord Sanatorium for sound and progressive work in tuberculosis, that Dr. Gravesen's opening address seemed bound to strike, as it had, the right note. One or two comments he was tempted to make, although his views were mostly in agreement with those Dr. Gravesen had expressed. First, in regard to the partial pneumothorax and cauterization of adhesions, in view of his experience he found it hard to believe that the partial pneumothorax need give such unsatisfactory results as those shown in Saugman's well known statistics, and he wondered whether others could be found to agree with him in this. The great trouble with such partial pneumothoraxes was the recurrence of large reactions after refills, and if these could not be eliminated by shortening the interval and other methods, then certainly the pneumothorax was doing more harm than good. But in cases where this difficulty was overcome he had obtained much help from pneumothoraxes far from complete. They were often the means of turning disease to more chronic lines, and where a pleurisy also supervened they might initiate a healing fibrosis in an otherwise hopeless lung. He had sometimes wondered whether, in some of these cases unsuitable for more than this, the causation of pleural effusion by injection of 30 per cent. dextrose, as was used by Lucius Spengler under other conditions, might not be a sound measure. In regard to cauterization of adhesions, it seemed to him that there were extremely few cases where this measure was really indicated. When he saw Jacobaeus's radiograms he was struck with the belief that these cases were all under a low intrapleural pressure, and that many of the adhesions would have stretched, without danger or harm, under a reasonable increase—perhaps to +10+15 cm. or so. On inquiry, it proved that this was so—that the pressures used had been low ones. The few cases he recollected in the past, where separation of a single or few strong adhesions would have seemed of great benefit, had often possessed diaphragmatic adhesions, and Jacobaeus appeared to have had little success in that type of case. There was, as Dr. Gravesen remarked, a

the clinical diagnosis was confirmed either by *post-mortem* examination or by finding tubercle bacilli by microscopic examination. All of them were more or less pathological fluids, but none showed more than a trace of turbidity. With two exceptions the patients were all children.

TABLE II.—*Cerebro-spinal Fluid: Tuberculous Meningitis.*

	Positive.	Negative.	No. of Specimens.	Percentage of Positives.
Wang	13	5	18	72.2
Besredka	5	12	17	29.4

This table does not enable a comparison to be made between the properties of the two antigens, as the specimens were not all tested with both. The results given with seventeen specimens tested with both are shown in Table III.

TABLE III.—*Cerebro-spinal Fluid: Two Antigens.*

	Positive.	Negative.	Percentage of Positives.
Wang	12	5	70
Besredka	6	11	35

In six instances Besredka gave negative and Wang positive results. In all cases where Besredka gave a positive Wang was also positive. Thus it appears as if Wang were the better of the two for testing cerebro-spinal fluid.

Cerebro-spinal Fluid Controls.—The cases for which these specimens were obtained included acute and chronic conditions with no evidence of tuberculosis, cerebro-spinal fever (1), meningo-encephalitis of doubtful nature (1), encephalitis lethargica (1), septic throat with meningeal symptoms (1), cerebral tumour (1), uraemia (1), meningocele (1), hydrocephalus (3), and some other conditions of doubtful nature.

TABLE IV.—*Cerebro-spinal Fluid: Controls.*

	Positive.	Negative.	Total.
Wang	7	13	20
Besredka	2	14	16

Sixteen specimens were tested with both antigens, and of these there were three in which Wang was positive and Besredka negative. In every instance where Besredka was positive, Wang was also positive. Apparently Wang is liable to give more fallacious reactions than Besredka.

REMARKS.

Complement fixation tests in tuberculous constitutions have been the subject of much study and many workers have found the test to be of high diagnostic value. In concluding my previous communication I said I was not satisfied that complement fixation tests afford a reliable means of clinical diagnosis in tuberculous cases, and I remain of the same opinion. The reaction is a specific one in the sense that under certain conditions the mixture serum *plus* extract will fix more complement than either of two alone, but it seems clear that the property of fixing complement in the presence of an antigen derived from tubercle bacilli is shared by serums from cases other than cases of tuberculosis. A positive result does not necessarily mean a definite tuberculous infection. Probably the number of such false diagnostic reactions is not large, but the fact that they occur must not be ignored. One of the chief aims of the present work was to see whether Besredka was better than Wang, and the results are encouraging. The results with control specimens of cerebro-spinal fluid were disappointing.

Prognostic Value of the Test.

Through the kindness of Mr. Telford, some observations were made on the prognostic value of the test. The patients were children aged 6 to 15 years, inmates of the Swinton School for Crippled Children under treatment for various forms of chronic tuberculosis of spine, hip, and knee. They were under close observation for long periods, and it was possible in twenty-nine instances to make two tests with two antigens on each occasion. The specimens of blood were collected by the matron of the hospital, Miss M. Draper. The first series of tests were made between November, 1921, and February, 1922, and the second during the latter part of 1922. In July, 1922, and March, 1923, Mr. Telford made a special clinical examination of the children and stated in each instance whether the progress of the case had been good or bad. In giving his opinion he was guided by such clinical evidence as seemed of importance in the light of his long experience of such cases. There was usually something definite, such as abscess formation or loss of weight, to help him, but in some instances it was difficult for him to make a decision. The terms "good" and "bad," therefore, must be interpreted liberally—that in his opinion as surgeon the progress had been more or less satisfactory. The results given by the two antigens were not always in agreement. Every patient gave at least one positive reaction with one or other of the antigens on either the first or second examination. The following table shows the results obtained with each antigen, the number of positive and negative reactions, and the number of cases in which the progress in the period intervening between the collection of the sample of blood and the time of clinical review had been good or bad.

	First Series.				Second Series.			
	Positive Reaction.		Negative Reaction.		Positive Reaction.		Negative Reaction.	
	No.	Progress.	No.	Progress.	No.	Progress.	No	Progress.
Wang ...	9	Bad 1 Good 8 (88%)	20	Bad 6 Good 14 (70%)	24	Bad 5 Good 19 (20%)	5	Bad 0 Good 5
Besredka	18	Bad 2 Good 16 (88%)	11	Bad 5 Good 6 (.4%)	19	Bad 5 Good 14 (26%)	10	Bad 0 Good 10

Apparently a positive reaction in a case of active tuberculosis is more favourable as regards prognosis than a negative, but where there are no signs of active tuberculosis a negative result points to a healed tuberculosis. A negative reaction followed by a positive indicates that improvement is setting in. These points are shown in the following diagram, which shows the number of instances where the reaction was unchanged or changed. The figures above the short horizontal line are "progress good" and below it "progress bad." The figures to the left relate to antigen Wang and to the right to antigen Besredka.

Positive Unchanged.		Positive to Negative.		Negative Unchanged.		Negative to Positive.	
6	9	3	9	2	1	13	6
0	0	0	0	0	0	4	4

The number in the various categories are small and it is unsafe to draw conclusions from them. The three cases included in "negative unchanged" were very slow chronic cases, and on first clinical examination in July, 1922, were progressing badly. They subsequently did better and were probably healed at the time of the second test.

On the whole it cannot be maintained that the indications furnished in this work as regards prognosis could have been of any great assistance to the clinician.

REFERENCES.

[1] Sellers and Ramsbottom, *Journ. of Path. and Bact.*, vol. xxv, 1922, p. 427. [2] Wang and Crocket, BRITISH MEDICAL JOURNAL, 1919, ii, p. 7. [3] Besredka, *Ann. de l'Inst. Pasteur*, tome xxxv, p. 291.

might well be questioned, to say the least of it, and which will tend to rouse rather than allay the groundless fears, not only of the general public, but of the less instructed members of our own profession. But he did say:

"If the patient were properly trained as to his habits and carried out the medical instructions, and if full regard were paid to ventilation, sunlight, cleanliness, removal of dirt and dust, and the like, then risk of infection might not be serious even to those who resided with him. Still less was the risk to those who entered the house after the patient had left if proper methods of disinfection had been adopted."

It is to be regretted that there is no recognized standard, either legal or medical, of what constitutes proper disinfection. I should like to say here that it is within the power of a tuberculous person in all except the very latest stages of the disease to keep himself from being a danger to the community.

The question of how a given case has contracted tubercle is very difficult to answer. In a report of 572 cases treated in 1913 and 1914, published by me in 1915, in only three could the actual source of the disease be given with any degree of certainty. In one case a girl caught it from a friend with whom she was living, and to whom she was devoted; in another, a man—a valet—caught it from his master; and in a third, a girl—a lady's maid—caught it from nursing her mistress. In all these cases the exposure was both intimate and prolonged, and the soil—the other great factor—most receptive. There can be no doubt that this latter element—the soil on which the seed falls—is really the more important of the two, though it is extremely illusive and difficult to tackle. We can only speak of it in vague terms, such as predisposition, "run-downness" in health, anxiety, selective attraction, and so forth; but still it is there, and it is a very potent factor in the contraction of the disease.

But if tuberculosis is as widespread as we have reason to think it is, how is it spread? There are two great theories at present holding the field:

1. The dose to be effective must be a massive one—that is, it must be a really knockdown dose—and, I personally should add, it must be intimate and prolonged.

2. The attack depends on the virulence of the bacillus.

But in considering these two theories we must not forget the great second factor in the case—the soil—the predisposition to which we have just referred.

Now these two theories are really unsettled, although as far as one can judge the evidence in favour of the former theory is very much the greater. A patient of mine—a clergyman—about twenty-two years ago, spent a very hot August in London, visiting every day an East-end woman suffering from advanced consumption. Open-air treatment in that district and at that time was conspicuous by its absence. He was run down, wanting his holiday, and he contracted tuberculosis of the lungs. His dose must have been a very big one, because the incubation period of the disease was so short, and he came into my hands the following February. He had an excellent constitution, had always had good health and been very well fed, but he had a most tremendous struggle for life. He was in bed for eighteen months with a high temperature, and with such heavy night-sweats that often the mattress was wet through and the wires below it rusted. But he ultimately recovered, and for the last fifteen years has had a parish in a big town in South Africa.

The second theory has been more recently brought forward, and the work on it is by no means concluded. Indeed, with regard to work on tuberculosis in general, in spite of all that has been done and the public attention that has been directed to the subject, there are many things, as I have stated above, which are still left undecided. It may be that as long as the disease exists this will always be so, and that to the very end opinions will be divided as to the causes even of its final disappearance. Indeed, this possibly can hardly be wondered at, considering the universality of the proposition. Ever since the discovery of the tubercle bacillus by Koch in 1882 there has been before us the possibility of a general immunization of the human organism; in the same way in which one attack of scarlet fever makes the subject immune to another attack, so it has been thought that to give a small dose of the disease might have the effect of stopping a large dose later on from resulting in a definite attack of tuberculosis. There is a very great deal of evidence for this theory. Some people have gone so far as to say that in early childhood immunity is conferred by the taking of milk with a small number of tubercle bacilli in it, and have wondered whether the milk campaign at this stage may not do more harm than good. I hardly like to refer to this in an assembly of this kind, but if it be true that the bovine bacillus protects from the human bacillus later on in life—and again there is a good deal of evidence in support of this—it ought at least to be mentioned. Personally I think we ought to go on getting our milk better and better, and that a clean milk campaign is a very good one and ought to be encouraged in every way in our power.

With regard, however, to the possibility of contracting tuberculosis to the extent of its being a serious illness from milk, we must remember the dictum on the special dose and on the exposure being intimate and prolonged. Moreover, in cases suspected as being from milk, the infection has often come from the milkers and other people dealing with the cows rather than from the cow. Whatever seems uncertain—and I must confess a great deal is still unsettled—the fact that tuberculosis can be conveyed from person to person is undoubted. How this is done, and by what channels it is admitted, whether it is inhaled or taken in by the mouth, is still hotly contested.

The really cheering thing is that tuberculosis is going down. Why is it going down? Here again opinions differ; some say one thing, and some another, according to the way the problem is presented to them. The sanitary reformer thinks it is drains; others think it is housing; others, again, think it is work by health activities of various sorts—welfare centres, etc.—whereby people are better educated. Others, again, think it is the formation of sanatoriums and the whole scheme for brevity called the "dispensary scheme," or the "Edinburgh scheme" because it was originated there by Sir Robert Philip. It is possible that all these different agencies have helped—improved sanitation probably; housing certainly, although there are several points that are emerging which seem to show that overcrowding even is not quite so responsible for cases of tuberculosis as we thought it was. For example, whether people live in one room or in six, as far as Glasgow is concerned, does not appear to make much difference in the incidence of tuberculosis. Again, as we have seen, tuberculosis in women went up very considerably during the war; women were employed in munition works and other factories—in other words, they largely became an industrial population on a par with men. Tuberculosis is without doubt largely an industrial disease, as is evident when we realize that the recorded mortality in men from 45 to 75 from this disease is twice as high as among women. There is also, as we have already stated, one more point as to the rise of mortality from tuberculosis in women during the war—they may have had less good and suitable food, for the mortality amongst children went up too. With regard to sanatoriums and dispensaries, this whole method has been most unfairly criticized and decried. In the first place, what this whole campaign did was to focus public attention on the immensity of the whole problem. Possibly this was done not wisely but too well, especially as regards the infectivity of tuberculosis. The general public certainly seems to have gone from the one extreme, of regarding it as no more infectious than a wooden leg, to looking upon it like measles and scarlet fever. Still, sanatoriums have done a great amount of good in treating tuberculosis and in curing a very large number of people who would otherwise have been lost to the community. And we must never forget that tuberculosis is a disease of the young whose work is still to be done, and not of the old whose best days are presumably over. It is also a disease that has attacked men and women of great

between the lamps is 0.6 metre, measured between the carbons, and the crater on the positive carbon is 1 metre from the ground. The patients are sitting round the lamps. Should we have to treat patients who cannot support a sitting posture, we make use of three 20-ampère lamps hanging side by side; the space between the lamps is 0.55 metre, measured between the carbons; the crater on the positive carbon is 30 to 35 cm. over the couch of the patient.

The 75-ampère lamps, of course, are radiating much more chemical light than the 20-ampère lamps; but at the same time the heat rays are increased considerably and consequently one can get much nearer the 20-ampère lamps than the 75-ampère ones.

The intensity of light decreases with the square of the distance; if the patient, therefore, is 1 metre from the light crater, he gets only a quarter of the light that he gets if the distance is 0.5 metre. You will understand, after my remarks about the heat rays, that we can assess the difference in the light intensity between the two installations by placing the patient nearer the light itself.

Around the 75-ampère lamps from six to eight patients can sit at one time, and by employing the 20-ampère lamps we can treat two patients in a reclining position at the same time.

If one wished to have patients in a reclining posture treated by the big lamps, one could have only two patients, for if a greater number were to be treated at the same time one patient would merely shade the other. Thus it is more economical to apply the 75-ampère lamps, if one has many patients who are able to assume a sitting posture, and the 20-ampère lamps if one is treating patients who have to be in a reclining position.

I shall now review the diseases we treat.

I. Lupus Vulgaris and Other Forms of Skin Tuberculosis.

The local application of concentrated light in the treatment of lupus vulgaris, introduced by Finsen, was an entirely new therapeutic principle. The aim was to attack from outside the diseased tissue without injuring at all the healthy tissue, and experiments showed that the concentrated light produced a proliferation of the healthy tissue, bringing about a new formation of vessels, and at the same time destroying the diseased cells. It was shown to be a considerable advance in the treatment of lupus vulgaris. This disease was really, in a large number of cases, incurable, and those of the patients who were cured remained disfigured with ugly scars. The majority of these patients are now cured by Finsen's local light treatment, leaving only smooth and almost imperceptible scars.

A vast collection of material shows, in our experience, that over 60 per cent. of cases were cured. Dr. Sequeira, of the London Hospital,* one of the first to make use of the treatment, has had 70 per cent. of permanent cures; he is of opinion that we have had under treatment a graver type of lupus than he has had in the London Hospital. The results of the treatment of tuberculosis verrucosa and tuberculosis colliquativa have been even more excellent (80 to 100 per cent. cured).

The value of the local application of concentrated light is, of course, incontestable, but we have long recognized that a certain number of cases are refractory to the treatment, and in other cases the disease has a tendency to increase too rapidly to be dealt with adequately by this local treatment, or, if apparently cured, is likely to relapse. Finally, some cases are so advanced before treatment that they already have a bad prognosis.

In these cases I decided first to try the carbon arc-light baths, and the results were better than I expected. I succeeded in curing 86 patients out of 114 by the combination of local light treatment and light baths—cases which had failed to be cured by the local application of concentrated light, notwithstanding that they had been treated very energetically. On examining the figures now, where patients under treatment for lupus vulgaris are getting local light treatment and light baths simultaneously, I find that the proportion of permanent cures is about 90 per cent. The enormous value of light baths in the treatment of lupus vulgaris is evident from the fact that not only are the results getting much better but also the time devoted to curing patients is getting much less.

One might ask whether light baths alone are not able to cure the patients; but I can assure you that however invaluable the light baths are in the treatment of lupus vulgaris, so indispensable also is the local Finsen treatment. No doubt a single little spot can disappear by the light bath, but it is very rare. The disease can be improved by light baths alone, but a real cure will not occur without local application of concentrated light.

I would now like to show you some illustrations of patients before and after treatment. (See special plate.)

II. Surgical Tuberculosis.

Simultaneously with the light bath treatment of lupus vulgaris, I have also tried the effect of carbon arc light on different kinds of surgical tuberculosis, and I have asked the consulting surgeon in our institute, Dr. N. P. Ernst, to examine and to control these patients.

During a period of eight years (1913-1921) we have treated no fewer than 439 patients by carbon arc-light baths—145 with uncomplicated closed cases of surgical tuberculosis and 294 complicated with sinuses or abscesses. The results have been most excellent, according to the accompanying table taken from the late Dr. N. P. Ernst's latest report (*Acta Radiologica*, vol. i, 422).

In the table you will find the cases more numerous than the number of patients, for many of the patients were suffering from two or more diseases at the same time. The value of percentage of cures is increased owing to the fact that almost all cured patients are observed for several years after their cure. I would also draw your attention to the fact that a great number of the cured patients have regained free mobility of their joints.

If you would judge the results obtained by the application of carbon arc-light baths in the treatment of all these patients, it is necessary to remember that our patients are mainly adults (70 per cent. were more than 15 years of age), and you know that tuberculosis in adults is more difficult to cure than in the case of children. It should be remembered also that many of our patients, owing to lack of space in the institute, have had to be treated as out-patients, and during the light treatment they have lived in their own homes, which are often very poor and unhealthy. Daily, or every other day, they have had to be transported to the institute, and you will very well understand that this moving about has not benefited them. Finally, it must be emphasized that many of our patients, especially those with pelvic osteitis, hip disease, and spinal caries, have been suffering for so many years that one could not hope for recovery, but we considered it our duty to make an attempt.

The results obtained by application of carbon arc-light baths in the treatment of surgical tuberculosis are brilliant. To give an idea of the value of the results obtained by us I should like to make a comparison with the results obtained by Rollier, calling to mind, however, that he is working under much more favourable conditions with his patients inside his hospital. I take the figures from Rollier's *La cure de soleil*, 1915.

Ankle-joint.—Of 94 cases, complicated and non-complicated, Rollier registered 87 (92 per cent.) as cured, but under tuberculosis of the ankle-joint he includes cases of osteitis in the calcaneus, tarsus, and metatarsus, which have a far more favourable prognosis than those which Dr. Ernst includes—namely, tuberculosis round the astragalus. Of the 47 cases which Ernst includes among ankle-joint tuberculosis, we have cured 42 (89 per cent.), and 36 of these cured patients have regained complete mobility of their limbs.

Tuberculosis of the Elbow.—The proportion of cures by Rollier is 86 per cent.; we have to record 83 per cent.

The results we have had in treating different forms of surgical tuberculosis are at least as good as those obtained by heliotherapy in mountain heights.

* After this paper was written I read Dr. Sequeira's paper, "Carbon arc-light baths in the treatment of lupus vulgaris" (*Brit. Journ. of Dermatology*, March, 1923). I am quite in agreement with Dr. Sequeira in the views therein stated.

infection the disease would stop. The infant's food composed of cow's milk could be sterilized, and if any important elements such as vitamins were destroyed in the process they could be supplied from other non-tuberculous sources of food. However difficult it was to supply infants with sterilized milk, we must do it, or fail to prevent infant mortality from bovine sources of infection.

Turning to the problem of preventing a person infected with tuberculosis from spreading it to his or her neighbours, we must be prepared to shelve some beliefs, and one in particular would have to go—namely, that a tuberculous subject discharging tubercle bacilli infected adult neighbours with tuberculosis of the lungs. It was easy to make the sacrifice, because no candidate for a post as honorary physician or surgeon to a hospital dealing with tuberculosis ever allowed such fear to enter his head, and if it did it was disregarded. Further, there was no arrangement for the special pensioning of any sister or nurse who, having accepted duty in such an institution, revealed the disease; and, lastly, insurance offices did not reject the application or load the life of any such applicant for life insurance on the ground that the occupation was so dangerous.

When was the human being infected with human tuberculosis? Again, asking for forbearance and excusing himself from giving reasons and authorities, he said at once that he agreed that human tuberculosis is initiated in childhood, and the source of the infection was a near neighbour who was discharging tubercle bacilli. It was necessary, therefore, in order to prevent human tuberculous infection, to segregate the neighbour who was discharging tubercle bacilli or to remove all children from the neighbourhood of those who were discharging tubercle bacilli. Such advice must not be ignored, and if it was ignored it was promoting, not defeating, the spread of tuberculosis. If it was said that such a scheme was quite impracticable, the answer was that it was not so impracticable as the effort which many were now making, in obedience to a false doctrine, in treating at great expense the person who was discharging no tubercle bacilli without being sure that he was suffering from tuberculosis, and at the same time asking the person who was discharging tubercle bacilli to go to an infirmary, which he or she would not do, or to remain in his own home, which he was perfectly willing to do, although it was known that this would lead to the infection of neighbouring children. Further, it was hardly necessary to remind the audience that the vision of yesterday, over and over again, had become the policy of to-morrow. If all efforts were bent in the direction of sterilizing milk which was infected with tubercle bacilli, and in the direction of removing the person who was discharging tubercle bacilli from the neighbourhood of children, which was possible, not from other adults, which was impossible, tuberculosis, bovine or human, would be stamped out. All measures which were not based on these two conceptions were valueless—indeed, wasteful.

The person who was the subject of pure pulmonary tuberculosis was not dangerous to his or her neighbours for the simple reason that he or she did not discharge tubercle bacilli. Pure tuberculosis of the lung could never be diagnosed with certainty, for the reason that tubercle bacilli were not expectorated. Such cases were of no more danger to other children (for it was in children that pure pulmonary tuberculosis occurred) than would be a child who had a tuberculous joint, or tuberculous gland, which was not discharging. The person who could, and did, infect children with human tuberculosis was the man or woman who was suffering from impure pulmonary tuberculosis—that was to say, pulmonary tuberculosis which was something else as well.

It was an unpalatable remark to make, but none the less true, that we had in the past been working on the wrong idea—namely, that because Koch showed that tubercle bacilli could be recovered from the expectoration and also from the lungs of those who were expectorating tubercle bacilli, all the changes in the lungs concerned were caused by the tubercle bacillus. No one doubted that all lesions found in the lungs which were the seat of miliary tuberculosis, or confluent tuberculous pneumonia, were due solely to the tubercle bacillus. But no one who had studied cases of lung disease, in which, besides miliary tuberculosis, pneumonia and excavations were found, could admit that it had ever been proved that the pneumonia and the excavations were tuberculous in origin. The convention they were living under was that there was a unity in the causation of all the lesions met with in the lung of a person who had expectorated tubercle bacilli during life; but if they would read through medical literature of the days when Koch made his brilliant discoveries, they would see that there was another school of thought which would not subscribe to such a doctrine. At long last these forgotten papers were coming into their own, and they would notice in the most recent authoritative works on tuberculosis of the lungs that the writers were beginning to admit that the old convention under which we had all lived and worked must go, and that the truth must be admitted that the accompanying pneumonia and excavations were due to mixed infection. It was being recognized at last that, however much we believed on clinical grounds that the tubercle bacillus could cause exudative pneumonia with cavity formation, experimental evidence gave a flat denial. The tubercle bacillus was not pyogenic; the pus present in the expectoration, although revealing tubercle bacilli, was not due to that organism, but to one or more organisms which were pyogenic. It was impossible experimentally to produce pneumonic with excavational tuberculous disease in the lungs of any animal by inoculation with the tubercle bacillus alone. The Royal College of Physicians of London had expunged from its last volume of the nomenclature of diseases, published in 1918 by a joint subcommittee on which there sat the Registrar-General of Deaths or his representative, the words "consumption" and "phthisis," and their place was taken by the term "pulmonary tuberculosis." Dr. Batty Shaw submitted that these terms should be reintroduced to describe those conditions of impure pulmonary tuberculosis already referred to, and he suggested that there was a non-tuberculous consumption, or a non-tuberculous phthisis, because there were cases of excavation and consolidation of the lungs which neither at the bedside nor in the deadhouse could be shown to be due to tuberculosis. He thought that the cases of tuberculous consumption or tuberculous phthisis were *qua* the tuberculosis extremely dangerous to the community, most certainly to childhood, and possibly (though he could not convince himself that it was true) to adults, for the reason that they were the cases who expectorated tubercle bacilli.

What was it that converted a relatively rare and harmless (to the neighbouring child) pure pulmonary tuberculosis into a very common and dangerous (to the neighbouring child) tuberculous consumption or tuberculous phthisis? The answer was the mobilization usually in adults of the tubercle bacilli contained in more or less harmless foci of tuberculosis contracted in childhood, by the baneful tissue-destructive effects of the pyogenic organisms of influenza, pneumonia, bronchitis, etc. These latter diseases attacked youths and early adult people, who on leaving the parental roof were exposed to the pyogenic respiratory epidemic and endemic infections of schools, city offices, factories, and social gatherings. We must segregate those who contracted such non-tuberculous respiratory infections; or we must rely upon preventive inoculation against non-tuberculous respiratory infection. What we did not long ago in the visitation of a severe influenzal epidemic we must do in the equally dangerous (so far as the genesis of tuberculous consumption or tuberculous phthisis was concerned) endemic non-tuberculous respiratory infections. If they said that this was impracticable and visionary, he again reminded them that if this vision was but based upon truth it must become the future policy. If they held up their hands at the expense entailed in the logical management of cases of tuberculous consumption and tuberculous phthisis, accepting the belief in the duality or multiplicity of the nature of these diseases, he pointed (1) to the present unsatisfactory results obtained at great expense, (2) to the hardships inflicted on those who were said to be suffering from early tuberculosis, and (3) to the spread of tuberculosis by those who were expectorating tubercle bacilli at the present moment. Was it not high time to abandon a doctrine which was false and follow out plans which were based upon established though may be unpalatable and

What Conclusion can now be Drawn from the Results Obtained by Treatment with Artificial Chemical Light Baths at the Finsen Institute?

First, we learn from the results by Rollier and in the Finsen Institute that non-operative treatment ought to be used in cases of surgical tuberculosis, not only in children, but also in adults, as Sir Henry Gauvain put forward in the *Lancet* in 1921 (i, 1065), when he published the brilliant results obtained by him at the Treloar Cripples' Hospital and College at Alton and Hayling Island. Secondly, we learn that the most important factor in the conservative treatment of surgical tuberculosis in the mountains is the powerful light to be had there; many of the patients treated at the Finsen Institute, however, have been living under very poor hygienic conditions, and despite this fact they have recovered.

What I have said on this point is not to be understood in the sense that we should not obtain better results if we made use of all factors which we have in the mountains or at the seaside—namely, the crisp air devoid of mist, the benefit of sea baths, etc. Particular stress must, however, be laid on the light, and in the sanatorium at the seaside and in the mountains there should be artificial sources of light for light baths for the times when the sun cannot be utilized, for then the results would be much better and the time spent on the treatment of less duration.

Conservative treatment of surgical tuberculosis is not to be understood in the meaning that operative treatment must never be employed—that is not the correct definition, for it happens very often that abscesses have to be aspirated and sequestra have to be removed. The correction of ankylosis or other deformities is indispensable, and if a case does not improve it may be necessary perhaps to extirpate the tuberculous lesion.

All these facts have been so well described by Sir Henry Gauvain, that it is superfluous to go further into the matter here. Furthermore, I would like to emphasize that in addition to the light it is of utmost importance to make use of all the adjuvant and auxiliary methods known to us in treating surgical tuberculosis. I shall only emphasize the enormous importance of orthopaedics, and concerning the rest I would refer you to Sir Henry Gauvain's papers to be found in the *Lancet* and the *British Medical Journal* (November 26th, 1921, p. 876).

How are we to Explain the Effect of Light on Tuberculosis?

I regret to say we have not advanced any further in our knowledge of this question than did Finsen in his day. Light gives an erythema of the skin, followed and accompanied by pigmentation, and light has a stimulating effect on the organism in general. The results are obtained only clinically, and conclusions must be drawn by clinical results alone. Not that explanations and experiments are wanting, but these are merely hypotheses. I shall therefore not touch on this point, but try to find out what is to be learnt by clinical experiences.

In the treatment by heliotherapy of cases of surgical tuberculosis we obtain by far the best results in the mountains or at the seaside, while the results in low-lying inland regions are less favourable. From this fact we must conclude that the chemical power in the sunlight is of great importance to the treatment, for the atmosphere absorbs the chemical rays, and the more compact the atmosphere is, the greater is the absorption. The chemical power of the sun is therefore much less in lowland districts than in mountain heights; at the seaside the lesser intensity is compensated by reflection of light from the mirror surface of the sea, by which the intensity of light is increased enormously. This shows us that for good effects the chemical power of light is decisive.

What Kind of Chemical Rays are in Question?

On this point we know but very little. We are aware, however, that the atmosphere especially absorbs the ultra-violet rays; these therefore must be the most important, and especially the ultra-violet rays with long waves, for the thinnest layer of the atmosphere absorbs all rays with short waves. A series of investigations (Jansen, Maar, Hasselbalck) shows us that the greatest importance must be placed on the ultra-violet long wave rays; these alone have the power of penetrating the epidermis. The violet, blue, and green rays are also of a certain value, as Finsen's experiments have shown; and recently Sonne claims that not only these rays, but also the green, yellow, and luminous red rays are of importance, according to experiments made by him in the Finsen Institute.

What Kind of Illumination is to be Preferred?

Naturally the sun is the best and the most economical source of light, when it can be used. As mentioned already, the atmosphere absorbs a great deal of the chemical light of the sun; the absorption increases in proportion to the thickness of the atmosphere—in other words, it is greatest in lowland countries. Furthermore, the less perpendicular the rays are, the greater is the absorption from the atmosphere, because the length of the rays, passing through the lower and more concentrated regions of the atmosphere, increase as the rays fall less and less perpendicularly. The chemical force of the sun is, therefore, considerably greater in the mountains than in the lowlands, though I must emphasize once again that at the seaside the light intensity is increased very considerably by the reflection of the mirror surface of the sea.

In the mountains the sun can be used during the greater part of the year, but in the lowlands only when the light is falling rather perpendicularly—in Northern Europe, for example, only in summer, and, of course, in bright and clear weather. In the mountains as well as in the lowlands artificial illumination should be employed during the absence of sunlight.

What Kind of Artificial Light Sources are to be Used?

Practically we have only two sources that contain a quantity of chemical light, worth mentioning—namely, the carbon arc light and the mercury-vapour arc light. The difference between these two kinds of lights is in reality very considerable. The carbon arc light contains all the rays of the spectrum, while the mercury light mainly contains the ultra-violet and particularly the short-waved ultra-violet rays, with but slight power of penetrating. Referring to my previous remarks on this subject it is evident that the carbon arc light is without doubt more suitable for light baths than the mercury light.

In a series of experiments undertaken at the Institute I have proved that far better results are obtained with the carbon arc light baths than with mercury light baths. In Germany the mercury light has been used most, and lamps have been constructed called *Künstliche Höhensonne*—a name that is, in reality, quite misleading, as the "high sun" contains all kinds of rays, while the spectrum of the mercury light is strongly limited, and has the maximum in the ultra-violet rays, especially those with short waves. Naturally the mercury light has some effect, and if the carbon arc light, on account of deficiency of current, cannot be employed, the mercury lamps, especially the new Jesionek lamps, are of some value; but we must not expect to obtain approximately such favourable results as with the carbon arc light.

Because of the one-sidedness of the mercury light, an attempt has been made to supply the qualities of the missing rays by using strong incandescent lamps constructed with metal wire for irradiating simultaneously with the mercury light; but it has not been possible to create a source of light proportionately equal in value to the carbon arc lamps such as I have described.

How Long and How Often are we to Irradiate the Patients?

As has been mentioned, chemical light produces an erythema of the skin, stronger or slighter according to the time irradiated. Rollier is of opinion that strong erythemas are to be avoided, but I do not agree with this view, for I hold that the best results are obtainable with the carbon arc light if a pronounced erythema is produced in the earliest stages of the treatment. Consequently, the first light bath which a patient gets is of

mittee obtained a grant of £5 from the R.A.F. Benevolent Fund, and bed, bedding and blankets were provided so that the patient could sleep alone.

Case 2.—The father, mother and five children slept in one room, the patient, a child, sharing a bed with others. Within a fortnight the landlady was persuaded to give up one of her rooms for the benefit of this family.

Case 3.—The patient, an ex-service man, lived in unsatisfactory lodgings, his wife and children living elsewhere also in lodgings. A house was secured from the local authority and the Red Cross assisted with removal expenses.

Case 4.—A case of illegal increase of rent was satisfactorily settled through the intervention of a Care Committee.

Case 5.—Inquiry showed that the patient was eligible for the return of income tax. A substantial sum was recovered through the aid of the Committee.

Case 6.—This girl was in need of clothes and the family were badly off. The Committee collected two complete sets of underclothes, boots and stockings.

Case 7.—This ex-service man needed clothes to enable him to go to a sanatorium. The Red Cross was approached and supplied the necessary outfit.

Case 8.—The patient, a boy, lived in an unsatisfactory home. The mother being dead, a sister of 19 managed the home, but owing to inexperience the income was badly laid out. The girl was advised by a competent and sympathetic worker, and the results have been distinctly beneficial.

Case 9.—Action on the part of a Committee in a country district secured a grant from an educational charity to enable a delicate contact to pay bus fares to and from school daily.

Case 10.—The mother in this family required sanatorium treatment but could not leave her family of three children including a baby. The baby was sent to a residential nursery; the other children, being delicate, were sent to a convalescent home at first and were subsequently boarded out. The father paid 17s. a week until he fell out of work and the Red Cross found the balance. Needless to say this case involved the Committee in a good deal of work, but resulted in the mother being able to enter a sanatorium.

Case 11.—The patient was formerly a carman. The Committee secured a grant from the patient's former regiment to pay for a course of instruction in motor driving. The patient then secured employment.

Case 12.—This case showed that the action of an energetic Committee might even extend beyond the life of the patient in the interests of the family. The family consisted of a widow, two daughters, and a son. After the death of the daughter the Committee arranged for the emigration of the family, the son to Adelaide, through the Scottish Corporation to a Government farm, and the mother and daughter through the Salvation Army to Victoria, where domestic work will be found for them. It is hoped that the family will ultimately be reunited and make a home together.

It was difficult to see how any of these cases could have been dealt with adequately without help from a care organization, and he agreed very heartily with Dr. Walker's view that really effective social welfare machinery was essential in dealing with the tuberculosis problem.

Dr. G. BROOKES DIXON (Birmingham) said that there could exist no reasonable doubt as to the infectivity of tuberculosis since Koch's discovery. Unfortunately the factors were so variable, so complex, so difficult to appreciate in their entirety that we were prone to accept in abstract whilst to some extent ignoring them in practice. The extent of infection was shown by the tuberculin test; in Paris, Vienna, and Prague the test was positive in 55 per cent. of children aged 5 years. The possibility of infection was shown by the examination of clinical records. In Birmingham, of 7,347 children there were 2,664 who possessed fathers, brothers, mothers, or sisters who were known to have died from or to be suffering from tuberculosis. The fathers or brothers amounted to just over 10 per cent.; the mothers or sisters were about equal, and represented by a figure just over 8 per cent.; husbands and wives affected in about 1 per cent. of cases. The amount of fatal disease resulting from infection could be more or less accurately measured by the mortality rates, which in European countries varied for tuberculosis between 7 and 19 per cent. of the total mortality rate. Fortunately between the numbers who are known to have suffered infection and those who died from tuberculosis there was a large discrepancy, represented by those who suffered more or less damage from their infection and its resulting disease. One of the main difficulties to-day was that we had no stabilized or complete knowledge as to what were the factors which determined whether an infection would have a benign and protective action or whether it would lead to serious illness and ultimate death. In regard to the most vulnerable period for infection, there was an accumulation of evidence which suggested, and much considered opinion which asserted, that this existed within the first half-decade of life. The question was asked, How did infection from human sources occur? Infection with human tuberculosis was acquired from (1) sputum and its spray, (2) intestinal excreta (Calmette), (3) the urine of tuberculous patients (Burnard), (4) from the milk of nursing mothers (as shown by Delépine in England, Schroeder and Cotton in the United States, and Yamada in Japan); it was also asserted that (5) it might be conveyed by living carriers, a part, it was suggested, which might be undertaken by flies. How then, he asked, could infection be guarded against? In this connexion attention should be directed to both human and bovine sources of infection. Infection from human sources might be controlled (1) by the adoption of measures designed to protect individuals who were exposed during the period when they were most susceptible—that was, during infancy and early childhood; and (2) by activities directed to the supervision and control of known sources of infection. The protection of infants and young children, as exemplified by the Grancher system in Paris, had given excellent results. It was based on the assumption that tuberculosis was not acquired by heredity, but by contact, especially during infancy. It was asserted that most infants of mothers suffering from open tuberculosis who remained in their care became infected, whether breast-fed or not; the danger was said to be the same if the father or another member of the family had open tuberculosis. Armand-Delille quoted the history of 150 tuberculous families, and showed that when the children remained at home with infected relatives the tuberculosis morbidity rate was 60 per cent., and the tuberculosis mortality rate 40 per cent. Amongst 2,300 cases removed from infection by the Grancher method the morbidity rate was 0.3 per cent. and the mortality rate 0.01 per cent., showing a striking difference between similar rates for children not removed from the source of infection. The Grancher method might be difficult to inaugurate in England; parents there were unwilling to give up control of their children. This, however, was no valid excuse for leaving children exposed to infection. Pritchard advocated tuberculin injections for infants under these conditions. It was simple, practical, economical, and so far free from complications and accidents. Measures for the control and supervision of known sources of infection might take the form of (1) education of patients and their contacts; (2) arranging for some segregation in the home by the supply of beds and bedding—there were now over 700 in use in Birmingham, and 200 sleeping shelters; (3) by providing a larger number of beds in institutions for the accommodation of advanced and chronic cases. Comment as to the education of the patient was unnecessary. Institutional accommodation should be provided (1) for treatment, (2) for education, and (3) for alleviation; in addition it exercised a measure of protection over the family by reducing the physical strain, removing the centre of infection, and relieving the economic pressure. More beds usually meant a longer period of stay, and segregation was practised unobtrusively. Possibly there was more than a casual relationship between the number of beds provided for tuberculous patients and the death rate, as was suggested by the figures for New York City:

Year.	Beds.	Deaths from Pulmonary Tuberculosis per 100,000.
	3,300	209
1907	8,151	175
1914	6,414	82
1921		

Compulsory segregation was not advisable, but the possession of compulsory powers was useful. Because they were not enforced was no argument as to their futility. There was no intention to enforce them frequently, but rather to educate public opinion and reinforce the argument in getting patients to accept a prolonged period of treatment in their own and others' interests. The best defence against bovine infection was the treatment of milk in such a way before sale as to render any tubercle bacilli present inert.

J. H. SEQUEIRA: TREATMENT OF CUTANEOUS TUBERCULOSIS.

FIG. 1.—D. K. Before Finsen treatment. October, 1901.

FIG. 2.—After Finsen treatment. January, 1903.

FIG. 3.—The patient in 1923.

FIG. 4.—S. S. Extensive lupus of ulcerative and fungating type. September 10th, 1921.

FIG. 5.—After treatment by local application of light. Parts of the diseased area have healed, but the disease has spread at the periphery. May 7th, 1922.

FIG. 6.—The patient after five months' treatment by light baths only.

FIG. 7.—K. F. Condition January, 1923, after two and a half years' local treatment.

FIG. 8.—July, 1923, after light baths with no local treatment.

FIG. 9.—K. F. Lupus of arm, January, 1923, after local treatment only for two and a half years.

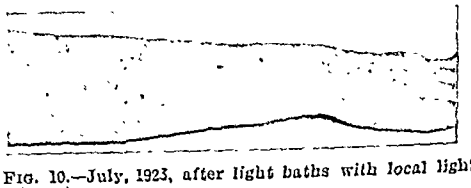


FIG. 10.—July, 1923, after light baths with local light treatment.

good use. It should mean more frequent examination of contacts and of home conditions. It should lead to demography, marking the black spots where tuberculosis was most rife in houses and in industries. It should lead to a proper disinfection, and for this the most important measures were soap and water, fresh air and sunshine. Further, the affected person must be taught to be hygienic in regard, for example, to sputum disposal. The reasons why notification was not as effective as it might be were twofold: the majority of doctors were still ill trained in the subject of tuberculosis, and the grossly exaggerated fear of infection was still very rife. Two broad facts wanted placing in juxtaposition and pondering over—namely, that over 80 per cent. of individuals over 15 years of age had the infection of tuberculosis in their bodies, yet only 1 in 12 died of tuberculosis.

Dr. CLAUDE LILLINGSTON (Gorleston-on-Sea) pointed out, with regard to the notification of tuberculosis, that so long as his patients were more bullied than blessed by notification he felt tempted to label his cases as "heart disease." He suggested that the enormous rise of heart disease in New York since 1910 reflected the tendency on the part of practitioners to shield their patients from the disabilities of notification.

Dr. R. ROBERTSON (Ventnor, Isle of Wight) said that the question which seemed complex had resolved itself in the course of the discussion to the need of an unlimited purse under the control of the medical profession.

Dr. R. A. YOUNG (London) added his tribute to the admirable opening address of Dr. Jane Walker. He emphasized the importance of the social aspects of the disease referred to by her—namely, infectivity, home conditions, family care, after-care, and occupation. He gave it as his opinion that the social measures suggested would seem to limit and perhaps control the spread of the disease, but he thought the last word would be with the bacteriologist. The gaps in our knowledge were largely in the biology of the tubercle bacillus and in the immunity responses of the human body to it.

TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

BY

LEONARD WILLIAMS, M.D.,

LONDON.

IN the cases whose details are given below I had the advantage of being associated with Drs. Dudley Kennard, Ernest Griffin, N. S. Bonard, and A. F. Bouchage. As the cases speak for themselves I refrain from comment. Many of these patients have often been collected, and could be collected again, for purposes of demonstration. Cases 17 to 23 have been treated with partial serums only, which were prepared in 1919-20. Two of my other patients were subsequently handed over to my friend the late Dr. Latham in 1914, amongst whose cases their records will be found. They are both well and at work to-day. I might have added details of three other advanced cases which have been completely cured, but as they appear elsewhere it is unnecessary to do so. It seems desirable once more to emphasize the fact that Spahlinger's treatment is of two kinds—namely, (*a*) serums for acute and severe cases, (*b*) vaccines for early or chronic pulmonary cases, and for all surgical cases. The serum acts rapidly. The symptoms of activity show progressive diminution and often disappear within the first few months. If the serum is stopped before a complete recovery has been established, signs of activity are liable to recur. This is because serums are capable of conferring a passive immunity only. It is the vaccines which evoke the active; these act less rapidly than the serums. Improvement under vaccine treatment does not become evident until the organism has had time fully to mobilize its defensive mechanism.

CASE 1.

F. B., aged 35, seamstress. History of haemoptysis eighteen months ago. Tubercle bacilli present. Had been treated at sanatoriums. When first seen, in July, 1913, she suffered from cough, expectoration (tubercle bacilli present 30 to 40 per field), haemoptysis, dyspnoea, and anorexia; temperature 101°, pulse 120. Signs of infiltration of both upper lobes. Spahlinger's treatment by serum was commenced in July, 1913. In January, 1914, the chest was dry, and temperature and pulse normal. Treatment stopped. She had a short course of vaccine in April, 1914. In May, 1914, there was no evidence of active disease and no tubercle bacilli. Discharged.

CASE 2.

D. W., aged 25; pale youth with typical malar flush. History of succession of bad colds. Severe attack of haemoptysis which lasted ten days. Troublesome cough, breathlessness. When first seen, in August, 1913, he had cough, expectoration (tubercle bacilli present 10 to 20 per field), haemoptysis, temperature 100°, pulse 100; had lost 1 st. 6 lb.; there was much dyspnoea, pain in right side, clubbing. Signs of infiltration of left upper lobe and upper half of lower lobe. Spahlinger's vaccine treatment was commenced in August, 1913. In April, 1914, there was no evidence of active disease; temperature, pulse, and weight were normal. Discharged.

CASE 3.

F. E., thin, anaemic man, aged 35. History of cough, emaciation, lassitude, shortness of breath. When first seen, in October, 1913, he had cough, a little sputum in the morning (no tubercle bacilli present), dyspnoea, night sweats; he was very emaciated; temperature 100° to 102°, pulse 100 to 110. Signs of scattered infiltration in left lung and at right apex. Spahlinger's treatment by serum commenced in October, 1913. In March, 1914, there was no cough and no sputum; temperature, pulse, and weight were normal. In October, 1914, there was no evidence of active disease. Discharged.

CASE 4.

W. C., anaemic boy, aged 15. History of tuberculous laryngitis diagnosed six months previously. When first seen, in January, 1914, he had cough, expectoration (tubercle bacilli present), night sweats, pain in chest, loss of voice, sore throat. Signs of infiltration at both apices, more marked on the right side. Tuberculous ulcerations of vocal cords. Spahlinger's treatment commenced in January, 1914. In May, 1914, the larynx was much improved and chest practically dry. Treatment stopped prematurely.

CASE 5.

A. W. A case of tuberculous epididymitis who received a short course of Spahlinger's treatment in 1914. His records have been lost. He was examined in 1920 for another complaint and there was then no evidence of active tuberculosis.

CASE 6.

A. T., aged 19, seamstress: comes from tuberculous stock (two brothers and two sisters died of pulmonary tuberculosis). History of cough and expectoration for one year. When first seen in December, 1914, she had cough, expectoration (tubercle bacilli present 60 per field), emaciation, slight pyrexia, clubbing. Signs of infiltration at both apices, chiefly left. Spahlinger's vaccine treatment was commenced in December, 1914. After a six months' course of injections, during which the patient was able to continue her work, there was no evidence of active disease. Discharged. In 1923 there is no trace of active tuberculosis. The patient has had no treatment since June, 1915, and is doing a full day's work.

CASE 7.

E. G., woman, aged 29. First seen in November, 1913, on her return from a sanatorium where she had been for nine months. Complained of glands in the right side of neck, for which an operation had been strongly urged; a large mass pushing the trachea well over to the right. She was given a course of Spahlinger's vaccine. To the first five injections there was no reaction. To the sixth she reached to 102°, to the seventh to 104°. Immediately thereafter the glands began to diminish and in three weeks had disappeared. The disappearance of the glands was accompanied by a striking general improvement. She has remained perfectly well ever since.

CASE 8.

H. D., aged 48, tradesman. Previous history: three years ago he had acute digestive troubles, an attack of haemoptysis, pyrexia, and cough. Improved after residence in country. In 1913 he became worse; tubercle bacilli found in sputum. Tuberculin injections were followed by violent reactions. When first seen, in December, 1914, he had cough, expectoration (tubercle bacilli present 5 to 10 per field), pyrexia, haemoptysis, emaciation 11 lb., night sweats, palpitations, pain in chest, clubbing. Patient complained of laryngeal troubles; voice hoarse. Signs of infiltration of right upper lobe with softening at apex. Spahlinger's vaccine treatment was commenced in December, 1914. In May, 1916, there was no evidence of active disease. Discharged. Died of influenza in 1918.

CASE 9.

H. D., woman, aged 41, teacher; comes from tuberculous stock. History of pneumonia in 1900. Pulmonary tuberculosis diagnosed in 1901. Went to sanatorium—no marked improvement. Sent to another Swiss sanatorium for four years, whence she returned slightly improved but still coughing and expectorating a good deal. Subsequently she had tuberculin injections. Sent to the Taunus Mountains, where she became slowly worse in spite of constant

the grave risks. For a long time we have been seeing terrible cases of x-ray carcinoma due to excessive x-ray treatment administered ten, fifteen, and twenty years ago.

In ulcerative lupus and in the conditions known as scrofuloderma, we find that many local measures rapidly ameliorate the condition. Mild antiseptic treatment, cleansing with peroxide lotion, fomentations, the application of a mild mercurial lotion such as lotio hydrarg. flav., etc., and especially an occasional short exposure to x rays, produce a rapid movement. When the ulcers are cleaned up the local application of concentrated actinic light proves of great service. But this type, which often occurs about the muco-cutaneous junction, and is often associated with deep-seated intranasal or glandular disease, may develop with great rapidity and cause much destruction.

It is in this type that my experience shows the importance of combining general with local treatment, and the photographs which I show illustrate this point.

We have had over twenty-three years' experience of the light treatment of lupus at the London Hospital, and to test the permanence of the results following the local application of concentrated arc light by Finsen's method I have, with the aid of my staff, kept myself in touch with most of the patients who have passed through the clinic. In 1908 and again in 1913 I published analyses of these results.[1] This year, however, I made an inspection of the cases classed as cured in 1913 (Class A)—that is, after a lapse of ten years—and although we failed to get in touch with a number of the patients owing to the war, change of address, marriage, etc., we got reliable evidence either from personal examination, medical or other reports, that 132 of the patients had remained cured from ten to twenty-two years, and this in spite of the lack of nutritious food due to war conditions. I append photographs of a characteristic case remaining cured twenty-one years after treatment (Figs. 1, 2, 3).

A second group of cases (Class B) was also examined, and in this type there have been slight relapses, but the majority of the patients have been able to continue in their employment with short intervals for treatment. Some, indeed, have done so well that they would now come into Class A.

With regard to the percentage of cures effected by the local applications of light, our figures tally very closely with those of Professor Reyn, about 70 per cent. This is slightly higher than the Copenhagen figures, but my own observations showed that the type of case seen in the Danish institute was often graver than our own.

General Treatment.

We have always had a percentage of intractable cases, the intractability being shown (1) by the fact that the area of lupus increased faster than we could cope with it by the light treatment, and (2) by the extensive involvement of the nasal and sometimes the buccal cavity.

It is in this type of case that we have been looking for some measure which would help to improve the patient's resistance. At first we were very hopeful that the tuberculin treatment, especially after the developments following Sir Almroth Wright's work, would be of great service, and in this we have to record failure except in some ulcerative cases and in cases of scrofuloderma, but in many of these apparent cure has been followed by relapse. The dry type of lupus failed to be benefited at all by tuberculin treatment.

Dreyer's defatted antigen is an advance and has appeared to be of distinct value already in the ulcerative type of case. It is too early to predict what will be the result in the cases of dry lupus. In this variety the nodules are so imbedded, very often in connective tissue hypertrophy, that we cannot expect such an active reaction.

In the light bath we have, I am convinced, a most valuable adjunct to the local therapy, and I have now twelve months' experience of this measure in the treatment of the more serious and intractable cases of lupus. Strandberg, working in the Finsen Institute, has shown that intranasal lupus, always an extremely difficult affection to combat by surgical measures or other local measures, may be cured in the light bath, and I can confirm his observations.[2]

As our installation has been limited and to some extent experimental, we have only dealt with cases which have failed to be cured by the application of light locally, and I am sure Professor Reyn does not overstate the case in claiming that the percentage of cures can be increased from 60 to 90 by a combination of the local application of light with carbon arc-light baths.

At first the sittings are of half an hour's duration, and they are gradually extended until both anterior and posterior surfaces are exposed for two hours. Great care is taken to protect the eyes when the front of the body is exposed. Any open sores are covered by a simple dressing. The sittings are given daily. The group of nude figures round the lamp is surrounded by a screen, and care is taken to prevent the possibility of the blindfolded patient coming too near the arc. We are now treating eight at one arc lamp at once. The effects observed are:

1. Pigmentation of whole surface.
2. Rapid healing, especially of moist, rather fungating lesions.
3. Increase of body weight.
4. Improvement in the general condition.
5. Usually an increase of the small lymphocytes in the blood count.

The boy whose photographs are shown (Figs. 4, 5, 6) came under treatment in September, 1921. He was treated by the local application of concentrated light until May, 1922, and although parts of the affected area healed under this measure the disease spread at the periphery. He was then submitted to the light bath only, local treatment being suspended, and in the third photo the improvement is obvious. We have since combined both therapeutic measures and have cleared the few remaining nodules.

The girl whose photographs are appended (Figs. 7, 8, 9, 10) had steadily increasing lupus of the face, neck, and upper limbs, in spite of vigorous local treatment. In six months every lesion had soundly healed with the combination of light baths administered daily and local treatment. Her general physique has also improved remarkably.

The young man whose case was also illustrated had been under local treatment for a year with very poor result. He was a lazy, untidy youth from an agricultural district, and I had even advised his return home as incurable, when the light bath was introduced. He was one of the first patients and we were gratified to find that he responded at once. All his lesions healed, including an old sinus over the right scapula, and his general condition, mental and physical, improved so much that he has returned to his home and has at once obtained a better post.

I should like to draw special attention to the general improvement in the condition of patients under the light bath. There is a feeling of well-being, the patients become brighter and more active, the skin generally becomes clearer, and they put on weight. Examinations of the blood show that there is in many cases a marked increase in the small lymphocytes. The listless, apathetic lad or girl begins very shortly to take an interest in his or her appearance, and there is an alertness about these patients which has greatly impressed both the medical and nursing staffs attached to my clinic.

At first we had to start in a very humble way with one 25-ampère lamp, but we were soon convinced of the value of the light bath and a 50-ampère lamp was installed. We have had 32 cases under treatment, and hope to increase our installation at an early date.

The cases described show the remarkable efficacy of the general treatment, but we have also observed that the light bath treatment intensifies the effect of the local action of concentrated light on the lupus lesions and materially shortens the time required for effecting a cure. We find we can get our patients well bronzed in about a fortnight. In some cases, particularly in girls, there is a rather acute light dermatitis with vesication and free desquamation, but this is of no moment.

evidence of active disease, no sputum, still a little cough, temperature and pulse normal, gain in weight 3 st. 3 lb., lesions in throat cured. Discharged. In 1923 the patient is quite well and engaged in unusually strenuous work.

CASES 19 AND 20.

Two severe cases of pulmonary tuberculosis whose records are unavailable. One improved with partial serum treatment, the other died after a few injections, his case being probably too far advanced to respond to the very partial treatment available.

CASE 21.

R. K., aged 45; engineer. Comes from tuberculous stock. History of pleurisy and malaria in 1917 in East Africa. Second attack of pleurisy in 1918, followed by two bad attacks of influenza. Severe bronchitis in October, 1919, never cured. At the end of 1919 a cavity was located at the right apex and tubercle bacilli found in sputum. Came to Europe in August, 1921. When first seen, in September, 1921, he had cough, abundant purulent blood-stained expectoration (tubercle bacilli present 40 to 60 per field), emaciation, haemoptysis, severe sweating, much dyspnoea. Signs of extensive infiltration of right lung, with large cavity in upper lobe, and scattered infiltration in left lung. Spahlinger's treatment was commenced in October, 1921. At the end of December, 1921, the patient had improved—expectoration had diminished by two-thirds, temperature and pulse normal, night sweats stopped. He developed malaria early in 1922. He remained in bed during January and nearly all February with severe attacks of malaria; parasites traced in blood. Acute heart troubles. Partial serum treatment intensified. Lost 6 lb. In March the patient improved rapidly. In July physical signs were practically dry; tubercle bacilli still present, but scanty, weight and strength normal, dyspnoea on exertion; the patient felt very well and was able to lead a normal life until February, 1923, when a renewed attack of malaria occurred. In March partial serum treatment had to be resumed on account of reactivity of pulmonary lesions. At the beginning of April the signs in the chest had dried up considerably and sputum decreased, but the patient was still suffering from malaria. On April 14th, 1923, the patient died of heart failure. He had been so weakened by tropical residence and tropical disease that his power of resistance gave out.

CASE 22.

D. B., a well nourished man, aged 26; clerk. In January, 1920, he had a profuse haemoptysis; tubercle bacilli found in sputum. When first seen, in October, 1921, he had cough, expectoration purulent, often blood stained (tubercle bacilli present 10 to 20 per field), haemoptysis, emaciation, night sweats, dyspnoea on exertion. Signs of infiltration of left lung and softening at left apex, also infiltration at right hilus. Spahlinger's partial serum treatment was commenced in October, 1921. Several attacks of haemoptysis until June, 1922, when the patient was much improved. In July he had pneumonia, followed by profuse haemorrhages and exacerbation of all physical signs; partial serum treatment intensified. In August his condition had much improved; temperature and pulse normal. In April, 1923, the patient was feeling very well and had been leading a normal life since January. There was still a little sputum in which few tubercle bacilli were occasionally present. Physical signs practically dry; probability of cavitation at base of left upper lobe. General condition very satisfactory.

CASE 23.

L. H., a man aged 46; engineer. Comes from tuberculous stock. History of pleurisy. Tubercle bacilli found in sputum in 1908. Repeated sanatorium and tuberculin treatment. Artificial pneumothorax in 1918. Disease never arrested. When first seen, in September, 1922, cough was very troublesome, there was abundant often blood-stained expectoration (tubercle bacilli present 20 to 30 per field), slight pyrexia, pulse 100, emaciation 2 st., intense dyspnoea, palpitations, pleurisy on right side, weakness, flatulence, anorexia, anaemia, clubbing; he complained of ulcerated throat. There were signs of bilateral infiltration and softening at both apices. Spahlinger's partial serum treatment was commenced in September, 1922. In July, 1923, his condition had much improved; there was still a little cough in the morning: expectoration diminished by two-thirds (tubercle bacilli scanty), temperature and pulse normal, increase in weight 10 lb., dyspnoea less troublesome but still present, chest practically dry.

[Cases 10, 11, 15, 17, 18, 21, 22, and 23 were accompanied by skiagrams which appear to support the statements in the text, but are not found quite suitable for publication.]

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CANNABIS INDICA IN SMOKING TOBACCO.

I WAS summoned one evening to see a young woman who was reported to have become suddenly "paralysed." On arrival at the house the mother told me that about two hours previously her daughter had introduced into her nose some tobacco dust, after which she had become very giddy and had lost the use of her legs. It appeared that a young man spending the evening with them had induced the girl, and also her sister, by way of a rather foolish joke, to sniff up the dusty tobacco at the bottom of his pouch in the manner of snuff. The sister, aged 17, had shortly afterwards vomited violently, and no further untoward symptoms developed in her case. The patient, however, aged 18, I found in a very curious condition.

She was lying on a couch, frankly intoxicated (no alcohol had been administered), talking incoherently and giggling in a fatuous manner. She could not move her lower limbs, the feet and lower legs being completely anaesthetic, and there was general paraesthesia. The pupils were dilated and the pulse was frequent. She was oblivious to her surroundings unless well shaken, when she took some notice and would answer questions.

While some of these phenomena might possibly be attributable to nicotine, the highly emotional state, in one of a normally placid temperament, made me suspect cannabis indica. I accordingly impounded what remained in the pouch (the tobacco being of a well known and popular brand of a cheaper type) and had it analysed by Dr. Herbert Henstock, M.Sc., Ph.D., of this town, and I am much indebted to him for the trouble he took and his report. He stated that he found "0.66 per cent. of solid cannabis indica in the sample, equivalent roughly to about 1 drachm of the *B.P.* tincture per ounce of tobacco."

This is not a large proportion, perhaps, but evidently the amount taken was sufficient to cause toxic symptoms. Seven and a half minims of the tincture have been known to produce toxic effects. That the condition was not one of mere hysteria is, I think, proved by the vomiting of the sister, in whose case the nicotine effect predominated, and rapid elimination prevented further trouble. This all seems to show that tobacco, when absorbed from the nasal mucosa, has a much more profound effect on the system than when smoked in a pipe. In the latter case the nicotine is known to be largely converted into pyridine bases during combustion, and probably cannabis indica, if present, is also changed in some way.

The patient, after the administration of an emetic, strong coffee, etc., slowly came round.

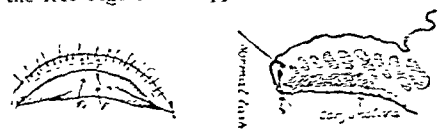
Shrewsbury. R. L. E. DOWNER, M.D.Lond.

EYELID PENETRATED IN SEPARATE PLACES BY EYELASHES.

THE following case may be of interest to your readers, as by a strange coincidence the lid was penetrated in two places by separate eyelashes.

On June 30th, 1923, Miss A. B., aged 23, consulted me, complaining that a lash had been irritating her left eye for the past three weeks. Until then there had been no previous trouble, and the lashes and lids were apparently normal except for two lashes as at *F* and *Fi* in the diagrams.

On the free edge of the upper lid were seen two faintly



blue vertical streaks an eighth of an inch apart; on everting the lid, these were seen to run backwards towards the sulcus subtarsalis, where one of them terminated in the free tip of an eyelash, *F*. The second one, although it had penetrated the lid, had not perforated the conjunctiva, and was left for the time, as it was causing no irritation. As it was impossible to see the proximal end of either lash the former was removed by cilia forceps from its free end. It came away complete and with no trouble. Apparently both lashes had grown backwards from their roots, through the substance of the lid.

London, W. SYDNEY TIBBLES, L.R.C.S. and P.Edin.

he was unable to swallow anything. The carbon arc lamps gave no relief at first, but at the end of six weeks' persistent treatment the larynx was practically painless and the use of all local anaesthetics and hypnotics had been omitted. There was no fever during the treatment, and the patient improved generally, but Dr. Johnston could detect no change in the pulmonary physical signs. The patient left the sanatorium about three months ago and up to the present there had been no return of the pain and his general condition as well as the pulmonary and laryngeal lesions had improved steadily. Dr. Johnston had also used the carbon arc lamps in a few cases for the treatment of tuberculous sinuses which were not healing under other methods of treatment. He referred especially to the case of a young man who was riddled with tuberculous foci—four large sinuses over four ribs on the right side in front, two sinuses connected with the glands in the right axilla, one on the right side of the neck, one on the left thigh, both from glands, an abscess over the right sacro-iliac joint, and a number of sinuses, both dorsal and plantar, on the left foot. The patient had also a mild lesion of the right upper lobe and was greatly emaciated and constantly febrile, and the prognosis looked very grave. He has been treated with the arc lamps for the last four months with remarkable results, for all the foci had healed except the foot, which, however, had much improved; his general condition was excellent and he was afebrile. This patient had been treated by various methods in several institutions for a long time without any improvement; and he had been at Tor-na-Dee for a considerable time prior to the commencement of the arc lamp treatment and was not doing well. Dr. Johnston felt certain that his present state was due to this method of treatment. His experience was very limited as yet, but he could not help feeling that there was a very definite sphere of usefulness for this method of treatment in a proportion of cases of tuberculosis. In painful tuberculous laryngitis he did not think that heliotherapy would give as good results as the arc lamps, especially if the lungs were gravely involved. In this country, where sunshine was somewhat fickle, especially in winter, it was easily conceivable that, in a proportion of patients suffering from so-called surgical tuberculosis, regularly applied treatment by the carbon arc lamps might give better results than irregularly applied heliotherapy.

DISCUSSION ON THE PRESENT POSITION OF THE SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS.

OPENING PAPER

BY

J. GRAVESEN, M.D.COPENHAGEN,

Medical Superintendent, Vejlefjord Sanatorium, Denmark.

Introduction.

THE particular kind of surgical treatment which has so developed as to become a lasting adjuvant to the present aid against unilateral, or chiefly unilateral, cases of pulmonary tuberculosis is based upon the experiences gained by the work with artificial pneumothorax. The principles of this method have put an end to all previous devices (incision with drainage of cavities, excision of lung lobes, etc.), which, therefore, need not be mentioned.

The immense amount of work that has been done on pneumothorax treatment, its principles and technique, is evidence of its value. Its value, however, is not to be judged merely from the point of view of the results of cure recorded by the many different authors all over the world. The results may often seem rather doubtful, or at least somewhat modest. But it has to be remembered that, besides the mere results, artificial pneumothorax has brought about a considerable progress in our knowledge with regard to many questions the importance of which had not hitherto been sufficiently realized. Light has been thrown upon many anatomical, physiological, biological, diagnostic, and therapeutic problems through the experience derived from the method of measuring the endopleural pressure, from the use of x rays, and from many other additional means developed along with artificial pneumothorax.

When considering the results of cure by this treatment it should be borne in mind that artificial pneumothorax and subsequent methods are being used only in those advanced cases (third stage) which have a very poor prospect by the ordinary régime, even with the addition of specific remedies. This fact, of course, must be remembered before any attitude is taken towards the question under discussion. Moreover, it should be realized that artificial pneumothorax, as well as collapse operations, depend to a very great extent upon a very scrupulous technique and a thorough familiarity with all the indications and complications. Undoubtedly this fact explains many of the very different opinions published by various authorities on the methods in question.

Above all, the results of artificial pneumothorax have to be judged according to the anatomical and physiological possibility of deriving full benefit from the treatment. In order to settle the actual results and to justify further—and more risky—methods in cases where the induction of pneumothorax is technically impossible, and therefore unsuccessful, it is necessary to classify the cases with regard to the influence exerted by the presence of pleural adhesions.

Such classification has been utilized in the largest series of cases yet published on this subject—namely, that of Saugman[1] (Vejlefjord Sanatorium, Denmark). A comprehensive view of these 211 third-stage cases (two to twelve years after discharge) shows a lasting positive result of the pneumothorax in 38 per cent. of all cases in which a pneumothorax of any noteworthy extent could be established. A comparison of this figure with the percentage of cure, 11 per cent., in cases in which pneumothorax had to be given up owing to more or less universal adhesions, gives a fair credit to artificial pneumothorax.

The further classification of the former group explains why the results are not still better. The injurious influence of adhesions even in some of the cases in which pneumothorax is practicable is apparent from the following tables showing the condition of the patients three to thirteen years after discharge.

GROUP I.—*Cases with Complete Pneumothorax without Adhesions.*

Able to work	33	= 70.2 per cent.
Not able to work	1	= 2.1 ,, ,,
Died from tuberculosis	11	= 23.4 ,, ,,
Died from other causes	1	= 2.1 ,, ,,
Unknown	1	= 2.1 ,, ,,
	47	

GROUP II.—*Cases with Complete Pneumothorax but with Localized Extended Adhesions.*

Able to work	14	= 33⅓ per cent.
Died from tuberculosis	28	= 66⅔ ,, ,,
	42	

GROUP IIIA.—*Cases with Incomplete Pneumothorax but with Larger Adhesions.*

Able to work	5	= 11.1 per cent.
Died from tuberculosis	39	= 86.7 ,, ,,
Died from other causes	1	= 2.2 ,, ,,
	45	

GROUP IIIB.—*Cases with Universal Adhesions—no Pneumothorax Practicable.*

Able to work	9	= 11.8 per cent.
Not able to work	3	= 3.9 ,, ,,
Died from tuberculosis	63	= 81.8 ,, ,,
Unknown	2	= 2.6 ,, ,,
	77	

These tables* clearly show how frequently the adhesions handicap the full benefit of artificial pneumothorax and what excellent results that treatment would be able to give if the injurious influences of the adhesions could be removed. It is no wonder, therefore, that somewhat extreme attempts have been made in cases of adhesions to provide for the diseased lung such conditions of lung collapse as are present in an adhesion-free pneumothorax. I cannot mention here all of the numerous suggestions made by different authors towards this end, as a good many of the suggestions have

* The statistics in these tables are worked out on cases treated before any additional operation had been undertaken.

Reviews.

HYGIENE OF THE WAR.

Two volumes on *Hygiene of the War*,[1] forming part of the official *History of the Great War*, have been published. The first volume deals with sanitary organization, instruction in hygiene, purification and supply of water, the disposal of waste products, the housing and clothing of the soldier, and the hygiene of transports; the second with various matters relating to food, and with special diseases and disease-producing insects.

The general success of the military sanitary administration, especially in France, is well recognized, but Sir WILLIAM MACPHERSON, the editor of the series, states in his preface to these two volumes that it has been difficult to measure the saving of man power. He takes the morbidity rates for the chief water-borne diseases in the South African war as the best basis for comparison, and states that in that war 58,000 out of an average strength of 208,000 suffered from typhoid and over 8,000 died, while on the Western Front in the late war less than 7,500 were affected in an average strength of a million and a quarter, and there were only 266 deaths. Similarly, the admission rate for dysentery, which was 86 per 1,000 of strength in South Africa, was not above 6.18 in any year on the Western Front. In dealing with water supplies the editor refers also to the value of the water reconnaissances of an expert geologist in Egypt and Palestine. Among the new types of work was the wholesale di-infestation of persons and clothing, the need for which was increased by the demonstration in 1918 that the louse was the conveyor of trench fever.

It was shown that the long accepted figure of 0.3 per cent. of the strength as the daily admission to hospital was seldom exceeded when sanitary measures were effectively carried out, and it became a valuable mark above which investigation would always show some obvious defect in sanitary control.

The early efficiency of the sanitary organization was due to the fact that the pre-war scheme formed a sound foundation on which extensions and new methods could be based. It is laid down that every commander is responsible for the health of his men and the sanitation of the area which they occupy, and that he should have an expert sanitary officer as his adviser. In order to give satisfactory sanitary advice and supervision in detail divisional sanitary sections were organized, but, owing to the frequency with which divisions were moved, it was subsequently decided that more effective sanitary control could be exercised by having sanitary units for fixed areas and giving them control of laundries and baths. The rapid increase in sanitary personnel was brought about mainly through the London Sanitary Companies of the Territorial Force which acted as training centres. Overseas it was found desirable to form schools of sanitation, one being provided in each army area, where sanitary personnel were instructed in the latest methods, and instruction was also given to members of other branches of the service. Emphasis is placed on the fact that good sanitation cannot be achieved by the medical service alone, but needs the active co-operation of every commander and every individual; consequently attention was given to propaganda of a popular type.

Opportunities were afforded for laboratory work of various kinds, including the provision of mobile bacteriological laboratories to assist in the early diagnosis of infectious disease, and also of motor vans fitted as hygiene laboratories. Three beds per 1,000 troops proved sufficient as a general rule. Early notification, not only of the usually notifiable diseases, but also of scabies, trench fever, influenza, venereal disease, and other diseases in which special investigation was being carried out, was provided for.

The account given of the supply of safe drinking water constitutes a detailed and instructive dissertation on the methods by which water was obtained, purified and conveyed to the soldier in no matter what position he might be. In France the water companies had mobile apparatus for purification and motor tank carts for the conveyance of the water, and these doubtless saved the situation on a number of occasions. In Egypt the conveyance of water by large pipe lines over considerable distances, with intermediate pumping stations, alone made the campaigns possible. Water containing 200 to 300 parts of sodium chloride per 100,000 could be drunk for a week to ten days without ill effects, but 150 parts was generally regarded as the limit which should not be exceeded in drinking water. Horses readily drank water with 500 parts, and camels water with 1,000 parts per 100,000. In Mesopotamia it was necessary to use river water chiefly.

The chapter on the disposal of waste products brings out the diversity of conditions, but all methods resolved themselves into burning or burying the solid matter in the safest and most convenient way. As regards latrines, the open deep pit was naturally condemned as dangerous, but the shallow trench latrines came to be regarded as by no means satisfactory and were soon abandoned, and where possible replaced by deep latrines with fly-proof covers. For burning excreta the Horsfall destructor proved very useful, and many other similar destructors were improvised for the destruction of waste products of various kinds. Considerable difficulty was met with in the disposal of greasy and soapy water from cookhouses, ablution benches and laundries, and various types of trap were devised. In all these matters the reader is impressed by the ingenuity shown in devising methods and improvising apparatus for carrying out principles which were decided upon.

The housing and clothing of the soldier are next dealt with. In the United Kingdom the pre-war standard of 600 cubic feet with 3 feet between beds had to be reduced owing to pressure on accommodation to 400 cubic feet with 40 square feet of floor space, which meant in an ordinary army hut only 18 inches between beds; a result of this may have been the outbreak of cerebro-spinal fever among the Canadian troops in 1915. The healthiness of different kinds of lodgements is discussed. In France, at first, billets, buildings, tents, and bivouacs were mainly utilized, but subsequently hutting was used as much as possible; the Nissen hut occupied a prominent place, but many other designs, both English and French, were in common use for various purposes. Towards the end of the war the area occupied by the troops was regarded as consisting of four zones from front to rear from the point of view of the type of quarters available for personnel. These zones were: (*a*) Forward zone of dug-outs, (*b*) the secondary zone of dug-outs or shelters, (*c*) the reserve zone of billets supplemented by huts concealed as far as possible from enemy aircraft, and (*d*) the back zone of billets or hutted or tented camps. More and more attention came to be devoted to clothing. The design of boots was greatly improved as the result of a special inquiry; attention was also paid to rendering them watertight. Much wastage occurred in the first half of the war owing to chilled feet and frost-bite, due mainly to the prolonged wearing of boots in trenches where the wet conditions were combined with restriction of the circulation by puttees and the absence of exercise. Special arrangements were made for the drying of socks and other clothing. Various modifications were made in the uniform in different parts of the world as experience was gained.

The volume, which has separate chapters on the Western Front, Egypt and Palestine, North Sinai, Mesopotamia, Italy, Macedonia, and North Russia, closes with a chapter on the hygiene of transports, in which are described arrangements to increase space and improve ventilation, and also the precautions taken to prevent the introduction of infectious diseases into the United Kingdom. There are numerous useful plans and diagrams, and the chapter on schools of instruction and hygiene is particularly well provided with photographs of sections of camps with various sanitary appliances *in situ*.

Among the diseases dealt with in the second volume are malaria, cerebro-spinal fever, trench foot, scabies, bilharziasis, trachoma, small-pox, and plague. There are also special chapters on prisoners of war, on the special physical test station, and the base hygiene laboratory in France. As in the first volume, the subjects are dealt with

[1] *History of the Great War, Based on Official Documents: Medical Services. Hygiene of the War.* Vols. I and II. Edited by Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., Colonel Sir W. H. Horrocks, K.C.M.G., C.B., and Major-General W. W. O. Beveridge, C.B., C.B.E., D.S.O., K.H.P. London: His Majesty's Stationery Office. 1923. (Med. 8vo, pp. 400 and 566 respectively; illustrated. 21s. each net, post free 22s.)

the bleeding spot or high endopleural pressure, established by injection of saline solution into the pneumothorax). One of the reasons why we have not observed any bleeding is probably because we always use a weak, redly glowing galvano-cautery. This precaution makes the operation somewhat longer, but at the same time safer.

In six of our cases a serious empyema developed after the operation; the cause of this complication was almost always to be found in the attempt to cauterize rather extensive adhesions. Simple exudates were observed after the operation in six cases, but had no injurious influence.

It seems evident to us, and also from the experiences published by other authors (up to date Jacobaeus himself has used his method in not less than 90 cases), that none of the technical or clinical complications is of such grave importance as to warrant abandoning the method in suitable cases. But it is also true that the operation demands a good deal of practice in handling the instruments and in judging the different conditions which may be found. The common criticism of the method—referring to the difficulties of the technique—is, however, in our opinion to be explained by lack of proper practice. Another criticism of the method is the comparatively narrow field of indication; but, as a matter of fact, this circumstance should not be allowed to condemn the method in really suitable cases.

Our work on these lines has obtained the following results:

Out of a still larger number of cases, in which thoracoscopy has been used, cauterization was performed or tried in 35 cases. Cauterization was technically successful (that is, sufficient for a complete collapse of the lung) in 22 cases; 17 of these derived a lasting clinical benefit from the operation (disappearance of bacilli and symptoms). In 13 cases the operation was given up after an *incomplete cauterization; some of these cases, too, showed improvement* after the operation.

Although we feel justified by these results in recommending the method, we are still confronted by a class of cases belonging to this group which are not suitable for the application of the method. In such cases we usually try *for a longer period the most energetic pneumothorax* technique that is practicable, and often we acquiesce in a less complete collapse, obtaining only relative results. If, however, further observation shows that the prospect of lasting improvement in such a case actually depends upon further surgical treatment we consider the methods mentioned under the next heading.

In two cases we have tried to provide the complete lung collapse by means of a pleurotomy with manual or instrumental loosening of such extended adhesions as could not be cauterized. But in both cases such serious complications (post-operative haemorrhage and open empyema) occurred, as to necessitate our abandoning these operations. The same experiences are published by several other authors with regard to pleurotomy.

III. *Artificial Pneumothorax not Possible to any Satisfactory Degree: Thoracoplasty.*

Although it may be true that for Jacobaeus's method there is left only a narrow field of real usefulness, a glance at Groups IIIA and IIIB of the above tables (p. 506) reveals a large number of cases entirely lacking the lasting benefit of artificial pneumothorax. It will be easily understood that a clinical observation of the facts expressed by such statistics has prompted our efforts to introduce in our treatment such operations as had been worked out as substitutes for artificial pneumothorax. As our work with the thoracoplastic operations has proceeded we have experienced to a fair extent the advantages as well as the drawbacks involved in these methods. The sum of our experience is, however, in absolute favour of thoracoplasty, provided the operation is used in well selected cases and every attention is paid to the physiological and technical demands.

It has been our aim to select the most useful modifications published by different authors, especially on the Continent and in our brother countries in Scandinavia, and thus to work out a technique which combines the advantages of the different methods. As a whole we have followed Sauerbruch's[2] technique, which embraces the largest fund of theoretical and practical experiments published on this subject. But also Brauer,[3] who was the pioneer in solving the problems of a successful thoracoplastic operation, has a great share in the line of work adopted by us. Of the Scandinavian authors we are obliged to mention P. Bull,[4] and Jacobaeus and Key,[5] whose recent publications are of great value to the discussion.

Since 1916 we have treated 110 patients with thoracoplasty: 105 of these were operated upon for pulmonary tuberculosis, 3 for old tuberculous empyema with external fistulae, and 2 for bronchiectasis. Previous to the 105 cases of pulmonary tuberculosis on which our experience in this connexion is based, we had experimented with the earlier methods of thoracoplasty (Brauer, Friedrich) carried out by surgical colleagues in other hospitals. The results of four such cases, however, hardly justified further experiments on the same lines; in all the cases but one the effect failed, and in the one positive case the condition of the lung and heart functions was considerably impaired. For several years, therefore, no thoracoplastic operation was performed on our patients. When the further development of the technique had provided a better prospect, the method was again taken up for renewed study, and in contrast to the previous attempts we were now enabled, by the installation of a full surgical outfit at our own sanatorium, to carry out the operation ourselves without any discontinuation of the ordinary sanatorium treatment of our patients. We emphasize this advantage as a very important one for obtaining the best possible results.

The indication for thoracoplasty arises when, in cases fit for lung collapse treatment, the careful attempts of artificial pneumothorax have actually failed. Before entering upon this alternative operation, however, we always revise the indication very carefully, as we believe a considerable restriction to be necessary when proceeding from the question of artificial pneumothorax to that of thoracoplasty. On account of the greater risk and the irreparable conditions involved in thoracoplasty, a more pressing need of collapse of the diseased lung and a more reliable condition of the better lung are demanded than in regard to artificial pneumothorax alone. Nevertheless, the striking examples of good results, even when the better lung has been considerably affected, have had the result that occasionally we have felt justified in giving such patients as might gain a little and could lose nothing a chance by the operation. It cannot, however, be denied that this indication as a whole acts unfavourably upon our statistical results. The general condition of the patient and the complication with other localizations of tuberculosis or other diseases also seem to us to claim more deliberation than with regard to artificial pneumothorax lest thoracoplasty should get a bad reputation.

Having settled the indication for a particular patient we come to the next question to be solved—namely, the working out of the plan of operation to be followed in this individual case. It is a common statement, with which we cordially agree, that the chief problem regarding plastic operation is to individualize the operation according to the peculiarities of the single case. The deliberations in this respect are particularly concerned with two questions: (1) Should a partial or a complete thoracoplasty be done? (2) Should the operation be performed in one, two, or more stages?

(1) A partial thoracoplasty may be considered sufficient either when the affection (for instance, a cavity) is localized to a limited area of the lung or when a partial pneumothorax has been so established as to provide collapse for the upper or, more frequently, the lower part of the lung.

In a few cases where the disease was well localized to a certain lobe we were able to secure a full effect by an operation which left some of the ribs intact. In three cases of large basal cavities the upper two or three ribs were not resected, and the result of these operations proved very satisfactory. In the more frequent cases of apical cavities, however, we do not consider it safe to let the lower part of the lung remain expanded, as a post-operative aspiration of sputum into the moving lower lobe is likely to produce pneumonia or a secondary tuberculous affection.

If only the lower lobe is immobilized by a partial, basal pneumothorax it may be advisable to abstain from complete thoracoplasty by leaving the lower ribs intact. This combination of a partial pneumothorax and a partial thoracoplasty formed the plan of operation in three of our cases.

THE ACTION OF RADIUM.

THE Jacksonian Essay on *The Effects of Radium upon Living Tissues*,[4] by Dr. SIDNEY FORSDIKE, has together with a paper on the treatment of haemorrhage by radium, been published as a separate volume. The author describes a series of experiments in which the ovary of the cat was exposed to the action of varying doses of rays for periods ranging from half an hour to twenty-four hours. The animals were allowed to survive for from thirty-six hours to twelve weeks. The general conclusions are that with strong doses of radiation, where the radium is brought into direct contact with the tissue, the effects are procured in a few hours. With moderate doses there is a definite latent period before any change is noted, but though delayed the microscopical changes are identical. The author states that apart from the engorgement of vessels and haemorrhages, the first noticeable effect is upon the nucleus of the primary follicles; fragmentation of the chromatin occurs, but the cytoplasm only shows changes later; he concludes that the cell is probably killed by action upon the nucleus. Radium rays, he states, show a differential action upon vital cells; endothelium of vessels, ovarian follicles, lymphatic tissues, and white blood cells are rapidly destroyed, whereas nervous, fibrous, and cartilaginous cells are more resistant. This differential action is most marked in rapidly dividing and embryonic tissues. The author has treated fifty cases of carcinoma of the uterus, vagina, and vulva with radium. He concludes that the younger the patient the worse is the outlook, and that the best results are obtained from patients at, or following, the menopause. The prognosis in the endocervical type of carcinoma is grave, as it is rarely diagnosed in the early stage. Of squamous carcinoma, the fungating type responds to treatment better than the ulcerative. Three of the cases were treated in the early stage of the disease; two of these were alive and well eighteen months after treatment and there was no sign of recurrence. The remaining forty-seven cases were inoperable. Four of these were clinically free from disease six to twelve months after treatment; eight remained unrelieved; three were lost to observation, and the remaining twenty-nine received marked benefit from cessation of haemorrhage, relief of pain, and modified discharge.

CYSTOSCOPY.

THE success of the book on cystoscopy and ureteral catheterization, by Drs. G. MARION and M. HEITZ-BOYER, has induced the authors and publishers to produce a second edition.[5] Several noteworthy changes have been made.

In the first place the work is issued as a single volume, and a certain amount of space has been saved by insisting less on the distinction between cystoscopy with instruments giving a reversed image and cystoscopy with the image corrected. In the opinion of the authors every urologist should be capable of using both instruments with equal facility. Moreover, the chapter on the optics of cystoscopes and the interpretation of images has been entirely remodelled, and this somewhat dry subject has certainly benefited by the rewriting.

An excellent chapter is that which deals with the cystoscopy of patients suffering from enlargement of the prostate. The authors have long been recognized authorities on the cystoscopic appearance of enlargement, and their description of the vesical aspect of an enlarged prostate is excellent. Great emphasis is laid on the importance of ascertaining the relation of the vesical neck to the ureteral orifices. As the authors point out, in a normal bladder it is impossible to view simultaneously in the same field the bladder neck and the orifices. When hypertrophy exists, even when it is still slight, it is possible to see at the same time, and in the same field, the neck of the bladder and the ureteral orifice. This is due to the fact that when the neck is raised by enlargement of the prostate the prism of the cystoscope embraces a much larger field, the size of the image of the ureteric orifices being, of course, at the same time reduced. In cases of very marked enlargement, on the other hand, the orifices are completely shut off from view by the prostatic projection. The chapter on hypertrophy of the prostate is well illustrated with diagrams and coloured plates.

The section of the book dealing with operative cystoscopy has also received attention, chiefly in that part that concerns treatment by high frequency and diathermy. It will be remembered that the treatment of new growths of the bladder by high frequency was put into practice more or less at the same time by Beer and Keyes in America and by Heitz-Boyer and Cottenot in France; but whereas Beer employed direct action by electro-coagulation, Heitz-Boyer and Cottenot had recourse to action at a distance by means of a spark. In consequence it is not surprising to find in the work under review enthusiastic advocacy of sparking. By this method the papilloma is destroyed, not so much by heat as by the disruptive action of the sparks. The authors employ it not only in the treatment of new growth but also in that of tuberculosis of the bladder—a very intractable lesion. The cases of tuberculosis in which it would appear to be of special value are those in which the bladder lesion is discrete and localized—for example, an ulcer. Where the lesion takes the form of a general or widespread cystitis accompanied by intense oedema the treatment would seem to be of little use. It would also appear to succeed in cases of persistent tuberculous granulations, and is to be regarded as a supplementary method of treatment where nephrectomy has led to improvement, but not to the entire clearing up of the bladder condition. Some excellent coloured plates are given of a case of tuberculous ulceration treated by high frequency. Another lesion in which sparking would appear to be useful is intravesical prolapse of the ureter; the authors are definitely of opinion that the results obtained from sparking are better than those obtained from electro-coagulation.

The art of pyelography has also advanced since the appearance of the first edition in 1914. Various pyelograms are included in the new work. The examples of normal renal pelves are excellent, but in selecting an illustration of a pyelogram of hydronephrosis it would have been better to have chosen a less advanced case. An advanced case of hydronephrosis can be diagnosed apart from pyelography, and it is in the detection of the earliest changes in the pelvis and calyces that pyelography is of such service. The authors have not emphasized this point sufficiently, nor dwelt enough on the interpretation of pyelograms that show an early stage of dilatation. Surely it is only by a better knowledge of the beginning of hydronephrosis that progress will be made and that kidneys otherwise condemned to destruction will be saved.

The first edition of this work is sufficiently well known to make it unnecessary to write at greater length on the merits of the second. A perusal of its pages should be sufficient to convince the most sceptical of the importance of modern urological methods in the diagnosis and treatment of lesions of the genito-urinary tract.

CONGENITAL HIP DISLOCATION.

IN *La luxation congénitale de la hanche*[6] Dr. P. LE DAMANY of Rennes attempts to solve the long discussed problem of the etiology of congenital dislocation of the hip. The causes of this deformity and its sexual distribution have up to the present time defied investigation.

According to Dr. P. Le Damany the causa causans is the cerebral development of man, and the consequent increase in size of cranium, which by necessitating a more capacious pelvis has caused disadvantageous changes in the position and form of the acetabulum. He quotes statistics to show

[4] *The Effects of Radium upon Living Tissues, with Special Reference to its use in the Treatment of Malignant Disease.* By Sidney Forsdike, M.D., B.S.Lond., F.R.C.S.Eng. London: H. K. Lewis and Co., Ltd. 1923. (Demy 8vo, pp. 72; 42 figures, including 9 plates. 5s. net.)

[5] *Traité Pratique de Cystoscopie et de Cathétérisme Urétéral.* Par G. Marion et M. Heitz-Boyer. Deuxième édition, entièrement refondue. Paris: Masson et Cie. 1923. (Roy. 8vo, pp. 480; 214 figures, 43 plates. Fr. 100.)

[6] *La luxation congénitale de la hanche.* Par Dr. P. Le Damany. Bibliothèque des connaissances médicales dirigées par le Dr. Apert. Paris: E. Flammarion. 1923. (Cr. 8vo, pp. 246; 149 figures. Fr. 10.)

Professor Chr. Saugman. According to the original plan Saugman himself should have enjoyed this opportunity of giving an account of the studies here presented, in the development of which he has been the great master. His death in February of this year has thwarted this plan, to which he had been looking forward with much delight. His enormous energy, his profound knowledge, his clinical capacity, and his unique personality will be missed on this occasion, as it is missed in all the spheres of his great life work.

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[1] *Lancet*, 1920, ii, p. 685. [2] Sauerbruch: *Chirurgie der Brustorgane*, I Bd., Berlin, 1920. [3] Brauer, Schroeder, and Blumenfeld: *Handbuch der Tuberkulose*, Leipzig, 1919; see also *Beiträge zur Klinik der Tuberkulose*, Bd. 51, 1922. [4] *Lancet*, 1920. [5] *Acta Chirurgica Scandinavica*, Supplement iii, 1923.

DISCUSSION.

Mr. J. E. H. ROBERTS (London) said it was not necessarily true that bad results were due to adhesions, but infection was more virulent in cases where adhesions were strongest. He had lately modified his views regarding the Jacobaeus operation for cauterizing adhesions. He believed that in many cases it was a good procedure, but in others the adhesions were so firm that thoracoplasty had to be performed. He urged the importance of careful preparation of a case to be subjected to thoracoplasty. He preferred not to rely on a local anaesthetic; gas and oxygen was the anaesthetic of choice. The after-treatment was as important a factor as the operation itself. The chest wall should be immobilized by strapping for at least ten days, and [illegible] physical exercises should be practised t[illegible]

Dr. VERE PEARSON (Mundesley Sanatorium, Norfolk), in discussing the choice of patient for artificial pneumothorax, urged that a fair trial of sanatorium treatment should first be given. He thought it unwise to refuse to operate because there was a possibility of adhesions being present. He maintained that the ordinary physical signs were more important than *x*-ray evidence. If a case was deemed suitable for thoracoplasty this operation should not be delayed too long.

Dr. L. S. T. BURRELL (London) said that one great principle in the treatment of tuberculosis was rest of the diseased part, and the best way to rest a diseased lung was to induce an artificial pneumothorax. He thought that this treatment should be given more often and in an earlier stage of the disease than was usually the case at present. When treating a patient by artificial pneumothorax he kept him in bed at absolute rest until the temperature had been normal for at least a month, and then allowed him to begin to get up and do a little more each day until he was fit to be up all day. He was then able to begin training, and a sanatorium was the best place for him; he should stay there until all symptoms had gone and he was able to lead a normal life without fatigue. Then if necessary he returned to work, the pneumothorax being kept up for two or three years, when the lung might be allowed to re-expand gradually. The principle of this treatment was rest of the body and of the diseased part, followed by training of the body but rest of the diseased part. The importance of rest could not be too strongly emphasized. When a patient contracted consumption he was in for a big fight, and the result depended very largely upon himself. The wise man would avoid all exertion and lead the quietest of lives for at least two years.

It followed that if both lungs were involved this treatment must be modified, and this was one reason why he advocated its early adoption. It might be said that the unilateral cases were just the ones that tended to recover with or even without any treatment, but it must not be forgotten that every case started as a unilateral one. The question was, did pneumothorax tend to prevent the spread of the disease? He suggested that it undoubtedly did so. Of his first 150 cases 45 had disease in one lung only, and of these 32 had lost their tubercle bacilli and symptoms for at least the last six months, 9 were much better, and 2 were dead. In 26 cases the other lung was affected, though less than one-third of it, and of these only 6 had lost the tubercle bacilli and symptoms for at least the last six months, and 8 were dead. What, one asked oneself, would have been the result if these 26 had had a pneumothorax earlier? Another reason for inducing a pneumothorax in earlier cases was that one was less likely to find adhesions or adherent pleura, and although these might be dealt with by one of the methods described by Dr. Gravesen, the position of the patient was much more grave. Thoracoplasty meant the permanent collapse of one lung; it was accompanied by a good deal of shock, and there was a considerable mortality. What was the risk in artificial pneumothorax? He had treated 204 patients by this means and had put a needle into the pleural cavity over 4,300 times, with one fatality. He therefore agreed with Dr. Gravesen that artificial pneumothorax should be tried first; failing this it might be possible to divide the adhesions, and he thought the method described by Professor Jacobaeus was the best, although, in his own experience, very few cases were suitable. Thoracoscopy, however, was often of great value in diagnosis, and was free from pain or danger. Division of adhesions by operation was, in his opinion, distinctly dangerous. Let them not use the word "cure." He had spoken strongly in favour of treatment by artificial pneumothorax, but of the consumptives who had come to his out-patient department during the last five years he had advised pneumothorax treatment in only 15 per cent. In other words, he had recommended other treatment in 85 out of every 100 cases. However, the more he saw of the disease the more convinced he was that the value of pneumothorax treatment was not recognized, and should be more often used. It was not a cure, but it might be said that it was a very great advance in treatment. When a so-called cure came before the public they knew what it meant—many pitiful letters and painful interviews—and it was their sad duty to say that there was no cure. Lastly, he asserted that success in treatment depended on strict attention to detail. After a few months' practice anyone could induce an artificial pneumothorax and give the refills, but only experience could tell how much gas to give and when to give it, how much exercise to allow and how much rest. Each patient must be treated as an individual, and given individual treatment.

Mr. A. TUDOR EDWARDS (London) said that he proposed to pay attention to two methods only for the surgical treatment of pulmonary tuberculosis. The direct treatment of pulmonary tuberculosis—namely, drainage of the cavity—was adopted only to be rapidly abandoned, as the abscesses continued to discharge through the bronchus with the superadded complication of a bronchial fistula on the chest wall. Successful attempts had been made in rare instances with a view to total extirpation of the infected focus, but their scope was limited and their technical difficulty and the resulting shock were prohibitive. The general acceptance of the beneficial effects of artificial pneumothorax had considerably influenced the position of surgery with regard to pulmonary tuberculosis. The tendency of surgery was to amplify or replace artificial pneumothorax, where owing to mechanical factors the collapse was either incomplete as a result of band-like adhesions, or impossible from the presence of generalized surface adhesions.

Where band-like adhesions were present these could be divided with the cautery under vision through the thoracoscope. This instrument was introduced through an intercostal space under local anaesthesia, and the interpleural space examined. The appearance of the bands was quite characteristic. [Mr. Tudor Edwards showed some coloured drawings of different portions of the pleural cavity, which were made from actual cases in the Brompton Hospital, and for the reproduction of which he acknowledged his indebtedness to his friend and colleague Dr. Bennett.] The actual operation was performed by the introduction of a narrow electric cautery through another convenient interspace, and the band divided under vision. It would be found that the number of bands present was considerably in excess of those actually shown by *x* rays, but those others that were seen did not offer much difficulty in division, as they were finer and

MEDICAL AND SURGICAL APPLIANCES.

FUMIGATION OF SHIPS.

THE fumigation of ships by hydrocyanic acid gas is the routine method for the destruction of rats and other vermin practised by the United States port health authorities, and it has been adopted occasionally in England. The gas is recognized to be the most effective agent available, but unfortunately there have been some fatal accidents among men engaged in carrying out the procedure with the more or less makeshift appliances hitherto used. Aided by a grant from the Indian Research Fund Association, Lieut.-Colonel W. Glen Liston, I.M.S., Director of the Plague Research Laboratory, Bombay, spent some years in planning and perfecting a machine, the use of which would eliminate all risk during the procedure of fumigation and would enable it to be carried out more expeditiously and with knowledge of what was actually happening in the different parts of the ship into which the gas was distributed. Colonel Liston described the machine in 1920 (*Indian Journal of Medical Research*, vol. vii, p. 778 et seq.), but a considerable period lapsed before he had an opportunity of carrying out on a ship a test experiment enabling its efficiency and safety to be compared scientifically with that of the "dumping fixture," which is the appliance hitherto used by the American port authorities. He has now described, with Mr. S. N. Goré in the current number of the *Journal of Hygiene* (vol. xxi, No. 3, May, 1923, p. 199), the results of this test experiment as carried out on the Royal Indian Marine Ship *Canning* at Bombay.

The dumping fixture consists of a barrel to the upper edge of which one or two boxes are fixed on hinges. The barrel holds a strong solution of sulphuric acid, while the boxes are filled with sodium cyanide. The contents of the boxes can be tilted into the sulphuric acid when desired by drawing upon cords adjusted suitably for the purpose, and hydrocyanic gas is generated. No special arrangement is made to distribute the gas, and the quantity evolved depends on the quantity and quality of the sodium cyanide used. The concentration of the gas present in the space under treatment is not estimated at any stage in the process and no means are provided for getting rid of the poison after it has accomplished its work other than the natural ventilation existing on the ship.

In Liston's cyanide fumigator the gas is generated in a closed box which is placed in the open air. On the lid of the box a petrol motor, a fan, and a chemical cabinet are fixed. The motor is capable of revolving the fan at a speed of 3,600 revolutions a minute, and at this speed it can draw into the generating box through an inlet pipe six inches in diameter and deliver through an outlet pipe of the same diameter 1,200 cubic feet of air a minute at a pressure of six inches on a water gauge. The apparatus and chemicals required for generating, measuring, and testing the poison gas are contained in the chemical cabinet. The gas is evolved within the generating box by allowing a solution of sodium cyanide to mix with a solution of sulphuric acid on a mixing platform within the box. The quantity of poison gas evolved is regulated by the rate at which the two liquids are allowed to flow upon the mixing platform. This is controlled by two screw clamps fixed on the rubber tubing which conducts the fluids from the vessels in the chemical cabinet into the generating box. When the motor is working the poison gas is diluted as rapidly as it is generated with air drawn by the fan from the compartment under treatment through the inlet pipe connecting the generating box with the compartment. The poison gas, diluted in this way, is at once blown back by the fan along an outlet pipe connecting the fan and generating box with the compartment. The outlet pipe extends into the compartment for a considerable distance; it is furnished with a number of branches of gradually decreasing diameter so that the diluted gas is carried to the remotest parts of the compartment and delivered there at from eight to ten different points. These points may be selected on the various decks of the ship. The air and poison gas within the compartment are thus continuously circulated through the generating box where more poison gas can be added at will till such a concentration is obtained as is required for the purpose aimed at—it may be the destruction of rats or bugs or fleas or other vermin. The concentration of the poison gas in the air circulating through the machine can be estimated at any time by stopping the generation of the gas for a few minutes while a measured volume of the air mixed with poison gas is taken either from the outlet pipe from the fan or, by making special arrangements, from any part of the compartment under treatment. The apparatus and chemicals for this purpose are provided in the chemical cabinet fixed to the machine.

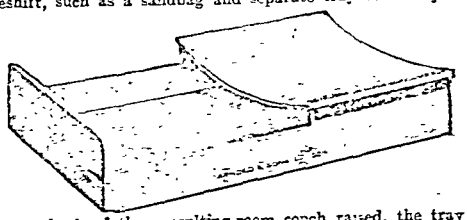
Liston's fumigator thus differs from the dumping fixture in that (1) the poison gas is rapidly diluted with air as soon as it is generated so that high concentrations are avoided; (2) the evolution of the gas is constantly under control during the whole period of fumigation; (3) the concentration of the poison gas within the room can be estimated at any time; (4) the distribution of the gas in the compartment is assisted by mechanical means so that a more rapid and even distribution is effected; (5) the poison gas can be displaced by fresh air when its work is accomplished, a system of artificial ventilation assisting the natural ventilation of the ship.

The machine is portable and can be carried by two men. It can deal with 60,000 cubic feet of space at one time, and a number of machines or units are required for the fumigation of a ship. The units should be used simultaneously so that the whole ship is fumigated at one time. The period required for completing the process is from three to four hours. A port health officer should be provided with at least ten units or machines.

The experiments detailed by the authors in their paper demonstrate clearly the defects and dangers of the dumping fixture and the advantages of the fumigator. They show, for example, that when the dumping fixture is used the gas is evolved with great rapidity, so that very high concentrations of the poison gas are found in the neighbourhood of the fixture. The gas does not diffuse evenly from this point but convection currents are set up which carry the poison gas in high concentration often to remote parts of the compartment under treatment. If enclosed or partly enclosed spaces are encountered in the path of these currents pockets of poison gas in high concentration are liable to develop while the gas may be present in quite low concentration in the immediate neighbourhood of these pockets. It is for this reason that fatal accidents are liable to occur when cyanide fumigation is undertaken with the dumping fixture. The experiments also show that even as long as two hours after starting an experiment with the dumping fixture the gas remains very unevenly distributed in the compartment. In one experiment, for example, when tests were taken simultaneously from eleven points in the compartment 112 minutes after starting the experiment the concentration of the poison gas varied between 22 and 86 parts per 100,000. On the other hand, when the fumigator was used in similar circumstances the concentrations varied only between 22 and 53. A concentration as high as 42 parts per 100,000 was met with in one experiment two hours after opening up the compartment when the dumping fixture had been used, while the highest concentration, only one hour after opening up, was 26 parts per 100,000 when the fumigator was employed. Further, while 7 lb. of sodium cyanide scarcely sufficed to kill all rats when the dumping fixture was employed, 6 lb. were sufficient to kill all rats with the fumigator. The use of the fumigator ensures safety—first, because the poison gas is generated in the open air; secondly, because it is rapidly diluted so that high concentrations are not developed and pockets of poison gas in high concentration are avoided. The concentration of the gas in the compartment can be ascertained by a simple chemical test so that variations in the volume of the gas evolved by different samples of cyanide are counteracted while additional quantities of gas can be added at any time to make up for loss by leaks or by absorption; the concentration of the poison gas in all parts of the compartment, too, is more rapidly and evenly attained. As the fumigator is economical in the use of cyanide and acid, the saving thus effected goes far to cover the greater primary outlay and running expenses of the fumigator as against the smaller cost and maintenance charges of the dumping fixture.

Combined Irrigation Tray and Pelvic Rest.

Mr. T. B. MOUAT, F.R.C.S. (Assistant Surgeon, Sheffield Royal Infirmary), writes: The combined irrigation tray and pelvic rest illustrated below is a convenience to the surgeon as it enables him to use a cystoscope, or any other irrigating bladder or urethral instrument, on an ordinary consulting-room couch, or theatre operating table. It does away with the necessity for an expensive special table, and overcomes the objections (instability, splashing of couch and towels) which arise from the use of a makeshift, such as a sandbag and separate tray or kidney basin.



With the back of the consulting-room couch raised, the tray can be used for urethral irrigation with the patient in a sitting or reclining posture; with the couch flat it gives the necessary pelvic elevation for a cystoscopic examination. The combined tray and rest is strongly made to carry a stout patient, and is finished in white enamel. It has been made for me by Messrs. Arnold and Sons of 50-52, Wigmore Street, W.1.

certain indication for cauterization; but it was a narrow one. Where adhesions were multiple the pleura might be opened in order to separate them, but he thought this was inadvisable, and where the lung was closely adherent intrapleural separation was, he was sure, quite wrong. Under these conditions pneumolysis might be done, but the difficulty of the packing material became a serious consideration. He was much interested in Dr. Gravesen's trial of packing the gauze and allowing the space to granulate up, as that was quite new to him.

With regard to thoracoplasty, Dr. Riviere thought that there was no doubt that this was the operation *par excellence* in well selected cases of one-sided disease with adhesions preventing pneumothorax. The operations he had had done were performed under gas and oxygen, and no undesirable results appeared to follow the use of that anaesthetic. It was interesting to hear from Dr. Gravesen that he was now supplementing his local anaesthesia with ether given at a late stage of the operation. Looking through the records of thoracoplasty as done by French surgeons, mostly at Dumarest's instigation, he was struck by the fact that most of the cases needed a general anaesthetic before the end of the operation was reached. Surely if this was now admitted by so experienced an institution as the Vejlefjord Sanatorium, it would be better, and on the whole safer, if a general anaesthetic was given at the beginning and carried right through. It would be interesting to have Dr. Gravesen's views as to the dangers or disadvantages of this, and also whether he had used gas and oxygen, now much favoured in this country, as the safest anaesthetic to give in this class of case. They were all greatly indebted to Dr. Gravesen for having filled the place at the Annual Meeting of that great colleague of his whose presence would be missed by many all the world over.

DISCUSSION ON THE SOCIAL ASPECTS OF TUBERCULOSIS,

WITH SPECIAL REFERENCE TO ITS INFECTIVITY.

OPENING PAPER

BY

JANE WALKER, M.D.,

East Anglian Sanatorium, Nayland, Colchester.

WHEN the Section of Tuberculosis did me the honour of asking me to open the discusssion on this subject, I accepted their invitation with full knowledge of the difficulty of my task, and of the certainty that I laid myself open to severe, if not destructive, criticism. It is impossible to overestimate the importance of the subject. Tuberculosis is rightly regarded as one of the great killing diseases, being responsible for 10 per cent. of all deaths. It is the penalty we pay for our civilization, such as it is—in a perfect civilization it should be absent. It is a many-sided disease, being concerned with so many factors of life, and there is still a great deal to learn about it. A young doctor the other day who was casting about for an object for research discarded tuberculosis because all the work to be done on it had been done! It is, perhaps, thus that some of us may have spoken many years ago, but it is increasingly clear that the more we know of the disease the more there is to know about it.

The number of people who die annually from tuberculosis—and the number in this country is about 50,000, or the equivalent of a county borough—are not, of course, the only sufferers from the disease. We shall not be far out if we reckon that for every death there are about five people ill with it. And they are ill for months or years. The length of time a patient lives after the first onset of symptoms has been variously estimated from twenty-one years to thirty-one months; but lately some more exact work has been done on this subject by Dr. Wurtzen of Denmark. His material included all the deaths from pulmonary tuberculosis at the Tuberculosis Department of the Oresund Hospital from April, 1906, to the end of 1919.[1] There were 1,032 men and 780 women, as well as 87 children. The mean duration of life for adults of both sexes was 35.9—for men 37.1, for women 34.4—and only 11.9 months for children below the age of 15. He also made some investigations as to what degree sanatorium treatment influenced the prolongation of life, and he found the mean duration of life was 56.1 months, as compared with 35.9 of both sanatorium and non-sanatorium cases. Of course this comparison loses a good deal of value because of the selection of cases considered suitable for sanatorium treatment.

The mortality rate of tuberculosis has certainly been falling, so far as this country is concerned. But it has been steadily going down for the past 150 years, and we therefore cannot fairly put it down to all the extra work done and the attention paid to this most important of all diseases. This fall in mortality rate is mainly due to those causes which have helped to lessen the general mortality rate, such as the improved standard of living, housing, cleaner clothes, better food, and so forth. Incidentally, the invention of shoddy and other cheaper materials for clothes cannot have been without its effect in this direction. Dresses, for example, are no longer handed down from one generation to another, as they certainly were in the eighteenth and early nineteenth centuries. It is a great temptation, to which it is only too easy to succumb, to regard the special measures taken to deal with tuberculosis as the one chief cause of the reduction of tuberculosis mortality, and indeed, on the first glance, ordinary figures seem to offer an encouragement to this belief. But if, as someone has said, there is as much difference between domestic cleanliness and surgical cleanliness as there is between respectability and holiness, there is at least as much difference between ordinarily compiled figures and those of a careful, competent statistician. And on this last basis we have little reason, in England at any rate, to comfort ourselves. The real facts are, as shown by Ransome, that the mortality rate has been going down steadily since 1743, and Karl Pearson says:[2]

> "We have to stretch our ideas of time a little, and we should realize the possibility of a typical epidemic curve in the frequency of phthisis. Indeed, the mortality from phthisis in England has been declining since 1838—that is, long before any special measures had been taken for the control of the disease, or segregation of the sources of infection—tuberculous human beings and animals—had been attempted."

Moreover, the fall in the death rate is not constant. It is really going up in countries like Germany and Russia, and in some primitive communities. It also rose quite definitely in women during the war, mainly, probably, as the result of their entry into factories in large numbers, the restriction of food being counted as a contributory factor as well. In the present state of our knowledge, which we are only too well aware is far from complete, we are justified in going on with all reforms that tend to improve public health in general—better housing, cleaner and more abundant food—and indeed with everything that helps to improve the health of each individual in the community. We have no doubt paid too much attention to the seed of the disease, as it were, without paying enough to the soil in which it is to grow. The dictum that no big eater ever caught consumption is really substantially true, and it certainly points to the desirability of seeing that the people's food is abundant enough, of the right kind, and as cheap as possible.

There is no doubt that for infection to take place association must be close and prolonged, and the recipient must be from one cause or another in a debilitated state of health so as to enable him or her to offer less resistance to the inroads of the disease. A recent case will probably be in the minds of most of us—Collins *v.* Hopkins, taken before Mr. Justice McCardie. In this case the plaintiff Collins took a house on October 26th, 1922, and left it the next day on the ground that it was infected with tubercle bacilli, and therefore not reasonably fit for habitation. The patient left the house six weeks before, on September 11th, and the danger, if any, must have been negligible, but the plaintiff's counsel made much of the house being dusty and dirty, though that is a fact very difficult of proof. Moreover, the medical attendant had neglected to notify the case to the medical officer of health. In giving judgement, a great deal was said by the learned judge which

approaches them. It is thicker in Scotland than in England, partly perhaps because the country is colder; but if local density of population is greater in the cities of Scotland, and domestic smoke pollution correspondingly more abundant, that is a condition which is surely much more capable of amendment than housing in general. Can it not be remedied by adopting smokeless methods of heat production in dwellings and factories? It is not necessary to-day to insist on the influence of the exclusion of sunlight by smoke in respect both of tubercle and of rickets. It is known to everyone.

Another question is whether any important racial and sociological changes have taken place and are taking place in Glasgow and the industrial west of Scotland. To what extent is the population losing by emigration to Canada and Australia and the United States men and women typically Scottish in character, of a sort which has been successful wherever it has penetrated? Can there be to a patriotic Scotsman a sadder sight on a Saturday afternoon than that of a great Atlantic liner passing down the Firth of Clyde loaded with emigrants bound for the new world, while the pleasure trippers on the paddle steamers look up and sing, with a quaver in their voice, "Better lo'ed ye canna be, Will ye no' come back again?" And how far has immigration from Ireland, especially from Southern Ireland, replaced the population lost by emigration? To what degree is Glasgow becoming a Scoto-Irish community, and what are the results of the change on social order and general prosperity and public health likely to be?

These are by no means all the questions which arise in connexion with this important subject. Much material now exists for elucidation of rural health conditions. Since county councils began their work, more than thirty years ago, the annual reports by their medical officers must have accumulated a mass of information well worth collection and analysis. These reports relate only to non-burghal areas, but any investigator would have to note that various thickly populated and industrial communities have elected to remain under county government rather than municipalize themselves. Apart from such reservation the influence of climate on health could be suitably studied by means of the county reports. The lower rainfall and more bracing climate of the east of Scotland could be compared, in its effects on public health, with the much moister and more relaxing climate of the west, likewise the higher temperature of the southern counties with the colder highland regions. The influence of insularity could be studied in the data for Orkney and Shetland and the Hebrides. The attention now given to infant and child welfare, the health of children at school, and maternity welfare is a comparatively recent development. Material on which to base comparison of activities and results as between area and area must be growing steadily, and should be utilized, both for commendation and for admonition.

Our purpose, as already said, is to ask questions, not to answer them; neither to praise nor to blame, but to urge the far-reaching implications of the comparisons between England and Scotland, and to suggest that there is abundant occasion and opportunity for valuable research into the health problems of Scotland. In these days there is too great a tendency to assume that research can only be conducted in a laboratory, but there is ample opportunity for field work of the best sort. The harvest is ready, and we hope the reapers also may be found.

TUBERCULOSIS: THE PRESENT POSITION.

In this issue, which contains a larger number of pages than usual, are published the proceedings in the Section of Tuberculosis of the British Medical Association meeting at Portsmouth, under the appropriate presidency of Sir Henry Gauvain, who has done so much at the Cripples' Hospital and College at Alton and at Hayling Island for the non-operative treatment of surgical tuberculosis. This beneficent institution, rightly called after the late Sir William Treloar, whose recent death we deplore, was the home in this country of heliotherapy, and it was therefore right and proper that the Section should discuss the artificial light treatment of lupus and other forms of tuberculosis, under the guidance of Dr. Axel Reyn of the Finsen Institute at Copenhagen, and Dr. J. H. Sequeira of the London Hospital. The Section also considered the present position of the surgical treatment of pulmonary tuberculosis, and the social aspects of tuberculosis, with special reference to its infectivity. Dr. Clive Riviere's British Medical Association Lecture on some pitfalls in the diagnosis and treatment of pulmonary tuberculosis, and two contributions on the complement fixation test in tuberculosis, by Drs. A. L. Punch and A. Hope Gosse of the Brompton Hospital and by Dr. Arthur Sellers respectively, also published in this issue, add to the value of what has become a symposium touching on the several aspects of prevention, diagnosis, and treatment. We publish also records prepared by Dr. Leonard Williams of twenty-three cases treated by the serums and vaccines prepared by M. Spahlinger at his laboratory near Geneva. Lastly, in the course of a review of the fourth annual report of the Chief Medical Officer of the Ministry of Health will be found some results of administrative experience summarized in the light of recent clinical observation with Sir George Newman's customary felicity.

Dr. Jane Walker's opening paper on the social aspects of tuberculosis bears witness to the difficulty of explaining the steady fall of the tuberculosis mortality rate during the last 150 years; for if tuberculosis is largely an industrial disease the conditions in this respect alone can hardly be regarded as more favourable since the industrial revolution which began at the end of the eighteenth century and led to the transfer of so large a proportion of the population from the country to towns. Many factors in the standard of living are no doubt concerned, and especially food, on which other speakers, such as Dr. C. Muthu from Indian statistics, rightly insisted. Incidentally Dr. Jane Walker suggested that the invention of cheaper materials for clothes, thus obviating the inheritance of dresses from one generation to another, may not have been without its influence. That for infection to take place massive dosage and close and prolonged association are necessary she illustrated in various ways.

Dr. H. Batty Shaw pleaded with no uncertain voice for the sterilization of tuberculous cow's milk, and for the removal of persons discharging tubercle bacilli from the neighbourhood of children, which is a possible step, and not from contact with other adults, which he admits to be impossible; if these conceptions were carried out he anticipated that tuberculosis, human and bovine, would be stamped out, and expressed the opinion that other measures were not only useless but wasteful. He insisted on the importance of secondary infection in pulmonary tuberculosis, maintaining that without it tubercle bacilli are not discharged and pneumonic consolidation and excavations do not follow; h

brilliancy—people who are ornaments to any state or condition of life, and their lives have been saved for many years by sanatoriums. Also, in those places where second and third stage cases are not refused, the assistance afforded to their relations and friends has been incalculable. Not only is the spread of the disease in their own homes checked, but by removing the patient they are saved the great fatigue and anxiety of nursing, and have also more money for themselves to spend on food.

In sanatoriums, also, patients learn a great deal—not by often repeated lectures, or indeed in a mass at all, but by small talks and advice given individually, as well as the more general sensible outlook maintained. In adults, too, as with children, the finishing-up habit at meals, and the porridge habit, both of which are very strongly urged at most sanatoriums, are of incalculable value. As well, too, is the knowledge that the ordinary and therefore inexpensive foods are the ones that do most good. The pride always inherent in the person who has a small appetite receives a very wholesome check in any sanatorium. If this applies to adults, it applies doubly to children. If, as really seems certain, tuberculosis is contracted in childhood, though it may not make any definite appearance till adult life, it is of the utmost importance to so increase the resistance to the disease in early life as to give it little chance when the strain comes later on in life. Where a child shows signs of having contracted tuberculosis, he should have a sufficiently long period of really efficient treatment to give him a real chance of acquiring a lasting immunity. There is some good reason for believing that this is done in some cases, though no definite conclusions have so far been obtained. The dictum "once tuberculous always tuberculous" is very hard to fight, and for a person to have to give the history of having been in a sanatorium in early life when applying for life insurance, for example, is often very detrimental to him. Many obvious sufferers from tuberculosis are much better lives, as far as insurance is concerned, than are many non-tuberculous, because they have learned real wisdom in managing their lives, and this enables them to live longer.

We have seen that tuberculosis is on the decrease—that is, that there are really fewer cases than there were; not, I am inclined to think, that the case mortality is lessened. We still get the virulent type of case that seems capable of little or no amelioration, and which runs as rapidly fatal a course as formerly; but there are certainly fewer cases of all kinds, and this diminution in numbers is specially noticeable in children. It is probable that this decrease is due to many factors the relative importance of which we are really unable to judge. There is a steadily upward trend in the habits of the people in general; their habits are better, their manners are improved. There is, for example, far less spitting than there was, and there is far more cleanliness. I recently had twenty non-tuberculous children sent down to the sanatorium from a district in the East End of London where formerly the standard of living was lower than in any other area in the metropolis. All these children had had a warm bath the night before they came, and only one was flea-marked and that very sparsely, and no child had a verminous head. For these improvements we have to thank the school medical and nursing services. Then people live better; they certainly drink less. Alcoholic intemperance, and indeed intemperance of any kind, is a most potent factor in the contracting of tuberculosis, and it greatly diminishes the power of recovery of the intemperate. Publicans, as is well known, have a high mortality rate from tubercle. They also probably get massive doses in the way of infection as well as a diminished resistance consequent on their habits.

People have also better quality in food, and the cooking is improved. They have less arduous work, and more leisure in which to improve their minds. Incidentally the Workers' Educational Association and kindred bodies have been of untold value to the nation by helping people to use their leisure time aright. Then, too, the various coal strikes have perforce made people use smoke-consuming devices more and more for their cooking and warming, and so they are breathing a far cleaner air than formerly. Again, labour-saving devices have helped to lessen the drudgery of life to a really large extent. All these things have their contributory effect on the prevention of tuberculosis.

With regard to the treatment of tuberculosis, we must see to it that the civilian part of the population has as good opportunities for treatment as has the ex-service man. We must make satisfactory provision for the wife and family while a man is away undergoing treatment, so that he may go at an earlier stage of his disease, and thus not only lessen the period of his treatment but also increase the probability of his complete recovery.

The one great thing that we must try to do for children as well as grown-up patients is to have a really effective after-care machinery, so that when the institution is left behind a friendly hand is held out to help and encourage the one-time patient when he takes up the battle of life again. The sanatorium should be linked up with the dispensary, which in its turn should be in touch with employers of labour as well as with organizations with funds at the disposal of the tuberculous person to help to supplement his earnings till such time as he is self-supporting. The question of what trade or employment he is fitted for is a very difficult one. Sometimes a sheltered trade, where the work can be arranged at such a speed as is within his powers, can be found. These arrangements, however, can usually only be met with in a colony and not in the open market. There are up and down the country colonies of various types and kinds that are attempting to deal with this side of the question, in some cases, as at Papworth and at Nayland (the sanatorium with which I am concerned), with a good deal of success.

What is known as the Framingham Demonstration was initiated in December, 1916. In Framingham, which is a town in Massachusetts of some 16,000 inhabitants, machinery has been organized for a twofold purpose:

"(1) To serve the general health needs of the community; and (2) to bring under observation all of the tuberculosis in the community, to apply the best known methods of treatment, to develop a comprehensive programme of prevention, and to organize most effectively the varied resources of the community for tuberculosis control, disease prevention and health creation."

A periodical examination of a large proportion of the inhabitants of the town, a census of all individuals in the town, covering matters of hygiene, housing, economic status, etc., a survey of tuberculous infection among cattle supplying milk to Framingham, are amongst the various activities that have been undertaken. Mr. Charles Hatfield is the secretary, and he gladly gives all the information in his power. The last report I have seen is dated February, 1921, and covers the first four years of working. It is a very interesting experiment, and on paper at any rate seems worthy of being applied to this country. Perhaps such an organization as the People's League of Health might be so constituted as to give most valuable help, if not actually to undertake this work.

In conclusion, there is no royal road to success with the tuberculosis problem any more than there is in any other subject of such great magnitude, and if the lines of advance outlined above seem rather humdrum and dull, I am convinced that it will be along such lines that future success will travel.

REFERENCES.

[1] *Tubercle*, October, 1922, p. 22. [2] *The Fight against Tuberculosis and the Death Rate from Phthisis*, London, 1911, p. 9.

DISCUSSION.

Dr. H. BATTY SHAW (London) said that before he committed himself to any statements on the social aspects of the infectivity of tuberculosis he must endeavour to clear the ground on which he proposed to stand, and if the process of clearance sounded self-opinionated and wanting in elaboration, he asked his audience to remember that there was much to be said, and little time in which to say it. Tuberculosis was spread by tuberculous milk and by the emanations from human beings who were infected with the disease; therefore, if we could but stop these sources of

contribution comes from the surgical clinic of the Peter Bent Brigham Hospital, Boston, presided over by Professor Harvey Cushing, and the Laboratory of Surgical Research of the Harvard Medical School. More than two years' experimental work on the subject showed the authors that only a temporary mitral stenosis could be brought about, and that attempts by various methods, such as partial ventriculectomy, plicating, and plastic operations in the region of the valves, failed to produce a lesion resembling human mitral stenosis. This experience provided knowledge as to the ability of the heart to stand trauma, about the methods of restoring an injured heart to renewed function, and practice in localizing the position of the valves in a pulsating organ.

A point was thus reached when further advance could only be gained by operation on an actual patient. This was performed on May 20th last on a girl, aged 12 years, suffering from mitral stenosis without cardiac reserve, who had repeated attacks of severe haemoptysis. When she was examined after admission the pulse rate was 126, the systolic pressure 98, and the diastolic pressure 64 mm. Hg. The electrocardiograms showed right ventricular preponderance and exaggerated auricular waves, the ventricular complexes being otherwise normal. The operation was performed under ether, the child being in a semi-upright position with the electrocardiographic leads and the blood pressure apparatus connected up. The technique followed was Duval-Barasty's medium thoraco-abdominal pericardiotomy; after opening the pericardium and division of the posterior pericardium and diaphragm towards the suspensory ligament, the pulse had dropped from 180, which it had reached at an earlier stage of the operation, to 120, and the blood pressure from 110 to 50 systolic, the estimations being at times almost impossible. The heart at once responded to 1/2 c.cm. adrenaline chloride dropped on its surface, followed by hot saline solution. The heart was then rolled out to the right, and the valvulotome—an instrument somewhat similar to a tenotome or a slightly curved tonsil knife, familiar from its use in the experimental researches—was plunged into the left ventricle at a point about one inch from the apex, and pushed upwards for about two and a half inches until it encountered what seemed to be the mitral orifice; it was then turned mesially and a cut made in what was thought to be the aortic cusp of the mitral valve, the resistance encountered being considerable; with a rapid turn of the knife a cut was made in the opposite side; the knife was then quickly withdrawn, and mattress sutures already in place were tied over the point where the knife had been inserted. There was absolutely no bleeding. At the termination of the operation, which lasted one and a quarter hours, the pulse rate was 140, the respirations 40, the systolic blood pressure 80, and the diastolic 40. For forty-eight hours there was severe sternal pain with respiration which necessitated a liberal use of morphine; signs of post-operative pulmonary complication of the right upper lobe appeared also, but by the fourth day the improvement was satisfactory. Pericardial friction was subsequently detected; the diastolic thrill and murmur, present before, were diminished, but this diminution may have been due to pericardial effusion; the apical systolic murmur was increased, as if from greater insufficiency of the valve due to the operation. As the date of publication was June 28th, the authors, who must be sincerely congratulated on this brilliant operation, are cautious in avoiding any statement as to the benefit that the patient has received, but they feel that the experience gained in this operation, now for the first time successfully accomplished, has provided technical improvements which should render any subsequent attempt both less dangerous and more likely to be followed by a satisfactory result.

THE SKULL OF SIR THOMAS BROWNE.

SOME eighteen months ago it was resolved that the skull, believed to be that of Sir Thomas Browne, which had been preserved in the museum of the Norfolk and Norwich Hospital for some eighty years, should be replaced in the grave in the floor of the chancel of St. Peter Mancroft, Norwich, from which it had been "knav'd" by a person described as an "acquisitive antiquary." But before this reposition Sir Hamilton Ballance and other members of the staff of the hospital considered it desirable that the skull should be examined, and for this purpose sent it to Sir Arthur Keith at the Royal College of Surgeons of England. The story was told, with some preliminary observations, in our columns by Canon Meyrick, the Vicar of the parish, on May 6th, 1922, and subsequently Sir Arthur Keith and Professor Karl Pearson announced that a full account of it would be published. This has been done, and the volume *Sir Thomas Browne: His Skull, Portraits, and Ancestry*, is now before us. The edition is limited to 200 copies at one guinea each, and the names of a few additional subscribers will be received by the Secretary of the Biometric Laboratory of University College, London, W.C.1. The book is an enviable possession. It contains a discussion on the skull and of the portraits of Sir Thomas Browne prepared by Miss M. L. Tildesley, a research worker trained in the exact methods of the Biometric Laboratory of University College, who has in this matter acted in consultation with Sir Arthur Keith, who contributes a short introductory note. Professor Elliot Smith has written a report on the endocranial cast. Miss Tildesley has examined all the portraits supposed to be those of Sir Thomas Browne, and the volume contains thirty-five plates and a folding pedigree. On account of this lavish use of plates the cost of producing the volume has been large, but it is of quite unusual interest and is likely to become, to say the least, one of the curiosities of medical literature. The skull is of peculiar form, being unusually low in front and broad posteriorly; on this account some objections have been made to its ascription, but Miss Tildesley has no hesitation in drawing from all the great mass of evidence she has collected the definite conclusion that it is the skull of Sir Thomas Browne, author of *Religio Medici*, and this opinion appears to be accepted by both Sir Arthur Keith and Professor Karl Pearson. It is confirmed by the discovery of a portrait of Sir Thomas Browne hitherto unknown. It is the property of Mr. Francis Wellesley, who has permitted its reproduction as the frontispiece to this volume; it was originally the property of Mr. Hammond L'Estrange of Hunstanton, and is known as the L'Estrange portrait. It shows a man in early middle age, and a young woman. The portrait of the man was immediately recognized by the Director of the National Portrait Gallery as of Sir Thomas Browne. The young woman is assumed to be his wife, and it is guessed that the picture was painted about the date of their marriage (1641), when he was 36 and she was 19. It was painted on an oak panel and shows in the man a head which "answers in every detail to what the skull would indicate as the appearance of the living head. The nose long and slightly aquiline, the cheek-bone projecting, the forehead normally broad at the level of the eyebrows, but retreating and narrowing abruptly." We hope to notice the monograph at greater length on some future occasion, but meanwhile would repeat that it is an enviable possession, and as the edition is limited applications for copies should be made without delay.

unfashionable truths? They had only recently—as Dr. Jane Walker had reminded them—been shown how confused medical opinion had become by reading the conflicting evidence given by their colleagues in the law courts. He was sure that a great part of the confusion was due to the fact that some of them still held by the old convention of the unity of tuberculous consumption and tuberculous phthisis and turned a deaf ear to those who would maintain that the process was a dual or multiple one. Could it be wondered at that the public, seeing their confusion, doubted their convictions and ridiculed Acts of Parliament based upon them? The spread of tuberculosis would be countered by feeding children, when it was necessary, with cow's milk which had been sterilized, by the segregation, maybe permanent, of those who discharged tubercle bacilli, and by the temporary segregation of those who were suffering from non-tuberculous respiratory infections. It was possible that the infection of the young with a certain amount of tuberculosis, bovine or human, might be beneficial; but he suggested that, until they knew what amount of infection was beneficial and what amount was harmful, they should try rather to prevent all infection with any form of tubercle bacillus.

Dr. J. E. CHAPMAN (London) said that in the latter part of her interesting paper Dr. Walker called attention to the need for developing really effective after-care machinery in connexion with the schemes for combating tuberculosis. It was to this matter that Dr. Chapman wished to direct attention. Tuberculosis in its more chronic forms was a disease which extended over long periods; periods of ill health tended to alternate with periods of fair health and even in the most favourable cases the duration of treatment was considerable. The wage-earning capacity of the patient was consequently extinguished from time to time and in many cases there was a permanent reduction of earning capacity. The effect of these conditions upon the family was quickly felt, unless some savings had been laid by for a rainy day, if the patient happened to be the breadwinner or the mother of the family, and the whole family tended to drift into a state of poverty. The Chief Medical Officer of the Ministry of Health said in his Annual Report for 1921:

"Poverty is an important factor in the causation of tuberculosis, and tuberculosis in turn is itself a cause of poverty. The vicious circle thus formed can be broken by action on sociological lines as well as by appropriate medical treatment. 'Early treatment' of the sociological problems arising from the occurrence of a case of tuberculosis in a family is frequently as important in the interests of the patient and the family as the medical treatment of the individual sufferer."

The occurrence of tuberculosis in a working-class family, particularly if the patient was an adult, was frequently an economic disaster. What results could they expect from the best medical treatment if the patient and family were drifting into a state of poverty and the patient was probably unable in consequence to follow out adequately the treatment prescribed? Could they expect patients, who had responded well to treatment in a sanatorium, to retain their improved health if they had to return to unsatisfactory home conditions resulting in part from straitened circumstances? Were the underfed children of the family likely to resist possible infection satisfactorily? Care committees, by attending to the economic problem in the cases of individual sufferers and their families, could frequently assist very materially in rendering treatment effective, in reducing the risk of relapse, and in minimizing the danger of spread of infection. The Departmental Committee on Tuberculosis—the Astor Committee—recognized the need for care committees and stated in its Interim Report published in 1912:

"The effectiveness of the work of the dispensary can be greatly increased by the organization of voluntary care committees formed of representatives from the local authorities, boards of guardians, insurance committees and from all charitable and social work organizations in the district. In this way all available agencies can be linked up and any extra assistance such as additional food, change of air, clothing, better home conditions, more suitable occupation, etc., that may be needed to enable patients to benefit to the fullest extent from the treatment provided may readily be secured."

The Local Government Board drew the attention of counties and county boroughs to the above statement in a circular issued in 1915, and added:

"It appears to the Board to be important that Committees such as the Departmental Committee recommended should be organized in every area for which a scheme for the treatment of tuberculosis has been adopted, and, inasmuch as the work of these committees should relate to the whole community, their organization should be undertaken under the general direction of the councils of counties and county boroughs, who are responsible for the schemes of treatment."

Unfortunately a variety of circumstances—the war, the inherent difficulty of the work, and the scarcity of trained social welfare workers—had led to the development of these committees being slow. In some areas, however, excellent care committees had been established, and he thought that he could indicate the nature of their work most satisfactorily by quoting examples of cases which had been dealt with by them. Before he referred to these cases, however, he thought it might be useful to set out one or two important principles which should govern the action of care committees. In the first place the aim of the committee should be to help the patient to help himself rather than to allow him to be dependent on others. The care committee should not be a kind of public assistance committee doling out financial help, but a body which would consider in detail the needs of each patient and his family and determine how best they could help him to regain or maintain economic independence. It would, however, sometimes be necessary for the committee to give material assistance, but such assistance should only be given with the greatest circumspection and as a preliminary to the execution of a carefully arranged plan by which the patient might be expected ultimately to be able to depend upon his own resources. When material assistance was needed, it was desirable, in order to prevent overlapping of effort, for the committee to bring the patient into touch with the appropriate national or local agency which could meet the need. In this way the British Red Cross Society, the United Services Fund, Charity Organization Societies, Invalid Children's Aid Societies, Juvenile Employment Committees, and many other organizations, whose spheres of activity would be known to the committee, could render invaluable aid. In order to secure complete efficiency it was, however, usually desirable, particularly in the provinces, where the network of social welfare organizations was not so extensive as in London, for the committee to possess some funds to enable them to help cases which could be dealt with by existing organizations. Much excellent work could, however, be done by a committee which possessed no funds for this purpose, as will be seen from the cases he proposed to quote. In the second place, the unit with which the committee should deal should be the family and not the individual member who was suffering from tuberculosis. Any action which improved the circumstances of the family would have its proper effect upon the patient and vice versa. In the third place, action should be taken when necessary before the circumstances of the family had become disorganized, on the principle that prevention was better than cure. The Ministry of Health dealt with these last two points in a recent circular issued to Metropolitan Borough Councils as follows:

"The occurrence of tuberculosis in a single member of a family may have a serious effect upon the social and economic circumstances of the family as a whole, and it is consequently essential that the unit with which the care committee should deal should be the family and not the individual patient. The early consideration of the economic effect of the occurrence of tuberculosis in a household is as important as the early diagnosis of the disease in the individual. The primary duty, therefore, of the committee should be to consider the economic position of the family of every patient suffering from tuberculosis as soon as he comes within the purview of the dispensary scheme, and to render such advice and assistance as circumstances of the case dictate, with a view to enabling the family to adjust their circumstances to the new conditions, to maintain their economic independence and to derive the fullest possible advantage from the medical treatment prescribed."

He then quoted a number of actual cases, taken from the records of a number of Care Committees, to illustrate these principles in action:

Case 1.—The patient lived with a widowed mother, sister and three brothers, with whom he shared a bed. The Care Com-

ago: there were then four beds, now there were fifteen, and the demand was for more. The number of patients so far admitted was 150, and 113 operations had been performed. She appealed to the district to support the institution and to rally round Sir John Lynn-Thomas and the other members of the medical profession in the district who were working at and for the hospital. The mayor, after mentioning that Sir John Lynn-Thomas had presented all his surgical instruments to the hospital, and also the nucleus of a medical library, called upon him to speak. Sir John Lynn-Thomas said that the hospital still wanted a research department. If the causes of diseases were discovered their prevention would follow almost automatically. Cardigan had done better than any town in Wales in regard to the hospital, and he knew no town in England which had done as well. The hospital, he said, had a flat roof, which could be used for the sun and open-air cures, as well as a good garden, with exposure to the south. Votes of thanks by Mr. John Evans to Mrs. Lloyd George were passed by acclamation.

THE SCANDINAVIAN MEDICAL JOURNALS.

WITHIN the last few years there have been important changes in the medical journals of Scandinavia. Before the war each of the Scandinavian countries had its own medical journals published in the language of the country. The Swedes and Finns wrote in Swedish, and the Danes and Norwegians in Danish and Norwegian. The worst feature of this arrangement was the isolation it entailed; an important discovery published in Norwegian might easily be overlooked by the rest of the world, and when the same discovery was made some years later in another country no credit was given to the author, whose publication still languished in the obscurity of a Scandinavian language. More than one instance of such an oversight could be given, and in consequence of this difficulty Scandinavian workers were beginning some years ago to publish their observations abroad, notably in Germany. This procedure also had its drawbacks. The bulky and numerous journals of pre-war Germany proved a capacious burying-ground in which the identity and nationality of the foreigner were often lost. To meet these two difficulties—that of publication in an unfamiliar tongue or in a foreign journal—the leading Scandinavian medical authorities decided on a wise compromise which consists of pooling all original Scandinavian work in a series of special journals or *Acta*, in which articles are published in one of the three languages, English, French, or German. In addition to *Acta Medica Scandinavica* there are various other *Acta*, including *A. Surgica*, *A. Radiologica*, *A. Paediatrica*, *A. Dermato-Venereologica*, and *A. Oto-Laryngologica*. Each *Acta* is conducted by an editor and a staff of associate editors, and the journals appear at irregular intervals according as the supply of material and other considerations permit. The standard of these publications is high, and already authors in Holland, Germany, and the countries carved out of the old Austrian Empire have sought the hospitality of their columns. It is not difficult to explain the reasons for the high standard of Scandinavian medical work in general and publications in particular. The Scandinavian is a good linguist, and it is rare to find one who holds an important hospital appointment and who cannot read English, French, and German. It follows that he is more likely to be conversant with medical research throughout the world than many of his English, French, and German brethren. Another advantage of belonging to a small country is the bird's-eye vision, perspective, and freedom which this outside position confers. The development of the young Scandinavian scientist is seldom stunted by some dominating personality in his own country. In Germany, for example, there have been times when not to follow Virchow or Koch blindly was tantamount to segregation among Philistines. Feeling at liberty to pick and choose at their own sweet wills the Scandinavians have never committed themselves wholesale to any special school of thought, and, while seeking inspiration from abroad, they have not been slow to pursue independent research at home. Yet another factor contributing to the value of their publications is the transparency of the scientific fabric in these northern countries. Everyone knows everyone else, piracy of scientific work is therefore almost impossible, and the publication of pseudo-original articles is likely to bring the author more ridicule from the initiated than kudos from the crowd.

MEDICAL PRACTICE IN NORTH AMERICA.

DR. CECIL BULL, in a note published at page 533, describes some of the merits and some of the disadvantages of medical practice as it is now conducted in North America. Dr. Bull was on the general staff of the Mayo Clinic at Rochester, Minnesota, for two years, and during that period visited other cities and clinics. He considers that the modern intensive training of the medical student in America is not altogether satisfactory in fitting men to become country practitioners, because they feel starved intellectually when not in touch with laboratories equipped with the elaborate instruments to which they have been accustomed, and with a medical society and a medical library. Moreover, they are liable to lack self-reliance. On the other hand, local medical societies are numerous, the output of medical literature is enormous, and much post-graduate knowledge can be obtained at conferences. The Americans are good technicians, fond of instrumental examinations and tests of all sorts. Hence the development of much specialism and a tendency, perhaps, to over-examine the patient. The American medical profession is keen on research, and in its pursuit a vast amount of detailed observation is accumulated which, no doubt, is of very great value provided the observer is not "prevented from seeing the wood for the trees." In clinics such as the Mayo Clinic, with its clerical staff, the doctor is relieved of keeping notes, the filing of records, and much of his correspondence. But he may become a slave to routine, and there must be a temptation to neglect the personal factor in his patient. It is interesting to compare Dr. Bull's article with "Notes on a tour of the principal hospitals and medical schools of the United States and Canada," by Mr. A. E. Webb-Johnson, which have been printed for private circulation by Mr. S. G. Asher, chairman of the council of the Middlesex Hospital Medical School. Mr. Webb-Johnson arrived at New York on February 18th last and left on March 31st. Between those dates he visited Philadelphia, Baltimore, Washington, Cleveland, Chicago, Rochester, Toronto, Ottawa, Montreal, Quebec, Boston, and New York. His notes are a record of an exciting round of hospitals, clinics, laboratories, dinners, teas, meetings, theatres, stockyards, and slaughterhouses. Mr. Webb-Johnson, like Dr. Bull, observed that the undergraduate in America does not have a long clinical training with individual patients, but is instructed more by classes. Consequently, after getting his degree he requires the clinical experience which our students get while acting as clerks and dressers; and the post-graduate problem in America is the provision of courses directly after qualifying rather than to cater for general practitioners who wish to be brought up to date. Mr. Webb-Johnson was convinced of the advantage of special departments properly developed in general hospitals over the system which prevails too much in London of general hospitals with meagre special

Muthu (Mendip Hills Sanatorium) agreed with lker that our knowledge of tuberculosis was still in ing, and that many problems connected with it l yet unsolved. One reason for our lack of know- d uncertainty with regard to tuberculosis might be had been putting the cart before the horse and had ated our attention on the microbe rather than on ıo was, after all, the chief actor in the drama. as no doubt that the study of social conditions of , their daily life and their habits, their food and heir occupation, their housing accommodation— man factors helped to give a truer insight into the of tuberculosis and its prevention than any other Tuberculosis was, to a great extent, a social, , and industrial disease. While it could not easily a the fresh air, in the open country, where there d nutrition and the best hygienic surroundings, it n slums and overcrowding, in underfed children, ty and destitution, which were the outcome of the social system. The economic history of tuberculosis rate of mortality during the last sixty or seventy ought out the lesson that periods of war, depression , industrial and economic stress, were followed by yment, a lower standard of living, poverty, and an d mortality rate from tuberculosis; whilst times of evival of trade, industrial prosperity, continuous ent, cheapening of food and sanitary reforms, con- to the happiness and well-being of the people and inished death rate from phthisis. Even the sharp tuberculosis mortality during 1914 to 1918 showed e relation between social and economic conditions death rate of phthisis. Social environment, then, n important part in the incidence of tuberculosis. ial, economic, and hygienic environment could be grouped under three heads: insufficiency of fresh l light; insufficiency of housing accommodation, to overcrowding; insufficiency of food or ill balanced ading to malnutrition. Facts observed from all the world showed a positive correlation between and the death rate from tuberculosis. In London, e proportion of overcrowding was under 7.5 per he death rate of phthisis was 1.044; but when it 5 per cent. or more the death rate rose to 2.052. n poor and crowded Finsbury the death rate for was 2.14, in spacious and well-to-do Hampstead it y 0.63. In Glasgow, among families living in one e phthisis death rate was 23.3, among those occupy- rooms it was 18.9, three rooms 14.3, and in four was reduced to 12.7. So in Dundee: in houses of m the death rate from pulmonary tuberculosis was r 10,000, in two rooms 64, in three 55.2, in four nd upwards 32 per 10,000. It was seen, therefore, e smaller the accommodation the greater was the y, and the larger the accommodation the smaller mortality from tuberculosis. In India he had the same thing. Crowded Bombay presented a death rate from tuberculosis than Bangalore with len cities. Among Mohammedan women, who were l in ill ventilated zenanas, the death rate was three times as high as among men. In fact, the rictly the purdah system was observed the greater mortality, as among Mohammedan women; and t was not enforced, as among the Burmese women, even lower than among men. In England the death r phthisis was higher among males than females, they were employed in industrial occupations involved bad hygienic surroundings. But if, as the late war, the females were subject to the same e of occupation, the mortality rate was the same or gher than males. Also, as Dr. E. L. Collis had d, if an industrial environment was replaced by an tural environment, as in Ireland, which meant g in fresh-air conditions, there was no difference in idence of tuberculosis between males and females. whether in India or England, whether among males ıles, whether in sedentary or industrial occupation, ıth rate of tuberculosis was influenced by the extent crowding and vitiated atmosphere where people lived orked and where their bodies were deprived of the vivifying influence of fresh air and sunlight. On the other hand, in Edinburgh, where certain insanitary areas were replaced by new buildings which admitted plenty of fresh air and light, the death rate for phthisis fell from 45 to 15 per 1,000; while in Liverpool, in the new healthy areas with practically the same population, it fell from 4 to 1.9 per 1,000. But overcrowding was only one of a group of social evils which clustered round tuberculosis. It was closely associated with and was a symptom of poverty. The greater the poverty the greater was the tendency for the poor to crowd themselves into two- or one-room tenements. Dr. Menzies truly said the other day that the most important factor in connexion with tuberculosis was the food question. In India one of the three great determining factors in the incidence of tuberculosis was the hopeless state of poverty of millions of people (the other two factors were overcrowding and insanitation), which so undermined their stamina that they fell victims literally in thousands to any epidemic or disease that came along their way. Dr. Muthu had elsewhere recorded that India lost a million people annually from the scourge of tuberculosis alone. Coming nearer home, it was found that Germany, Austria, and other mid-European countries furnished evidence on a large scale of a great increase in tuberculosis mortality from chronic starvation and malnutrition. The German physicians were so impressed with the effects of underfeeding that Professor Kayserling, one of the foremost authorities in Germany, confessed that tuberculosis should be regarded primarily not as an infectious disease, but as a disease of nutrition, to be controlled much more by feeding than by preventing infection. The dictum to which Dr. Walker had alluded—that no big eater ever caught consumption—seemed to be true to a very large extent. B. S. Warren of America found, in common with many other workers, that low wages went hand in hand with high tuberculosis mortality, for low wages meant poor food, poor housing, and deficient nutrition. All these deficiencies, whether they were of fresh air or light, of housing accommodation or of nutrition, or restful surroundings, tended to lower vitality and to reduce the resisting powers, and brought about a faulty metabolism, which in turn prepared a soil favourable to infection. He had always considered that soil was more important than seed in the incidence of tuberculosis, and that infection was rather an effect of a poor soil, whether it were in man or beast. Dr. Walker had made a reference to the milk question. In India, where Dr. Muthu had recently travelled some hundreds of miles visiting many important cities on a tuberculosis mission, he found that tuberculosis among cattle was very scarce, that children were mostly breast-fed, that many Indians drank little or no cow's milk, and when they did they invariably had it boiled before use, and yet tuberculosis was very prevalent in many parts of India, and was increasing. It was only by knowing facts like these and comparing notes with other countries that we could enlarge or modify our knowledge concerning the disease. Tuberculosis was, therefore, intimately associated with social and economic evils which pressed upon a large mass of population and which opened up large issues, such as fair wages, unemployment, poverty, slums, overcrowding, etc. Sir Douglas Powell had said that the prevention of consumption involved a much wider issue than the circumvention of the bacillus. No doubt open-air sanatoriums had done much good work in this country in bringing about an arrest of the disease in a large number of cases, and in educating the patients and their friends in the right way of living. For the prevention of tuberculosis the State should go further and make an earnest attempt to initiate social reforms to improve the general health of the people. For it was not so much by destroying infection as by attacking boldly the social evils of the present day, by raising the standard of living, by improving the well-being of the people, and thus increasing their resisting powers, that we could hope to eradicate tuberculosis in the near future.

Dr. S. Vere Pearson (Mundesley Sanatorium) said that notification was largely ineffective in that it was incompletely carried out, especially in point of time, and was not put to

THE MODERN CONCEPTION OF JAUNDICE.

IN a recent leading article (August 25th, p. 333) based on Dr. J. W. McNee's critical review in the *Quarterly Journal of Medicine* of the recent advances in our knowledge of jaundice, attention was drawn to Dr. McNee's classification. This was into (1) obstructive hepatic jaundice, (2) toxic and infective hepatic jaundice, and (3) haemolytic jaundice. In our article the word "hepatic" was unfortunately omitted, thus weakening the contrast which it is so desirable to emphasize between, on the one hand, the first two forms, in which, as the old phraseology "hepatogenous" indicated, the liver is responsible, and, on the other hand, the haemolytic form in which, after excessive blood destruction, an exaggerated amount of bile pigment is manufactured by the reticulo-endothelial cells, quite independently of the glandular cells of the liver, and circulates in the blood, very probably not passing through the glandular cells of the liver at any time. While it is true that obstructive and toxic infective jaundice are commonly so spoken of, Dr. McNee's classification is an advance by the addition of the adjective "hepatic," and the distinction thus brought into constant prominence at the small expense of another three-syllabled word.

THE MEDICAL SOCIETY OF LONDON.

THE new session of the Medical Society of London will begin on Monday, October 8th, when at 8.30 p.m. the president, Dr. Herbert Spencer, will give an address on some of the changes in obstetric practice which have occurred since the foundation of the society. On the evening of November 12th a discussion on constipation, its causes, results, and treatment from the general practitioner's point of view, will be initiated by Dr. H. Des Voeux. On November 26th a discussion on the treatment of acute suppurative general peritonitis will be opened by Mr. Sampson Handley, and on December 10th Dr. Eardley Holland and Dr. H. Charles Cameron will introduce the subject of intracranial haemorrhage in newborn children, its pathology, effects, treatment, and results. There will be a clinical evening on October 22nd. The Lettsomian lectures will be delivered by Dr. R. A. Young in the early spring; he has taken for his subject the treatment of pulmonary tuberculosis. The annual oration will be delivered in May by Mr. Wilfred Trotter, M.S., F.R.C.S.

SIR HUMPHRY ROLLESTON, K.C.B., President of the Royal College of Physicians of London, will deliver the inaugural address at the opening of the London (Royal Free Hospital) School of Medicine for Women on Monday, October 1st, at 3.30 p.m. The subject of his address is the problem of success for medical women.

THE Japanese Embassy has issued a statement showing that the Japanese Red Cross Society got to work very quickly after the recent earthquake and fires, in spite of the fact that its head office was burnt down. A temporary office was established in a suburb of Tokyo, and the staffs of all the branches throughout the country, as well as those in Manchuria and Korea, were mobilized. By September 14th it had 53 detachments at work, and this number was shortly increased to 65. A sum of half a million sterling was placed at its disposal, and temporary barracks for the accommodation of the houseless have been established in Tokyo and Yokohama. The society is alive to the risk of epidemic outbreaks, and is organizing mobile relief columns and setting up centres for the detection of cases, the transport of patients, and the carrying out of measures of disinfection and sanitation. The number of refugees assisted in the Tokyo district down to September 12th was 42,000. The branches in Osaka and Kobe have opened relief centres, which deal daily with 10,000 refugees.

THE BRITISH ASSOCIATION.

NINETY-FIRST ANNUAL MEETING.

Liverpool, September 12th–18th.

INAUGURAL MEETING.

THE inaugural meeting, at which the President, Sir Ernest Rutherford, delivered the address, an account of which was published last week (p. 474), was held in the Philharmonic Hall, which was crowded by an attentive audience. Arrangements had been made to broadcast the proceedings for those unable to obtain seats. The Lord Mayor welcomed the Association to Liverpool and referred to the last meeting there in 1886, when the president was Sir Joseph Lister. Vice-Chancellor Dr. J. G. Adami, F.R.S., speaking on behalf of the University, referred in graceful terms to the connexion of the retiring president, Sir Charles S. Sherrington, with Liverpool, and the brilliant work he had done as professor of physiology, work which had brought him the highest honours, including the presidency of that Association and of the Royal Society. Sir Charles Sherrington introduced the new president, who illustrated his address by lantern slides. In proposing a vote of thanks to him, Sir Oliver Lodge mentioned that while Sir Ernest Rutherford had alluded to the work of others, he had said very little of what he had himself done to add to the knowledge of the constitution of the atom. The vote of thanks was seconded by Dr. E. H. Griffiths, F.R.S., formerly principal of the University College of South Wales and Monmouthshire, and carried by acclamation.

The thirteen sections began their work on September 13th.

PHYSIOLOGY.

In the Section of Physiology the president, Professor G. H. F. Nuttall, F.R.S., delivered an address on symbiosis in animals and plants. He gave a summary review of the present position of the subject under the two heads, dealing first with plants. He spoke of symbiosis in lichens and passed on to root-nodules of leguminous and other plants, dealing at some length with mycorhiza in orchids. He then mentioned the experiments of Molliard and Magrou with potatoes, which appeared to show that the manner of the production of tubers of the common potato was in accord with the view of Bernard that tuberization is due to the association of fungi with plants. Passing on then to animals, he spoke first of the physiological relations between animals and symbiotic algae, and then dealt with symbiosis in insects and discussed the mode of transmission of intracellular symbionts of insects. Speaking of micro-organisms in relation to luminescence in animals, he said that the host might be invaded by luminescent pathogenic bacteria, but that symbiotic bacteria were present in various light-emitting animals. The luminous organs in glow-worms consisted of *parenchyma* cells crowded with minute bodies having bacteria-like staining reactions; they were present also in the beetle's egg, which is luminous. In conclusion he said:

> The term "symbiosis" denotes a condition of conjoint life existing between different organisms that in a varying degree are benefited by the partnership. The term "symbiont," strictly speaking, applies equally to the partners; it has, however, come to be used also in a restricted sense as meaning the microscopic member or members of the partnership in contradistinction to the physically larger partners which are conveniently termed the "hosts" in conformity with parasitological usage.
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> The condition of life defined as symbiosis may be regarded as balancing between two extremes—complete immunity and deadly infective disease. A condition of perfect symbiosis or balance is realized with comparative rarity because of the many difficulties of its establishment in organisms that are either capable of living independently or are incapable of resisting the invasion of organisms imperfectly adapted to communal life. In these respects the conclusions of Bernard and Magrou in relation to plants apply equally to animals. It is difficult to imagine that symbiosis originated otherwise than through a preliminary stage of parasitism on the part of one or other of the associated organisms, the conflict between them in the course of time ending in mutual adaptation. It is, indeed, probable that some supposed symbionts may prove to be parasites on further investigation.
>
> In perfect symbiosis the associated organisms are completely adapted to a life in common. In parasitism the degree of adaptation varies greatly; it may approach symbiotic conditions on the one hand, or range to vanishing point on the other by leading to

care and all-day rest cures. When seen, in November, 1914, she had cough, abundant expectoration frequently blood-stained (tubercle bacilli present), slight pyrexia, palpitation, anaemia, emaciation 1 st. 7 lb., much dyspnoea, pain in chest, vomiting. There were signs of extensive infiltration of both lungs with cavitation at the right upper lobe. Spahlinger's vaccine treatment was commenced in November, 1914. In June, 1915, the cough and expectoration had diminished by two-thirds, the dyspnoea was less troublesome, weight unchanged, indigestion and anorexia stopped, activity in chest greatly diminished. In October, 1915, the patient was still showing general improvement when she suddenly died of amyloid disease. Vaccine treatment seemed to improve the pulmonary condition very materially, but it could do nothing for the degenerative process resulting from fifteen years of disease.

CASE 10.

A. B., clerk; a pale youth, aged 21. Comes from tuberculous stock; grandmother and brother died of pulmonary tuberculosis; sister, aged 13, and brother, aged 27, died of generalized tuberculosis. The patient contracted bronchitis in 1908; ever since he has been weak and never able to get rid of his cough. During the summer of 1911 he had a second bad attack of bronchitis, and a third one during the summer of 1912. He was treated with rest, creosote, and tonics. In the autumn of 1914 a gland appeared on the right side of the neck, and in December it had greatly enlarged. When first seen in December, 1914, he had cough, expectoration (tubercle bacilli present), night sweats, great lassitude, anorexia, clubbing; he had lost 1 st. 4 lb. during the last six months. There were signs of scattered disease in both lungs. A gland was punctured, and tubercle bacilli found in pus. This glandular strain showed an unusual virulence in the laboratory tests. Spahlinger's treatment was started in December, 1914. Serum was injected into the gland and a few vaccine injections given subcutaneously. On May 31st, 1915, the night sweats, lassitude, indigestion, insomnia, and anorexia were entirely gone. There were no active signs in the chest. The patient had gained considerable weight. Believing himself cured, he discontinued the treatment. In August, 1915, a little swelling appeared on the right side of the neck. Vaccine treatment was resumed on August 14th, 1915, and continued until February 6th, 1916, when there were no active signs in chest, no cough, and no sputum, the weight was above normal, and the glands had disappeared. Discharged. In 1923 there was no relapse whatever since treatment was stopped seven years ago. The patient has been able to work uninterruptedly from the beginning of 1916 down to the present day. There is no trace of active disease. The frequent attacks of bronchitis and indigestion, which used to be very troublesome previous to Spahlinger's treatment, have entirely disappeared. He had influenza once in 1919, but it only lasted three days. He is now apparently quite well.

CASE 11.

J. D., a thin youth, aged 21; shop assistant. History of bronchitis and pleurisy in March, 1913. Cough and sputum ever since. Sanatorium treatment. Discharged improved. When first seen, in December, 1914, he had a cough, expectoration (tubercle bacilli present 20 to 30 per field), emaciation, sweating, tachycardia, dyspnoea, melaena, clubbing. Signs of infiltration extending throughout left lung with massive disease at base and scattered infiltration in right lung. Spahlinger's serum treatment started in December, 1914. On April 3rd, 1915, the patient was much improved. During 1915-16 he had several courses of partial serum. In 1917 there was no evidence of active disease, weight normal, general condition very satisfactory, still some dyspnoea; discharged. In June, 1921, there was evidence of recrudescence of symptoms; tubercle bacilli in sputum, emaciation 12 lb., signs of activity in left lung. Partial serum treatment resumed. At present there is no evidence of active disease. The patient has a little sputum in the morning, but all the examinations for bacilli made in 1923 have been negative. Physical signs dry; weight above normal; still some dyspnoea. He has been able to work uninterruptedly since 1916, even in 1921 during the period of recrudescence of symptoms.

CASE 12.

M. P., a thin, anaemic woman, aged 23; shopkeeper. History of succession of colds, cough, etc., for two years. Pain at right apex behind. When first seen, in March, 1915, she had cough, expectoration (tubercle bacilli present); emaciation 13 lb. in last few months. Signs of infiltration at both apices. Spahlinger's vaccine treatment was commenced in March, 1915. In November, 1915, physical signs dry. In July, 1916, there was no evidence of active tuberculosis; no cough and no sputum for several months. Discharged. In 1923 the patient is very well; she has been engaged in normal work since 1916.

CASE 13.

G. P., aged 26, mechanic. Sister suffering from abdominal tuberculosis. Pleurisy in 1900 and again in 1911. History of pulmonary tuberculosis. When first seen, in May, 1915, he had cough, abundant expectoration frequently blood stained (tubercle bacilli present), pyrexia, loss of weight 1 st. 10 lb., haemoptysis, night sweats, dyspnoea, palpitations, weakness, clubbing. Signs of infiltration of the whole of left lung, with large cavity at apex, and signs of softening in upper lobe, also infiltration of right lower lobe. Spahlinger's treatment was commenced in May, 1915. In August the patient was able to resume his work, which he had given up four years previously. In November, 1915, condition improved, afebrile, expectoration diminished by 80 per cent.; still a few moist sounds in the left lung, and tubercle bacilli scanty; increase in weight 1 st., treatment stopped. Resumed in June, 1916, and continued until October. 1916, when the patient left for France much improved.

CASE 14.

B. B., an extremely debilitated man, aged 35; shopkeeper. History of pulmonary tuberculosis. When first seen, in May, 1915, he had cough, expectoration (abundant purulent tubercle bacilli present, 30 to 40 per field), pyrexia, tachycardia, emaciation 13 lb., profuse night sweats. Signs show infiltration with softening in both upper lobes. Spahlinger's serum treatment was commenced in May, 1915. In May, 1916, there was great improvement; sputum scanty, signs in chest practically dry, weight normal; the patient resumed work; discharged. In 1918 he had a bad attack of influenza. In 1919 a second attack of influenza. Died.

CASE 15.

J. L., aged 44; insurance agent. Pulmonary tuberculosis diagnosed in 1896. Sent to Switzerland in 1906. Tubercle bacilli constantly present in sputum. When first seen, in October, 1915, he had cough, profuse expectoration, occasionally blood stained, loss of weight. In spite of various treatments during the last twenty years no real improvement took place, and tubercle bacilli have always remained present. The patient was able to do light office work. Signs of scattered bilateral infiltration. Spahlinger's vaccine treatment was commenced on October 13th, 1915, and continued during a period of eight months, while the patient was attending his business. Having completed his course of vaccine treatment, he was discharged on June 17th, 1916, much improved. Still a trace of sputum with tubercle bacilli present. Signs in chest practically dry. In June, 1923, clinical examination and x rays show scar tissue in both lungs, but no evidence of active disease. There is a little cough and phlegm in the morning, but from 1917 down to the present time the sputa show no tubercle bacilli. The patient had a severe attack of influenza in 1920 but no bacilli could be found. He is now in excellent health, and has been engaged in active work for the last six years, although he has had no treatment since 1916.

It is interesting to note that some vaccine cases, such as the above, after having completed a course of vaccines, were discharged while tubercle bacilli were still present in their sputa. These bacilli subsequently disappeared without any further course of treatment, showing that the vaccines had thoroughly roused the patient's resisting power. It is well to remember that the conversion of diseased areas into cicatricial tissue takes time.

CASE 16.

H. B., a thin, anaemic man, aged 30; nurse. Comes from tuberculous stock. History of frequent colds, bronchitis, cough, etc., during previous year. When first seen, in June, 1916, he had cough, expectoration (tubercle bacilli present), slight pyrexia, dyspnoea on exertion, tachycardia, emaciation 5 lb., pain in chest on right side. Complains of chronic laryngitis (non-tuberculous), no appetite, lassitude. On the nose there was a tuberculous lesion which had resisted all previous treatments. Signs of infiltration at left apex and hilus. Spahlinger's vaccine treatment was started in June, 1916. In November, 1916, the symptoms were apparently quiescent, and the general condition much improved; the tuberculous lesion on the nose was cured. Discharged. The patient remained at work during the whole period of treatment. In September, 1922, there was no evidence of disease, no cough, no sputum, weight normal. Since discharge (end of 1916) the patient has worked as masseur in a Turkish bath (twelve hours daily), and notwithstanding the strenuous work has had no relapse. At present the patient is living abroad and is unavailable for examination; he writes that he is well and working.

CASE 17.

H. M., man, aged 34. History of chronic pulmonary tuberculosis treated in sanatoriums, sea voyage, etc. Improvement after tuberculin injections. Served during the war and had several attacks of haemoptysis. When first seen, in May, 1921, cough was very troublesome, expectoration purulent, profuse (tubercle bacilli present, 100 per field), temperature 102°, pulse 100 to 120, haemoptysis, loss of weight 1 st. 10 lb., sweating, much dyspnoea, intercostal pain, clubbing. Signs of extensive infiltration in both lungs, mainly on the right side, with signs of softening at both apices; large cavity in right upper lobe, cavity at left apex and at apex of left lower lobe. Spahlinger's partial serum treatment was commenced in May, 1921, when the patient's condition was very critical. Serum was given subcutaneously and by mouth. In July, 1921, the condition was much improved, but a large area in the right lower lobe was still very active. In August, 1921, activity had apparently stopped, the temperature was normal, cough and expectoration diminished by two-thirds; the patient was able to get about. In November, 1921, there was an increase in weight of 1 st. 4 lb. In February, 1922, the patient stopped treatment and went abroad much improved, in spite of an attack of influenza. In 1923 the patient is leading a normal life.

CASE 18.

W. K., a pale youth, aged 19; sailor. History of pneumonia in October, 1920; haemorrhages. Tuberculosis diagnosed in February, 1921, when the sputum showed tubercle bacilli to be present. When first seen, in May, 1921, he had cough, expectoration abundant, purulent, often blood stained (tubercle bacilli present 2 to 3 per field), frequent haemoptysis, emaciation 11 lb., night sweats, dyspnoea, diarrhoea, anorexia; temperature 102.2°, pulse 100 to 110. Signs of extensive infiltration of right lung and scattered foci in left. Involvement of larynx. Spahlinger's partial serum treatment was commenced in May, 1921. In January, 1922, the chest was dry and he was able to resume work. In May, 1922, there was no

The Services.

DEATHS IN THE SERVICES.

Surgeon Commander William Perceval Hingston, R.N., was killed, along with his wife, at Yokohama, in the great earthquake in Japan, which destroyed Yokohama and Tokyo, on September 1st. He received his medical education at the Middlesex Hospital, took the M.R.C.S. and L.R.C.P.Lond. in 1905, and after filling the post of house-physician at the Middlesex Hospital entered the Navy. He attained the rank of surgeon commander on March 1st, 1917.

Surgeon Commander Alec Bedingfeld Marsh, R.N., died at Haslar on September 7th, aged 46. He was the son of the late Henry Marsh, paymaster-in-chief, R.N., and was educated at Oxford (Merton College), where he graduated B.A. in 1899, and at Edinburgh, taking the Scottish triple qualification in 1903. After serving as assistant medical officer of the county asylum at Winwick, he entered the Navy in 1904, and became surgeon commander in June, 1917. He served along with the Prince of Wales on H.M.S. *Hindustan* and at the beginning of the late war was a shipmate of H.R.H. the Duke of York on H.M.S. *Collingwood*. Later he was on board H.M.S. *Dartmouth* when she was torpedoed in April, 1916, and afterwards served in the Royal Naval Air wing at Grantham. For the past two years he had filled the post of ear, nose, and throat specialist at the Royal Naval Hospital, Haslar. He made the observation that poison gas can produce fatal effects by entry through the ear, and invented an extension of the gas-mask to prevent such entrance. He acquired lung disease through exposure during the evacuation of Russian refugees in the Black Sea in 1919. He leaves a widow and two children.

Medical News.

THE Prince of Wales, who is Chancellor of the University of Wales, has promised to visit the University College of Wales at Aberystwyth on October 30th, when he will open a students' club.

THE annual dinner of the Cambridge Medical Society will be held in the hall of King's College, Cambridge, by kind permission of the Provost and Fellows on Saturday, September 29th, 1923, at 7.30 for 7.45. Tickets, price 15s., inclusive of wine, should be obtained before September 27th from Dr. G. S. Haynes, 58, Lensfield Road, Cambridge. A meeting of the society will be held at Addenbrooke's Hospital on Friday, October 5th, at 2.30 p.m. By arrangement, all members of the Cambridge and Huntingdon Branch of the British Medical Association are entitled to attend the meetings of the society, which are held monthly, except during August and September, and count as clinical meetings of the Association.

THE annual dinner of the West Kent Medico-Chirurgical Society will be held at the Trocadero Restaurant, Piccadilly Circus, London, W.1, at 7 for 7.30 p.m., on Thursday, October 4th. Applications for tickets should be addressed to Dr. C. J. B. Buchan (Hon. Sec.), 326, Brownhill Road, Catford, S.E.6.

THE tenth Norman Kerr memorial lecture of the Society for the Study of Inebriety will be delivered by Sir William Willcox, K.C.I.E., M.D., at the house of the Medical Society of London (11, Chandos Street, Cavendish Square, W.) on Tuesday, October 9th, at 4 p.m. The subject chosen is drug addiction.

THE National Hospital for the Paralysed and Epileptic has issued a syllabus of a post-graduate course to begin on October 8th and to continue until November 30th. After noon, each day will be pretty fully occupied by lectures and demonstrations on the pathology of the nervous system, by attendance at out-patient clinics, and by clinical lectures and demonstrations. Members attending the course will be entitled to witness operations. The inclusive fee will be 7 guineas, but any part of the course may be taken separately. Full particulars can be obtained from Dr. C. M. Hinds Howell, dean of the Medical School, at the hospital (Queen Square, Bloomsbury, W.C.1).

A POST-GRADUATE course will be held as usual this year at the Radcliffe Infirmary, Oxford; it will last from October 1st to 6th. There will be clinics and demonstrations each morning, and two sessions of one and a half hours during each afternoon. A detailed programme is being prepared and will be obtainable from either of the honorary secretaries, Dr. W. T. Collier or Mr. Hugh Whitelocke, at the Infirmary.

THE Home Secretary has made a Regulation, dated September 10th, empowering port medical officers to issue certificates to masters of foreign ships authorizing them to obtain, within certain limits, preparations containing opium, cocaine, morphine, or heroin which are required to complete the necessary medical equipment of the ship. These certificates when presented are to be treated by the supplying chemist in a similar way to prescriptions given by a doctor to a patient.

As a result of the appeal for the British Empire Cancer Campaign nearly £55,000 has now reached the offices of the British Red Cross Society at 19, Berkeley Street, W.1. More than half the total number of subscriptions have been anonymous. The fund at its inception received an anonymous gift of £20,000. There has been also one anonymous gift of £2,000, two of £1,000, three of £500, and many others of smaller amounts, which bring the total of anonymous subscriptions to £28,000. This is held to indicate that a great many of the supporters of the campaign are sufferers or relatives of sufferers from the scourge.

THE opening meeting of the North-East London Clinical Society will be held on Thursday, October 4th, at 4.15 p.m., when Dr. G. F. Still will give a lecture on common errors of diagnosis in diseases of children; the president, Dr. A. J. Whiting, will be in the chair. The annual dinner of the society will take place at the Prince of Wales's Hospital, Tottenham, on October 11th, at 8 p.m.

DR. R. ANTOINETTE McF. SCOTT has been presented by the Women's Guild of the Parish Church, Laurencekirk, with a writing case and a wallet of Treasury notes on the occasion of her departure for I'Chang, China, where she will take up duty in the Buchanan Memorial Hospital.

THE annual dinner of past and present students of University College Hospital will be held on Friday, October 5th, at the Hotel Cecil, Strand. Tickets (price 12s. 6d.) can be obtained from Mr. Gwynne Williams and Dr. T. B. Elliott at University College Hospital Medical School.

A WILLIAM FARR lecture, on the measurement of progress in public health, will be given by Sir Arthur Newsholme, K.C.B., M.D., on Thursday, October 4th, at 5 p.m., at the London School of Economics and Political Science (Houghton Street, Aldwych, W.C.2). The lecture is open to the public without fee.

THE Advisory Committee on Industrial Hygiene, which has just ended its sittings at the International Labour Office of the League of Nations at Geneva, adopted a resolution stating that the most effective method of securing the success of research into the prevention of anthrax would be the constitution of national committees to work under the general direction of the Health Committee of the League of Nations. Members might with advantage be appointed after consultation between the Health Committee of the League of Nations and the Government departments in each country which are responsible for the administration of the Factory Acts. Dr. Smyth, assistant professor of industrial hygiene at Pennsylvania University, described his method of iodine disinfection to the committee, which expressed the hope that his observations would be followed up. The committee also discussed the possibility of sterilization of the effluents of tanneries.

DR. STEPHAN VON APATHY, professor of zoology at the University of Kolosvár, who was well known for investigations on neuro-histology, recently died at the age of 60.

THE Society of Public Analysts will resume its monthly meetings on October 3rd. The society meets in the rooms of the Chemical Society, Burlington House, at 8 o'clock on each evening.

DR. C. E. LAY of Peasenhall has, on the occasion of his retiring after forty-two years' practice in the district, been presented by the parishioners of Badingham, Bruisyard, Heveningham, Huntingfield, Peasenhall, and Sibton, with a silver tray, suitably inscribed.

THE report for 1922–23 of the Professional Classes Aid Council, upon which the British Medical Association is represented by Dr. G. E. Haslip, shows that useful work continues to be done by this organization, which exists in order to assist in relieving distress among the professional and educated classes and their dependants. It does more than merely make grants of money, its aim being to enable the recipient of assistance to become independent of further help. During the year the council dealt with 533 new applicants (of whom 127 were, however, not within the scope of the organization and 22 were otherwise unsatisfactory) and 89 old applicants (of whom 32 had similarly to be refused). In addition, 50 families received assistance in providing education. The expenditure for the year amounted to £7,334, showing a deficit of £2,215, and an appeal is therefore made for increased financial support. The offices of the council are at 251, Brompton Road, S.W.3.

THE London School of Tropical Medicine has arranged to send an expedition to Samoa to study the prevention of elephantiasis and filariasis, diseases which affect 85 per cent. of the inhabitants of the Samoan group. The expedition will have its headquarters at Apia and will be away for two years; it will work in co-operation with the New Zealand Government, which is responsible for the administration of Samoa. The expedition, which will leave this country on November 15th, will be under the leadership of Dr. Patrick Buxton, who did valuable work on entomology in Mesopotamia during the war, and has recently been entomologist to the Palestine Government at Jerusalem.

PSEUDO-CYESIS.

THE following notes on a case of pseudo-cyesis, which came under my notice some time ago, appear to be sufficiently interesting to be recorded. I have altered the dates throughout, for obvious reasons.

In the middle of June, a woman, aged 46, who had had several children but had been a widow many years until she remarried late in the preceding year, consulted me about her condition as she thought she was pregnant again. I ascertained that the menstrual periods were quite regular and found no signs of pregnancy, and informed her that she was mistaken, and to convince her pointed out that there was no enlargement of her breasts and that they contained no secretion as they had no doubt done in her previous pregnancies.

She went away convinced of her mistake, as I thought, but returned in September and informed me that I must have been mistaken about her condition as she was sure she was pregnant, and that now her breasts had enlarged and contained milk. This, to my surprise, proved correct, but she was not pregnant, and she denied having stimulated the breasts in any manner. I again assured her that she was not pregnant. She returned, however, early in the following November to ask when the baby would be born. Examination then showed a copious secretion in both breasts. After further assurance she went away, and although I saw her several times afterwards the subject was not mentioned again.

D. S. PRACY, F.R.C.S.Edin.

VOLVULUS OF AN ASCENDING COLON.

MRS. ——, aged 69, who had been delicate as a girl, spending eight winters on the Riviera, and in whom shocks such as bad news usually caused vomiting, had, when I saw her, for one month experienced some abdominal discomfort, but "nothing to speak of."

Abdominal pain and vomiting commenced on April 29th, 1923, and continued during the night. When seen next day the abdomen presented a smooth elastic swelling about the size of a full-time foetal head, above and to the left of the umbilicus; it was movable, resonant, fluctuant, with no fluid thrill and no pelvic attachments. The next day she was comfortable, but after visiting her physician and dining, vomiting recommenced. She was not seen for forty-eight hours, when it was evident that an acute condition existed in the abdomen.

I made a median incision from the xiphisternum to below the umbilicus; at first sight the rounded swelling appeared to be a distended stomach, but the hand moved freely round and the appendix presented on the top of it. It was easily delivered; the ileum was above and in front of the liver and stomach, and wound round the hepatic flexure clockwise. After unwinding and replacing the small bowel the transverse colon was demonstrated; the hepatic flexure was thoroughly freed from adhesions, the transverse colon inflated well, and the caecum and ascending colon were replaced; breathing being difficult, further operative procedure was contraindicated.

With the exception of difficult deflation she made an uninterrupted recovery.

Guildford. A. H. BRODRIBB.

WANDERING SPLEEN IMPACTED IN THE PELVIS.

THE following case appears worthy of record, as without laparotomy a true diagnosis could not possibly have been arrived at.

A Mohammedan woman, aged 28, was admitted to hospital on May 31st, complaining of a tumour in the abdomen which caused pain. She gave its duration as two years, stated that her periods had been regular during this time, but that she had had frequent attacks of malaria. The history in such cases is as a rule unreliable, since patients' ideas of time are vague, and they have an impression that the longer they state they have suffered from a disease the more attention will be paid to their case. In this case, on examination, a centrally situated, hard, irregularly nodular tumour was found rising to within an inch of the umbilicus. A provisional diagnosis of fibroids was made. On examination per vaginam, a hard tumour was found occupying the whole of the true pelvis. Attempts to pass a sound failed on two occasions, and it was thought one had to deal with a cervical myoma. The woman was kept under observation for five days, during which time she had evening rises of temperature to 100° F. or so, on alternate days, and she was given quinine.

Preparations having been made for dealing with a difficult hysterectomy I opened the abdomen on June 5th. Exposure of the upper end at once revealed the nature of the tumour, as splenic tissue was recognized. The incision was enlarged downwards, the absence of adhesions verified, and the tumour easily brought out of the abdomen. The pedicle being long its ligature and division was a simple matter. The condition of the other pelvic organs was then looked into. The uterus was found flattened out against the rectum, and had the appearance of a broad thick ribbon; hence my inability to pass a sound. The patient made an uneventful recovery and was discharged cured (*minus* her spleen) on June 21st, sixteen days after operation.

The pathological report by Lieut.-Colonel F. P. Mackie, I.M.S., states as follows:

"The tumour in the spleen was originally of a cystic nature, evidence of loculi still remaining. At some time suppuration must have taken place and probably some haemorrhage. The structure is now that of dense sclerosing connective tissue, laminated at the peritoneal edge and more open in the interior. No signs of pus are now present, nor were micro-organisms seen. There is no evidence of hydatid membrane."

A. J. VERNON BETTS, M.B.Lond.,
Civil Hospital, Nasik, India. Lieut.-Colonel I.M.S.

Reports of Societies.

REST IN THE TREATMENT OF PHTHISIS.

AT a meeting of the Brighton and Sussex Medico-Chirurgical Society, held on September 6th, with the President, Dr. ELIOT CURWEN in the chair, Dr. A. NEVILLE COX read a paper on local and general rest in the treatment of phthisis. He referred to the effects of overfatigue in industry, and its share in causing the breakdown in cases of phthisis. The betterment of industrial conditions, especially in shortening the hours of work, brought about by the Factory Acts and otherwise, must have played an important part in the reduction of phthisis mortality among women. Up to 1866 the female death rate was higher than the male, but since that time the female rate had always been lower, and was falling more rapidly. In Dr. Cox's opinion the increased mortality among women during the war was due largely to physical overstrain in the munition factories, combined with poorer feeding. Where fatigue had been the chief cause of a disease, rest must be the chief measure in its treatment. The literature of tuberculosis showed remarkable changes of opinion on the relative merits of rest and exercise in the treatment of phthisis. Even now there was one school, especially in America, which advocated rest and another which relied rather on exercise; in this country the tendency was to underrate the importance of rest. The indications for rest were the toxaemic symptoms. Dr. Cox described the methods of securing general rest for the body in the several stages of the disease, and in particular the details of "absolute rest" as laid down by Paterson. He pointed out that the phthisis patient, even when his disease was becoming quiescent, should do everything "on low gear," and should stop short of fatigue in his exertions: hence the great difficulty for ex-sanatorium patients in competing with healthy men at their old occupations. The success of pneumothorax treatment and of the conservative treatment of surgical tuberculosis had led to renewed interest in the possibility of obtaining local rest for the affected lung. The natural means by which the body endeavoured to limit function in the diseased lung were outlined; and several ways in which this process might be helped, by posture, control of breathing, and various forms of lung-splints, were described.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

206. Treatment of Diabetes.

H. CHABANIER, O. LOBO-ONELL, M. LEBERT, and E. GROVE (*Bull. Méd.*, July 4th–7th, 1923, p. 799; July 11th–14th, 1923, p. 834; July 18th–21st, 1923, p. 862) give the results of investigations on the action of an alcoholic extract of the pancreas in diabetes. The method employed by Chabanier for the preparation of his pancreatic extract differs somewhat from that followed by other workers in preparing insulin, but apparently good results in the treatment of diabetes have been obtained with this extract. Chabanier's method is described by Mauriac, Piéchaud, Servantie, and Aubertin in the *Journal de Médecine de Bordeaux*, August 25th, 1923 (p. 593). The finely chopped-up pancreas is macerated in alcohol, acidified, and kept for an hour in a water-bath at 60° C. to destroy the external secretion; it is then filtered and evaporated *in vacuo*. Chabanier, Lobo-Onell, Lebert, and Grove give details of the treatment of 28 cases of diabetes of varying severity. Most of them are, however, still incomplete. Six were cases of infantile diabetes complicated by acetonuria. Twenty were cases of diabetes in adults; the latter included 3 cases of diabetes without malnutrition or acidosis, 2 cases of diabetes with intense malnutrition and acetonuria, with marked affection of the general health unimproved by dieting, 2 cases in a pre-coma condition, and 3 cases of coma.

207. Diabetic Coma: Treatment with Insulin and Adrenaline.

M. LAURITZEN (*Klinische Wochenschrift*, August 13th, 1923, p. 1540) records a case of diabetic coma in a boy 4 years old, treated with insulin along with alkalis. After an injection of insulin (4 units), the blood sugar sank to below normal, and the patient improved. After a second injection, of 2 units, symptoms of insulin intoxication developed. These symptoms were promptly checked by the subcutaneous injection of a solution of adrenaline (1/2 c.cm. of 1 in 1,000). Sugar was given soon afterwards and the condition remained better for three days, when death occurred suddenly, from heart failure. The author has had good results in many cases of diabetic coma, when energetic alkaline treatment was commenced in the early stage. But he considers, in the case recorded, that the insulin definitely aided the action of the alkalis. The adrenaline injection promptly checked the symptoms of insulin overdose, and also acted as a cardiac stimulant. The author's opinion is that in the advanced stage of diabetic coma, when the patient cannot be roused and cannot swallow, insulin should always be used (the blood and urine being examined). But in the early stage of coma the usual treatment of this condition should be employed: cardiac tonics, alkalis, fasting, and evacuation of the intestines. If this treatment fails, the insulin should be given. The author considers that the greatest value of insulin is not in diabetic coma, but in severe cases of diabetes (*before the comatose stage*). In such severe cases of diabetes, when treated at an early stage by insulin and a suitable diet, the disease can be brought back to a less severe form.

208. The Place of Syphilis in the Etiology of Diabetes.

MARCEL LABBÉ and HENRI TOUFLET (*Ann. de Méd.*, April, 1923, p. 367) refer to cases of glycosuria or of diabetes associated with cerebral syphilis reported by various observers. After the discovery of the part played by pancreatic lesions in the production of diabetes several cases of syphilis of that organ associated with diabetes were recorded. These observations established the existence of a second type of diabetes or of glycosuria connected wit[illegible]reatic syphilis; such cases appear to be very rare, [illegible]gh Warthin and Wilson thought that they could de[illegible]rate the frequency of syphilitic lesions of the panc[illegible] at autopsies on diabetics. The majority of cases of di[illegible]etes, however, are accompanied by no appreciable [illegible]sceral lesion, though some authors refer the existence of familial and conjugal diabetes to syphilitic infection. Fournier classes diabetes among the parasyphilitic diseases. Schnee, Troller, and particularly Pinard have endeavoured to prove the essential part played by syphilis in the pathogenesis of diabetes. The majority of observers who have made a special study of diabetes do not agree with the theory. The authors review in detail all the arguments, and quote a number of cases of diabetes in which, in spite of a history of syphilis, no syphilitic lesion was found at the autopsy. Steinhaus and Jevenicl have, however, recorded two cases in which syphilitic infection appears to be proved. Carnot and Harvier have recorded a still more typical case. The authors state that syphilitic pancreatic diabetes does occur, but that it would appear to be extremely rare. An isolated gumma is insufficient to produce diabetes, but a generalized sclerosis may do so. In hereditary syphilis pancreatic lesions associated with diabetes appear to be much more common; several cases are quoted. Syphilitic lesions of the liver are much less definitely associated with diabetes, which is still more rarely found in cases of cerebral syphilis. After discussing many other recorded cases of syphilitic lesions in other organs in diabetic patients the authors conclude that in the vast majority of cases syphilis plays no part in the production of diabetes; statistics show that syphilis is not more frequent among diabetics than among other patients, and that diabetes cannot be shown to occur with special frequency among syphilitics. Clinical experience shows that specific treatment in these cases is usually ineffectual. The similarity of diabetic and syphilitic nerve lesions is a fallacious argument. Conjugal diabetes may be due to common hygienic errors. However, certain cases of syphilitic diabetes do exist, produced by syphilitic lesions of the pancreas, liver, nervous system, and possibly of the haematopoietic system; such cases are very rare but most interesting because of the curative action of specific treatment in many of them.

209. Toxic Effects of Digitalis.

IN thirteen cases in which untoward results followed the administration of digitalis the records were analysed by WILLIAM D. REID (*Journ. Amer. Med. Assoc.*, August 11th, 1923, p. 435) to obtain information regarding the appearance of these toxic effects in relation to the total amount of the drug estimated to be then effective in the patients, and to the amount of digitalis indicated according to the Eggleston method of calculating this. The toxic effects here described include partial heart-block with an acceleration of the sinus rate, the onset of auricular fibrillation, and paroxysmal tachycardia originating in the ventricle. Partial heart-block with an increase of the sinus rate, and of ventricular ectopic tachycardia, closely simulates the clinical picture of flutter of the auricles. Continuing the administration of digitalis, especially in cases of the latter arrhythmia, is dangerous. The tincture of digitalis administered to the patient described in this report was effective at a total dosage approximating that indicated by calculations based on the Eggleston method. When using large doses of digitalis the practitioner should know at all times the relation of the amount of the drug already administered to that which would be expected to be the approximate amount for therapeutic effect. If signs or symptoms appear that may be toxic effects of the drug, and if calculation shows that the amount already given is near or above the Eggleston dosage, additional digitalis should be administered cautiously, if at all.

210. Endemic Malaria in Germany.

A. ROSENBURG (*Deut. med. Woch.*, June 22nd, 1923, p. 811) draws attention to the alarming increase of cases of malaria occurring in persons who have never lived outside Germany. A collection of the records of such cases shows that among thirty-eight patients there were only two women. This difference in the sex incidence can probably be traced to the fact that women work out of doors much less than men, and are therefore less exposed to infection by mosquitos. Of all the cases of malaria recently observed in Germany 37 per cent. represented endemic infections, the patients concerned never having left Germany. About 50 per cent. of the cases of tropical malaria also belonged to this category. A point to which the author attaches great importance is the tendency to overlook the true cause when endemic tropical malaria occurs, and to trace the symptoms to some acute abdominal condition. This mistake is the more likely as the symptoms of tropical malaria may be very variable, and the author records two cases in which tropical malaria was overlooked at first. In one case peritonitis was diagnosed and laparotomy performed. In the other case perforation of a gastric ulcer was diagnosed, and the patient sent to hospital for operation. In both cases the temperature curve was not characteristic, and in both cases the clinical picture was dominated by signs of abdominal disease. The lesson of these and similar cases is that a blood examination for malaria parasites may give useful information in cases which might otherwise suffer severely at the hands of the laparotomizing surgeon.

in great detail, and anyone interested in a particular subject will find a wealth of information. We may refer to some points of special interest: it is stated that the harmful effect of exposure is to some extent counteracted by a liberal ration and daily hot food. Men in the trenches were given daily an extra three-quarters of an ounce of sugar. It was found in Gallipoli, where cases of beriberi occurred, that yeast was the most efficient prophylactic. A table is given showing the antiscorbutic and antiberiberi value of various foods. Besides the usual analyses of water, food, and drugs, and toxicological work, the base hygiene laboratory was called upon in 1918 to make the gum fluid to be used for saline infusion; it contained 6 per cent. of gum in a 0.9 per cent. solution of sodium chloride; as much as 75 litres was made daily and sent up the line.

In Eastern Europe malaria occurred mainly, as was to be expected, along the courses of rivers and in wide valleys with swampy borders. One of the deciding factors was the temperature; the disease occurred as high as 4,000 feet, but there was none at Monastir, at an elevation of 2,000 feet. In Egypt and adjacent countries malaria did not occur on desert land, but oases and irrigated areas were associated with virulent malaria; the commonest type of malaria was benign tertian, and the next malignant malaria, either alone or in conjunction with the former. Quartan was the least common. It is remarked that mass-debility from malaria far exceeded the losses from any other disease. The measures taken to combat the disease can be classified as (1) drug prophylaxis, (2) culicifuges, (3) personal protection, (4) mosquito destruction. Quinine was extensively used as a prophylactic, but no clear opinion of its value was reached. The method of administration varied greatly, and we advise the reader, in order to obtain a wider view on this point, and more detailed information, to refer to the articles on the subject in volume I of the *Medical Diseases of the War*. Cerebro-spinal fever broke out in military camps in England early in 1915 under conditions of overcrowding, and the investigations and preventive work carried out by specially appointed officers are described in great detail.

The methods of dealing with flies and lice are discussed in separate chapters. The relation of fly prevalence to dysentery is indicated, as is also the importance of manure as a breeding ground; full particulars are given as to the method of rendering manure heaps harmless. It was always found that where burial of refuse took the place of incineration flies at once became prevalent. As regards lice, which are the means of conveyance of typhus, relapsing fever, and trench fever, the complete dependence of the louse on man's blood is emphasized. The steps taken to detect its presence and to carry out cleansing of the men and disinfestation of clothing, bedding, and billets are described. All eggs are killed by exposure to 2 per cent. lysol for five minutes at a temperature of 50° to 65°F., and to 2 per cent. lysol or cresol in twenty minutes at room temperature. The various pieces of apparatus used in disinfestation by heat are described. Sir W. HORROCKS concludes that it is probable that in the war 50 per cent. of the admissions to hospital from troops in the field armies were attributable to lack of personal cleanliness and to vermin. The importance therefore of every possible facility being provided for men to keep themselves, their clothing, bedding, and billets, free from vermin cannot be over-emphasized. As regards scabies, it was found that the best ointment was sulphur of a strength of 1 in 15, the *B.P.* strength of 1 in 10 being too irritating. An interesting chapter deals with the subject of trachoma, which occurred mainly in the native labour corps.

With regard to small-pox, the lesson taught by the war is that where compulsory vaccination is not allowed, and unprotected men are sent to a war area where small-pox is endemic, a sharp epidemic may flare up.

A VIENNESE TEXTBOOK OF FORENSIC MEDICINE.

WHEN in 1878 Hofmann published his textbook on forensic medicine the work was recognized as initiating a new era in regard to the subject. By his investigations and experimental inquiries into the changes which occur in the body after death, into violent asphyxia, especially drowning, and into the effects of various forms of violence, he showed the inaccuracy of many accepted views and placed the whole subject upon a more scientific basis.

His textbook is classical and served to attract to Vienna and to inspire a large number of pupils who have become distinguished in this branch of medicine. The book rapidly passed through eight editions under his supervision, Kolisko edited the ninth, and now we have the tenth edition, which has been completely revised and brought up to date by Professor HABERDA, his successor in the chair at Vienna and an outstanding authority on all medico-legal questions.[2] No man was more fitted for the task, from his distinction as a writer and investigator and also from his having had at his disposal for nearly thirty years the immense material of the Medico-Legal Institute at Vienna.

The new edition is considerably enlarged and has now over 200 illustrations. It contains an account of recent advances, written so as to afford medical men all that is essential and yet without overstepping the limits which must control a general textbook. Copious references to recent literature enhance the value of the work for those engaged in more advanced study, while the section of medico-legal psychiatry has been ably rewritten by Professor Wagner Jauregg.

It is no exaggeration to say that it is the best and most complete textbook on the subject in any language.

THE THERAPEUTICS OF DIGITALIS.

THE monograph on *The Therapeutic Use of Digitalis*[3] by G. CANBY ROBINSON, Professor of Medicine at the Vanderbilt University, is a reprint of the article which appeared in the first number of *Medicine*, a quarterly review of medicine, neurology, and pediatrics, published in May, 1922. Professor Robinson presents us with a critical review of the very extensive literature on the subject of digitalis, but with the ultimate object of sifting out from the results that have been obtained by observation and experiment what is of practical application and suited to the needs of practitioners of medicine. The various members of the digitalis group are considered and the different methods of determining the potency are discussed. The author favours the "cat" method of assay, and he gives a table showing the relative potency of some of the preparations of digitalis and its allies, in terms of the amount of the drug in milligrams which is the fatal dose for the cat on the basis of 1 kilogram of body weight—that is, which is equivalent to 1 cat unit. He makes a strong plea for the standardization of the drug on this basis. In the case of the tincture 1 c.cm. should represent 1 cat unit. The toxic effects of the drug on the gastro-intestinal tract or on the heart are dealt with in much detail in view of the importance of their early recognition in carrying out efficient treatment. The effects of therapeutic doses of the drug on heart muscle, on the cardio-inhibitory mechanism, on the blood vessels, and on the kidneys are then discussed and the practical application of the whole is reached in chapters which treat of the use of the drug in heart failure. This part of the book is expanded and the various disorders of cardiac mechanism, valvular disease, muscle incapacity, or nerve disturbance are treated separately.

In discussing dosage and method of administration the "Eggleston" method receives attention. As a result of experiment it has been found that 0.15 cat unit per pound of body weight is likely to give the maximum therapeutic result. As most high grade tinctures have a strength of about 1 cat unit per 1 c.cm., it is possible to calculate the amount of tincture likely to be required in any case—for example, a patient weighing 140 lb. would require about 21 c.cm., and this could be administered in a few doses, beginning with, perhaps, half the total quantity and giving the remainder in diminishing doses.

There are 163 references to the literature of the subject from American, British and other European publications. The book will be found of value to any who are interested in cardiac problems.

[2] *Hofmann's Lehrbuch der Gerichtlichen Medizin.* Edited by Professor Albin Haberda. Tenth edition. Vienna: Urban and Schwartzenberg. 1923.

[3] *The Therapeutic Use of Digitalis.* By G. Canby Robinson. Medicine Monographs. Vol. I. Baltimore: Williams and Wilkins Company. 1923. (Med. 8vo, pp. 137. U.S., Canada, Mexico, Cuba, 2.50 dollars; other countries, 2.75 dollars.)

Laryngology and Otology.

216. Physical Measurements of Minimum Audibility.

J. P. MINTON and J. GORDON WILSON (*Journ. of Laryngol. and Otol.*, August, 1923, p. 405) give the results of experiments on the estimation of minimum audibility. The instrument employed was the audion-oscillator, an instrument capable of producing tones throughout the audible scale, which tones can be reduced in amplitude below the threshold of hearing. It is apparently developed from the pitch range audiometer invented by Seashore and Bunch. Three groups of curves are given in the paper, showing the curves of the right and left ears of a number of persons; in all 54 cases are cited, and there was not a single case in which the physical and otological findings did not agree as to whether the ear was normal or not. In addition, the curves showed with physical precision the degree of hearing at all pitches. Here, therefore, appears to be a method of mapping out by exact physical measurements a curve of audibility which should prove an invaluable aid to the otologist, while the neurologist is also likely to benefit from the exact and graphic data given of the early involvement of the intracranial auditory pathway. There are some obvious practical limitations of the method at present, such as the expense of the apparatus, the nature of the calculation, etc., but these are likely to diminish with time. At present the method must be looked upon as giving valuable experimental data on which to build a further advance in otological knowledge.

217. Cartilaginous Tissue in the Tonsils.

GEORGES PORTMANN and SPALAIKOVITCH (*Rev. de Laryngol., Otol. et Rhinol.*, July 15th, 1923, p. 543) have made serial sections of a large number of tonsils removed for disease and also of apparently healthy tonsils removed at autopsy. The sections were stained with haematoxylin-eosin, or with Weigert's iron-fuchsin. They found that cartilage occurs equally in the palatine tonsils whether diseased or healthy. The cartilage always occurs as small islets, circular or oval on section and only with difficulty seen with the naked eye, but easily with a lens. They may be single, or in groups of four or five, or may be scattered throughout the tonsil. The islets are found in the fibrous capsule, sometimes in the interlobular septa, but never in the lymphoid tissue proper. They most usually occur in the fibro-adipose tissue round the tonsil, and may be found in the pharyngeal wall, especially near the other collections of lymphoid tissue (the pharyngeal and lingual tonsils). The islet always consists of elastic fibro-cartilage with large cells containing big nuclei, and a small amount of matrix which is traversed by very many fibres. There is also a very definite perichondral membrane. Careful examination of the rest of the tonsil does not show any unusual structure or modification of the tissue in the presence of the cartilaginous islets. The inflamed and hypertrophied tonsils also show no special modification in the cases with the islets. The cartilage was found in 16 per cent. of cases examined and two theories as to its origin are mentioned—namely, that it is congenital and that it is a metaplasia following inflammation.

218. Diagnosis and Treatment of Tuberculous Laryngitis.

L. DE REYNIER (*Archiv. intern. de Laryngol., Otol. et Rhinol.*, June, 1923, p. 577) protests against the idea that tuberculous laryngitis is a very dangerous and usually fatal disease. He suggests that it is confused with tuberculous pharyngitis, which does fulfil such a prognosis. He declares that tuberculosis of the larynx can in most cases be cured. Aphony may occur without visible lesion as a prodromal sign in certain cases of pulmonary phthisis. Later and visible lesions may be ulceration, infiltration, or vegetation. The lesion never progresses from the first to the second or third degree, but always begins and continues in one degree. The author states that one never sees a slight ulceration advance on to other parts or an ulceration superimposed on a widespread infiltration. He recalls the fact that all laryngeal lesions are extremely sensitive to menstrual disorders. The site of the lesion is more important in prognosis than the type. He enumerates the sites in the order of their gravity as follows: (1) posterior wall; (2) vocal cords; (3) arytenoid processes; (4) epiglottis; (5) lateral walls; (6) rapid involvement of the whole of the larynx, as appears in late stages of pulmonary disease. Under 25 years of age the younger patients do worse than the elder. Cases occurring between 30 and 40 years of age have the best prognosis. Laryngeal tuberculosis evolves and proceeds independently of a coexistent pulmonary phthisis, though it responds equally to good air, good nourishment, and rest. Though the former may be cured whilst the latter persists, the reverse does not hold good. However, rapid deterioration of the laryngeal condition is usually accompanied by more marked pulmonary symptoms. The existence of syphilis adds to the gravity of the condition, but though prolonging treatment does not make cure impossible. The author's treatment consists in giving absolute rest to the body and particularly to the larynx. Fresh air and food play an important part, and this régime is usually sufficient to cure the slighter cases; a mild antiseptic spray may be used. If the condition is such as to cause pain on deglutition, powder of anaesthin with or without morphine may be blown on to the larynx, but in these cases surgical measures are usually required. In the author's practice this consists chiefly of cauterization. The galvano-cautery is used and as far as possible only the internal surfaces of the larynx are treated, as cauterization of the external parts causes intense pain on deglutition. The applications are made at intervals of one to two months and may have to be carried on for several years.

219. The Diagnosis and Treatment of Maxillary and Frontal Sinusitis.

ANTOINE PIAZZO (*Rev. de Laryngol., Otol. et Rhinol.*, June 30th, 1923, p. 489) remarks that surgery generally, and in the case of suppuration in the accessory sinuses especially, is verging to the conservative side and avoids mutilating and disfiguring operations where possible. Citelli's method of treating frontal and maxillary sinus suppuration is not disfiguring, and will cure acute, subacute, and sometimes chronic cases. It is also used as an exploratory procedure. In the case of the maxillary sinus Citelli incises the mucosa down to the bone for about 1 cm. over the canine fossa. The periosteum is elevated and the bone perforated at the deepest part of the fossa by a very fine trephine and if necessary the opening may be enlarged from this. A cannula (Citelli uses a Eustachian catheter) is inserted and the sinus washed out. In the case of the frontal sinus the skin is incised in the supero-internal angle of the orbit and the bone trephined in the same way. The scar left behind is practically unnoticeable. In a case of exploration with negative findings the mucosa or skin is closed at once. A case is cited in which the frontal sinus was suspected as the cause of an orbital abscess. The sinus was exculpated by means of Citelli's method and the abscess treated at the same time. The author considers that if on removal of a canine tooth a sinus is left into the antrum that path should be used for lavage, but he does not agree with a perforation ever being made in that position. He considers that this method is superior to the endonasal route especially in children, where the nose is so very narrow; also endonasal lavage sometimes requires removal of a portion of the inferior turbinal bone. In Citelli's method the theory of opening and counter-opening is seen at its best. This is particularly useful as a method of diagnosing a frontal sinus suppuration, where x rays and transillumination are so often indecisive or at fault. The author claims that the patients themselves can wash out the sinuses.

Obstetrics and Gynaecology.

220. The Influence of X Rays on the Pituitary in Gynaecological Ailments.

ACCORDING to P. WERNER (*Zent. f. Gyn.*, August 4th, 1923, p. 1260), the pituitary gland has been proved to have some bearing on several gynaecological complaints. Thus, Hofstatter in 1911 obtained good results by the use of pituitary extract in cases of amenorrhoea, hypoplasia uteri, and underdevelopment of the ovaries, and in 1920 went so far as to state that in his large series of cases he had 63 per cent. of cures, the most obstinate cases, however, proving to be those of primary dysmenorrhoea. Later Hofbauer recommended the use of x rays on the pituitary for cases of uterine bleedings and myomata, stating that in many instances the bleeding was stopped and the fibroids decreased in size. In fact, he had been so impressed with his results that he put forward the theory that fibroids were due to a disturbed function of the anterior lobe of the pituitary and sympathetic nerve centres. The author, trying to corroborate Hofbauer's findings, applied x rays in 6 cases of fibroids and 9 cases of climacteric bleeding, but in none did the bleeding stop, nor did the fibroid shrink in size, the most beneficial effect noted being a slight diminution of the bleeding in some cases. He then began to try stimulation of the gland by small doses of x rays for the treatment of amenorrhoea, dysmenorrhoea, and climacteric derangements, with encouraging results. Thus in 13 cases of amenorrhoea 7 had periods lasting from a few days to a week, the 6 failures being either cases of primary amenorrhoea or else cases that had not had periods for over two and a half years. In 16 cases of dysmenorrhoea due to hypoplasia the pain was either relieved or cured in all

that in the yellow and negro races this congenital dislocation is much more rare than in the white races, and he associates this rarity with the less highly developed brain of the negro and the yellow man. No reference is made to the indisputable fact that the pelvis of the anthropoid apes is far more capacious than that of man, a fact which entirely upsets his theory that pelvic development necessarily depends on the size of the foetal skull.

Dr. P. Le Damany makes the surprising statement that in some parts of Brittany, in which province he practises, there is one case of hip luxation to every sixty or seventy inhabitants and that its frequency constitutes a real public calamity. He does not drive his argument home by insisting that this frequency is due to an overwhelming intellectual superiority of the Breton Celt over the Teuton and the despised Sassenach. In this country there has been no census of cripples and therefore exact comparisons are impossible, but it is obvious from the statistics of our hospitals that the frequency of the deformity here cannot be a tithe of that in Southern Brittany, for it occurred in less than 1 per cent. of 5,000 orthopaedic cases. In Germany, according to Hoffa writing in 1891, there were only seven congenital hip dislocations in 10,000 surgical cases. The very fact of the extreme regional variability of the frequency of the deformity recorded by the author surely shows that some factor other than mental development has a preponderating influence on its incidence.

Dr. Le Damany also claims to have accounted for torsion of the upper end of the femur, which he regards as a cause and not as a consequence of its displacement, but we are not convinced by his argument; in fact we cannot admit his premisses.

The vast field of experience which Brittany has apparently afforded to the author makes us turn with great expectation to the section of the book on treatment. In this we are not disappointed, although it contains little that is new, except the description of the author's method of treatment after the first plaster appliance is removed. He advocates a combination of plaster-of-Paris and steel apparatus, designed to allow of limited movement, with the intention of encouraging joint development by use. It may be doubted whether the same end is not attained by the ordinary plaster appliance, which generally allows of movement to a greater or less extent. We should have liked to know what degree of success Dr. Le Damany has had, but beyond stating that in very young children (presumably under 2 years of age) 95 per cent. may be counted as cured, he modestly refrains from making any categorical claims to success. We believe that in this country most orthopaedic surgeons consider that the difficulties of treating very young children outweigh the advantages to be hoped for from early attempts at reduction dislocation.

Though we cannot accept all Dr. Le Damany's conclusions we must pay full tribute to his research and industry and to the ingenuity with which he has attempted to explain the etiology of a deformity, which still continues to baffle the pathologist.

The publishers state that this series is intended for the instruction of the general public, and that this book will interest the 120,000 French people who are the subjects of congenital hip-luxation, but we judge it to be too technical for a popular work.

NOTES ON BOOKS.

A HANDY pocket book on *Hygiene and Disease in Eastern Tropical Africa*,[7] prepared on behalf of the Admiralty and the War Office, has been issued by H.M. Stationery Office as a supplement to the *Handbook of German East Africa*. The compiler, who is anonymous, writes after an experience of two periods of about three years each in eastern tropical Africa in the midst of many of the diseases which he discusses, and had no illness of any account owing to the observance of the simple rules which he lays down for steering clear of disease. He has succeeded in producing a little volume that is admirably clear and intelligible. It is well illustrated and has an excellent map of German East Africa showing the distribution of the tsetse fly. It should prove an invaluable companion and guide to all who intend to travel or settle in East Africa, or indeed in any country where tropical diseases occur. Not the least of its merits are its conciseness without loss of any essential matter or of lucidity and the convenient pocket size of the volume. A short section on the protection of aircraft from the attacks of insects gives an account of the insects, such as the wood-boring beetles, which attack woodwork, and the white ants, which are a much more serious danger, as they can summon large numbers to the attack whenever they find a substance suitable for food, thus effecting an astonishing amount of damage in a single night, as those who have lived in India and the tropics know only too well. The most effective means of protecting the structure of aeroplanes from these pests are well described. The Admiralty and the War Office are to be congratulated on the issue of this extremely useful little volume. It is quite the best of its kind.

The possibility of producing adequate supplies of quinine within the empire is discussed in a report[8] issued a short time ago by the Imperial Institute. The extent to which this country depends for its supply on foreign sources is pointed out and a policy of aid by the Imperial and Indian Governments for the more extensive cultivation of cinchona bark suggested. The report also deals with tanning materials in the same way, giving statistics of the trade in Indian myrobalans and indicating the lines on which the production and trade could be improved.

The appearance of a third edition of Professor DENDY'S *Outlines of Evolutionary Biology*[9] calls for no long comment. The book has such a wide reputation, and has met with such a universally favourable impression, that there is little more to be said. It will be a matter for surprise if many more new editions are not called for. The present edition has been revised and brought up to date; as shown, for example, by the inclusion of the experiments of Guyer and Smith and of Cunningham's hormone theory in the chapter dealing with the question of the inheritance of acquired characters—a question of the most vital importance in all matters relating to medicine and sociology. The book deals largely with debatable matter, but the various views are set forth in an unbiased and truly scientific spirit. One point worthy of special mention is the completeness and accuracy of the index, which enhances the value of the book. Index compiling is a dreary occupation and in a book of this character with so many cross-references a very difficult one, but the result is excellent. Professor Dendy is to be congratulated very sincerely on the appearance of this edition. Like its predecessors it is admirably written, filled with information well presented and extremely interesting; what more can be desired?

We have received from the publishers a copy of a new professional directory entitled *London Doctors and Dental Surgeons, 1923–1924*.[10] The first part gives a list of registered medical practitioners practising in Greater London, including Beckenham, Bromley, Croydon, Ilford, Kingston, Richmond, Surbiton, and Woodford. The second part gives a list of "legally qualified (registered) graduates and licentiates in dental surgery" practising in the same area. In size and shape of page, in style and size of type, in tabular arrangement of the entries, as well as in colour and style of binding, this directory bears the strongest possible resemblance to the *Medical Register*; in bulk it corresponds more nearly with the *Dentists Register*. The preface states that no name is printed which for any reason does not appear in the *Medical* or *Dentists Register*, as corrected up to May 31st, 1923, by the General Medical Council or the Dental Board. The brief information appended to each name is arranged in vertical columns. In the medical section each page has five columns, and in the dental section four. The names of dental surgeons who are also registered medical practitioners appear in both sections. The personal particulars given are stated to be those furnished by the practitioners themselves; but "where no return was received, or information was forthcoming too late for incorporation in the present edition, the matter actually appearing is taken from the *Medical* and *Dentists Registers*, amplified wherever possible by available official data."

[7] *Hygiene and Disease in Eastern Tropical Africa: Protection of Aircraft from Attacks of Insects.* Prepared on behalf of the Admiralty and War Office. London: H.M. Stationery Office. 1923. (Pp. 58; with 21 figures and 1 map. 2s.)

[8] *Drugs and Tanning Materials: Reports on Cinchona Bark and Myrobalans.* Imperial Institute Indian Trade Inquiry. London: J. Murray. 1922. (Med. 8vo, pp. viii + 59. 4s. net.)

[9] *Outlines of Evolutionary Biology.* By Arthur Dendy, D.Sc., F.R.S., Professor of Zoology, University of London. Third edition, revised and enlarged. London: Constable and Co., Ltd. 1923. (Demy 8vo, pp. 481; 190 figures. 16s. net.)

[10] *London Doctors and Dental Surgeons, 1923–1924.* London: The Grafton Publishing Co. 1923. (Sup. roy. 8vo, pp. 292. 15s., post free 15s. 6d.)

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF SURGERY.

Sir HENRY M. W. GRAY, K.B.E., C.B., C.M.G., F.R.C.S.Edin., President.

DISCUSSION ON THE TREATMENT OF OBSTRUCTION OF THE COLON.

OPENING PAPER

BY

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For the purpose of this discussion I propose to limit the term "obstruction" to cases in which there is some actual gross mechanical obstacle to the onward course of the faecal stream, and to exclude from consideration the question of intestinal stasis, which, as it affects both the colon and the small intestine, has been so thoroughly ventilated during recent years, and also that of "paralytic ileus," so frequently associated with inflammatory conditions of the peritoneum.

In searching for statistics to serve as a basis for my remarks, although several series representing the work of individual surgeons have been published I am not aware of any large series illustrating the collective efforts of the staff of a hospital in this country since the review, by the late S. H. Rouquette, of all the cases of acute intestinal obstruction admitted to St. Thomas's Hospital during the six years 1908-13 inclusive, comprising 615 cases, and published in the *St. Thomas's Hospital Reports* for 1914. I have, therefore, analysed all admissions for acute intestinal obstruction to the Manchester Royal Infirmary during the ten years 1913-22 inclusive, and am deeply indebted to my junior colleague, Mr. A. H. Southam, for his careful search of the records.

Out of a total admission of 66,373 cases to the surgical wards during this period 1,278 were for acute intestinal obstruction, including small and large intestine cases.

Analysed on the same lines, for the purpose of comparison, as those adopted in the St. Thomas's Hospital series already alluded to, we have the following:

TABLE I.

	No. of Admissions.	Deaths.	Percentage Mortality.
Group A.—Strangulated external hernia	833	192	23.04
Group B.—Non-malignant obstruction (excluding intussusception)	105	53	50.04
Group C.—Malignant obstruction	175	62	35.22
Group D.—Intussusception	165	61	36.9
Total	1,273	368	23.79

Frequency of Involvement of the Colon in Acute Intestinal Obstruction.

Including the cases of intussusception, all of which appear from the records to have been of the ileo-caecal or ileo-colic type, the colon was concerned in 364 out of the 1,278 cases, or 28.48 per cent. If intussusception be excluded, the number is reduced to 199, or 17.87 per cent.

This table shows well the great preponderance of malignant growth as compared with other causes of acute colonic obstruction, constituting 87.9 per cent. of all cases. Stated differently, we may say that if, in any given case of acute intestinal obstruction, we can locate the site of obstruction to the colon, and can also exclude strangulated external hernia and intussusception as the cause (usually readily done), then there remains a 91.04 per cent. chance of the condition being due to a malignant growth, or, roughly, a 9 to 1 chance.

TABLE II.—*Pathological Causes of Acute Obstructions of the Colon (Excluding Intussusception).*

	No of Cases.	Deaths.	Percentage Mortality.
Malignant growths of colon ..	173	59	34.1
Extracolonic malignant growths	2	0	
Strangulated hernia	9	3	33.3
Adhesions	7	0	
Tuberculous disease of caecum	2	0	
Acute diverticulitis	1	0	
Volvulus	5	2	40.0
Total	199	64	32.15

Colonic Obstruction due to Malignant Growth.

In the period under review 485 cases of malignant growth of the large intestine were admitted, of which 173 were associated with acute obstruction—a percentage of 35.67. Table III shows the proportional distribution of these growths in the various segments of the colon, with the relative incidence of acute obstruction in each segment, and the mortality.

TABLE III.—*Analysis of Malignant Growths of the Colon.*

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
			Associated with Acute Obstruction.						
Segment of Colon.	Total Number of Malignant Growths.	Percentage Frequency.	Number of Cases.	Relative Percentage Importance in Intestinal Obstruction.	Order of Relative Importance	Recoveries.	Deaths.	Mortality.	Number of Cases not Associated with Acute Obstruction.
Caecum	25	5.15	11	6.35	4	8	3	27.27	14
Ascending colon ..	11	2.25	3	1.73	8	3	0		3
Hepatic flexure ..	7	1.44	5	2.89	7	2	3	60.0	2
Transverse colon ..	22	4.52	11	6.35	4	5	6	54.54	11
Splenic flexure ..	39	8.04	23	16.18	2	19	9	39.14	11
Descending colon .	12	2.47	7	4.04	6	6	1	14.28	5
Sigmoid colon	143	29.48	89	51.44	1	53	31	34.83	54
Rectum . ..	226	46.59	19	10.98	3	13	6	31.57	207
Total	485		173			114	59	34.10	312

A comparison of the figures in columns 3 and 5 is of special interest. Thus, although the sigmoid colon was the site of only 29.48 per cent. of all malignant growths of the colon, yet in it occurred 51.44 per cent. of all cases of acute colonic obstruction from malignant growth. Conversely the rectum accounted for 46.59 per cent. of all growths, but for only 10.98 per cent. of those associated with acute obstruction. In an analysis of all the St. Thomas's Hospital cases of obstruction of the colon from malignant growth during the twelve years 1900-11 inclusive, E. M. Corner (*Clinical Journal*, October 27th, 1915) gives the order of frequency as (1) iliac and pelvic colon, 47 per cent.; (2) rectum, 18.5 per cent.; (3) splenic flexure, 14.3 per cent.; (4) transverse colon, 11 per cent.; (5) descending colon, 4 per cent.; (6) caecum, 3.3 per cent.; (7) hepatic flexure, 1.7 per cent.; (8) ascending colon, 0.2 per cent.

British Medical Journal.

SATURDAY, SEPTEMBER 22ND, 1923.

THE HEALTH OF SCOTLAND.

ELSEWHERE in this issue (p. 540) are given some striking statistics drawn from the report for 1922 of Dr. A. K. Chalmers, M.O.H. Glasgow. They relate not merely to the great city on the Clyde, but to Scotland as contrasted with England and Wales. Taking first the cities of the two countries, the mean of the all-age death rates of the three years 1920-21-22, in London was 12.8 per 1,000 living, in Liverpool 15.0, in Manchester 13.8, and in Birmingham 12.0. In Scotland the comparable figures were—Edinburgh 14.3, Aberdeen 15.1, Dundee 15.4, and Glasgow 15.9. Next, comparing England and Wales as a whole with Scotland as a whole, the death rate of Scotland since 1861 has been higher by either 1 or 2 per 1,000 per annum in every decennium excepting 1881-90, when the rates were equal. The facts as to infant mortality are even more arresting. In 1861-70 there were in England 154 deaths per 1,000 births, and in Scotland only 121, a difference of 33 in favour of Scotland. But after that time the difference so diminished that in 1901-10 Scotland had an advantage of only 14 instead of 33. In 1911-20, for the first time in those sixty years, the rate in England was lower than in Scotland by 6 per 1,000. It is not that Scotland has been standing still. In 1891-1900 its figure was 128, and in 1911-20 it was only 106; but in England, whilst the rate was 153 for 1891-1900, it had fallen to 100 for 1911-20.

These comparisons, so disadvantageous to Scotland, suggest serious questionings. Why is it that the mortality of Scotland for all ages is persistently higher than that of England? An excess of even 1,000 per annum means close on 5,000 extra deaths every year. Comparing Glasgow, which has the highest death rate of the four great towns of Scotland, with the four greatest English cities, and confining the comparison to 1921, the healthiest of the past three years, the position is as follows. Glasgow had 16,051 deaths; if it had had the same death rate as Liverpool (14.3) its deaths would have been 15,200, a saving of 851 lives. If it had had the same death rate as Manchester (13.6) it would have had 14,456 deaths, a saving of 1,595 lives. If it had had the same death rate as London (12.4) its deaths would have been 13,171, a saving of 2,880 lives. If it had had the same death rate as Birmingham (11.2) its deaths would have been 11,243, a saving of 4,808 lives.

Our purpose is to ask questions, not to answer them; but as the four great towns of Scotland include about three-eighths of its total population, and as combined they have a very decidedly higher death rate than the four greatest towns of England, they must largely account for the national difference.

We pass on, however, to suggest matters for consideration as to the high urban death rates of the northern kingdom. Housing at once suggests itself, and there can be no doubt of its immense influence. In his admirable health history of Manchester noticed in last week's issue (p. 468), Dr. Niven describes it as a city of cottage dwellings, the prevailing type being the four-, five-, or six-roomed house. How infinitely better this is than the great four-story buildings of Glasgow, with multiple houses on every floor, packed full of humanity in dwellings mostly of two apartments, but not infrequently of one; all reached by a common stairway which conveys not only human traffic, but some share of every kind of atmospheric pollution resulting from the overcrowding. This is no modern phenomenon; it is the growth of centuries. The reason probably is that Scotland was in past times a poor country, whose inhabitants could not afford such houses as were practicable in the South, so that a custom became established of a Scotsman having a smaller dwelling than an Englishman. At the best improvement here can only be gradual. It would take an earthquake to effect a clearance. Nor will the housing habit be broken by the bellowings of the Clydeside no-renters, who do so much towards preventing unaided private enterprise from resuming its building function. Neither local authorities nor central authority are too much to be blamed for evils which have their roots deep in the past, and health reports such as that of Dr. Chalmers show how strenuously evils are being tackled in the present day.

Closely associated with overcrowding is the question of domestic cleanliness with all its obvious relations to health, and especially to the health of infants and children. Is the standard of cleanliness lower in Scotland than in England? Does milk, for example, keep as well in a two-roomed dwelling in a great tenement building in Bridgeton as in a separate house in a street in industrial Old Trafford? If not, is the difference wholly due to the house, or partly to the housekeeper? Can school medical inspectors and health visitors make any comparison here between England and Scotland in respect, say, of cleanliness of skin and hair and clothing and of the dwelling itself? If there is a difference no doubt it is being much diminished by such agencies.

A third question—and it cannot be shirked—is the comparative prevalence of alcoholism in the two countries. The spectacle presented by Argyll Street and Trongate in Glasgow on a Saturday night has often been commented on by visitors, and no doubt also by residents, though these may be compelled to silence by shame. Is that to remain a permanent disgrace, or will the coming vote under the Temperance Act do something to diminish it? The influence of alcoholism on the life and health of the victims themselves, and almost as directly on the life and health of their offspring, and on housing and domestic comfort, indeed on all the problems of sociology, needs no emphasizing.

These three subjects—housing, cleanliness, and alcoholism—are closely intertwined. Better houses would promote cleanliness and temperance; greater domestic cleanliness and comfort would provide a counter-attraction to the drink shop; less money spent on drink would leave more for house rent and food and clothing; parental sobriety would mean a cleaner house and better cared-for children. It does not matter where the cutting of the vicious circle begins; improvement in one direction will mean improvement in all.

A fourth question is as to atmospheric pollution in the cities of Scotland and of England. The average Scottish coal is dirtier than the average English and Welsh coal. The pall of smoke overhanging great cities is seen by every railway traveller as he

signs—then there remain 190 colonic to 90 ileal obstructions; that is to say, there is slightly greater than a 2 to 1 chance of any acute intestinal obstruction being situated in some part of the colon. A careful inquiry into the previous medical history is helpful, the entire absence of any intestinal troubles prior to the onset of obstruction being in *favour of the small intestine: of all causes of acute colonic* obstruction 87.9 per cent. are due to malignant growth, and this usually produces some previous intestinal disturbances, such as colicky pains after meals, often travelling to and becoming arrested at the same spot, associated with borborygmi which are frequently audible to others, attacks of diarrhoea (especially when the right half of the colon is concerned), gradually increasing constipation in growths of the left side, slight attacks of flatulent distension often alternating with diarrhoea, occasional passage in the stools of large quantities of mucus, which may be blood-stained. In less acute types the assistance of the sigmoidoscope and of radiography after a barium enema may be sought, but these are scarcely practicable in the really acute case. It is mainly upon a physical examination of the distended abdomen that one has to rely for a differential diagnosis: its shape, whether the bulging is confined to the flanks as in large gut obstruction and especially when the ileo-caecal valve is competent, or whether it is mainly the central parts that are distended as in obstruction low down in the small intestine; whether the outlines of individual distended coils can be seen forming "ladder patterns" as in ileal obstruction; whether visible peristalsis can be detected in the dilated coils; and whether the hardening of the intestinal wall can be felt as the peristaltic wave passes along it—"palpable peristalsis." Auscultation—a much neglected method of physical examination of the abdomen—is often extremely useful if one is conversant with the character and site of the normal intestinal sounds and of the alterations in tone, intensity, and distribution met with in obstructive conditions. The "keynote" to the diagnosis is the condition of the caecum: if this is visibly distended, or, failing this, if it can be definitely felt to alternately harden and soften under the examining fingers, then the obstruction is distal to it. It is unnecessary to emphasize the extreme importance of a careful rectal and vaginal examination.

If, however, a painstaking investigation on these lines fails to show whether the obstruction is in the small or the large intestine, then the first step in the operative treatment must, except in the most desperate cases, necessarily be in the nature of an exploratory laparotomy. This I believe to be best carried out through a paramedian incision splitting the fibres of the lower portion of the right rectus abdominis, and just large enough to admit the hand, every care being taken to prevent the escape of distended bowel. The caecum is at once felt for, and in cases of colonic obstruction will be found distended. The sigmoid colon is next examined, and if found distended the condition is either a volvulus (suspected if distension be extreme), or an obstruction in the lower sigmoid or rectum, which palpation lower down will readily locate. If it is collapsed, the omentum is next drawn down and the transverse colon examined; if this is distended the hand is passed in a distal direction, palpating the left half of the transverse colon, the splenic flexure, and descending colon until the obstruction is felt; if collapsed, a similar investigation is made of the right half of the transverse colon, hepatic flexure, and ascending colon. If the condition of the patient be grave this examination of the sigmoid and transverse colon must be omitted, and, once it has been decided that the caecum is distended, the incision should be rapidly closed and caecostomy performed through a "gridiron" incision in the right iliac fossa, a small Paul's tube being tied into the caecum, or a rubber tube introduced similarly to that in the Kader-Senn operation of gastrostomy, or by the method described by Lockhart-Mummery in the *Lancet* of November 25th, 1922. In a few cases I have introduced the tube through the appendix (appendicostomy), but it is exceptional thus to be able to introduce a tube sufficiently large to give material relief.

When the site of the obstruction in the colon has been located and the cause is found, as is most frequent, to be a growth, then its local fixity, the extent of glandular involvement, and the presence of secondary deposits in the liver and peritoneum should be rapidly investigated and a decision made on the possibility of its future removal. If *the decision be in the affirmative the incision is closed and* caecostomy performed as above; only in exceptional cases, where distension is comparatively slight and the general condition good, can an artificial anus be avoided by lateral anastomosis sufficiently far away to allow of a radical extirpation of the growth and its corresponding lymphatic area later on, such as ileo-sigmoidostomy for growths between the caecum and descending colon. If it be decided that the growth is inoperable, short-circuiting is preferable to an artificial anus whenever the bowel distal to the growth is readily accessible, but, as already explained, ileo-colostomy (unless combined with appendicostomy or caecostomy) should never be employed as a permanent condition in malignant obstruction of the colon. Short-circuiting is frequently impracticable, in which event colostomy just above the growth is required, either in the sigmoid, transverse colon, or caecum according to the site of obstruction. For transverse colostomy the upper end of the original incision is utilized, but for either sigmoid colostomy or caecostomy this incision is closed and a "gridiron" made in the corresponding iliac fossa. Every effort should be made to avoid caecostomy as a permanent state owing to the troublesome excoriation of the skin that occurs around it from the fluid and irritating character of the caecal contents. If a definite decision as to the future operability of the growth cannot at once be made it should be regarded, for the time being, as operable, and the question finally determined at a subsequent exploration after the subsidence of all acute obstructive symptoms; then, if found inoperable, either a short-circuit or a permanent colostomy in some site less objectionable than the caecum may be practicable, the temporary caecostomy being allowed to close. It is agreeably surprising how frequently growths which at first appear to be too fixed for radical removal can with steady perseverance be ultimately mobilized and excised—indeed, local fixity is but rarely a contraindication to radical operation. Should the cause of the obstruction prove to be other than growth, various procedures may be requisite, such as division of constricting bands, the untwisting of a volvulus combined with its fixation by caecostomy or sigmoidostomy, according to whether the caecum or sigmoid is concerned, or, if the volvulus be already gangrenous, its immediate resection with drainage of both ends of the bowel by Paul's tubes.

In the most desperate cases of this group no attempt to find the obstruction should be made. Under local anaesthesia the caecum is exposed through a right "gridiron" incision, and, if found distended, is immediately opened ("blind" caecostomy); if collapsed, the first distended coil of ileum that presents is opened and drained ("blind" enterostomy). In the latter event we deliberately take the risk of leaving a strangulated knuckle of bowel to later perforate and cause death from peritonitis, of opening the small intestine so high up that death from inanition is probable, or of overlooking some very easily removable cause of obstruction such as an impacted gall stone. Our justification is that occasionally a life is saved against which any further "interference" would have turned the scale, although such will almost certainly be required later, should the patient survive.

GROUP II.

If the obstruction can be located to the colon but its actual site remains undetermined, then, provided external hernia and intussusception can be excluded, there is, as shown by the Manchester Royal Infirmary statistics, a 9 to 1 chance of the cause being a malignant growth, and a 6.5 to 1 chance of its being situated on the left side. In the very severe cases of this group I think it will be generally agreed that "blind" caecostomy under local anaesthesia is the proper procedure. On the other hand, in slight

indeed considered it desirable that the old terms "consumption" and "phthisis," which were removed from the official Nomenclature of Diseases (1918) in favour of "pulmonary tuberculosis," should be reinstated. The success of the Grancher method of protecting infants and young children from tuberculous parental infection was described by Dr. G. Brookes Dixon, who approves the use of tuberculin injection for infants thus exposed when separation was not allowed.

While the importance of early diagnosis and efficient treatment by rest at the outset, as described by Dr. Clive Riviere, must be universally accepted, it is also obvious that in the anxiety to secure this ideal there is the real danger of sweeping into the net people who are free from tuberculous infection. This risk of erroneous diagnosis has been estimated to be as high as 60 to 75 per cent. of the cases, and has recently been insisted on by Sir James Kingston Fowler, who has not concealed his critical attitude to modern conceptions of hilum tuberculosis. Dr. Riviere lays much stress on hilum infection, and, indeed, considers that in adult life pulmonary tuberculosis may be due to an extension of this infection from the glands at the root of the lungs, an opinion certainly difficult to establish against the alternative of later and independent infection by inhalation. As early diagnosis in cases in which the result of examination of the sputum is negative is uncertain, and radiograms are subject to fallacious interpretation, the help of the complement fixation test would be most welcome. From their critical survey, based on some 2,500 tests in pulmonary cases and controls and on a review of the literature, Drs. Punch and Gosse conclude that the variability of the results obtained can be partially explained by the different antigens employed. They reiterate their opinion, also entertained by Dr. Sellers, that a positive result indicates an active tuberculous lesion, and that with a few rare exceptions (2 to 3 per cent.) such as very acute, advanced, and moribund patients, a negative reaction is trustworthy evidence of the absence of such lesion. This is a much more assuring statement than that of Aronson and Lewis[1] that the application of the reaction in practice is limited by their observation that 10 per cent. of clinically normal persons give a positive reaction.

The methods of treatment considered are mainly those of comparatively recent date. In his exhaustive and interesting account of artificial light therapy Dr. Axel Reyn recalls Finsen's principle of the two distinct forms of this kind of treatment—the local concentrated action through lenses designed to destroy bacteria and produce inflammation, and the irradiation of the entire body or the light bath—to obtain the stimulating effect on the organism as in surgical tuberculosis; this last was started and early employed by Rollier, for Finsen's death occurred before he could finish his work on this subject. Dr. Axel Reyn does not accept Rollier's opinion that well marked erythema of the skin should be avoided; he believes that the best results are obtained from a light bath if pronounced erythema is produced in the earliest stages of the treatment. For lupus vulgaris the best treatment, as is shown by Dr. Sequeira, is a combination of the local and general light treatment—of concentrated actinic light to the lesions and the exposure of the nude body and limbs to the rays of a large arc lamp.

The discussion on the surgical treatment of pulmonary tuberculosis, introduced by Dr. Gravesen of the Vejlefjord Sanatorium, dealt with artificial pneumothorax and thoracoplasty. In the presence of pleuritic adhesions, which interfere with the efficacy of an artificial pneumothorax, there is a choice between thoracoplasty and Jacobaeus's method of thoracoscopy with endopleural division of adhesions by the cautery. From considerable use and experience of Jacobaeus's procedure Dr. Gravesen sympathetically estimates its value, but concludes on the whole in favour of thoracoplasty for most cases with pleuritic adhesions; Dr. Burrell also agreed that very few cases were suitable for treatment on the lines practised by Jacobaeus. In the course of his opening paper Dr. Gravesen made an interesting digression to point out that, as the outcome of his experience with artificial pneumothorax, he had now adopted as part of the usual method of evacuating pleural effusions, both serous and purulent, the production of an artificial pneumothorax. Among other advantages this tends to prevent the formation of adhesions.

[1] Aronson, J. D., and Lewis: *Amer. Journ. Tuberc.*, 1923, vi, 1024.

OPERATIVE TREATMENT OF MITRAL STENOSIS.

THE ambitious efforts of surgery to remove conditions which physicians are unable to cure has been extraordinarily successful in the comparatively recent past, but hitherto valvular disease of the heart has remained outside the sphere of those who have been described as "physicians who can use their hands." More than twenty years ago the late Sir Lauder Brunton[1] published a "Preliminary note on the possibility of treating mitral stenosis by surgical methods," and, fortified with all the experience of thirty-five years of laboratory work, took out a vivisection certificate and licence to investigate this subject. This novel suggestion was, perhaps not unnaturally, regarded as a somewhat "heroic therapeutic measure," and raised a number of *a priori* objections; but it was not without some supporters. Sir Arbuthnot Lane[2] wrote that some years previously, having gone fully into the matter and concluded that the operation was feasible, he had mentioned it to his colleague Dr. Lauriston Shaw,[3] and had been prepared to act as soon as Dr. Shaw succeeded in finding a case likely to be thus benefited. Dr. Shaw confirmed this conference, which took place about 1890, but added that the *a priori* arguments against operation had appeared so convincing that he had abandoned the idea. At the same time Dr. D. W. Samways[4] pointed out that four years previously he had suggested notching of the stenosed mitral valve as a surgical method of treatment. Experimental surgery then became active in the production of valvular lesions in animals by cutting the aortic or mitral valve segments by a small knife introduced either into the aorta or into the left auricle (Tuffier, Carrel, Cushing, Allen and Graham). Sir Lauder Brunton's suggestion, however, appears to have inspired too much apprehension to be followed except by Doyen, whose patient did not survive the operation. In 1919 H. Vaquez[5] referred such a case to Tuffier, but no operation was carried out, and there have probably been many similar consultations.

A milestone has therefore been reached by the recent publication of a paper by Drs. E. C. Cutler and S. A. Levine[6] entitled "Cardiotomy and valvulotomy for mitral stenosis: experimental observations and clinical notes concerning an operated case with recovery." This

[1] Brunton, Lauder: *Lancet*, 1902, i, 352.
[2] Lane, W. Arbuthnot: Ibid., 1902, i, 547.
[3] Shaw, Lauriston: Ibid., 1902, i, 619.
[4] Samways, D. W.: Ibid., 1902, i, 548; 1898, i, 927.
[5] Vaquez, H.: *Bull. et Mém. Soc. Méd. des Hôp. de Paris*, 1919, 3e sér., lxxxii, 159.
[6] Cutler, E. C., and Levine, S. A.: *Boston Med. and Surg. Journ.*, 1923, clxxxviii, 1023-1027. A brief note on the case was published in the *Epitome*, September 8th (No. 173).

the severity of the obstruction. In the most severe cases I perform a "gridiron" sigmoidostomy, as the sole procedure, without any examination of the growth or liver from within.

(*b*) and (*c*) Here the growth is too highly situated to be felt per rectum, so that we cannot, prior to its exposure by laparotomy, exclude the possibility, should it prove inoperable, of there being a sufficient and readily accessible length of bowel distal to it to permit of a short-circuit operation and thus avoid a permanent artificial anus. In these cases, therefore, I prefer caecostomy for the immediate relief of obstruction, so leaving the field clear for a later exploratory laparotomy (right or left paramedian according to the known situation of the growth), when either resection, short-circuit, exclusion, sigmoidostomy, or transverse colostomy may be feasible, in this order of preference; if none are practicable the incision is closed and the caecostomy left as the permanent condition, though for reasons already stated every effort should be made to avoid this.

Space does not permit me to consider technical details of the various operative measures alluded to, now for the most part standardized, nor to emphasize the extreme importance of the pre- and post-operative management of the case.[1] Though I have laid stress upon what I believe to be the correct principles in the treatment of colonic obstruction once it has developed, yet it is to the earlier recognition of its most frequent cause—malignant growth—prior to the onset of this very serious complication, that our attention in the future should be increasingly attracted.

DISCUSSION.

Mr. SEYMOUR BARLING (Birmingham) said that apart from such a special condition as volvulus, obstruction of the colon was rarely of that acute nature seen in the higher parts of the alimentary canal. It was true that occasionally a colon, that has been narrowed insidiously, became suddenly obstructed in its lumen, yet in the majority of cases the obstruction was subacute or chronic in its initial course. During the period of this partial obstruction such disturbances of function as pain, flatulence, and constipation might occur and be of assistance in arriving at a diagnosis. Frequently, however, no treatment was sought until vomiting and distension indicated the terminal stages of obstruction. Obstruction was much more common in the distal than in the proximal colon, for not only were growths and inflammations more common in that portion of the bowel, but the more solid nature of the bowel contents favoured obstruction. In cases of obstruction of long standing the hypertrophied and dilated colon proximal to the obstruction became filled with an inspissated mass of faeces, a condition most unfavourable to operative treatment of any description.

No one method of treatment was applicable to all the diverse conditions that might be met with in the group of cases which was being discussed. Consideration had to be paid to the site of the obstruction, to the condition of the patient, whether he was dying in the last stages of a chronic obstruction that had become acute, or whether obstruction was partial and early, and, finally, whether the relief to obstruction was a permanent measure, or the first stage, preparatory to the removal of the affected segment of bowel.

Caecostomy was undoubtedly the method of choice in patients who were the worst operative risks of all, the distended patient who had been vomiting for some days. In such cases, when diagnosis was certain, the caecum could be opened under local anaesthetic with the minimum of risk, and such opening was sufficient to tide the patient over the condition of toxaemia which constituted his greatest danger. Moreover, it relieved obstruction in whatever part of the colon it was arising, with the exception of the occasional growth at the ileo-caecal valve. This operation was a life-saving measure, for if these patients were submitted to laparotomy, partly exploratory and partly for performing a colotomy, a very large percentage died. If by means of a caecostomy the patient was carried over the immediate dangers of obstruction, at the end of ten days or so, distension having disappeared, laparotomy might be performed, to determine whether the obstruction was removable or whether a permanent colotomy was necessary.

Should excision be possible it might then be performed, the caecostomy forming a useful safety valve to protect the line of suture from undue stress before it had consolidated. Caecostomy undoubtedly had disadvantages—performed in the way indicated no idea was gained as to the nature or exact situation of the obstruction, or of the possibility or otherwise of future excision. Furthermore, although it relieved distension and permitted the small bowel to drain and thus lessened the toxaemia of the patient, it did not, like colotomy, remove the inspissated contents impacted in the colon between the caecum and the growth. This colon often remained dilated, filled with faeces, and in a condition most unfavourable for future excision if such was feasible.

For the performance of caecostomy in the way indicated the diagnosis had to be sufficiently exact to permit one to state that the caecum was dilated, and that its opening would give relief. Not infrequently this was impossible, and when the diagnosis was in doubt the abdomen had to be opened to establish an exact diagnosis. In the presence of obstruction this would always be attended by considerable risk, and this would be little influenced whether a caecostomy or a colotomy was performed. In the presence of an irremovable obstruction an immediate colotomy or lateral anastomosis was best, as also in cases in which the hypertrophied colon was packed tight with faeces between the caecum and the growth, caecostomy being reserved for cases in which excision seemed feasible and those in which the colon was distended by gas rather than inspissated faeces. Accurate pre-operative diagnosis was therefore essential, and clinical history and examination, *x* rays and the sigmoidoscope might all be helpful in establishing this. Of the clinical signs, perhaps the most helpful was the presence of great distension of the caecum. Of the value of the bismuth enema in establishing the presence and site of an obstruction it was unnecessary to speak, but there was another radiographic method, which was not so well known, that was worthy of mention. If the patient was able to stand up to the screen for a few seconds, an inspection of the abdomen under the rays might give a very striking picture of a distended colonic loop, reaching from the caecum to the site of obstruction. Such a loop, being filled with gas, was seen to be highly luminous against the darker background. In such circumstances Mr. Barling had seen a pool of fluid in the caecum with a gas-filled colonic loop passing across the abdomen to a second pool of liquid faeces lying above the growth obstructing the sigmoid. This formed an unforgetable picture and one affording accurate data on which to perform a caecostomy with the minimum amount of disturbance. In cases of obstruction of the proximal colon in which the obstruction was irremovable, ileo-sigmoidostomy might advantageously be performed. When that was done it was advisable to divide the ileum immediately distal to the anastomosis, otherwise there was a great tendency for the faecal stream to continue its old route and not to use the short-circuit.

Mr. A. B. MITCHELL (Belfast) said that the cases of colonic obstruction were among the most difficult of all surgical problems. The greater their experience the more conservative surgeons became. The enthusiasm and desire for a complete operation, so characteristic of their earlier surgical work, was highly dangerous. It was their misfortune if their first operation of this kind was a success, as it was certain to lead to future fatalities. The mere opening of these cases of acute obstruction, with the necessary handling and contusion of the intestine, was a dangerous operation, likely to result in a rapid increase of the toxaemia. In the acute case the less the surgeon did the better; Mr. Mitchell was all in favour of a rapid caecostomy under local anaesthesia. In milder degrees of obstruction, if the conclusion had been reached that future excision was impracticable, then a lateral anastomosis was the best procedure. If a permanent colostomy had to be performed,

[1] See an excellent paper by E. R. Flint, BRITISH MEDICAL JOURNAL, May 21st, 1921.

THE UNIVERSITY OF TOKYO.

THE recently published transactions of the Medical Faculty of the University of Tokyo[1] afford good evidence of the activity of that university in the matter of scientific research. They contain more than 600 pages, and the sixteen papers are all of value and some of more than ordinary interest. Omori discusses the question of cardiac inhibition as exhibited in the contractions of the sinus venosus, a part of the heart hitherto very little studied in this connexion. The experiments were made on the heart of the toad, the preparation consisting of a strip of the isolated sinus. He employed both intra- and extra-cardiac stimulation of the vagus, the former by means of muscarin, the latter by electrical stimulation of the nerve trunk, and the contractions were studied under varying degrees of stimulation and in varying metabolic conditions, induced by alteration of the temperature and the tension of the muscle. Among the results observed were the following: (1) The energy and metabolism of contraction are a function of the tissue tension, as in other parts of the heart; (2) the action of the vagus is a function of the tissue tension, and the increase and decrease of the inhibitory action are inversely proportional to the degree of tension, and consequently to the metabolic activity; (3) in favourable metabolic conditions the inhibitory action disappears and acceleration occurs, the evidence pointing to its being due to vagus stimulation; (4) the contractions of the sinus are regular at temperatures between 1° and 35° C., but show a gradual increase between 5° and 30° C., represented on the myogram by a straight line and indicating a metabolic activity increasing with the temperature; (5) the action of the vagus is a function of the sinus temperature; increase and decrease of inhibition stand in inverse relation to rise of temperature—that is, to the metabolic activity; (6) in favourable metabolic conditions inhibition disappears and is replaced by acceleration. Omori inclines towards Verworn's theory of dissimilation; he imagines an automatic centre outside the contractile substance, the rhythmical activity of which may be affected by vagus stimulation interrupting the rhythmical stimuli (stillstand), slowing the rhythm (chronotropism), or by acceleration, the diminution in contractile power then observed (inotropism) being associated with a partial dissimilation palsy of the muscle, leading to smaller and shorter contractions. Gyotoku and Momose have a paper on the metabolism of four cases of Addison's disease. Their general conclusions are: (1) that there is never any marked hypoglycaemia; in one severe and fatal case there was a slight decrease in the blood sugar as the general condition deteriorated; (2) that the action of adrenaline as regards pulse and blood pressure is similar to that in the healthy subject; (3) that the alimentary glycaemia occurring in Addison's disease is the same as in the healthy subject; (4) that with regard to protein metabolism, the nitrogen balance was negative in the two severer cases, and positive in the two slight cases; no definite conclusion could be reached as to whether an increase or decrease was the rule; (5) in all cases there was a marked negative balance for calcium and a positive balance for phosphorus. Kira contributes a paper on the rapidity of *post-mortem* autolysis of glycogen in the liver. He used the toad and the rat as examples of cold-blooded and warm-blooded animals respectively. In the former glycogen disappeared very slowly, and no marked difference was observed as between the hibernating and the waking conditions. In the rat the rate of disappearance was greater but not markedly so, and the author's experiments seemed to show that the difference was due, not to any difference in the amount of diastase present; but to a greater stability of the glycogen in the toad. Other papers deal with the healing-in of foreign bodies in the lung, and the epithelial hyperplasia associated with it; calcium and magnesium metabolism, more especially in relation to the percentage of these compounds in the blood; the influence of the thymus on the growth of bone; the virus of rabies; diabetes and the haemolytic action of glucose; gastric secretion and hyperacidity; the cerebro-spinal fluid; primary diseases of the lymphatic system; Schede's operation for empyema; and the pathogenesis of circulatory failure in pneumococcal pneumonia. No man of science in this country or indeed in the whole world can turn over the pages of this volume without a feeling of intense sympathy with these fellow workers in the cause of humanity in the tragedy that has overwhelmed their city. The Japanese have always been regarded by us Westerners as born masters in the fine arts, and foremost in the genuine love of Nature; and the manner in which they have, in recent times, stepped forward into the line of modern scientific progress is one of the wonders of the age. The calamity that has befallen them will be felt as a calamity to the whole world.

[1] *Mitteilungen aus der Medizinische Fakultät der Kaiserlichen Universität zu Tokyo.* Tokyo: Kaiserlichen Universität. Band XXIX, Heft 2 (Imp. 8vo, pp. 420). Band XXIX, Heft 3 (Imp. 8vo, pp. 422-624; illustrated). Band XXX, Heft 1 (Imp. 8vo, pp. 205; illustrated).

A HOSPITAL HEALTH CENTRE IN WALES.

CARDIGAN has set an example which may well be imitated by other towns not only in Wales but in England; it has established what practically amounts to a health centre such as was conceived in the report of the Consultative Council of Medical and Allied Services, presided over by Lord Dawson of Penn. It may be described, perhaps, as a cross between a primary and a secondary health centre as outlined in that report. It has the cordial support of the medical profession in the district and the great advantage of the services of Sir John Lynn-Thomas, who resides in the neighbourhood and acts as a consulting and operating surgeon; it can also command the assistance of Mr. Wade of the Cardiff Royal Infirmary. The Cardigan and District War Memorial Hospital, founded less than two years ago, has been for the present completed by the establishment of an out-patient department and clinics. The clinics will include child and maternity welfare, and tuberculosis. The new buildings were opened last week by Mrs. Lloyd George, when a public meeting was held under the presidency of Mr. John Evans, chairman of the Hospital Executive Committee, who referred to the gift of *x*-ray apparatus made by the ex-service men of the district. He also mentioned that a motor ambulance station had been established in the yard of the hospital through the gift of an ambulance by the Joint Ambulance Committee of the British Red Cross and the Order of St. John. A short address on the maternity and child welfare scheme was given by Dr. Meredith Davies, M.O.H. for Cardiganshire, who said that the infant mortality for the county had declined from 130 in 1911 to 60 in 1920; this he attributed to the operations of the child welfare scheme. He also spoke of the importance of the maternity work for the expectant mother, and prophesied that in a short period all confinements would take place in hospitals. After a short speech from Mr. Ernest Watkins, secretary to the Welsh Department of the Ministry of Health, Dr. Lloyd, county tuberculosis officer, congratulated the Committee and the people of the district on behalf of the Welsh National Memorial Association. The hospital and the clinics formed a fitting memorial for the glorious dead, and would be a lasting memorial also to Sir John Lynn-Thomas, who had not only taken a large share in the foundation and organization of the hospital, but had placed his skill as an operator at its disposal. Dr. Lloyd went on to say that the mortality from tuberculosis was steadily declining in the county; in the period 1875 to 1914 the average was 2.8 per 1,000; last year it was 1.63. Dame Margaret Lloyd George, who was very cordially received, said that she first visited the hospital some fourteen months

t these figures would compare quite favourably with er hospitals dealing with large districts where cases are en seen almost *in extremis*. On the other hand, he ought they could not question that a 32 per cent. mortity from acute obstruction of the colon was far from al. It was a very high mortality from any one condin, and when they saw a mortality which amounted to arly one death in three cases it behoved them to go very refully over the ground and see in what way they might able to bring down this mortality to what might be nsidered a reasonable figure. The high mortality was to large extent due, he felt sure, to the fact that so many these cases did not reach the surgeon's hands in the rly stages. This cause, however, was not under their ntrol, and they had to deal with facts as they were and t as they might be. No doubt in time, and with improved rangements for removing patients to the hospital, conderable improvement would take place, due to this fact one: but in the meantime they should do everything they uld to reduce the risks of the operation. One of the eatest dangers of operations in cases of acute obstruction s the anaesthetic. His own belief was that an inhalation aesthetic in the case of acute obstruction was wrong, d that the surgeon should operate on all such cases either nder local anaesthesia, regional anaesthesia, or spinal aesthesia. He did not think that a patient with acute struction should ever be given an inhalation anaesthetic, d was persuaded that this alone would do a very great al to reduce the mortality from operations for internal struction. There was hardly any other class of case in hich an inhalation anaesthetic was as dangerous as in ute obstruction. Vomiting of faecal matter from the erloaded intestinal canal was very liable to occur, and en when the patient was not actually drowned on the erating table, death from septic pneumonia in the course a day or so was very common. He believed such anaesesia should be discarded. The other great factor in reicing the mortality had already been referred to by Mr. urgess—namely, blind caecostomy. He was very strongly the belief that in all cases of acute obstruction the oper treatment during the acute stage was a blind caecoomy, done under local anaesthesia with a rubber tube by e method described by him in the *Lancet* of November th, 1922. This was a simple operation, which could be sily performed under a local anaesthetic practically withit any risk. It rapidly relieved the obstruction and got e patient over the acute and dangerous stage. A few ys later the abdomen might be opened under a spinal aesthetic and the cause of the obstruction searched for nd dealt with in the most favourable circumstances. his procedure, as he had already pointed out, was much ore rational than an exploratory laparotomy when a atient was suffering from acute obstruction terminating, it frequently must, with a caecostomy. He felt very rongly that to perform an exploratory operation on any atient with acute obstruction was wrong, more particularly all surgeons now agreed that primary resection when bstruction was present should never be performed. If ey granted that, and he thought all surgeons were now greed upon it, then surely there was no point in exploraory laparotomy. Mr. Burgess had very carefully summed p the arguments for and against this procedure, his own pinion being strongly in favour of caecostomy only in e acute stage. As he pointed out, the only real danger as that one might miss a case of acute volvulus. But as e had shown, even if they assumed that that were so, the ortality from acute volvulus, which might be prevented y exploratory laparotomy, was not more than 1.5 per cent., hereas if blind caecostomy were performed in all cases the otal mortality would probably be reduced to somewhere the neighbourhood of 10 per cent. or less. Cases of olvulus could generally be detected. The symptoms were ore or less characteristic and there was nearly always a ast history which made one suspicious. The advantages the tubular method of performing caecostomy were that involved no mess, the dressings did not even require hanging for several days after the operation, and the ontents of the caecum were siphoned out into a pail under e bed. The tube usually separated on about the ninth day, and the opening closed immediately without any trouble, assuming, of course, that the obstruction beyond had already been removed. Personally he always performed a caecostomy in all cases of acute obstruction by that method and also in all cases of anastomosis of the colon of whatever kind. He was convinced that it had enormously reduced the risk of that operation, and that if it became the universal practice to perform blind caecostomy under local or spinal anaesthesia in all cases of obstruction of the colon, they would replace the 32 per cent. mortality with one of under 10 per cent. He had found that temporary caecostomy in all cases of resection of the colon, whether in part or in whole, had very greatly reduced the mortality and risks of such operations.

With regard to Group I, where they could tell whether the obstruction was in the ileum or the colon, he agreed with Mr. Burgess that it should generally be possible to distinguish between an obstruction of the colon and the large intestine. If no such distinction could be drawn an exploratory laparotomy would still seem necessary. An incision, however, might be made over the right side so that if the caecum was found distended the caecostomy could be done immediately without further exploration. They all knew how dangerous an operation an exploratory operation was in cases of acute obstruction, and they should not be tempted to explore for a cause when they could be sure that they could relieve the danger without knowing where the cause of the trouble rested. With regard to Group II, where they could locate the obstruction to the colon, but its situation therein was not known, he thought blind caecostomy should be performed without hesitation, and the exploration postponed until the patient had recovered from the acute symptoms, which should be a matter of a few days. In Group III, where the site of obstruction in the colon could be definitely ascertained, he still believed that blind caecostomy was the proper operation, even when they were certain that an inoperable growth had to be dealt with. Tubular caecostomy was better and gave much better results than an immediate colostomy. After the patient had recovered from the obstruction a carefully planned colostomy could be performed and the caecostomy opening allowed to close. Moreover, it was very difficult to say whether a growth was absolutely inoperable when a patient was suffering from obstruction. He observed that Mr. Burgess spoke of left inguinal colostomy. Personally he had discarded left inguinal colostomy completely and preferred hypergastric colostomy through the centre of the left rectus muscle, with the upper end of the incision level with the umbilicus. That form of colostomy had proved far more satisfactory than inguinal colostomy, both from the point of view of absence of prolapse afterwards and also from control over the opening. He was very glad that that subject had been ventilated, as he believed it to be of the utmost importance, as he had for some time felt that the mortality from obstruction of the colon was too high.

The duty of a surgeon when called in to a case of acute obstruction was not to attempt an ideal operation but to do what was necessary to save the patient with the minimum of risk, and bearing in mind that his duty was to relieve the obstruction which was threatening the patient's life. The cause of the obstruction was for the time being of quite minor importance. That attitude was, it seemed to him, on a par with that which applied in cases of acute peritonitis. In the old days they used to search carefully for the cause, but it was soon found that the proper procedure was to drain the abdomen, treating it, in fact, as they would any other abscess, and to leave the cause of the peritonitis to be dealt with at a more opportune time. He particularly wished to stress the importance of local anaesthesia in cases of obstruction of the colon. English surgeons had such excellent anaesthetists always available that he thought they had failed to appreciate the value of local and regional anaesthesia, or to make themselves fully acquainted with the methods. Local or regional anaesthesia was admittedly tiresome at first, but with practice it soon became quite simple, and except in very stout persons presented no real or serious difficulties. It enabled old and feeble patients to be operated

departments and small special hospitals poorly equipped and with few facilities for scientific work. He was impressed by the system of clinical records, with its stenographers, clerks, and filing arrangements. Many American surgeons, like Dr. Crile, combine a large amount of research work with their operative practice, and for this purpose they find the clinic system very valuable. At Chicago the College of Surgeons publishes a clinical bulletin daily, showing all the operative work going on in the city. The college also has a department of literary research, which for a small fee will supply a complete bibliography with abstracts of any subject in medicine or surgery. Everywhere, both in the United States and in Canada, Mr. Webb-Johnson saw the utmost keenness and thoroughness coupled with perfect equipment and organization. But he did not observe the same relationship between the student and the patient as there is between the clerk or dresser and the patient in British hospitals. The schools excel in the spirit of research, and the hospitals are far ahead of ours in the care they give to their records.

SOME POINTS OF VIEW ABOUT VACCINATION.

EVERY week brings us a batch of newspaper cuttings about vaccination, and the recent circular issued by the Ministry of Health has not diminished their number. A short time ago (July 14th, p. 72) we discussed the duty of the medical profession in respect of vaccination propaganda in connexion with the appeal then recently made by the Bishop of Gloucester, and pointed out that the British Medical Association has constantly advocated a sound vaccination policy, has made representations on the necessity for more thorough vaccination of the community, has lent its support to suitable propaganda, and has supplied information to inquirers. Meanwhile, as we have frequently observed, small-pox is itself the best teacher. One of the reports before us is to the effect that the chairman of a board of guardians in Essex recently remarked at a meeting that "many people take exemption papers, and don't understand it," in which view he had the frank support of an opposing member, who said, "I did, but I don't quite know why." On the question of the need for revaccination, another guardian used the apt illustration, "though a house has once been repaired it has to be continually kept in order, so there must be revaccination." Ultimately it was resolved without a dissenting voice "that the attention of the doctors be called to the importance of vaccination, and that they should encourage parents and patients to be vaccinated." Thus are the clergy and the laity appealing to the medical profession to support vaccination. In the House of Commons a short time ago, as reported in our Parliamentary Notes at the time, a Labour member protested against the efforts of employers in Gloucester to get their employees vaccinated, and rhetorically asserted "that he declined to allow an employer of labour, simply because he employed an individual, to utilize powers that were never given to him to compel his employees to be vaccinated," and he "appealed to the Minister to come to the rescue of these people." Lord Eustace Percy, replying for the Minister of Health, said that were he in Gloucester he would claim the right to protect his household from what he would consider a risk, by refusing to take into his employment anyone who was not vaccinated. It would be a rather gross form of tyranny, he continued, were the State to tell him that he was not at liberty to do so. This rejoinder reminds us of a piece of evidence given by an American witness before the Royal Commission on Vaccination. He told how when small-pox was feared the officials of a certain State would board an immigrant train before it reached that State and proceed to vaccinate the travellers. When, as occasionally happened, an English immigrant objected, a conversation somewhat to the following effect would ensue: "I understand that vaccination is voluntary in this country." "Yes, certainly, this is a free country, stranger, you can be vaccinated or not as you please." This elicited the reply, "Well, I object to vaccination and I won't be done," to which the answer, "That's all right, we'll stop the train and let you off at the boundary of our State"; but, says the immigrant, "I don't want to be put off—I'm going into your State." "No, you're not, sir; you are a free man and refuse vaccination; we are a free State and refuse to admit the unvaccinated." "Well, what town do you let me off at?" "No town at all—there's none near the border. Oh! you *do* want to get vaccinated?—surely—which arm? Thank you—next please." That is not exactly the story, but only the gist of it, and similarly the Ministry of Health holds that the employer, as well as the employee, is a free man. Thus the great Republic of America and the conservative Government of Britain seem to hold identical views; whilst the American Eagle, the bird of freedom, winks to the British Lion, as they jointly witness this display of international agreement.

THE WORK OF A MATERNITY DEPARTMENT.

A CLINICAL report for 1922 of the maternity department of the Jessop Hospital for Women, Sheffield, has been prepared by Dr. J. Eric Stacey, the registrar. The total number of cases treated by the hospital during the year was 887; of these, 700 were treated in the wards; of the 618 delivered in the wards 203 were primiparae and 415 multiparae; primiparae are not attended in the "district." The maternal mortality was 14 (2 per cent.); 67 patients were discharged undelivered. The number treated in their own homes was 187. The hospital admits cases from the outlying districts, and no case has been refused during the year where application has been made by a medical practitioner. Many of such cases have been sent in after attempts at delivery in their own homes have been unsuccessful. The maternal morbidity (including the 14 deaths), calculated on the basis of deliveries (618) and not on the admissions, was 7.9 per cent. British Medical Association standard and 16.6 per cent. Queen Charlotte's Hospital standard. Among the 618 deliveries there were 11 cases of twins, 33 breech presentations, 10 transverse lies, 14 prolapse of funis, and 10 face and brow. There were 25 cases of placenta praevia, with no maternal death; 10 of the children were stillborn; there were 16 cases of accidental haemorrhage, including 4 of the concealed type, in one of which latter, where delivery was effected by Caesarean section, the mother succumbed; 9 of the children were stillborn. Out of the 147 cases of contracted pelvis treated in the hospital, 27 were delivered by forceps, 22 by Caesarean section, 7 by craniotomy, 2 by decapitation, 4 by version, and in 2 cases labour was induced; 21 children were stillborn. Caesarean section was performed on 33 occasions with 2 maternal deaths (the case of concealed accidental haemorrhage noted above and a face presentation who later died of sepsis). In 2 cases of concealed accidental haemorrhage delivered by this method the child was stillborn; 15 cases of eclampsia were admitted, and 4 of the mothers died. The deaths among the 629 children (including premature infants) born in the hospital numbered 95; of these 46 full-term children and 24 premature infants were born dead, the remaining 5 died after birth. No account is taken in the report of those cases of ectopic gestation, abortion, hydatid mole, hyperemesis gravidarum, and other complications of pregnancy in which the gestation period was less than seven months, as cases in this category are treated in the gynaecological wards of the hospital. A short summary is, however, given of the operations performed in the gynaecological department.

other cases of carcinoma of the colon. A patient with chronic obstruction was given an opaque enema. The radiographer reported that even after considerably increasing the pressure he could not make the opaque fluid pass the splenic flexure. A confirmatory examination was made, at which Professor Pannett was present. The skiagram was shown in Figure 2. He made the oblique incision recommended by Rutherford Morison, to explore the splenic flexure. Again there was no growth in this situation, but one in the sigmoid. A man was in hospital suspected of having a growth of the colon. An opaque enema was given. The picture was shown in Figure 3. It was reported to give no evidence of stricture of the colon. Four days later he got acutely obstructed and, when opened, there was found a narrow annular growth of the sigmoid. Obviously there the stricture was masked by other coils in front of it. Lastly, Figure 4 showed the result of radiographing an old lady who had a "blind" caecostomy performed by a practitioner, and who was sent to Professor Pannett after a considerable interval of time had elapsed. There clearly was a growth in the lower colon. To his surprise, at the operation the primary growth was found in the transverse colon, the growth in the sigmoid being a secondary implantation. A Paul's operation in the transverse colon, leaving the two ends permanently open, allowed the caecostomy to heal and gave much relief. It might have been done at the first. Their experience at St. Mary's Hospital was that the mortality after resection at the second stage was quite a serious one (just over 16 per cent.) and that it was a much graver procedure than the primary exploration. Therefore anything which lessened the gravity of it was desirable. The exact knowledge of the site of the growth to be removed might do that by avoiding a second abdominal incision. The splenic flexure could not usually be excised through the middle line, and any incision there made it rather difficult to remove the hepatic flexure. The abdomen, however, must always be opened close to the middle line if they were uncertain of the situation of the growth. On the whole, he thought the greatest good was done by abandoning a "blind" caecostomy, unless by rectal or abdominal palpation the exact situation of the growth would be determined beforehand

Mr. J. W. GEARY GRANT (Cardiff) said he had been greatly interested in Mr. Burgess's paper. Every surgeon, of course, agreed that a primary resection with end-to-end union was a totally unjustifiable procedure. The Mikulicz-Paul operation had more to be said in its favour, but the chief objection was that it did not permit of an extensive removal of the lymphatic area. He was interested to hear Mr Lockhart-Mummery's description of his method of caecostomy, which he would certainly try in the next suitable case, for he was bound to say that his own experience of caecostomy had been most unfavourable. In two cases where he tied in a small Paul's tube leakage took place, with excessive suppuration and sloughing of the abdominal wall. Caecostomy did not appear to him such a simple procedure as it had been represented to be, and he gathered that Mr. Pannett was somewhat of the same opinion. The whole point was that while a Witzell gastrostomy, which seemed to be the principle of Mr. Mummery's operation, was safe and easy, the gastric contents being nearly aseptic, in performing a similar operation on the caecum, in the class of patient he was accustomed to deal with, in a patient with complete obstruction, with a thin-walled, ballooned, and friable caecum on the point of rupture, with intensely toxic, infective, and fluid contents, a leak was likely to be attended with serious consequences. He suggested that appendicostomy, a safer procedure, would relieve the gaseous distension which was the chief factor in these cases. He had not seen an exploratory laparotomy, if carefully carried out—of course not letting intestine escape—followed by colostomy and immediate opening and tying in a Paul's tube, to be attended with any marked increase of shock, which was due to stretching of the gut and absorption of toxins. What he had been struck with was the great amelioration of symptoms a few hours after. In obstruction from the splenic flexure to the recto-sigmoid junction, he made a transverse colostomy and completely diverted the faeces, thus freeing the bowel at the future site of resection and anastomosis from gross contamination, which he maintained could not be done by caecostomy. A fortnight later he carried out the excision, and several weeks later closed the colostomy by the intraperitoneal method. In a growth proximal to the splenic flexure a caecostomy had to be performed.

Mr. C. P. CHILDE (Portsmouth) remarked that there was a difference of opinion as to the proper course to pursue in any given case of acute obstruction due to colonic disease. It was of great advantage to get rid of the obstruction. Opening the bowel above the obstruction—that was to say, performing caecostomy—meant ultimately three operations, the last being to close the temporary opening. He would care to perform blind caecostomy only if the patient were exceedingly ill and unable to bear anything but the slightest operative interference. If the patient were ill to a less degree he would endeavour to locate the obstruction, as by this means his after-treatment would be on surer grounds, and he would then know what kind of growth he was dealing with and where the growth was situated.

Mr. R. D. MOTHERSOLE (Bolton) was of opinion that there would be general agreement as to the advisability of doing the least serious operation, probably caecostomy, in the worst cases of acute obstruction. But the position of colostomy was more doubtful. In his own practice he had been better satisfied with those cases in which he had done a preliminary colostomy than in those in which he had done a caecostomy. Most surgeons would agree that the mortality of operations for cancer of the rectum was much lessened by putting the diseased bowel out of action by a preliminary colostomy. The same should hold good with regard to other portions of the bowel, and he suggested that the mortality of the operation would be lessened by doing a colostomy as an intermediate operation between the caecostomy for relief of obstruction and the excision of the malignant disease.

Mr. M. MAMOURIAN (Ashton-under-Lyne) said that Mr. Burgess emphasized rightly the value of "blind" caecostomy as a valuable life-saving device. The decision as to whether a patient should be submitted to blind caecostomy or to a preliminary exploratory laparotomy would depend upon the condition of the patient. Where the patient's condition warranted it, exploration of the abdomen, which enabled one to localize and diagnose the obstructing lesion, was the procedure indicated. Mr. Mitchell referred to the method of colostomy by closing the distal segment and bringing the lumen of the proximal loop to the iliac wound. Mr. Mamourian thought it a mistake to close the abdomen and then proceed to make the artificial anus. He found it very helpful to make the colostomy opening by thrusting a pair of blunt scissors from within, cutting on the point and opening them out so as to get an opening big enough to admit two fingers. The fixation of the loop or tube was rendered easy with one hand in the abdomen and the guidance of the eye. By this technique the cauliflower-like protrusion was avoided, and the opening was certainly more valvular than the one made on muscle-splitting lines. Mr. Lockhart-Mummery had referred to his method of caecostomy by the use of a rubber tube. Mr. Mamourian wished to draw attention to another extremely easy method of performing caecostomy or colostomy, by the use of the Murphy button, which he had published about ten years previously. The male half of the button was inserted at the end of a long piece of soft colotomy tubing, which was tied round the collar of the button just as if it were a piece of bowel. A linear purse-string suture was put in the bowel, the incision made, and the other half of the button placed in position. The two halves were pressed together, and thus an hermetically sealed joint was established between bowel wall and tubing. The button took four or five days to separate. It was a quicker, safer, and neater device than the Paul's tube.

Mr. BURGESS, in reply, considered that there had been shown in the discussion a fairly general agreement upon most of the points he had raised, the most debatable

with ether but none of them have abdominal or other operations likely to interfere with efficient respiration.

Mr. Colt's suggestion of a tonometer to measure muscular relaxation would, I fear, prove impracticable. I know few surgeons who would willingly attach one to their retractor and, of course, with good ether relaxation such an instrument may be unnecessary. If attached to a group of muscles at a distance the information would be of slight value, as if Mr. Colt will carry back his thoughts to those far-off anaesthetic days he will remember that relaxation in one set of muscles does not necessarily imply it in another. Many surgeons are themselves tonometers of excessive delicacy.—I am, etc.,

London, W., Sept. 11th. CHARLES F. HADFIELD.

PAY OF THE R.A.M.C.

SIR,—In the recent Educational Number of the BRITISH MEDICAL JOURNAL there appears, under the heading of Public Services, a lengthy notice concerning the pay for the Army Medical Services. This has doubtless been perused by many officers of the corps with astonishment, and probably also by would-be applicants with high hopes.

My reason for writing is to ask from what source these figures came, as they will be disputed by those officers already serving in the corps if they take the trouble to work out their incomes. Again, they can be disputed by the Army Estimates for the year 1923-24 printed on March 5th, 1923, which gives the total maximum for lieutenants up to major-generals. It will be seen at once that those given in the article in question do not in any case agree with those in the Army Estimates, which include all pay except specialist and extra duty pay.

I give the 1923-24 estimate:

	Married.	Unmarried.
	£	£
Lieutenant	598	532
Captain	738	646
Captain after 6 years	756	665
Captain after 10 years	811	719
Major	884	824
Major after 15 years	975	916
Lieut.-Colonel	1,157	1,107
Lieut.-Colonel after 20 years	1,203	1,153
Lieut.-Colonel after 25 years	1,249	1,198
Colonel	1,471	1,407
Major-General	2,140	2,074

I consider the article most misleading, especially as allowances have been lumped together with pay; this is contrary to the meaning of paragraph 272—Allowance Regulations, which states: "Lodging money is not a personal emolument"; if it is not personal, it cannot be regarded as income.

Again, all allowances of those drawing specialist pay are taxable where the specialist holds a fixed appointment, and as most specialists' appointments are now fixed he who should get 5s. a day only gets 2s. 1d. a day, and he who should get 2s. 6d. extra gets 5d. This also holds good for allowances in other cases where the appointment is considered by War Office to be of a fixed nature.

I enclose my card, but not for publication for obvious reasons.—I am, etc.,

September 8th. AN ARMY DOCTOR.

*** The information published was supplied to us by the War Office.

DR. V. NOQUET of Lille, one of the pioneers of laryngology, and President of the French Society of Oto-rhino-laryngology in 1901, has recently died at the age of 76.

WITH the proceeds of the "Golden Casket" lottery, which amount to some £200,000 per annum, maternity hospitals and ante-natal and child welfare clinics are to be established throughout Queensland, under the provisions of a new Maternity Act passed at the last session of the Queensland Parliament. Maternity hospitals will be established in isolated places, and sums varying from £2,500 to £10,000 will be used for the provision of adequate institutional accommodation in the ten largest towns of Queensland.

Obituary.

DR. ERNEST MORLEY ROOKE died at Brighton after an operation on September 10th, aged 57. He was the second son of the late Dr. T. M. Rooke of Cheltenham, and was educated at Guy's Hospital Medical School, and took the diplomas of L.S.A. in 1891 and M.R.C.S. and L.R.C.P. Lond. in 1892. He served as a civil surgeon in South Africa in 1899-1900, receiving the Queen's medal with two clasps; was for several years chief medical officer of the Bengal-Nagpur State Railway in India; and held a temporary commission in the R.A.M.C. in 1915-16. He was vice-chairman of the National Service Medical Board for Sussex.

DR. ALFRED GEORGE WILKINSON, a veteran practitioner, of Northampton, died on September 15th, aged 88. He took the diplomas of M.R.C.S.Eng. in 1857 and of L.S.A. in 1866. While still a student he went to the Crimea as a dresser, and worked with Florence Nightingale; he assisted in attending the wounded after the charge of the Light Brigade. Dr. Wilkinson settled in practice in Northampton in 1870, and he continued at work until a few days before his death.

DR. WILLIAM FLETCHER GIBB of Paisley died on September 11th, aged 67 years. He was the son of the late Mr. Andrew Dewar Gibb. From Paisley Grammar School he went to the University of Glasgow, where he graduated M.B., C.M. with commendation in 1883, and M.D. in 1885. He also studied in Vienna. He served as house-surgeon to the Western Infirmary, Glasgow, and assistant physician to the Glamorganshire County Asylum before commencing practice in Paisley. He had held the appointments of medical officer to the West Kilbride Convalescent Home, consulting surgeon to the Royal Alexandra Infirmary, Paisley, and certifying factory surgeon. When the war broke out Dr. Gibb deputized for other local medical practitioners who were called up for military duties, and he also gave daily service at the Bellahouston Hospital. His kindly manner inspired great confidence in his patients.

DR. JOHN MCMURRAY died at his residence in Bootle on September 12th, in his 66th year. He graduated M.D., R.U.I., M.Ch., and L.M. in 1882, and three years later took the degree of M.A.O. He was senior scholar in therapeutics and pathology at Queen's College, Belfast, in 1881-2, and obtained honours in his university examination. He was a justice of the peace for the borough of Bootle, and mayor of the borough in 1897-98. Dr. McMurray was visiting medical officer to the Liverpool Industrial Schools and the Liverpool branch workhouse, and had served as honorary surgeon to the Bootle Borough Hospital, senior resident medical officer to the Liverpool Parish Infirmary, and house-surgeon to the Northern Dispensary, Liverpool.

We regret to announce the death on September 17th of DR. MARGARET L. A. BOILEAU, aged 56. She was the only daughter of the late Sir Francis Boileau, received her medical education at the London School of Medicine for Women, and graduated M.B., B.S.Lond. in 1906. She afterwards served as clinical assistant in the out-patient department of the Elizabeth Garrett Anderson Hospital for Women and for some time was in practice at Ravenscourt Park. During the war she acted for a short time as house-surgeon at the Jenny Lind Hospital for Children. She was commandant of the V.A.D. Hospital at Swainsthorpe, and for several years during the war and subsequently she gave gratuitous assistance to the infant welfare clinics of the Norwich Corporation. She was a member of the East Norfolk Division of the British Medical Association. She took great interest in the Girl Guide movement, the work of the Church Missionary Society, and the Young Women's Christian Association.

. G. W. Crile has pointed out that remote visceral stases are found in less than 1 per cent. of the cases ncer of the face, neck, and head, and that the disease is st invariably limited to the extensive collar of lymph- surrounding the neck. "The collar of lymphatics t the neck form an almost impassable barrier through h cancer rarely penetrates. . . . These facts," con- s Crile, "give us the key to our first principle—the val *en bloc* of the pertinent glands." Surely this argu- is thoroughly unsound! If the lymphatic glands form npassable barrier, surely it is unwise to remove them, at rate until we have taken away the growth the spread hich it is desired to bar. In this instance I believe ological observation to be right, but the inference drawn it by surgeons to be wrong. I suggest, therefore, that impassable barrier be left for several weeks after the val of the primary growth. During this period the ds will continue their beneficent work and intercept any er cells left behind in the wound, acting indeed as ire's wound scavengers. Then, when there is no longer for a barrier, the glands with the intercepted cancer may be removed. I have operated for cancer of the ue by this method in eight instances, five times before war and on three occasions since. Of the eight patients, died of bronchopneumonia seven days after operation, patient is untraced and presumed to be dead, one died en months after operation, and five are alive and well, of them more than six years after the original opera- . Of course, such a small number of cases is by no means lusive, but compared with earlier experience of opera- for cancer of the tongue they are encouraging, for iously I had not known of any patient with cancer of tongue alive five years after operation. I submit that e is solid reason and justification for an extended trial his procedure. For the past three years I have adopted milar method in dealing with cancer of the breast, but as yet too early to judge of the results.

conclusion, I need hardly add that nothing I have is meant in the slightest degree to discourage opera- s for cancer, or to underrate their necessity. My plea or earlier and therefore less extensive operations, and cially operations in two stages whenever practicable— is, removal of the growth and of the glands at a later od. Let us not be in a hurry to remove Nature's first of defence.

mong thoughtful surgeons there appears to be a growing ng of disappointment and dissatisfaction with regard he treatment of cancer. This is a healthy sign. So long here is satisfaction and complacency, so long will pro- s be at a standstill. I think we must recognize that nsive operations in advanced cases confer no benefit, if ed they do not do harm. Although evidence is lacking the ultimate results of operation for cancer are better n they were some twenty years ago, I see no grounds for imism. The day cannot be very far distant when the e of cancer will be revealed and we shall stand on surer ind in fighting it. In the meantime, what is needed is gorous campaign to impress on the public the supreme ortance of early recognition of the disease and operation its removal at the very earliest stage. In the present e of our knowledge early operation is our only hope, and by aiming at this ideal rather than by performing more nsive operations that we may realize our ideals and r to the victims of this disease a more certain prospect ure. If such a campaign be conducted with energy it is too much to expect that a very large proportion of the erers can be cured by operative treatment. The fight been long and arduous, but victory is in sight, for ures are but the preparation of victory.

DISCUSSION.

Ir. C. P. CHILDE (Portsmouth) was inclined to deprecate tendency to attach importance to statistics. The pith Mr. Paterson's remarks lay in his last few sentences, in ch was advocated a vigorous campaign with the object of ressing on the public the supreme importance of the y recognition of the disease. Mr. Childe said that the inique of the operation for cancer was greatly improved, unfortunately cases came so late that they were not able to benefit from that technique. The only way to obtain the greatest possible advantage from the improved operative methods was by some sort of campaign to enable the public to recognize cancer in its early stage, or at least to inform the public as to the earliest symptoms. Unless patients were obtained at an early stage it was impossible to take advantage of this technical improvement. It was unfortunate that they took no steps to instruct people as to the early diagnosis of cancer, and he thought that those who were accustomed to visiting the sick, such as nurses, clergymen, teachers, and others, should be instructed in these early symptoms. He thought there was no doubt that the technique was better than twenty or twenty-five years ago. He hoped to demonstrate to them cases which had apparently been hopeless, but which had lived for many years longer than had been expected.

Sir STCLAIR THOMSON (London) said that, to avoid being desultory, he would limit himself to one class of cancer in one organ of the body—namely, intrinsic cancer of the larynx; and, in order to be demonstrative, he would show his results by throwing on the screen the statistics of all his operations. This was not done in order to advocate a statistical claim, but because figures, in tables, were a quick method of bringing out details of ages, duration of cure, relapses, and so forth.

Comparison was a necessary feature of this debate. In order that he might, like Hamlet, invite them to "look on this picture and on this," he must first produce a picture of the surgical treatment of cancer of the larynx at the end of last century. This had been painted for them by Nolan Mackenzie of Baltimore, who, in 1879, was an assistant to Morell Mackenzie in London at the Throat Hospital in Golden Square. He records that in those days the usual treatment for this disease consisted in tracheotomy and subsequent removal, piecemeal, of the growth through the natural passages. Of this performance Nolan Mackenzie wrote as follows: "Of course, there was never a thought of cure. When I look back through the years in which I have seen cancer of the larynx maltreated, and in which I have unconsciously maltreated it myself, I am simply appalled at the retrospection." At that time, forty years ago, Morell Mackenzie himself wrote of the disease in the following words: "As far as the present state of our knowledge extends, the only possible termination of any case of cancer is death, but at the same time the question must always arise as to how long life may last in any particular instance. The usual duration of epithelioma of the larynx appears to be about eighteen months." The early history of the treatment of intrinsic cancer of the larynx by laryngo-fissure was a tragedy. The first eight cases of laryngeal cancer operated on in Europe by laryngo-fissure were carried out by the great surgeon Billroth, in Vienna, between 1870 and 1884. Six died of recurrence, one survived two years and nine months, and the eighth case was lost sight of. What a record! Paul Bruns recorded nineteen cases, of which only two survived a year. With these disasters to daunt them it was no wonder that further efforts to treat laryngeal cancer by laryngo-fissure were discouraged. Morell Mackenzie, in his book in 1880, wrote of it as follows: "It will thus be seen that the results of thyrotomy are extremely unsatisfactory. In some cases the operation was followed by immediate death, in others it could not be completed, and in the remaining cases, with two exceptions only, recurrence followed within a very short time. If the few statistics which have been collected are to be trusted, the average duration of life after the operation is only ten months." It was curious that, even by those who afterwards achieved brilliant results, this very operation was at first condemned as hopeless. Thus, in 1883, Butlin, from the results obtained by other operators, concluded that "the disease is far too deeply seated to admit of removal by so slight an operation." Semon, also, in 1886, on the strength of literary information, formed the opinion that it should not be attempted; Moure, as late as 1891, concluded that thyrotomy "appeared a bad operation in established laryngeal cancer." Still, only a few years later these courageous pioneers returned to the attack. Their renewed efforts were at first disheartening. Semon's death rate with

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London;* telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Medisecra Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

"MEDICUS" asks for references to the treatment of periodic dipsomania and alcoholism by psychotherapy.

CLEARING THE THROAT.

"L." asks for suggestions in the treatment of a medical man, aged about 45, who suffers from continual attempts at "clearing of the throat" owing to undue secretion of mucus in the larynx. It is increased in cold damp weather and on dusty roads, lessened (or entirely absent) when lying down in bed. The condition makes talking a trouble and an exertion, and it much interferes with the strength and tone of the voice. During an actual attack of acute laryngitis there is no desire to "clear the throat"; only when the acute stage has passed off does it recur.

SYMPATHETIC MAGIC?

WITH reference to the note under this heading (September 15th, p. 490), in which a correspondent stated that he had been asked whether stuffing a pad of cotton-wool into the mother's umbilicus would kill the child by suffocation, Dr. M. Cursham Corner (Mile End Road, London, E.) writes: I think the condition or sentiment arises from the common idea in this neighbourhood of wearing a pad of sheep's wool tied in a bandage so as to fit over the umbilicus; the reason given to me by the mothers is to keep the infant warm.

TYPHUS AND TRENCH FEVERS AND THE LOUSE.

PASCAL.—The wording of our correspondent's inquiry as to the method of transmission of typhus fever and trench fever by lice is not quite clear. If it refers to the life-history of the parasite in the louse, there is no evidence at present to show the nature of any micro-organism that is the cause of trench fever; and doubt is being thrown on the theory that the so-called Rickettsia bodies found in typhus fever, and regarded as protozoal in character, are actually living organisms or a causative factor in that disease. If the inquiry refers to the mode of transmission from lice to man, this is the same for both diseases—namely, by the excreta of infected lice being rubbed into excoriations of the skin which are caused by scratching. It is only the body louse (*Pediculus vestimentorum*), and not the *Pediculus capitis* or *Pediculus pubis*, that is implicated. Infestation by the body louse occurs mainly through close association with verminous persons, especially when men sleep close together, but it may occur indirectly through clothes, bedding, combs, brushes, and other effects used by lousy individuals. Full information on the subject will be found in vol. ii, *Hygiene of the War*, chapter XII, of the series of volumes on the Medical History of the War, and also in chapters V and XVI of vol. i, *Diseases of the War*, of the same series. No fresh light has been thrown on the facts recorded in these volumes.

LETTERS, NOTES, ETC.

A COUNTRY practitioner sends us the following couplet, headed Metabolism, Past and Present:

"Banting took our flesh away;
Banting brings it back to-day."

HERPES AND VARICELLA.

DR. M. T. D. MCMURRICH (Johnstone Bridge, Lockerbie) writes: In view of the supposed relationship between herpes and varicella the following case may be of interest. On August 22nd a man, aged 71, had an attack of herpes affecting the posterior surface of the pinna of the right ear and the angle of the jaw (the area corresponding to the distribution of the nervus auricularis magnus). On August 28th he developed chicken-pox, which ran a normal course. On September 11th his niece, aged 9 years, who lives with him, also developed chicken-pox. The fact that chicken-pox developed in a man over 70 years of age who was already suffering from herpes, seems to give support to the view that herpes and varicella are due to a common causal factor.

CONGENITAL DEFORMITY.

DR. JOHN WALKER (Paisley) writes to inform us of an exceptional case of birth that came under his notice. On September 4th, 1923, a woman was delivered of a female child having little or no vestiges of arms or legs. Of the right arm there was only a small portion of the humerus, and of the left arm even less. The right leg was completely absent, revealing only a slight projecting rotundity; but the left leg, in a similar shrunken state, took the form of a foot with but two toes appearing, the great toe and the next adjoining—and having no sign of thigh or leg. The head, neck, and trunk were perfectly normal and the child cried, sucked, passed meconium and urine, and has already lived eleven days, showing signs of natural development. The labour was a breech case; in birth the cord was cut before delivery of head, and no artificial respiration applied, yet the child survived. Dr. Walker adds: "The birth has been followed with keen interest, both by myself and assistant doctors and professors in the West of Scotland. It seems to me an extraordinary case, both in regard to the infant's early and vigorous vitality, as also to the supreme extent of deformity. I would be glad to get details regarding any similar cases, as also data of their later development."

A DISCLAIMER.

DR. E. ROWLAND FOTHERGILL (Hove) writes: My attention has been drawn to certain advertisements appearing in the JOURNAL for September 15th. This advertisement includes the phrase "Put your faith in a Fothergill," and I am asked "Are you breaking out in a new place?" Apart from the fact that any direct descendant of the Fothergills from Ravenstonedale, Westmorland, is bound to break out sooner or later somewhere—it being heredity—I would be glad of the opportunity to say I know nothing whatever about the advertisement nor the firm advertising. In support of this contention I would draw your attention to the word "a" in the quoted paragraph; an introduction into an otherwise complete sentence which I am sure you will agree those who know me would consider unnecessary, not to say disparaging, in its possible interpretation.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *110*.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.

Dr. BRUCE (Toronto), in speaking of propaganda, mentioned that in Canada, where methods of educating the people had been in vogue for some years, the effect was noticeable in so far as the people did go to the doctors with suspicious "lumps" much earlier than they formerly did. He advocated strongly the campaign for propaganda purposes, so as to educate the public in the early symptoms and signs of cancer, no matter where situated. The results of surgery had advanced enormously in Canada. Dr. Bruce cited a case in which excision of the tongue had been performed by the late Sir Henry Butlin, and in which he himself had removed infected glands fifteen years later.

Mr. HERBERT PATERSON, in reply, agreed with Mr. Childe that statistics might be very misleading, but in this instance statistics supported his own experience that the remote results of operation for carcinoma to-day did not seem better than was the case twenty-five years ago. Sir StClair Thomson was to be congratulated on the excellence of his results in laryngeal cancer. Mr. Paterson thought his statistics were of great value in showing what could be effected by early operation, and they were of special interest from the fact that in none of his cases were the lymphatic glands removed. It was significant that in only two instances were the glands subsequently the seat of new growth.

STANDARDIZATION OF COMMERCIAL PREPARATIONS OF THE PARATHYROID GLANDS.

BY

H. W. C. VINES, M.D.,

FOULERTON RESEARCH STUDENT.

(From the Pathological Laboratory, Cambridge.)

WHILE it is desirable that all substances used for therapeutic administration should be prepared in forms with a known content of the active principle, at the present time such standardization is especially requisite in the case of the organotherapeutic preparations. Though the list of such substances is now very extensive, there are only three of them in which any form of standardization is undertaken as a routine practice—namely, preparations of the thyroid gland, adrenaline and pituitary extracts.

Such a state of affairs constitutes a very real drawback in the scientific aspect of organotherapy, because in so many cases the physician does not know whether the preparation he is using contains any active substance, or if it does he can never be sure that any two preparations will have similar activities, although the stated dosage may be the same. Again, the manufacturer has no means of checking his materials: he treats the fresh tissue according to what he considers to be the best method, but he has no means of determining whether the fresh substance supplied has any activity to begin with or how far its activity may have been altered by the processes he uses. It is not to be wondered at that the results of organotherapy are apt to be variable and contradictory in such circumstances, or that such forms of treatment should be open to derisory criticism.

The following account of a method for the standardization of commercial parathyroid preparations is given as briefly as possible, with the omission of details having a purely scientific bearing. It is hoped that a more detailed account of the reactions involved may be published later, but since it is possible to standardize these preparations, at least to some extent, it is desirable that the method should be thoroughly tested and utilized while the preparations are in demand.

It is generally held that the parathyroid glands have two functions: they regulate calcium metabolism and they are in some way able to prevent intoxication by guanidine and its derivatives. On this second property the standardization method is based. The principle is as follows: if an active parathyroid preparation is incubated at 37° C. with a known amount of guanidine in solution, the amount of guanidine reckoned as picrate at the end of the incubation period is found to be less than at the beginning of the test. Only one function of the glands is therefore tested, but there is reason to believe that if the preparation is deficient in this function it will also be deficient in the other.

Method.

The following solutions are required:

1. A solution of guanidine acetate of approximately 1 per cent. strength; this may be made by dissolving 10 grams of guanidine carbonate in distilled water, neutralizing with acetic acid and making up to one litre.
2. A 1 per cent. solution of calcium chloride.
3. An aqueous saturated solution of picric acid.

The formula for the test solution is as follows:

0.85 per cent. NaCl solution	20 c.cm.
Guanidine acetate solution	10 c.cm.
Calcium chloride solution	1 c.cm.
Phenol red solution	3 drops
Thymol	q.s.

To carry out a test with a desiccated powder of parathyroid gland, 0.065 gram of the powder is added to the above test fluid, and the whole incubated at 37° C. with aeration for four days. In tests carried out until recently the aeration has been intermittent, being stopped at night, and the figures to be quoted will refer to experiments of this type. More recent experiments tend to show that if the aeration is continuous rather higher activity figures may be obtained. During the incubation period the test solution tends to become alkaline and neutrality should be as far as possible maintained by the addition of 2 per cent. acetic acid from time to time. At the end of the period the solution is made up to its original volume, if necessary, and filtered through glass-wool to remove the undissolved parathyroid powder. Half the original volume of the fluid is then taken from the filtrate and at least an equal volume of saturated picric acid solution is added; the excess guanidine is precipitated together with a certain amount of dissolved protein. The picrated fluid is brought just to the boiling point and the guanidine picrate passes into solution; it is filtered hot through glass-wool, the filter washed with boiling water, and the filtrate allowed to stand overnight. The guanidine picrate crystallizes out, and the crystals are collected in a weighed filter-paper, washed with cold water, dried at 100° C. and weighed. The weight of guanidine picrate obtained is compared with that from a control test to which parathyroid substance has not been added, but which has otherwise been identically treated. The difference in weight in milligrams between the two has been taken as an arbitrary activity figure of the parathyroid substance tested.

Results.

1. *Control tests.*—Recovery of guanidine picrate from test solution where inactive substances other than parathyroid have been used.

Substance.	Picrate Recovered.	Known Picrate Content.
Horse serum	215 mg.	220 mg.
	220 ,,	,,
Lecithin	216 ,,	,,
Acetone soluble fats from parathyroid	214 ,,	,,
	226 ,,	,,
Iodized lecithin	208 ,,	,,
	222 ,,	,,
Unknown tissue	246 ,,	260 mg.

These figures show that there is a small error in the method of guanidine estimation, but it is not sufficient to interfere when active parathyroid preparations are tested.

2. The following figures indicate the necessity for adequate aeration of the test fluid; the same parathyroid preparation was used in each case under the standard test condition described above.

	Activity Figure.
No aeration	52, 54
Intermittent aeration	82
Continuous aeration	93

In the next table the values given are those found with intermittent aeration.

3. For the standardization of commercial preparations, the unit of weight for the test has been taken as 0.065 gram, or one grain of the desiccated powder. Where tablet preparations have been tested, a sufficient number of the tablets has been used, according to the strength indicated on the bottle, to make up the unit weight of dried gland.

211. Saline Injections in Gastro-enteritis.

M. HARPER (*Med. Journ. Australia*, June 23rd, 1923, p. 693) advocates the intraperitoneal method for saline injections in gastro-enteritis in infants as being free from the disadvantages frequently accompanying other methods of administration. It is easy to perform and causes very slight disturbance, amounts varying from six to eight ounces two or three times in twenty-four hours being rapidly absorbed, even in moribund infants, with resulting rapid and striking improvement. The usual signs of dehydration and collapse—for example, sunken eyes, depressed fontanelle, and loss of skin elasticity—are indications for its use, a distended abdomen being apparently the only contraindication, because of the danger of puncturing the bowel and the lessened readiness of absorption in such a condition. After ascertaining that the bladder is empty a somewhat blunt, short-bevelled needle is inserted in the middle line just below the umbilicus, and from 6 to 8 oz. of normal saline solution, with or without 5 per cent. glucose, are allowed to flow slowly, under gravity, for about fifteen to twenty minutes. Anti-dysenteric serum can be similarly administered as a true transfusion; and also freshly citrated blood, as a useful treatment in gastro-enteritis, may be so given when other routes are unavailable.

Surgery.

212. The Diagnosis of Stone in the Kidney.

H. HOHLWEG (*Klinische Wochenschrift*, July 30th, 1923, p. 1447) points out that, until *x*-ray examination was employed, the diagnosis of renal calculus was based chiefly on colic and haematuria. Both may be absent, and both may occur in other diseases. Haematuria and pain after physical exertion are in favour of stone and against renal tumour. The diagnosis may be aided in hydronephrosis and pyonephrosis by variations in the size of the kidney on palpation. In tuberculosis of the urinary organs the diagnosis is aided by the cystoscope and ureter catheter, with the examination of the urine for tubercle bacilli, which by careful searching can be found in almost all cases. Owing to the inconstancy of the cardinal symptoms of stone, *x*-ray examination is most valuable, since a stone shadow can be detected in 97 per cent. of the cases. The deepest shadow is produced by calcium carbonate stones, and then, in diminishing intensity, by oxalates, phosphates, and ammonium magnesium phosphates. The shadow is often not detected in calculi of uric acid, xanthin, and cystin. When a stone shadow is detected by the *x* rays, if it is to the median side of the kidney shadow the stone is extrarenal, in the kidney pelvis, and can be easily removed by incision of the kidney pelvis. If the stone shadow is within the kidney shadow the stone is in the kidney parenchyma or in an intrarenal kidney pelvis, and usually nephrotomy is necessary (with the risks of haemorrhage and secondary suppuration). Pyelography is of great service. A fluid which gives a shadow (10 to 15 per cent. solution of sodium bromide) is injected by the ureter catheter into the pelvis of the kidney. If the shadow of the stone is thereby obliterated the stone is in the pelvis of the kidney; if not obliterated, in the kidney parenchyma. The bad results following the use of collargol for pyelography can be avoided by the use of sodium bromide solution. Change in position and size of the kidney pelvis (as occurs in hydronephrosis) can be detected by pyelography. If no *x*-ray shadow of a stone can be detected it may be composed of uric acid, xanthin, or cystin. After washing out the kidney pelvis with collargol or sodium bromide solution every second day, such stones may give a shadow.

213. Haematoma of Rectus Abdominis.

J. BONNECAZE (*Paris Méd.*, August 25th, 1923, p. 145), who records a case in a man, aged 72, following an attack of influenza complicated by pulmonary congestion, states that haematoma of the rectus abdominis muscle may be either traumatic or spontaneous. Traumatic haematoma is liable to be met with in young soldiers, especially cavalrymen, owing to contusion of the muscle by the pommel of the saddle, or may be due to a violent blow, such as the kick of a horse. Spontaneous haematoma may occur in typhoid fever, as a rule in the third week, as the result of Zenter's degeneration, and is very liable to become infected, giving rise to an abscess in the abdominal wall. A retromuscular haematoma may occur in the course of pregnancy or after delivery. In a fair number of cases it may occur in an apparently healthy person, but as a rule there has been a recent history of influenza or pulmonary congestion, or the patients are the subjects of cirrhosis of the liver, gout, or chronic nephritis. The symptoms are pain (which may be violent or slight, on the occasion of a muscular effort, a cough, or simply a movement in bed), swelling, and ecchymosis. The swelling is usually of moderate dimensions, but it may reach the size of a child's head and even fill the right half of the abdomen (Schumann). Ecchymoses have been noted in about half the cases, either in front of the muscle or at some distance from it. When the three symptoms—pain, swelling, and ecchymosis—are present together the diagnosis is usually easy, but sometimes the ecchymosis may be absent, the pain may simulate that of appendicitis, and the swelling may be mistaken for an ovarian cyst or a malignant growth. Treatment varies according to the size of the haematoma. When it is small there is no need to interfere, as there is a spontaneous tendency to resolution; but as soon as it attains a considerable size the tumour should be incised and the blood clots evacuated, since if left to itself a larger haematoma is liable to become infected on the slightest provocation, such as a boil or a scratch on the skin of the abdomen.

214. Torsion of the Testicle.

H. BARDY (*Finska Läkaresällskapets Handlingar*, July-August, 1923, p. 399) discusses this accident in connexion with two cases which occurred in his hospital within the same month. The signs and symptoms were practically identical in these cases, but he failed to diagnose the first case correctly because the clinical picture was in many and important points utterly different from the textbook accounts of this accident. In the first case, that of a workman, aged 23, there was a history of a sudden attack of violent pain in the abdomen, groin, and right testicle. The temperature and pulse were normal, but the patient was obviously collapsed. The right testicle, to which the patient referred all the pain, was tender but not enlarged. The right epididymis, on the other hand, was much enlarged, and it contained several hard nodules of varying size and great tenderness. The cord was neither swollen nor tender. Tuberculous epididymitis was diagnosed, and it was assumed that the sudden onset of pain and the great tenderness of the epididymis were due to compression of the testicle while the patient was at work. Several hours later the testicle as well as the epididymis was much swollen, and the scrotum was red and oedematous. In both cases an operation was performed under local anaesthesia, and a 360 degree twist of the cord was found just above the testicle, where the cord was furrowed as if it had been secured by a ligature. Above this point the cord was normal. Probably the testicle took longer to swell than the epididymis because the former is enclosed in the thick and inelastic walls of the tunica albuginea. The reflection of this membrane over the epididymis is thin and elastic, allowing the epididymis to swell and its veins to become distended. These veins formed the hard nodules felt in both the author's cases. Only at a comparatively late stage do the scrotum and testicle become oedematous and swollen. Of the 73 cases published before 1906 only 7 were at once correctly diagnosed, and in only 11 of the 73 cases was this accident suspected. The author insists that this accident can happen only in the presence of such congenital abnormalities as a patent tunica vaginalis or other abnormal condition in which the testicle hangs as freely as a plum from its stalk.

215. Abscess of the Tongue.

E. DELANNOY (*Archiv. Internat. de Laryngol., Otol. et Rhinol.*, April, 1923, p. 418) states that though abscesses of the tongue are mentioned in the textbooks they are far from common. He records a case in a woman of 24 years who attended because she could not close the mouth. For three days she had a feeling of discomfort in the mouth followed by swelling of the tongue and intense pain which radiated towards the ears and neck, and which was made worse by swallowing. Finally, deglutition and mastication became impossible, and on examination the tongue was found to be so swollen that the mouth could not be closed. The lips could be nearly closed but not the jaws. The tongue was so enormous that it completely fill[illegible] mouth, the teeth being buried in its sides. It wa[illegible] and tender, whilst the floor of the mouth and th[illegible] re normal. The submaxillary glands were enlarge[illegible] der. A soft spot was found in the middle of the do[illegible] d on incising here about an ounce of thick foul pus [illegible] out. This was followed by a very rapid return to normal. It is often, as in this case, difficult to determine the cause of the abscess. Probab[illegible] a small abrasion together with a diminished resistance [illegible] and a particularly virulent organism account for it. The diagn[illegible]osis must be made from that of abscess of the floor of the m[illegible]outh which can push the tongue forwards and upwards. The [illegible] soft fluctuating spot in a hard tongue finally clinches [illegible] the diagnosis. In very early stages gargles and mouth wa[illegible] should be used, but once suppuration has occurred inc[illegible]sion must be employed.

function of the thyroid; in a case of severe myxoedema in a girl of 11 years the transplant was taken from a patient whose goitre had to be removed. A few weeks later the girl developed between the peritoneum and fascia lata, where an apparently healthy piece of gland from the goitre patient had been transplanted, a hypertrophic goitre of the size of an apple, and at that time all her symptoms of myxoedema had disappeared; she was quite well for five years, when she had typhoid fever; the abdominal goitre became infected and an abscess formed which had to be opened; within a few weeks all her symptoms of myxoedema came back. Von Eiselsberg of Vienna a year ago published a similar case; the patient had been cured of myxoedema by transplanting a piece of gland of a goitre patient in the peritoneum below the liver. The patient died several years after the transplantation from pneumonia. At the *post-mortem* examination a hypertrophic goitre of the size of a hen's egg was found under the liver.

We have succeeded in demonstrating experimentally that the transplant is active. As a rule such experiments have been conducted in a way that could not give a result. The transplantation has usually been made into an animal with a normal thyroid gland; the organism had no want of thyroid and the graft did not live. We proceeded in a different way. We first removed the animal's thyroid almost totally, avoiding the parathyroids, and then waited until the animal developed characteristic symptoms of hypothyroidism. Then a piece of normal thyroid gland of a healthy animal of the same species was transplanted into the upper end of both tibial bones. We then waited until the symptoms of myxoedema in the transplanted animal had disappeared, and a few months later removed the two pieces of gland from the bones, and within a few weeks the symptoms of myxoedema reappeared. I believe that by these observations and experiments we have proved that the transplant can live and, in view of our clinical results, recommend this as the method of choice in cases of hypothyroidism. We believe that it should be tried also in cases of total absence of the thyroid gland.

Selection of Transplant.

The method of performing transplantation in our cases was that described by my father Theodor Kocher in 1909. There are three types of transplantation that can be employed: we may take (1) a normal gland of an animal; (2) pieces of a goitre from a case of Graves's disease: (3) the hypertrophic thyroid tissue around a nodular goitre. We have used all three methods. As early as 1908 we used some heterotransplants from sheep and goats. The best glands to transplant are those from pregnant animals. This method has given a good result in some cases. One of the cases of congenital total absence of thyroid gland mentioned above was entirely cured by transplantation of two pieces the size of a cherry of a normal thyroid gland of a pregnant sheep into the two tibial bones. As a rule, however, homotransplants are much better. They are best taken from the hypertrophic gland of a severe but recent case of Graves's disease, which is in a condition of exquisite cellular hypertrophy and active new formation of vesicles. The best part of the gland to be taken is the upper pole or posterior part of the gland near the superior thyroid artery. It is essential that the pieces of gland (we take usually two to four pieces of the size of a small cherry) shall be put into the receiver's body immediately after being cut out of the donor. The receiver must be ready on a table next to the donor, and the bed for the transplant must be carefully prepared beforehand and in particular all haemorrhage carefully stopped. Besides the glands of patients with Graves's disease, we have very often taken pieces of the hypertrophic thyroid tissue around goitre nodules in young healthy goitre patients. Of course, in every case the donor is examined very carefully beforehand; tests for syphilis and tuberculosis must more especially be done.

The Operation.

As mentioned above, we transplant mostly into the upper end of the tibial bone, where, with Doyen's trephine, the corticalis is opened and a bed in the bone marrow made, exactly of the size of the transplanted piece. We have chosen this bone, first, because it is very vascular and has a special affinity to thyroid tissue, as shown by the frequent bone metastasis in malignant goitre, and secondly, because the gland is very well protected from injury in the bone. However, we also transplant into the sheath between the fascia transversa and peritoneum, or into the peritoneal cavity. But in the latter it is better to stitch the parietal peritoneum over the transplanted piece of gland and not to put the gland free into the peritoneal cavity. If the graft is to be successful, the healing of the wound must take place without any rise of temperature or other post-operative reaction. The most important of all is the pre-operative and post-operative treatment. The patient must take thyroid some time before and several weeks after the transplantation, in order to decrease his actual want of thyroid, because if this is very strong the transplanted gland tissue is simply eaten up by the organism. The non-observation of this is the most common cause of failure of transplantation, especially in cases of total congenital absence of the gland.

DIFFERENTIAL DIAGNOSIS OF RHEUMATOID ARTHRITIS AS A CLINICAL ENTITY.

BY

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ALL authorities are now agreed that an important factor in the etiology of the arthritides is some form of infective process, and a certain degree of progress has been made in the classification of this amorphous group of clinical material by the recognition of special types as being due to specific infective agencies such as the tubercle bacillus, the pneumococcus, gonococcus, etc. But there remains a large number of cases of non-specific origin which in the past have been aggregated under the term "rheumatoid arthritis." Those with experience in this class of case are not satisfied, however, with this and have preferred the more vague terms of "multiple non-specific infective arthritis," "focal arthritis," or "indeterminate arthritis." Several attempts have been made to differentiate so-called true rheumatoid arthritis from this group, and it is our purpose to report our preliminary investigations for the furtherance of this object.

We would define rheumatoid arthritis as a disease of insidious origin, affecting young adults in particular, usually running a prolonged subacute or chronic course with periodic exacerbations, but occasionally acute in its onset and manifestations, leading to serious deformity of structures in intimate relationship to joints, and associated with digestive disturbance, upset of general metabolism, alteration of the normal blood picture, and with glandular enlargement.

ETIOLOGY.

Patients suffering from rheumatoid arthritis frequently give a history of previous debilitating disease or some prolonged physical strain. A history of rheumatic fever seems to occur more frequently than can be accounted for by the incidence of this disease in the general population. But this condition does not produce chronic intra-articular disease, though repeated inflammatory reactions do occur and may cause such laxity of ligaments and impairment of joint circulation that the synovial membrane is liable to be attacked by other infective agencies. Influenza is another predisposing cause, probably acting simply by the general lowering of resistance, though serous membranes in all parts of the body are liable to inflammatory changes after this disease. Pregnancy and childbirth with their general upset of digestive and metabolic processes are recorded in many instances as the starting point of the attack.

Certain observers[1] have cited cervical and uterine infections, pyelitis, otitis media, furunculosis, etc., as the factories of infection, but we are very doubtful whether these extra-digestive foci are of any real importance in this particular group of cases except in so far as they lower the general resistance. Pyorrhoea and dental caries are frequently, if not always, present, but these conditions are so wellnigh universal that they cannot be held to be solely

cases. In 13 cases of severe climacteric disturbances, such as headaches, nervousness, etc., the symptoms were either cured or ameliorated within a few days of treatment. The author states that the results are due to the stimulation of the pituitary causing further stimulation of the genital organs. The treatment is stated to be free from danger or discomfort of any sort. With the larger doses used by Hofbauer slight headaches sometimes occurred and the hair was liable to come out where the *x* rays had been applied, this being followed after a short interval by luxuriant growth of hair all over the head. The author concludes by stating that the signs and symptoms, such as cessation of growth, glycosuria, etc., which are supposed to be due to pituitary deficiency, are not cured by the administration of pituitary extract, and he therefore affirms that these symptoms are due to some degeneration of the brain near the pituitary body.

221. Radiography of Closed Fallopian Tubes.

W. T. KENNEDY (*Amer. Journ. of Obstet. and Gynecol.*, July, 1923, p. 12), in patients in whom complete or partial occlusion of the Fallopian tubes has been demonstrated by Rubin's method of gaseous insufflation of the uterus or tubes, locates the site of occlusion by radiographic examination after filling the same organs with a 20 per cent. solution of sodium bromide under pressure. Tubal occlusion at the uterine cornu or the isthmus is indicated by failure of the tube to cast a shadow; if the tube cast a shadow the presence of a shadow in that isthmus is taken to indicate that the tube cannot contract enough to empty its contents; and the absence of a shadow in the isthmic portion points to ability of the tube to empty its contents in either direction. If one tube only is open practically all the sodium bromide is seen at the corresponding side of the pelvis. In 26 patients 30 per cent. of the tubes examined were found to be occluded at the isthmus and 69.2 per cent. at the fimbrial region: in the latter group, provided the husband is normal, there is, according to the author, some prospect of success after salpingostomy in sterile patients.

222. Determination of Tubal Patency.

A. H. ALDRIDGE (*Amer. Journ. of Obstet. and Gynecol.*, July, 1923, p. 53) describes a study of 600 patients in whom the patency of the Fallopian tubes was determined by Rubin's method of insufflation of the uterus and Fallopian tubes by carbon dioxide. If gas passed into the abdomen at an intra-uterine pressure below 150 mm. of mercury the tubes were considered patent; if a pressure of 150 mm. or more was required they were classed as partially occluded; manometer readings of 200 mm. at repeated trials were taken to indicate occlusion. It was found that routine fluoroscopic examination was not necessary to determine the passage of gas into the abdomen; a drop in intrauterine pressure, combined with the onset of pain in one or both of the patient's shoulders, constituted a sufficiently accurate sign. Aldridge finds that the Rubin method is a simple and safe diagnostic procedure, provided that the patients are not examined when near a menstrual period or in the presence of acute pelvic inflammatory disease or serious cardiopathy; by this technique a certain number of cases of complete or partial occlusion are determinable which are not apparent to inspection at operation. There is little evidence that insufflation has any curative value in cases of sterility, and even after operative opening of a tube or tubes in cases in which both tubes have been involved in an inflammatory process sterility continues in a very high percentage of cases so that the value of the Rubin method is chiefly diagnostic. In 236 cases of primary sterility partial or complete tubal occlusion was found in 66 per cent., and in 119 cases of secondary sterility in 52 per cent. More than one-fifth of the patients showed tubal occlusion in spite of negative findings by bimanual examination.

223. Quinine Treatment of Pregnant Malarial Patients.

P. CASTAGNA (*Rivista di Ostetricia e Gynecologia Pratica*, June, 1923, p. 268) has not been able to confirm in his experience the findings of those observers who have recorded a large incidence of abortions and premature labours after administration of quinine to pregnant patients suffering from malaria. Thirty-seven pregnant women were given doses of 0.25 to 0.5 gram by the mouth, and none exhibited any untoward effect; nineteen were in the third month of gestation, and thirty-two in the seventh to ninth months. Twenty received doses of 0.5 to 1 gram given subcutaneously; abortion was threatened (but did not occur) in one of these patients who was three months pregnant, and premature labour followed in two patients who were in the eighth and ninth months respectively. In the two last cases the occurrence of premature labour was possibly attributable to malarial hyperpyrexia.

Pathology.

224. Insulin in Tissues other than the Pancreas.

C. H. BEST and D. A. SCOTT, Toronto (*Journ. Amer. Assoc.*, August 4th, 1923, p. 382), have been able to prepare active extracts from the submaxillary, thymus, and thyroid glands, and from liver, spleen, and muscle tissue. These extracts have been repeatedly tested on normal rabbits and have consistently produced a marked lowering of the blood sugar of these animals. A large dose produces typical insulin convulsions in the rabbits. The convulsions are alleviated by the administration of dextrose. The number of units obtainable from 1 kg. of thymus or submaxillary gland tissue exceeds that originally obtained from pancreatic tissue. This yield is, however, only a small fraction of that obtained when pancreatic tissue is treated by the present process. The authors have secured results which tend to indicate that this substance, which they believe to be insulin, is excreted in somewhat greater amounts by pregnant women than in normal men. Insulin, they state, is present in every tissue they have investigated.

225. Tests of the Cerebro-spinal Fluid.

H. D. WRIGHT and W. O. KERMACK (*Edin. Med. J.*, August, 1923, p. 365), after investigating the relative value and uses of the colloidal benzoin and colloidal gold tests in the cerebro-spinal fluid, conclude that the interpretation of results is not perfectly straightforward, and that it is not justifiable to consider any particular curve as diagnostic of a definite disease. Of the two the gold test seems to be more delicate, though its results are very faithfully reproduced in the benzoin test. Although precipitation in some of the first five tubes of the benzoin test strongly suggests a syphilitic nervous lesion, the more marked the precipitation being the more suggestive of an active process, this should be relied upon too exclusively since tuberculous meningitis and disseminated sclerosis may give similar precipitations. For this reason the test should not replace the Wassermann test, but should rather be used as an adjunct to it. The widening of the normal zone of precipitation seems to be in direct relation to an increased precipitation in the butyric acid test, being most marked in cases of meningitis and since such extension of the zone is usually a feature of epidemic encephalitis this may assist in distinguishing it from early meningitis. In general paralysis the curve of the benzoin test may afford a measure of the activity of the disease if studied in a series of cases over a long period. Similar considerations apply to the gold test, but these, while helpful in arriving at a conclusion, do not possess the exaggerated value sometimes claimed for them.

226. Bowen's Disease.

J. H. BROERS (*Nederl. Tijdschr. v. Geneesk.*, June 9th, p. 2805), who records a personal case, states that J. T. Bowen of Boston described two cases of a skin disease which, after careful clinical and histological examination, he grouped among the precancerous diseases of the skin. These include xeroderma pigmentosum, keratosis arsenical, cutaneum, chronic *x*-ray dermatitis, keratoma senile, keratosis, Paget's disease of the nipple, tar, paraffin, chimney-sweeps' cancer, etc. The disease may be regarded as an epitheliomatosis of a chronic eczema. It occurs in men and women of middle age on any part of the skin surface, and has an extremely chronic course—in Broers's case it had already been in existence for twenty-two years without having any injurious effect upon the patient's general health, so that the prognosis, though unfavourable as regards cure, is good as regards duration of life.

227. Blood Changes in Small-pox.

W. H. HOFFMANN (*Münch. med. Woch.*, August 10th, p. 1052) points out that, whilst the clinical features of small-pox are characteristic in severe epidemics, the diagnosis is not always easy in mild epidemics, especially in the early stage. Hence we have need for additional aids to diagnosis. During an epidemic of small-pox in Havana (Cuba) the author made 300 blood examinations. He believes the results to be of diagnostic value. These blood changes are recorded in detail. The author concludes that in small-pox blood changes occur regularly which are peculiar to the disease; especially great increase of the leucocytes on the fourth day of the illness, relatively marked lymphocytosis, high degree of eosinophilia, presence of myelocytes, first high Arneth index (based on the number of nuclear fragments in the polynuclear cells). Specially characteristic is the occurrence of myelocytes. A similar blood picture occurs only in varicella, in which, however, the total number of leucocytes is generally rather diminished, with the exception of occasional slight increase about the tenth day of the disease.

depends on the relative production of a haemolysin or a neurotoxin. We would suggest a similar genesis in many instances of rheumatoid arthritis by means of a toxin with a special affinity for synovial membrane.

However, it must always be remembered that the whole metabolism is upset, and further work is required to investigate other possible factors responsible for the production of the clinical changes observed. Many observers have assigned importance to the isolation of various strains of streptococci from the stools, but the results are so far very variable and no reliable conclusions can be drawn. It is possible that the factor of achlorhydria may have some influence in determining this state of affairs, in view of the work of Billings[7] and his collaborators on the variability of streptococcal strains in different media.

We wish to thank Dr. Munro, pathologist at the Royal Mineral Water Hospital, Bath, who was responsible for the blood counts and gastric analyses mentioned above.

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A LARGE RENAL CALCULUS.

BY

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LARGE stones of the kidney are not common; in this case the calculus weighed 1 lb. 3½ oz., and it is of interest that the symptoms were very mild and that operative treatment was successful.

The drawings by Mr. Thornton Shiells show well the shape of the calculus (Fig. 1) and the left kidney removed with it (Fig. 2). The main mass of the calculus lay in the dilated renal pelvis; the short branches occupied five of the much damaged calyces. The outlet from the renal pelvis is small, and below that the ureter is seen to be greatly dilated and its wall much thickened. The small calculus partially blocked the left ureter at its lower end close to the bladder.

FIG. 1.—Calculus.

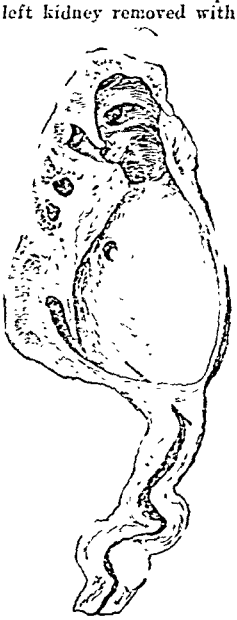

FIG. 2.—Kidney with dilated pelvis.

Dr. H. E. Archer has kindly analysed the calculi and reports as follows:

Renal Calculus.—Weight 1 lb. 3½ oz. (555 grams). Samples taken at five points between the external surface and the centre show a composition, almost constant, of ammonium magnesium phosphate and a little calcium phosphate. The superficial layers also contain a little calcium carbonate. The branches consist of ammonium magnesium phosphate.

Ureteric Calculus.—Weight 2.8 grams. The composition is similar.

The patient was a man, aged 58, who was under my care at St. Peter's Hospital. From youth until he was 35 years old he was in the merchant service, then he retired and lived in Plaistow. For the last twenty-three years his urine has always been dark, sometimes as dark as port, and occasionally he had passed clots of blood. For the last five years his urine had smelt foul. For two years he had occasionally had pain in the left groin but never any renal or vesical pain. A fortnight before admission for the first time he suffered from frequency of micturition, with fever and rigors.

There was no family history of stone. His previous health had been excellent, except for malaria when 21 years old, and acute appendicitis requiring operation five years ago, and gout in one toe three years ago.

On examination the left kidney was easily palpable and obviously greatly enlarged and a little tender. It was freely mobile. His urine was very foul, alkaline, and contained albumin and pus with coliform bacilli and cocci. Cystoscopy showed marked cystitis and an enlargement of the prostate, which could also be felt per rectum. The orifice of the left ureter was inflamed; the efflux was unduly frequent and decidedly purulent. The right ureter was healthy and its efflux clear. X rays showed a large shadow in the left renal region.

The left kidney was explored through the usual incision in the loin, and the kidney containing its calculus was excised and also the greater part of the ureter and the small calculus in it.

Healing was slightly delayed by some suppuration in the scar. Two months later the enlarged prostate was enucleated suprapubically, and he has made an excellent recovery from both operations.

TREATMENT OF URTICARIA WITH COLLOSOL MANGANESE.

BY

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IN a large skin clinic a considerable percentage of cases of urticaria, which are most intractable to treatment, are encountered. Although the pathology of urticaria is by no means definitely understood, I think we may reasonably assume that it is due to the action of an irritant on the vessels at the point where the cutaneous lesions make their appearance. This irritant, be it a toxin or protein, may reach the vessels from an external source or from the blood stream. As an illustration of the former I may cite the urticarial rash caused by nettles; the rash in this case is produced by an irritant from the plant reaching the blood and lymphatic vessels through the skin. As an example of the latter, the urticaria following the ingestion of certain shellfish may be taken; here the toxin or protein would appear to reach the blood stream through the intestinal canal.

It is the experience of every dermatologist that often cases are met with for which no cause can be assigned. It was owing to this experience that I was induced to try collosol manganese in the treatment of urticaria. Metals given in a colloid state increase oxidation and stimulate the protein colloidal particles in the serum, resulting in the dispersion of these particles so that the surface exposed to the invading particles becomes greater. The increased activity of the protein particles in the tissue and fluid has a destructive action on the invading protein or toxin.

It was with this theory in mind that I decided to try collosol manganese in some obscure cases of urticaria. The following four cases are given to illustrate the effect.

CASE I.

A woman, aged 27, unmarried, had suffered from daily attacks of "nettle rash" for twelve months. When I first saw her the face, arms, legs, chest, and neck were thickly covered with flat wheals varying in size from a coffee bean to a five-shilling piece. There was intense itching and burning. I gave her 0.5 c.cm. collosol manganese by intramuscular injections. On returning at the end of a week she reported that the rash had been much better and the burning and itching sensation decidedly diminished. I gave another 0.5 c.cm., and she again reported an improvement at the end of the second week. I gave her four more injections (1 c.cm., 1.5 c.cm., 1.5 c.cm., and 2 c.cm.) at weekly intervals, and at the end of six weeks of treatment she was quite free of her trouble. Six months afterwards she had a slight recurrence, and

These two large series agree fairly closely, the main difference being the interchange of the positions of the rectum and splenic flexure respectively.

Analysis according to situation in the right or left half of the colon shows that only 13.29 per cent. of the growths causing obstruction were on the right side, as against 86.7 per cent. on the left; that is to say, there is a 6.5 to 1 chance of a malignant growth that has caused acute colonic obstruction being found on the left side—a fact not without its importance in relation to operative treatment.

TABLE IV.—*Operations Performed for Acute Colonic Obstruction (Excluding Intussusception), with Results.*

	No. of Cases.	Deaths.	Percentage Mortality.
A. *Malignant Obstructions*—175 cases (173 growths of colon, 2 extra-colonic growths).			
1. Exploratory laparotomy, followed by—			
(*a*) Primary resection	9	6	66.6
(*b*) Lateral anastomosis	11	3	27.7
(*c*) Caecostomy	56	18	32.14
(*d*) Colostomy, transverse ..	13	5	38.46
(*e*) Colostomy, sigmoid	63	21	33.33
2. Colostomy alone (all sigmoid) ...	17	5	29.41
3. Caecostomy alone	5	3	60.0
4. Enterostomy alone	1	1	100.0
Total	175	62	35.22
B. *Non-malignant Obstructions.*			
1. Herniotomy	9	3	33.33
2. Division of adhesions .	7	0	
3. Ileo-sigmoidostomy, for tuberculous caecum	2	0	
4. Laparotomy and drainage for acute diverticulitis	1	0	
5. Volvulus—			
(*a*) Untwisting alone	1	1	100.0
(*b*) Untwisting combined with colostomy	4	1	25.0
Total	24	5	20.83
Total of all cases	199	67	33.66

Primary Resection.—It must be laid down as a basic principle of the treatment of acute obstruction of the colon that resection with immediate restoration of continuity (that is, without drainage of the proximal bowel) is an unjustifiable procedure. In this series it was performed 9 times with 3 recoveries (2 of caecum, 1 of sigmoid) and 6 deaths (1 of transverse colon, 1 of splenic flexure, and 4 of sigmoid)—a mortality of 66.6 per cent., which is almost double the average mortality of the whole series. It is the experience of most surgeons that whereas primary resection with immediate union can be successfully carried out in the small intestine, and is there, in fact, the operation of choice, the same procedure proves disastrous in the colon. This difference is accounted for by the much greater freedom with which resection can be carried out in the small gut, so that it is always possible to secure a fairly healthy bowel at the site of union and to bring the ends together without tension; moreover, the contents of the ileum are more fluid, move along more rapidly, and are less septic than those of the colon. On the other hand, the consequences of establishing an artificial anus in the small intestine are more serious than in the colon, and nutrition may be greatly impaired when the fistula is placed (and it is often impossible to know its exact location) well away from the ileo-caecal valve. In the ileo-caecal region the conditions approximate to those obtaining in the small bowel, and this is the only region of the colon in which primary resection followed by immediate anastomosis has any claim whatever to consideration. In the Manchester Royal Infirmary series two of the three successful cases concerned the ileo-caecal region; excluding the caecum, the mortality for the rest of the colon is 85.7 per cent. Whenever resection of the colon is essential, as in gangrene from volvulus or internal strangulation, it must be combined with drainage of each end of the bowel, preferably by tying in a Paul's tube; at a later operation continuity may be restored. This "two-stage" operation, associated with Paul and with Mikulicz, is sometimes advocated in acute colonic obstruction from malignant growth: The bowel concerned is mobilized, its mesentery divided between ligatures, the whole coil brought outside the abdominal wound, which is then sutured closely around its two limbs, and a Paul's tube is fixed into each limb; either at the time or a few days later the coil is cut away; still later, continuity is restored either by the use of the enterotome to divide the "spur," or by direct suture. This operation should, in my opinion, be restricted to cases where the colon is gangrenous; as applied to malignant growth it has the very strong objection that in the presence of obstruction the removal of the lymphatic area in the mesentery is very likely to be insufficiently carried out. It is far better to content oneself with a caecostomy for the immediate relief of the obstruction and to follow this up later by a leisurely and thorough excision of the bowel and its corresponding lymphatic area along the lines so excellently laid down in the work of Jamieson and Dobson.

Lateral anastomosis was performed in 11 cases, with 3 deaths—mortality 27.7 per cent.; there were 5 ileo-colostomies (with 2 deaths), 2 caeco-colostomies (both recovered), and 4 colo-colostomies (3 of the transverse colon to the sigmoid, all of which recovered, and 1 of the descending colon to the sigmoid, followed by death). In all these cases a preliminary laparotomy had disclosed an inoperable malignant growth and the palliative anastomosis was the alternative to colostomy. Ileo-colostomy for obstruction from growth of the colon, carried out in cases where, as usually obtains, the ileo-caecal valve is competent to prevent the regurgitation of caecal contents into the ileum, entails, as was pointed out many years ago by Professor Rutherford Morison, a serious risk of later gangrene or perforation of the caecum; this is due to the tension caused by the gradual accumulation of intestinal secretions pent up between the ileo-caecal valve and the growth. Caeco-colostomy is the correct procedure in these circumstances, and if ileo-colostomy be performed it must be combined with either appendicostomy or caecostomy to prevent such tension. I have used ileo-colostomy for the immediate relief of obstruction shown at exploratory laparotomy to be due to an operable carcinoma of the transverse colon near the splenic flexure; later the whole of the gut between the sites of anastomosis in the ileum and sigmoid, together with its mesentery, was successfully excised, the ends of the bowel being simply crushed, ligatured, and invaginated by purse-string suture.

I propose to approach the discussion of the appropriate treatment of acute obstruction of the colon mainly from the clinical standpoint and to consider the cases as they present themselves prior to the operation under three groups:

Group I.—Where we cannot tell whether the obstruction is in the ileum or the colon.

Group II.—Where we can locate the obstruction to the colon, but its situation therein is not known.

Group III.—Where the site of obstruction in the colon can be definitely ascertained.

GROUP I.

The size of this group should steadily diminish as experience increases, and with a reasonable amount of time expended upon a careful physical examination of the abdomen I believe the diagnosis between small and large intestine obstruction is possible in the majority of cases. As regards their relative frequency, the colon was concerned in 28.48 per cent. of all cases of acute intestinal obstruction in the Manchester Royal Infirmary series, but if we exclude the two groups of strangulated external hernia and intussusception, both of which are readily recognized—the former by the palpable swelling at a hernial orifice, the latter by its age of incidence and its very characteristic

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

SPONTANEOUS PNEUMOTHORAX FOLLOWING PLEURAL EFFUSION.

A POINT of interest in the following case is that there was no pain associated with the complication, and no feeling of anything giving way. The patient's only complaints were those of extreme weakness and of anxiety on account of the "swishing noise and sensation" over the site of the cavity, where fremitus was much increased.

M. G., aged 22 years, was admitted to the Grampian Sanatorium, Kingussie, in July, 1921, as an acute case of pulmonary tuberculosis affecting the left upper and middle lobes, with a good deal of systemic intoxication. Her brother was already an in-patient with a similar lesion and systemic disturbance.

During the first year a steady improvement was maintained, but in July, 1922, after an influenzal cold the patient began to go back. She was kept in bed on complete rest, but in spite of this, in January, 1923, a new focus began to appear in the left lower lobe. Within two months a large cavity (confirmed by *x* rays) had developed; the temperature had a persistent daily swing of from 3° to 4°; the sputum was now 3 oz. per diem and the weight had fallen by 1 st.

After consultation it was decided to induce an artificial pneumothorax on the left side and this was begun on May 11th. On May 22nd, after three inductions of from 200 to 300 c.cm. of air, the *x* rays showed the left lung fairly well compressed; no displacement of the mediastinum; a broad pleural adhesion in the lower axilla and a slight amount of pleural effusion. A week later the effusion had reached the level of the fifth rib and the pneumothorax manometer registered a respiratory pressure of +4, zero. As the patient was in no distress, the temperature coming down steadily and the sputum gradually decreasing, it seemed advisable to leave the fluid to maintain the collapsed condition of the lung rather than withdraw it and replace with air. The effusion, which shortly reached the level of the third rib and remained there, was sterile, as was demonstrated from time to time during the following weeks.

By July 16th the pleural effusion was beginning to be absorbed and it was decided to go on with further inductions of air. The sputum had slightly increased. Before a refill was given, there was a sudden increase of sputum, very fluid, and obviously containing pleural effusion. This continued for forty-eight hours; the patient was evidently suffering from shock, and physical examination showed the dullness of the effusion replaced by a hyper-resonant note. The presence of a natural pneumothorax was proved by the induction of 800 c.cm. of air without any alteration in the intrapleural pressure, which stood at zero, −4. She was freely stimulated, but died in the early hours of July 22nd.

A *post-mortem* examination was unobtainable, but it seems evident that the continued stretching of the pleural adhesion combined with the extension of the disease had finally ruptured a very large thin-walled cavity communicating with a large bronchus, allowing the pleural effusion to be expectorated. The question arises: Would it have been better to remove the effusion in the first instance and replace with air?

I have to thank Dr. Felix Savy for permission to publish particulars of the case.

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UNUSUAL POSITION OF CHILD DURING DELIVERY.

I WAS called to attend a confinement case, and on arrival found labour so far advanced that the vulva was gaping with each pain. On palpation I diagnosed face to pubes and did not make a vaginal examination.

I waited for about five hours, thinking that as the mother had advanced so far she might deliver herself, but there was no further advance at the end of that time. I left her to get something which I had omitted to bring, intending to put on the forceps, and was delayed some time. On my return I found the head ready to come through, and left it to nature. The head came through occipito-anterior but slightly oblique; the neck was twisted; the chest and abdomen came through in the anterior position. I believe that if I had used the forceps I should have fractured the child's neck.

Kingsbury, Tamworth. W. F. MOORE, M.B.

Reviews.

SURGERY OF THE BILIARY PASSAGES.

PROFESSOR HARTMANN has written a treatise on the surgery of the biliary passages[1] which, while it embraces the whole of that subject, is devoted more especially to the various forms of cholecystitis and their complications. Although he has not omitted to refer to the writings of others, the work is principally based on his own personal observations, but the pathological anatomy of cholecystitis is discussed by Dr. Renaud and illustrated by him on a series of thirty-four well executed plates. Professor Hartmann's description of the technique of the various operations practised on the biliary passages is followed by an account of the results, and more particularly of the remote results, of the operations. In discussing the pathogeny of biliary lithiasis he expresses the view that the cholesterinaemia, which is almost habitual in patients, is the result rather than the cause of the cholecystitis, and notes that the so-called strawberry gall bladder, in which the mucous membrane is studded with minute particles of cholesterine, is not generally associated with gall stones. Reference is made to Mignot's researches, in which it was shown that neither the presence of foreign bodies, nor biliary stasis, nor infection, would, acting alone, lead to the production of gall stones, but that their experimental production followed the action of an attenuated infection combined with partial stagnation of bile. In connexion with calculi in the common duct, jaundice, it is stated, is never completely absent, but in 5 per cent. of the cases it had disappeared at the time of operation, although gall stones, some of large size, were found in the lower part of the duct, an observation that should lead the surgeon invariably to examine the common duct in all operations in biliary cases. Hartmann's statistics confirm the law of Courvoisier-Terrier relating to the distension of the gall bladder, but the value of the law is diminished by the fact that the enlargement of the liver in biliary obstruction often renders even a large gall bladder inaccessible to palpation. The propagation of inflammation to the peritoneum in cholecystitis differs from that in appendicitis in being less diffuse. In three cases only did Hartmann meet with a diffuse suppurative peritonitis resulting from cholecystitis. In the comparatively rare cases of acute peritonitis following perforation, it is recommended to drain the peritoneum by a tube in the pouch of Douglas, after dealing with the local lesion.

A chapter on the experimental results of ablation of the gall bladder is contributed by Dr. Hautefort. The experiments described show that when a ligature is placed at a little distance from the termination of the cystic duct dilatation of the proximal part of the duct ensues, but if it is placed at the very termination of the duct no diverticulum results. In either case the main ducts undergo a compensatory enlargement, which, however, does not affect the intrahepatic ducts.

In the chapter dealing with operative technique the value of hyperextension of the trunk in obtaining a full view of the field of operation is insisted on. The reason why some operators have failed to appreciate the advantage of this position is that they have placed the block too far down in the lumbar region; it should be beneath the lower dorsal region. With hyperextension properly applied, combined with exteriorization of the edge of the liver and rotation of the organ, it is possible to bring the portal fissure up to the level of the skin, so that in thin subjects the surgeon could, if he wished, suture the common duct to the edges of the abdominal incision. On the question of combining cholecystectomy with choledochotomy Hartmann states that he performs the double operation in 85 per cent. of his cases. In speaking of the results of cholecystotomy reference is made to the frequency of incomplete removal of the calculi, and the consequent tendency to abandon this operation in favour of cholecystectomy.

A chapter is devoted to cancer of the bile-papilla, which

[1] *Chirurgie des Voies Biliaires.* By Henri Hartmann. Paris: Masson et Cie. 1923. (Imp. 8vo, pp. 356; 37 figures. Fr. 30 net.)

degrees of obstruction, where there may be merely a temporary plugging of the lumen of the growth by a faecal mass, or a transient oedema of its wall, and where evidences of toxic absorption are wanting, there is a reasonable chance that with repeated enemata, etc., the obstruction may pass away, allowing a radical exploration to be made at a later date. The danger of thus temporizing is that of gangrene and perforation of the caecum, this portion of the colon being most affected by the increased intestinal tension quite irrespective of the site of the obstruction. Any localized tenderness over the caecum is, therefore, a strong contraindication to temporizing and demands operative relief of the obstruction.

Between these two extremes comes the largest class, where, although there is definite colonic obstruction, the general condition of the patient is not so grave but that there is a reasonable prospect of his being able to withstand a paramedian exploration to ascertain the site and nature of the obstruction; the question we have to decide is whether in these cases we should commence the operation with a paramedian exploration or content ourselves with a "blind" caecostomy. The advantages of the latter are: (1) It can be performed rapidly, under local anaesthesia, and with the minimum of shock—certainly very much less than that necessitated by a preliminary exploratory laparotomy followed by caecostomy or colostomy. (2) There is no interference with the growth and no new adhesions are formed. (3) The caecostomy opening is as far removed from the area of any further operation as any artificial anus can ever be. (4) It forms a good safety valve during any subsequent operation of resection, giving rest to the sutured bowel and minimizing the risk of leakage at the line of suture. (5) When not further required it often closes spontaneously on leaving out the tube—particularly if performed by one of the valvular methods—and in any case can be very readily closed by suture, with repair of the abdominal wall. On the other hand, an exploration sufficient to locate the obstruction, to disclose its nature, and to enable one to form an opinion of any value as to its operability in the future is always a difficult procedure in a distended abdomen—coils are liable to escape and may be hard to replace, and in the process of doing so the bowel wall may split. This risk may certainly be lessened by plunging a trocar into the caecum immediately it presents and allowing sufficient gas to escape to relieve tension; but this expends time and must increase the shock to a patient already toxaemic. Moreover, the site and nature of the obstruction are not always discovered—I have known a growth of the splenic flexure in an obese patient to be entirely overlooked—so that the caecostomy which is then performed is still "blind," and the patient has gained no advantage to compensate for the increased risks of the preliminary exploration.

To my mind, the strongest argument that can be urged against "blind" caecostomy is the fear that one may be leaving unrelieved a portion of bowel with its circulation obstructed—volvulus or internal strangulation—so that although death from acute ileus is averted, perforative peritonitis will later inevitably result. What are the chances of this happening? In the Manchester Royal Infirmary statistics, of 199 cases of acute colonic obstruction 24 owned some cause other than growth; of these, 9 were strangulated external hernia and would not be overlooked; 2 cases of ileo-caecal tuberculosis and 1 of sigmoid diverticulitis involved no risk to the circulation; of the 5 cases of volvulus the 2 involving the caecum would have been recognized on exposing the caecum; 2 of the 3 cases of volvulus of the sigmoid were not suspected prior to operation and might have been missed; of the 7 cases of adhesions, in 1 only was there definite strangulation of bowel. Thus "blind" caecostomy might, at the most, have resulted in overlooking gangrenous intestine in 3 out of 199 cases, or 1.5 per cent. I think even the most optimistic advocate of preliminary exploratory laparotomy, necessitating, as it does, a general (or spinal) anaesthetic, must admit that it would add more than 1.5 per cent. to the mortality.

The advantage usually urged in favour of preliminary exploration is that valuable information is thereby obtained as to the site and nature of the obstruction, and, if it is a growth, as to its local fixity, the extent of glandular involvement, and the presence of secondary deposits—all of which remain an unknown quantity with "blind" caecostomy. Even when obtained, however, this knowledge is seldom acted upon at the time—it is for future guidance. Now, admitting that such knowledge is not only highly desirable but absolutely essential before the final disposition of the case can be decided, why seek to obtain that which it is not immediately necessary to possess, at a time when the patient is in the throes of acute obstruction? Surely it is far better acquired when caecostomy has caused all urgency to pass away, when the abdomen has become flaccid, and when the site of the obstruction can often be determined beforehand by a careful physical examination, by sigmoidoscopy, or by radiography after a barium enema. Even if it is still undetermined before the second operation, there is a 6.5 to 1 chance of its being on the left side, so that a left paramedian incision will give safely all the information desired, and can be immediately followed by the requisite therapeutic measure—resection, short-circuiting, or artificial anus elsewhere than the caecum. Should it prove that such can be better performed through some other incision, the left paramedian incision can be readily closed and a fresh one adopted.

It may be argued that the information acquired at a preliminary exploration may be such as to there and then negative any future surgical treatment, and so save the patient a second and unnecessary operation, such as he would certainly be submitted to after recovery from a "blind" caecostomy. For instance, it might be considered that the extent of local fixation or the presence of metastases would prevent future resection. I have already referred to the impossibility of deciding the degree of local fixity unless the parts are actually freely exposed. Even metastases do not necessarily negative all further operation—a short-circuit or a "palliative" resection may allow of closure of the caecostomy and the avoidance of an artificial anus, with all its drawbacks, if not for the remainder of life, at any rate for many months. Practically, it is only where an inoperable growth is found to be too low down in the sigmoid for short-circuit to be feasible later that a preliminary exploration, followed, as it would be in this event, by a sigmoidostomy above the growth, would complete all operative procedures at one sitting.

Weighing the arguments for and against, I feel *strongly* convinced that when, in any given case of acute intestinal obstruction, the site of obstruction can be located to the colon but is not more precisely known, and where there is no special reason to suspect volvulus or internal strangulation, "blind" caecostomy should be performed as the sole immediate procedure.

GROUP III.

Here the actual situation of the colonic obstruction is known: (*a*) usually because a growth has been discovered on rectal examination; (*b*) in others there is a palpable abdominal tumour; (*c*) very exceptionally obstruction has supervened very shortly after a sigmoidoscopic or a radioscopic investigation has disclosed its site.

(*a*) If rectal examination enables us at once to decide that the growth is definitely inoperable on account of local fixation to the bladder, prostate, uterus, or sacrum, the correct procedure is left inguinal colostomy (*sigmoidostomy*), since with a growth placed so low a future palliative short-circuit is impracticable. Should rectal palpation not contraindicate a future radical operation, I prefer laparotomy through a left paramedian incision of just sufficient extent to permit of manual examination of the extent and fixity of the growth, the degree of glandular infection, and the presence of metastases in the liver and peritoneum; the operation is concluded by fixing a loop of the sigmoid into the wound and opening it either at once, tying in a Paul's tube, or a few hours later, according to

held by the authoress to be due to intermittent activity of the liver in either storing up sugar as glycogen or discharging the latter as glucose into the blood stream according to the condition and demands of the organism.

The second section is concerned with the rise in the quantity of sugar in the blood after administration of glucose. In normal individuals the upper limit to which the blood sugar can be raised is about 0.18 per cent., while in diabetics the total rise of the curve is directly proportional to the amount of glucose ingested. The opinion is expressed that the production of enzymes or hormones (insulin) is stimulated by the presence of large amounts of sugar, and that this increased activity in the normal organism prevents the rise of blood sugar above the value of 0.18 per cent. The measure of this enzymatic activity is called the "removal acceleration," and it is shown that in diabetics this power is lower than normal in degrees varying in proportion to the severity of the disease. Moreover, the rise of the blood sugar curve per gram of glucose taken is, under proper conditions, constant in diabetic subjects, and a function test based on determination of the "one gram rise" and "removal acceleration" is proposed.

The third section deals with the distribution of glucose between plasma and corpuscles. In fasting diabetics there is usually a higher percentage of sugar in the plasma than in the corpuscles, while in normal blood the percentage in each is about equal. This may of course be due simply to the concomitant acidosis, as Hamburger has shown that in horse's blood the cells give up glucose to the plasma when carbon dioxide is passed through it.

The method for determination of blood sugar used throughout these researches is that of Hagedorn and Jensen. It is based on the reduction of potassium ferricyanide. It appears to be a convenient, easy, and accurate procedure, and, as it requires only 0.1 c.cm. blood, is worthy of note and trial. A description of the method is given in *Biochemische Zeitschrift*, 135, 46 (1923).

The book is printed in English, and although the phraseology is occasionally somewhat unusual and there are frequent misspellings, the meaning is always clear.

MACKENZIE'S "HEART AFFECTIONS."

SIR JAMES MACKENZIE's book on *The Principles of Diagnosis and Treatment in Heart Affections* has been reprinted several times since it first appeared in 1916, and the editing of a second edition[5] has been placed in the hands of Dr. Orr, one of the physicians at the St. Andrews Institute. There has been some rearrangement of the chapters, but there has been little real alteration of the substance of the work. It is a book specially designed for the general practitioner and consequently the bedside features of the various heart affections are presented rather than the aspects which are determined by instrumental aids.

The main features of the book are probably well known. After dealing in a general manner with heart failure, chapters are devoted to certain symptoms and some of the physical signs met with in patients suffering from heart disease. Particular attention is given to murmurs and the differentiation between physiological, functional, and organic murmurs. A consideration of heart irregularities leads to separate chapters on auricular fibrillation and auricular flutter. A useful though short part deals with so-called "heart attacks." Prognosis and treatment appear at various parts of the book, but the principles of both are summarized in the closing chapters. An essay on medical research, with which the previous edition opened, has been relegated to an appendix.

The practice of printing many of the salient sentences in bold type has been continued in this edition, and rivets the attention of the reader on points which the author wishes to impress. The book is calculated to give a clear outline of the general principles which underlie the present-day practice of cardiology without tiring the reader with details of the methods which have made present knowledge possible. It can be confidently recommended to the general practitioner, for whom it has been specially prepared.

[5] *Principles of Diagnosis and Treatment in Heart Affections.* By Sir James Mackenzie, M.D., F.R.S., F.R.C.P., LL.D.Aberd. and Edin., F.R.C.P.I Hon., and James Orr, M.B., Ch.B. Second edition. Oxford Medical Publications. London: Henry Frowde, and Hodder and Stoughton. 1923. (Demy 8vo, pp. vii + 247; 26 figures. 7s. 6d. net.)

HALLIBURTON'S "PHYSIOLOGY."

THE appearance of the sixteenth edition of Professor HALLIBURTON's *Handbook of Physiology*[6] brings home forcibly the loss to medical education occasioned by the regretted retirement of the author from the chair of physiology at King's College, London. The severance of this long association seems to mark a milestone in the progress of medical research and education. It must, however, be with some satisfaction that Professor Halliburton is able to feel that he is still, through the pages of his book, in touch with so large a number of students, and we hope that he will continue the frequent labour of keeping it up to date.

The book has a fascinating history. In these days of ephemeral publications it is reassuring to be able to look back seventy-five years to the inception of this work. From 1848 to 1896 the book, which bore the title of *Kirke's Physiology*, was edited by a succession of teachers at St. Bartholomew's Hospital Medical School, and this association was only broken when the present author undertook the care of the work twenty-seven years ago. His stewardship has seen a profound remodelling of the whole; sixteen editions have appeared and upwards of 80,000 copies have been printed. In the face of such evidence of sustained popularity little is left to the reviewer but to cry the news of a further edition.

This edition has not been called forth simply at the convenience of the publisher, for the revision of the text has been thorough. The book forms an introduction to human physiology particularly designed to meet the requirements of the medical student. The general sequence of the subject matter has been somewhat altered and the author has succeeded in introducing a great deal of new matter while exerting a wise caution in withholding much the significance of which it is as yet impossible to assay. The student will be grateful for this reticence. A valuable chapter on the bearing of physical chemistry on physiological problems has been introduced and will point the intelligent student to the new lines along which physiology is looking for answers to its old mysteries. The chapters devoted to respiration have been rewritten with the assistance of Mr. J. Barcroft, whilst Dr. J. H. A. Marshall has been associated with the revision of the subject of reproduction. The authority of this collaboration is token of the sincerity with which the re-editing has been undertaken.

A happy inspiration has led to the inclusion of six portraits of famous physiologists of the past. The personal relations which have meant so much in the earlier progress of science are still very potent, though their influence is not so obvious when so many more are engaged in research, and any gesture which brings the personal touch is a reminder of the individuality of scientific imagination.

We commend, anew, this careful labour on behalf of medical and scientific teaching.

HUMAN ANATOMY FOR DENTAL STUDENTS.

MR. BRAMBLE GREEN, in his *Manual of Human Anatomy for Dental Students*,[7] has produced the first textbook of anatomy specially designed for the dental student. The need was urgent, and this first authoritative attempt to define the anatomical needs of the dental student will be both welcomed and criticized by teachers, students, and examiners alike. The author's endeavour has been to give a detailed account of the regional anatomy of the head and neck and "an elementary description of the remainder of the body by systems." In the systematic portion only the main facts are presented, but there is sufficient detail and sequence

[6] *Handbook of Physiology.* By W. D. Halliburton, M.D., LL.D., F.R.C.P., F.R.S. New and sixteenth edition. London: John Murray. 1923. (Demy 8vo, pp. xix + 865; 530 figures, 3 coloured plates. 21s. net.)

[7] *A Manual of Human Anatomy for Dental Students.* By R. Bramble Green, M.B., B.S.Lond., F.R.C.S.Eng. London: Benn Brothers, Ltd. 1923. (Demy 8vo, pp. 10 + 253; 57 figures, including coloured plates. 12s. net.)

then the best method was to divide the colon, close the lower end and drop it into the abdominal cavity, and then bring the upper end, still closed, obliquely through the muscles. This would give an artificial anus, admitting of a wonderful degree of comfort. It was well to recall that while new growths were by far the most likely cause of obstruction, they might be very closely simulated by syphilis, which might give rise to a tumour-like mass clinically indistinguishable from malignant disease.

Mr. H. W. CARSON (London) said that he had analysed all the cases of colon obstruction in his practice during a term of twelve years. They amounted to 79 cases, excluding the rectum and intussusceptions. All of these were cancers except 5 cases of diverticulitis and 2 cases of ileo-caecal tuberculosis. He had had no case of volvulus in this series. In many respects they bore out Mr. Burgess's conclusions. Fifty-four per cent. were in the pelvic or iliac colon, 19 per cent. in the caecum or ascending colon, 14 per cent. in the descending colon, 9 per cent. in the transverse colon, and 4 per cent. in the splenic flexure. In 36 cases there was obstruction, or 45.6 per cent., and the order of frequency was—splenic flexure, 66 per cent.; descending colon, 65 per cent.; pelvic and iliac colon, 51 per cent. Only 3 cases were obstructed in the caecum and ascending colon and all of these were affections of the ileo-caecal junction. Obstruction occurred in the right colon—the caecum, ascending colon, hepatic flexure, and proximal half of transverse colon—in 5 of 22 cases, or 22.8 per cent., as compared with 31 of 57 cases, or 54.4 per cent., in the left colon. In a previous series, which partly overlapped this one, reported to the Medical Society of London in December, 1920 (*Medical Society of London Trans.*, vol. xliv, p. 110), he could only attempt a radical cure in 35 per cent. In the last three years he had had better luck and had brought the operability for radical cure up to 52 per cent. for this series. He thought it could be agreed that every case of cancer of the colon should be treated before obstruction occurred, and though that was an ideal and perhaps unattainable, he was not satisfied with the present incidence of obstruction of between 35 per cent. and 50 per cent., especially as it added 20 per cent. at least to the mortality. Sir Berkeley Moynihan, at the Medical Society of London in December, 1920, said that a discussion on cancer of the colon ought be opened by a general practitioner who had the chance of seeing these cases early. In order to prevent obstruction supervening they must educate the public to consult their doctor earlier and they must also expect the patient's doctor to suspect cancer of the colon in any middle-aged patient who complained of the cardinal symptoms so excellently described by Mr. Burgess and to treat these patients on medical lines only after the possibility of cancer had been excluded. That raised the question of an exploratory laparotomy if the modern methods of diagnosis failed to exclude cancer as the cause of the symptoms.

There were three types of colonic obstruction due to stricture. First there was partial obstruction, a type which gave rise to the cardinal symptoms of the disease; second was an acute obstruction following a partial obstruction; and third there was the acute obstruction occurring as the first recognized sign. Each of these required different consideration. Partial obstruction was not associated with grave toxaemia, the intestine was not in bad condition, and a planned operation, perhaps in two stages, was possible. Acute obstruction, following on a long-standing partial obstruction, was associated with toxaemia, and also with deterioration of the intestine above the obstruction, particularly marked in the caecum, which was often oedematous, ulcerated, and liable to burst. Acute obstruction occurring as the first recognized sign was but little associated with toxaemia and the intestine above the obstruction was in a more healthy condition. A certain number of these—which might be called unexpected—obstructions were due to oedema of the mucosa at the constriction or even to blocking of the narrowed part by a faecal mass, and practically always occurred low down in the left colon. Immediate operation was not demanded in this last class and the obstruction could often be overcome by giving no food by the mouth, by the administration of morphine, and by injection of oil and soap enemata. Of course, the closest watch had to be kept on these cases, especially for evidence of toxic absorption, best seen perhaps in the tongue, and also for hyperdistension of the caecum. The real difficulty lay in the cases of acute obstruction supervening on a long-continued partial obstruction. Operation was urgently needed and the question was, what was best to be done? They must exclude all idea of doing a radical cure in these cases, except, perhaps, in favourable cases of ileo-caecal or ascending colon obstruction. He had done several one-stage block resections in such cases with success, and Mr. Burgess in his 9 cases of immediate resection had 2 of the caecum, both recovering. It was probable that even in these cases a two-stage operation was wiser. But in the ordinary case of left-sided colon growth they must be content to relieve the obstruction. Mr. Burgess had raised the question of a blind caecostomy. Mr. Carson did not like it, and for several reasons. First, it was not so easy to differentiate between small and large intestine obstruction. He agreed that they ought to do it, but he could own to having made mistakes. He had even diagnosed as obstruction due to growth of the pelvic colon a case of general peritoneal carcinomatosis secondary to cancer of the stomach, a plaque in Douglas's pouch misleading him on rectal examination. He did not much like Mr. Burgess's 9 to 1 chances. It may be true that a certain condition was present in 90 cases in 100, but it did not follow that it was present in the individual case under notice. Second, there was the danger of overlooking some condition, such as volvulus of the sigmoid, sufficiently rare as it was, which would be fatal if not treated locally. Third, there was the danger of a double obstruction, as occurred in some cases of left colon growth which had involved a coil of small intestine. Fourth, there was the risk of being left with an undesirable caecostomy in an inoperable case which would have been better short-circuited—for example, a splenic or descending colon obstruction. And fifth, there was the danger of having to deal with a caecum in such a bad condition that manipulation might cause faecal extravasation. This particularly referred to long-standing obstruction with acute symptoms supervening. He liked to see what he had to deal with, and particularly to be sure if the case was a possible one for radical cure. If there was a chance of a subsequent resection he was all in favour of a temporary caecostomy, which was the best thing to do. It relieved the obstruction and was of real value after the radical operation, as it prevented distension above the suture line. He did not like the Mikulicz operation, as he thought it was unsound from the block resection point of view. If there was no chance of a subsequent radical cure he thought a caecostomy should be avoided if possible. In these cases, if the obstruction was low down an inguinal or even a transverse colostomy was better. If the obstruction was higher up, some form of short-circuit was generally possible, not a unilateral exclusion, but a simple lateral anastomosis. Mr. Burgess's success with lateral anastomosis was very gratifying—3 deaths only in 11 cases and one of those the very difficult descending colon-sigmoid anastomosis. There was one point about these lateral anastomoses which wanted emphasizing. Every effort should be made to avoid the long blind end. For instance, a caecosigmoidostomy was not an ideal operation in inoperable transverse colon growths, nor was an ileo-sigmoidostomy in a splenic flexure growth. Of course, these short-circuits were meant to meet the emergency and in such a case, for instance, an ileo-transverse colostomy for hepatic flexure growth must be supplemented by a drainage of the section between the growth and the ileo-caecal valve; but this might be done after the acute symptoms had subsided. To sum up, Mr. Carson said that the treatment of colonic obstruction was fairly well standardized, but greater efforts should be made by propaganda and the training of students to diagnose colon growths early and thus anticipate the onset of obstruction.

Mr. J. P. LOCKHART-MUMMERY (London) observed that the figures Mr. Burgess produced showed that the percentage of mortality from acute obstruction of the colon, excluding intussusception, was 32.16 per cent. He thought

British Medical Journal.

SATURDAY, SEPTEMBER 29TH, 1923.

THE STATE OF THE PUBLIC HEALTH.

THE annual report of the Chief Medical Officer of the central Government department concerned with the public health has always been studied with interest by the medical profession from the time when Sir John Simon, the first incumbent of such an office, was writing his pioneer reports for the Privy Council, through the long series of annual reports presented by succeeding principal medical officers of the Local Government Board, to the most recent presented by Sir George Newman to the Minister of Health; it is his fourth as Chief Medical Officer to the Ministry, but the sixty-fifth of a series in which the growth of the science and art of hygiene may clearly be followed. The general scope of the new report can be gathered from the analysis begun in our last issue and concluded in this (p. 578).

Looking back on the series we may clearly see a shifting of the central interest. The earlier reports were concerned largely with the principles of administration—the need for central and local authorities to supervise and control municipal sanitation, their constitution, their finances, and the definition of their duties and powers. Then came a long period during which the central Government department and the larger local authorities were concerned chiefly with disease in the mass, with water-borne disease in particular, and great cities such as Glasgow, Manchester, Liverpool, and Birmingham undertook huge and costly engineering works, not unworthy of the Romans, to provide themselves with an abundant supply of pure water. It was at this stage that the work of the British Medical Association, of the Army Medical School, of voluntary organizations, and of many public-spirited members of the medical profession, was of such incalculable value in educating our rulers and administrators, so preparing the way for the creation of a Ministry of Health. The very name marked an epoch, indicating that the preservation of health and the prevention of disease was to be the primary duty of an important ministry of State, and no longer of a subsidiary section of a department mainly concerned with other matters which, to the Minister and the permanent officials, seemed to be of greater consequence.

During all this middle period Great Britain, and England in particular, was not only learning great lessons, but teaching them to the world. The application of large generalizations based frequently on a kind of intuition seems particularly congenial to the English mind, which is at once imaginative and practical, but not logical. The results obtained on a wide front in Great Britain were arresting, and the interest of foreign nations thus aroused was confirmed by the foundation and growth of the new science of bacteriology, which was able to explain some of the British generalizations and to give greater precision to matters of detail. It was, of course, very soon seen that certain problems were the same for all European countries and for parts of North America, and very similar in respect of the introduction of exotic epidemic diseases. For the discussion of this last matter the medical department of the Local Government Board had already begun the collection of material, and for many years the late Dr. Netten Radcliffe in annual articles kept track of cholera, plague, and many other diseases, recording the rise and fall of endemic prevalence and the origin, spread, and decline of epidemics. Presently international sanitary conferences began to be held, the Office International d'Hygiène Publique was established in Paris, and the Port Sanitary Service came into existence here. This international stir was another reason why we should provide ourselves with a Ministry of Health. The Intelligence Division is now an important part of the Ministry, collecting information—administrative, legislative, or statistical—which helps the due discharge by this country of its obligations in international as well as national affairs.

We seem now to be entering on a new stage, and in the report of the Chief Medical Officer for 1922 much emphasis is laid on the duty of the individual citizen. It is an old and well established principle of law that a man must not so conduct his home or his business as to injure his neighbour, and sanitary laws consist of little more than application of this general principle to the prevention of common violations of it. From the creation of machinery for mass sanitation we passed to the prevention of disease in the mass; now we have begun to require the individual to safeguard his own health and the health of his family. We pass from individual rights to individual duties.

Sir George Newman has not hesitated to use the argument *ad hominem*. In public and private medicine, he writes, the assent of the individual is needful "if the individual is to reap his full advantage, and at the same time to act loyally as a member of the community; in fact, he is under obligation to cultivate his own health and capacity, and so to conduct himself as not to conduce to the hurt or risk of his neighbours."

Finally, as was to be expected, we are presented with the argument *ad crumenam*—if it pays the individual to look after his own health and the health of his children and of the mother of his children, it will pay the State to help him to do so. But times are hard, and the difficulty about schemes for promoting individual hygiene is that the expenditure on them is new and obvious to the individual ratepayer. Not the most short-sighted of municipal economists will propose to scrap the waterworks at Loch Katrine, Thirlmere, Rhayader, or Vyrnwy, and leave Glasgow, Manchester, Liverpool, and Birmingham without water, but it is quite easy to nibble at estimates for clinics. The Ministry of Health, we are told by its Chief Medical Officer, is being very careful about money, and has taken steps "to advise local authorities on the financial aspects of their work"—a phrase to be interpreted as we will; but Sir George Newman is no defender of economy at any price, and we may take leave of his report by quoting its concluding sentences. "If the public expenditure on the health of the nation is every year saving the lives of many thousands, as this Report shows, and if it is prolonging the life of others, or increasing or continuing their capacity for productive work, as is absolutely certain, I submit that it is an economical and profitable expenditure in the correct sense of the terms. For the truest national economy at this moment is to spend productively and increase the earning capacity of the individual."

upon with an absence of danger that had to be experienced to be realized. His own belief was that inhalation anaesthesia should not be used in old people or in persons suffering from acute abdominal conditions.

Professor CHARLES A. PANNETT (London) said that the knowledge that their treatment of any disease was very remotely removed from finality was a constant impetus to review beliefs as to the propriety, usefulness, and efficacy of any particular methods they were using. In the treatment of acute obstruction of the colon, the procedure to which he had given the name of "blind" caecostomy had proved a very satisfactory one in numerous cases; there was very much to be said in its favour, its value was vouched for by some of the greatest amongst abdominal surgeons, but was it not possible that its advantages were rated too highly, and had not its very real drawbacks been rather thrust into the background? If the abdominal organs were immured in transparent walls, it would be much easier to choose their plan of campaign; but when confronted with an extremely ill, tensely distended patient, who had reached a stage of his disease when he was too listless and apathetic for them to be able to place implicit reliance upon his replies to inquiries, Professor Pannett confessed that sometimes his diagnosis of large bowel obstruction was rather a guess than an opinion based upon knowledge. That was the primary difficulty. Quite recently, however, marvellous powers of recovery these patients have. After many days' obstruction, with distension so extreme that the loss of the support of the abdominal wall brought about by its incision allowed the caecum to split from internal pressure, he had seen patients recover and pass successfully through an excision operation. In these very late cases, it must be a procedure of great skill to pull an area of caecal wall through a small gridiron incision without rupture, for the viscus was as tense as a rubber balloon. Through a paramedian incision the distension could be immediately diminished by the use of a hollow needle and under conditions of free access, with little danger of infection. It was not necessary to allow coils of intestine to protrude on to the surface of the abdomen—the proper place for the abdominal viscera was within the peritoneal cavity. Neither was the trauma of the gentle insinuation of the exploring hand of significance in comparison with the worst of all shock-producing stimuli, the overstretching of the bowel wall which was already present. The subsequent suture of the abdominal wall was not so difficult as they might suppose, for at that stage evacuation through the caecostomy would have considerably reduced the distension. It was facilitated by using the three-bladed forceps which he devised some years ago. He had never seen adhesions from around the growth as a result of manipulation, unless it lay immediately under the wound, and then they had not been serious.

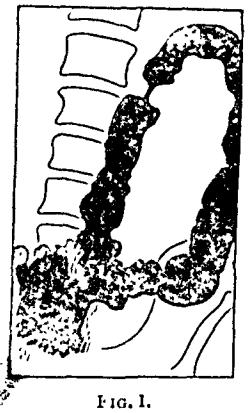

FIG. 1.

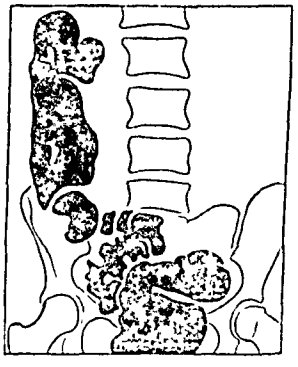

FIG. 2.

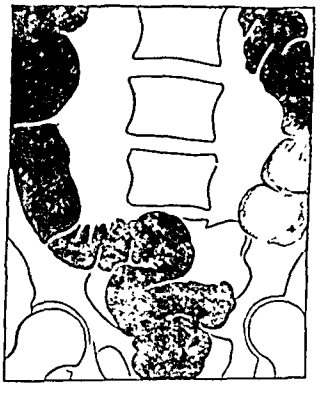

FIG. 3.

FIG. 4.

x-ray investigations in patients suffering from acute intestinal obstruction had shown that it was sometimes possible to determine the site of the obstruction beforehand, without giving barium, if it were in the large intestine. For the bowel distended with gas above the obstruction was recognizable by its characteristic sacculation, whilst the contracted bowel below gave no obvious appearance on the plate. It was also asserted that, after washing out the stomach, a little barium cream, given to a patient suffering from acute obstruction of the small intestine, would rapidly be propelled to the site of the block, where it would be held up sufficiently long to be demonstrated on the x-ray screen or plate. That method of investigation was worth trying. If it were established on a firm basis it would make all the difference to the attitude with which they approached these doubtful cases, for simple caecostomy could only be performed with equanimity when the diagnosis was a certainty. At St. Mary's Hospital, of the 47 cases of carcinoma of the colon (excluding the rectum) treated during the previous three years, not one death occurred as the immediate result of caecostomy combined with abdominal exploration, and every patient with acute obstruction was submitted to a primary exploration. So that this procedure did not appear to be a very fatal one. There was, however, a death after primary exploration combined with colostomy, which operation was very much the same. This occurred in a feeble woman of 67; there were very extensive secondary growths in the abdomen, the primary one being in the splenic flexure. Transverse colostomy was performed; the patient was not acutely obstructed at the time, but suffered from persistent bloody diarrhoea. When they looked at the disease they could not but be struck by the

To consider another aspect, they found that of the cases of carcinoma of the colon coming to St. Mary's, only in a little more than one-third of the total number did conditions allow of excision of the growth. Of the remaining two-thirds, more than one-half had to pass the remainder of ther lives with a permanent faecal fistula, a short-circuiting operation not being possible. Now these unfortunates, with but a small residue of life, had to suffer the distress of another abdominal operation, if a blind caecostomy were done. For the greatest comfort the fistula should be made as close to the growth as possible, and there also it would drain the best. A primary colostomy in irremovable growths was more effective than caecostomy, and a second operation was eliminated. When a "blind" caecostomy had been performed, they usually tried to ascertain the exact site of obstruction by means of sigmoidoscopy or the opaque enema. It was often not possible to see the growth through the sigmoidoscope, even when it was in the sigmoid, for adhesions of the growth and adjacent bowel might prevent distension and the straightening out necessary to pass the instrument. The opaque enema also did not always give them unequivocal information. In 1911 he operated upon a man with acute obstruction; the caecum and transverse colon were distended, and he made what he thought now was the erroneous observation that the sigmoid was not. Without being able to feel it in that area, he made the deduction that there was a growth at the splenic flexure. The opaque enema was to be seen in Figure 1. It supported the previous diagnosis. At the subsequent operation there was no growth in this region, but there was an irremovable carcinoma of the sigmoid. This spasm of the splenic flexure he had seen in

and has failed to breathe his imagination on them, so as to make them live and move, is in the position of a man who has cut the leaves of a book and thrown it away unread. Our author would have medical students and medical men, as each manifestation of structure or of disease meets their attention, ask themselves a perpetual "Why?" and never rest until they find a reasonable answer or explanation. He would have his students, as they examine sections under the microscope, to remember that what they see are artificial snapshots of the living units which carry on the work of the body. Above all, he would have medical students, in these days of crowded curricula, cultivate a sense of perspective, and discriminate between the important and the unimportant. The tradition which has clung to our British chairs of anatomy—that their occupants should be men of wide interests—finds a true representative in Professor Whitnall. In this booklet he places at his pupils' disposal a rich experience gleaned from a close study of how men should order their careers if they would take the best out of life.

WATER POISONING.

THE toxicity of pure, fresh, or distilled water for fish, for isolated organs, and for unicellular organisms has been investigated since the time of Paul Bert, who in 1866 ascribed the toxic effect of fresh water on mullet to the difference in osmotic pressure between fresh and sea water causing the tissues to absorb water in excess. A short time ago (June 9th, p. 986) we gave an account of the results of an inquiry by Dr. J. S. Haldane and Mr. K. N. Moss on the effects of high temperature and muscular exertion upon colliers and stokers, from which it appeared that the ingestion of unusual quantities of water might lead to attacks of cramp, spoken of as "miner's cramp" or "stoker's cramp," believed to be due to a form of water poisoning of the muscles brought about by the combination of great loss of chloride by sweating, excessive drinking of water, and temporary paralysis of the renal excretion. Last year Larson, Weir, and Rowntree described a peculiar form of intoxication in patients with diabetes insipidus, who after hypodermic injection of pituitary extract continued to drink the same quantities of water that they had previously been accustomed to take. Within a few hours these patients manifested severe toxic symptoms—headache, nausea, asthenia, inco-ordination, and staggering gait. After some experiments on animals the authors concluded that this intoxication could not be induced by water alone or by pituitrin alone, but only by a combination of the two. Rowntree[1] has now published the results of a further research on the production of water intoxication in dogs, cats, rabbits, and guinea-pigs without injection of pituitary extract; it therefore appears that pituitary extract favours the occurrence of water intoxication by lessening the rate of excretion and lowering the rate of water exchange, or by facilitating the escape of water from the vascular system into the tissues, but is not an essential factor when the intake of water exceeds the excretory power of the organism. Large quantities (50 c.cm. per kilogram of body weight) were given by a stomach tube every half-hour. In dogs the phenomena were asthenia, restlessness, frequent micturition, nausea, retching, vomiting, salivation, muscular twitching, ataxia, convulsions resembling those of strychnine poisoning, frothing at the mouth, and stupor or coma terminating in death or recovery in a few hours (four to twelve). A subacute form lasting for some days was produced in rabbits by the administration of smaller quantities of water continued over a longer time. Intravenous injection of hypertonic (10 per cent.) salt solution was found to prevent or to remove water intoxication that the intracranial pressure was raised, and Rown considers it probable that this is, in part at least, resp sible for the symptoms, and that the increased intracra pressure probably depends on a disturbance of the sal water equilibrium of the central nervous system.

PUBLIC HEALTH IN INDIA.

WE have received from Dr. N. H. Choksy, C.I.E., Bombay, a reprint of seven articles which he contribu to the *Times of India* during May and June of this y on plague in India and other cognate subjects. Choksy, whose name is well known in connexion with study of infectious diseases in India as medical su intendent of the Arthur Road Plague and Infect Diseases Hospital and the Martha Plague Hospital, Boml explains in a short preface that his object in writing articles was to focus public attention on the ravage plague in India during the last twenty-five years, to sider whether there is any probability of eradicating disease at an early date, and to show that nothing been done by the Government of India to discover a rem for it. He has also been anxious to obtain concerted co-ordinated action in order to combat the excessive r tality in India, not only from plague, but also fro number of other preventable diseases. The Indian Cross Society, which has attempted to do so, can touch, he very justly remarks, the fringe of the prob even by the most strenuous efforts. Its resources, amo ing as they do to less than five lakhs of rupees annu could not cope with the needs of a vast continent India. Dr. Choksy therefore appeals to the Governm to take control, and suggests that a special sanitary, ventive, and curative service under a Ministry of He should be established in each province, and that throug provincial legislatures and the Legislative Assembly sh devise measures for dealing with the abolition of pla and the control of other diseases. Although Dr. Chok articles cover ground already well traversed and explo they are of great value as an effort to arouse pu opinion in India and awaken the masses to the nee more active co-operation in sanitary measures. As he truly says, the masses in India are not yet ready assimilate the lessons of an intensive campaign of sani education. What they require is actual and conc demonstration of the benefits promised and implied, an pleads for such actual demonstration to accompany, better still to precede, any intensive campaign of inst tion. Without question he is applying his knowledge influence in the right direction. He has no illusions a the difficulties of the sanitary problems in the pre condition of housing in Indian rural districts, which aptly compares with the material and social condit in England when, centuries ago, plague was one of most dreaded scourges. He considers that freedom f plague for ten or fifteen years is no guarantee of its c plete extinction. Any policy based upon such an assu tion is foredoomed to failure. Wholesale rat destruc throughout India, the one and only complete measure too stupendous a task to be a practical proposition present. What India really wants is a special sani service as distinct from the existing provision of med relief—a service, that is to say, which is broadcast over India and working continuously. This requires an adeq staff of trained men, schools of hygiene, provincial ca forming a number of flying columns to be dispatched once to localities where an outbreak of plague is threate a provincial health service, with a director and assist and deputy assistants of public health, a Ministry of He

question having proved to be, as he expected it would, the treatment of the Group II cases. He admitted that the "opportunist" view expressed by Professor Pannett, Mr. Childe, and other speakers—that exploratory laparotomy should be the first step in all cases where one considered the patient's general condition sufficiently good to withstand it, and that blind caecostomy should be reserved for the others—seemed at first sight logical and tempting. It was probably the practice of the majority of surgeons at the present time. But the difficulty was to know how much the patient would stand, and if the present high mortality of these cases was to be reduced some change of the present practice must occur. Although, in general terms, he shared the dislike expressed by some of the speakers to any routine procedure, yet in this particular instance he felt convinced that the routine adoption of blind caecostomy would very materially lower the mortality, although earlier diagnosis must remain the most important factor in that connexion. He did not agree with Professor Pannett that an exploratory laparotomy did not add to the risk of caecostomy; it was not easy to show this by figures, but it appeared to him to be axiomatic. He was interested in what Mr. Barling and Professor Pannett had said as to the diagnosis of the site of obstruction by the use of the x rays without bismuth meal or enema. Unfortunately most of the patients in the acute type of obstruction he had been considering were too ill to be sent for even a short radiographic examination. He had not found cleansing of the colon proximal to the obstruction to be so impossible after caecostomy as Mr. Barling suggested. Any faecal matter remaining in it would in any case, as the result of the caecostomy drainage, have been deprived of its acutely toxic properties, and would not prevent restoration of the bowel wall to a healthy state. By repeated flushings of the colon, both through the caecostomy and per anum, he considered that the bowel could be effectively cleansed in from ten to fourteen days. In many cases, after the relief to obstruction by caecostomy, the passage through the obstructing growth became restored, and fluid would pass from the anus to the caecostomy opening. Mr. Mothersole had suggested that it might be advisable, where there was a long length of colon between the caecum and the growth, to perform a second drainage operation—in other words, a colostomy just above the growth—before undertaking the radical extirpation. He did not think this would be necessary if sufficient time and attention were given to careful flushing of the colon.

ARE THE RESULTS OF THE OPERATIVE TREATMENT OF CANCER BETTER THAN TWENTY YEARS AGO?

BY

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IT is peculiarly appropriate that this question should be discussed at the headquarters of the President of the Association, who has done so much to promote the early recognition and the early treatment of cancer. I imagine that there are few of us who do not feel depressed at the poverty of our success when we reflect how small is the number of cases in which complete freedom from recurrence follows operation for cancer. Yet there is no doubt that during the past quarter of a century surgical technique has been greatly improved, many of the risks of operation have been very materially lessened, and this in spite of the fact that the operations practised for malignant disease have become more extensive and radical. But from the point of view of remote results have we similar cause for satisfaction? I look in vain for any convincing evidence that the proportion of ultimate successes is greater than was the case twenty years ago.

The Registrar-General's returns show that in the year 1921, of each million persons living, 1,215 died of cancer, as compared with 828 per million persons in the year 1900, an increase of nearly 30 per cent. Even granting that cancer is on the increase, and that death certification is more accurate, it is not easy to understand this proportional increase if modern operations have effected the cures which are claimed. A comparison of operative statistics seems to point to the same conclusion. Most of us have had isolated cases of freedom from recurrence for ten or even twenty years, but on the whole the proportion of those free from recurrence after five years appears to be about the same as it was twenty-five years ago. When I was house-surgeon I traced the results of the operations for mammary cancer performed by my chief, the late Mr. Alfred Willett. I found that 42 per cent. of the patients were free from recurrence after three years, and 33 per cent. after five years. In 1902 Mr. T. Bryant published a series of cases showing 50 per cent. free from recurrence after five years, and 32 per cent. alive and well after ten years. It is not without significance that both these surgeons practised what to-day would be considered a very inadequate operation. The axilla was not cleared out as a routine measure, but only when there was evidence that the glands were diseased. It is interesting to compare these figures with those of Halsted, as the result of the more radical operation known by his name. In spite of a more extensive operation his results appear no better than those I have quoted. He reported 46 per cent. of the patients dead within three years, and 41 per cent. alive and free from recurrence after three years. As regards carcinoma of the rectum, Mr. Harrison Cripps was able to report that 42 per cent. of his cases were alive three years after operation, and almost all of them were perineal excisions. Not many of us can show better, if as good, results as these. Unless we can prove our efforts to be more successful we are living in a fool's paradise.

Is there any fault in our technique or method of attack to account for this apparent lack of progress? I would suggest two questions.

First, are we allowing the teaching of pathology to override clinical experience? No one has greater regard for pathological work than myself, but I am inclined to think that some of the conclusions arrived at in recent years have tended to hinder rather than to further progress. Pathologists tell us that cancer cells are scattered far and wide beyond the apparent limits of a growth, and consequently they urge the necessity of wide and extensive excision. Indeed, if we were to accept their conclusions as gospel it would in most cases seem useless to attempt resection of bowel for carcinoma. We know, however, from clinical experience that operations in which the margin of the growth is very close to the line of resection are sometimes followed by a long interval of immunity. The microscopical observations may be accurate, but the inferences drawn therefrom are not necessarily infallible. If it be true that cancer cells extend far beyond the site of the growth, the conclusion is irresistible that the tissues can and often do destroy the isolated cells which are left behind beyond the line of excision. To this extent I submit pathology has led us astray. Our efforts have been directed towards more extensive operations, whereas earlier diagnosis and earlier operation should be our aim.

The second question I would put is this: May it not be the case that in modern surgery the lymphatic glands are attacked too ruthlessly?

Do we fully appreciate the part played by the lymphatic glands in Nature's defence against the spread of carcinoma? If, by operation, all the neighbouring glands are removed, may we not be depriving the patient of his first and main line of defence? There can be no doubt that cancer cells spreading from the primary growth are arrested, at any rate temporarily, in the neighbouring glands. Possibly the glands may be able even to destroy a limited number of cells, when the primary focus has been removed. Most of us have met with cases in which operation for malignant growth of the bowel has been necessarily incomplete, in that glands obviously infiltrated with carcinoma have been left behind, in spite of which the patient has lived ten, twelve, or even more years. It is a fair inference that such patients have remained well not in spite of, but because of the incomplete removal of glands. It is difficult to explain such happenings except by the hypothesis that the cancer cells left behind have been destroyed by the healthy tissue in which they were unwelcome guests.

these impressions in its structure, to be violently shaken by a blow on the skull; the whole delicate structure will be thrown out of gear, and the immediate result is the total abolition of consciousness. Soon, however, if the blow be not too severe, the shaken elements go back to their places and consciousness returns. But in the general shake-up some arrangements may be so badly shaken that they are altogether obliterated, and those most likely to be affected are those most recently formed or in the process of formation. This is a plausible explanation of both pre-traumatic and post-traumatic oblivion.

RESEARCH IN MENTAL HOSPITALS.

THE ninth annual report of the Board of Control,[1] which deals with the year 1922, is for the most part in the usual form, but it contains an appendix setting out more fully than is customary the research work that is being carried out in a number of mental hospitals with the encouragement of the Board, and also at the pathological laboratory of the Maudsley Hospital. Among the researches mentioned is that on the physiogenic origin of dementia praecox in the last named laboratory, upon which was founded Sir Frederick Mott's British Medical Association Lecture on the reproductive organs in relation to mental disorders published in our issue of March 25th, 1922, and those described in the article by Sir Frederick Mott and Dr. Isabel Hutton on the adrenals with special reference to dementia praecox, published in our issue of July 21st, 1923 (p. 85). The appendix also contains a rather long report from the West Riding Mental Hospital, Wakefield, by Drs. Shaw Bolton and McGrath on asylum dysentery and allied infections. Another report, by the medical officers of the Lancashire County Mental Hospital, gives a good idea of both the routine laboratory work and of certain studies of special subjects. The report itself contains a section dealing generally with the researches now in progress into the causes of mental disorder and defect. A reference is made to the establishment at Birmingham of a joint board of research, consisting of representatives of the University and of the City Mental Hospital Committee, and of the appointment of Sir Frederick Mott to be director of research and lecturer on psychotherapy in the University. The Board declares its readiness to help the establishment, in connexion with each university in England and Wales, of similar research centres having affiliated with them every neighbouring institution in which mental cases are received. These centres would serve as a link between other branches of medicine and the psychological branch, and would conduct researches which cannot be undertaken in a comparatively small clinical laboratory. At the same time the Board expresses the view that no mental hospital should be without a laboratory, and that arrangements should be made whereby work will be systematically carried on in each laboratory either by a member of the resident medical staff or by a part-time visiting medical officer. It is hoped that the establishment of research centres will conduce to the interchange of information, and facilitate comparison of the results obtained so as to avoid needless duplication of effort. We hope to return to this report and its appendices on an early occasion.

DRUNKENNESS.

THE annual blue book of licensing statistics for England and Wales for 1922 has been issued (*Cmd.* 1935, price 6s.). Convictions for drunkenness are not, of course, a completely satisfactory measure of the prevalence of the vice, as probably only very marked cases find their way into the police courts; yet so far as they go those for 1922 are encouraging. The convictions in England and Wales for 1922 numbered 76,347, a decrease of 1,442, or 1.85 per cent. The reduction was not uniform throughout the country; it was more marked in the North of England than elsewhere, the number of convictions having fallen from 41,624 in 1921 to 37,446 in 1922, a reduction of 11.16 per cent. The story of Greater London, however, was different, for the total number of convictions reached 31,333, as against 27,788 in 1921, an increase of 3,545, or 12.6 per cent. In the rest of England and Wales the figures showed very little variation—less than 1 per cent. Taking the whole country, the total number of men convicted for drunkenness was 63,253, and of women 13,094; the figures for men show a decrease of nearly 3 per cent., those for women an increase of nearly 2 per cent. In both sexes there is, however, a great increase as compared with 1918. It is suggested that the decrease in the North of England may be due to the pressure of unemployment, whereas this factor in London did not operate to anything like the same extent. Since the Act of 1904 came into operation the number of licensed houses has greatly decreased, but there are still nearly 28 licensed premises per 10,000 persons (21.50 on-licences and 5.79 off-licences). The rate of decrease of both classes of licences has diminished in recent years; the average for the seventeen years 1905-21 was 1,025. The decrease in 1922 will probably prove to be about 585. On the other hand, the number of registered clubs is now 10,663, an increase of 4,292 since 1904, and the highest total since the system of registration has been in operation. The increase in the number of registered clubs since 1904 is to be compared with the decrease in on-licences of about 18,000. Among the convictions for drunkenness during 1922 the consumption of methylated spirits was assigned as the cause in 516 cases. The figures bearing on this have only been collected since 1920, but those for last year showed a considerable increase, chiefly in males. They do not, however, constitute any considerable proportion of the total number of convictions, the percentage in the country generally being 0.7, and in the metropolitan police district 0.3. A general examination of the figures for convictions for drunkenness during recent years appears to show that when trade is good and employment and money plentiful the convictions are more numerous than in bad times.

THE ROTUNDA HOSPITAL, DUBLIN.

THE Rotunda Hospital statistics for the year November, 1921—October, 1922, compiled by Drs. Gibbon Fitzgibbon, J. S. Quin, and G. W. Theobald,[1] show a decrease of 200 admissions and 51 confinements in the hospital, but the extern confinements increased by 296. The mortality for indoor cases was 8 deaths in 1,715 cases. In the 2,022 cases attended outside there were 10 deaths, 5 of which were due to post-partum haemorrhage; in all of these the child was born before the arrival of the attending students, and in 4 the patient was moribund when first seen. Five cases of ante-partum bleeding occurring in the outdoor district were "packed" before being sent into hospital, without any untoward results, showing that packing could be performed aseptically even under bad conditions. Regarding the statistics for abnormalities connected with pregnancy and labour, the cases of placenta praevia and eclampsia during the year were very few, only 19 of the former and 14 of the latter; as no maternal deaths occurred in any case suffering from either complication the results are extremely satisfactory. With regard to vaginal plugging for placenta praevia—in accordance with the Rotunda doctrine—Dr. Fitzgibbon and his colleagues state that much doubt has been cast on the efficiency of this method and that many cases of sepsis have been quoted; they assert, however, that this is due in the first place to inefficient plugging (cotton-wool pledgets should always be used, and not gauze or other material), and in the second place to the packing being

laryngo-fissure was, in his early cases, 25 per cent. Of Butlin's 9 cases between 1886 and 1890, 3 died of the operation, 3 died of recurrence, and though the other 3 survived, sufficient time had not elapsed to claim a success.

Thirty-three years later what was now the position? Larnygo-fissure was a well established operation and secured lasting cures—some 80 per cent.—which surpassed the results obtainable for cancer in any other internal region of the body. In 60 cases Sir StClair Thomson had only had 3 deaths—one from rupture of the oesophagus from post-anaesthetic vomiting, one from an idiosyncrasy for heroin, and one from morphine. Not one of these cases could be properly called an "operative death." Of his 57 cases, 25 were alive and free from recurrence after three to fourteen years, 8 after one to three years, 4 under one year, so that a total of 37 were alive to-day. Thirteen patients died of other disease without recurrence; of these, 8 had passed the three-year period. These, added to the above 25, would make 33 who, out of 57, had passed the three-year limit. Another chart showed the advanced age of many of the patients. Six were over 70. One operated on at 75 was to-day alive and well at the age of 81. A patient of 80 was operated on successfully. Only 8 patients out of 57 died from local recurrence, and 2 from recurrence in the glands.

Still better results would be obtained as the disease—always indicated by persistent hoarseness—was diagnosed earlier. If cancer was limited to a vocal cord and was operated on with every care, they had in laryngo-fissure an operation which could now be made safe in execution and certain in its results. The operative death rate should be *nil*, a serviceable voice could be promised, and there was every prospect of permanent freedom from recurrence. Therefore, in reply to Mr. Paterson's question as to whether there was any recent improvement in the results of operation for cancer, Sir StClair Thomson asserted that, so far as intrinsic cancer of the larynx was concerned, the reply was most unhesitatingly in the affirmative.

Dr. MAJOR GREENWOOD (London) said that he ventured to intervene in the discussion because one aspect of the general problem before the Section was directly relevant to the work of a Departmental Committee of which he was a member.

It was the duty of the medical statistician to scrutinize closely the rates of mortality from malignant disease chiefly in the hope that, having discovered differences which transcended the possibility of explanation on mere book-keeping lines—that was, as mere errors of record or definition—he might be able to suggest problems for the consideration of both laboratory and field workers. The statistician was not anxious to waste the time of his colleagues in the exploration of mare's nests, and therefore paid especial attention to the data gathered in countries where the level of professional education was high and the statistical system well developed. When both these conditions were fulfilled, it was found that very striking differences of fatal incidence of malignant disease existed. An important example was afforded by the confrontation of the rates of mortality from cancer in England and Wales, in Italy, and in Holland. Details were contained in his note, communicated to the Office International d'Hygiène Publique, "*Différences internationales dans les taux de la mortalité par cancer*" (*Bull. de l'off. intern. d'hyg. pub.*, xiv, 1922, p. 1507), and he wished merely to recall salient features, which were as follows. Although the death rate from cancer as a whole was no lower in Holland than in England and Wales, indeed slightly higher, the death rate from cancer of the breast and female generative organs, making due allowance for differences of age distribution, was almost twice as great in England and Wales as in Holland. For instance, in 1919, taking the Dutch rate as 100 in each case, the figures for England and Wales were: age group 40 to 50—breast 169, generative organs 170; 50 to 65—breast 159, generative organs 184; 65 to 80—breast 203, generative organs 181; over 80—breast 235, generative organs 156. This was a very remarkable contrast and to discover its explanation was obviously a matter well worth consideration. Plainly one ought to deal with possible explanations in order of their *a priori* probability. He thought that the explanation which first suggested itself and would surely be considered worthy of examination by members of the Section was that, for some reason unknown to them, cases of cancer of the breast or uterus came up for examination and surgical treatment at an earlier stage, on the average, in Holland than in this country. Now there was no insuperable difficulty in the way of a comparative study of the surgical experiences of English and Dutch hospitals; in fact, steps had already been taken to effect such a comparison. But the statistician was at once faced by the difficulty of standardizing the experiences of different surgeons. An examination of the literature—his colleague Dr. Janet Lane-Claypon was then making a detailed study of the literature—showed that the data published by various surgeons were far from being of equal value owing to the non-uniformity of the system of recording. Confining himself to the particular case of cancer of the breast and speaking, of course, subject to the correction of experts, it would seem that the method of recording adopted by Professor Halsted, with a slight modification, approximated closest to the requirements of a genuine comparison. One required to have stated with respect to each patient, in addition to her age and marital history—both important items—the finding of the surgeon on examination, which might, he thought, be classified thus: (1) a tumour, neither adherent to skin nor deep structures and no palpable change in the axillary region; (2) as (1), but with palpable glands in the axilla; (3) a tumour adherent either to skin *or* chest wall and with palpable axillary glands; (4) a tumour adherent to *both* skin and chest wall with palpable axillary glands; (5) either of the preceding states together with palpable glands in the supraclavicular area. That grouping did, he suggested, on the average, correspond to an increasing gravity of prognosis. If then it appeared that the proportions of patients at admission to general hospitals of the countries compared and classified in those groups were significantly different, they would have at least *prima facie* evidence that their surmise was correct, that the frequency of resort to early surgical treatment sensibly affected the death rate. Of course they would hope to learn a good deal more than that from properly standardized statistics; they would hope to learn what was the average numerical measure of the advantage derived from operation, but he desired to put the case for standardization at its lowest. Many surgeons believed that at present there was much preventable loss of life owing to the failure of the public to avail themselves of early treatment; nobody there was likely to dissent from that opinion. But when it was a question of *inducing* the public by some form of propaganda to avail themselves of what could be done, there was much difference of opinion as to what should be said; some thought that the danger of promising more than could be performed was a real danger. He had devoted too many years to the study of medical statistics to be under any illusions as to the infallibility of numerical statements; a piece of statistical reasoning which was entirely fool-proof had not yet been submitted to the world. But he was optimistic enough to believe that a statistical survey of the after-history of operated cases made by surgeons and statisticians working in loyal collaboration would not only yield valuable matter for the education of the public but would be a sensible, if modest, contribution to the study of etiology and prognosis. A first desideratum was an agreed clinical classification, one which secured at least as general agreement amongst surgical experts as did, for instance, the Turban-Gerhardt classification of the clinical stadia of pulmonary tuberculosis. He thought it would be generally agreed that recent studies of prognosis in phthisis were more exact than those of a generation ago and that that improvement was largely a consequence of standardization. Perhaps in some forms of malignant disease—for instance, of the breast and tongue—the difficulties of standardization were not greater than those met with in classifying phthisis. In others—for instance, malignant disease of the stomach—the difficulties were suerly much greater; but in all cases they could improve upon the present condition.

MEDICAL EDUCATION:

A REVIEW OF SOME MODERN METHODS.

BY

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I.

THE institution of the medical and surgical units in London was an attempt, originally begun by the Board of Education and continued by the University Grants Committee, to give a more scientific character to medical education. Osler and others had criticized our teaching of the final subjects on the ground that it was too empirical, and had not incorporated the later discoveries of physiology. They had argued that it could not be improved in this respect unless some system was introduced by which men well versed in the latest work of the physiological and pathological laboratories could be placed in important teaching positions, under such conditions as would enable them to employ on the clinical problems of human disease the same methods as were in use among the physiologists and pathologists. They admitted that the clinical teachers were in touch with the heads of the laboratories and regularly sought their assistance, but they argued, and rightly, that to get the best teaching this was not enough. Men who had for years been engaged in clinical work and had been unable to take part in recent discovery were, they said, incapable of using themselves the laboratory methods now required to make fresh discoveries in medicine, and in consequence could not impress upon students either the exact bearing or the importance of such work. English teachers were excellent observers, and had rendered great service in distinguishing and describing diseases up to then confounded; but the science of medicine now required much more than bedside observation. Not only was observation itself largely transferred to the microscope, but also the laboratories had imported the methods of experiment and verification into many regions where observation had hitherto been employed alone, and with this change had arisen a different way of looking at clinical problems and a greater hope for their solution. In England no provisions existed such as were found in other countries whereby men could if they wished devote themselves rather to the study of disease and the teaching of students than to earning their living by seeing patients, and until there was some sufficient payment for such men not only would English education suffer, but also English medicine would not rank with that of other countries. A professorial system was advocated much like that in force throughout Germany, whereby a clinical division of the hospital, with properly equipped laboratories attached to it, should be placed under the control of a chief chosen for scientific distinction, around whom should be grouped a staff of younger men to be engaged in research under his guidance, and to assist him in the education of students.

These ideas, which were promulgated more than ten years ago, were approved by medical teachers and by the Board of Education, and steps were taken to bring them to a practical issue. But the war intervened, and nothing could be done at the time. As soon, however, as peace returned the Board of Education again took up the question, and began in a few of the London schools the trial of what is known as the unit system, in which these ideas were embodied. In 1919 the University Grants Committee took over the university work of the Board of Education, and continued its policy. Medical and surgical units have been established in five London schools, and an obstetrical and gynaecological unit in each.

Committee, granted money for the maintenance of the units directly to the school. But the University Grants Committee could only deal with the schools as schools of the University, and made its position and its policy clear by requiring that in all such cases as might originate under its sanction the director of the unit should be a professor of the University, and also by requesting the University to inspect the working of the units. The Grants Committee as a committee of the Treasury, considered itself hardly fitted by its position to act as a committee of experts in education, and was also extremely desirous to maintain the autonomy of the universities and not to usurp functions properly belonging to them.

The experiment made in London roused great interest in the other universities of England and in those of Scotland. In none of those up to that date had the emoluments of the chair of medicine been sufficient to provide such a staff and equipment as was now established in London. Everywhere much discussion took place, and in many schools fresh schemes were adopted for the improvement of their teaching. Some made chairs with arrangements similar to those of the London units; others adopted different plans.

The chief difficulty lay in the position of the professor. He had not till then been expected to be more than a good teacher of the usual type. It was not universally accepted that a man with more laboratory knowledge was required, nor was it desired or even possible to displace the present occupants of the chairs. Nor again did the universities, which were very poor, feel able to spend the three or four thousand pounds which are required to maintain a complete unit of the London type. It must be added that the supply of men was not there even if there had been a demand for them. Since no such posts as these had existed previously, men had not trained themselves to occupy them. Those who had been interested in experimental science had gone into physiology or pathology, and had indeed cultivated a positive contempt for clinical medicine because it was contaminated by the pecuniary interest of private practice. A few men in the schools, whose names will occur to everyone, had indeed combined experimental and clinical work, and in neurology a large amount of both had been carried out, though it had chiefly centred round a great special hospital which was not one of the undergraduate schools. But it cannot be said that clinical medicine had been as a whole marked by experimental research, and even pathology had not approached the position which English physiology had long held.

This lack of men will soon be supplied. In the London units and elsewhere there are now many young men at work, who are looking forward to a life of study in preference to a life of gain, and will make excellent professors and assistants of the kind intended. As soon as the life was made possible there was no lack of candidates. Such men are even now in demand to a certain extent, and will be more and more required as time goes on. The change has, moreover, already broken in upon the bad system of closing appointments to all but those locally trained, which has been a great hindrance to improvement. In more than one school an outsider has been appointed to an important position, and undoubtedly in future the need will more and more be felt to obtain the best men available from whatever source. There is no doubt that what may without exaggeration be described as a new spirit in clinical teaching will be permanent, and that public reputation and the demands of students themselves will ensure its retention and its growth.

II.

A certain amount of dispute has also centred round the conditions in which such a chair should be held. In London a professor of medicine is required to resign all private practice, and that stipulation has been adopted in some other universities. It saves a certain amount of opposition since other members of the faculty feel a natural hesitation

Preparation from	Activity Figure. Powders.	Tablets.
Group 1:		
Firm A	100, 93, 100	60, 82, 68, 84, 63, 68, 76, 69, 78, 66, 74, 59
Firm C	86	63, 74, 58
Firm G	—	—
Firm I	—	67
		60
Group 2:		
Firm A	67	—
Firm B	66	—
Firm C	66	—
Group 3:		
Firm F	56, 50	—
Firm E	38	—
Firm H	—	31

With the exception of the preparations from Firm A, who have kindly supplied me with numerous samples, these preparations were obtained at random to gauge the average value of the products on the market. The results obtained have been divided into three groups on the basis that all tablet preparations should have an activity index of over 50, and powders over 70. This is based on the following:

	Activity.
Whole glands	106
Desiccated powder from same	93
Tablet from same	76

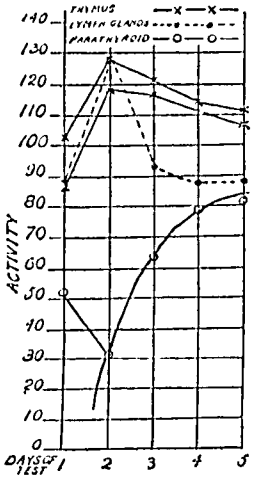
With the preparations in Group 1 good results were obtained clinically in suitable cases, whereas with one of the Group 3 preparations no therapeutic effects were obtained in similar cases. In another instance samples of dried tissue, submitted as parathyroid glands were tested by the method described. Of these samples, specimens A and B were histologically unlike parathyroid gland; specimen C was known to be parathyroid gland by dissection and histological appearance. The activity figure was as follows:

	Activity.
Specimen A	23, 29
Specimen B	14
Specimen C	71

4. Differentiation of parathyroid preparations from other gland preparations. It must be remembered that substances may be present in tissues and tissue extracts which prevent the precipitation of guanidine by picric acid in varying degree. Of these arginine is known to be one and nucleic acid is very probably another. There is also the possibility that other gland substances may have some degree of activity upon guanidine salts.

The following gland substances have been tested under the standard conditions; in all cases desiccated powders were used.

Substance.	Activity.
Parathyroid	100, 93, 100, 86, 67, 66, 66
Thymus...	110, 114, 106, 116
Lymphatic glands	88
Thyroid...	26, 11, 16
Suprarenal, total	37, 32
Pituitary, anterior	33, 30
,, posterior	39, 42
Orchitic	45
Ovarian, total	18
,, residue	28
Corpus luteum	43



The difficulty therefore lies in the means of differentiating between parathyroid, thymus, and lymph glands. This can be done by estimating the activity every day over the period of the test, instead of only at the end. If the figures so obtained are plotted in the form of a graph, quite dissimilar pictures are obtained. (See figure.) The appearance of the thymus and lymphatic gland curves suggests that some substance is dissolved which prevents guanidine precipitation and which gradually disappears under the conditions of the experiment. The parathyroid curve, on the other hand, suggests the possibility of some ferment-like action upon the guanidine.

These are some practical points in connexion with the test, and it is hoped that this method may be found of use in controlling the therapeutic value of

THE TREATMENT OF HYPOTHYROIDISM BY THYROID TRANSPLANTATION.*

BY

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BERNE.

It is to-day generally admitted by physicians and surgeons that transplantation of thyroid gland tissue, from man to man, or from animal to man, is not successful, and therefore most surgeons do not do it.

It is now forty-five years since my father, the late Professor Theodor Kocher of Berne, introduced this method and made some experiments with it. Since then there have been some successes and many failures. The failures are due, in my opinion, to insufficient technique, especially pre-operative and post-operative technique.

Congenital Absence of Thyroid Gland.

We have, up to date, done 214 thyroid transplantations in man, and it is possible therefore to state the practical result, which is more important than any theory. Amongst the 214 there were about 10 cases of congenital total absence of thyroid gland; in these cases the results are, as a rule, not satisfactory, but 3 out of the 10 cases have benefited so much that they have been able to follow the school normally. One boy has even been able to take a university degree.

Congenital Thyroid Insufficiency.

All the other 204 were cases of hypothyroidism, more or less severe. In such cases the thyroid gland is not absent, but there is greater or less degree of congenital insufficiency. In about half of the cases the condition is not diagnosed early in childhood, because distinct clinical symptoms occur only later in life, when the gland should work more, or when it has been hurt or overdone. Thus, distinct clinical symptoms appear at the age of development, after multiple pregnancies, in the menopause, or at the time when a goitre develops, or when chronic bacterial or toxic thyroiditis sets in, or, more especially, after severe general infections such as typhoid, influenza, dysentery, furunculosis, syphilis, tuberculosis, etc., and also after gynaecological operations, when the ovaries have been partially or totally removed.

Clinical symptoms and the methods of diagnosis of these cases were first described by Theodor Kocher in 1909, under the name of "Slight thyroid insufficiency." For diagnosis the method of choice is Kocher's functional thyroid test; it depends on the change in the white cells and coagulability of blood and the influence of thyroid feeding on it; basal metabolism is very little changed in these cases. *Hypothyroidism* is not yet sufficiently known; very often severe rheumatism, neuralgia, stomach, intestinal, and heart trouble of unknown origin are due to hypothyroidism and cured by transplantation of thyroid tissue. This is the method of choice in these cases, as thyroid feeding often causes stomach trouble and is never carried on long enough.

Of our 204 cases of hypothyroidism, 26 per cent. have been entirely cured by transplantation and have not taken any thyroid since; 21 per cent. have been very much better since and have to take only now and then a small quantity of thyroid, whilst before the transplantation they had to take continually much more thyroid and never felt so well; 39 per cent. are much better since the transplantation; they have to take thyroid internally, but only about one-half or one-third of the quantity they took before the transplantation. There were only 14 per cent. failures—that is, cases which did not benefit from the transplantation. There is no doubt that this result, in such a number of cases, proves that the transplant is active, at least for several years. In most of the cases the patient's own thyroid gland resumes its normal function after some years and he is cured; if not another transplantation can be done. In twenty of our cases transplantation has been done twice and they got well in eight cases three, and in one four transplantations have been made.

In addition to these clinical results, I can produce clinical evidence that the transplanted thyroid tissue takes up the

*A paper read at the meeting of the International Society of Surgeons, London, July, 1923.

required of the student can usefully be expected of him within the years of his student course. Claims have of late years been put forward that in the final examination questions should be put upon various special branches of practice. Specialists have upheld the importance of their particular specialties, and have stated the dangers that ignorance of them involves. But the authorities have shown a tendency to answer that the student cannot be expected to know the prophets as well as the law, and that under present conditions some subjects must inevitably be left for special study after qualification.

This leads naturally to the question what effect the increasing subdivision of medicine and surgery has upon education. In some ways it is beneficial. No doubt a man who treats one organ or one class of diseases sees more examples of it and can study it more fully than one in more general practice. This is of advantage both for pathology and for treatment, and both patients and students reap the benefit. And since each organ or disease can afford examples of the wider laws of pathology, subdivision does not necessarily cramp the view of either teacher or student. Indeed, it may be argued that it improves it, for the student seeing, for instance, the effect of inflammation in various conditions which are clearly separated for him, gains perhaps a more distinct idea of the process than from a confused medley of cases. He can compare its effects in syphilis and tubercle, or see it exemplified in the skin and in nervous centres.

Yet there is a weakness in the present system to be set against its gains. In former times the hospital was more or less representative of ordinary practice. In the out-patient room and the wards taken together most of the problems were exemplified which would present themselves in later life, and, as in later life, they were presented unexpectedly. The patient might be suffering from almost any kind of disease, and the student had to keep his clinical knowledge ready and in constant use. He was expected to give a careful account of the patient's symptoms, and though in most cases he was not expected to form a diagnosis, yet he constantly endeavoured to do so, and in this way was always practising himself in the same processes of thought as he would pursue in later life.

It is different now. He knows that when he is in the V.D. clinic he will see syphilis and gonorrhoea, and in the tuberculosis department cases of that disease, whereas he will hardly see a case of either in the rest of the hospital. He is not, therefore, as he used to be, continually on the look-out for these diseases in the general wards or in the out-patient room, and he is so much the less practised in diagnosis. In fact, to a considerable extent he postpones the practice of diagnosis to the time at which he enters upon an independent position, and finds that he is obliged to sort his patients for himself.

IV.

In this matter there are two directly opposite opinions current among those who theorize upon education. British teaching placed diagnosis very high in the scale of medical duties. It was considered of the first necessity to find out what was the matter with the patient, and the student's mind was directed to this end throughout his examination of the case. It must not be thought that he was allowed to jump to conclusions. The very contrary was the fact. It was constantly impressed upon him that his examination must be as complete as possible, and his constant fear was lest his master should discover omissions in his notes and censure him for negligence, or, still worse, for forming an opinion without having taken the pains to guard it by sufficient observation. He was constantly warned that in practice more mistakes were due to want of observation than to want of skill, and the criticism of his teacher was invariably directed to the inaccuracy of his notes rather than to the incorrectness of his diagnosis. In so far as precept and example could, he was made to understand that the first requisite of a physician was accuracy in observation.

But on the other hand [illegible] many cases judgement should be held in suspense, a diagnosis was the object to which observation was directed. His examinations and his notes were not made for the mere purpose of making them, but with this end in view. Nor was it thought necessary, it must be allowed, to make a study of basic metabolism in every case of bronchitis, or that every observation that can possibly be made upon any case should be made upon all.

There is, however, now current, especially in America, what may be called the encyclopaedic theory. Not the formation of judgement but its suspense is the function held most high. British teachers are criticized for training with a view to diagnosis instead of insisting on observation alone. Diagnosis itself is made a secondary thing, an object possibly of distant hope, like a future life, but not a thing to guide our action in the present. The first thing necessary is to make such a complete and detailed study of the patient's state that no cell remains unturned. That the world shall not contain the books (of notes) that shall be written is perhaps of little moment in a country that measures 1,500 by 3,000 miles; that before an exhaustive study such as this is finished both teacher and student may have sunk into the grave is not an obstacle in a population of a hundred millions, nor where it rains dollars need the cost be prohibitive. But it seems doubtful if in some cases the patient's untimely death may not render nugatory the incomplete though magnificent attempt.

Seriously, however, it is to be hoped that the British point of view may be maintained. On nothing has so much nonsense been talked as on the subject of education, and on nothing are sensible men more prone to push their views to an excess which is ridiculous. Just at present the immense increase of our powers of observation has naturally led men to exaggerate its scope. We have indeed seen instances in which new light has been shed by phenomena which are usually insignificant, but that is not to say that such occurrences are common. It still remains true that in the great majority of cases we know the limits within which laborious observation may be usefully employed. And while it is in thorough accord with our traditions to ply observation to its fullest limit, yet it is our habit to try to make up our minds.

It is often said that the British, or perhaps the English, are of a race that has no sympathy with principle and is interested in action alone; that they are efficient in difficulties but can give no reason why; that the Constitution works, but as a product of human reason is absurd; that we have tumbled into an empire which will perhaps continue by good luck but certainly not by good management. That is a complete misreading of the English character. The real feeling which shapes English thought—and thought is always and in all men moulded by feeling—is a sense of the immensity and the imminence of the Unknown. This is present to us most vividly throughout our lives. We desire a logical basis for action as much as other races, but we have a haunting feeling that we have never observed the whole. We take a provisional conclusion and act upon it—perhaps we are readier in making such quick judgements than some are—but we know that it is unsatisfactory and uncertain, and we doubt whether all conclusions are not much the same. We are apt to think logical rules of action unsafe, because they are deduced from principles whose basis, from the fallacy of insufficient instances, is probably unsound. Few general laws command respect with us, and truth seems very far away.

With this genius and cast of mind our critics may be sure that an undue reliance on precocious diagnosis is not likely. In medicine as in other matters it is our habit to treat conclusions as provisional. We do, indeed, desire some ground for action when action must be taken, for it is a maxim with us that the King's Government must be carried on. But we use it as a hypothesis only in default of a better, and we seek and welcome fresh facts with equal pleasure whether they prove it or disprove. Where no action is immediately necessary we enjoy the luxury of contemplation as much as others, but as in most cases something must be done, we make the best effort of which

responsible. The same applies to tonsillar infection, which, though not so obvious as pyorrhoea and therefore less frequently recognized, is one of the maladies to which most men are heir, and therefore again this cannot be held to be the only factor in the etiology of rheumatoid arthritis.

In almost all cases of the group under discussion there is a history of dyspepsia, which takes the form of anorexia, flatulence, and constipation, the last being a constant feature; but it is unusual to discover any local focus in connexion with the intestinal tract, such as an obviously inflamed gall bladder or appendix. The exact etiology of rheumatoid arthritis, therefore, must remain obscure until such time as the nature of the "soil" has been more fully investigated, when recognition of the type or types of "seed" concerned in the production of the disease should present less difficulty.

CLINICAL FEATURES.

The predominant feature of rheumatoid arthritis and the one for which the patient seeks advice is the swelling and pain of the joints. The first to be affected are usually the small distal joints, especially of the upper limb. It is characteristic of the early cases to show swelling of the second or second and third metacarpo-phalangeal joints, with pain and slight swelling of the wrist, which precedes ulnar deviation; one or more of the mid-phalangeal joints are often involved and show the characteristic spindle shape. In the later stages the larger joints may be affected, the disease sometimes spreading from joint to joint throughout the body. A symmetrical distribution characterizes the progress of the disease.

The morbid process chiefly affects the synovial membrane and ligamentous structures round the joint, and although this is swollen it is rare that fluid can be extracted in any quantity. That the pathological involvement is not confined to these parts is shown, however, by the changes in bone structure as disclosed by *x*-ray photographs. These changes consist chiefly of rarefaction in the neighbourhood of joint surfaces. It is, indeed, remarkable in late cases with most marked deformities how slight are the osseous changes. As the disease advances the ligaments become much relaxed, with resulting ulnar deviation of fingers and wrist and valgus deformities of the toes and complete flat-foot. In the same way the larger joints, though showing less deformity in the absence of muscular contractures, become markedly unstable, and lateral mobility of the knees is very noticeable.

That the joints are not the only manifestation of the disease is apparent. There would seem to be a general metabolic upset involving the endocrine glands. Clinically there are many signs suggestive of hyperthyroidism. Excessive sweating, fibrillary twitchings, a tendency to disordered action of the heart, and overbrisk tendon reflexes are met with, and there is often that nervous instability and apprehensiveness which is associated with disordered endocrine function. The vasomotor system is markedly upset, with flushing and even dermographia; or a condition of the extremities approaching Raynaud's disease may be found. The skin shows trophic changes, comprising loss of subcutaneous fat and a glazed appearance with loss of hair. The muscular wasting is early and pronounced and more than can be accounted for by the disuse of a limb consequent on the joint condition. It is this wasting, especially of the intrinsic muscles and subcutaneous fat of the hands, that emphasizes the characteristic spindle appearance of the joints.

If careful examination is made in the region of the joint, enlargement of the lymphatic glands can be detected. Inasmuch as the hands are earliest and most severely affected the glands most definitely involved are the epitrochlear, but axillary, femoral, and inguinal are also found enlarged. In 20 cases showing a clinical joint picture as described above all showed enlargement of glands.

The blood picture presents characteristic changes in the majority of cases. Secondary anaemia is common, but by no means universally severe, and a slight or moderate leucocytosis is often met with. The importance of the total white count, which may vary in the course of the disease, is overshadowed by that of the differential, which shows a definite increase in the small mononuclear cells relative to the polymorphonuclears. This feature, however, is only important in conjunction with the other clinical signs, as it is met with in many other forms of arthritis. In 19 cases examined out of the 20 cases mentioned above, all showed a relative increase in small mononuclears. In certain cases the spleen is found to be palpable, but this is never excessive and by no means constant.

Examination of the gastric contents shows absence or diminution of free hydrochloric acid in the majority of cases, and this, in our opinion, is frequently the crucial factor in the whole clinical picture. Thus, in the 20 cases examined, 14 had complete achlorhydria, one a trace of free hydrochloric acid only, 2 marked diminution, while 3 were normal. The test used was Ewald's test meal.

COURSE OF THE DISEASE.

The onset is usually between the ages of 20 and 30, though cases commencing in the adjacent decades are by no means uncommon. It should be noted that this excludes cases of Still's disease, which is presumably rheumatoid arthritis in children. The course is prolonged, extending over years.

Initially there is often a period of pyrexia, the temperature swinging up to 101° or 102°, but not usually higher. This may recur during the succeeding years for a few weeks at a time for no very obvious reason after long periods of remission. The active inflammatory condition may spread from joint to joint, dying out of some and affecting others, and eventually there is a tendency for the condition to die out altogether, often leaving behind it severely deformed joints and (if care is not taken in the management of the case) serious contractures and ankyloses in bad positions.

THEORETICAL CONCLUSIONS.

It is admitted that not nearly enough observations have been carried out to warrant definite conclusions on this clinical group; but this only purports to be a preliminary communication, and it is hoped to carry out further investigations to confirm or modify the views expressed above. Considerable work has already been done on the subject of achlorhydria by Hurst and his collaborators[2] at Guy's Hospital, especially in connexion with Addison's anaemia and subacute combined degeneration of the spinal cord. First they have shown that achlorhydria may be apparently congenital, for in 4 per cent. of perfectly healthy young men without digestive symptoms this condition was found. Hurst further concludes that the achlorhydria precedes not only the anaemic conditions in which it is so frequently discovered, but also those cases of chronic gastritis which formerly were supposed to be the cause of the achylia. The gastritis is due to the failure of the normal softening and diluting action of the juice, and as the food is not sufficiently digested in the stomach it will irritate the intestine in the same way and cause intestinal dyspepsia. At the same time proteins will reach the small and large intestines unchanged, and with them numerous bacteria which would normally be destroyed by the acid disinfecting properties of the gastric juice. The decomposition of the proteins by these bacteria produces further irritative material which modifies the absorption of toxins. Hurst[3] mentions the presence of achylia gastrica in rheumatoid arthritis; Woodwark and Mackenzie Wallis[4] have described diminution or absence of free HCl in 9 out of 10 cases; and Faber[5] has described achylia gastrica in 15 out of 65 patients suffering from chronic polyarthritis. In our view, however, it is probable that this polyarthritis included joint conditions other than that group which we are attempting to differentiate, and that if the observations were confined to those cases showing joints of the typical kind and distribution with glandular enlargement and lymphocytosis, then a much higher percentage of achlorhydria would be found.

In discussing the pathogenesis of subacute combined degeneration and Addison's anaemia, Hurst[6] suggests that the passage of the *Streptococcus longus* from infected teeth and gums through the stomach into the large intestine, owing to the absence of free hydrochloric acid, produces various toxins either from their own activity or from the breaking down of undigested proteins. He suggests that the incidence of anaemia or subacute combined degeneration

810,000; total 13,500,000. The approximate number of insured persons on the lists of insurance practitioners was in England 11,900,000, and in Wales 733,600; total 12,633,600. In addition, there were 159,000 insured persons on the lists of approved institutions (England 130,000, Wales 29,000), and 41,800 insured persons (England 30,000, Wales 11,800) made their own arrangements for medical treatment.

"The number of insurance practitioners in 1922 was in England 11,730, and in Wales 858, a total of 12,588. Fifty per cent. of the doctors have under 900 persons on their panel, and 85 per cent. under 2,000. The average is 1,000."

The report contains a reference to disciplinary cases, and Sir George Newman takes the opportunity of pointing out that the complaints occurred in the course of the treatment of at least six million insured persons and of forty-four million attendances.

Sickness and Invalidity.

In 1922, the total loss of work, as represented by payments under the Acts, amounted to 19½ million weeks, or 375,000 years. In addition, there was all the sickness which did not involve loss of work, and all the labour and expense in the care of the sick. In 1,000 cases of incapacity, the chief causes were bronchitis, catarrh, colds, etc. 213, digestive diseases 131, lumbago, rheumatism, etc. 88, influenza 85, injuries and accidents 79, abscesses, boils, and other septic conditions 69, debility, neuralgia, and headache 55, nervous and special sense diseases 49, skin diseases 43, anaemia 32, genito-urinary diseases 25, pneumonia and other respiratory diseases 15, organic heart disease 14, tuberculosis 14, and malignant disease 2; leaving a balance of about 81 due to other causes.

POOR LAW MEDICAL SERVICE.

Certain proposals to transfer infants and young children from an institution to more pleasant surroundings in the country have been approved. The system of appointing medical consultants at Poor Law infirmaries is being extended, and in London only three or four infirmaries are now without them. These institutions are approximating more and more to the standard of general hospitals, and they are being used more and more for medical education.

GENERAL EPIDEMIOLOGY.

The statistics of notifiable infectious diseases presented no unusual features, except that a considerable decline occurred in the group having a peculiar affinity with the nervous system—encephalitis lethargica and the rest.

Small-pox.

The story of small-pox in England in 1922 and subsequently has been told in the medical press throughout the year in connexion with prevalence of the disease in different districts, and Sir William Hamer has given an account of the disease in London. It is convenient now to have it set forth for the whole of England and Wales, but it has been dealt with so fully in this JOURNAL that it need not be again gone over. As usual the facts clearly and convincingly teach to all who are capable of learning and are willing to learn the preventability and controlability of the infection by due resort to the prophylactic whose virtue Jenner published to the world at the end of the eighteenth century. Vaccination has stood the test of more than 120 years' world-wide experience, and the truth is retaught by every outbreak. Sir George Newman, in his summing of "the present situation," restates briefly and forcibly essential truths to which there is no reply.

Measles.

Measles, it is pointed out, remains one of our formidable enemies, but the average number of annual deaths during the past three years (5,042) was considerably less than the average (7,318) for the preceding four years, in which the disease was compulsorily notifiable throughout the whole country. The problems relating to measles are discussed in considerable detail in the report, with reference in particular to the practicability of postponement of epidemics, and the segregation, discovery, and control of contacts. When the disease has already spread, attention should be devoted to prevention of mortality and of complications or sequelae. The report gives a full account of the [illegible] tutional and convalescent home treatment, after-care, outbreaks in institutions, Government grants for measles work in connexion with child welfare, and compulsory notification where locally considered desirable. Measles unfortunately resembles pre-vaccination small-pox in the fact that no protective comparable to vaccination is yet available.

Scarlet Fever.

Scarlet fever is being carefully studied by the Ministry in respect of the whole subject of its control, looking to mildness of type in modern times, to the high cost of lengthened institutional segregation and of disinfection, and to the practicability of safe home treatment as at present being carried out in the Tottenham Urban District. The result of the investigation will be awaited with interest.

Diphtheria.

The inquiries referred to in last year's report are being continued. The observations then recorded are confirmed to the effect that free swabbing should be resorted to in diagnosing a first outbreak of sore throat in an institution or school, but that promiscuous swabbing subsequent to prevalence becoming certain is of little use, and notifications depending solely on extensive swabbings have little justification. An official memorandum issued in July, 1922, dealt with the supply and administration of diphtheria antitoxin, the use of the Schick test, and methods of active immunization. The International Serological Conference has made the useful proposal that a standard antitoxin should be maintained at the State Serum Institute at Copenhagen, to which manufacturers can send specimens for comparison.

Under the guidance of Dr. Copeman much use has been made of the Schick test as a means of estimating individual susceptibility to diphtheria as in the West Norwood schools of the Lambeth Guardians, and in the case of nurses and others in close attendance on diphtheria. The results seem to indicate lower percentages of susceptibility among classes where some degree of immunity may have been acquired through unrecognized exposure to infection. As regards toxin-antitoxin immunization, Dr. Copeman has concluded that to avoid risk of severe reaction, especially in adults and individuals liable to "serum rash," an exceptionally small dose should be given at first, to be followed by an ordinary dose if there is no unusual reaction within twenty-four hours of the small dose.

Influenza.

The recrudescence of influenza in the latter part of 1921 reached a maximum by the end of January, 1922, and then declined. It was accompanied by increased notification of pneumonia. In Sheffield there was a genuine epidemic of both diseases, and as that city has excellent accommodation for pneumonia, every effort was made, with the able assistance of the local Division of the British Medical Association, to secure complete notification, so that when the Ministry's representative visited in July not a single death from pneumonia had occurred without previous notification. Leeds and Bradford were also considerably affected. The total number of deaths from influenza in England and Wales in 1922 was 21,493.

Epidemic Nervous Diseases.

Poliomyelitis, polioencephalitis, cerebro-spinal fever, and encephalitis lethargica are considered together as in previous years. From each of the four the deaths were fewer than in 1921, notably so in the case of encephalitis lethargica, for which the figure is 454 against 1,470, whilst from all four the total deaths have declined from 2,420 to 1,184.

Of encephalitis lethargica, however, it is remarked that "in addition to a high fatality, this disease leaves many patients grievously incapacitated by various neuropathic and psychopathic conditions," and that its late effects will need close attention in the future. Special inquiries are being continued, and an account is given of an investigation by Dr. Parsons and Dr. Fyfe, of the Warwickshire Health Department, of a grouping of cases in a small school [illegible]

I gave her two injections (1.5 c.cm. and 2 c.cm.) at an interval of seven days. The rash disappeared and she has been quite free since.

CASE II.

A married woman, aged 21, had suffered from regular attacks of urticaria all over the body, but more pronounced where the clothing was tight (waist, etc.), for nine months. When I first saw her she had a typical urticarial rash on the legs, arms, chest, and round the waist, and at that time any scratching or irritation brought out fresh wheals. She was in a highly excited and nervous condition. I gave her 0.5 c.cm. collosol manganese by intramuscular injection. On her return at the end of a week she was much better and reported that the rash had only appeared on two occasions during the interval. I gave her another injection of 0.5 c.cm. At the end of the second week she was decidedly better. I gave her four more injections (1 c.cm., 1.5 c.cm., 1.5 c.cm., and 2 c.cm.) at weekly intervals, and at the end of six weeks the symptoms had entirely disappeared. Twelve months after the completion of the treatment she reported herself as being quite well.

CASE III.

A married woman, aged 29. This case was more intractable; after six injections as above described the symptoms still continued, but with less violence. I gave her four more injections (1.5 c.cm.) at intervals of two weeks, and at the end of eight weeks there was no evidence of the rash. After an interval of fourteen months she writes to say that there has been no recurrence.

CASE IV.

A man, aged 18, had been troubled with "nettle rash" for several months. I gave him four weekly injections (1 c.cm., 1 c.cm., 1.5 c.cm., 1.5 c.cm.) by intramuscular injection. At the end of the fourth week he was quite free and the treatment was discontinued.

Since treating the above cases several others have received the same treatment with marked success, but sufficient time has not yet elapsed to include them in statistics.

VACCINATION PROPAGANDA AND THE MEDICAL PROFESSION.

BY

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THERE have been several suggestions recently that the "conscience clause" of the 1898 Vaccination Act should be repealed and compulsory vaccination enforced more uncompromisingly. A suggestion has also been made by a correspondent of the BRITISH MEDICAL JOURNAL (July 21st, p. 130) that an active propaganda in favour of vaccination should be launched, with the special object of depicting the horrors of small-pox graphically on mural posters.

It is doubtful if the provaccinist "die-hards" who favour these suggestions quite appreciate what a change has taken place as regards the "vaccination question" during recent years. Whether we like it or not we have got to face the fact that the logic of events has told heavily against the provaccinist position (in some of its aspects at least) and in favour of the antivaccinists.

Infantile vaccination reached its maximum in this country in 1881, when the vaccination figure, expressed as a percentage of the births, was 86.6. Since then it has fallen continuously until in 1921 it was only 38.3. Ever since this decline set in we, as a profession, have taken almost every opportunity, in season and out of season, to warn the public of what we sincerely believed would be the inevitable consequences of this neglect of vaccination—namely, an increase, and a serious increase, in small-pox mortality. When the "conscience clause" was proposed, as a result of the Royal Commission's report, we opposed it for all we were worth. We said it would result in a further neglect of vaccination, and we declined to accept any responsibility for the consequences. At that time we may be said to have "shot our bolt," and the bolt has failed. The "conscience clause" was passed, a further and serious decrease in vaccination followed, but instead of any increase in small-pox mortality it has continued to fall. It is true there was a slight increase for a couple of years, in 1902-3, but since then it has not merely fallen—it has collapsed. For the past seventeen years in this country small-pox mortality has been a negligible quantity. It has caused fewer deaths than almost any other zymotic disease. Even chicken-pox, most despised of zymotics, has caused 1,277 deaths in the sixteen years 1906-20, against only 223 from small-pox, and if we deduct small-pox deaths in vaccinated subjects the contrast would be still more striking. Why, even the registered deaths from vaccinia amounted to 165, and it has recently been admitted, in answer to a question in Parliament, that by no means all the deaths due to sepsis following vaccination are debited by the Registrar-General to vaccinia.

The medical profession has kept saying: "Only wait! Have a little patience and Nemesis will surely come!" But the years pass and Nemesis does not come. Ten years after the city of Leicester, in spite of all medical warnings, had openly set the Vaccination Acts at defiance, an epidemic of small-pox did occur (in 1893), but it was a damp squib, not at all what had been prophesied. Ten years later, in 1903, came another epidemic; again it was a damp squib—certainly not Nemesis. For the past eighteen years there has not been a single death from small-pox in Leicester. And now comes Gloucester, a city almost as notorious as a centre of antivaccination as Leicester. No one will deny that every effort was exerted to make the most of the recent Gloucester epidemic. Everything that press publicity could do to magnify the seriousness of the outbreak and bring home to the public the heinousness of neglecting vaccination was done. Yet instead of a dreadful object lesson the cases have been so extremely, almost absurdly, mild that great difficulty was experienced in persuading the people that this really was small-pox, of the horrors of which they had heard so much. One little baby, six weeks old, was the only victim who has succumbed to it. Surely it is a case of the mountain in labour!

The most regrettable thing about the epidemic, from the medical point of view, is that there ought never to have been an epidemic at all, but for the unfortunate failure of members of our own profession to recognize the true nature of the disease. Once it was recognized and modern measures of prevention, particularly isolation in hospital, put in operation, the outbreak quickly subsided. Yet this is the time when the die-hards would agitate for provaccinist legislation and embark on propaganda. Surely we must show some sense of proportion if we would retain the respect and confidence of the public, which looks to us for advice and guidance.

I recognize and admit, in spite of the fact that small-pox mortality has been declining in this country for the past fifty years, that at some future time it *may* return. So *may* that of any other zymotic disease that has disappeared or is disappearing since the advent of the sanitary era. But happily in the case of small-pox we possess a "talisman" which we do not possess in the case of any other disease. I refer, of course, to recent vaccination, to be performed if the need for it should ever arise, and which for me robs small-pox of much of the terror which it seems to inspire in so many other medical men.

To prevent misapprehension let me say that it is not vaccination which is at fault to-day, but rather, as I suggest, our method of using and applying it. The power of vaccination to confer temporary immunity against small-pox upon the individual is still as certain to-day as any fact in the whole field of medicine. But I venture also to say that the case for compulsory infant vaccination as a measure for protecting the community has never been weaker. I suggest that it rests on a very shaky foundation, and that it is only a question of time before this country will follow the example of the State of New York and see the wisdom of entirely abolishing compulsory vaccination. Those who believe in infant vaccination will still be able to have their children vaccinated, and those who object to vaccination will please themselves. When that time comes this unhappy controversy, which has aroused so many bad passions, wasted so much printer's ink, taken up so much valuable time of the Minister of Health in answering questions in Parliament, and done more than anything else to bring our profession into disrepute, will no doubt die a natural death from inanition. Prejudice against and opposition to vaccination will follow suit from lack of food to feed on, and if and when virulent small-pox returns and the need for recent vaccination arises, it will be far easier, I submit, to persuade people to be vaccinated.

Small-pox.

Small-pox as an infection introduced from abroad is reported on thus:

"A noteworthy feature of the small-pox statistics received from abroad is the evidence which they provide of the respective incidence of the mild type and of the severe type of the disease. The statistics available indicate that in 1922 the mild non-fatal type was the rule in Finland, Germany, Switzerland, Egypt, Cuba, Jamaica, South Africa and parts of Canada and the United States, while the severe type prevailed in most tropical countries and in Russia, Poland, Japan and parts of Central and South America. In a few countries (notably Ontario) the mild type which prevailed during the early months of the year was followed, after an interval, by an epidemic of the severe type, and in one or two (as in Portugal and England) where both types appeared during the year, it was found that the two seemed to run concurrently, some localities experiencing only the mild type, others only the severe type."

Dysentery.

Among the 729 cases in England in 1922 were included a large proportion of instances of relapsing amoebic dysentery among ex-service men. In Wales there was an outbreak of 1,100 cases of bacillary dysentery, with low mortality. It was conveyed at first by contaminated water, and the infection may have been derived from demobilized soldiers.

Trench Fever.

Only 6 cases of trench fever were reported—all ex-service men.

Yellow Fever.

The position as to yellow fever seems favourable, though it persists in various localities in South and Central America, including Mexico.

Typhus.

The prevalence of typhus fever in Russia seems to have doubled in the first five months of 1922. It is, however, a louse-carried disease against which organized sanitary administration is effective if the simultaneous arrival of large numbers of infected persons can be avoided. From this point of view the preventive work carried on in the border States of Russia with the aid of the League of Nations is of great importance. The need for the control of destitute immigrants from infected areas is exemplified in the emigration of Greeks from Anatolia and Eastern Thrace.

MEDICAL INTELLIGENCE.

The Intelligence Division of the Ministry is organized in two sections, lay and medical. Information is collected from home and foreign sources and distributed. Recent information published in books and journals is noted. Prompt and regular news of the incidence of dangerous epidemic diseases at ports and elsewhere abroad is collected, and a weekly bulletin issued to health officers and others specially concerned. In 1922 information was received from 170 consuls or other official representatives abroad, and 5,248 telegrams or dispatches were received, besides many printed statistical returns. Office committees were formed to investigate questions relating to scarlet fever, cocaine substitutes, chlorosis, small-pox diagnosis, cancer, rheumatism, and grant-aided public health expenditure.

International health work is notably developing, bringing the Ministry's medical officers into touch with their colleagues in foreign countries, the British Dominions and Colonies, India, and Egypt. The maintenance of a health organization will, in future, form part of the permanent functions of the League of Nations. The work done can be studied in the publications of the Office International d'Hygiène Publique. Progress has been made with the international agreement for treatment of venereal disease in merchant seamen, and additional countries are falling in with the scheme. Contributions from the Rockefeller Foundation have helped further development in intelligence work and health statistics, and have also helped to make possible such an educational visit as was paid to this country last year by about thirty medical officers from different foreign countries.

INVESTIGATION AND RESEARCH.

Work at the Ministry's laboratories related to pneumococcus and investigations into the serological characters of different strains of diphtheria bacilli. Routine work included preparation of antirabic vaccine, examination of food materials for *B. botulinus*, examination of shaving brushes, etc., for anthrax, examination of specimens from cases of suspected infectious disease, of Grade A milk, and of food samples. The Auxiliary Scientific Investigation Fund was spent on special work relating to public health, as on Wassermann tests in the newborn, study of the Schick test, and of mosquito life. Liaison with the Medical Research Council was maintained, partly by membership of special committees. Statistical investigations of various sorts were conducted, and many questions of interpretation of data, etc., dealt with. Epidemiological inquiries have already been mentioned.

Rheumatism.

The Interdepartmental Committee on Rheumatism, of which Sir George Buchanan is chairman, began by making an estimate of the respective incidence of the various forms of "rheumatic" diseases in relation to age, sex, occupation, and environment. A large team of insurance practitioners entered with zest into the scheme. "Fifty practitioners fulfilled for the whole year the arduous task of recording, on a uniform plan, every case of rheumatic disease occurring in an insured person in their practices," and a population of 90,000 insured persons has been in this way kept under review. This is the first group inquiry on these lines, and a great advantage is that the population at risk, represented by this sample, is fairly accurately known. The regional medical officers have made inquiry on the same plan as regards 5,000 cases referred to them. The rheumatic diseases were classified under nine headings, and these were placed in three groups—(1) acute, (2) non-articular, and (3) chronic joint change.

Goitre.

The causation and prevention of goitre, as it occurs in widely separated districts of England, have been studied. The simultaneous occurrence of enlarged thyroid in a number of children at cottage homes was carefully investigated by Dr. Adams. Other subjects of investigation were an outbreak of "pink-eye" amongst scholars at a college, the dermatitis of bakers—so-called "baker's itch"—and alleged tetrachlorethane poisoning in toilet saloons.

KITCHENER MEMORIAL MEDICAL SCHOOL AT KHARTUM.

BY

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THE object of the Kitchener Memorial Medical School is to provide a sound medical training for young Sudan Arabs so as to meet the large demand for doctors which at present exists and which is likely to increase very greatly during the next few years as the schemes at present in hand for the economic development of the Sudan come into action and are gradually extended.

The need for this school was first urged by Lord Kitchener during his last visit to the Sudan; he looked on it as the most important step in the completion of the educational scheme which he initiated when he founded the Gordon Memorial College.

The foresight and imagination shown by Lord Kitchener in founding this college immediately after the battle of Omdurman at a time when over three-quarters of the population had died from famine and disease, and the land was deserted and uncultivated, has been more than justified by results. The recovery of the Sudan has been phenomenal and it could not have taken place without the agency of this institution.

The Sudanese, with the exception of the inhabitants of the extreme south, are an Arab race differing from the Egyptians in physical characteristics, in ideals, history, and origin; they are quick, intelligent, eager for education, and

the author has excised in four cases. Carcinoma developing from the duodenal mucosa is to be distinguished from that of the ampulla itself; the former tends to invade the bowel circularly, the latter shows little disposition to extend or to invade the neighbouring parts, and may for long, and even to the time of death, remain limited to the ampulla. In removing the growth the transduodenal route is usually adopted. In many cases the tumour has been removed without incising the whole thickness of the duodenal wall; in others it has been necessary to perform a transverse resection. The author refers to 32 cases, with 14 deaths. The after-histories were obtained in 11 cases; recurrence took place in 6 in from three months to two and a half years; 5 were in perfect health after eight months, two years, four years, six years, and nine years. Reference is made to a case under Abell which was treated with radium after duodenotomy; the final result is not stated. The value of the book is greatly enhanced by the large number of fully reported cases.

THE CLASSIFICATION OF TUMOURS.

PROFESSOR MASSON'S work on tumours and histological diagnosis forms part of the twenty-seventh volume of the *Traité de Pathologie Médicale*,[2] published under the direction of Professor Sergent. The work is divided into three parts, dealing with the theoretical study of tumours, the concrete study of tumours, and laboratory technique. Tumours are defined as purely cellular or tissue formations, the essential character of which is the proliferation of the cells of a definite region, producing masses that persist and live as parasites on the organism. They are primarily classified as (1) dysgenetic, constituted of tissues normal in themselves but abnormally situated; (2) hyperplasic, due to a definite irritant external to the cells themselves; and (3) neoplasic, composed of cells possessing a newly acquired, indefinite, and autonomous fertility, and simple or malignant in their action. The three classes are, therefore, distinguished by their cellular fertility, which is embryonic in the first, irritative in the second, and inherent and autonomous in the third.

In treating of dysgenetic tumours the whole subject of heterotopy is discussed, including grafts and transplantations, vestigial rests, traumatic inclusions, and dysembryomas. The last named may be total, arising from cells capable of producing any tissue of the body (teratoma); regional or partial, arising from somewhat more differentiated cells; or simple, arising from fully differentiated cells of one type. None of the tumours classed as dysgenetic are to be regarded as neoplasms, but they may become neoplasic.

In dealing with hyperplasic tumours it becomes necessary to study the reaction of the tissues to external irritants, and a chapter is accordingly devoted to acute and chronic inflammation, simple and specific, and to tissue repair; metaplasia is also considered in this connexion. As bearing on the nomenclature of tumours the author adopts the view that a cell is characterized by its function and not by its blastodermic origin; an epithelial cell which assumes the property of secreting collagen or chondrin thereby becomes a connective tissue or cartilage cell. On this view, for instance, adrenal growths are properly placed among epithelial tumours. On the other hand, meningeal tumours present some difficulty; the meninges are believed to arise by migration of cells of nervous origin, which take on the characters of mesodermal cells, so that the membranes have some analogy to the sheath of Schwann. Masson, for this reason, excludes meningeal tumours from the connective tissue group. The name "meningoblastoma" has been suggested for them, and is adopted by the author.

In the second part of the book, dealing with the concrete study of tumours, the different tissues and organs are taken in order, and described on the basis of the classification above mentioned, and this, the principal part of the work, has been carried out with great completeness, and the accompanying illustrations are good. The author deplores the lack of interest shown in pathological anatomy in France at the present time, and claims that the status of the pathological anatomist as a specialist should receive more recognition. He insists on the importance of histology in medical diagnosis, but on one condition—namely, that it is in the hands of specialists. But specialists cannot be had unless they are able to live, and Masson closes his work with the remark, "l'histologiste doit être payé en raison des services qu'il rend."

[2] Traité de Pathologie Médicale et de Thérapeutique Appliquée. Publié sous la direction de E. Sergent, L. Ribadeau-Dumas, L. Babonneix. XXVII. *Diagnostics de Laboratoire: II. Tumeurs—Diagnostics Histologiques.* Par P. Masson. Paris: A. Maloine et Fils. 1923. (Demy 8vo, pp. 737; 163 figures, 6 plates. Fr. 50.)

CANCER OF THE OESOPHAGUS.

M. JEAN GUISEZ has been practising oesophagoscopy for twenty years; the total number of examinations he has made exceeds 2,500; the knowledge he has acquired is considerable. It is this knowledge, derived mostly from his own observations and the inferences he has drawn from them, that is embodied in his book on strictures of the oesophagus and trachea.[3] The greater part—about five-sixths—is devoted to the oesophagus; the section on the trachea and bronchi occupies only about fifty pages at the end. He adopts the usual classification of strictures into the intrinsic and extrinsic varieties. It is interesting to note that in his experience more than two-thirds of the intrinsic strictures of the oesophagus are due to cancer. On this subject he is peculiarly illuminating. For instance, he has observed that in about 70 per cent. of these cases there has been an element of personal grief, following some domestic or financial loss. He is inclined to the belief that worry so caused gives rise to a spasmodic stricture, which in its turn is followed by stasis and oesophagitis, the latter preceding the onset of a malignant growth. Whether the first part of this sequence is correct it is difficult to say, but there seems to be little doubt about the truth of the second part—the connexion between inflammation and cancer. Over and over again he has seen an epitheliomatous patch grafted on the wall of an inflamed portion of the oesophagus—an experience that but confirms the findings of others.

With regard to the treatment of oesophageal cancer his opinion of surgical intervention is not very high. His own successes have resulted chiefly from the use of radium. In the space of thirteen years he has treated 170 cases of cancer by the local application of this substance. The diagnosis was verified by biopsy. In 92 of these a cure was apparently effected. In 18 of them the cure has been maintained both clinically and oesophagoscopically over a period varying from one to eleven years. These results are distinctly favourable and lend hope for a further extension in the adoption of this treatment. The book is very well illustrated, and is so full of personal observations that it has all the charm that attends originality. It will be welcomed as heartily in this country as in France.

[3] *Diagnostic et Traitement des Retrécissements de l'Oesophage et de la Trachée.* By Dr. Jean Guisez. Paris: Masson et Cie. 1923. (Roy. 8vo, pp. 364; 216 figures, 2 coloured plates. Fr. 30.)

BLOOD SUGAR.

A CAREFUL and painstaking study of the blood sugar in normal and diabetic subjects is presented in the form of a monograph by K. M. HANSEN.[4] The problems investigated are, in general, familiar to workers in this field, and centre round the variations in blood sugar induced by fasting and by the administration of carbohydrate.

The treatise is divided into three sections. The first deals with the oscillations in the concentration of blood sugar in normal and diabetic individuals. If determinations of the blood sugar are made at frequent intervals after the ingestion of glucose, it is found that the curve does not rise smoothly but in a succession of waves or oscillations, and in fasting persons the fall of the blood sugar occurs in a similar fashion. This phenomenon is exhibited by both normal and diabetic subjects and is

[4] *Investigations on the Blood Sugar in Man: Conditions of Oscillations, Rise and Distribution.* By Karen Marie Hansen. Copenhagen: Neilsen and Lydiche. 1923. (Med. 8vo, pp. 224.)

England and Wales.

POST-GRADUATE COURSES.

POST-GRADUATE lectures will be given by the honorary staff of the Manchester Royal Infirmary in medicine, surgery, and special subjects each week on Tuesdays from October 2nd till December 18th. The courses will be resumed on January 29th, 1924. Short courses explaining recent scientific work will also be given on Fridays from October 5th to December 7th. The first lecture, on October 2nd, will be by Dr. F. E. Tylecote, who will discuss some recent abdominal cases. On Friday, October 5th, Dr. Judson S. Bury will lecture on the regional diagnosis of paralysis. All the lectures will begin at 4.15 p.m. and will be free. Details can be obtained from the Secretary for the Post-Graduate Lectures, at the Infirmary.

The post-graduate courses of the Clinical School of the University of Liverpool will be resumed on Monday, October 1st. The hospitals included in the scheme are the Royal Infirmary, the Royal Southern Hospital, the Northern Hospital, the Stanley Hospital, the Royal Liverpool Children's Hospital, and the Hospital for Women in Shaw Street. The lectures and demonstrations will be largely clinical in character and will be given in the various hospitals in rotation, beginning with the Children's Hospital, where Dr. Fordyce will open the course with a lecture on glycosuria; at the Southern Hospital on the following day Mr. Douglas-Crawford will lecture on surgical lesions of the jaw; on Wednesday, at the Northern Hospital, Dr. Bligh will describe types of mental defects in children; on Thursday, at the Stanley Hospital, Dr. Gullan will speak on diseases of the endocrine organs; and on Friday Dr. Abram will give a demonstration on clinical medicine at the Royal Infirmary. Further particulars and a card diary for the term can be obtained from Mr. J. C. Matthews, M.C., Secretary of the Clinical School, 61, Rodney Street, Liverpool. No fees will be charged.

In London post-graduate courses in various specialties, arranged by the Fellowship of Medicine and Post-Graduate Medical Association, will be given during the month of October. A course on urology at St. Peter's Hospital for Stone will begin on Monday, October 1st. Demonstrations will be given in the out-patient department every afternoon, and in addition lecture-demonstrations by members of the staff at 2 p.m., four times a week. A course of eight lectures on the more important diseases of tropical countries will be given by Dr. Low and Dr. Manson-Bahr at the London School of Tropical Medicine, beginning on Tuesday, October 2nd. A course in laryngology, rhinology, and otology will be held at the Central London Throat, Nose, and Ear Hospital from October 8th to 26th; clinical lectures and demonstrations will be given by members of the staff each day from 9.30 to 5. A course on children's diseases will be given at the Victoria Hospital for Children from October 8th to November 3rd, and special clinical instruction in ophthalmology will be available at the Royal London Ophthalmic Hospital during the whole of the month. From October 15th to 27th short intensive courses in cardiology and proctology will be given at the National Hospital for Diseases of the Heart and St. Mark's Hospital respectively. A short course in dermatology will also be held at the Hospital for Diseases of the Skin, Blackfriars, from October 29th to November 10th, and a fortnight's "refresher" course in general medicine and surgery from November 5th to 17th. Copies of the syllabus and full particulars as to fees can be obtained from the Secretary to the Fellowship of Medicine at 1, Wimpole Street, W.1, and, as in some cases the numbers are limited, early application should be made.

THE BRITISH ASSOCIATION IN LIVERPOOL.

On Sunday, September 16th, in the Lady Chapel of the Cathedral, the Rev. E. W. Barnes, Canon Residentiary of Westminster, preached to a full congregation, and afterwards the Bishop of Liverpool gave briefly, in the almost completed choir of the cathedral, the story of its foundation and progress. Sir Oliver Lodge spoke from the pulpit of Sefton Park Presbyterian Church on Man's Ascent and Free Will, and Dr. Adami, Vice-Chancellor of Liverpool University, delivered an address in Mossley Hill Church on the Limitations of Human Knowledge. In many of the places of worship the work of the British Association formed the subject of sermons.

A series of papers on sex and its phenomena were read in the Section of Zoology on September 18th. Dr. Crew gave an interesting account of investigations bearing on the transformation of domestic hens into cocks. In one case a hen 3½ years old ceased to lay, assumed the external characteristics of a cock, and sought battle with other cocks. Subsequently she mated with a hen which had previously laid infertile eggs. The result of this union were two chicks which in turn gave rise to another generation of typical chicks. *Post-mortem* examination of the hen-cock revealed abdominal tuberculosis. This disease had performed the operation of ovariotomy as if it had been done surgically. In other instances in which hens developed male characters ovarian disease was discovered. Dr. A. S. Parkes emphasized the fallacy of considering sex determination in mammals on the basis of the proportions of the sexes at birth. In man the sex ratio of pre-natal deaths was 150 males to 100 females. Dr. Dixon pointed out that the ratio of deaths was greater in males than in females up to the end of the fifth year.

Dr. J. S. Macdonald, F.R.S., professor of physiology in the University, made several contributions on the effect of cycling and walking on the human body. His conclusions were that the temperature steadily fell, no matter whether a person were cycling at a constantly maintained speed with no brake, or with a slight or heavy brake. To explain this he suggested that the ordinary processes of the body were in a state of suspension and the attention concentrated wholly on the exercise.

Professor J. J. R. Macleod, F.R.S., of Toronto, gave a popular lecture on insulin before a crowded audience in the Picton Lecture Hall. He related the history of the discovery of insulin, and warned his hearers that much more had to be learnt about its nature and that there was no synthetic substitute known as yet that would be of value to a diabetic patient.

An evening entertainment, given on September 18th in the buildings of the University, was attended by nearly 3,500 persons. Various was the entertainment offered to the guests, and the University deserves to be congratulated on the success of the occasion. Many short lectures were given by experts; that on model aircraft and their use in aeronautical research by Mr. R. V. Southwell, M.A., Superintendent, Aerodynamics Department, National Physical Laboratory, was especially attractive, not only on account of the lucid exposition it contained, but also for excellent experiments shown.

On September 18th the National Temperance League gave a luncheon, which was attended by the President of the Association, Sir Ernest Rutherford, Sir Richard Gregory (editor of *Nature*), Dr. Chavasse (Bishop of Liverpool), and Bishop Welldon. Mr. Bickerton presided, and after the luncheon Dr. John Hay delivered an excellent address on the scientific value of alcohol and embodied in his remarks the results of recent research. He mentioned the great national experiment of prohibition that was being carried out in the United States, and urged the importance of weighing the evidence in order to reach sound conclusions. Sir E. Rutherford agreed that prohibition in America should be regarded as a great social experiment, and its results subjected to the same searching tests as any other scientific statement.

The concluding general meeting was held in St. George's Hall on September 19th. Sir E. Rutherford proposed from the chair a resolution expressing the warmest thanks and appreciation of the Association for the generosity and hospitality the city of Liverpool had shown to the Association. The Lord Mayor, in accepting the resolution on behalf of the city, said that this, the 91st meeting, was the third largest in the history of the Association. The total membership of 3,296 was only about 500 short of the home record held by Manchester.

in statement of facts to give a clear working idea of the general anatomy of the human body. Part II, which comprises over half the book, contains a detailed account of the regional anatomy of the head and neck. It is clearly written and with its sectional illustrations and coloured plates should make anatomy an attractive study to the dental student.

The only criticisms we have to offer are rather of the nature of suggestions. The dental student wants to know why pain sometimes is referred across the middle line to the incisor teeth of the opposite side, and why he sometimes sees true arterial bleeding from a broken alveolar plate. We suggest greater detail in the description of the arterial and nervous supply of the jaws is desirable. The student also wants to know why a cancer of one side of the mouth infects the lymphatic glands of the opposite side, and why septic conditions of the teeth may cause enlargement of distant lymphatic glands. Again we suggest greater detail.

In general the illustrations are very good, but Fig. 8, "Atlas and Axis," is rather confusing, and Fig. 16, "Anterior Surface of Scapula," fails to convey the idea that the subscapular fossa is in reality a fossa. There are a few printer's (or reader's) errors, such as "public arch" for pubic arch, and "known as the quadrate and the lobes" (of the liver).

We recommend the book to the notice of all engaged in teaching the dental student.

SCIENCE AND CIVILIZATION.

THE essays by various authorities arranged and edited by Mr. F. S. MARVIN under the title *Science and Civilization*[8] for the sixth volume of the Unity Series are based on lectures given at the sixth Unity History School held at Woodbrooke near Birmingham in August, 1922. Whereas in the previous volumes the problems connected with the unity of mankind have been considered from a synthetic and general point of view, this volume is devoted to analytical discussion of the scientific factors that have bound humanity together in historical times. The editor acknowledges in cordial terms the help of Dr. Charles Singer, who contributes two out of the twelve lectures. In his account of ancient medicine he expresses the opinion that the scientific idea—the conception that the world was knowable, inasmuch and in so far as it could be investigated—arose in the sixth century B.C. among the Ionic Greeks, and that Greek medicine first put this rational basis to the test. It is held, therefore, that not only scientific medicine but our clinical tradition and standard of ethics are due to the genius of the great age of Greece. The Romans, it is alleged, did not develop scientific tastes, and it is asserted that no man of Roman blood ever wrote an important medical book. In his second article on "The Dark Ages and the Dawn" Dr. Singer describes the sleep of the Middle Ages (fifth to sixteenth centuries inclusive) and the subsequent rebirth of the scientific idea in 1543 with the appearance of Vesalius's *De Fabrica* and Copernicus's *De Revolutionibus Orbium Caelestium*; justice is, however, done to Roger Bacon's influence in bringing about the dawn of modern science. Like his other numerous contributions to medical history these two articles show, besides their extensive learning, that the proper aim of this line of research is the study of ideas rather than that of biography, interesting and attractive as the latter may be.

In the next article Professor A. N. Whitehead fixes the year 1642 as the centre of that period of about a hundred years during which the first physical synthesis was framed to form the basis of science; this year saw the death of Galileo and the birth of Newton. In describing the opposition to Galileo, Professor Whitehead remarks "it is characteristic of shocked sentiment in the case of men whose learning surpasses their genius that they begin to quote Aristotle. Accordingly Aristotle was hurled at Galileo." In his account of the influence of science on the industrial revolution at the end of the eighteenth century, Mr. C. H. Desch depicts the evil effects of machinery in the early or palaeotechnical period when social good was subordinated to private greed and natural resources, such as coal, were wasted, and contends that only now is the neo-technical age commencing.

Professor J. Arthur Thomson writes brightly on the influence of Darwinism on thought and life, explaining the changes that have taken place in the Darwinian doctrine and illustrating its influences on sociology, religion, and ordinary human life. Two subsequent articles expand the last two subjects; in an eloquent lecture on science and religion Mr. Julian Huxley, while insisting on the limitations, maintains that the scientific manner of thinking can lay the foundation for something constructive in religion; a rigid dogma is impossible and at present science cannot discuss immortality. The editor, Mr. F. S. Marvin, in a summary of the volume entitled "Science and Human Affairs," pays special attention to sociology, balances the influence of science with that of modern philosophy, especially that of Bergson, and incidentally describes the League of Nations as the natural outcome of the unifying process which has gone on more or less rapidly for the last hundred years. In his article on the relations of science and health, Dr. F. G. Crookshank complains of the modern "scholastic" physician for dealing with "hypostatized diseases" rather than with "what happens," for considering individual cases to the neglect of the causal conditions of epidemics. Like the other articles in this stimulating volume this provides much subject for thought and cannot fail to interest the reader.

[8] *Science and Civilization.* Essays arranged and edited by F. S. Marvin. The Unity Series VI. Humphrey Milford, Oxford University Press. 1923. (Med. 8vo, pp. 350. 12s. 6d.)

NOTES ON BOOKS.

IN a small book of fifty-six pages Dr. R. A. BENNETT gives a useful account of *Hodgkin's Disease*,[9] evidently based on much reading and careful consideration of fifteen cases under his own care. He inclines to the view that in lymphadenoma the patient's lymphoid tissues are specially liable to general attack by tubercle bacilli which have been robbed of their acid-fast and more aggressive properties by the action of lymphocytes in the lymphatic glands. The action of *x* rays is discussed, but no reference to radium is made. As a symptomatic remedy for fever the author has for years recommended half a drachm of pure creosote rubbed slowly into the skin of the axilla and has found this most efficacious in producing mild and continued sweating and fall of temperature; this method was employed by an old chemist who practised farriery in Cleveland many years ago, and occasionally tried his hand on human beings as well.

Since the last edition of Mr. LUSHINGTON'S book on the *Law of Affiliation and Bastardy* some seven years ago the powers formerly assigned to the Local Government Board have been made over to the Ministry of Health and case law on the subject has been enriched. Consequently a fourth edition[10] has now been published, its author being Mr. W. B. PURCHASE, a member of the medical profession as well as a barrister-at-law. His treatment of the subject is on all fours with the scheme of most legal handbooks. All the statutes bearing on the question are cited, and it is shown to what extent their various enactments cement, or modify, or repeal one another, and how their clauses and terms have been interpreted in various courts. Mr. Purchase's exposition of the case law is very clear, and it has been brought up to a date as recent as the beginning of the current year. Though written primarily for barristers and solicitors, there are times when a reference to the chapters on legal views on the subject of gestation and of legitimacy would be found useful by medical men.

The address on the electrical structure of matter, a detailed report of which was published in our issue of September 15th (p. 474), delivered by Sir Ernest Rutherford as president of the British Association this year, together with the addresses of the presidents of the sections, have been published for the Association by Mr. John Murray in a paper-covered volume, entitled *The Advancement of Science*.[11] It contains 286 pages, and is illustrated by a few drawings and charts. The addresses this year may be taken as together forming a survey of the present position of most departments of science; the volume can be read with interest and is well worthy of preservation.

[9] *Hodgkin's Disease.* By R. Allan Bennett, M.D.Lond., M.R.C.P. Bristol: ; London: Simpkin, Marshall, Hamilton, 8vo, pp. 56. 2s. net.)

[10] *The L* By Guy Lushington, Barrister-at-Law. I se, M.A., M.B., D.P.H., Parr ster- and Shaw and Sons, Ltd. 1923. (Cr. 8vo. pp. xvii + 171 + 13. 10s. 6d. net.)

[11] *The Advancement of Science.* 1923. London: John Murray. (Demy 8vo. 6s. net.)

consequence there is less necessity for mobilizing the forces of defence. So much is this the case that it often looks as if a tacit agreement were arranged between the invaders and the defenders, whereby the stranger is tolerated on condition that he does not make his presence too much felt.

Now, if in such a case a local stimulant or irritant can be applied and its action controlled so as to produce active inflammation, the conditions obtaining in acute infections are simulated, the forces of defences are mobilized in earnest, and the process brought to a similar end.

This rôle of *agent provocateur* I take to be the common part played by Finsen light, radium, x rays, the high temperature of the cautery and diathermy, and innumerable chemical agents of which acid nitrate of mercury may be taken as a sample. In a particular case one agent may be more suitable than another, but the selection will be made on grounds of convenience rather than of principle.

It seems to me improbable that the agent kills the bacteria directly, and for two reasons: a lethal dose for bacteria would kill the tissues, and the area cured is often greater than the area treated.—I am, etc.,

Dublin, Sept. 25th. ROBERT WOODS.

THE TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

SIR,—I read with great interest the article by Dr. L. Williams concerning the treatment of tuberculosis by the Spahlinger method (p. 519). I think it a pity that no analysis or comments were made on the cases, for as they stand one cannot judge the value of this treatment. For instance, are these the only cases treated by the Spahlinger serums and vaccines, or are they cases sent by Dr. Williams for this particular treatment? Obviously by picking out only successful results any method of treatment can be deemed effective. I hope Dr. Williams will not think I wish to disparage or underrate this method of treatment, but being keenly interested in this subject I could not allow the opportunity to slip by without making a comment.—I am, etc.,

GEORGE W. CHEATER, M.B., M.R.C.S., D.P.H.

Whipps Cross, E., Sept. 24th.

COLOSTOMY AFTER TRANSPLANTATION OF URETERS.

SIR,—Sir Thomas Myles's letter on "Colostomy after transplantation of ureters" (*September 15th*, p. 486) reminds me of a little preliminary work I did on the subject six or seven years ago.

For some time previous to that I had observed what poor ultimate results had followed partial resections of the bladder for malignant disease, and it occurred to me that if complete removal of the bladder were always carried out the results should improve. This implied the creation of another bladder. The procedure I adopted was as follows:

I opened the peritoneal cavity and isolated the last six inches of ileum with caecum from the rest of the intestinal tract, brought the appendix to the skin, and reconstituted the lumen of the gut. In cases where no appendix is present the caecum could be opened, the opening inverted, and its base stitched to the skin, thus forming an ink-bottle valve. The patient was put back to bed and for the next three weeks the isolated caecum with terminal loop of ileum were washed out with 1 in 2,000 flavine. At intervals a scraping of the caecal mucosa was taken and cultures grown. In three weeks the contents were so nearly sterile that I thought it improbable the kidneys would be infected by implantation of the ureters.

During these three weeks I had learned that we had a cavity which held nearly two pints of fluid without the patient feeling uncomfortable. The fluid did not leak from the open end of the appendix even when the patient coughed or sneezed, and was easily drawn off by passing a rubber catheter down the appendix into the caecum.

Unfortunately the patient's general condition had rapidly deteriorated, due to bleeding from his growth, constant pain and incontinence, and I was forced to implant the ureters (the left into the loop of ileum communicating with the caecum and the right into the caecum) and remove the bladder at one sitting. I had intended to implant the ureters as a second stage, and as a third stage remove the bladder without opening it. The patient died of shock.

I mentioned the operation to Sir Arthur Keith, and he expressed doubt as to the kidney parenchyma tolerating for any length of time the transplantation of the ureters into a lining membrane so different in character from their own.

I determined to try the operation in dogs, repeating as nearly as possible the original procedure. As the dog has no appendix and its caecum is different to work with, I isolated a piece of small gut about six inches in length, closed one end and stitched the open end to the abdominal skin. Into this piece of gut I implanted one ureter, leaving the other untouched as a control. The dog made a good recovery and for weeks ran about the garden happy, and passing urine equally from the end of small gut and by the urethra. Then gradually the urine passing by the small gut diminished in quantity and finally ceased (about two and a half months after operation). The dog was chloroformed, killed, and the whole urinary tract removed and carefully examined. The kidney on the untouched side was normal macroscopically and microscopically, but the other kidney when examined microscopically proved to be but a mass of fibrous tissue with here and there an isolated little clump of secreting cells—this in spite of the fact that there was no mechanical obstruction to the outflow of urine, and no evidence of gross infection.

So far, therefore, Sir Arthur Keith's observation has proved to be sound, but obviously much more work requires to be done on the subject before a definite conclusion can be come to.

If the kidneys will tolerate the implantation I consider the caecum with terminal loop of ileum and appendix acting as urethra much the best substitute for the normal bladder, as it could be kept sterile and could be emptied every four or six hours by passing a rubber catheter down the appendix.

Unfortunately circumstances made it impossible for me to pursue this line of investigation further.—I am, etc.,

St. Leonards-on-Sea, Sept. 15th. DAVID LIGAT.

ADMINISTRATION OF ORGANIC EXTRACTS BY THE NOSE.

SIR,—The oral administration of the glands of internal secretion, with the exception of the thyroid and parathyroid, I have found to be unsatisfactory. Of late I am using them as a snuff. They are absorbed by the nasal mucous membrane and escape destruction by the acids and alkalis of the intestinal tracts. The results from this method of administration, I find, are very good. By using it the grafting of monkey gland may be unnecessary; and the old fashion of snuff-taking will be revived. In a powder form it is very easy to mix the various glands and give them in any proportions desired. In the short time I have used it I have, I think, seen muscular and mental vigour restored. Whether it will soften the hard arteries, reduce high blood pressure, supple stiff joints, and restore youth as the grafting of monkey gland does I cannot say, as I have not used it long enough to decide.

I hope some of your readers will try it and report their results in the JOURNAL. I use tablets pounded into a powder in a mortar; but I have no doubt some of the big firms will give us a more elegant preparation.—I am, etc.,

Southsea, Sept. 21st. D. MCASKIE, M.B.

"RHEUMATISM."

SIR,—In the BRITISH MEDICAL JOURNAL of July 21st (p. 102) is published a valuable and helpful communication by Mr. A. G. Timbrell Fisher, entitled, "The Nature of the so-called Rheumatoid Arthritis and Osteo-arthritis." Mr. Fisher emphasizes the lack of real knowledge of the etiology of these conditions, and especially draws attention to the confusing nomenclature commonly employed. I wish especially to join issue in regard to the employment of the word "rheumatism," which has certain advantages at the

CANCER RESEARCH.

IN the proceedings of the Section of Surgery at the Annual Meeting, printed in this issue, in Sir George Newman's report for 1922, as noted last week, and in the *Rapport préliminaire* just issued by the Office International d'Hygiène Publique,[1] are suggestions for research work which, we think, deserve both support and encouragement.

We intend no disrespect to the many distinguished epidemiologists, statisticians, and clinicians who have contributed to the large literature of cancer when we say that their results have not been impressive. They have perhaps failed to be impressive because too often the field attempted to be covered has been so vast that the objects contained in it have not been distinct; all that has been created has been a general impression either vaguely alarming or vaguely reassuring.

In the documents to which we have referred above it is urged that investigations should be more specific. Mr. Herbert Paterson asks for "convincing evidence that the proportion of ultimate successes" after operations for cancer "is greater than was the case twenty years ago," and speaks of a "growing feeling of disappointment and dissatisfaction with regard to the treatment of cancer." Upon one point—the treatment of laryngeal cancer—Sir StClair Thomson was able to furnish very encouraging evidence, but there is no doubt that the assessment of results of treatment as a whole does require critical attention and a standardization of the material.

The Departmental Committee of the Ministry of Health and the commission appointed jointly by the Office International and the Health Section of the League of Nations have still more precisely localized their point of attack. In the first place, it was pointed out in an earlier memorandum presented to the Office International by the British delegate, Sir George Buchanan, that the rates of mortality from cancer of the breast and uterus in England and Wales, Holland, and Italy were very different, being much higher in England and Wales than in the other countries, although the rates of mortality from all forms of cancer in England and Wales and Holland were not dissimilar. It was suggested that the statistical experts of the various countries should first determine whether these striking differences were explicable on purely statistical grounds—that is, as consequences of varying accuracy of certification. The suggestion to inquire in this direction was accepted, and in a further report, presented during the following session of the Office, which contains valuable memoranda from the statistical departments of ten countries, it is concluded that the differences found to exist are not mere paper differences, but proofs that the fatal incidence of the particular forms of cancer under notice is indeed unequal in the three countries.

This conclusion having been reached, there was a strong case in favour of attempting to account for the differences, and, as briefly indicated in Sir George Newman's report, a further inquiry has been set on foot.

The line this inquiry, which is controlled by a strong committee representative of the three nations concerned under the chairmanship of Sir George Buchanan, will take is, we understand, the following. The various hypotheses adequate to explain the facts will be tested in order of *a priori* likelihood. Thus, the explanation having the greatest such probability in its favour is that in the countries experiencing a relatively low incidence of fatal cancer of the breast and uterus either the proportion of attacked persons who submit themselves to operative treatment is larger, or the average previous duration of the disease in those seeking treatment is shorter, or both factors operate to the advantage of the less afflicted nations. The testing of this hypothesis will involve a careful comparison of the hospital experiences of the three countries—a statistico-clinical research involving the close co-operation of practitioners and vital statisticians. If it be found that data thus accumulated do not establish any sensible difference between the nations in the matter either of frequency or date of treatment, the comparative frequency of possible etiological factors will fall to be considered. Data for this inquiry will naturally be collected simultaneously with those of a more restricted scope. In this way, advancing slowly, step by step, testing each conclusion reached in the light of clinical and statistical knowledge, it may fairly be expected that definite additions to knowledge will be secured.

We have no doubt at all that this is the right plan of campaign for a clinico-statistical research—namely, a very careful delimitation of its objectives and the fullest possible co-ordination of different arms of the service. This is an admirable choice of subject for international research work—it avoids, on the one hand, the delegation to an international body of studies which can be as well carried out in particular universities or national departments or even by private individuals, and, on the other, the common vice of proposing for solution some immense problem which is beyond the reach of any existing means of investigation.

[1] *Bulletin de l'Office Intern. Hyg. Publique*, xv, 1923, 738.

LIVE ANATOMY.

No movement in modern British medicine is more welcome than that led by some of our younger anatomists who have caught the spirit of Sir Charles Bell and returned to the teaching of living, functional anatomy. A member of this group is Dr. S. E. Whitnall, who until he was called from Oxford to succeed Sir Auckland Geddes in the chair of anatomy at McGill University was known to his British colleagues for his researches into the anatomy of the eye and orbit, and more especially for his gift of covering a great seriousness of purpose by a happy sense of wit and humour. At Oxford he became imbued with the learned humanity which animated one of his teachers—Sir William Osler—and this spirit he has carried back to Sir William's Dominion and allowed it to bubble freely over into a little book which he has entitled *The Study of Anatomy*, intending it for his own students.[1] It deserves a much wider circle; we hope it may spread into every medical school where the English tongue is spoken, for it contains happily expressed precepts which young and old will find helpful and stimulating. The essential lesson Professor Whitnall wishes to press home to medical students is that, on entering the dissecting room, they must keep their imagination as sharp and as lively as their scalpels, and on entering the hospital wards they must keep the same faculty equally alert when they palpate, percuss, or auscultate, if they are to reach the source of illness. The beginner, he says, who looks on the skin of his "part" as merely something which has to be removed is wasting his opportunities unless he also remembers that it is a living sentient organ endowed with functions which are essential to health and life. The student who has displayed all the structures of his part

[1] *The Study of Anatomy.* Written for second year medical students. By S. E. Whitnall, M.A., M.D.Oxon. Montreal: Renouf Publishing Company. 1923. (Double Cr. 8vo, pp. 46. 2s. 6d.)

The closely related *Demodex folliculorum* lives in animal glands and amongst animal cells which may lose their power of resistance owing to chronic irritation or other cause. Is it not probable that the demodex may cause these cells to revert to a more primitive—an embryonic type? That these primitive cells, growing and multiplying out of their proper time and place, may run amok amongst the surrounding tissues and so cause cancer?

This suggestion I offer for what it is worth. It opens an avenue for investigation which, as far as I know, has not yet been explored.—I am, etc.,

London, W., Sept. 23rd. J. McNAMARA, M.D.

MEDICAL EDUCATION IN INDIA.

SIR,—A question of vital importance to the advancement of medical education in India seems to have been discussed at a meeting of the Bombay University Senate. A number of students have been refused admission by the Dean of the Grant Medical College to the Intermediate M.B., B.S. class, the reason of the refusal being lack of clinical accommodation, especially in the midwifery wards. The latter difficulty seems to have been created by the British Medical Council's rule, lately introduced in India, that every student must attend twenty labour cases during his period of training for a medical degree.

In my opinion this is very hard in a country where the generality of women do not prefer to see male medical attendants and where the demand for duly qualified medical men is increasing every year. In my time we had to conduct six cases per student and were none the worse for that. I remember how some of us were anxious to have some more cases than their due quota, but were not allowed that indulgence.

If at all at the instance of the General Medical Council a greater number of confinement cases has to be done now by every student, and if there be not sufficient accommodation in the central teaching hospital, I am sure the Dean of the Grant Medical College can increase the available accommodation by seeking co-operation with other institutions. Besides the Cama Hospital for Women and the Persee Lying-in Hospital there are other private, semi-private, and public hospitals which could easily make teaching accommodation for a number of students every year according to the number of their beds. Allowing more students to witness the same case at the same time under suitable circumstances should also ease the situation in a perceptible manner.

In England the students can go out to attend at the patients' houses in order to finish their twenty cases. Feminine sentiment being so different in India from that in England, it will be a matter of many more years, if not decades, before Indian students can enjoy the same facilities in this direction as their British fellow students. It should be within the bounds of justice and fair play if the General Medical Council would consider the difficulties of Indian medical students in this direction, and fix the number of labour cases to be done by each student at a reasonable figure as permitted by circumstances prevalent in different parts of India, without enforcing undue harshness on the students and without starving medical education in India, at least till a suitable increase in the existing accommodation at the teaching hospitals is made as intended.—I am, etc.,

London, S.E., Sept. 4th. A. D. JILLA.

*** Our information with regard to the position in Bombay is not quite recent, but we believe some of the statements made by our correspondent to be out of date. We hope to recur to the matter shortly, and meanwhile would invite readers to suspend judgement.

SPIRITUAL HEALING.

SIR,—In the correspondence on this subject in the JOURNAL and elsewhere, it seems to be taken for granted that should the claims made be substantiated—namely, that organic diseases have been healed by the methods used—the hypothesis of spiritual healing is unassailable, so that a scientific explanation becomes impossible.

Whilst supporting your correspondents in their desire for the establishment of an exact diagnosis in these cases, I suggest that should they prove to be instances of organic disease an explanation will still be possible inside the domain of science. It may be necessary to enlarge certain biological concepts just as on many earlier occasions new facts have entailed readjustments in biology and in the physical sciences.

As to what that new hypothesis shall be—let us first get the facts as accurately as possible. A scientific understanding will obviously be no more in conflict with religion if the cases prove to be organic than if they prove to be non-organic in origin.—I am, etc.,

London, N.W., Sept. 24th. M. D. EDTR.

HIPPOCRATES.

SIR,—Mr. W. H. Jones's interpretation of the *Corpus* of Hippocrates, as quoted in your issue of September 15th, 1923 (pp. 481-482), may be admirable, but his scholarship seems scarcely in keeping with the high standard that has hitherto characterized the Loeb classics. Is there any doubt as to the correctness of Professor Sticker's distinction between the meanings of πόνος and ὀδύνη?—a distinction rigidly maintained throughout classical Greek.

Πόνος primarily means "work, hard work, toil, labour," mostly "toil of war," but also "bodily exertion, hard exercise." Its secondary meaning is "the consequence of such toil, distress, trouble, suffering, pain." Ὀδύνη is always used to express "pain of body" and "pain or anguish of mind," and, further, is exclusively employed for "the pains of childbirth."

I have not read the passages in which the two words occur, and I admit that Mr. Jones's words are, "they seem practically synonymous," but, as Professor Sticker rightly points out, Hippocrates used words whose meanings were recognized and accepted throughout Hellas, and gives to every word its particular primary connotation.—I am, etc.,

Esher, Surrey, Sept. 21st. HERBERT E. GRAY.

PAY OF THE R.A.M.C.

SIR,—The pay of married officers in the Army Medical Service is inadequate. The expenses in the army to a married man are totally different to civil life. As it is impossible to get unfurnished houses, he will have to live in a furnished one, which will mean a rent of £150 to £200 per annum. He will get on an average a change of station every eighteen months, and though the Government pay fare and move baggage, other items inseparable where there is a family are not considered. Very short notice of a move is given, necessitating taking another house with probably several months of the lease of the vacated one still to run, and unable to sublet. A short time ago I was paying 4 guineas and 3 guineas a week for two months.

The specialist's pay of 5s. per diem is a farce; under the new regulations he will actually get 2s. 1d. per diem, and the 2s. 6d. per diem is reduced to 5d., which seems a poor reward for special knowledge in a particular subject.

Promotion is very slow, and for the majority of majors almost hopeless. There is no rise of pay after fifteen years until promoted, and this in the future will work out at about twenty-six years. The pension, which before the war was £365 per annum after twenty years' service, is now about £400, which hardly represents the increased cost of living.

Added to all this the R.A.M.C. is rapidly becoming a foreign service; the home tour is becoming shorter and shorter, bringing with it the usual problems of family separations, education of children, etc., and little or no compensation in the way of increased pay. I enclose my card.—I am, etc.,

September 24th. MAJOR R.A.M.C.

problems affecting India as a whole, to co-ordinate the work of provinces, and to be the channel of communication between India and other parts of the world. Dr. Choksy's articles have thus the merit of propounding a constructive policy, and it is a policy with which hygienists generally are likely to agree. It has also the merit of being evolved and strenuously advocated by one whose medical education has been indigenous, and who is intimately acquainted with the political and medical history of his country, its possibilities and aspirations, and the social and sanitary conditions which form such an obstacle to comprehensive and effective measures of public health.

THE MEDICAL HISTORY OF THE WAR.

THE volume on pathology[1] in the official Medical History of the Great War has been issued, and will probably prove to be not the least interesting of the series. There still remain to be issued three volumes containing accounts of the administration, organization, and employment of the medical services in all theatres of war; but the new volume completes the account of what may be called the scientific aspects of the work of the medical services. We congratulate Major-General Sir W. G. Macpherson, K.C.M.G., editor-in-chief of the series, on the completion of a laborious and anxious duty. The first volume, issued at the end of 1921, contained a general review of the task set to the medical services and the manner in which it was met; this was followed by two volumes on diseases of the war and two on the surgery of the war. Recently two volumes have been issued on the hygiene of the war; they were reviewed in our last issue. The series is issued by the Stationery Office, and the volumes can be obtained through any bookseller. They are well printed, reasonably well bound, are of a form convenient for holding in the hand, and are fairly well illustrated. In some instances the names of those who have assisted Sir William Macpherson in editing a volume have been given, and in all a list of contributors is inserted. Each volume is divided into chapters in the ordinary way, and here we cannot help feeling that the interest of the volumes and the ease with which they may be consulted will be diminished by the fact that the names of the authors are not prefixed to the chapters. In some instances a single chapter has been composed or revised by several writers; in others it appears that the whole of a chapter is from one hand. For example, a note issued by the War Office states that Sir W. B. Leishman has contributed to the volume on pathology the first chapter, which is on the organization of the pathological services, and that it is founded on his own experience as adviser on pathology on the Western Front throughout the war. The same note gives also the names of several other authors, and by a study of the list of contributors we can ascertain that Sir Almroth Wright is the author of a chapter on the physiology of wounds, and that Professor Clifford Dobell and Colonel W. Harvey, C.M.G., formerly Deputy Director of Pathology at the War Office, are jointly responsible for the chapter on the pathology of dysentery. But in other volumes, and even in this, it has not always been easy to ascertain by comparing the list of contributors with the headings of chapters what writer was responsible for what chapter; this has been a pitfall for reviewers, as we have found by some unfortunate experiences; the most recent was the inadvertent attribution of the whole of the chapter on skin diseases in the second volume of *Diseases of the War* to Dr. Henry MacCormac. Reference to the list of contributors shows that Dr. A. M. H. Gray, who, like Dr. MacCormac, was a consulting dermatologist with the British forces in France, joined with him in writing the chapter, and that Major J. A. Manifold, assistant professor of pathology R.A.M. College, was responsible for the greater part of the section on tropical skin diseases, and Major T. J. Mitchell, R.A.M.C., for the paragraphs on Oriental sore. Having delivered ourselves of this grumble we hasten to add that the series is a most valuable contribution, not only to military medicine, but to medicine in its widest sense. It is a mine of information into which future inquirers and writers will often delve.

[1] *History of the Great War. Based on Official Documents: Medical Services. Pathology.* Edited by Major-General Sir W. G. Macpherson, K.C.M.G., C.B., LL.D., Major-General Sir W. B. Leishman, K.C.M.G., C.B., F.R.S., LL.D., and Colonel S. L. Cummins, C.B., C.M.G., LL.D. London: His Majesty's Stationery Office. 1923. (Demy 8vo, pp. 600; Illustrated. £1 1s. net, post free £1 1s. 9d.)

TRAUMATIC OBLIVION.

A SHORT time ago the rider of a motor cycle who had knocked down and killed a man affirmed that he could not recollect anything of the accident, and evidence was given by a medical witness in support of the story. After a blow on the head severe enough to produce unconsciousness it is very frequent—it may almost be said to be the rule—for the injured person to find that he is not only oblivious of what happened during the time that he was unconscious, but also that he has no memory whatever of what happened for some time previous to the blow on the head. Moreover, afterwards he may perform ordered acts and forget all about them. There may be a complete lapse of memory between a short time before the accident and some hours, or even days, afterwards. The memory of these pre-traumatic experiences sometimes returns in a fragmentary manner, but more often it is permanently lost. The case we have mentioned has led a correspondent (Mr. Hubert Visick) to send us the story of his own experience when a student at Guy's. He had gone from lodgings at Streatham on a Saturday morning to skate near Guildford; while playing hockey he tripped and fell, cutting his eyebrow. He was picked up, but refused all assistance; skated to the side of the pond, removed his skates, and walked to his uncle's house, a distance of a mile. While his head was being bathed he suddenly became conscious of his surroundings, and was much astonished to find himself where he was, having no recollection of leaving his lodgings at Streatham. He has never recovered the memory of the events which happened between going to bed on Friday night and Saturday afternoon. During the interval after the fall his demeanour did not suggest anything unusual to his friends, who said that he talked rationally on the way to the house. In an article published in our columns eight years ago (September 18th, 1915, p. 445), which we may now say was written by the late Dr. Charles Mercier, he suggested an explanation of pre-traumatic oblivion. It is generally assumed that every experience of which we are conscious produces a modification in the finer elements of structure in the cerebrum; that is to say, that the conscious memory of an experience answers to a structural modification of some kind. It may be assumed also that the brain possesses the physical quality of elasticity; that is to say, that its structural elements not only oppose resistance to disturbance, but, when disturbed, tend in certain circumstances to resume their original positions. When under the action of sense impressions, or otherwise, the structural elements of the brain are shifted into new positions a considerable proportion—it may be the whole or almost the whole of them—resume their original positions after longer or shorter intervals. This is only to say that we never remember all we see, or hear, or otherwise experience, that of much we experience we retain only a remnant, and that the process of forgetting begins as soon as the experience is over, and thereafter continues at a varying rate. Sleep has a twofold effect on memories—some it fixes, some it wipes out—and this fact has some bearing on the subject under consideration. Imagine a brain, in the course of experiencing new impressions and of registering

Ministry of Pensions convalescent centres must, if they desire admission, make their applications in writing not later than December 31st, 1923.

The selection of cases for admission to these convalescent centres is now made from officers, nurses, and men who are undergoing in-patient (or, exceptionally, out-patient) treatment for their pensioned disability, and who are within one or other of the following categories:

1. Those who have not been demobilized or discharged from the service for more than a year.
2. Those who, though out of the service for more than a year, have since leaving the service been continuously under treatment with treatment allowances (or their equivalent).
3. Those who, though out of the service for more than a year, are able to show that they have endeavoured since leaving the service to resume their pre-war occupation, or to enter one equally remunerative, and have failed to do so (or to retain their position) owing to a disability accepted by the Ministry as attributable to or still aggravated by service in the great war.

Applications will only be considered from those who have not previously been given a course of training at the expense of the Ministry of Pensions, Ministry of Labour, Board of Education, or the Ministry of Agriculture and Fisheries, and it will of course be a condition of admission to a convalescent centre that the applicant is found, on investigation, to require permanently a change in his occupation in consequence of his disability, and to need a course of vocational training for this purpose.

At the same time the Minister of Pensions has arranged with the Minister of Labour, with the consent of the Treasury, that men admitted to concurrent treatment and training in Ministry of Pensions convalescent centres may, notwithstanding that they have failed to apply by the required date to the Ministry of Labour for vocational training under ordinary industrial conditions, if necessary, still be admitted to Ministry of Labour training centres for the completion of their training in suitable cases, if they are eligible for such training under the regulations of the Ministry of Labour.

Medical News.

THE annual prize distribution at St. George's Hospital Medical School will take place on Monday next at 3 p.m., when an inaugural address will be delivered by Mr. E. B. Turner, F.R.C.S., who will also preside at the annual dinner of past and present students in the evening.

THE annual prizes of the Charing Cross Hospital Medical School will be distributed in the out-patient hall of the hospital on Wednesday, October 3rd, at 3.30 p.m., by Dr. William Hunter, C.B., who will afterwards deliver an address on some problems of modern medical education. The annual dinner of past and present students will take place at Gatti's Restaurant at 7.30 on the same evening, under the chairmanship of Dr. T. Watts Eden, obstetric physician to the hospital.

THE first meeting of the Medical Society of University College Hospital, London, for the present session will be held in the Medical School on Friday, October 19th, at 8.30 p.m., when Professor J. E. G. de Montmorency, M.A., LL.B., will read a paper on law and medicine. The new departments of the school will be open to inspection.

THE St. Thomas's Hospital old students' dinner will be held at the Princes' Restaurant, Piccadilly, on Friday, October 26th. The chair will be taken by Mr. William Henry Battle, F.R.C.S., at 7.30 p.m. The price of the dinner, inclusive of stewards' fee, is 15s., to be paid at the Princes' Restaurant.

THE Guy's Hospital biennial dinner will be held at the Connaught Rooms on Wednesday, October 17th, at 7 p.m., when Mr. G. Bellingham Smith will preside.

THE winter session at the Central London Throat, Nose, and Ear Hospital, Gray's Inn Road, will commence on Thursday, October 4th, at 4 p.m., when Mr. William Stuart-Low, F.R.C.S., will deliver an address, "The rôle of the mucous membrane in diseases of the nose, throat, and ear."

THE inaugural sessional address of the Pharmaceutical Society of Great Britain will be given at 3 p.m. on Wednesday, October 3rd, by Dr. W. E. Dixon, F.R.S., of Cambridge. The Pereira medal will be presented on the same occasion.

AT the meeting of the Medico-Legal Society on Tuesday, October 16th, at 8.30 p.m., at the house of the Medical Society of London (11, Chandos Street, Cavendish Square, W.), Mr. W. Greaves-Lord, K.C., will introduce a discussion on miner's nystagmus.

AN inaugural lecture on the present tendencies and future compass of physiological science will be given by Professor A. H. Hill, F.R.S., at University College on October 16th at 5.30 p.m. The chairman will be Professor E. H. Starling, F.R.S., Foulerton professor of physiology, and Professor Hill's predecessor in the chair be [illegible]

THE post-graduate course which is to begin at the National Hospital for the Paralysed and Epileptic, Queen Square, Bloomsbury, on Monday, October 8th, will include a set of eight lectures and demonstrations on neuro-pathology by Dr. J. Godwin Greenfield, pathologist to the hospital. The first three will deal with the cerebro-spinal fluid, the fourth with the paths of infection in the central nervous system, the fifth and sixth with the pathology of the neuron, and the seventh and eighth with reactionary changes in the central nervous system. Particulars of the course can be obtained from Dr. C. M. Hinds Howell, Dean of the Medical School.

A SPECIAL post-graduate course is being given at St. Mary's Hospital Medical School, Paddington, beginning this day, Saturday, September 29th. On that day five lectures will be given, the first at 10 a.m. On Monday, October 1st, there will be four lectures, the first beginning at 11 a.m. On Sunday, beginning at 10.30 a.m., lectures will be given on the investigation of dyspepsia and on the treatment of diabetes respectively. The lectures, which will be given in the clinical theatre of the unit (Cambridge Place entrance), are open to all medical practitioners without fee.

A LONG series of post-graduate courses in general medicine, neurology, surgery and orthopaedics, gynaecology, radiology, and other specialties have been arranged by the University of Vienna for the months of October, November, and December. A special intensive course in oto-laryngology will be held from December 3rd to 15th, and an intensive course in general medicine, pediatrics, and neurology from February 11th to 24th, 1924, with a short advanced course from February 25th to 29th. Programmes may be obtained on application to the Kursbureau der Wiener medizinischen Fakultät, Porzellangasse 22, Wien IX. A limited number of these programmes may be had at this office.

THE annual general meeting of the Medical Defence Union will be held at the Royal Hotel, College Green, Bristol, on Saturday, September 29th, at 5 p.m. The chair will be taken by the President, Sir Charles Ballance, K.C.M.G., C.B.

THE sessional meeting of the Royal Sanitary Institute will be held in Carlisle at the end of the second week in October. On October 12th a discussion on public health administration in relation to measles and whooping-cough, from the points of view of a county borough and a county area, will be opened by Dr. Beard, M.O.H. Carlisle, and Dr. Morison, M.O.H. Cumberland County Council. A paper on some aspects of housing in Carlisle will be read by Mr. Percy Dalton, deputy city surveyor. On Saturday visits will be made to the Cumberland tuberculosis colony and to the works of decorative tin box makers.

MAJOR JAMES AITKEN CLARK, M.B.E., M.B., R.A.M.C., has been granted permission to wear the decoration of the third class of the Order of the Nile, conferred upon him by the King of Egypt.

REGULATIONS were made by the Minister of Health on May 1st last providing for the manner in which any receptacle containing condensed milk is to be labelled or marked, and prescribing the minimum percentages of milk fat and milk solids in condensed milks. The date fixed for the operation of the regulations was October 1st, but as difficulties have arisen in consequence of the recent dock strike in disposing of stocks of condensed milk already in this country which do not comply with the regulations the Minister of Health has postponed until November 1st the operation of the regulations in regard to retail sales in this country. It is not intended to alter the date fixed for the application of the regulations to condensed milk imported into this country—namely, October 1st.

AT the twenty-seventh congress of French-speaking neurologists and alienists, held at Besançon from August 2nd to 7th, under the presidency of Dr. Henri Collin, it was decided that the next congress should be held in Brussels in August, 1924, under the presidency of Dr. E. de Massary, of Paris, and Dr. Glorieux, inspector of the Belgian asylums, and that the twenty-ninth congress should be held in Paris in May, 1925, under the presidency of Dr. Anglade of Bordeaux.

A SHORT time ago a conflict arose in Berlin between the panel medical practitioners and the health insurance societies in regard to fees, partly because, on account of the state of the currency, the fees had become inadequate, and partly because of undue delay in their payment. A special meeting, attended by over 1,500 panel practitioners, authorized its executive committee to cancel the contract with the societies on a certain date, if satisfactory assurances were not received; an agreement, however, was eventually reached.

THE Air Ministry has vacancies for a number of temporary staff nurses. Candidates must be between 24 and 40 years of age. Full particulars can be obtained on application to the Matron-in-Charge, Princess Mary's Royal Air Force Nursing

done when the cervix is open, and thus passed into the uterus. They point out, again, that no packing should pass through the cervix, as the raw area in the lower uterine segment is easily infected. In some other schools, however, plugging is very rarely practised in cases of placenta praevia, because usually the cervix, when the condition is diagnosed, will admit two fingers, and then it is definitely contra-indicated, as version can be performed. The number of abdominal pregnancies—four, with two living children and only one maternal death—is very interesting, as this rare complication is seldom seen. With regard to operative procedures, Caesarean section was performed in twelve cases only, showing that the operation is not undertaken without due consideration. In cases operated on for the first time, the lower uterine segment operation was always employed. There were no deaths from Caesarean section. Pubiotomy was performed on eight occasions, with one maternal and four infantile deaths. This latter operation is undertaken, however, at the Rotunda Hospital somewhat more frequently than is usual elsewhere, and is performed instead of craniotomy for contracted pelvis if the child is thought to be alive. After the pubic bone has been divided labour is allowed to progress naturally, forceps are not applied, and the child delivered at the time of the operation; thus in two cases labour went on for eleven to fourteen hours after division of the bone, the infant succumbing in both cases. Induction of premature labour for contracted pelvis is favoured in suitable cases, a 30-inch No. 24 stomach tube (soft rubber) being employed instead of bougies, as the tube can be sterilized more thoroughly. Sea-tangle tents are used for induction before the twenty-eighth week. Dr. Fitzgibbon and his colleagues advise that several tents should be used instead of one large tent, and that they should all be introduced through the internal os. In the treatment of hydatid moles, of which six instances occurred during the year, curettage with a flushing curette is advised seven days after removal of the mole, whether it came away spontaneously or not, as there is always a large amount of débris in the uterus. The operation can, it is stated, usually be performed easily without an anaesthetic. Besides the maternity cases, 433 gynaecological cases were treated and 325 operations performed in the hospital, the mortality being 2.2 per cent.

KITCHENER MEMORIAL MEDICAL SCHOOL AT KHARTUM.

THE account which Dr. O. F. H. Atkey, Director of the Medical Department, Sudan, gives us at page 581 of the scheme of the Kitchener Memorial Medical School at Khartum more than justifies the appeal which is about to be made in this country for contributions to an endowment fund. The idea of the school was conceived by Lord Kitchener during his last visit to the Sudan, and it will help to complete the educational scheme he initiated when he founded the Gordon Memorial College immediately after the battle of Omdurman. In doing so he showed his faith in the people of the Sudan at a time when the country was desolated by war, famine, and disease. He knew them well and appreciated their qualities. Except in the extreme south the Sudan is inhabited by an Arab race possessing something of the intelligence and love of knowledge which through mediaeval times kept alive the torch when medicine, and science generally, throughout Europe were in eclipse. The people of the Sudan to-day have shown their approval of the project in a most practical way, by themselves subscribing over £11,000 and by other gifts. Up to date all expenditure has been met, and £20,000 has been subscribed towards the endowment fund. The appeal is now for £40,000 to complete the fund, which will be devoted to maintenance and to meet the cost of an adequate teaching staff. At present teaching is carried on by members of the Government medical service, but they have other duties, and the plan is obviously only a makeshift. The need for a larger staff is indeed urgent, since at present it will only be possible to accept twelve students a year, but it is clearly desirable to make provision as soon as possible for a much larger number, all of whom, it may be expected, will quickly be absorbed. From a medical point of view the scheme seems to be framed on right lines. Students are to be given a sound training in modern medicine up to a certain definite standard, so that if later on they can be brought back to the school it will be possible for them to resume their training without having to unlearn anything. Eventually it is intended, when the staff can be made adequate, to extend the curriculum to five years, and it is hoped that before very long the school will take a leading part in the civilization and development of north-east and central Africa, and, working on the same lines as those followed by the medical schools of Europe and America, produce really good scientific work.

THE CENTENARY OF THE "LANCET."

ON Sunday, October 5th, 1823, the first number of the *Lancet* appeared, and in celebration of the event a special number of the journal will be issued on October 6th, and a centenary dinner will be held in London on the evening of Thursday, November 29th, at the Hotel Victoria, Northumberland Avenue, London, W.C., at 7.30 for 8 p.m. Sir Donald MacAlister, President of the General Medical Council, will take the chair, and will be supported by the Presidents of the Royal Society, the Royal Colleges of Physicians of London, Edinburgh, and Dublin, the Royal Colleges of Surgeons of England, Scotland, and in Ireland, the Chief Medical Officer of the Ministry of Health, the President of the British Medical Association, and the Presidents of the Royal Society of Medicine and of the Medical Society of London. The Minister of Health has signified his intention of being present, and it is hoped that a gathering representative of all the interests associated with the medical profession will meet on this occasion. Those who desire to be present should communicate at their early convenience with Mr. H. D. Gillies or Dr. J. H. W. Laing (honorary secretaries) at 7, Portland Place, London, W.1. The charge for the dinner has been fixed at 15s., exclusive of wines, and if notice be given in advance endeavour will be made to arrange that friends who so desire shall sit together.

AN ANTIVACCINATION FALLACY.

ANTIVACCINATION fallacies are so numerous—or numberless—that one more or less does not matter, but lately special emphasis has been laid on the fact that vaccination and small-pox have been declining together for years past. Of course they have, and when small-pox reappears, as recently in many parts of the country, vaccinations also mount up. Under voluntary vaccination that will always be so. There is no teacher of vaccination like small-pox, and the "anti" advocate will always be able to point out that when small-pox abounded vaccination abounded, and vice versa. The only fallacy is that cause is substituted for effect and effect for cause—which is a mere trifle to the antivaccination intellect. It is because small-pox is absent that vaccination is at a low ebb, and when small-pox returns so will vaccination.

SIR ARCHIBALD GARROD, M.D., F.R.S., Regius Professor of Medicine in the University of Oxford, has been appointed a member of the Medical Research Council in succession to Professor F. Gowland Hopkins, F.R.S., who retires by rotation. The appointment of Sir Archibald Garrod was made by the Committee of the Privy Council for Medical Research, after consultation with the Medical Research Council and with the President of the Royal Society, by Order of Council dated September 11th, 1923.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

228. Treatment of Haemoptysis.

C. COLBERT (*Arch. de med., cir. y esp.*, August 11th, 1923, p. 248) states that the treatment of haemoptysis in pulmonary tuberculosis should vary according as it is accompanied by a high or low blood pressure. In cases with high blood pressure emetine is indicated, beginning with an intramuscular injection of 4 cg., which should be repeated two or three times a day. When the blood pressure falls the doses should be diminished. Colbert has never had any bad effects from emetine, but the total dosage in the course of treatment should not exceed 1 gram. In addition to emetine a small purge of sodium sulphate should be taken every morning. Any other drug is unnecessary. The prognosis should be very guarded when emetine is ineffective. In any case adrenaline is formally contraindicated. When the blood pressure is low the most satisfactory drugs are pituitary extract and gelatinized serum in a dilution of 2 to 10 per cent. Morphine should be administered very cautiously, as it interferes with expectoration and facilitates the production of bronchial emboli. If, however, the cough is very troublesome it will have to be given. In cases of profuse haemoptysis associated with the presence of a cavity, artificial pneumothorax should be performed and 600 c.cm. of gas injected, and if the haemoptysis recurs the operation should be repeated.

229. Epidemic Transient Diaphragmatic Spasm.

G. C. PAYNE and C. ARMSTRONG (*Journ. Amer. Med. Assoc.*, September 1st, 1923, p. 746) report on the nature of a disease which was epidemic in Virginia in May and June, 1923, and apparently also in June, 1888. The disease was characterized by an acute onset with epigastric pain, difficulty in breathing, fever, and tenderness along the lower ribs, and the duration varied from one day to three weeks. In the epidemic of 1923 it has been most prevalent in the north eastern district of the State, affecting rural areas more than urban, and children more than adults. It has caused no deaths, but in some cases it has led to serious sequelae. It is believed to be due to an infection, but the nature of the virus has not been determined. Prodromal symptoms were usually absent. The attack nearly always began suddenly and without warning, with severe epigastric pain. The pain later extended to one or both sides of the lower part of the thorax. In nearly all cases the temperature rose at the time of onset and soon reached its maximum, which varied from 101° to 105°. Profuse perspiration was usually present. The pain was increased with active movement of the body, particularly with any attempt to stand or sit erect. In some cases it was also increased by swallowing. Nausea and vomiting were not prominent symptoms, but they occurred in about one-third of the patients examined. Constipation was usual, but there were also numerous cases in which dysentery followed the attack. More than half of the patients complained of headache. After from four to ten hours of severe paroxysms of pain and dyspnoea the patient usually became more comfortable. In no case did the initial paroxysm last more than twenty-four hours without a period of comparative comfort. Blood counts were negative. The sequelae of this condition are variable, and appear to depend on individual and local conditions. The only death reported was in a woman who developed an acute endocarditis after recovery from this illness.

230. Exercise in Treatment of Hypertension.

C. WARD CRAMPTON (*New York Med. Journ. and Med. Record*, July 4th, 1923, p. 31) advocates the discriminate use of exercises in conjunction with other measures in the treatment of hypertension. Slow, long-continued exercises, with periods of rest and relaxation, give the best results in producing vaso-dilatation and tonicity, and these are considered under five headings: (1) bed exercises; (2) breathing exercises to increase chest mobility, thoracic aspiration, relief of abdominal stasis, and for abdominal massage; (3) anti-constipation exercises for auto-massage and the relief of kinks and pressures; (4) contraptosis exercises to counteract visceral and blood ptosis; and (5) recreative exercises out of doors to promote happiness and well-being. The most effective exercises for abdominal auto-massage consist in a circular movement of the abdomen in the all-fours position on the hands and knees, and a change of posture from the vertical to the horizontal to straighten out kinks, counteract intestinal inactivity, and prevent stasis, by which means a long-standing persistent constipation can frequently be cured. Treatment should be definitely prescribed for the whole twenty-four hours to allow of a proper adjustment of rest, recreation, diet, work, baths, massage, etc., individual and social interests being considered as well as the physical and medical state. Following upon such carefully arranged exercises, and depending upon their character and extent and any associated pathological conditions, there will be a decrease in blood pressure with improvement in muscle tone, circulation, nutrition, and posture, and exercises are useful in the prevention of conditions associated with hypertension. Such treatment must not be allowed to replace diet restrictions, rest, or other appropriate therapy, since, the hypertension being merely a symptom, it is not that alone that has to be treated but the patient as a whole as regards his various physical and mental processes, associated diseases, and sources of infection.

231. Treatment of Scabies by Acid Sodium Sulphite.

E. LÉPINAY (*Bull. Soc. Française de Derm. et de Syph.*, June, 1923, p. 323) gives two prescriptions for ointments for scabies: acid sodium sulphite (ordinary solution of the codex) 600 grams, lanolin (anhydrous) 400 grams; and anhydrous acid sodium sulphite, distilled water, vaseline, of each 200 grams, lanoline 400 grams. These ointments are easily prepared, inexpensive, non-irritant, and well tolerated, even when there is secondary eczema or dermatitis. According to the severity of the case, two or three applications on consecutive nights are required, and suffice to produce a cure without preliminary applications of soap or baths. Disinfection of clothes appears to be unnecessary, but as a precaution Lépinay recommends that they should be cleaned with benzine, as recommended by Milian. Lépinay thinks that the acid sulphite acts by setting free nascent SO_2 on contact with cutaneous secretions.

232. Intravenous Injection of Calomel in Syphilis.

G. B. PODESTA (*Rif. Med.*, August 6th, 1923, p. 746) has treated 59 cases of syphilis in various stages of the disease with intravenous injections of 3 cg. of calomel. Eight to twelve injections were given, according to the requirements of the case, every four or five days. The results were as follows: (1) The injections were quite harmless and painless, and only in rare instances gave rise to a general reaction in the form of a slight rise of temperature. (2) No case of stomatitis or albuminuria was seen in this series. (3) The treatment had a well marked curative effect upon the primary sore, papular lesions of the secondary stage, and tertiary nodular and gummatous lesions. (4) On the other hand, the ulcerative or vegetating lesions of the secondary stage were not much affected. (5) The destructive action of the calomel injections on *Treponema pallidum* was definite but not constant, and the Wassermann reaction was affected, but only slowly and in an irregular degree. (6) Injection of calomel by the intravenous route proved superior to intramuscular injection.

233. The Difference between Functional and Organic Arterial Hypertonus.

L. ROEMHELD (*Münch. med. Woch.*, August 3rd, 1923, p. 1022) points out that it is generally allowed that increased peripheral resistance is the primary cause of increased blood pressure. At first this is produced by increased tone of the muscles of the smallest vessels. Psychical causes play an important part in causing this increased tone; but much may be said in favour of the view that it may be of toxic origin and associated with excess of albuminous food. It is stated (v. Sticker) that in certain parts of the East, where the diet consists almost exclusively of milk, cheese, and vegetables, the oldest people have soft blood vessels, like those of a chlorotic girl. Besides toxic causes (including nicotine) constitutional factors play a part. Hypertonus is especially liable to occur when the abnormal resistance is chiefly in the splanchnic area (obese individual with flatulent gastro-intestinal disturbances). Three stages may be recognized in the development of arterio-sclerosis: (1) a functional, presclerotic stage in which the hypertonus depends on angiospasm, which may be checked by suitable dietetic and physical measures; (2) mixed functional and organic hypertonus; (3) the final stage of arterio-sclerosis. As regards diagnosis, prognosis, and treatment, the recognition of the stages of hypertonus is important. The functional hypertonus

large income for the sake of an academic life. Such men also usually find that the work of a professor as they conceive it is so exacting that it leaves no time for anything else. It must be said that this monastic view of the professoriate of medicine has never been taken anywhere else than here and in a few American schools, and it is certainly unreasonable to insist upon it everywhere. There are, at any rate, other possibilities. A comparatively young man might, for instance, be elected for a limited number of years, on the understanding that after that he might resign his chair and take a practice, or that the university might think it better not to re-elect him. There is something to be said for such a plan, for a man's invention rapidly deteriorates, while his experience and his judgement advance, and this method might be a means, if not to give him the best of both worlds, at least to give both worlds the best of him. But it has also disadvantages which are equally obvious. Or, again, it might be preferred that the professor should be the embodiment of judgement and experience, and that the more imaginative qualities which are certainly needed should be supplied by an assistant, who should be placed above the necessity of practice.

Opinions will differ, too, as to the part which the professor should play in the school organization. At one school he may be given the charge of organizing the whole of the teaching in the final subjects, while in another he may be merely a colleague working alongside the other members of the staff, and on the same terms with them.

For some time to come circumstances will differ, and the plans adopted will differ accordingly. But, so far as the first of these points is concerned, it seems not unlikely that the best candidates for the chairs will themselves prefer an academic life and ask to be relieved from practice, while if they do so the universities will probably find means to render this possible.

The remainder of the staff is, in London itself, treated with even more variation. At one school the first assistant may have part of the day to himself, while the juniors are fully occupied; at another the reverse may happen, or the same school may vary its conditions at different times to suit the persons concerned. The more variation the better. The paid assistants are not, however, the only persons on the unit staff, for these units are centres to which are drawn not a few graduates from other countries, especially from Canada and the United States, who wish to come to Europe and to work under European teachers. In at least one instance a London professor has taken duty for a colleague in America, and the latter in his turn has acted temporarily for the professor here.

We may hope that the poverty of the universities, which sadly hinders the introduction of expensive changes, may gradually be relieved, though we can hardly expect to obtain the immense endowments which universities, and especially medical schools, have received of late years in America. In that country gifts to education have taken the place of those gifts to religion by which our forefathers sought to perpetuate their names in this world and to mitigate their sufferings in the next, and the restricted insight which leads men to prefer material benefits to others has turned such gifts almost entirely to the scientific, and chiefly to the medical departments. The same tendency is visible here, but the donors are less wealthy and are therefore ransomed at a smaller cost. In America, too, there are few other objects on which a man may spend largely; in the old world there are many; and since our Governments have not hitherto accounted public benefactions of this kind worthy of honour, public giving has turned rather to those channels which conduce to the rewards that good men naturally desire.

III.

It remains to consider the effect of recent changes upon the student. It was allowed, even by those who criticized the system then existing among us, that the practical instruction of the British and Scottish schools was probably the best in the world. Nowhere else was the feeling of responsibility, which is the best of all incentives to learning, so early developed as with us, and nowhere were general practitioners so competent. Our methods had been imported into American schools, and American physicians were unanimous in approving them. Criticism turned rather upon the future outlook of the men we trained. It was alleged, but on *a priori* grounds and without any attempt at comparison with other countries, that though they left the schools excellently equipped for practice they were not so trained in what may be called by contrast the theory of medicine as to lead them to pursue independent research in their daily work, or to assimilate for practical use the gradual advance of physiological and pathological discovery. It must be repeated that this was almost entirely founded upon what the critics thought our training would produce, rather than upon any actual observation of the conduct of the living, wriggling general practitioner himself in this and in other lands; and even so, no one wished that the practical excellence which was admitted to exist should be impaired, but it was desired to add to it a deeper study and a profounder view. Everyone acknowledged that it was of the first importance to the public that a man should know the clinical significance of what he saw or felt or heard in the patient's body, but the critics added that he should be trained continually to question the meaning of these phenomena, to refer them to wider physical laws, or to seek explanations in the most recent results of physiology and pathology.

The recent advances in these sciences have led to an astonishing increase of those methods of clinical observation which depend upon the test tube and the microscope. The student has many more ways of observing his patient than he had aforetime, and a complete account of any single case of disease is much longer and much more complicated than it used to be. The employment of new methods raises many fresh questions in his mind. He asks himself why this element in the blood is decreased or augmented, or why this constituent in the urine is absent or enormously in excess. His horizon is extended, and with the addition of each fresh phenomenon to the sum of his observations a fresh object is afforded to curiosity. All such fresh work is ill understood at first, but behind the outer fringe of new observations law gradually advances, consolidating—as the soldiers say—the territory won, classifying, reducing to regularity—or, as we call it, explaining the phenomena—and adding width and depth to the science of medicine.

It is, of course, true that these laboratory methods are on the one hand so laborious that few have time to continue them in after-life, and also need such constant exercise that to use them only occasionally as private practice offers is probably more dangerous than profitable. Yet a man who has used them and understood them will better realize what they mean and what they can effect. He will be able to some extent to form his own judgement on laboratory reports, and will not put a penny in the slot and expect an answer to all his difficulties.

Yet it must be acknowledged that there is a little to be said on the other side. The new labours entailed upon students undoubtedly diminish the time they can spare for the practice of the old methods. The time spent with the microscope is not spent with the stethoscope, and that given to the laboratory is so much taken away from the training of the eyes to see, the ears to hear, and the hands to feel the body itself. This is in a measure compensated by the greater labour of the teachers. The student is an instance of intensive cultivation. He is taken over his work by one teacher after another, and the effort is made by constant pressure to squeeze into him in a short time that which he used to absorb more slowly by himself. But there is no denying that something is lost by these methods. The student thinks less for himself.

Nor can it be denied that the multiplicity of the phenomena diminishes the consideration which can be paid to each. The horizon is vastly extended, but there is less opportunity to dwell upon any of its details. There is even some fear that the change may lead to the direct opposite of what was intended, and may, while greatly increasing the student's information, tend to a more superficial rather than to a profounder habit of thought.

This has led some to question whether all that can be

upwards, but below the duct was completely blocked. The hepatic duct was therefore isolated and anastomosed to the stomach with a series of catgut sutures and a layer of fine silk sutures. A drain was placed down to the site of anastomosis and the wound closed. For six days there was no leakage from the wound, then there was a profuse escape of bile for a week. This stopped shortly afterwards and the stools were coloured normally. Apart from some slight pains over the liver the patient made a satisfactory recovery and the fistula has closed.

239. Pneumoperitoneum as an Aid to Diagnosis in Diseases of the Liver and Gall Bladder.

ROBERT NUSSBAUM (*Muench. med. Woch.*, August 10th, 1923, p. 1052) insists upon careful study of the anatomical relations and physiological movements of the normal abdominal viscera as the foundation of successful x-ray diagnosis of pathological conditions, but some further assistance is required. In some cases natural or artificial distension of the stomach with CO_2 (for example, by administration of a Seidlitz powder or other mixture of sodium bicarbonate and tartaric acid) has been of considerable assistance in revealing the stomach outline, but Nussbaum states that this procedure may cause perforation of an ulcer or rupture of a cicatrix. He therefore recommends inflation of the peritoneum with oxygen or nitrogen, and gives a long list of diseases (including pyopneumothorax) in which skiagrams taken after inflation of the peritoneum will show many details which would be otherwise invisible. Abscesses, exudations, and adhesions will be shown by deepening of the normal shadows and alteration of their form. Cancerous growths and gummata have been clearly shown by this method. The normal liver outline becomes more definite, and the gall-bladder shadow appears as a rounded projection superimposed upon the shadow of the liver. Nussbaum recommends that an ordinary pneumothorax apparatus with a manometer and Denecke's needle be used. He prefers to introduce the gas in the left iliac fossa, half-way between the umbilicus and the left anterior superior spine; 1,500 to 2,000 c.cm. of oxygen or nitrogen can be introduced slowly without discomfort to the patient. Nussbaum concludes that pneumoperitoneum is a valuable addition to the list of diagnostic methods in diseases of the liver and gall bladder. When properly performed it is free from danger. Naturally it is contraindicated when symptoms of peritonitis are present. No adverse results have been recorded, although it is possible that gas embolism, separation of pre-existent adhesions, injuries to the intestines or blood vessels, or, finally, extensive surgical emphysema, might result from faulty technique. Success depends very largely upon the skill and experience of the operator.

240. Surgical Treatment of Infantile Paralysis.

CAPRIOLI (*La Pediatria*, July 1st, 1923, p. 723) deals especially with pes talus paralyticus, which is associated with more or less advanced abduction and pronation of the foot itself. In treatment, in addition to restoration of the movement of plantar flexion, it is necessary to restore those of adduction and supination. For this purpose the author recommends transplantation of the peroneus longus tendon on the internal aspect of the calcaneum and internal margin of the tendo Achillis, transplantation of the peroneus brevis on to the tibialis posticus and later on to the flexor longus pollicis or flexor longus digitorum, transplantation of the extensor longus digitorum to the internal aspect of the first metatarsal near the attachment of the tibialis anticus. The author gives details as to the technique of these transplantations and records of five cases successfully operated upon. It is seldom that osteotomy of the calcaneum is necessary in these cases if they are treated as above.

Obstetrics and Gynaecology.

241. Primary Carcinoma of the Female Urethra.

V. J. O'CONOR (*Urol. and Cut. Rev.*, August, 1923, p. 475), who reports a case of his own, states that there are only ninety-nine apparently authentic cases on record in which carcinoma has developed primarily in the female urethra. About fifty cases which were originally reported as primarily urethral had to be rejected, as they really belonged to the group of vulvo-vaginal tumours. Primary carcinoma of the female urethra most frequently develops in the urethral mucous membrane, and is usually of a squamous-cell type, of higher malignancy than is usual for tumours of similar structure on skin surfaces. It must not be confused with carcinoma of the vulva and vaginal wall, which is most often papillomatous with a ragged fungating margin and tends to spread laterally, involving the cutaneous surfaces of the vulva and vagina rather than the deeper periurethral structures. Although several writers have suggested that the neoplasm develops from some low-grade chronic inflammation, statistics show that in many instances such an antecedent is lacking. Until recently the treatment has consisted in extensive surgical removal of the urethra and cancer-bearing areas. In only a very few early cases has successful excision with maintenance of urinary control been accomplished. In most cases the operation has led to structural mutilation and functional derangement, so that the end-results have hardly justified the procedure. Somewhat more encouraging results have been obtained in cases where radium has supplemented excision. In O'Conor's case, which occurred in a woman aged 54, a very extensive carcinoma of the urethra was locally destroyed by diathermy, with subsequent complete healing of the urethral and vulvar regions. Urinary function was retained and local symptoms were completely relieved by the procedure. O'Conor maintains that diathermy is superior to any other method in effecting local destruction of carcinoma of the female urethra, especially as it completely seals off the surrounding tissues during the slow coagulation. The method is devoid of operative shock, does not require an anaesthetic, and is followed by only slight post-operative discomfort, while even in advanced cases urinary control is maintained.

242. Severe Intraperitoneal Haemorrhage from a Menstrual Corpus Luteum.

T. HESSELBERG (*Norsk Mag. f. Laegevidenskaben*, July, 1923, p. 625) heads his paper with the question: "Can a considerable intraperitoneal haemorrhage arise from a menstrual corpus luteum?" He notes that as great an authority as Forssner is inclined to regard most such cases as being overlooked instances of extrauterine pregnancy. They may be, but the author inclines to the view that the menstrual corpus luteum may occasionally be the site of a severe haemorrhage in the absence of pregnancy, uterine or extra-uterine. In support of this view he records the case of a 2-para, aged 29, whose last menstruation began on November 10th and was normal in every respect. On November 24th she felt faint and ill, with pain in the lower abdomen. A diffuse, doughy, and exquisitely tender swelling was felt in the pouch of Douglas. There was no haemorrhage from the vagina. Laparotomy revealed much fluid and clotted blood, the right uterine appendages being buried in loose clots. When these were removed, a normal Fallopian tube was found, and a normal-looking ovary was seen to contain a ruptured Graafian follicle, of the size of a hazel nut. Protruding from the ruptured surface of this follicle there was a round, firm, yellow body, of the size of a pea. From the depths of the follicle a fairly vigorous haemorrhage was still proceeding. The uterus was small and firm, and the left uterine appendages were normal. The right tube and ovary were removed, and a microscopic examination of the latter showed no signs of either inflammation or pregnancy.

243. Symptomatology and Treatment of the So-called Double Uterus.

IN the opinion of H. EYMER (*Zent. f. Gyn.*, August 11th, 1923, p. 1281) the condition of a double uterus is rarely discovered until pregnancy occurs, when it is very liable to cause trouble. Thus abortions are of more frequent occurrence, and inertia uteri, malpresentations and positions, impacted labour due to obstruction by the non-pregnant horn, and post-partum haemorrhage are all common. In the non-pregnant the clinical features are not sufficiently marked to allow the condition to be diagnosed, though menstrual and pre-menstrual dysmenorrhoea and menorrhagia are common occurrences. The scanty menstrual flow described by Blair Bell has only been found by the author in a very small number of cases. The explanation of the menorrhagia and dysmenorrhoea is, in the author's opinion, the weakness of the uterine muscle, which is both functionally and anatomically weak, the weakest part being situated on the inner walls of the two horns, this being contrary to Kussmaul, who states that the musculature is as strong as in a normal uterus. Menorrhagia is also aided in some cases by one horn menstruating after the other, and thus the period is prolonged, dysmenorrhoea being also favoured by the narrowness of the cervical canals. The author recalls one case of pseudo-didelphys in which there was a large horn and a small one and in which one vagina was wide and the other narrow, the wide vagina being connected with the small horn. The patient complained of dysmenorrhoea and sterility, and on coitus being effected through the narrow vagina the patient at once became pregnant. Dirner also relates a somewhat similar case in which one horn always aborted, whereas when pregnancy occurred in the other it always went on to term. Regarding treatment, the author states that dilatation and curettage are contraindicated, the former on account of the extreme narrowness and obliquity of the cervical canals and the latter on account of the great thinness of the uterine wall in places, a condition which in many

THE STATE OF THE PUBLIC HEALTH.

SIR GEORGE NEWMAN'S REPORT FOR 1922.

(*Concluded from p. 538.*)

LOCAL SANITATION.

An account is given on established lines of work under the Ministry of Health relating to water supply, sewage disposal, rivers pollution, scavenging, and general environmental hygiene. Smoke abatement receives particular attention, and Dr. Niven's health report on Manchester is referred to. The Committee on Smoke and Noxious Vapours Abatement (1921) suggested the compulsory use of mechanical contrivances for avoidance of smoke, the establishment of combined "smoke authorities," and the appointment of expert smoke inspectors under the Ministry.

As to scavenging, attention has been given to defective methods of disposal of London refuse in the adjoining counties. A conference was held, and a joint consultative committee issued a statement as to precautions which should be taken concerning refuse tips—shallow layers of refuse promptly covered with earth—the prevention of fire, and the covering of railway trucks and barges during transit of refuse. Methods of disposal by salvage and pulverization plants are being kept under observation.

It is pointed out that offensive trades should be controlled even if effluvia or emanations cannot be proved injurious to health.

Isolation Hospitals.

Isolation and small-pox hospitals have been the subject of inquiries and inspections. Several so-called small-pox hospitals are such merely in name.

"Old cottages, temporary structures, without proper accommodation for the nursing staff, insufficiently ventilated, deficient in water supply, lacking facilities for bathing and washing, with inadequate drainage and means of sewage disposal, are considered by certain sanitary authorities, in the absence of small-pox, sufficient provision for the reception of patients suffering from small-pox. When small-pox occurs in these districts, the hospital accommodation, such as it is, is inadequate to receive even the first few patients and gross overcrowding results.

"In a recent visit to one of these hospitals, a medical officer of the Ministry found three patients suffering from small-pox in a so-called ward measuring 12 ft. by 9 ft. by 7 ft., the cubic space per person being less than that usually provided in a common lodging-house, and the floor space being one-quarter of that recommended as necessary by the Ministry."

"The Ministry has no legal authority to compel a sanitary authority to provide an isolation or a small-pox hospital nor to regulate the use of such hospitals when provided."

VENEREAL DISEASE.

Good work continues to be done under the venereal disease scheme, notwithstanding that need for economy has led to the closure of a few smaller centres. Beds for in-patients are available in connexion with most of the centres. Sixteen hostels have accommodation for 271 women and girls, and treated 584 cases, their work being valuable in preventing ophthalmia neonatorum and infantile syphilis. In 1922 effort under the scheme was directed mainly to improving efficiency by increased thoroughness in treatment, by adding to the facilities for the treatment of gonorrhoea, by more convenient arrangements for patients, and by improving equipment where required. Sufferers from syphilis are more readily convinced of the value of due attention than are those with gonorrhoea. The report states that "Unfortunately in a number of centres the treatment of gonorrhoea still falls short of the best modern practice, and in these cases it is not surprising that the official clinics fail to attract anything like a due proportion of cases of gonorrhoea." In women efficient treatment of gonorrhoea is a most exacting task. Gonococcal vaccines are being found of undoubted service in appropriate cases, both of women and men. The importance of tracing contacts is insisted on, for a syphilitic child means a syphilitic mother, and the prospect of more syphilitic children.

The number of fresh infections of syphilis has certainly fallen, and the impression strengthens that gonorrhoea is also on the decline. The number of cases dealt with for the first time in 1922 was: syphilis 25,762, against 32,733 in 1921, and gonorrhoea 29,477, against 32,433. Cases other than venereal number 16,988. The total number of attendances was 1,560,568.

FOOD IN RELATION TO HEALTH.

Milk.

Control and grading of milk—"certified," "Grade A (tuberculin tested)," "Grade A" not so tested, and "Pasteurized milk"—are the main features of present-day supply. Of 2,400 animals which passed the tuberculin tests 1,500 were on "certified" farms and 900 on "Grade A" farms; the herds were daily producing 2,250 gallons of "certified" and 1,350 gallons of "Grade A" milk. Bacteriological sampling yields improving results; in 1920, 71.2 per cent. of samples were satisfactory; in 1921, 75.4; and in 1922, 81.7; the numbers on which these percentages were based rose from 60 in 1920 to 142 in 1921 and 338 in 1922. But the average consumption per head of milk in Great Britain is less than a third of the United States average, though the need of the children for milk is equally great in both. It is hoped that the improved keeping qualities of milk, and public knowledge of its better quality, will promote its use. The essentials are clean and healthy herds, clean milking, effective and immediate cooling, prompt bottling, and clean and rapid transit.

Meat Inspection.

The code of instructions for inspectors prepared by the Departmental Committee on Meat Inspection (1921) was issued by the Ministry after emendation. The report gives an account of action taken and under consideration for preventing importation of unsound meat from abroad—tuberculous pork, pig's heads with submaxillary lymphatics removed, and certified "inedible" grease from the United States manufactured abroad into "refined lard" for sale in this country.

Food and Drugs.

The administration of the Sale of Food and Drugs Acts is still under the influence of post-war economy. Of over 60,000 samples of milk, 8.6 per cent. were found adulterated; of over 11,000 samples of butter 2.4 per cent.; of 3,700 margarine 0.7 per cent.; of 1,878 cream and preserved cream 23.7 per cent.; of vinegar 6.2 per cent.; coffee 1.5 per cent.; spirits 14.6 per cent.; drugs 6.7 per cent.; and other articles 3.6 per cent. The number of drug samples was 5,863, and the total samples, including all the above, 113,800. The electrolytic method of estimating arsenic has been improved greatly, and is of value for finding the metal in food, the source usually being arsenical sulphuric acid, or ingredients dried in contact with fumes from arsenical fuel.

Shellfish.

Various investigations of shellfish were made during the year, but the report protests against the insufficiency of the information often sent where enteric fever is attributed to consumption of shellfish. The "Weymouth (Shellfish) Regulations, 1922" have been applied to forbid the relaying in Portland Harbour of oysters for human food, the harbour being polluted by crude sewage.

Food Poisoning.

An account is given of various inquiries into chemical poisoning, where lead, copper, or zinc, or, in one case, potassium nitrite, was concerned. Bacterial poisoning occurred on a considerable number of occasions, the articles of food brought under suspicion being very numerous, including meat, fish, and fruits. In many cases an organism of the Salmonella group was isolated. An outbreak of dysentery at Lynton was traced, through milk supply, to a farm hand who had served in the East and was found to be an active carrier.

INSURANCE MEDICAL SERVICE.

With most of the facts mentioned in this section of the report readers are already acquainted, and the least familiar matter, the rheumatism inquiry, is referred to elsewhere in this notice, but we may quote the following paragraphs:

"The number of insured persons entitled to medical benefit in 1922 was (approximately) in England 12,690,000, and in Wales

An Address

ON

THE PROBLEM OF SUCCESS FOR MEDICAL WOMEN.*

BY

SIR HUMPHRY ROLLESTON, K.C.B., M.D., D.C.L., LL.D.,

PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AT the rapid progress made by women in the medical ofession in the recent past—for it is scarcely fifty years ce in October, 1874, the London School for Women was ened—does not continue to be so dramatic has no doubt to some disappointment. But the changes have been great that a little consideration of their significance will ow that it is not only natural but advantageous that the riod of upheaval should be followed by an interval of m for efficient consolidation of the position. There is leed a special need for emphasizing this at the present me—namely, the influence of the war; many of both ces imagined that a millennium would follow, and perhaps men, with their more vivid imagination, and with the mulus of the just recognition of their recent work in the r and the granting of the franchise as further reasons high hopes, are less inclined to possess their souls in tience. The number of women members of Parliament disproportionately small to those who have votes under e women's suffrage (1918), and shows that a rapid change not necessarily succeeded at once by what may appear be its logical sequence. Samuel Johnson's line "Slow es worth by poverty depress'd" is perhaps not without application and comfort.

The question of the need for, existence, and spheres of efulness of women doctors is so far settled that further scussion would serve no useful end, and it is unnecessary insist on the openings in private practice, and especially the suitability of women for official posts in the various anches of the public health service and in India. But e present is an anxious time for the whole medical ofession; the proportion of medical practitioners to the neral population is now greater than at any period during e past fifty years, and since 1914 the number of women tering the profession has greatly increased. Thus to take gures kindly given me by Professor R. B. Wild: at the ictoria University of Manchester out of 153 women edical students entering between 1899, when women first tered, and 1918, not fewer than 105, or 67.8 per cent., irted during the war. During and immediately after e war their services were much in request on account the absence of men with the forces, but now with the mber of men available the conditions have altered; indeed competition for advertised posts plainly shows that the pply has more than overtaken the demand. No doubt rush into the profession after the war carried in a mber of entrants not so well equipped as in the past, l particularly in the case of women students, who in mer times were "picked" and in more deadly earnest n the men students. This approach to overcrowding probably a temporary state of affairs, for the peak of wave of entries into the profession, though not that qualifications, has passed. Nevertheless it must be recog-ed that our profession should be regarded as affording ortunities for a fine and ennobling life rather than a ns of attaining ease and opulence. It is probably still e that it is easier to get a living of a sort in medicine n in the other learned professions, but as a trade position it takes a very humble rank. This, no doubt, lies with greater force to women's than to men's re-neration, and here, as will be suggested later in another nexion, the influence of tradition plays no inconsiderable , for the lay public as a whole has not yet become stomed to medical advisers other than those of the male In maintaining the principle that sex should not make difference in the emoluments of the medical profession the British Medical Association has led the way and supported the Federation of Medical Women.

On an occasion such as this, when you are all looking forward to "the dim mystic future" with hope tinctured by uncertainty as to your prospects, speculation is inevitable as to the changes and chances that beset the individual, and the personal characteristics, the opportunities, and accidents that determine success or failure. It may perhaps be opportune to examine briefly the difficult question of the factors bearing on the probability of success, a consummation capable of very various interpretations, for women doctors. This will involve some reference to the inherent properties of sex, incidence of genius, originality, and other mental characteristics, physical capabilities and health, and environmental influences.

Since the time of Darwin it has been recognized, though not without protest (Karl Pearson), that variability, both in body and mind, is more frequent in the male than in the female sex, so that genius, originality, and initiative, as well as idiocy and crime, are more frequent in men than in women, who tend to preserve a more equable level; men have a greater aptitude for abstract problems, women for concrete subjects.

Now taking into account only the factor of the vastly greater number of men than of women in the medical profession and remembering the relatively small percentage of men of outstanding ability that it has produced, it is surely not surprising that women doctors have so far not numbered among them any to rival Lister, R. Koch, Osler, and Horsley. Further, the number of women who give up the pursuit of medicine, before or after qualifying, is probably relatively much greater than in the case of men, mainly because marriage seriously depletes the ranks of women doctors; further it is widely held, though statistical proof of this would be difficult, that it is the ablest who thus fall by the way. It has been stated (Louisa Martindale) that 30 per cent. of all women doctors marry either before or after qualification, and, though what proportion of these retire from active practice is not known, it commonly must act as a handicap to women, whereas it is of necessity a stimulus to male practitioners. But to return to the sex incidence of genius—that extreme natural variation—there is, as just pointed out, the additional factor of greater uniformity among the female sex to reduce the probability of the occurrence of phenomenal ability among them.

Study of the world's history has convinced Mathilde and Mathias Vaerting, whose remarkable book *The Dominant Sex, A Study in the Sociology of Sex Differentiation* has recently been translated into English, that the relationships of the sexes as regards dominance vary in a manner resembling the swing of a pendulum; in a few instances women have had the upper hand, as in ancient Egypt, Sparta, the Garos in India, and the Iroquois; in the vast majority of nations, of course, men have been predominant, and very exceptionally the rights of the sexes have been nearly equal, as in the State of Wyoming; during the phase of male predominance there has been a conscious or unconscious tendency to obliterate the evidence of former feminine dominance, or, expressed more generally and at the same time more forcibly by the Vaertings, "history is perennially falsified by the prepotent ideology of the dominant sex." In nations under feminine dominance the woman supported the family and went out to work while the man was the housekeeper and domestic drudge; such division of labour is not ascribed to biological or physiological differences but depends on the dominance of sex; in fact the women of a nation in which the female sex is dominant become from the attendant circumstances physically fitter than the men, and the notion that inborn physiological differences between men and women determine the usual superiority of the male is argued to be due to confusion between cause and effect.

The force of tradition and the suggestion that man is the dominant partner is not easy to estimate accurately in regard to medicine; auto-suggestion may well be of some importance; but that a woman doctor would consciously abstain from research and striking out a new line because it is commonly regarded as peculiarly a man's sphere seems

*livered at the London School of Medicine for Women on October 1st,

with encephalitis lethargica it seems as if elucidation of the natural history of this disease may come chiefly from study of outbreaks in isolated rural districts," whilst it is said also that

"The source of infection is not apparent, but here again analogy with other case-groupings suggests previous contact with some more populous district on the part of one of the cases; in the Radway outbreak the first patient was the only child in the school who spent the holidays away—at Birmingham and Walsall."

Botulism.

Botulism has become of general interest since the Loch Maree outbreak, which was noticed in the BRITISH MEDICAL JOURNAL at the time. The disease has been recognized in Europe for over a century. In 1918 a number of the earlier cases of encephalitis lethargica were reported to the central authority as botulism, but without sufficient evidence. In the United States since 1913 nearly 400 cases have been reported. The bacteriology of the disease is expounded, and, after pointing out that this country at the present day depends largely on imported canned foods, Sir George Newman goes on to discuss the means which should be taken to protect the consumer against food poisoning. Very briefly stated, these means are good sanitation of manufacturing premises, materials of good quality, wholesome, sound, clean, and in good condition, preservative reagents periodically analysed to detect impurities, perfect cleanliness of vessels, utensils, implements, and machinery, and the sterilizing and suitability of containers; where sterilization by heat is employed in the preservation of hermetically sealed foods it must be applied effectively to the finished product; healthy, cleanly workers; and carefully organized storage and distribution. There ought to be for safety a practical partnership between the manufacturer, the central health authority, the local health authority, and the consumer. The public and the press should carefully avoid the creation of food "scares," whose effects may be much more serious than the outbreak of poisoning itself.

Tuberculosis Schemes.

In England there are 442 dispensaries with 349 tuberculosis officers. There are 19,386 beds in 441 residential institutions. Of these 201 are provided by local authorities, and 240 by voluntary bodies; 11,526 beds are provided in the former and 7,860 in the latter. In a series of thoughtful paragraphs much wise advice and guidance is given as to the working of tuberculosis schemes and sanatoriums, and we will quote only the last of these.

"It is desirable that authorities and the officers of dispensaries and sanatoria should not be misled or discouraged by ill-informed criticism or condemnation of the tuberculosis schemes as now administered in the country. Some sanatoria are less successful than others, and all sanatoria are unsuccessful with some cases—which is true of all human institutions. *The success of a sanatorium depends upon its management.* There can be no question or doubt whatever that the principles of sanatorium treatment are sound and of enduring value. It is their practice that demands our continual and vigilant attention."

Treatment and Diagnosis.

Artificial pneumothorax, x rays, diathermy, the Spahlinger treatment, and Professor Dreyer's method are referred to. The Ministry is willing to investigate experimentally the Spahlinger treatment if only it can obtain the material, but the preparation of "complete serum" seems long and complicated, and no definite date has been assigned by M. Spahlinger for its production in large quantity for general use. Professor Dreyer's method promises well. A full account of it has already been given in the BRITISH MEDICAL JOURNAL (June 23rd, 1923, p. 1065).

Port Sanitary Control.

As befits its national importance, this subject occupies considerable space in the report. Fundamental requirements include an efficient port sanitary system; adequate facilities for isolation of ship-borne cases of infectious disease, and means for disinfection; arrangements for disease control on board ship, for inspection and general sanitation, and for inspection of imported foodstuffs; inspection of aliens; and adequate regulations for control of infection and the protection of food supply. Besides the Regulations of 1907 relating to cholera, yellow fever, and plague, regulations were issued in 1920 for other infectious diseases, and half the cost of administration is borne by the Exchequer. Medical examination of aliens is now placed under the Ministry of Health. At each port the work is directed by the medcal officer of health. A table shows that at 13 ports of England and Wales nearly 340,000 aliens arrived in 1922, of whom nearly 200,000 were temporary visitors, about 70,000 intended to settle permanently, and the rest were on their way to other countries.

Fumigation of vessels for destruction of rats is discussed, in respect both of sulphur dioxide and hydrocyanic acid, the latter being much the better in various respects, notwithstanding its obvious risks, which can be guarded against if instructions are followed. The United States requirements for half-yearly destruction of rats on ships have been modified, as a result of a visit to the States by Dr. Recce and Dr. Stock, in respect of properly constructed passenger vessels plying regularly between ports not infected with plague, and loaded under specified precautions for exclusion of rats.

The hygiene of merchant ships has, it is stated, undergone steady improvement in recent years.

INFECTIOUS DISEASES INTRODUCED FROM ABROAD.

Malaria.

The report states:

"During the four years since the 1st March, 1919, when the Ministry's Public Health (Malaria, etc.) Regulations came into force, more than 23,000 cases of exotic origin, with 794 deaths, were notified in England, and during the six years since 1917 nearly 500 cases of new indigenous infection were the subject of special inquiry and action. After 1920 there was a marked decrease in the number of notifications of cases of exotic origin and a coincident decrease in the number of cases originating locally in this country. In 1922 the exotic cases notified numbered 1,356 as compared with 1,644 in the previous year, and the new indigenous cases numbered only 6 as compared with 12 in 1921 and 36 in 1920. The number of deaths attributed to malaria in 1922, all of them being among persons who contracted the disease abroad, was 133 as compared with 143 and 250 in each of the two preceding years. In pre-war years the average number of deaths attributed to malaria was between 50 and 60 per annum."

At endemic centres in Kent and near Shrewsbury a few cases have occurred. Field and laboratory studies of mosquitos, and of the value of various "larvacides," are being carried on, and sanitary engineering works of preventive character are under negotiation in one area. Inquiries were made in every one of 336 cases in which malaria was mentioned in death certificates, with the result that in a large proportion there was no evidence that this disease had had any relation to the death. Cases have occurred in England among crews and passengers in vessels trading with the East. The disease assumed the character of an epidemic of great severity in Greece, and in Russia from the Black Sea to Archangel.

Plague.

Though no case of human plague occurred in England and Wales in 1922, the position throughout the world is ominous. The disease is now epidemic in 240 centres, as against only 60 in 1904, and these centres include a number of localities in Europe. In India the plague season of 1922 was again one of the mildest on record, but there was a marked increase in the early weeks of 1923 shown. The report states:

"It is not unjustly held that the present world distribution of plague indicates that in great degree the measures hitherto adopted to prevent its maritime spread have failed. It is thought that the relative failure may be due to a lack of appreciation of observations indicating that in ship-borne bubonic plague the part played by rats and rat-fleas is almost all-important, the part played by human cases being almost of negligible importance. Of interest in this connexion are the instances in which ships have conveyed plague to other countries without any human cases having arisen on board, and the instances in which an incomplete fumigation has failed to render a ship 'clean.' Having regard to observations of this kind, the present tendency is to strengthen measures against rats and fleas and to relax measures against human cases of the bubonic type."

Cholera.

The position is generally favourable throughout the world; though there was again epidemic prevalence of cholera in Russia during the summer of 1922 there was, as before, rapid decline in autumn and winter. No case occurred in England and Wales.

devotion and thus to narrow their intellectual outlook and their chest development; to them, therefore, it is not so necessary to insist on the obvious need for industry, what Sir William Osler in his charming *Aequanimitas* called "the Master-word in Medicine," as to remind them that the best student combines mental and physical prowess, and thus realizes the ideal of the *mens sana in corpore sano*. It has not uncommonly been urged in introductory addresses such as this that hard work alone seldom leads to a breakdown and that worry or some extraneous factor is the real cause; this is a rather overstated, though no doubt admirably meant, exhortation, and is perhaps more applicable to those whose life's work is free from the menace of the examination bogy than to the students, especially women, whose mental vision is too often focused anxiously in that direction. It may be partially true when hard work can be secured from worry, but even then the interference with physical health must be taken into consideration. Much, therefore, turns on how the work is done, wisely or otherwise, and on the physical and mental make-up, so to speak, of the individual; women students especially should remember that there are occasions when the willing spirit should be mindful of the weakness of the flesh, and that as a class they are more liable to mental breakdown from overwork.

There are disadvantages in reading too much; as epigrammatically put by Sir James Kingston Fowler, "if you want to be original you must not read too much." This may sound like an invitation and encouragement to idleness in the face of the enormous amount that medical students have now to assimilate, and really to be a more useful admonition to those who are qualified to practise than to students beginning the rudiments of science. Though at first sight a paradoxical statement, excessive reading may be a peculiar form of laziness in so far as it is a means of escape from that much avoided process of thinking for oneself: how much easier it is to look up at once in a book the solution of a problem than to attempt to worry it out first in one's mind. The real moral, therefore, is to read wisely and to spend time in thinking over and applying to actual cases what has been read, instead of aiming at a facile familiarity with the windy doctrines of many textbooks. The danger of over-reading may at first sight seem chimerical, but it largely consists in using up time which would be better spent in thought and practical observation. At the present time radiograms and laboratory tests so greatly assist and often appear to decide the diagnosis that careful study of the patient is in serious danger of being neglected. The experience gained from one good clinical case is worth half a dozen textbook descriptions and is likely to be remembered much longer. The habit of accurate observation is not easily acquired; reading may tell you what to look for, but it cannot take the place of observation which proverbially brings wisdom—a far more valuable property than mere learning. The bookish student may repeat like a parrot the words of the wise without understanding them and break down wofully in practical work. There are several methods of reading, and by far the best is that which is accompanied by thought and by an analytical abstract of what is read; thus impressing the argument on the mind at the time and providing a concise précis of the subject for future reference. It is a mistake to read too long at a time at one subject, for this leads to mental fatigue, to which girls are more susceptible than their brothers.

In the opinion of experienced teachers, such as Professor W. D. Halliburton, while the average female student is on the whole superior to the average male student, possibly because the women who take up science are usually keener and feel a call to do so, the best women students are not so able as the best men students. This estimate indeed is on the same lines as the generally accepted view that true genius is even rarer in women than in men. Now whether this is due to inherent sex peculiarities or is the result of long-continued dominance of the male sex or to both these factors is an academic though interesting question.

It has been stated that each individual contains the potential elements of both sexes, one being of course dominant, though varying in individual [illegible] spondence with the influence of the hormones from the endocrine glands, especially the gonads. According to Otto Weiniger and W. L. George "there are no men, there are no women, but only sexual majorities." Although this view may not now be accepted and the endocrine glands are now considered to influence emotional rather than intellectual activities, there are most remarkable individual differences among members of the same sex, and everyone has known feminine men and virile women. As all kinds make a world, provision must be made for all, and it is among the masculine minded women that variability tending to the production of genius or of special ability may be anticipated. Perhaps too much stress has been laid on the small number of women doctors who have made epoch-making advances and on the view (correct as it may be) that as a rule women students are less original in mind, less inclined to initiate new lines of thought, and are more successful as conscientious followers than as independent leaders in research. There have been exceptions in the past to any such rule, there are more in the present, and in the future there can be little doubt that women workers will take an increasingly larger part in research, whether independently or under the inspiration of a great teacher. The establishment at the Royal Free Hospital of a whole-time Professor (Dr. Louise McIlroy) of Obstetrics and Gynaecology with a clinical unit is a notable step in advance and offers opportunities for realization of this belief.

But after all, success in our profession is not measured solely by ability for research and the discovery of truth, any more than by the accident of popular approval that brings with it wealth and a prominent place in the limelight. There is the satisfaction of honest work quietly carried out, with the knowledge that duty, hard and unremunerative though it may be, has been done. The truest success in the art of healing does not, as it does in pure science, depend solely on intellectual pre-eminence; there are the properties of the heart as well as those of the brain, perhaps best expressed in the familiar text, "Though I have the gift of prophecy (prognosis), and understand all mysteries (diagnosis), and all knowledge; and though I have all faith, so that I could remove mountains (confidence and operative skill), and have not charity, I am nothing" (I Corinth. xiii, 2). In the keen pursuit of scientific diagnosis, which is a purely intellectual process without room for the emotions or sympathy, there is a risk that the patient may be regarded and treated as a machine out of order, and thus the plight and feelings of a suffering fellow creature may be forgotten. A doctor should add to the abilities of an engineer and chemical expert of the human body some of the attributes of the broad-minded churchman. Sympathy demands imagination, and both of these specially feminine properties should be preserved as valuable assets in our profession, and not transformed into callousness by contact with the naked and often repulsive aspects of a doctor's life. Imagination should supply an insight into the mind of the patient and an understanding of the fears and anxieties of those who come to be cured. Without this conception of the patient's point of view the student may think only of the diagnostic problem and forget the human aspects. The influence of cheerfulness and of reasonable optimism on the sick should be ever borne in mind; yet this may easily be forgotten in the presence of dour reserve even amounting to bad manners, really due to the patient's worries and self-consciousness. With a cheerful manner should be combined a degree of concentration sufficient to convince the patient that his condition is receiving serious attention; it is hardly necessary to carry this so far as to give the impression to every patient that he is the only person who counts in this world. Tact and self-oblivion, essentially feminine properties, are of great value in medical practice, and should therefore be preserved by medical women and not, as perhaps is sometimes the case, repressed or discarded by the more vigorously minded. As scope for the emotions and human interest are important factors in rendering work congenial to women, this would appear to be an additional reason why most women are more suited for practice than for pure laboratory research.

A good memory and methodical habits are impor-

intensely loyal to the British connexion. They are, moreover, extremely anxious to have young men of their own race trained as doctors and they have themselves subscribed over £11,000 to this project. In addition to this, one Sudan merchant has bequeathed all his property now in his lifetime to be held by trustees; the interest, a matter of £1,200 a year, is to be devoted to the maintenance of medical students during their period of study.

Scope of the Project.

The immediate intention is to train as assistant doctors young men selected from the final year students of the Gordon College.

The selection will be based on honesty of character, energy, and power of initiative, as well as on proficiency in their studies. They will have received a thoroughly sound secondary education including a good knowledge of English, which will be the sole medium of instruction. The number of entries each year will at first be limited to twelve. The period of instruction will be four years. During the first two years the instruction given will include the preliminary sciences and anatomy, histology, physiology, and materia medica. The last two years will be occupied with the purely professional subjects. Special emphasis will be laid on hygiene and tropical medicine.

Work in the out-patient department will commence from the first year. Students who have conscientiously carried out their course of studies and who have satisfied their teachers and their examiners that they have attained the required standard, will be awarded a diploma authorizing them to practise in the Sudan only.

The object aimed at will be to obtain thoroughly conscientious assistant doctors accurately trained up to a definite standard and absolutely reliable up to the limit of that standard, but who would not be expected or allowed to attempt the higher grade work of the highly trained physician or surgeon.

These assistant doctors will often be stationed in isolated posts, but they will be under the general direction and advice of British medical inspectors.

That the Sudan Arabs can be trained to be useful doctors has been shown by experiments carried out at Khartum Civil Hospital. A few selected youths have been trained at this hospital as assistant medical officers, and in spite of the impossibility of giving them a scientific medical training owing to the lack of laboratory accommodation and of the equipment necessary for a teaching school, and to the insufficient teaching staff available, a considerable proportion of these purely empirically trained assistant medical officers have proved themselves to be men of marked ability and have performed very valuable work in combating epidemics and in rendering simple surgical and medical assistance to the people among whom they have been working.

At a later date, when the pressing need for doctors has been met and a suitable teaching staff has been built up, it is proposed to extend the length of the curriculum to five years and to bring the standard of the curriculum and of the examinations up to the standard demanded by British medical schools; the preliminary sciences will by then be included in the curriculum of the Gordon College.

It is thus hoped in the not distant future to have a medical school at Khartum which will take a leading place in the civilizing and development of North-East Africa, and which, working in close liaison with the older schools of Europe and America, will produce really good scientific work.

Facilities for Teaching.

A medical school building is in course of construction, and will be completed by November next; it contains a lecture theatre and laboratories for the teaching of the preliminary sciences and of anatomy, physiology, and pathology. The site of this building is opposite to the Civil Hospital and only a few yards from it on the main road leading from the railway station to the Palace.

The clinical teaching, clerking, dressing, etc., will be carried on at the Khartum Civil Hospital, a well equipped modern hospital of a hundred beds with an x-ray installation and clinical laboratory. A new and well equipped out-patient department has just been added, so as to afford greater facilities for out-patient teaching.

Teaching Staff.

For the present the teaching will be carried out by the Government medical and scientific staff, including the director and staff of the Wellcome Tropical Research Laboratories, which are situated within ten minutes' walk of the medical school buildings. In addition to the Government staff a medical registrar will be appointed whose whole time will be spent on the medical school work.

It is recognized that this can only be a temporary arrangement for a few years, and that later it will be necessary to increase the whole-time teaching staff considerably.

Need for the School.

It has been pointed out that the object of the school is to build up a service of Sudanese doctors which will enable the diseases and epidemics of the Sudan to be dealt with more effectually both by medical and hygienic measures, and which will render it possible to establish the hygienic conditions necessary to enable the schemes of economic development at present in course of execution and their subsequent extensions to be carried out successfully.

At present there are immense areas throughout the Sudan, and especially in the southern regions, in which the population is completely out of reach of any hospital and cannot be visited by Government medical officers. In consequence the loss of life from untreated disease and unchecked epidemics is very great. In particular the following diseases call urgently for further medical and hygienic action:

(*a*) In the extreme south and south-west sleeping sickness is exacting a heavy toll from the population, and in the south-west, Bahr-el-Ghazal, this disease has increased greatly during the last few years. There is always the danger of it becoming acutely epidemic.

(*b*) On the Blue Nile kala-azar appears to be on the increase.

(*c*) In the southern Sudan also great numbers of the population are attacked by yaws and syphilis, and these diseases appear to be rapidly gaining ground.

(*d*) Bilharziasis, ankylostomiasis, and trachoma are widely spread in the northern and central Sudan, and it is essential to stamp out these diseases before they have got such a hold on the population as to render this practically impossible, as is the case in Egypt.

(*e*) The population of the central Sudan is annually prostrated with malaria, which is largely preventable.

As regards the economic development of the Sudan which has been referred to above, a dam is being built across the Blue Nile 170 miles south of Khartum, and 300,000 acres of the fertile Gezirah plain will be placed under perennial irrigation for cotton cultivation. The railway also is being pushed through to Kassala so as to link up this potentially rich country with Port Sudan, thus enabling large areas of the fertile Gash delta to be brought under cotton cultivation on a profitable basis. The cotton-growing areas of the Sudan can be extended almost indefinitely. In the Gezirah alone over a million acres of ideal cotton-growing land await development, and there are further enormous areas in Kassala Province and up the White Nile and Sobat rivers which will gradually be brought under cotton cultivation.

There is just sufficient man-power in the Sudan to meet the needs of this development, but none to spare. It is essential that there should be no wastage of man-power, and that there should be a steady increase of the population to meet the progressive development foreshadowed above. The whole success of this development, therefore, depends on adequate medical and hygienic arrangements being carried out, and this cannot be done without a largely increased supply of doctors.

In addition to these considerations it is confidently expected that an increase of doctors in the southern regions will greatly facilitate the administration of these partially pacified countries. The quickest and surest way to pacification and civilization in Central Africa is to increase enormously the number of doctors.

It is difficult to think of any other way in which such far-reaching results can be obtained for such a trifling expenditure, so much suffering relieved, so much work done towards enabling the great potential wealth of this country to be developed.

after the stimulus has ceased for a period depending upon the intensity of the stimulus to the afferent neurone. The rhythm in the efferent neurone is initiated by nerve impulses from the afferent side, but persist for some time after the original stimulus has ceased.

The evidence, therefore, is in favour of rhythmical activity being a property of certain neurones—for example, efferent neurones. The possession of rhythmical activity by the neurone would be disastrous to the orderly working of the nervous system were it not for the property of inhibition by which the discharge of nerve impulses can be immediately checked when their continuance would interfere with other reactions. This property of inhibition appears to reside in the synapses, and can be brought into action in several ways.

We do not know if rhythmical activity is a property of the afferent neurones or of the receptors which initiate the nerve impulses in them. A certain amount of persistence of some sensory impressions does occur, but varies considerably in different sensations. In the sense of hearing the receptors in the cochlea are stimulated by mechanical means, the principle of sympathetic vibration being made use of. If the receptors respond to each individual vibration a series of impulses would be set up in the auditory nerve; but we do not know if this is the case. A damping mechanism is described, which would serve to cut short the response of the receptor. Mechanical vibrations can be distinguished by other parts of the body, and the impressions are discrete even with a high rate of frequency, a fact which militates against the possession of rhythmical activity by the afferent neurones concerned. In receptors which are excited by chemical means—for example, the senses of smell and possibly of vision—the sensation is more persistent. The persistence of sensation, however, may be due to other causes than a continued action of the receptors, and may be of central production. The amount of rhythmical action possessed by the different neurones of the nervous system is an important question, but it is difficult to see how it is to be determined, and for the present it lies in the realms of hypothesis only.

Automaticity of the Neurone.

It has long been debated whether nerve cells possess the property of automaticity. Some neurones certainly do not. It would be a catastrophe if the afferent neurones possessed the power of initiating nerve impulses on their own account; all kinds of sensory illusions would be of constant occurrence. Sensory phenomena are common in disease and may be ascribed to several causes. If due to the activity of afferent neurones some form of stimulation extraneous to the neurone is the exciting cause. Normally there is no evidence that the afferent neurones conduct any impulses other than those which have originated in the receptors at the periphery. Nor is it likely that efferent cells are endowed with automaticity, though attempts have been made to show that some of them do act in this manner. The efferent nerve cells supplying the muscles of respiration have an action that appears to be automatic, but it is impossible to cut off from them all afferent impulses. Further, the respiratory centre is a complex, and some part of it is susceptible to hydrogen-ion changes in the tissue fluid in its vicinity, but precise information is lacking as to where the action takes place. Haldane states that "to judge from analogy the sensitive elements are probably not the bodies of nerve cells, but end-organs or arborizations."

We have little evidence that chemical substances, except in gross amounts, act directly upon the neurone, whereas the synapse or junction between the neurones is particularly susceptible to even minute amounts of certain chemical agents. It is possible that the action takes place at the synapses in the respiratory centre, and that some of these are specially sensitive to changes in the hydrogen ion. Any other explanation would require the interposition, somewhere in the respiratory centre, of receptors specially endowed with the property of being affected by hydrogen-ion concentration and able to convert this form of energy into nerve impulses. We have no histological evidence that any such receptors exist, but they cannot be excluded.

Unconditioned and Conditioned Reflexes.

There is good reason for denying the automaticity of nerve cells in that part of the central nervous system which Hughlings Jackson termed the "lower or first level." Hughlings Jackson defined this level as consisting of spinal cord, medulla, pons, and of the grey matter in the floor of the aqueduct of Sylvius. We know from the researches of Sherrington that this level, if cut off from the levels above, is capable of reflex action only. The reflexes it exhibits are in the decerebrate animal "unconditioned"; that is to say, they take place in a definite or predictable form which is dependent only upon the nature and site of the stimulus applied at the periphery.

The conditions which exist when the higher levels are not cut off are infinitely more complex. Then we have to deal not only with the reflex but with the various forms of sensation and with voluntary action. Many of the reflexes in the normal animal are transferred from the lower to the higher levels and become correspondingly more complicated. It is true not only of the reflexes of voluntary muscles but even of some of the visceral reflexes. The flow of saliva, when excited by the presence of suitable food in the mouth, is an "unconditioned" reflex. But Pavlov has shown that the reflex secretion of saliva may take place in response to many different forms of stimulus, even of a painful character, if these have been regularly associated with the presentation of food. Thus the ringing of a bell, or the electrical stimulation of a certain area of the skin, when regularly associated with the giving of food, become effective in themselves in provoking the reflex. This reflex Pavlov described as a "conditioned" one, and the afferent paths of the nerve impulses which produce it must lead through the higher centres of the cerebral cortex, where it is liable to various forms of inhibition and is therefore no longer "unconditioned." The complexity of the reactions which take place in the cerebral cortex is partly due to the enormous number of pathways existing there, so that it is impossible to predict the reactions which any afferent impulse may cause unless such afferent path has been "conditioned" and all other afferent impulses are for the time being rigidly excluded. But the complexity of the cerebral reactions is also due to the exercise of the property of inhibition, which is a striking characteristic of the cerebrum, and appears to take place at the synapses. The cerebral cortex can direct the afferent impulses into any of the efferent paths, but the choice of many of the latter must largely depend upon the connexions made by the pathways of the incoming nerve impulses.

Sensation.

Under normal conditions the nerve impulses which give rise to sensations have their origin outside the central nervous system, and are excited by the response of the sensory nerve endings or receptors to certain adequate forms of stimulation. The nerve impulses thus initiated are carried by afferent neurones to the grey matter of certain parts of the cerebral cortex or basal ganglia. Their further translation into consciousness is effected by some process the nature of which is unknown. The afferent impulses in their passage upwards may excite reflexes at various levels, and may or may not give rise to sensations. The production of sensation depends partly upon the anatomical pathways the nerve impulses take, but also upon the receptivity of that part of the brain which is concerned in translating them into terms of consciousness. The afferent paths utilized in the production of sensation are, in part at least, the same as those which are used in the afferent side of the conditioned reflex, and a sensation or a reflex, or both sensation and reflex, may result from the same afferent impulse. In states of excitement or mental stress a stimulus, which under ordinary conditions would give rise to sensation or even pain, may set into activity the reflex mechanism but may fail to excite sensation, probably because the higher pathways of the cortex are fully occupied and by a process of inhibition the afferent impulses are prevented from exciting consciousness.

THE PHYSIOLOGICAL UNIT.

It is not customary to regard the sensation as a reflex, but the pathways of the nerve impulses which give rise to

Ireland.

EETING OF IRISH NURSES.

t of the Irish Nurses' and Midwives' Union, t the opening meeting of the Council in the Dublin, when Miss Louie Bennett, Presi- chair, recorded a total membership of 795, 128 since October last. The report alleged nment had acted dishonestly towards some ves in places where new appointments at an ry had been actually sanctioned by the late vernment Department when Mr. Cosgrave was midwife in Dunshaughlin, appointed at £80 unt sanctioned, was reduced to £40, with £15 er sanction being withdrawn. When a question n the Dail about this the excuse given was that s issued "in error." The nurse had to suffer partment's "error." A similar thing occurred fo in Edenderry, appointed at £67. The salaries hdown midwives were reduced also, as sanction had obtained during the troubles and dislocation of ernment in 1921. This has happened lately also dge Union, where a bonus of £35 was cut off at sanction had not been obtained. The Rathdown as subsequently decided to pay the increased salary, e Meath County Health Board has recently told the Government Department that it could not procure rife for a vacant district at the sanctioned salary, and nion expressed the hope that the Local Government tment would be forced to raise its maximum soon and the local authorities to pay what they considered right. nemo to provide daily visiting nurses for patients who ot require a whole-time nurse was launched by some bers of the Union, principally Mrs. MacCarthy and s Bonass, in the early part of the year. The idea, the ort stated, was new to Dublin and Dublin doctors, but en it was better known it would be a great success. The port was adopted. The following resolution was proposed Miss Smithson and seconded by Miss Guinnane:

That we are of opinion that a Ministry of Health should be immediately set up in the new Government, as it is plain that the progress of public health reform is at present being held up owing to the lack of a special department to deal with it; and we recommend that members of the medical and nursing professions should be appointed on the Health Ministry.

Dr. Rowlette, speaking in support of the motion, declared that there could not be prosperity in any country without good health. Personally he had no definite ideas as to the best means of impressing upon the Government the importance of a Ministry of Health. He understood that the Irish Medical Committee had already sent a deputation to Mr. Blythe; it would, he thought, be more efficacious for all to organize together. The Nurses' Union was specially strong on this question, because its members had special knowledge of what people needed, and were in touch with labour and those outside. The Labour party was the only one which made health a point in its programme. If it was made only a matter of improving the salaries of nurses and doctors the Union would not succeed.

Correspondence.

HEALTH RESEARCH IN SCOTLAND.

SIR,—The article in the current number of the BRITISH MEDICAL JOURNAL upon the health of Scotland, reviewing the valuable report of Dr. Chalmers, Medical Officer of Health, Glasgow, concludes with the statement that "there is abundant occasion and opportunity for valuable research into the health problems of Scotland. In these days there is too great a tendency to assume that research can only be conducted in a laboratory, but there is ample opportunity for field work of the best sort. The harvest is ready, and we hope the reapers also may be found."

The facts have, perhaps, been overlooked that the Medical Research Council, as is indicated in its Annual Reports, has during the past five years been fostering such investigations upon the influence of environment in the growth and nutrition of children in towns—Glasgow, Edinburgh, and Dundee—and Carnegie United Kingdom Trust has given substantial financial assistance, in order to expedite the work and to allow of its extension to rural districts.

Previous studies have shown that the children of the poorer classes in industrial towns compare unfavourably with those of the better classes in the same towns and with children in rural districts. The object of the present investigation is to attempt to determine what factor or factors play the most important part in bringing about this condition.

The work is being carried out on two lines—first, extensive studies, through the child welfare centres, and second, intensive studies by visiting families representative of the class. These visits are made by trained workers who carefully record the condition, weight, and height of the children, the condition of the parents, and the size and condition of the homes. It is in the pre-school period, below 6, that the home conditions may be expected to have the most marked influence, and it is upon this period that work has been chiefly concentrated. Already records of some 10,000 children at child welfare centres and some 7,000 in their own homes have been accumulated and the work of carding the results is in progress, in preparation for their statistical analysis. This will necessarily take many months, but when completed the results cannot fail to throw some light upon the problems involved.

It is to be regretted that it has not been possible to extend these investigations to England, for, as pointed out in your article, a comparison between the conditions in the two countries would help to explain the differences revealed in Dr. Chalmers's report.

A study of the housing conditions and diets and of the physical condition of the children in coal miners' families chiefly in England made during the past year for the Committee of the Medical Research Council on Human Nutrition may throw some light upon the question.

Work in rural districts in Scotland is now in progress, not only on the mainland, but in the Lewis, a typical insular district. These will have to be continued for several months before sufficient data can be collected, the scattered character of the population naturally making the work slow and laborious.—I am, etc.,

D. NOËL PATON.

University of Glasgow, Sept. 22nd.

ARTIFICIAL LIGHT TREATMENT OF TUBERCULOSIS.

SIR,—Dr. Axel Reyn, in his interesting paper on Finsen light treatment (September 22nd, p. 499), expresses his regret that a satisfactory explanation of its mode of action is not forthcoming.

I have never used the method, but from what I know of it I assume that it has this much in common with all other physical agents used in the treatment of chronic infections—namely, that in moderate doses it acts as an irritant producing inflammation, and is capable, if pushed beyond moderate limits, of acting destructively on the tissues. Further, that the readiness with which either effect is brought about depends on the vitality of the tissue, and whether diseased or healthy.

This raises the question of the difference between acute and chronic infections. An infection is acute when the causal organism possesses the faculty of exciting active resentment in the tissues. It may be that this effect is due to some highly poisonous product of its metabolism. Let us assume that it is—we are not so much concerned with the mechanism as with the fact. The result, at any rate, is a determination of blood to the point of the invasion, and the starting of those processes so well known under the head of inflammation. The fight thus instituted is in a short space of time fought to a finish between the leucocytes and the invaders.

In chronic infections, on the other hand, the fight is only half-hearted. The invading microbe has a different metabolic product, or whatever it is. It irritates less, and in

nerve impulses to the central nervous system. These in turn give rise to normal responses which are sensations and reflexes. The basis of the process is the physiological or functional unit of the nervous system.

Ill health, on the other hand, reveals itself by some disturbance of this process, and we are seeking to recognize the significance of these disturbances. Ill health is not necessarily associated with any visible pathological change in the organs of the body. When the nervous processes are disturbed the fact is usually recognized by the patient before any change in the organs can be demonstrated by the pathologist. Alterations in sensation occur which the patient recognizes as abnormal, and such alterations may be the first indication of the departure from normal health. Concurrently there may be reflex phenomena which show themselves as definite symptoms though they may be difficult to recognize. Any part of the reflex arc, or of the anatomical basis of the physiological unit, may be the site of the disturbance, though some parts of it are more susceptible than others.

Our contention is that we must look for the first signs of ill health in the nervous regulating processes of the body. They are the basis of the vital activities and maintain the life of the organism as a unit. Disturbance of the vital processes is the first sign of ill health, and their failure is the ultimate cause of death.

SOME CAUSES OF INTESTINAL OBSTRUCTION.*

BY

J. W. THOMSON, M.A., M.B., C.M.,

SURGEON, CLAYTON HOSPITAL, WAKEFIELD.

I.—VOLVULUS OF THE SMALL INTESTINE.

VOLVULUS of the small intestine is a very rare condition, and the whole of the jejunum and ileum may be involved, or only one loop may be affected. Tully Vaughan, as quoted in Rowlands and Turner's *Operations of Surgery*, has collected 21 cases. In several of these the difficulties were so great, and the appearances so puzzling, that the operators did not recognize the condition during operation. The following is a case of volvulus of the small intestine:

A man, aged 23, was admitted to a nursing home in November, 1920, about midnight, after a journey of about forty miles by road in an open touring car. Forty-eight hours previously he had been seized with violent pain in the abdomen, round the umbilicus, accompanied by vomiting. The pain never entirely subsided, but he had violent attacks at intervals. He had vomited everything, and had passed no flatus. On admission he was in a very weak condition—temperature 97°, pulse 120. During the examination of the abdomen peristalsis was excited, and a coil of bowel could be felt below and to the right of the umbilicus.

The abdomen was opened through the right rectus, and there was a considerable escape of sanguineous fluid. Bands and adhesions were present in puzzling perplexity. Coils of small intestine were adherent to the lateral and anterior abdominal walls and to the caecum, obscuring this structure, and to each other. During the separation of these bands and adhesions, what was momentarily thought to be another stout and strong band was revealed, which, from its size (rather larger than a lead pencil) and appearance, and pathological associations, almost invited resection. On tracing this towards the caecum it terminated abruptly one inch from the ileo-caecal junction, at the point where a string band had bound the intestine to the abdominal wall. It passed downwards and inwards for four or five inches, terminating in slightly distended intestine, and it was now obviously a volvulus of the ileum. This was easily unfolded, and there were about three turns. The intestine rapidly regained its colour and peristaltic movement. The raw surfaces were sutured, or covered with omental grafts. The patient made an uninterrupted recovery.

The patient was a strong, athletic man, who had had an attack of appendicitis seven years previously, when he was ill for six or sutured or covered with omental grafts. The patient made an quite well in the interval.

The case was of interest because of its rarity and its primary cause, and also of the long interval between the cause and effect. It is condemnatory of the expectant treatment of appendicitis, and it reminds one that after such an attack there may lurk in the abdomen unsuspected forces that, given favourable conditions, even after the lapse of many years, are potential of swift calamity. A perhaps simple appendectomy is replaced by a difficult and dangerous operation.

II.—DUODENAL HERNIA.

There are two varieties of duodenal hernia—right and left—the left being the more common. The left hernia originates in the paraduodenal fossa of Landzert. Trietz states that three conditions are necessary for the formation of a left duodenal hernia:

1. The existence of a fossa and its boundary folds.
2. The presence of the inferior mesenteric vein in the fold.
3. Sufficient mobility of the small intestine to permit its entry into the sac. The mouth of the sac may be two or three inches wide. The size of the hernia varies from that of a walnut to the size of a man's head, and may contain all the small intestines. The length of intestine may be as small as two inches.

Left duodenal hernia occupies at first the left and upper portion of the abdomen, but eventually may occupy nearly the entire cavity. In 1899 Moynihan collected 57 cases of left duodenal hernia. Diagnosis is rarely made, and the condition is discovered at operation for acute intestinal obstruction or at autopsy.

The following is a case of left duodenal hernia in a woman:

History.—The patient was healthy as a child. Her first illness was acute rheumatism at the age of 21. She was ill for three months, but eventually made a good recovery. Since that attack, until June, 1920, she enjoyed very good health, but was inclined to be constipated at times. She was not in the habit of taking aperients. In June, 1920, she had a slight accident, falling backwards over the foot of a bed, and she had had soreness and stiffness in her back since. Immediately after each meal, and without fail, she experienced a dull pain in the epigastric region, radiating to the pubic region. The pain lasted about fifteen minutes, disappearing entirely. Coincident with the pain was distension of the abdomen, the latter disappearing at the same time as the former. Since the accident she had been more constipated, and had been compelled to take aperients on alternate days, but she never vomited. This condition persisted until November 8th, 1920, when she became acutely ill. On that date the usual pain appeared after dinner, passing away in the usual time. About three-quarters of an hour afterwards she was seized with violent pain in the epigastrium, causing her to sink to the floor and roll about in agony. She had no vomiting on that occasion. The pain persisted for about two and a half hours, gradually disappearing. She slept well the following night. On November 9th, 10th, and 11th, and until midday of the 12th she was able to get about as usual, though she had slight continuous nausea, but no vomiting. Her diet was restricted to milk, and she noticed slight abdominal distension. The only actions of the bowels during this period were several watery motions on November 9th, after taking castor oil. On the 12th another acute attack set in about noon. This time the pain persisted, abdominal distension became very marked, she vomited very persistently, and no flatus was passed.

Condition on Admission.—She was admitted to hospital the same evening about 10.30. Abdominal distension was marked. The abdomen was tender, and the pain very severe. The pulse was imperceptible at the wrist, and collapse was intense. Vomiting had ceased. Immediate operation was decided upon, and under the anaesthetic palpation revealed a large abdominal tumour, resembling an ovarian cyst, though obviously not of pelvic origin. It was slightly movable, but not on respiration, and resonant on percussion. The lower border was on a level with the inter-spinous line. My house-surgeon remarked that the outline of the abdomen was that of an advanced pregnancy.

Operation.—The abdomen was opened in the middle line, and there was revealed a large, smooth, glistening tumour. No intestine presented itself, nor did any sanguineous fluid escape at this stage. The hand was passed round the tumour, beginning on the right side. On reaching the lower border, and on a level with the third lumbar vertebra, an orifice was discovered admitting easily a thumb and two fingers. Between the orifice and the caecum were a few inches of collapsed ileum, with haemorrhages in its wall and mesentery. There was no entering loop of intestine, only the retiring segment. With the gentlest traction the intestine was drawn from the sac. About mid-jejunum there was a well marked constriction ring, and for many inches on either side of this the intestine was black but viable. Blood-stained fluid escaped from the sac along with the intestine. No attempt to stitch the orifice was made owing to the condition of the patient. Though desperately ill for a day or two the patient made a rapid recovery.

Operation was undertaken with the hope that some simple manipulation, rapidly executed, might still avert death that was imminent, and in this it was fortunate that the intestine was viable.

* A paper read before the Yorkshire Branch of the British Medical Association.

present stage of our knowledge. In the first place, it is both broad and non-committal. Mr. Fisher's term "chronic arthritis," while helpful in dealing with purely joint affections, does not associate it in any way with other manifestations of rheumatism, which, as is well known, are extraordinarily protean in character. Improvement of the "chronic arthritis," as the result of treatment, is commonly associated with improvement of other manifestations of the "rheumatic poison"—namely, muscular rheumatism, neuritic pains, etc. This frequent experience suggests the same etiological factor for all these conditions. In South Africa, while acute rheumatic fever is relatively uncommon, the various conditions which may be broadly grouped as chronic rheumatism are extremely common. It is also interesting to note that these conditions were especially in evidence immediately after the influenza epidemic, 1918.

My experience of "rheumatism" is derived from bacteriological investigation of cases and observing the results of treatment, especially with vaccines. The extraordinary frequency with which one finds in chronic cases of "rheumatism" various streptococcus groups, such as *S. haemolyticus*, *S. viridans*, *S. mucosus capsulatus*, in association with septic teeth and gums, or in cultures of nose and nasopharynx and tonsils, brings these organisms into prominence. The good results following vaccine treatment in these cases with both stock and autogenous vaccines prepared from these organisms lends further support to their etiological importance. The frequency with which organisms of the streptococcus group, derived from widely different sources, cause arthritis in rabbits, as shown by Topley and Weir, is significant.[1]

It may well be that all cases of rheumatism—arthritis, neuritis, myositis—are due to bacterial intoxication. Even the condition traumatic osteo-arthritis lends itself to the interpretation that it is due to bacterial invasion, the resulting intoxication being localized to tissues damaged by injury.

A useful analogy is furnished by the word "diabetes." Advances in our knowledge, such as the discovery of insulin, assist us to a better understanding of this subject, but these advances in no way prevent our appreciating the value of the word "diabetes," which does not in any way commit us to an explicit statement of the etiology of the disease, and so leaves the matter an open question.

To make my point clear, I personally prefer the term "chronic rheumatism" to the term "chronic arthritis." The tone and substance of Mr. Timbrell Fisher's paper can be productive of nothing but good, and should act as a stimulus to physician, surgeon, and pathologist alike to increase their labours to advance our knowledge of this complex and highly important subject.—I am, etc.,

J. PRATT-JOHNSON.

Johannesburg, Sept. 5th.

CANNABIS INDICA: A "DANGEROUS DRUG."

SIR,—It is strange that cannabis indica, its preparations and derivatives, have not been included among the drugs of the Dangerous Drugs Act, and that after our long experience of India so little appears to be known about it. The deleterious effects of the drug are, I think, thoroughly realized in India now—in fact Indian hemp is the Indian "dope." In the press reference is usually made to it under the name "hashish." This is the preparation used by natives of the Near East, Turks, Egyptians, Arabs, etc., and it corresponds pretty closely to the Indian "ganja." In India the drug is consumed in three chief forms.

1. *Bhang.*—This is an infusion of the leaves, generally of the wild plant *Cannabis sativa* or *indica*, which is drunk especially during religious and other festivals, and ordinarily is a slightly stimulating drink much of the type of tea. Infusions, however, tend to become decoctions and to include ganja proper, especially in South India, and then the toxic effects of the drug become apparent. Macaulay in his essay on Clive refers to the use of bhang as a stimulant for attacking troops.

2. *Ganja.*—This is a stronger decoction of the cultivated plant, including the dried flowers to which a certain amount of gum resin is left adherent, and it has a definitely intoxicating effect. Its use is common among sadhus, fakirs, and religious devotees generally.

3. *Charas.*—This is the collected gum resin exuded by the flowering tops, and is by far the strongest and most dangerous preparation of Indian hemp used as a popular drug. It is, however, expensive, and is consequently consumed mainly by well-to-do addicts, especially in Northern India. Charas is usually smoked in a pipe (*chillum*), often as an addition to tobacco, and ganja is sometimes similarly taken.

I may add that a small amount of hemp is a fairly common ingredient of various sweetmeats.

The effects of the drug are detailed in all the well known textbooks, and that its abuse is a direct source of serious mental disorder is indisputable. This fact has been stressed in many official Indian publications, and has been discussed in the medical and lay press, and as the therapeutic value of cannabis indica is trifling when compared with most of the other medicines on the dangerous drugs list there appears to be no reason why its popular use should not be similarly banned.

In 17 to 20 per cent. of male admissions to the Indian mental hospitals and asylums the insanity is directly traceable to Indian hemp, but the vice is more prevalent in certain provinces than in others. I have seen no clear case among women of insanity from this cause. This drug has given rise to inquiry in other countries—for instance, Ceylon and East Africa, to the Governments of which I have, by request, furnished particulars.

The mental symptoms due to a bout are as a rule confusional, but this condition is not so regularly observed as it is when other deliriant poisons have been the cause of the mental disorder. In these ganja cases very often a characteristic wild maniacal excitement of an evanescent type results. The insane habitual consumer almost always exhibits maniacal-depressive symptoms tending rapidly to dementia.

In twenty-four years' experience in India I have seen only three cases of the use of the drug as a "dope" by Europeans. One of these was a well-to-do globe-trotter who had taken drugs all his life, and who had no particular interest in Indian hemp, except to obtain prolongation of time. Another was an excise inspector, who, when we first met, was compelled to turn his back, stoop, and view me from between his legs in order to see me in the standing position. His insanity was caused by ganja, and he recovered rapidly. The third was an habitual of the beachcomber type who became demented.

In my experience, the habit, even when of long standing, can be easily broken, and the craving and abstinence symptoms are slight. The vice of drug taking is a very uncommon one among Europeans in India, so that the small number of hemp cases I have quoted cannot serve as any guide to the probable incidence of the habit should the sale of Indian hemp continue unrestricted in England.—I am, etc.,

W. S. J. SHAW, Lieut.-Colonel I.M.S.

Bournemouth, Sept. 18th.

THE ETIOLOGY OF CANCER.

SIR,—There is a widespread group of parasitic degenerate acari which has a wonderful power of producing new growths in the vegetable world. This group (the Eriophyidae) causes galls on the bramble, elm, lime, hazel, currant, and on other plants. It causes the well known "witches' brooms" on birch and other trees. It produces the strange disfiguring growths, green when young, black or brown when old, so common on salix trees around London. The *Demodex caninus*, which causes "mange" in dogs, belongs to this family, and so also does the *Demodex folliculorum*, an extremely common parasite on man. The *Demodex folliculorum* is universally believed to be harmless. But is it? The credentials of demodex should be examined. If these parasites can cause such strange growths among-st vegetable cells, why not among animal cells?

What takes place in the case of the salix tree is very interesting and suggestive. The acarus or mite (Eriophyes) attacks the female flowers by entering the carpels. The carpels, like the other structures of the flower, are modified, specialized foliage leaves, but under the influence of the mite they revert to a more primitive type. They become small, distorted foliage leaves, very numerous, and aggregated into a tumour-like mass.

[1] *Journ. Path. and Bact.*, xxiv, No. 3, 1921.

Three days later vomiting occurred and persisted for twenty-four hours. The lochia were offensive, although there was no uterine tenderness. Coliform bacilli and streptococci were isolated from a vaginal swab and a vaccine was prepared. A low pressure antiseptic vaginal douche was given daily. Ergotin was given hypodermically and iron and arsenic were administered by the mouth; six days later the patient was much improved and the thrombosis was resolving. She was discharged from hospital twenty-five days after parturition.

This was the patient's ninth pregnancy. During the previous pregnancy an unusual degree of pallor had also been noted and parturition was followed by a fairly large loss of blood and slight sepsis during the puerperium. There is therefore evidence of a pre-existing uterine infection. No evidence of syphilis was noted.

The Placenta.

The placenta measured 21 cm. by 17½ cm. and was of the battledore variety. On the foetal surface a tumour 9½ cm. by 8 cm. was present which projected some 4 cm. from the surface of the placenta. It was roughly reniform in shape and a few vessels could be traced from the insertion of the cord to ramify in its substance. The membranes extended evenly over the surface of the tumour except at one pole where there was slight distension by blood clot.

On section the placenta was yellowish-pink in colour, had a rather myxomatous appearance, and appeared homogeneous in structure. Blood vessels were fairly numerous. The maternal surface showed a smooth area about 13 cm. by 9 cm. subjacent to the tumour, over which the cotyledons were compressed and flattened. The remainder of the placenta appeared normal except that the sulci were unusually well marked, and the cotyledons much separated. Here and there between the cotyledons were small collections of blood clot, but no distinct "ponds" suggestive of ante-partum haemorrhage.

Histological Examination.

The histological structure of the tumour varied considerably in different areas. Some showed numerous and massed capillaries, with walls of a single layer of endothelium, embedded in a rather myxomatous-looking stroma. A few arterioles and venules were present. Other areas were predominantly cellular with few capillaries. The cells present were mainly young connective tissue cells, but a few scattered eosinophils were also seen. One or two nucleated red cells were noted in the capillaries.

The only factor which may be of etiological importance in this case is the evidence of pre-existing uterine infection.

We are indebted to Mr. Comyns Berkeley, Obstetric Surgeon to the City of London Maternity Hospital, for permission to publish this case.

HAEMOPHILIA IN THE FEMALE.

BY

MILDRED WARDE, M.B., F.R.C.S.

THE following case is of interest on account of the rarity of haemophilia in the female. The patient, a woman aged 47, was admitted to the Cancer Hospital with carcinoma of the breast, and stated that she was a "bleeder." The family tree is shown in the accompanying chart and the following details have been ascertained.

According to family tradition the disease is traceable through the paternal grandmother from her father to her son, the patient's father. The latter exhibited a great tendency to bruising and had epistaxis about every two weeks. Trivial injuries frequently caused swelling of the joints, one or other of which was almost constantly affected. Death is thought to have been due to haemorrhage connected with fracture of the leg, which occurred shortly before, "fragments of bone working out with much bleeding."

The patient's five brothers were all normal and their children are believed to have been unaffected. Of the five sisters of the patient three were normal; one died, with a son aged four months, from "blood poisoning"; and in one the history as to haemophilia is wanting.

With regard to the sisters' children, the eldest sister (Mrs. G.) had seven daughters, all of them normal, and seven sons, three of whom were alive and healthy, while four were supposed haemophilics. Of these four, one (F. G.) spent most of his life in hospital with bruises, epistaxis, joint affections, etc., and died in 1905 in the Fleming Memorial Hospital, Newcastle; the second died at the age of 2 years from "bleeding," the source of which is not known; the third, said to have been a "bleeder," died in France from haemorrhage after a wound; the fourth (A. G.) was recently in the Royal Victoria Infirmary, Newcastle, with a haematoma of the size of an orange under the scalp, the result of a kick. The tumour still fluctuated and coagulation seemed absent although the injury had been inflicted a month previously. There was also a history of frequent treatment for bruises, bleeding from the gums, swollen joints, and "lumps appearing after the slightest knocks."

The second sister (Mrs. T.—interviewed) had four daughters, all of them normal, and four sons, "bleeders." Of these four, one (G. T., aged 35—interviewed) is rarely free from swelling of some joint, most frequently the knee, and suffers readily from bruises, which sometimes bleed for hours, and from epistaxis and rectal haemorrhage (bright blood). In the London Hospital in 1920 he bled for a fortnight from a deep cut in the thumb, for which horse serum was given by the mouth and locally. In St. James's Infirmary, Wandsworth, in 1922 he was seriously ill after the extraction of two neighbouring teeth, and plugging had always been necessary after tooth extraction. The second son (P. T.) had attended the Yarmouth Hospital most of his life for joint affections, epistaxis, etc., and at the age of eighteen months had nearly bled to death from a slight cut on the chin. He died in the Yarmouth Hospital in 1912 at the age of 11 years, from haemorrhage from a cut of the finger, due to a fall on the beach. The third son died at the age of 4 years. He had tripped on the stairs, without sustaining any serious injury, and the next day vomited blood and died within twenty-four hours. The fourth son died at the age of four months from some unknown cause. At birth there had been troublesome haemorrhage from the umbilical cord.

The third sister had one daughter, normal, and a son who died at the same time as the mother (blood poisoning) at the age of four months.

The fourth sister had one daughter, normal.

The youngest sister had one son and one daughter, both normal.

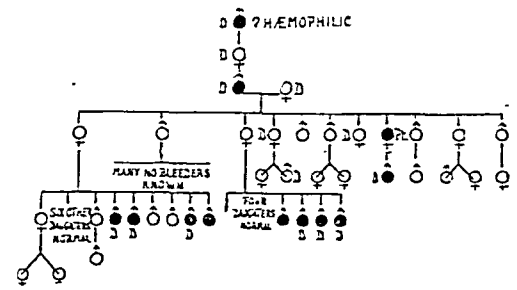


Chart of family of F. C. (1) D=known to have died. (2) The order of the children in generation below that of patient is not known.

The patient's history is as follows: At the age of 10 years she was found unconscious from bleeding following tooth extraction performed a few hours previously; she remained in the Yarmouth Hospital about three weeks. On a subsequent occasion she suffered from severe haemorrhage from a cut of the thumb, for which she was treated in the Middlesex Hospital. At the age of 21 an abscess in the labio-gingival fold was opened; severe haemorrhage followed in spite of plugging and she was in bed for two weeks. She always had a great tendency to bruising, but only after definite injury. At the birth of her son (F. C.) she suffered from post-partum haemorrhage. The son died at the age of 5 years in St. Mary's Hospital, Paddington, the following being the notes of the case: "May 22nd, 1910: Onset of bleeding from rectum 7 p.m., continued all night. May 23rd: Admitted, blanched and collapsed. Died thirty hours after onset. No necropsy allowed." In view of the certain diagnosis of carcinoma of the breast, it was decided, after discussion with the patient, to take the risk of an operation, as the patient's general condition was satisfactory and the blood count showed only a mild secondary anaemia. The coagulation time was between 3 and 3.55 minutes at 37° C. By way of pre-operative treatment 30 grains of calcium lactate were given by the mouth every other night, and artificial anaphylaxis induced by a subcutaneous dose of 5 c.cm. of horse serum, followed thirteen days later by 1/2 c.cm. There was some urticaria around the site of the original injection, with headache and malaise. The coagulation time after this was between 1.40 and 2 minutes at 37° C. At the operation bleeding was free but not excessive, and the wound was swabbed with horse serum before closing. There was little shock after the operation. Blood-stained serum oozed freely from the stab wound from the tube for three weeks, and slightly for nearly three weeks longer. Healing was slow, but otherwise convalescence was uneventful.

In an extensive and interesting monograph on haemophilia Bullock and Fildes (Eugenics Laboratory Memoirs, No. XII, 1911) describe three types of haemophilia as

Obituary.

HENRY DAWSON FARNELL, F.R.C.S.,

Eastbourne.

HENRY DAWSON FARNELL, who died at Eastbourne on September 16th after a short illness, was born at Salisbury in 1852, studied medicine at University College, and became M.R.C.S. in 1874. He was house-surgeon at Liverpool Northern Hospital from 1875 to 1877, and in the latter year went to Eastbourne as assistant to Mr. R. Colgate, whose daughter he married in 1881. He had two sons and three daughters, all of whom survive; his wife died in 1918. In Eastbourne he soon became known as a brilliant surgeon, and his reputation extended far beyond the limits of the town. He became F.R.C.S. in 1885. He held many appointments, succeeding his father-in-law as medical officer to the Union Infirmary, a post which he held for several years, and being one of the original staff of the Princess Alice Memorial Hospital, an institution in which he took the deepest interest to the end of his life. (It is touching to note that in the announcements of his death friends are asked to send contributions to the Hospital instead of flowers to his funeral.) Mr. Farnell was appointed J.P. in 1895. During the war he was surgeon to the Eastbourne Military Hospital, and in charge of Urmston V.A.D. Hospital. In 1919 he was awarded the O.B.E., and in the same year became medical officer to All Saints' Convalescent Hospital.

No man can ever have held a higher place in the estimation of his professional brethren than H. D. Farnell. He was not only a great surgeon but above all a straight man, a man to be trusted implicitly. His patients loved him for his tender care and unselfish devotion; indeed it is no exaggeration to say that to know him was to love him. In the prime of his life Farnell was a very type of mental and bodily vigour, and his energy seemed almost incredible. Even in the last months, when a certain failure of health necessitated some slacking off of labour, he still clung to such work as was possible; on the very day of the seizure which was to prove fatal in so short a time, he took his seat on the Bench; and the first symptom of his illness occurred when he was parting from a patient. Thus he died as he would have wished, "in harness," and has left a void in the profession which will indeed be hard to fill. To the host of his friends the loss is irreparable.

We are indebted to Dr. ALEXANDER CRAIGMILE for an appreciation of his friend: Henry Dawson Farnell and I first met in the summer of 1875 at the Northern Hospital, Liverpool (now the David Lewis Northern Hospital), to which he came as senior house-surgeon, and I as house-physician. So began a friendship which lasted without a break till now. The Northern was at that time one of the chief accident hospitals in England, for to it were brought the majority of the casualties along the line of the northern docks, from the London and Lancashire Railway, and from the works and factories around. The surgical wards had many sad cases of septicaemia and pyaemia lying there with rigors and profuse sweats and copious suppuration waiting the inevitable end, a picture quite unknown to the modern surgeon.

Now Farnell, who came straight from University College Hospital, where he had been under the influence of Marcus Beck, and with the sanction of his staff, introduced the antiseptic system to the Northern, and we were soon in the full swing of Lister's ritual, as it then existed—carbolic spray, layers of carbolic gauze for dressings, with jaconotte between the outer layers, disinfection of instruments, hands, and so on. Presently a marked change took place in the wards; suppuration disappeared, compound fractures healed kindly, and septicaemia and pyaemia were known no more, and so Farnell had the great honour of first introducing antiseptic surgery and Lister's methods to Liverpool. The late Mr. Chauncy Puzey, one of the honorary surgeons, in his presidential address to the Liverpool Medical Institution many years after, paid a generous tribute to the work Farnell had done in this direction. Of his work in Eastbourne it is the province of others to speak; from the beginning we were drawn to one another by mutual tastes in many things—especially in literature and politics. He was a great admirer of Sir Walter Scott, and on holidays spent together he used to quote favourite passages and pithy sayings from his favourite novels, citing one incident after another. He stayed with us for a week this summer in North Wales, and finding Scott's Journal—new to him—buried himself in it and forgot the inclement weather of May. All who knew him well were aware of the keen interest he took in motoring to new places, where an old church with famous monuments and brasses was sure to claim his attention, for he took the keenest pleasure in the history of his country and its old traditions, and knew nearly every cathedral well. It was a privilege and a joy to be with him and one or more of his family on these trips, not forgetting Carey, his faithful and devoted chauffeur. He was "the dearest friend and most unwearied spirit in doing courtesies," ever loyal and unselfish, and true to his principles, wherever they might lead him. If we can follow him in some measure, we also shall do well.

Universities and Colleges.

UNIVERSITY OF LIVERPOOL.

Honorary Degrees.

IN connexion with the meeting of the British Association in the city the University of Liverpool conferred the honorary degree of D.Sc. upon the following eminent persons: Sir Ernest Rutherford, Professor Niels Bohr, Dr. E. H. Griffiths (formerly Vice-Chancellor of the University of Wales), Professor Gilbert Newton Lewis (professor of chemistry in the University of California), Dr. Ernst Johannes Schmidt of Copenhagen (noted for his researches in marine biology), and Dr. G. Elliot Smith (professor of anatomy in University College, London).

UNIVERSITY OF DURHAM.

AT a Convocation held on Saturday, September 22nd, the following degrees were conferred:

M.B., B.S.—L. S. Henry, L. F. O'Shaughnessy.

The Services.

MINISTRY OF PENSIONS.

VOCATIONAL TRAINING.

1. THE Minister of Pensions announces that, with the consent of the Treasury, he has arranged for the scheme for vocational training of officers, nurses, and men suffering from tuberculosis, attributable to or still aggravated by service in the great war, which is at present confined in operation as regards men to residents in England, to be extended to similarly disabled men ordinarily resident in Wales, Scotland, Northern Ireland, or the Irish Free State.

This scheme provides for courses of vocational training combined with treatment at certain institutions for the treatment of tuberculosis. These courses, if satisfactorily completed, will, it is hoped, enable disabled men to become efficient workmen and to earn a livelihood. Application for admission to the training courses will be considered if the applicant is suffering from tuberculosis attributable to or still aggravated by service in the war, and if he is certified to be in consequence of that disability unable to follow his pre-war occupation or (without a course of training) any other suitable occupation and it is necessary that he should be trained for another occupation.

Scotland, Ireland, and Wales, and Officers and Nurses in England.

Application for such training may be made by men resident in Scotland, Ireland, and Wales, up to December 31st, 1923, and must be lodged in writing not later than that date with the local office of the Ministry of Pensions. Applications by officers and nurses may be made up to the same date, and must be lodged in writing not later than that date with the Commissioner of Medical Services of the Ministry of Pensions for the region in which they reside.

England.

2. The last date for making application for training by tuberculous men (that is, excluding officers and nurses) ordinarily resident in England has already passed except for: (*a*) men who have not been demobilized or discharged for more than a year; or (*b*) men who have been continuously under treatment since their discharge, and in receipt of treatment allowances; or (*c*) men who have endeavoured since discharge to resume their pre-war occupations or to enter some occupation equally remunerative, and have failed to do so (or to retain their positions) owing to a disability attributable to or aggravated by service in the war.

Application in writing may be lodged by men in these categories up to December 31st, 1923.

Convalescent Centres.

The Minister of Pensions announces that officers, nurses, and men who have hitherto been eligible to apply for admission to

thorough teaching. If a man has not been efficiently taught midwifery he will, certainly at the commencement of his professional life, often have difficulty in determining whether a particular case of labour he is attending is normal or otherwise. The experience he accumulates is only at the expense of his patients, and in many cases women pay most dearly for doing their duty to the community.

The whole difficulty in teaching obstetrics is that of obtaining sufficient material. There are far too few lying-in hospitals, and the few obstetric beds in general hospitals are often filled with difficult and abnormal cases. A medical practitioner can practically always get a bed for a medical or surgical emergency; can he for an obstetrical emergency? Certainly not, and yet the latter might easily be the more serious. In the medical and surgical wards one patient is available for the study of many students, but in the obstetrical wards one patient is only available for one student. A proper hospital obstetric service is an absolute essential to the efficient teaching of midwifery.

Ante-natal Treatment.

The true conduct of labour commences with ante-natal treatment. We shall all agree that although the forceps on occasions must be used and should be used, the less frequently this instrument is employed the better. The proper way, and one might almost say the only way, to accomplish such a reduction is by efficient ante-natal supervision. No doctor should agree to attend a woman in labour unless he is prepared to examine her on occasions between the time he books the case and the onset of labour, more especially in the last few weeks of pregnancy.

If medical students are not taught abdominal palpation on pregnant patients in the out-patient department and patients in labour in the obstetric ward, will the majority of them, when they go into practice, know how to do so properly, or how to obtain accurate information from such palpation, or will they even take the trouble to palpate? I think not. In the past they certainly had no such opportunities, and to-day these are very limited. Even now, it is not compulsory for a student to attend an ante-natal department, always supposing there is one. Many men do not mind admitting that they are not always sure whether the head of the child is engaged or not, and yet the head remains the best pelvimeter we have got. Moreover, the better one is at abdominal palpation the fewer vaginal examinations one has to make. I fear I am not exaggerating when I say that many women start labour without their doctor having any real idea of how it will progress, because of this lack of ante-natal supervision.

The forceps is used most frequently for inefficient pains and disproportion between the head and the pelvis. Proper ante-natal supervision, by getting the patient into as good a state of health as possible, can do many things to help the efficiency of the labour pains. Proper ante-natal examination will lead to the detection of gross disproportion between the head and the pelvis, of malpresentation, and of those cases of minor contraction in which the head of the child is not engaged when it should be—a knowledge of which may easily avoid the abuse of forceps.

The Operation.

And now let us consider for a few minutes extraction of the child by the obstetric forceps as a surgical operation, for a surgical procedure it is, and on occasions can be rightly termed a major operation. It differs from most other operations in that it is so frequently performed by men who do not otherwise operate. A man in general practice, unless he so desires, has very little need to perform the usual surgical operations, but many of the operations in midwifery he has to perform whether he likes it or not, whilst the public expects him to use the forceps as a matter of course, and this, as I have said, without proper training. The medical man may be called upon to perform a difficult forceps operation the first night he is in practice, and in most cases he has no assistant to help him with the the operation and no one but himself or the nurse to administer the chloroform; so that while as a fact his whole attention should be directed to the actual extraction, he has to occupy part of his time in administering the chloroform or seeing that the nurse is not giving too much or too little. In all surgical operations of a like severity the operator demands and expects proper assistance. In the usual surgical operations the patient is better off after the operation than before. With the forceps operation the reverse frequently obtains.

In most surgical procedures which can be dignified by the name of an operation the surgeon has ample time to make all arrangements for the safety of his patient, and, moreover, is in most cases well paid for his work. In the majority of the forceps operations, because of the absence of ante-natal supervision, or some other reason, arrangements are not made beforehand, and the doctor is certainly badly paid. As a fact the need for hurry really exists only in his own mind, and in most cases he has time to get assistance, but patients and midwives think that every doctor ought to be able to deliver a patient at once if he wants to do so.

In the practice of a family doctor there are probably more emergencies of an obstetric nature than any other, and there is scarcely any other operation in which more judgement is required, in which two lives are at stake, or in which the attendant has to make up his own mind without the help of a consultation. If a surgical operation of any severity is anticipated, the practitioner is able to call into consultation his old teacher, or some other expert in whom he has confidence and who is prepared and able to carry out efficiently any operation decided upon. In the majority of cases of obstetric emergencies he cannot do so—either he cannot get his patient into hospital, or the patient cannot afford expert advice. Moreover, he is supposed by his patient to do such things himself, and he will perhaps lose caste if he does not, while in many cases he has to act at once, as there is not time to obtain assistance even if such were available. As a matter of fact the forceps operation in unskilled hands is just as unjustifiable as any other operation in similar circumstances, and yet many doctors who would decline to perform operations of even a minor nature do not hesitate to use the forceps in difficult cases, or in many cases cannot help themselves.

Apart from the question of judgement, with strict attention to asepsis and antisepsis a doctor, by carefully reading up the anatomy and method of procedure, can perform most operations without, at any rate, a disastrous result, but not so in obstetric surgery. It is impossible to sterilize the vagina, while normally the interior of the uterus in pregnancy and labour is sterile. It is therefore impossible to pass anything into the uterus, be it the fingers, hand, or the forceps, without potentially infecting it; and moreover, from the darkness, warmth, and serum present therein, it rivals in its ability to encourage the growth of pathogenic organisms any suitably prepared culture tube in a bacteriological laboratory. Moreover, although the microbes in the vagina may cause no harm, when they are transplanted to a suitable soil in the uterus death may result.

If a non-operating practitioner contemplated performing a small operation and then found that a big one was necessary he would get help from an expert. The trouble is that, an ordinary pull with the forceps having failed, the doctor does not realize that he is up against something serious. He does not get help, but pulls all the harder.

Again, it is not unfair to say that many men take infinitely more trouble over the smallest so-called surgical operation than they do over the forceps operation. India-rubber gloves are worn, the area of operation, if covered with hair, is shaved, and it is prepared with some antiseptic, the parts concerned are surrounded with sterile towels, while the operator wears a sterilized overall, and the assistance of an anaesthetist is obtained. I agree that it may be impossible to obtain an anaesthetist, but there is no reason why rubber gloves should not be carried in every midwifery bag, and there is no difficulty in shaving the vulva or in applying an antiseptic. In the majority of cases are rubber gloves worn, or is the vulva shaved? I fear not; while the patient is delivered in a bed which perhaps sags in the middle, whereas she should be on a table, or at any rate on a bed which does not sag. The doctor may or may not have a sterilized overall, and the patient may or may not be suitably protected with sterile

THE Department of Scientific and Industrial Research announces that a licence has been issued by the Board of Trade to the Research Association of British Flour Millers under the conditions laid down in the Government scheme for the encouragement of industrial research.

MR. W. HARRISON MARTINDALE, Ph.D., has prepared a new edition of the list of preparations prepared and stocked by W. Martindale, 10, New Cavendish Street, W.1. It is in a convenient form and has an index. The firm has agencies in many parts of the world, including Australia, New Zealand, and South Africa.

THE Academy of Sciences and Faculty of Medicine of Paris have each received a legacy of a million francs from the late Prince of Monaco.

MESSRS. BAILLIÈRE, TINDALL AND COX have issued a catalogue of books on dentistry, including periodical publications. The catalogue is classified and there are indices of subjects and authors.

PROFESSOR ERNEST SALKOWSKI, director of the chemical laboratory of the Berlin Charité Hospital, and one of the pioneers of physiological chemistry, has died at the age of 79.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

In order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

CONGENITAL DEFORMITY.

COLONEL J. SMYTH, I.M.S. (ret.), writes: If Dr. John Walker will consult vol. iii of the *Transactions* of the South Indian and Madras Branch of the British Medical Association at page 113 (filed at the Association Library) he will find a case of congenital deformity resembling that published (p. 546) in the JOURNAL of the Association (September 22nd). I remember the case well. What struck one so forcibly was the very healthy condition of the limbless baby.

INCOME TAX.

"C. P." borrowed £1,000 for his medical course; he is now in practice and this loan has to be reduced by the excess of his receipts over expenses. How does this affect his income tax?

*** If the transaction can be shown to be that "C. P." is discharging his indebtedness by the payment of a variable annuity then he can deduct tax from the payments he makes; if, however, and this is more likely, he is simply reducing the loan by such payments and is not in fact paying an "annuity" then he cannot deduct tax. In neither case can he treat the payments as deductions in computing his own income tax liability; if they constitute an annuity such deductions are expressly forbidden by the Acts; if they are repayments of loan then they are "capital" payments and do not affect his income tax liability.

"H. J. H." inquires whether he can treat as an expense the payment of interest at 5 per cent. on the unpaid portion of the price paid for his share of the practice, including book debts, and what book on income tax can be recommended.

*** No; the Income Tax Acts expressly forbid the deduction of annual interest in computing liability; the reason is that a person making such payments is entitled to deduct income tax therefrom at the time of payment, so that that tax has to be included in the sum which he will pay to the Revenue. Nelson's *Income Tax Guide* (T. Nelson and Sons, Ltd., price 2s.) gives useful assistance in preparing returns.

"H. F. B." bought a car in 1912 for £350 and sold it this year for £100, buying a car of similar make and power for £600.

*** He can regard as a professional expense of the year 1923 the cost of replacing the old car, which is £600 − £100 = £500.

LETTERS, NOTES, ETC.

AN UNFORTUNATE BROTHER.

A FORTNIGHT ago, under this heading, we published an appeal signed by medical practitioners in Mirfield asking for contributions to a fund to help Dr. F. A. Storr of that place, who, as a result of thrombosis of the right femoral artery, leading to gangrene, had to undergo amputation of the upper part of the thigh some time ago. He is now suffering from a recurrence of illness, and his already depleted financial resources are strained. The West Riding Medical Charitable Society has made him a gift, but it is hoped that members of the profession will contribute. Subscriptions may be sent to the London Joint City and Midland Bank, Limited (Mirfield Branch), or to one of the practitioners in Mirfield who sign the appeal—Drs. T. W. Sproulle, Leslie J. Milne, H. W. Elwell, and H. J. Dawson.

CANNABIS INDICA IN SMOKING TOBACCO.

MR. T. F. HUGH SMITH, F.R.C.S. (Farningham), writes with reference to the memorandum published on September 22nd (p. 521): The following reference occurs in *Among the Wild Tribes of the Afghan Frontier*, by the late T. L. Pennell, M.D., B.Sc., F.R.C.S., in describing the influence of the Afghan Mullah; this passage is found on page 119:

"He regards the smoking of tobacco as one of the works of the devil, and when the Mullah makes his visitation to some village there is a general scramble to hide away all the pipes; for not only would any that he found be publicly broken, but the owner would incur his displeasure. As the Afghans do not confine themselves to the soothing weed, but mix it up with a number of intoxicating and injurious substances, such as Indian hemp or charras, this attitude of the Mullah may be regarded in the light of a reform."

THE "BRITISH MEDICAL JOURNAL" IN GERMANY.

MR. HUGH RICHARDSON, Stocksfield-on-Tyne, Northumberland, writes: A few copies of the BRITISH MEDICAL JOURNAL recently posted to the University Library at Giessen in Germany have been very cordially acknowledged. The message continues: [Translation] "You will understand that the possession of this celebrated medical journal is now quite specially valuable to us, so much the more since we have the complete years from 1890 to 1913 in our library." Is it possible that any of your readers who have kept back numbers from 1914 to August, 1923, would like to offer these to complete the series? If so, please address the offer direct to Frl. Nora Brückmann, Hessische Universitäts Bibliothek, Giessen, Germany, without further mediation.

CANCER AND CARIOUS TEETH.

DR. R. J. LOVE (Staplehurst, Kent) writes: I practised in Cape Province, South Africa for 14 years (1901–15) and during that time I do not remember having seen a case of cancer among the natives. Another fact which struck me was that the natives do not suffer from carious teeth. If a native does happen to get toothache he will trudge to the nearest dentist or doctor, perhaps 30 miles away, to have it extracted. Since I returned to England I have seen quite a number of cases of cancer and they all suffered from carious teeth. Carious teeth are on the increase and so is cancer, and I put forward the theory that the carious teeth are the cause of cancer. I shall be glad if someone who has had the opportunity of observing large numbers of cases will contradict the above if my theory is not borne out.

SCANDINAVIAN MEDICAL JOURNALS.

IN our last issue (p. 533) we gave some particulars of Scandinavian medical journals. Messrs. Baillière, Tindall and Cox (8, Henrietta Street, London, W.C.2) inform us that they are acting as English agents for the *Acta Gynaecologica*, and can accept subscriptions and arrange for the supply of any other publications in that series.

A WARNING.

DR. M. J. HORGAN (Nottingham) writes to advise medical men interested in Ireland to be cautious in their dealings with a young man seeking to dispose of a copy of *The Story of the Irish Race* by S. MacManus. The book is published by the O'Malley Publishing Company, Donegal, and intending purchasers might do well to communicate with them direct.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 29, 32, 33, 34, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 30 and 31.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 148.

cardinal ligaments of the vagina—otherwise known as Mackenrodt's ligaments—are always stretched when the forceps is used and the head is high up, and often badly stretched, leading to prolapse later. It is quite certain that it is more difficult to maintain asepsis if the forceps is used.

Those who seek to justify the frequent use of the forceps insist that there are three essentials: the first that the instrument shall be applied perfectly; the second that a far longer time than is usually employed should be taken in effecting delivery; and the third that only the smallest amount of force should be used. Very wise; but in every hundred cases of forceps extraction, in how many cases would these three essentials be maintained? And then there is the reservation that the doctor should be able to recognize every time he uses the forceps whether the case is suitable for this operation or not—a consummation devoutly to be wished, but which, with the present system of education, is simply impossible to obtain.

I need not enter minutely into the foetal injuries which may result in childbirth, whether the forceps has to be used or not. Eardley Holland, in his investigations into the causes of death during delivery, observed that in 50 per cent. of the cases death was due to intracranial haemorrhage, and that in the majority of cases the forceps had been used. Moreover, some of the children who are not killed suffer from such incapacities as epilepsy, idiocy, imbecility, or paralysis, due to cortical injury. Of the children who die in the first year of their life 40 per cent. die in the first month, and although the mortality towards the end of the year has been improved by the institution of child welfare centres, that of the first month has never diminished.

It has been maintained that injuries to the mother or child are not due to the forceps but to ignorance in their use; still, they remain. It is true that spontaneous labour is responsible on occasions for injuries as bad as operative delivery, and it may be true that the majority of women who have borne children suffer sooner or later, and more or less, from some damage. The extent of the morbidity, however, in spontaneous delivery is nothing compared to that following operative delivery. If a baby has been born alive and healthy, this is no justification for the use of the forceps unless the mother also returns to her duties a useful member of the community. Those who are in charge of lying-in and gynaecological beds are constantly having brought to their notice the disastrous results of the unskilful use of the forceps—such as rupture of the uterus, rupture of the vagina, fistulae of the bladder and rectum, whilst fracture of the pelvis is not unknown. During the last year I know of two cases in which the blades of the forceps had been forced through the vaginal walls and applied outside the lower uterine segment, in the process of extraction the lower uterine segment being torn off from the rest of the uterus.

The forceps, when indicated, is a safe instrument if properly used; when not indicated it is difficult to mention a more dangerous one. I have seen it stated that on the whole midwives get better results than doctors. I should hope such a statement is not true; but if there is any truth in it the better results, I feel sure, are because they never use the forceps.

Indications.

I do not propose to discuss in detail the indications for the use of the obstetric forceps. Such information can readily be obtained by reference to any good textbook of midwifery. Rather I would deal with general principles, especially with reference to the most frequent indication for the use of forceps—namely, delayed labour.

Assistance with the forceps should be given only if such is really needed; and if, therefore, the practitioner is in any doubt about the necessity or otherwise of using this instrument he should decide not to use it, since spontaneous labour gives better results for the mother and for the child. The forceps should be used to anticipate danger to the mother or child, and not when one or other is already in danger.

The doctor must always remember that his hands are safer, and in most circumstances more useful instruments than the obstetric forceps. Thus palpation should decide whether it is possible or impossible to deliver a woman with the forceps, and if possible whether its use is wise or unwise. Those of us who have held hospital appointments can recall many cases in which a patient has been admitted for craniotomy after futile attempts at delivery with the forceps had been made, perhaps for two or three hours, with resulting lacerations and infection; or in which, although the patient had not been torn or her child killed, the chance of a successful Caesarean section had been diminished by an unwise attempt at delivery.

When there is any doubt there is no difficulty in placing the patient in the Walcher position and pressing down the head; if then it does not engage well in the brim the forceps should not be used. Again, a persistent occipito-posterior position of the vertex and mento-posterior position of the face can, in most cases, be remedied by the hands, as also can insufficient dilatation of the cervix and prolapse of the anterior lip.

In many cases of extraction by the forceps the operator has not visualized the exact condition of affairs, but having noticed that the descent of the head is slow or delayed, he hurries this up with the forceps.

Before using the obstetric forceps, therefore, the practitioner should ascertain the relative sizes of the pelvis and head, the condition of the genital canal, the strength of the uterine contractions, and the state of the child. The forceps operation should always be regarded as an "emergency" operation, and if such a proposition was universally accepted the occasions upon which it would be found really necessary to perform it would be strikingly few compared with the present-day practice. It is no credit to a man to be known as "very good with the forceps." To be a good midwifery practitioner one must be an able diagnostician, and have good judgement and much patience, and with these three attributes the apparent necessity for instrumental delivery becomes less and less. In most cases it is safer to wait than to act, and only on very rare occasions does Nature inflict such injury on the mother and child as the forceps.

Unless there is any obvious contraindication, no primigravida should be delivered with the forceps until she has undergone the "test of labour," since the normal mechanism of labour far surpasses any other method of delivery. There is no hard and fast general rule for the employment of the forceps; every case must be judged on its own merits, not a few of the failures being due to the judgement of the doctor being at fault.

Taking every case into consideration in which instrumental assistance appears desirable, there will be more danger in using the forceps than in dispensing with its aid. Injuries due to the use of the forceps are quite commonly spoken of as being unavoidable; in most cases this is not a fact; moreover, on many occasions tears are not efficiently sutured because the doctor hesitates to acknowledge that they are present.

Delayed Labour.

The decision that there is delay in the birth of the child depends a good deal on the idiosyncrasy of the particular practitioner present at the parturition. The commonest form of delay is that due to inefficient uterine contractions in the second stage of labour. The rule that if a primigravida has been in the second stage of labour for over two hours, or a multipara for over an hour, she should be delivered, is a most pernicious one, and is a strong factor in the abuse of the forceps. It owes its origin to the time when abdominal palpation and other aids to diagnosis were in their infancy, the attention of the attendant being fixed on the idea that if the second stage of labour lasted longer than this something was wrong. The doctor should always be guided by the condition of his patient and her child, and not on the number of hours he has to wait in attendance. There is no definite time limit as to when the forceps should be used; the vital question is—To what is the delay due? Is it due to inefficient pains, or malpresentation, a contracted pelvis, large head, or a rigid perineum, and so forth? A doctor should never use the forceps merely to suit his own convenience; such use, to say the least of it, is unscientific.

the organic hypertonus is only slowly affected, and to a slight extent. The functional hypertonus returns to normal during sleep. The author has shown that also early in the morning, before breakfast, in the horizontal position, the blood pressure is lowest, and in the first stage is of the normal height, though during the day it may be greatly increased. If the early morning blood pressure is increased the difference between it and the blood pressure during the day indicates how much is due to organic causes. The prognosis is most unfavourable where the fasting blood pressure is as high as, or even higher than, that during the day.

231. Diabetes and Syphilis.

J. A. ROORDA SMIT (*Nederl. Tijdschr. v. Geneesk.*, July 28th, 1923, p. 345) states that while Rollo in 1798 was the first to suggest a special diet for diabetic patients, Watts in 1849 was the first to show that diabetes might be caused by syphilis, and obtained considerable improvement with mercury in a patient suffering from diabetes insipidus. In 1860 Leudet treated a patient with potassium iodide who was passing 8 to 10 litres of urine a day containing a large quantity of glucose. The patient recovered, but later a fatal relapse took place, the urine on this occasion not containing any sugar. At the autopsy a syphiloma was found in the fourth ventricle. Jullien's patient, a man aged 29, had secondary syphilis, diabetes mellitus, and was impotent. All the symptoms disappeared after six weeks' treatment with mercury. Dub's patient had severe diabetes mellitus, and was cured by potassium iodide. Other cases illustrating the association between diabetes and syphilis have been recorded by Cyon (1864), Perroud (1869), Moisonnet (1876), Fournier (1879), Frerichs (1884), Lemonnier (1888), Pospelow (1894), Regnier (1919), and Carnot and Harvier (1920). Smit himself, from his personal experience, is inclined to regard syphilis as one of the chief causes of all forms of diabetes. During the last few years he has seen 12 cases of the association of diabetes mellitus or insipidus with syphilis. In one case, in which the diabetes was not in any way affected by mercurial treatment, syphilis was merely a concurrent disease, while in the remaining 11 it was obviously the cause of diabetes. One of the 11 cases died without specific treatment, and the results of specific treatment in the other 10 cases were as follows: (1) Two patients with diabetes insipidus recovered completely. (2) Three patients recovered completely from diabetes mellitus as well as from diabetes insipidus which developed later. (3) One case of diabetes mellitus recovered completely under treatment with potassium iodide. (4) One patient with diabetes and a positive Cammidge reaction recovered completely and the Cammidge reaction became negative. (5) In one patient who had a history of syphilis the diabetes was not cured by specific treatment. (6) Two patients showed considerable improvement, though the diabetes was not completely cured. In one of these this result was probably due to inadequate treatment, and in the other to parasyphilitic changes in the brain.

Surgery.

235. Post-traumatic Epilepsy and Repair of the Dura Mater.

H. BURCKHARDT (*Zentralbl. f. Chir.*, August 18th, 1923, p. 1277) discusses the generally recognized fact that epilepsy may supervene after apparently complete recovery from a fracture of the skull or other laceration of the dura mater. He describes the normal anatomy of the cranial contents, the brain being supported on a "water cushion," and compares it with the pathological condition in which the brain becomes adherent to the torn dura mater, and as the cicatrix contracts that portion of the brain is fixed to the dura and subjacent bone and necessarily undergoes some distortion. This fixation of the cerebral surface to the skull explains the slow development of epilepsy, as firm cicatricial contraction ...s time for the production of symptoms of irritation. ...dt describes the case of a man whose skull was ... in a railway collision. Two years afterwards he de... epilepsy. The attacks increased in frequency, and an ...o resection of the site of the fracture was performed; ...ace of the brain was exposed and the thickened dura ...y dissected off; an osteoplastic flap was raised with a large enough to secure an ample blood supply. The ...n of this flap was attached to the edges of the ...ce, from which the old cicatrix had been dissected, ...epair completed by transplantation of fat and fascia ...nt further development of adhesions. Burckhardt ...ends that when planning the osteoplastic flap care ...e taken to preserve large arteries such as the middle ...al.

236. The Advantages of Cholecystectomy.

DE WITT STETTEN (*Amer. Journ. Med. Sci.*, July, 1923, p. 1) considers that it is justifiable to assume that the retained gall bladder, at least one that has been drained, is a menace to the health if not the life of the patient. It is a universal opinion that a gall bladder seriously damaged, the seat of malignant disease, or in one whose cystic duct is obliterated, should be removed. In the other and the great bulk of gall bladder operations there is still a considerable divergence of opinion. Of the complications of the retained gall bladder the formation of a persistent fistula is one of the most common, whilst stones that have been overlooked, adhesions, or ventral herniae are by no means uncommon. The author advises a primary cholecystectomy, if at all possible, irrespective of the degree of structural change in the gall bladder itself. Where this cannot be done and a cholecystostomy is performed, the gall bladder should be removed later. Re-operation is in many cases not a matter of choice but of compulsion. The only exception is in irremediable occlusion of the common duct, such as carcinoma or stricture. In chronic pancreatitis with jaundice cholecystostomy should be performed; when the fistula has closed and the patency of the common duct is assured, secondary cholecystectomy should be undertaken. In chronic pancreatitis without jaundice cholecystectomy is the operation indicated. In cases of "silent" gall stones where the gall bladder appears normal he practises removal of the gall bladder without drainage. He has failed to see any harm come from the absence of the gall bladder, and in many cases it is worse than functionless. After removal the period of convalescence is shorter and the wound heals more rapidly, whilst adhesions are not so liable to form, particularly so in the absence of drainage.

237. Treatment of Fractures of the Malar Bone and Zygoma.

R. DUCHANGE (*Journ. de Méd. de Bordeaux*, August 10th, 1923, p. 557) describes the anatomical relations of the malar and temporal bones and reviews the literature on this subject. The malar may be displaced outwards or inwards; outward displacements are very rare, but several cases are cited. When the malar is forced inwards the adjacent bones are necessarily involved, but Hamilton stated that the malar may be forced inwards from 4 to 6 mm. without fracture. Flattening of the cheek alone does not necessarily indicate a fracture: there must be deformity, mobility, and crepitus; these are usually associated with pain. Oedema quickly masks the flattening of the cheek, and may obscure the diagnosis. Mobility and crepitus may be absent. Pain especially on palpation, is usually severe. Asymmetry o the two suborbital borders is an important sign of fracture, but post-traumatic trismus is still more important. Duchange states that trismus occurs immediately in fractures of zygoma (due to injury to the masseter), while in fracture of the malar it comes on more slowly, and, when that bone alone is involved, disappears quickly. There may be also epistaxis and exophthalmos and subconjunctival ecchymosis. Treatment is useless if delayed for a few days. Duchange describes the various methods recommended by Malgaigne, Hamilton, Murphy, and other surgeons for (1) reduction of the fracture and (2) retention in position. Duchange has introduced a modification of lion forceps (illustrated). The four sharp points are long enough to seize the malar, without incisions in the soft tissues, while the instrument is strong enough to firmly grip the upper and lower borders of the bone, which is then replaced. The punctures made by the jaws of the forceps heal without scarring. Compound fractures—for example, severe gunshot wounds involving the malar or zygoma—must be treated on general lines. These wounds may result in extensive deformity, especially ectropion of the lower eyelid, while the optic nerve and the second branch (infraorbital) of the fifth nerve may be involved. Duchange claims that his method of reduction avoids incisions of the buccal mucosa, which necessarily increase the danger of sepsis.

238. Stenosis of the Bile Ducts.

M. A. GOSSET (*Bull. et Mém. Soc. de Chir. de Paris*, May 1s 1923, p. 604) reminds us that wounds of the bile ducts mai at operation heal easily. In the majority of cases choledo chotomy is carried out on a duct that is more or less dilated, and under such conditions cicatrization and contraction of the scar is of no consequence. If, however, the duct be not dilated healing of the wound may result in stenosis or even obliteration of the duct. He describes a case where, after drainage of the duct, on removing the drain contraction of the scar tissue produced complete stenosis of the bile duct. Operative treatment was decided upon and exploration showed that there was an injury to the ducts at the junction of the cystic and common ducts. A probe passed freely

Our attitude towards the management of labour has likewise been that of perfecting the substitute for the natural powers—the brawny biceps of the attendant exerted through the midwifery forceps—at which, as in the case of artificial feeding, we have obtained success, but also along the wrong lines. So long as our sole idea is that labour, if protracted, can always be terminated artificially, we are in the same position as those who at once resort to artificial feeding, if the baby is not progressing, instead of trying to discover and remove the causes of failure at the breast. That out-of-date method was clearly another example of relying solely on the second line of defence, and abuse of forceps will continue till a like change comes about in our attitude of mind towards midwifery.

Let us now see what changes the adoption of the principle that the maintenance of the physiological is to be our first objective in midwifery practice will make. In the first place, it involves a shifting of the centre of gravity of medical practice from mere attendance on labour, particularly its finishing stages, to the general supervision before, during, and after labour, but not necessarily involving the presence of the doctor at the birth. Much of this has already been accepted with the development of ante-natal supervision. Suppose as a result of that supervision the malpresentations, misfits between the head and the pelvis, and other foreseeable complications in labour have been excluded, we are left with by far the most frequent cases in which the forceps is used—those of sluggish uterine action with a delayed second stage.

Time will not allow of a discussion of what is, and may be, possible to diminish the need for the artificial termination of labour, and in 1921 I discussed this aspect of the interminable forceps problem and can refer you to it[1]; though the matter of that paper was excellent its title was so unattractive that I am sure none of you read it. I might, however, summarize a few points from it. The ante-natal supervision must include a study of the individual characteristics of each patient and an attempt to understand her temperament and her mental attitude to what is before her. It should also convey the assurance that she is a normal woman who will have a natural labour and should remove all suggestion of failure from her mind. The chances of success are much greater in institution management—an additional argument to that advanced by your President—because of its better provision for surgical technique. The atmosphere in a hospital or nursing home with its assurance of success is an important factor in labour, as in the case of breast-feeding. The securing of the right atmosphere is a much more difficult proposition in the patient's own home, with her playing the chief part as tragedy-queen and surrounded by worrying and fussing relatives. The avoidance of fatigue is another point, for the uterus of an exhausted woman will not function efficiently. Loss of sleep, lack of food, and, most of all, the fatigue that comes with long-continued pain, are among the common causes of exhaustion, producing restlessness and loss of self-control. To my mind a knowledge of how and when to give relief to the exhausted woman is a big factor in lessening a resort to forceps delivery.

In the conduct of the labour itself the object of the medical attendant should be as much as possible in the direction of supervision, and supervision that is kept in the background as much as possible. Satisfied that everything is normal, the actual labour can be left to a midwife on her mettle to make the obstetrician's methods a success, and the patient should be encouraged to deliver herself naturally. Care would be required to see that these methods were not carried to the extreme of refusing to recognize failure and to postpone forceps delivery to the detriment of mother and infant. The choice of a midwife is extremely important, and it is essential that she should be enthusiastic and show no lack of confidence or over-anxiety, which would be at once reflected in the patient. Another reason for the medical supervision being kept in the background is that the presence of a doctor with a bottle of chloroform and a bag of clinking instruments is often too strong a suggestion of a speedy end, without further effort to encourage natural delivery. It may be argued that toxic drugs used to "dope" a patient are less physiological than terminating the labour by forceps without drugs, but there is clearly a middle course. Treatment by sedatives is more rational, in that the difficulty with most of these patients is that they are over-sensitive and highly strung and fatigue easily, for which these drugs are the correct treatment.

Posture is another important point which has been neglected and doubtless increases the incidence of instrumental cases. The natural position is a squatting one, and I would like to hear if any of you have tried that posture in the hope of increasing the chances of natural expulsion. Then there is the question of pituitrin and other drugs to stimulate the uterus when there is a little further effort required to complete expulsion. I think, however, that I have probably said enough to give at any rate an indication of the attitude I consider necessary to limit the abuse of forceps. I recognize clearly that in the case of ordinary domiciliary practice it is much more difficult than in hospital; but I would urge that there is no reason why an attempt should not be made to diminish the excessive use of artificial means of delivery.

The patients have a big say in the matter: they have engaged the doctor and expect from him an expenditure of time and skill for fees that are by no means equivalent, and the tendency of the profession has been to cut the loss by time-saving devices which are equally welcome to the patient herself.

It is, however, pleasing to recognize that every year there is a greater tendency to employ midwives under medical supervision for normal labours, and to my mind this is one of the most hopeful indications for lessening the abuse of forceps, for the incidence is always less in women delivered by midwives than in those delivered by doctors.

Though you may plead *force majeure*—the exigencies and demands of practice—you all recognize that the forceps rate in private practice is excessive, and my contention is that we will never get away from this everlasting and world-wide controversy on the abuse of forceps until the attitude of mind that is satisfied with—or still worse, glories in—present conditions is exorcised, and the falling back on your second line is recognized as a failure to hold the first. When that first line has been strengthened, you will find it a more tenable position than you thought.

REFERENCE.

[1] "Physiological Principles in Midwifery Practice," BRITISH MEDICAL JOURNAL, 1921, i, p. 413.

DISCUSSION.

Dr. JAMES HENDRY (Glasgow) said that, while agreeing that the conduct of a forceps case should be regarded as a surgical operation, he wondered how many surgeons would operate under the conditions which surrounded a woman in industrial practice. He hoped that in future students would be required to supervise their "indoor" cases from the beginning of labour, and not only from the time the head reached the perineum. Then they would learn to recognize that the mother could continue in labour not for a certain number of hours, but until danger threatened mother and child. This would also give more opportunity for the recognition of abnormalities, whether of the pelvis or of presentation. Improved teaching would not, however, eliminate all the difficulties—there were still the psychology of the patient to be considered and the amount of time which a busy practitioner could devote to a maternity case. They should all aim at the "hospitalization" of maternity cases, and in that way they would not only eliminate the repressing factors referred to by Dr. Fairbairn, but they would have the supervision of the cases by people with no other distant duties to perform, while, should the application of forceps become necessary, the proper conditions would be readily accessible.

Dr. R. KELSON FORD (Portsmouth) doubted whether, unless accommodation were provided by a specific fund, it would be justifiable to allocate beds in a voluntary hospital for purely obstetric cases. He pleaded for a better use of existing institutions, such as the Poor Law infirmaries, which should be if possible placed under the administration of the medical officer of health for the district. There should be more comprehensive ante-natal treatment, and all these facilities should be made available for the instruction of

cases operated on by experienced operators has caused perforation of the uterus. Strassmann's operation, consisting of removal of the inner wall and the uniting of each uterine half together so as to make one uterus in place of two, is recommended, and two cases are described, whereby one was relieved of menorrhagia and the other of severe dysmenorrhœa by such an operation.

214. The Origin of "Tar Cysts" of the Ovaries.

B. NYSTRÖM (*Finska Läkaresällskapets Handlingar*, July–August, 1923, p. 433) has studied the origin of "tar cysts" of the ovaries (haematocystis picea ovarii), 80 cases of which have been observed at Engström's hospital in the period 1890–1917. During this period considerably more than 4,000 laparotomies were performed at the same hospital. It has recently been suggested that these cysts are due to the existence within the ovaries of islands of endometrium which secrete a fluid resembling that of menstruation. The author has examined microscopically the walls of numerous such cysts, but has never found these hypothetical islands of endometrium. In no case was there a history of direct trauma in the neighbourhood of the ovaries, but there were three patients who associated the onset of their symptoms with severe bodily exertion. In as great a proportion as 86.3 per cent. there was a history of more or less regular sexual intercourse, and it is conceivable that such intercourse plays a part in the genesis of this condition. Of the married patients, 31.8 per cent. were nulliparae, and in more than a quarter of all the cases the disease was bilateral.

Pathology.

245. The Agglutination Reaction in Pregnant Women Suffering from Tuberculosis.

IN tuberculosis the agglutinin titre of the serum varies with the course of the disease; a low titre—1 in 5—or the disappearance of agglutinins from the serum are both of bad prognostic import; a high titre—1 in 20 or 1 in 40—is of better prognostic significance, being met with in the fibrous forms or in the resistant phases of the advancing forms. P. COURMONT and PAPACOSTAS (*C. R. Soc. de Biologie*, July 21st, 1923, p. 521) have applied this knowledge to the study of the variations in the agglutinin titre which occur in pregnant women who are suffering from pulmonary tuberculosis. Estimations of the agglutinin content of the patient's serum were made during the later months of pregnancy and from fourteen to sixty-eight days following delivery. Altogether 14 cases are recorded. Of these, 4 showed a low titre before, and a low or even falling titre after, parturition. In two instances the patients died; in the other two the disease advanced rapidly after delivery. In the remaining 10 patients the titre of the serum was generally fairly high before delivery, and remained high, or actually rose, afterwards. All of these patients did remarkably well. The authors conclude, therefore, that a low or falling titre before or after parturition is of bad prognostic import, whereas a high or rising titre is distinctly favourable. Cutireactions carried out at the same time as the agglutination reaction failed to show any marked correlation with the agglutinin titre, and cannot be used to evaluate the patient's prognosis.

246. Inheritance of Cancer.

W. F. WASSINK and C. P. WASSINK VAN RAAMSDONK (*Nederl. Tijdschr. v. Geneesk.*, July 28th, 1923, p. 326) investigated the family histories of patients with various forms of cancer at the Antoni van Leeuwenhoek Hospital, Amsterdam, with the following results: 258 patients with mammary cancer had 102 other members of their families suffering from some form of cancer, which in 40 cases, or 39 per cent., was cancer of the breast; 274 patients with uterine cancer had 66 relatives with some form of cancer, which in 24 cases, or 36 per cent., was cancer of the uterus; 247 patients with cancer of the skin had 53 relatives with some form of cancer, which in 17 cases, or 32 per cent., was cancer of the skin; 46 patients with cancer of the lip had 10 relatives with some form of cancer, which in 5 cases, or 50 per cent., was cancer of the lip; 69 patients with cancer of the tongue had 9 relatives with some form of cancer, which in 2 cases, or 22 per cent., was cancer of the tongue. On the other hand, there were 89 patients with cancer of the mouth who had 19 relatives with some form of cancer, but none with cancer of the mouth; and 110 patients with cancer of the larynx had 31 relatives with some form of cancer, which in only 3 cases, or 9 per cent., affected the larynx. These figures on the whole show a pronounced tendency for the same organ to be affected by cancer in certain families. The more or less complete absence of any such tendency in the cases of cancer of the mouth and larynx may indicate that the localization of cancer in these situations is not due to inheritance but to such irritants as tobacco and alcohol.

247. Complications of Pneumonia.

H. M. FEINBLATT (*Boston Med. and Surg. Journ.*, July 26th, 1923, p. 136), from a *post-mortem* pathological and bacteriological analysis of 139 cases of lobar pneumonia and 41 cases of bronchopneumonia, found, in the case of lobar pneumonia, that the principal complications were empyema (38.1 per cent.), purulent pericarditis (17.2 per cent.), toxic nephrosis (10.7 per cent.), fibrinous pleurisy (9.3 per cent.), and cardiac dilatation (8.6 per cent.); and of the infecting organisms the pneumococcus alone was responsible in 91.7 per cent. of the cases, the streptococcus in 5.8 per cent., and the two combined in 2.3 per cent. In bronchopneumonia the principal complications were empyema (9.7 per cent.), cardiac dilatation (9.7 per cent.), toxic nephrosis (7.3 per cent.), and cranial sinus empyema (7.3 per cent.); and of the infecting organisms the streptococcus alone was responsible in 34.7 per cent. of the cases, the pneumococcus alone in 21.7 per cent., the tubercle bacillus in 13 per cent., while the streptococcus and pneumococcus together were the causative organisms in 8.7 per cent., the streptococcus and *B. influenzae* in 8.7 per cent., the pneumococcus and *B. influenzae* in 8.7 per cent. and the streptococcus and staphylococcus in 4.3 per cent.

248. Catalase in Bacteria: Its Relation to Anaerobiosis.

THE peculiar fact that the true anaerobes are unable to thrive in the presence of air receives an explanation from the work of ANNE BARBARA CALLOW (*Journ. of Path. and Bact.*, July, 1923, pp. 320–325), who estimated the catalase content of nine anaerobes and twelve aerobes and found that none of the anaerobes investigated gave off gas when treated with hydrogen peroxide, whereas all the aerobes investigated were shown to contain catalase with the exception of the streptococci. The explanation suggested is that in the presence of air anaerobes take up oxygen, the latter assisting in the formation of a substance which either inhibits growth or kills the cell. According to Wieland's theory of respiration water is decomposed by an oxido-reductase into hydrogen and hydrogen ions, the latter combining with the oxygen of the air to form hydrogen peroxide, which is at once decomposed by the enzyme catalase into water and molecular oxygen. In the absence of catalase the hydrogen peroxide would accumulate and kill the cell, and since anaerobes lack catalase the cells might be killed by the cumulative effect of hydrogen peroxide. In the absence of air no hydrogen peroxide would be formed and anaerobes would be able to develop. If the lack of catalase in anaerobes were indeed the cause of their inability to grow in the presence of air then it might be supposed that if a culture of an anaerobe were exposed to the air hydrogen peroxide would be formed, but repeated attempts to detect this substance in anaerobic cultures which had been left in contact with air or oxygen for various periods of time gave negative results. Since anaerobes contain no catalase it was thought possible that the addition of catalase to the medium might induce anaerobes to grow in the presence of air, but no conclusive evidence that anaerobes are able to grow aerobically in the presence of catalase was obtained.

249. Studies on Pneumococcus Immunity.

R. L. CECIL and G. I. STEFFEN (*Journ. Exper. Med.*, August, 1923, p. 149) have been studying the active immunity conferred on monkeys to pneumonia by the administration of monovalent vaccines. They previously showed that it was possible to protect these animals against experimental pneumococcus (Type I) pneumonia by either subcutaneous or intravenous injection of pneumococcus (Type I). They showed, too, that in response to this vaccination protective substances appeared in the blood. This work has now been extended to the three other types of pneumococcus. Monkeys were prepared by the subcutaneous injection, at five- to seven-day intervals, of a saline vaccine; the total dosage varied from 120 to 200 billion organisms. Two to three weeks after the last injection the monkeys, together with an unvaccinated control, were inoculated intratracheally with living pneumococci, the same organism being used for this purpose as was used for the preparation of the vaccine. The temperatures of the animals were taken twice daily, leucocyte counts and blood cultures were made once daily. Those animals which had not died in the meantime were killed from the fifth to the ninth day, and complete *post-mortem* examinations conducted. The results with pneumococcus Types II and IV were quite definite; in every case the vaccinated animals failed to develop pneumonia, while the control animals did do so. With Type III, on the other hand, the protection was not so complete; in a series of three experiments four out of eight vaccinated monkeys came down with disease, showing that vaccination is successful in only 50 per cent. of the cases. In none of the monkeys vaccinated with either of the three types was it possible to demonstrate the presence of protective substances in the blood.

The President, while agreeing with the views expressed in the brilliant paper which opened the discussion, felt very much in sympathy with the difficulty in which the practitioner was placed in regard to the forceps question. On the one hand there were his teachers praying him to be circumspect and moderate, and on the other an ignorant public urging him to interfere at the earliest opportunity. Time was short and the life of the doctor was a hard one. The payment for midwifery cases was foolishly small and there were wives to dress and children to educate, and all these factors tended towards the shortening of labour. He had maintained and preached for many years that midwifery was a branch of surgery and must be recognized as such both by the profession and the public before the three capital necessities for its proper practice could be obtained—adequate conditions, adequate assistance, and adequate payment. The looseness of a well known phrase common to almost all teachers and textbooks—"Forceps should not be applied until the cervix is fully dilated"—was responsible, he thought, for much harm. For what was "full dilatation of the cervix"? It was relative to the size of the diameters of the presenting part, which varied in different cases and were impossible accurately to measure in any case. It followed, therefore, that the only real proof that the cervix was sufficiently dilated to allow the presenting part to pass easily through it was that the presenting part had already passed through it. But this was not expressed in the loose phrase he criticized, but rather some indefinite measurement in inches or millimetres or a hazardous comparison between the size of the os as felt and the head of the child as the practitioner imagined it to be. The outcome was that forceps were frequently applied when the head was still in the cervix, with the result that the diameters of the presenting part were increased all round by the thickness of the cervical tissue, and this tissue becoming jammed between the head and the bone an impaction was produced in a pelvis which of itself was entirely large enough for labour to take place normally in. The teachers' phraseology should be tightened up, and the words "Until the cervix is fully dilated" replaced by "Until the head has come through the cervix." He thought that *perforation* was not done often enough. If after reasonable pulling with forceps there was still failure to deliver, then perforation would do less harm than persisting with forceps.

Dr. C. E. Douglas (Cupar, Fife) said that he spoke as a heretic in respect of the modern doctrine of non-interference. He had much enjoyed Mr. Comyns Berkeley's address, but there was a set of conditions in which the forceps was very frequently used that had so far been ignored by all the speakers. Stress had been laid on the value of Caesarean section, of *x*-ray work in pre-natal examination, and other resources available in the great centres of civilization and nowhere else. He would invite them to come with him to some lonely spot very far from these resources, to where the country doctor had to solve the problem by himself aided by an old woman, probably deaf, as his assistant. His methods were more modern than might be supposed. Mr. Berkeley had advised the use of rubber gloves and of axis-traction forceps, if any. He would say that both of these had been in common use with them for many years. The forceps should certainly not be applied until the first stage was completely over and till, say, two hours in a multipara and half an hour more in a primipara, when, if no progress was being made, there was no point in waiting longer. After all, the relief of unnecessary suffering was one of their duties. If the forceps operation was decided upon the vulva and perineum were again thoroughly disinfected, anaesthesia was begun, and the patient seen through the dangerous period of the chloroform sleep before handing over the handkerchief to the old woman. A clean tunic was put on, the hands were sterilized as for any major operation, gloves boiled with the forceps in the sterilizer were put on, and the operation proceeded with. Such was the technique. What were the results? Mr. Berkeley had spoken of the dangers of sepsis, of ruptured perineum, and of prolapse. He believed the danger of these to have been greatly exaggerated. Speaking from his own experience of over forty years he had applied forceps over 300 times, with one death from sepsis. That occurred many many years ago when sanitation was not what it was now, and the "handy wife" was afterwards found to be looking after some children sick with scarlet fever in an adjoining house. With regard to rupture of the perineum, while most fully alive to the importance of saving and of suturing the perineum he would suggest that the worst cases happened when forceps had not been used. He cited a case in a multipara where he could find no anus. On looking into the matter he found that the examining finger was resting on the posterior wall of the rectum, there having been a complete tear of perineum and sphincter ani at the last confinement, which had been attended by a midwife. The woman had made a good recovery, was able to carry on all her household duties, had manifestly had another baby, and stated that her only disability was that she could not wholly prevent the passage of flatus. And similarly with prolapse. One of the worst cases of prolapse that he had ever met with was in the person of a dear old maiden lady who certainly had never suffered from the application of forceps. Speaking generally, it would probably be found that size of hand had an influence upon this question, and that if a vote were taken the hands raised against the use of forceps would be those requiring a glove of size 8 or over; while those in favour would show hands which would go into a glove of 7½ or under.

Dr. T. G. Evans (Beckington) protested against the character given to the general practitioner by Mr. Comyns Berkeley. He never went to a case without gloves and axis-traction forceps. He had never attempted to rotate with forceps, nor had seen anyone else try to do so. He would like to know what was the alternative to forceps in the case of prolonged labour, with the head in the pelvis. He reminded the Section of the danger of subsequent pregnancies after Caesarean section from rupture of the uterine scar.

Dr. W. R. Grove (St. Ives) did not think that anyone could fail to agree that Nature was the best obstetrician. In nine out of ten delayed cases the delay could be traced to emotional causes. To combat fatigue he much preferred opium pills to morphine. As regards posture, he certainly thought that lying on the back helped the head to descend in the right direction and that the left-sided position was a hindrance. He had no use for gloves—it was just as easy to touch unclean objects with gloves as with the bare hands. He put his trust in antiseptic lotion, and strongly recommended one made up of lysol 2 drachms, ether half an ounce, and methylated spirit to four ounces.

Dr. C. J. Buchan (Catford), speaking as a general practitioner, thought that the high ideals of Mr. Berkeley and Dr. Fairbairn were out of place in general practice. They might beseech their patients to come for ante-natal examination, but they would not do so. He did not see how one could gauge the amount of force necessary to use in a forceps case until one had tried. People in hospital would accept any treatment from a specialist or anyone they thought was a specialist, but they and their relatives would not submit to the same in their own homes. The public would have to be educated. If Mr. Comyns Berkeley and Dr. Fairbairn were right the general practitioner should never do any midwifery at all.

Dr. Lewis (Southport) agreed that gloves might be a positive danger in midwifery practice. It was becoming more and more common to call the doctor only in emergency; hence the number of forceps cases were relatively higher than they used to be. He thought that much of the damage done by the forceps was due to ignorance of the proper method of application; he had himself seen on two occasions an effort made to slip in the blades back to front.

improbable. Nevertheless the tradition of maternal ancestors (feminine heredity) and its social influence on the early life of a generation that has witnessed the wide opening of careers to women cannot be neutralized at once, and its effects may persist for some time. That women as a class are inherently more law-abiding, more subject to what they regard as conventional, and more conservative might reasonably be interpreted as the outcome of long-continued subordination to men's ascendancy. More than a hundred years ago Sydney Smith[1] laughed at the idea that there was any inborn difference of intellectual capacity between men and women and argued that the conditions of education were entirely responsible for the existing differences. Further, in the Report of the Board of Education's Consultative Committee on the Differentiation of the Curricula for Boys and Girls respectively in Secondary Schools (1923) the opinion is expressed that there is little difference in intellectual capacity between the two sexes, though there are noticeable divergencies in emotional response as indicated by the degree of interest evinced for various studies, and that on the whole the apparent differences revealed up to the present by psychological inquiry would not seem to justify any serious differentiation in the actual curriculum.

It is obviously important and equally difficult to apportion accurately the influence of environment, tradition, and suggestion on the one hand, and hereditary and inborn tendencies on the other hand. The circumstances of women doctors and students of medicine, though infinitely better than sixty years ago when the struggle for any opportunities at all was in progress, are even now not so good as those of men; for example, the hospital facilities and appointments open to them are still restricted as compared with those of men. On the other hand it must be remembered that some of the best work done by men has been accomplished in the most unpromising surroundings; and it has been truly said, "genius does what it must, talent what it can."

Though much less than in the past, the sexes still lead different lives; girls are more prone than boys to follow an indoor and confined routine and so to impair or retard a robust physical development; and thus sexual peculiarities are accentuated. The physiological disabilities arising out of sex must be taken into very serious account as a weighty factor in determining women's chances of a successful struggle in intellectual work and practice of the profession of medicine. In 50 per cent. or more of women the monthly rhythm is a distinct handicap, and its manifestations are prone to be aggravated by a sedentary life and other factors prejudicial to a vigorous state of health, factors often inseparable from the life of a hard-worked doctor in town or institutional practice. For the greater part of their active life a large number of women are liable to recurrent interruptions in their state of efficiency and are thus at a grave disadvantage as compared with their male competitors; among men migraine, which might be regarded as comparable in its periodicity and effects, is relatively so rare that it rather tends to emphasize the reality of the women's burden.

Women have in a more developed degree than men the power of rapid perception or intuition, allied to second sight and clairvoyance, or of arriving at a correct solution of a problem *per saltum*. In his *In Defence of Women*, a book published in 1923 and in many respects Shavian in its daring, H. L. Mencken insists that so-called women's intuition is a high-grade form of keen intelligence which is rare in men and is then only found in men of special talent for the logical. Now this property—which is said never to have led to any discovery in science (Ludovici[2]), though both Darwin, who it is true silently spent twenty years in working it out, and A. Russel Wallace arrived at the conception of evolution by a flash—appears to be closely allied to imagination, which by providing possible explanations opens the road "to search and study out the secrets of nature by way of experiment." But apart from its potential use and application in research this faculty of arriving immediately at a correct opinion without the process of conscious ratiocination resembles the clinical instinct born of long years of experience and no doubt a function of the unconscious, which is so invaluable in diagnosis and prognosis; hospital sisters often have this power, and when reinforced by a more extensive scientific training it should be an asset of women doctors.

The ability of women medical students has been abundantly shown by their distinctions in examinations. It may be interesting to compare the percentage of qualifications among men and women entering the medical profession. Sir James Paget's well known analysis in 1869 showed that of 1,000 medical students at St. Bartholomew's Hospital, 776, or 77.6 per cent., actually qualified; of Sir Squire Sprigge's smaller series of 250 students in the early eighties from St George's Hospital, 187, or 75 per cent., qualified. Miss L. M. Brooks, your warden, has kindly analysed for me the results of 700 students entering the London School of Medicine for Women between October, 1894, and July, 1914; of this number, 593, or 84·7 per cent., completed the qualification for which they entered; this proportion is much the same as that (about 85 per cent.) arrived at by the General Medical Council in 1907, and that (87 per cent.) of the students entering St. Thomas's Hospital in the years 1890-1899 (Edred Corner). As far, therefore, as these few figures go, women students have held their own. It is satisfactory to learn that the death rate during pupilage, which in Sir James Paget's series was 4 per cent., was halved in Sprigge's and Corner's series and was little more than 1 per cent. (8 in 700) among the students of this school.

Though a high place in the class list provides a good start and *is prima facie* ground for anticipating success in after life, it is of course no guarantee for women students any more than it is for men. Although many prize winners continue to be front rankers, early success is not without its possible danger; it may breed conceit and slacken effort, so that the highly placed may become extinguished by their distinction. An early failure is sometimes a blessing, however much it may be disguised. Another consolation for those who fail to find favour with examiners is that some students develop late and so at first do not compete on equal terms with their more brilliant rivals, though eventually they surpass them in the race of life. To the make-up of a capable medical practitioner professional knowledge is not the only property necessary: practical efficiency, presence of mind, wise discretion, sympathy, and a thorough understanding of human nature are other essentials. Academic success may be obtained by mental ability, industry, and a temperamental power of making the best of knowledge thus acquired. Book knowledge may therefore go further in the examination room than in the daily round of practical life.

Women are on the average better students than their brethren, they work harder and take more pains, being more whole-mindedly concentrated on the subject in hand—so much so, indeed, that many of them find it difficult to throw off their work for a time and therefore tend to get stale and mentally dyspeptic. The power of detachment, by which mental concentration can be transferred from one thought-tight compartment to another, is of infinite value. Another aspect of detachment was so charmingly painted by the late H. D. Ellis (Poems, Mathematical and Miscellaneous, 1912) that it may be reproduced here, even if it be a little apart from this immediate context:

> "Greatly prize the gift of humour,
> Light divine of human mind;
> Live unmoved by transient rumour,
> Harbour not a thought unkind.
> So will trouble, life's consumer,
> Break, like bubble in the wind."

But to resume, the importance of cultivating a hobby, distraction, or avocation to balance and correct the more urgent claims of professional studies is a commonplace; yet like many dictates of common sense it is often ignored. Literature, music, art, and athletics are not only part of a liberal and humane education, but invaluable as a means of refreshment and of re-creating energy for the business of life. Just as there are burly athletes who never study, so are there pale students who go to the other extreme and thereby endanger their future by undermining both their mental and their physical efficiency. As a class women students are more prone than their brothers to over

the forceps. If I could get Dr. McAskie seriously to look at the preventive side of obstetrics I should be satisfied.

I am much obliged for the kind remarks made by Dr. Campbell, and am very interested in his report on the value of x-ray photographs as a means of diagnosis. Dr. Johnstone thought that my address was a very provocative one to the family doctor, and he remarked that he preferred to "curry favour with them." I do not agree with this. I have a large number of friends in the medical profession, and have received from them many letters thanking me for the help and ideas I have given them in my writings and otherwise. Moreover, I have never blamed the general practitioners as a body; it is not for me to cast the first stone, and I fully realize under what difficulties many of them work, and that their knowledge of medicine and surgery, as a whole, is greater than that of the specialist. But the specialist has a part to play. If he is placed in positions of trust it is his bounden duty, not only to the medical profession but also to the public, to give each the benefit of his experience. If he does not do so he should be retired, and someone more worthy appointed to fill his place. Unfortunately in my endeavours to reclaim certain sinners I am supposed to label all general practitioners as such, which is not true; I should not care to "curry favour" with general practitioners by neglecting to help them in those cases in which I ventured to think such help was necessary, not only for their own sake but for that of their patients. Dr. Johnstone found fault with my remark that a patient might be allowed to go eight hours in the second stage of labour. I should have thought that it was obvious from the context of my address that I did not advocate this as a general practice; my point was that *two* hours should not be regarded with the same respect as the "Ten Commandments." Neither did I say that all the forceps operations were of a major variety, but that the high forceps operation certainly was.

I thank the President for his kind remarks, and am glad that he takes up the idealistic view. Certainly I agree that perforation should be performed more often in preference to delivery with the forceps, in those cases in which undue force would have to be employed, for the rate of mortality and especially that of morbidity in the mother would be much lowered. Efficient ante-natal supervision would, however, abolish the necessity for such an operation.

I was very interested in the amusing and instructive remarks of Dr. Douglas. His description of his maternity work in Scotland was as near to my ideal as may be. Evidently Scotland, as usual, in this respect as in others, is in advance of the general practice. Dr. Douglas gave an idealistic account of the work of general practitioners in obstetrics. He could not understand a man who did not use gloves and antiseptics in midwifery; neither can I, and yet I wonder what percentage do. Dr. Grove thinks that an "aseptic hand" is better than india-rubber gloves. If he will refer to the definition of asepsis, and after this prepares his hands accordingly, he will have none with which to deliver his patients. One must, of course, prepare one's hands before putting on the gloves, and antiseptics are more efficient when gloves are worn than when the bare hand is relied upon. A speaker thought that I had brought charges against the character of the general practitioner, and it is evident that he would have advised me, thinking of my banking account, to refuse to open this discussion; but my object has been not to blame but to help the family doctor as well as I could by giving him the experience of my hospital practice, which I say again is my duty. I am glad to think that most general practitioners are on the side of Dr. Fairbairn and myself.

The last speaker attributed to me the remark that no force should be used in delivery with the obstetric forceps, which, as Euclid says, is absurd. What I did say was that no undue force should be used. Further, and he spoke as having much experience, he remarked that he had never failed to deliver with the forceps. I hope to God, for the benefit of his patients and their offspring, that in the future he will in some cases fail in his well-meaning endeavours.

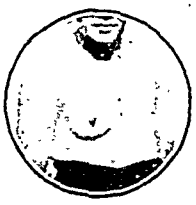
Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

UNILATERAL GYNAECOMASTIA.

The following case is of interest on account of its comparative rarity, and because of its well marked features. I first noticed an enlarged right breast in Able Seaman X. during a medical inspection of one of His Majesty's vessels, and obtained a photograph and these particulars.

Age 23, single. He first noticed a swelling of his right breast in 1916—that is, when nearly 17 years old—and was told by a medical man that it was due to "pulling of the strings." The breast enlarged slowly for eighteen months and has remained stationary since. There has never been any pain or discomfort in any way, but he has been subject to a certain amount of ridicule from his messmates. He voluntarily stated that some days the swelling seems to lessen.



The breast consists of a uniform hypertrophy of about the size of an ordinary nulliparous female breast. It moves freely, laterally, upwards and downwards over the pectoral muscle. The margins of the gland are well defined and it is uniformly firm in consistence. The nipple is a little larger than the corresponding one and is quite soft and moves freely. He has never noticed any discharge from the nipple, nor could I obtain any by massage. His testicles and genitals appear clinically to be quite normal and well developed. There are no other signs of effeminacy, and apart from the breast he is remarkably muscular and well developed. There is no enlargement of the thyroid, nor any history of enlargement or disease of that organ. The man is quite fit and able to carry out the strenuous life of a sailor.

It is impossible to obtain a familial record apart from the statement that his mother had a swelling in front of the neck in 1915, the last time he saw any of his family.

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HAEMORRHAGIC DISEASE OF THE NEWLY BORN TREATED SUCCESSFULLY BY INJECTIONS OF THE FATHER'S BLOOD.

The following case is, I think, of sufficient interest and rarity to justify its publication.

On Sunday, September 2nd, at 4.30 p.m., a patient was delivered of an apparently healthy female child, weighing 8 lb. The labour, which lasted twelve hours, was perfectly normal. There had been three previous pregnancies terminating in normal labour and delivery. The other three children (two girls, one boy) are in perfect health and have never had any illness necessitating medical advice. There was no history of "bleeders" in the family.

At 2 p.m. the following day the infant started vomiting blood. I saw her at 2.30 p.m. She was then vomiting bright red blood in fairly large quantity, and at the same time there was melaena. The blood discharged from the bowel was dark-coloured and free from clots. In addition there was haemorrhage to a lesser degree from the vagina, and a petechial haemorrhagic rash over the forehead, face, and neck. The temperature was subnormal and the pulse imperceptible. The infant was cold and clammy. It was at once apparent that the haemorrhage was large, the clothes about the chest being saturated with blood. Examination failed to reveal any bleeding point in the mouth or throat.

Fortunately I had a 20 c.cm. Record syringe at hand, and I succeeded in persuading the father to let me take 20 c.cm. of blood from the median basilic vein of his right arm, and immediately injected it subcutaneously in the right gluteal region of the infant. Some ten minutes later the haemorrhage seemed to have ceased and the child fell asleep. She continued to sleep soundly until 10.30 p.m., and when I saw her again at 11.30 p.m. I found that she had just vomited up another two or three drachms of bright red blood. There was still some melaena, but considerably less in amount. The child's condition had obviously improved. I thought it advisable to repeat the injection, giving another 20 c.cm. of the father's blood subcutaneously. As before, about a quarter of an hour after the injection the infant went to sleep and slept soundly until 5 a.m. At 8.30 a.m. I found that there had been no further vomiting of blood or bleeding from the vagina. There was still some slight melaena, without any faeces mixed with it. The infant looked much better and appeared to be much more active. The next morning the child passed a perfectly normal motion, with no visible evidence of blood. She continued to make satisfactory progress. There was no further haemorrhage. During the first week there

necessary to acquire the habit of noting down on the spot, or at least on the same day, the details of a case; yet this occupies little time, and this supplement to memory, or to adopt Addington Symonds's phrase this "mechanical memory," may in future emergencies—for example, legal proceedings, or certificates—be of the greatest use. In addition to writing a little every day some time should be given each day to reading, both of a professional and of a general kind, so as to keep up to date and maintain the general culture so essential to the medical practitioner, whose motto should be "Nihil humanum a me alienum puto." As an element in success accuracy and punctuality should not be overlooked; a present doyen of the profession when a young man on arriving at one of his first consultations was met by a senior surgical colleague standing watch in hand on the doorstep and the remark that a habit of being five minutes late boded badly for future success; this hint, gentle or otherwise, had a lasting effect and the resulting meticulous punctuality no doubt played some part in his triumphal career. A more difficult factor in avoiding failure is to be prepared for whatever emergencies or calls may occur in practice; this demands thoughtful foresight and some imagination. The whims of chance of course influence the future in ways that to some onlookers may seem even unfair, but probably many of the "lucky ones" are so in virtue of their ability to turn opportunities as they arise into solid advantages.

Though this address is headed "The Problem of Success for Medical Women," at this comparatively early stage of women's activity in the medical profession it is not wise, and indeed is hardly possible, to say the last word on this subject. That medical women have succeeded in the face of great difficulties is shown by recent history, and now that circumstances have been so vastly improved by the pioneers the road has been opened to their successors. The way, no doubt, is long and beset by difficulties; patience, perseverance, and wisdom are necessary though exacting requisites, but there is encouraging evidence that by these means women may look forward to a just meed of success.

References.

[1] Smith, Sydney: *Edinburgh Review*, 1810, xxx. [2] Ludovici, A.: *Woman, A Vindication*, p. 359. 1923.

THE REGULATING AND REFLEX PROCESS.*

by

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Part I.—THE ANATOMICAL AND PHYSIOLOGICAL UNITS.

That the early symptoms of disease manifest themselves by alterations in the normal reflexes of the body is a postulate laid down by Sir James Mackenzie. The truth or otherwise of this hypothesis is being investigated at the St. Andrews Institute for Clinical Research, but before any steps can be taken in its application to the study of abnormal conditions it is essential that a clear understanding be arrived at of what the normal reflex really signifies, and of the general principles which govern its production. Probably no branch of physiology has made greater progress in recent years than that relating to the nervous system. Many problems still await solution, but general principles are emerging which are of far-reaching importance.

A brief review of the general principles underlying reflex action is essayed in these articles, and an attempt is made to extend their application to the study of abnormal conditions. The author is conscious that some of his interpretations of ascertained facts are open to criticism, and may be modified in the course of time. There can be no finality in a subject of this importance, but a statement of the general position as it seems at present to members of the St. Andrews Institute may be of value.

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The Anatomical Unit.

The anatomical unit of the nervous system is the neurone, which is the nerve cell with its processes, dendrites, and axis cylinder. Chains of such units make up the nervous system. The neurones do not blend with one another anatomically at their junctions but are separated by a minute interspace in which there is a material endowed with distinct and highly important properties. This is the synapse or "synaptic membrane."

The Reflex.

It is improbable that any one anatomical unit in the nervous system can under normal conditions function by itself in the transmission of nerve impulses. For most purposes at least two neurones with an intervening synapse appear to be necessary to make up a functional unit. One of these neurones must be an afferent one whose province it is to transmit the nerve impulses excited in it by the stimulation of specialized end-organs or "receptors." The other neurone is an efferent one, and conducts the nerve impulses to some tissue or organ, which responds by whatever action characterizes it. Between the reacting organ or "effector" and the ending of the efferent neurone there is another minute interval occupied by a material somewhat similar in its properties to that of the synapse. Such an arrangement of anatomical units forms the basis of the simplest functional unit, which is the "reflex." An apparent exception to this statement is seen in the case of the so-called "axon reflex," where an afferent neurone sends branches to neighbouring arterioles and capillaries. But in the axon reflex the nerve impulses arise as usual at the receptors and pass to the central nervous system as well as to the blood vessels. The axon reflex appears to be a complete physiological unit in that a suitable stimulus applied to the skin produces a local vaso-dilatation of the blood vessels by the passage of nerve impulses over part of the afferent neurone only. But we do not know if this is the sole result of the stimulus, for the same neurone conducts the nerve impulses to the central nervous system, and sensation and reflex action may result in addition to the axon reflex. The axon reflex illustrates a principle of fundamental importance, because it shows that nerve impulses set up by a receptor in an afferent neurone may be productive of more than one kind of end-result. In general it may be said that the reflex is the physiological or functional unit, and that the reactions of the nervous system are built up of such units.

The modern view of the function of the neurone is *that* it conducts nerve impulses. It does so in response to stimulation, just as a muscle cell develops a state of tension in response to stimulation. But the nervous system is more than a highly elaborate conducting mechanism. The neurone conducts, but it manifests some degree of energy in doing so, though the amount of that energy is very small. There is no evidence that under normal conditions the nerve impulse dies down or undergoes a decrement in the neurone. The nerve impulse may be extinguished in the central nervous system, but such extinction always takes place at the junctions between the neurones—namely, in the synapses—and not in the neurone itself. On the other hand, nerve impulses set up in an afferent neurone may spread widely in the central nervous system, and the total sum of the resulting discharges by the efferent neurones may be greatly increased.

Rhythmical Activity of the Neurone.

Single, unrepeated nerve impulses do not, as such, find a passage through the central nervous system. In the quickest voluntary movement possible the muscular contraction is due to more than one nerve impulse, and there is evidence that the efferent neurones supplying voluntary muscle have a rhythm of discharge of about 50 per second. It is not known whether all neurones possess the property of rhythmical discharge, or what differences occur among them. It has been shown by Sherrington that if a stimulus applied to the afferent neurone in a reflex arc is sufficiently strong the efferent neurone has an after-discharge, and the muscle supplied by it remains in activity

The second point was never to advise operation for the removal of a semilunar cartilage which had once been displaced and successfully reduced. Frequently the accident never recurred. There were many patients giving a history of recurrent trouble with a knee, which sounded superficially like a displaced cartilage, but in whom true locking of the joint had been absent. Mr. Elmslie treated all these cases by manipulation, warning the patient that if the cartilage was damaged there might be a recurrence of the trouble necessitating operation. He believed that many of the so-called cartilage injuries cured by bonesetters came into this class, and that there had never been damage to the cartilage at all. Other cases so "cured" were those he had already mentioned in which the cartilage was displaced once and once only. In them the cartilage was presumably displaced by manipulation into a position where it gave no trouble. He did not believe that the bonesetter had any special manipulative tricks. If so, he ought to disclose them, just as any of the audience would put on record any new method which might be devised.

It was impossible to enumerate the many other conditions amenable to treatment by manipulation. They ranged from joints and muscles painful on account of apparently trivial restriction of movement, to gross cases of stiff joints, of adherent muscles, and nerves such as the sciatic which were fibrosed after an old-standing neuritis. He would suggest that wherever there was possibility of improvement by well devised manipulation it should be tried. If the pathology was correct they could do no harm. Often they would cure the patient. How much improvement they could promise would depend on individual knowledge and experience. Whenever a joint or muscle was apparently normal, but yet was painful, manipulation should be tried. If disease and mechanical effect had been eliminated no harm could result, and in nine cases out of ten some minor adhesions, undetectable by clinical examination, would be felt to give, and the patient would be cured. They failed to cure by manipulation most often because they failed to give the method a trial. Let them use it freely, restrained only by their knowledge of pathology.

Reviews.

SCIENTIFIC METHOD.

Yet another book on scientific method, and this not a small one. However, the volume is to fill a place in a series; and many people who leave old works in their dust will read a new one. Moreover each writer has his own way of restating old problems; and the fresh and bright, if somewhat diffuse and discursive, style of Mr. Ritchie's volume, not without a salt of humour, makes it an interesting and pleasant book for the general reader. Taken as a whole Mr. Ritchie's *Scientific Method*[1] is able, comprehensive and, in our opinion, right in its main argument and conclusions; if in friendly controversy we might be tempted to challenge some parts of it we are compelled by reason of our space to resist the temptation.

After an introductory chapter, Mr. Ritchie divides his subject into the following sections: The External World, Natural Laws, The Validity of Laws, Measurement, Theories, Conclusions. Some such artificial divisions must, of course, be made, but they entail overlapping, repetitions, and divorces of thought; so that it is less easy to get a grip on the book as a whole. And the style is hardly tight enough. In a second edition more might be done to whip the matter together and condense it; and some mechanical aids—such as indents or subheads—might help the author to concentration, and the reader to comprehension.

The problem of the formulation of our knowledge, of the establishment of principles on which forecasts may be founded, has occupied the mind of man ever since he began to think at all. As Mr. Shann says, in his excellent little book on *The Evolution of Knowledge*, the need of forecasting the consequences of voluntary action drove even the early and empirical man to systematize the results of his experience; and, as the elements of supposition and expectation are functions of the whole nervous system, these faculties may have arisen at an early stage of evolution. The empiric is not without principles, but he likes them familiar and traditional, even if out of repair.

For ordinary argument, the presumption of a world external to sense must be accepted; even if it be but a convenience of thought. So again, as a thing can be known only as it changes, and as with it all other things change (as an ancient sage well said—to abstract any single item from the cosmos would be to alter the whole), to isolate it for analysis in a "specious present" can be but a convention. As we take all knowledge to be for use, immediate or ultimate, as for forecasting, so every new abstraction must from time to time be refilled with its proper content, that it may be verified and reaffirmed. If theory and experience fall out of agreement the theory has been so far incomplete.

Are not scientists a little too chary of philosophy—that is, of the study of principles? If the scientist is to know where he stands—to be Plato's συνοπτικός—he cannot altogether ignore the lead of philosophy, nor its criticism of the natural sciences. As Mr. Ritchie says, outside physical science little colonies of knowledge are to be found; some flourishing, some languishing. To propose to understand a whole without analysing it by parts would be a formidable job. Yet it is only by conventions that we can clearly distinguish between the principles of continuous natural growth and our methods of obtaining a knowledge of them; between, that is, experience and thought. What constitutes evidence? How far is a universal a *key*, or a mere negation of individual properties? The scientist must assume a correspondence between the perceptible universe and the patterns of our brains; but is there anything more than this, any vital blend of consciousness—of inner light—with the object? Was there anything in the Nous of Anaxagoras, or in medieval dualism, or in Maxwell's "sorting demon"? In a phrase,—What does the mind supply, and what is given to it? As Mr. Ritchie and Mr. Shann impress upon us, we scientists still are not unaffected by the error of Francis Bacon, who supposed that by a ladder of axioms any industrious observer could climb up to general laws. The Aristotle of his day was, of course, an imperfect and often false paraphrase. Many scientists are now beginning to realize that a kind of imagination, different seemingly from the creative or concrete, some genius for hypothesis, is essential to fertile research. But, as men of this larger reason are rare, may it not be better to strengthen the position of the few than indefinitely to multiply studentships; and to be careful not to superannuate men so endowed at ages of maturity? The faculties of the fine (creative) arts bloom much earlier than those of scientific range.

We are too ready to scoff at the "unbridled and windy speculations" of the great Ionian sages, confusing their hypotheses with medieval dialectic. The frailty of their great conceptions lay not in the concepts themselves—these were indeed marvellous forecasts of those of modern evolutionists—but in their lack of building materials. Hippocrates in medicine, and Aristotle in animated nature began those collections of materials to which later workers have added so vastly that, fed by them, stouter and stouter superstructures have been built. As life from chaos, so theories have grown upon the sod of defunct hypotheses.

In the recent divorce of science from letters science has torn away trappings which hindered its course; but it has lost much of value; it has lost concinnity, and precision of terms and words. What would become of a mathematician, or of a logician, who used ambiguous signs and terms in his demonstrations? Yet scientific writing is full of such laxities; some of them, we regret to say, Mr. Ritchie does not indeed defend, but accepts in order to settle up with the man in the street. For instance, a theory is the highest form of scientific truth; there is no other word for it; yet by too many persons "theory" is used indifferently for any assumption or opinion. Again, a "fact" is something that has happened—an event—*whether we know it or not;* and by itself, out of relation to other facts, it is nothing. To call

[1] *Scientific Method: An Inquiry into the Character and Validity of Natural Laws.* By A. D. Ritchie. The International Library of Psychology, Philosophy and Scientific Method. London: Kegan Paul, Trench, Trübner and Co. 1923. (Demy 8vo, pp. viii+204. 10s. 6d. net.)

sensation are identical with those which are concerned on the afferent side with the production of Pavlov's "conditioned" reflex. The difference between the sensation and the reflex really lies in the nature of the process which produces the end-results. A sensation is a physiological or functional unit of the nervous system just as a reflex is, and if the part of the brain which is responsible for the processes underlying consciousness be regarded as an effector the sensation becomes a reflex. From the clinical standpoint the sensation is as important as the reflex, and the causes which produce disturbance in the one may produce disturbance in the other, and the manner of production of the disturbance is in large part the same in both. The term "reflex," though a very elastic one, has a definite meaning, and there are difficulties in classifying sensation under it. A new term for the physiological or functional unit of the nervous system which would embrace sensation, reflex, and voluntary movement might be better. It is this physiological or functional unit of the nervous system which is affected and gives rise to the early manifestations of ill health.

Voluntary Movement.

The cerebral cortex gives origin to the impulses which bring about the contraction of voluntary muscle. The dendrites and bodies of the neurones concerned, the cells of Betz, which constitute the first neurones of the efferent chain, lie in the precentral convolution of the frontal lobe. There is no reason to suppose that the cells of Betz are automatic; they must be set into activity by nerve impulses reaching them from some other neurone. In the production of voluntary movement the nerve impulses pass from the cortex by the first efferent neurone into the lower level of the central nervous system, where they then make use of the efferent pathways of the lower or spinal reflex mechanism. The cells of Betz may be looked upon as part of a long reflex arc the efferent part of which begins in the cerebral cortex and extends to the lower level of the central nervous system. The cells of Betz may be set into activity by nerve impulses which reach them through the long afferent paths involved in the production of sensations. This form of activity may become a reflex taking place through the cerebral cortex, and is comparable with Pavlov's "conditioned" reflex, though its end-result is seen in voluntary muscle. Many of the complex movements make use of these long pathways. Speech, reading aloud, writing to dictation, the playing of musical instruments, and skilled movements generally, afford examples of voluntary action which have many of the characteristics of reflexes. Initiated voluntarily by some unknown process involving cerebral activity they may lose their voluntary character, and when the pathways for the nerve impulses have been cultivated by use the process becomes a reflex one. Some of the responses may be continued by a short-circuiting as it were from the afferent to the efferent side at intermediate or lower levels. But in man the provision for even the simpler reflexes tends to be promoted to the higher levels. In injuries to the human spinal cord involving complete severance from the higher levels the part of the cord below the lesion fails at first to act as a reflex centre and only recovers as such when the direct pathways from the afferent to the efferent side in it have been re-educated.

Reciprocal Innervation.

The contraction of one muscle or of one group of muscles cannot take place without affecting the state of other muscles. When the muscles which produce flexion at a joint are contracted the muscles which oppose the movement, the extensors, are stretched. In a reflex or voluntary contraction of muscles, exciting a definite act such as flexion, provision is made in the central nervous system for a twofold action. The stimulus which excites the discharge of nerve impulses by the efferent neurones supplying the flexor muscles also inhibits the activity of the efferent neurones supplying the opposing extensor muscles. There is indeed an actual elongation of the opposing muscles due to their sudden loss of tone. A reflex or voluntary contraction of one group of muscles is not a complete manifestation of the end-results of the nervous process concerned, for the nervous system is so arranged that muscle has a reciprocal innervation. The phenomena of reciprocal innervation, the contraction of one group of muscles and the relaxation of another group, may be occasioned by nerve impulses coming from the higher levels as in voluntary movement, or by impulses entering the lower level of the central nervous system by afferent neurones from the periphery as in reflex movement.

Changes in the tension of each muscle excite receptors—the muscle spindles—in the muscle, and afferent nerve impulses are carried to the central nervous system, where they are co-ordinated and distributed to efferent neurones, stimulating some and inhibiting others, and thus leading to alterations in the tone of the muscles supplied.

The contraction of muscle alters the relative position of the parts of the body to one another. A constant stream of nerve impulses is carried into the central nervous system by afferent neurones from the proprioceptors, the receptors which are acted on by gravity and movement—for example, the utricle, saccule, and semicircular canals—and the receptors acted upon by tension—for example, the muscle spindles, and nerve endings in joints, ligaments, and other structures. Many of these impulses appear to be directed into the cerebellum, which Sherrington terms the head ganglion of the proprioceptive system. The impulses are co-ordinated in the cerebellum and distributed from it to efferent neurones in the lower level of the nervous system, and lead to alterations in the postural tone of the skeletal muscle.

The contraction of muscle, whether voluntary or reflex, is not an isolated act, but is accompanied by numerous complicated events in the central nervous system. The changes in muscle tone brought about by reflex action are of far-reaching importance, but are as yet imperfectly understood. Evidence is accumulating that the nervous processes concerned in the production of tone are in some respects different from those that have to do with ordinary contraction. The metabolism appears to be of a different character in the two events, and it is possible that the autonomic system plays a part in the maintenance of tone and of continued or tonic contraction of voluntary muscle, and that the actual contraction in the muscle is of a different nature.

Reciprocal innervation is not confined to voluntary muscle, but occurs in the innervation of all forms of muscle, and is shown by the heart and by the blood vessels. There is a close correlation of these organs by the nervous system. The contraction of voluntary muscle involves changes in the rate of the heart, the distribution of blood in the blood vessels, and alterations in metabolism. The liver liberates more glucose from its glycogen, and a number of changes take place in the chemistry of the body. The body is a unit and all parts work together. No change can occur in any of its parts without the production of some effect upon the others and upon the unit as a whole. If one examines the ascending columns of white matter in the lower level of the central nervous system one cannot but remark upon the great preponderance of neurones which are not associated with sensation, and which must be concerned in the production of reflexes. The central nervous system must be in constant receipt of afferent nerve impulses from all parts of the body, many of which have no direct representation in consciousness. Alterations in these impulses bring about changes in the body of a reflex nature. The altered reflex may in turn have a secondary effect upon consciousness. Reflexes involving alterations in metabolism, in the rate of the heart, in the distribution of the blood, and in respiration, to mention only the more obvious reflexes, may excite changes in consciousness which give knowledge to the individual that all is not well, though the nature of the sensation is vague and its actual cause is not recognized.

Health and Ill Health.

In the St. Andrews Institute we assume that health consists in the harmonious working together of all the organs and tissues of the body. The process by which this is effected is a nervous one of great complexity. A state of health implies that all parts of the body are furnishing from the various receptors their normal quota of afferent

method is nearly perfect and in his skilled hands has achieved the success which he claims. Nevertheless it is not a procedure likely to be of general application for this common complaint, and it is not difficult to imagine disastrous results, should this advice mislead the inexperienced. The indications for operations, as expounded by Dr. Barnes, are too rigid and there is a failure "to make the punishment fit the crime." In the chapter on complications and sequelae of operations on the tonsils an interesting account of pulmonary abscess following tonsillectomy is given. This complication appears to be commoner in America than in this country, but fortunately it is everywhere so rare that reliable statistics can scarcely be obtained. The effects of treatment of enlarged tonsils by x rays and radium is fairly discussed; it would appear from the general results that these methods are unlikely to have a wide field of utility.

The work of Dr. Greenfield Sluder is frankly a plea for the use of the guillotine in the removal of tonsils. He has, however, produced a complete work on the tonsils ranging from their embryology to their surgery. The most important part of the book is the detailed description of the operation and all that appertains to it. The author strongly recommends the use of nitrous oxide as the anaesthetic. He states that there has been no case of pulmonary abscess in his practice and that only one case of pneumonia has occurred in a series of 20,000 operations. It appears from the statistics that the use of a suction apparatus is an important factor in the prevention of pulmonary abscess. A fascinating part of the book deals with the evolution of the guillotine; it begins with the uvulotome of Canute of Thorbern, a Norwegian peasant; the illustration suggests a thumbscrew rather than a surgical instrument. This historical part is profusely illustrated with figures of instruments. A significant fact is that some twenty modifications of the Sluder instrument and different forms of guillotine are represented, indicating that the operation presents difficulties which many have endeavoured to overcome by altering the design of the instrument. The instructions for performing the operations are given in most minute detail, and the artist has produced drawings which support and illustrate very well the points elaborated in the text; he is to be congratulated on his success, for the operation does not lend itself at all easily to graphic representation and has baffled many. A chapter is devoted to the removal of adenoids, and the author recommends an instrument which makes it possible to do the operation under direct vision.

The general style and appearance of both these books is excellent and they should be studied carefully by everyone taking any serious interest in laryngology.

CRIME AND INSANITY.

Dr. William A. White, the well known American psychiatrist, has written a volume on *Insanity and the Criminal Law*[3] in which he discusses the possibility of applying modern psychiatric principles in dealing with crime. Writing from the standpoint of analytical psychology he shows how the concepts of crime and criminal have grown out of a consideration of acts rather than a consideration of the actors, and he welcomes the increasing tendency to take into account the personality of the criminal in relation to the crime he has committed. The theory of the treatment of crime which Dr. White develops resolves itself into two parts. First, to do away as far as possible with the conditions (mental defectiveness, insanity, immoral social conditions, etc.) out of which crime grows; and secondly, the salvaging of the criminal for social usefulness. He considers that the criminal in the majority of instances may be regarded as having a certain percentage of social value, and that it is therefore the function of the State to try to make that amount of energy available as a social asset rather than to allow it to be wasted in socially destructive activities. The author regards crime as a social disease and his main contention is that it should be treated as such, as the following quotations show: "Criminology, taking its cue from medicine, aims at preventive principles, or, in lieu of that, then the next best thing the social rehabilitation of the criminal. . . . The situation is analogous to the relation between physician and patient only that here the disease is not individual but social and the place of the physician is taken by the State."

Dr. White devotes much attention to what he regards as serious defects in the legal machinery for dealing with those cases in which a plea of insanity is raised in criminal trials. He discusses more especially the question of expert testimony, and expresses himself as convinced that the present procedure, in which the medical witness is treated as a partisan, makes it practically impossible for the expert to present a scientific position from the witness-box. He favours the suggestion, made by the American Institute of Criminal Law, that the judge may call in non-partisan experts to testify at the trial, and that these experts may be permitted to read a written report. As the author observes, this method of presenting the evidence to the court permits the criminal act to be described in its proper setting, to be given its proper value in a general behaviouristic survey of the personality, so that the real nature of the problem which confronts the court in the person of the defendant can be adequately presented. Dr. White's large experience enables him to describe a number of instances in which the plea of insanity has been raised in criminal trials, and his discussions of these cases are full of interest. We can recommend this book to all those who are interested in the problem of the criminal.

THE COMING GENERATION.

The *Claims of the Coming Generation*[4] is a volume of essays by well known writers, based on the proceedings at the seventeenth annual conference of the National Birth Rate Commission, and arranged by Sir James Marchant. There is nothing very new in the essays, which represent the views of many earnest thinkers on social improvement. It may be of some interest, however, to trace the principles which run through this series of essays. In the first place the title of the volume suggests the existence of "rights" for all human beings, and Dean Inge opens the symposium with an essay on the "Right to be well born." The Dean of St. Paul's holds that, "every child has the right to be well born." Therefore he makes an appeal to the medical profession to use "their collective authority in educating and influencing public opinion." Dean Inge draws up a list of subjects for an official handbook to be issued by the profession; in this list he includes the laws of heredity, the inherited tendency to certain diseases and moral defects, racial poisons, the stigmata of degeneracy, favourable age for marriage, effects of race mixture, the question of compulsory health certificates before marriage, and the best interval between births. Never mind, says the Dean, if half these questions cannot be answered with any certainly; let us hear the evidence, and so be gradually educated up to initiating legislation against obviously degenerative tendencies. The contemplation of legislation has the merit of inferring the imposition of "duties" on some portion, at all events, of the community; but in this age, when rights are generally emphasized so much more strongly than duties, it might have been well to call attention to the latter in the title of the book and of the Dean's essay.

Not all the contributors are eugenists. Thus Sir Arthur Newsholme prefaces his observations by the statement that "failures in parental care are the exception, not the rule," and by the further statement that—omitting the case of a few well defined diseases of somewhat rare incidence—"the efforts of eugenists to influence family alliances have insufficient scientific basis for the making of practical recommendations." Nevertheless the eugenic idea runs through many of the essays, as

[3] *Insanity and the Criminal Law.* By William A. White, M.D. New York: The Macmillan Co. 1923. (Cr. 8vo, pp. 231. 12s. net.)

[4] *The Claims of the Coming Generation:* A consideration by various writers arranged by Sir James Marchant, K.B.E., LL.D. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1923. (Cr. 8vo, pp. 175. 6s. 6d. net.)

necessity of the division of the sac, as may occur in rare cases. The history of the case, the presence of a "palpable, definite, resonant mass, slightly movable, but not on respiration, and gurgling on auscultation," with retraction of the region corresponding to the colon, would permit a probable diagnosis to be made. No coils of intestine were visible.

As pointed out by Moynihan and Dobson, the plica venosa forms the upper anterior and lower boundaries of the orifice of the sac. This fold contains the inferior mesenteric vein, but in this case there was no obvious implication of the haemorrhoidal veins, nor was any collateral circulation developed in the abdominal wall.

It will be noted that the patient ascribed her condition to an accident. According to Treitz, duodenal hernine are always acquired, being caused by a violent effort, such as a blow, shock, or concussion. Landzert, on the other hand, states that these herniae are always congenital. Moynihan and Dobson state that all the essentials for the development of hernia are present in intrauterine life, and that the hernia is chronic, whether congenital or acquired, the strangulation alone being acute. Cases have been recorded as early as the ages of 14 days and 3 months.

No attempt was made to suture the hernial opening owing to the condition of the patient. This procedure involves two risks: one is that of injury to the mesenteric vessel, and the other the formation of a large peritoneal cyst.

III.—Intestinal Obstruction from Gall Stones.

In the following case delay in operation was due to the difficulty of diagnosis, or rather perhaps to the failure to recognize the condition. The onset was one of overwhelming violence. The patient was extremely obese. There was also a curious intermission in the symptoms, in which pain and vomiting ceased and flatus was passed. The latter was probably due to reversed peristalsis, making the calculus slip backwards, and thus removing the obstruction.

Gall stones most frequently cause obstruction by impaction, but they may also cause obstruction indirectly by producing volvulus, and by their pressure they may cause ulceration of the gut and subsequent stricture. Obstruction from gall stones may occur anywhere from the pylorus to the anus.

Mrs. M., aged 55, admitted August, 1921. Two or three days before admission she had an attack of violent abdominal pain, accompanied by vomiting and the cessation of the passage of flatus. On admission the vomiting had ceased and flatus was being passed, and this caused further delay in operating. The symptoms of obstruction recurred, and operation was performed. The gall bladder was thickened and shrunken, and a gall stone the size of a large walnut was found impacted in the lower ileum. This was removed, and distended coils of intestine were emptied at the poisonous proteose level of Wilkie. The patient did not recover.

IV.—Intestinal Obstruction from Uterine Fibroid.

An unusual cause of acute intestinal obstruction is a fibroid tumour of the uterus. According to Bland-Sutton, uterine fibroids may obstruct the intestine in three ways:

1. A pedunculated subserous fibroid may entangle a loop of small intestine and lead to fatal obstruction.
2. A very large fibroid may rest on the brim of the pelvis, thus obstructing the sigmoid flexure.
3. An impacted tumour may press upon the rectum, and lead to obstinate constipation and chronic obstruction.

The following is an example of the second variety:

Miss B., aged 50, admitted to hospital May 10th, 1921. The day before admission severe pain set in in the abdomen. Vomiting was persistent and continuous. On admission a huge myoma occupied the pelvis and well filled the abdominal cavity. Operation was at once performed. No bands or adhesions were present. Access to the broad ligaments was very difficult. The bladder, therefore, was detached from the anterior wall of the uterus, and the cervix was divided by passing a scalpel from the anterior to the posterior surface in the middle line, and cutting outwards toward the uterine arteries. It was not very difficult then to divide the broad ligaments from below upwards, thus rapidly removing the uterus with its appendages. Recovery was rapid and complete.

V.—Intestinal Obstruction from Herniae.

Cases of intestinal obstruction from inguinal or femoral herniae, if the patient is feeble or *in extremis*, may be treated as follows:

Using Gray's syringe, infiltrate the skin and subjacent tissues with novocain 1/2 per cent. Incise the skin, open the sac; if the bowel is gangrenous incise it also, but if in good condition dilate the constricting structure with the index finger, and return the hernia or not, as seems advisable. Incision from within is unnecessary in dealing with the constricting ring in any strangulated hernia. Digital stretching is sufficient and safer.

The stethoscope is of much value in the diagnosis of various abdominal conditions, and in intestinal obstruction it is not difficult to recognize the passage of intestinal contents through wide or narrowed parts of the bowel.

The chief points in the diagnosis of acute intestinal obstruction are: (1) continuous and persistent vomiting; (2) no passage of flatus in twenty-four hours, notwithstanding appropriate treatment; (3) increasing abdominal distension. We must not wait for the onset of so-called faecal vomiting. It is a sure sign of intestinal obstruction, but it is also a clear indication that death is imminent.

A CASE OF ANGIOCHORIOMA.

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Placental tumours of the angiochoriomatous type are so rare that the following case, which occurred in the district practice of the City of London Maternity Hospital early this year, appears of sufficient interest to merit report.

The tumour which we now know as an angiochorioma was first described by Virchow as "myxoma fibrosus placentae," and since his publication only a few score cases have been recorded, the majority of these being from maternity hospitals where careful note is being kept of any abnormality. It may, therefore, be a somewhat commoner condition than the records would indicate.

These tumours arise from the chorion, probably very early in pregnancy, and their localized condition has been held to mitigate the possibility of a maternal cause. Some writers have, however, suggested an inflammatory origin and syphilis has been incriminated as an etiological factor, without much weight of supporting evidence. An interesting explanation of their causation was offered in a paper read before the Annual Meeting of the British Medical Association in 1912, by R. W. Johnstone,[1] who suggested that obstruction to venous return from an area of the placenta might bring about the angiomatous condition.

Apart from the area invaded by the tumour, the placenta is usually quite healthy and functions normally. Hydramnios may coexist and the foetal mortality does not exceed 0.30 per cent.

Clinical History.

The patient was a multipara, aged 42. The pregnancy was normal except for an unusual degree of pallor, and during the pregnancy a painful "thickening" behind the left knee was noticed. She was delivered of a healthy full-term child. During the third stage of labour there was a free loss of blood, but insufficient to be termed a post-partum haemorrhage. Examination of the placenta showed the presence of a tumour. Five days after labour phlebitis and thrombosis of the left popliteal vein occurred: the temperature was 101° F. and the patient complained of a persistent right hemicranial headache. The uterus was well involuted. The heart was slightly dilated and haemic murmurs were noted. The blood pressure was 98 mm. No albumin was present. A blood count gave the following result: red cells 3,100,000 per c.mm.; haemoglobin 42 per cent.; leucocytes 13,100 per c.mm.; differential count: polymorphs 81 per cent., lymphocytes 15 per cent., large mononuclears 4 per cent.

[1] British Medical Journal, 1912, ii, 1113.

while the remaining chapters are devoted to the consideration of individual diseases or groups of diseases caused by micro-organisms as well as infectious disorders of unknown etiology, including tropical and veterinary medicine. A bibliography of almost entirely German authorities is appended to each lecture. Although the greater part of the work is taken up by bacteriological considerations it is not intended for bacteriologists exclusively, for in addition to a short account of the symptomatology considerable attention is given to the epidemiology and prophylaxis of the various infectious diseases as well as to serum and vaccine therapy. The paper and printing are excellent, and there are numerous beautiful half-tone and coloured plates and microphotographs.

One of the most pleasing forms of introduction to the study of chemistry is that in which well known substances and familiar events are reviewed in a scientific light, and their properties and transformations described in terms conveying the ideas first impressed on the founders of chemical science. Such a book is that of KINGZETT, now in its fourth edition.[10] Illustrations and diagrams necessary for the understanding of manufacturing processes are provided. It may, in fact, be described as a book of pictorial chemistry containing more information than could be set down in the same area of letterpress.

The Ventilation of Public Buildings,[11] by ROBERT BOYLE, contains a number of plans of public buildings illustrating the author's method of "natural ventilation." It dispenses with all mechanical contrivances for forcing currents of air through the building and depends solely on the natural upward currents which are present when outlets are arranged in the roof and inlets of proportionate size provided in the lower parts of the building. The text consists almost entirely of quotations from the opinions of scientific writers, of newspapers, and of extracts from reports of Government and other committees, in praise of the system.

[10] *Chemistry for Beginners and Schools (with glossary).* By C. T. Kingzett, F.I.C., F.C.S. Fourth edition. London: Baillière, Tindall and Cox. 1922. (Cr. 8vo, pp. viii + 237; 75 figures. 5s. net.)

[11] *The Ventilation of Public Buildings.* By R. Boyle. London, Paris, New York: R. Boyle and Son. 1923. (Pp. 51; 14 illustrations. 6s.)

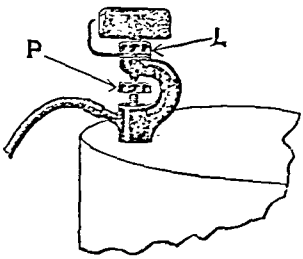
MEDICAL AND SURGICAL APPLIANCES.

Aseptic Clinical Thermometer Case.

CLINICAL thermometer cases are known which are adapted to contain disinfectants, so that each time a thermometer is inserted into its case it is dipped into the disinfectant. In order to avoid repeated use of the same disinfectant, while at the same time facilitating the carriage of disinfectant with the thermometer case so that it is always ready to hand, Dr. Charles Pentland has devised a thermometer case with two compartments; one is for the thermometer and the other is fitted with a glass tube in which potassium permanganate crystals or any other suitable solid disinfectant may be carried. This tube has a small hole at the lower end; a few crystals of disinfectant are shaken into a glass of water to form a solution in which the thermometer is immersed. This allows the thermometer to be disinfected by the bedside of the patient. Dr. Pentland has had a case in use now for nearly twelve months, and finds it acts perfectly. The appliance is made by Messrs. Arnold, Sons, Bell and Croyden, 50, Wigmore Street, W.

Bomb Ether Apparatus.

Drs. S. R. WILSON and K. B. PINSON (Manchester) write: The bomb apparatus illustrated was first described in February, 1921, and has been in constant use ever since. We have, however, made additions and improvements in it. The valve illustrated has been made a great deal better. The nut, P, is to tighten the packing when the action becomes loose, and L is to adjust the pointer; the filler plug is larger and is now placed on the top, and incorporates a device which prevents overfilling. A safety blow-off has been added, which makes the apparatus absolutely safe in all circumstances. A hand rest also has been fitted which adds to the convenience of the user when manipulating the valve. The apparatus has been in everyday use by one of us for the last six years; indeed, we think it the easiest and most efficient way of administering ether. It is now manufactured by the Manchester Machine and Instrument Manufacturing Co., Ltd., 2, Booth Street, Manchester.



Nova et Vetera.

THOMAS WAKLEY AND THE "LANCET."

THE mysterious outrage in Argyll Street which interrupted the course and very nearly ended the life of Thomas Wakley more than a hundred years ago was as remarkable as was the subsequent career of that vivacious journalist and politician.

In his *Life and Times of Thomas Wakley*, the present editor of the *Lancet*, Sir Squire Sprigge, has admirably chronicled that career. Thomas Wakley was an impulsive, generous-hearted man who furiously resented the abuses and the injustice which were then rife in the medical profession. Inspired to a great extent by Cobbett, he and his assistants did not hesitate to attack in unmeasured terms the very heads of the profession. He seems positively to have revelled in controversy, and, far from thin-skinned himself, it does not seem to have occurred to him that any of his opponents might be more sensitive than himself, or that there were any decencies worth observing in newspaper controversy. Those were the days of duelling, whose apologists used to argue that the fear of being called to account on the field of honour restrained the tongue and the pen; yet journalists—both lay and medical—allowed themselves a licence which is unheard of in our more polite times, when an appeal to the arbitrament of the pistol or even of the fist is no longer tolerated. Dickens probably did not greatly exaggerate when he described the Eatanswill editors, Pott and Slurk; and the "Hole-and-Corner Buffery" which Mr. Pott denounced had had its forerunner in the "Hole-and-Corner Surgery" which roused the ire of the *Lancet*.

We have come across the record of only one medical duel in this period, that between Dr. Forbes of the Westminster Ophthalmic Hospital and Mr. Thomson. The cause of quarrel was a dispute between Guthrie and Forbes as to the management of the hospital. Thomson warmly espoused Guthrie's cause and challenged Forbes. They met on Clapham Common. Neither of the principals seems to have been much of a marksman, for after three exchanges of shots without any casualty the seconds intervened, because, as they reported, "they could not, consistently with their own characters, permit the affair to proceed any further, however much they might regret that a reconciliation had not been effected." The seconds were probably more disappointed with the negative result of the duel than were the principals, and they seem to have thought that a bullet wound would have had a conciliatory effect.

A perusal of the early volumes of the *Lancet* will repay the student of the history of medicine and of the humours of journalism. One of the objects of the paper was the publication of lectures delivered by hospital surgeons and physicians, and it wisely began with the greatest of these, Sir Astley Paston Cooper. Sir Astley enforced his opinions with illustrations from his wide experience, as, for instance, when he told his hearers how a St. Thomas's dresser persuaded the surgery boy to allow him to amputate his leg, and how the operator lost his head when the tourniquet gave way, and but for the intervention of a cooler-headed friend with a door key the unfortunate patient would have bled to death. Another extraordinary case which he described at length was one in which an artist sought relief from the deformity of "bow-shins;" and the surgeon, the patient, and the patient's father took turns at scraping away the bone with a "rongee." Unfortunately the granulations produced much new bone and the deformity became worse than ever. Then the surgeon, not to be beaten, applied arsenic freely. The result was exfoliation of bone and arsenical paralysis. After recovering from this, the patient sought Sir Astley's advice and showed him "a large box in which the exfoliated portions of bone were contained." Yet he considered that the improvement attained was worth all that he had gone through. The reader of the present day cannot fail to be struck by the fortitude of patients who submitted

occurring in women: (1) well marked haemophilia resembling that in the male, (2) haemorrhagic diathesis in females not connected with haemophilic families, and (3) "an abnormal tendency to bleed in female members of admitted haemophilic families, such tendency being slight or atypical as compared with well marked haemophila." The patient appears to belong to this last class.

I wish to thank Mr. R. H. Jocelyn Swan for his permission to publish this case; and Dr. Meadows of Yarmouth and the Registrars of St. Mary's Hospital, Paddington, the Victoria Infirmary, Newcastle, and the Yarmouth Hospital, for their kindness in supplying particulars of the cases under their care.

INSULIN TREATMENT: A SUGGESTION FOR AN OPTICAL METHOD.

BY

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The insulin treatment of diabetes requires an accurate estimation of the glucose in the blood, and an easy method by which this could be accomplished would be welcomed by general practitioners.

I have made determinations of the amount of glucose in solution by measuring the index of refraction of the solution. The instrument I have used is described in Schuster and Lee's *Exercises in Practical Physics*, and depends on the measurement of the critical angle. The instrument is simple, and only one or two drops of the liquid are required. It would have to be assumed that any alteration in the index of refraction of the blood was due to the amount of glucose contained in the blood, and in a diabetic patient I think that this assumption warranted.

Starting with a 10 per cent. solution of glucose the inc of refraction was measured, and weaker solutions w taken with the following results:

	Index of Refraction.
10 per cent. glucose	... 1.341
5 " "	... 1.338
2½ " "	... 1.336
1¼ " "	... 1.334

At about 1 per cent., therefore, the solution could be distinguished from water, which has an index of refr tion of 1.333. The instrument, however, might be impro to give more accurate readings, and if this can be acco plished a quick and ready method of estimating the gluc is quite possible.

Another method which was attempted was a measu ment of the rotation of the plane of polarization, but same difficulty was experienced—the method was accurate for very small percentages.

Some years ago I made experiments on the index refraction of the fluids of the human body with a view distinguishing between inflammatory and serous effusio The following table embodies my results:

	Index of Refraction.
Pleural effusion	... 1.343
" "	... 1.347
" "	... 1.346
Ascitic fluid	... 1.336
Fluid from oedema	... 1.336
Cerebro-spinal fluid	... 1.339

I am of opinion that an optical method for determin the amount of glucose present in fluids can be elabora which would give a more accurate result than the chemi method, would be more simple, and take much less time

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Victor Bonney, M.S., M.D., F.R.C.S., President.

DISCUSSION ON THE USE AND ABUSE OF OBSTETRIC FORCEPS.

OPENING PAPERS.

I.—COMYNS BERKELEY, M.A., M.D., M.Ch.Cantab., F.R.C.P.Lond.

Efficient Teaching.

I think it must be admitted that the very unsatisfactory position of the forceps operation to-day is due to inefficient teaching. It is not fair, as has often been done in the past, to shift all the blame on to the family doctor, and I feel that the teachers of obstetrics must shoulder their share of this responsibility, which, if anything, is greater than that of their pupils. That the teachers themselves are, however, not entirely at fault is obvious, for they have not the facilities to teach midwifery properly. In the end the responsibility for this inefficient teaching, in the past at any rate, must rest on the General Medical Council and the various examining bodies, who have it in their power to prescribe what rules and regulations they think fit.

The majority of students when they get into practice are not going to operate, and yet, before they can sit for their final examination, they have to spend three months in the out-patient and six months in the in-patient surgical departments of their hospital, working under the direct supervision of the chiefs of these departments. The majority of students, however, are going to practise midwifery, and yet many of the examining bodies do not compel them to attend any midwifery cases in a hospi and there is no rule that any of the twenty women t must deliver shall be delivered under the immediate sup vision of the chief of the department. Not many years the obstetric house-surgeon used to take the pupil to first two cases only, and he had to look after the remain eighteen as best he could. Until lately it could be s without exaggeration that most men went into pract without ever having seen a woman delivered as she sho be—that is, in suitable surroundings.

The life or health of a patient may easily depend on good or bad judgement of the medical attendant, and oft does. In no instance, perhaps, is this fact more striki than in the practice of midwifery. It is recognized t the only way in which students can attain good judgem is by being given efficient teaching and ample opportu in practical work, but whereas both efficient teaching a ample opportunity are always within the reach of ev student when he is studying medicine and surgery, wh he comes to study midwifery his opportunities for practi work under supervision are extremely limited. Althou it is now the custom, at those hospitals which have mat nity beds, for the midwifery pupils to take their first t cases under the supervision of the obstetric house-surge or sister midwife, I believe, up to the present, only few of the examining bodies insist on this. Ap from unavoidable complications, a bad result in midwif is too frequently the result of bad judgement. Moreov the only way to obtain a real knowledge of the bad resu of midwifery, and among other things of the abuse of t forceps, is to attend the practice of the gynaecological wa and yet this is not compulsory. More recently in so hospitals, it is true, the deans have refused to "sign up students unless, and until, they have been in-patie gynaecological dressers; but the General Medical Coun did not insist on the students holding these posts, and t more cautious deans refused to adopt such an attitu Most of the students, being aware of the fact that th only had to serve three months either in the in-patient out-patient department, chose the latter because it ga them less trouble.

The bad results of midwifery are partly due to want

families there were multiple cases, one family having six. Of the 97 cases 14 died. Typhoid inoculation was done in all inmates of infected houses, beginning early in September (the epidemic having started in August), and among the contacts only one case developed, the disease having been incubating before the inoculation.

Small-pox broke out in 1918. There were eight cases, all ending in recovery. Vaccination of contacts was extensively carried out.

Influenza.—The epidemic of 1918-19 was extensive and fatal, reaching its acme in October, 1918. In the six epidemic months 460 deaths could be attributed to influenza, making deduction for pneumonia, etc. The age period 25-45 suffered most. The disease came in two main waves—October-November, 1918, and February-March, 1919. Preventive efforts followed the usual lines, but Professor Hay concludes that "any adequate control of epidemic influenza awaits the production of a specific prophylaxis."

Epidemic Milk-borne Bacillary Dysentery.—Professor Hay gives an account of an epidemic of this disease in a manner practicable only in a university town, with every facility for skilled clinical, bacteriological, and pathological investigation. The following are the conclusions reached: "An epidemic of diarrhoea or gastro-enteritis occurring in Aberdeen in 1919, and causing over 1,000 cases and 72 deaths, has been proved to be due to infection of milk with dysentery bacilli of the Flexner type. Similar epidemics of milk-borne diarrhoea have occurred formerly, but bacteriological investigation had failed to determine the nature of the infecting organism. Reference to the epidemiological and clinical features of such former epidemics, however, makes it practically certain that they were essentially of the same description as the Aberdeen epidemic of 1919, and accordingly indicates that they were likewise due to infection of milk with dysentery group bacilli. The Aberdeen epidemic of milk-borne bacillary dysentery had run its course and had caused 72 deaths before serological proof of bacillary dysentery was available. Since the time of the Aberdeen investigation, notable advances have been made in methods for the bacteriological diagnosis of the dysenteries as a result of the fundamental work of F. W. Andrewes, A. D. Gardner, C. J. Martin, and others. Nevertheless, modern methods of bacteriological diagnosis are not infallible, and the Aberdeen experience clearly indicates that deaths will be prevented if polyvalent antidysenteric serum and saline treatment are exhibited at once in a disease having the clinical symptoms of bacillary dysentery or in an acute enteritis from which has been isolated organisms with the cultural reactions of the dysentery group bacilli."

Meat Poisoning: Enteritis.—Two other outbreaks of less extent and severity—one of meat poisoning and one of enteritis in the Aberdeen City Fever Hospital—are reported.

Mother and Child Welfare Service.

The development of this service is traced from the time when the first woman sanitary inspector was appointed twenty years ago, and there is reproduced a report of Professor Hay's which was published by the Carnegie Trust on the training of health visitors. At present the standard of the Board of Health—one visitor for each 400 births—is complied with in Aberdeen, but the opinion is expressed that, however efficient such visitors may be, they are unlikely to take entirely the place of voluntary workers. The official scheme for maternity and child welfare adopted by the town council in 1918 is very complete, whilst the organization required is set forth in detail, and the work of the midwives in successive years.

Tuberculosis.

In the county of Aberdeen, as distinguished from the city, wooden shelters at the homes of the patients are used, whilst in other adjoining counties many cases are sent to sanatoriums outside their own boundaries. The Aberdeen City Hospital plays a large part in the city's own scheme. Being within easy distance of their homes, parents are willing to let their children remain for the time necessary to secure satisfactory results, which are in fact achieved, whilst visitors to the patients have the constant lesson

"of the obvious benefits to be derived from living and sleeping virtually in the open air throughout the whole day and night, and during the whole year, either in open shelters or in wards with windows so widely open that it is impossible perceptibly to raise the ward temperature even by steam heating." Also he holds that "With a view to the continuous and full observation and study of the progress of the individual cases and of the effects of treatment, there is definite advantage in having practically the cases in all stages under single medical control or direction, as we have at present in the tuberculosis wards of the City Hospital."

The views expressed with regard to occupational training coincide with those of Sir George Newman. Professor Hay writes:

"As a rule, the retraining of a consumptive in a fresh occupation—often an outdoor occupation as opposed to a previous indoor one—has not proved so successful as was originally anticipated by many. It is usually better that a consumptive should return to his original occupation, provided it can be carried on under healthy conditions. The occupation of itself is less seldom unhealthy than its conditions. Thus, an ex-sanatorium shoemaker or tailor working at his original trade in an open shed or workshop, although within a city, has probably as good a chance of keeping well as if he had changed his occupation to gardening, and he has the advantage of being able to live at home, and of being usually able to earn considerably more than in a new occupation, and thus to keep himself better fed."

There is a great scheme in hand for setting apart an area of about 100 acres for all the important curative institutions of Aberdeen, excepting, perhaps, the infectious diseases hospital. It would include the Children's Hospital and a new Royal Infirmary. The proposal, if carried into effect, would manifestly be of great value to the medical school of the University as well as to the general community. Professor Hay's discussion of the question of venereal diseases services is on broad and sagacious lines, in respect both of Aberdeen city and of the north-eastern counties of Scotland. He prints the joint scheme he submitted; it received the approval of the central authority in 1919 and is now in operation.

COMPRESSION OF THE SPINAL CORD.

At the fourth Réunion Neurologique Internationale held at Paris in June, the subject of compression of the spinal cord was discussed by representatives from many countries as well as by the members of the Paris Neurological Society.[1] The discussion was directed to three aspects of the problem: (1) the diagnosis of the site and nature of the compression; (2) the means whereby it produced symptoms; and (3) its treatment.

The discussion was opened by Sir James Purves-Stewart and Dr. Riddoch, who represented British neurology. It has been known since the first successful operation for spinal tumour performed by Sir Victor Horsley in 1888 that after the removal of the compressing agent the cord might regain all or almost all the function which had been lost. Purves-Stewart and Riddoch sought to explain this in the light of our knowledge of the anatomy and physiology of the cord. They maintained that, whereas certain of the symptoms of spinal compression were due to the direct pressure on the spinal cord by the tumour, the majority could be attributed to the effects of compression of the blood vessels in the part of the cord underlying the tumour. In this way relative anaemia was produced in these segments of the cord with temporary loss of conductivity in the nerve tracts which passed through them. In addition, the compression of the longitudinal veins at the level of the tumour caused venous stasis and anoxaemia in the lower segments of the cord, a condition which might exaggerate the loss or perversion of function in these segments.

Dr. Charles Foix of Paris, who dealt with diagnosis and localization, expressed the opinion that the most important localizing symptoms were the pains caused by the compression of a spinal root; the pains were usually almost continuous, but there were paroxysmal exacerbations which might be brought on by movement or by coughing; sometimes the patients felt a constriction like that of a tight band. These root pains were often the earliest sign of a tumour and were a very trustworthy guide to its site. Next in importance came localized muscular atrophy, which, especially if it occurred in the arms or shoulder girdle, might of itself reveal the level of the tumour. Loss of skin sensibility was of less certain value, unless there were a definite upper limit to the anaesthesia; usually, however, it appeared late. Loss of individual reflexes, whether superficial or deep, or a band of hyperaesthesia might be of considerable localizing value. Lumbar puncture usually settled any doubt as to the presence or absence of compression of the cord. When compression was present the spinal fluid became highly albuminous, and in some cases might also show xanthochromia and coagulate massively—the syndrome of Froin. Puncture at various levels of the spine had revealed the level of the tumour, as above this level the spinal fluid was much more normal in character than below.

Ayer has combined cisternal puncture with lumbar puncture, and by a comparison of the pressure as well as of the chemical composition of the fluids drawn from these two

towels—in most cases not. The doctor may very likely reply: This cannot be helped—the patient cannot afford such luxuries; but I am not dealing with the doctor's responsibilities, but with the abuse of the forceps extraction as an operation.

The position of a nation depends upon the number and efficiency of its population. In the absence of sufficient hospital accommodation for lying-in women the local authority should be responsible for supplying the proper aids to childbirth. In comparison with other operations the forceps extraction is at a further disadvantage, for whereas the surgeon in practically all cases is able to carry out the best treatment for the patient, the obstetrician may have no such choice, and he may not have had any opportunity of treating the patient until one procedure only is available, and that not the best.

With the ordinary operation the surgeon is not influenced by the patient or her relatives trying to persuade him to operate; on the contrary the strongest objections may be raised by one or the other. How different is the lot at times of the doctor attending a confinement—constantly being reminded that Mrs. So-and-so had instruments and the labour was terminated easily and quickly.

Mechanism of Labour.

The abuse of the forceps operation may be regarded from quite a different point of view from that which I have dealt with up to now. Normal labour consists of certain regular stages, and is a natural process, just as much as defaecation and micturition. At times complications may intervene in any of these physiological acts, so that they may become pathological; but it is in the case of labour only that such transmutation from the physiological to the pathological can be ascribed to the interference of the medical attendant. The mechanism of labour is arranged to get the best possible result in the shortest length of time. The child is not propelled downwards until the cervix is fully dilated, which dilatation Nature accomplishes gently, slowly, and evenly, the contractions of the upper segment pulling the cervix over the head. Then as the head is advancing through the pelvis from the brim to the outlet its smallest longitudinal diameter, by the movements of flexion, internal rotation, and extension, is accommodated largest diameter of the pelvis, so that the pressure maternal and foetal tissues is reduced to a minimum, ead being moulded very slowly. In addition, as the passes through the vagina the levatores ani are ately stretched and relieved from strain according ether there is a "pain" or not.

operation of the forceps extraction must always ere with the normal mechanism, and in many cases o very disastrously. If the forceps is applied before ervix is fully dilated the dilatation is now more more forcible, and also uneven, while instead of the being pulled up by Nature it is pulled down by the , the total result being some injury to the mother, ften serious injury. Labour is more quickly termi- by the use of the forceps, otherwise the doctor would using this instrument. This means that with the s extraction insufficient time is allowed for the proper ing of the head, and an unmoulded head is much difficult to deliver because the diameter engaged is than it should be. Again, unless the greatest care en during extraction to pull only when a uterine ction occurs, the levatores ani will be unduly hed—they will not be given that period of rest which o demands. Lastly, the movements of flexion, al rotation, and extension are interfered with, ally when axis-traction forceps are not used, the ry by the ordinary forceps notably causing premature sion of the head.

experience as an examiner to most of the examining bodies in England has taught me that less attention is paid by students to the mechanism of labour than to any other subject in midwifery. I cannot help thinking that the lack of interest in this subject remains with many of them for life, otherwise many emergencies, necessitating, as the practitioners think, the application of forceps, would, like the old soldier, "slowly fade away."

That forceps are often used unskilfully is due to the fact that, in the past at any rate, a large number of men have not seen them employed before going into practice. The method of using the forceps is open to abuse. The instrument can be used as a tractor, compressor, rotator, lever, and stimulator. In my opinion the only warrantable use to which the forceps should be put is that of traction. Certainly there are better and safer ways of stimulating uterine contraction. I presume none except the most ignorant would in these enlightened days think of using the forceps as a lever. All the cases which I have known in which such a use had been made of the instrument ended disastrously for the mother, either in fearful laceration or in her death. I know that many practitioners think that in cases of persistent occipito-posterior positions rotation with the forceps is a good method of treatment, and that it is often used as a first choice. In nearly every case, especially when the patient has been watched carefully in the early stages of labour, it is possible to rotate the head and shoulders with the hands. The child certainly is more likely to be injured by rotation with the forceps, and I have seen most serious laceration following such attempts on the mother. To use the forceps to make the diameter of the head smaller—that is, as a compressor—is absolutely wrong. This instrument must exert a certain amount of compression unfortunately, but this must be avoided as far as possible by allowing its handles to remain loose at frequent intervals. There remains traction, the one proper use to which this instrument can be put. Even this use, however, is frequently abused. The force used should be strictly limited. If great force has to be used—and not infrequently one meets doctors who state that they had to pull with all their strength, and perhaps with the aid of one foot against the bed—this is a sure indication that forceps extraction was not the correct treatment.

It is an abuse of the forceps to use it too soon or too late. The forceps should never be applied too soon—that is, before the cervix is fully dilated, either by Nature or, in cases of necessity, by hand, or, in cases of disproportion, before the head has had time to mould. To apply the instrument in exhaustion of the uterus, or after the death of the child, is to apply it too late.

It is wrong to deliver the child quickly unless such is absolutely indicated. A slow delivery is not nearly so likely to injure the mother or the child. It is not fair on the forceps to use it before emptying the bladder with a catheter, neither is it fair on the patient. A vesico-vaginal fistula may easily result in the absence of such precaution, and yet I have heard some of my friends say that they are so apt to forget this that they always keep a catheter tied to one blade of the forceps. Lastly, if difficulty is experienced in applying the forceps by one who is accustomed to use this instrument, this is generally an indication that the case is not one really suitable for forceps but would have been better treated by some other procedure.

Baudelocque remarked that the obstetric forceps was the most useful instrument that had ever been invented. I have been criticized for suggesting that this further supplication should be added to the Litany: "*From* the obstetric forceps, good Lord, deliver us." So frequently, however, is this instrument used that one might be justified in thinking that for generations there had been a supplication: "*With* the obstetric forceps, good Lord, deliver us."

The use of the forceps may be necessary in the interests of the mother or the child, but I take it that such action can only be justified if, in the first case, the mother is not worse off than before the forceps was used, and, in the second, if the child is born uninjured.

Advocates of the frequent use of the forceps maintain that the operation shortens the woman's suffering and diminishes her risk, and also that of her child. It is true that the suffering due to labour pain is shortened, but is this worth the increased risk, nay, the certainty in some cases, of lifelong suffering from injury or infection, when it can be mitigated by far less dangerous remedies? Then many assert that they get no tears, or less severe tears, when using the forceps. I doubt it. They may not recognize the lacerations of the cervix, or of the vaginal walls, and at any rate it is quite certain that the

British Medical Journal.

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THE CENTENARY OF THE "LANCET."

Our contemporary the *Lancet* has celebrated its hundredth birthday by issuing a supplement which, while it describes the rise and progress of the paper, is also a very valuable contribution to the history of medical journalism in this country. For although long before its first appearance there were monthly and quarterly medical periodicals, yet however weighty their scientific contributions might have been they were of small influence, and after that time the weekly journals quickly became the only ones that counted in the world of medical politics. The *Lancet* to-day, unlike human centenarians, shows no sign of senile decay, but is still full of vigour.

When what was then a humble little octavo first appeared it is not probable that anyone—even its editor—foresaw that it would soon become a power in the land, and incidentally that it would prove to be a very valuable property for its originator. A weekly medical journal was a startling innovation; its unrestrained criticism of important personages and of existing medical institutions, and its advocacy of reform couched in strong language attracted wide notice. It was read by medical reformers and by medical reactionaries as well as by many of the general public. Indeed, that his journal should serve as a liaison between the profession and the lay public was one of the avowed objects of the founder. It would be idle to deny that in its youthful days it was often scurrilous and sometimes unfair in its criticisms and comments, and some specimens of Wakley's bludgeonings are given at page 616. We can, however, recognize that Wakley's prime motives were good, though his methods were often reprehensible. Wakley's abounding energy and fearlessness, together with his fine physique, must have made him an engaging personality, and this impression is confirmed by the charming sketch by Sir Edwin Landseer; a reproduction of it in colours forms part of the centenary supplement, an advance copy of which we have by the courtesy of the Editor been permitted to see. Wakley was an effective writer, and soon surrounded himself with a small group of brilliant assistants, some of whom, such as Wardrop and Lawrence, attained afterwards to professional fame. Many enemies were made in the fight for the reform of the Corporations and of the great hospitals and schools, but in time they were won over. A striking proof of the reconciliation which had taken place between Wakley and those whom he had most bitterly assailed was afforded in 1849, when a malicious action was brought against his son, Mr. T. H. Wakley, at that time a young surgeon on the staff of the Royal Free Hospital. All the surgeons who came forward to give evidence in favour of the defendant had been most severely handled in the early volumes of the *Lancet*, and among them was Mr. Bransby Cooper, who had suffered under a most cruel and not quite fair attack one-and-twenty years earlier.

The actions at law which poured in upon the plain-speaking and undaunted editor, if not decided in his favour, were treated as moral victories, and the award of a fraction of the damages claimed did not deter him from repeating his accusations at the earliest opportunity. As time went on, however, he seems to have realized that violence of language and overstatement of facts alienated the sympathies of a number of people whose support was the best worth having, and after the first ten years or so there was a great change in the controversial manners of the journal. Nevertheless there was no slackening in the demand for reform of all the abuses which had been so long complained of. Meanwhile the *Lancet* and its representatives were at first tolerated and afterwards welcomed in the hospitals and medical schools.

For the first sixteen years of its existence the *Lancet* alone gave articulate expression to the feelings and wishes of the majority of the profession, and for another ten years only one paper attempted to dispute its possession of the field. After the rise to importance of the British Medical Association, however, it was natural and indeed inevitable that its official organ should represent the interests of its members, and take upon itself a portion of the duties which formerly had fallen to the lot of the *Lancet;* but the two journals have worked side by side for the common good, and despite occasional bygone personal differences, which are referred to in the centenary supplement, there has never been other than friendly rivalry between them.

In the year 1844 the page of the *Lancet* was enlarged, and the selection and arrangement of the subjects dealt with had become much the same as at the present day. It is worthy of remark that this has become almost the standard pattern for weekly medical journals in the British Empire, America, Germany, and to some extent in France. Soon after the paper had made its name a French paper paid it the compliment—not relished by Wakley—of calling itself *La Lancette Française*. Other papers with analogous names have followed in various parts of the world, so that while the surgical instrument from which it is named is almost obsolete, the name is perpetuated by the periodical.

Perhaps the *Lancet's* greatest political success was the appointment of Warburton's parliamentary committee of inquiry into the state of the medical profession in the year 1834, when conclusive evidence of the necessity for reform was extracted from the very men who had for ten years been strenuously opposing the paper's demands for it. It is true that legislation did not immediately follow, but the ground was cleared and the seed sown which later germinated, and, nurtured by the British Medical Association, grew into the first Medical Act. The exposure of the miscarriages of justice which had occurred owing to the want of medical knowledge and consequent failure to appreciate the value of medical evidence by coroners, and the advocacy of the appointment of medical men to that ancient judicial office, did not bear fruit in legislation, but it and the example set by Wakley as coroner for Middlesex led to a great reform in practice.

The *Lancet* has had its ups and downs, as a reference to the centenary supplement will show, and it did not keep its hard-won popularity with hospital surgeons altogether without interruption. Moreover, as in our own case, in the crusade against quackery its action was not always upheld by unsympathetic judges and juries, and sometimes damages had to be paid for doing what was considered to be a public duty. The founder of the paper originally dedicated it to the service of the medical profession, and only indirectly to that of the public; but in its later years, and especially under its second editor, valuable services

In the absence of a serious complication, such as haemorrhage, a lingering first stage never does any harm, and there is always time to remedy any displacement or to decide upon some method of treatment, if necessary, which will probably be less dangerous than that of the forceps operation. A lingering second stage, as long as the "pains" are not failing or becoming continuous, is less harmful than a rapid delivery with the forceps. Patience first. It is true that delay in the birth of the child always causes anxiety in the patient or her relatives, and even perhaps suspicion, whereas a quick delivery is apt to bring credit to the practitioner—not by any means always where it is due. The proper time to use the forceps, when the delay is due to inefficient pains, is when they are becoming inefficient, not when they have become so; if pains have ceased, post-partum haemorrhage is lurking round the corner.

And lastly, with reference to the use and abuse of the forceps when the delay is due to disproportion. In no instance is an accurate diagnosis of more importance. The practitioner must not be unduly influenced by the external measurements of the pelvis, which indicate mostly the shape of the pelvis, neither should he regard the pelvis as normal if his finger will not reach the promontory of the sacrum. A knowledge of the length of the true conjugate is only of material use when it is so small that obviously a child could not pass the brim of the pelvis without mutilation, if at all, or when it is so large that there would be no difficulty in spontaneous delivery. The majority of cases of disproportion do not come into either of these categories, and it is in this class of case, in which the conjugate is between 3½ and 4 inches, that so much harm is done when using the obstetric forceps.

In this medium class of contraction the practitioner should not interfere unless he is forced to, and if, as I have suggested, he will always regard extraction with the forceps as an "emergency operation" he will be far less tempted. He should be guided by the condition of the mother and child, and if this remains satisfactory he should hold his hand. It is far better that the second stage of labour should last six hours than that the mother and child should be injured or killed.

Especially should what is known as the high forceps operation be avoided, for it is an extremely dangerous one and often most difficult. Munro Kerr has reported that since its abolition in the institutions with which he is connected, spontaneous delivery has become much more common. Such an operation should never be an operation of choice.

The higher the head is in the pelvis the longer should the operator wait before applying the forceps; inefficient pains are an extremely rare cause of the head being arrested high up. In many cases of delay due to disproportion labour terminates spontaneously and safely after a second stage of six or even more hours, though it would have ended disastrously had the forceps been used. Statistics show that 80 per cent. of border-line cases of disproportion will, if left to Nature, end in spontaneous labour. After all, the practitioner can always fall back on the forceps if Nature fails.

The use of the forceps in cases of medium disproportion is responsible, as Eardley Holland has shown, for a very large number of stillbirths, and this, especially now that the number of children born is very little higher than the number of people dying, is alarming.

To say that unfortunately the baby has died because its head was too large or the mother's pelvis was too small in most cases reflects more on the acumen of the practitioner than on the anatomy of the patient. The obstetric forceps should be used to deliver a live child; the delivery of a dead child does not warrant a testimonial for using it.

If the head of the child is movable above the brim of the pelvis the forceps should never be employed. If the head is fixed in the brim and does not, after a fair trial, undergo enough moulding to come through, the use of the forceps is really an abuse. If the head is moulding sufficiently to come through the brim, however slowly, leave it to Nature. To assist in such cases with the forceps will in most cases mean serious injury or death to the child, and not infrequently injury to the mother. If there is the least doubt about the head being able to pass the b[illegible] do not use the forceps, as this only increases the dan[illegible] if Caesarean section is decided upon.

A generally contracted or funnel-shaped pelvis [illegible] commoner than is usually supposed. In any case, the [illegible]fore, in which the head has difficulty in entering the b[illegible] the measurements of the outlet should be taken, and [illegible] very careful examination should be made of the nature [illegible] the presentation.

It has been said with some semblance of truth th[illegible] gynaecologists would starve if it were not for b[illegible] midwifery. The forceps is an extremely valuable instr[illegible]ment when used with intelligence and in suitable case[illegible] so is poison gas.

II.—JOHN FAIRBAIRN, M.B., F.R.C.P., F.R.C.S.,

Obstetric Surgeon, St. Thomas's Hospital.

I do not wish to add further counts to the serious indict[illegible]ment of the obstetric forceps in the opening paper or discus[illegible] indications or contraindications, but rather to try to pu[illegible] the forceps in its proper place in our defensive system against undue prolongation of labour. My purpose will be to show that unless instrumental delivery is clearly and universally recognized as our second and not our first line of defence, our plan of campaign is conceived on wrong lines. It is accepted as a general principle throughout the practice of medicine that the prevention of abnormal functioning must always be our first endeavour, and the application of this principle to midwifery practice means that the chief responsibility of the medical attendant is the elimination of the factors interfering with normal parturition—in other words, the first line of defence.

The obvious retort to this proposition is that it is purely academic—the first line of defence cannot hold because little is known and still less can be done to eliminate the inhibiting influences on labour, and therefore you will all continue to fall back on the forceps. The more of you that make that reply, the more will my position be strengthened. My point is that hitherto reliance has been placed almost entirely on the forceps, thus acting as a drag on progress towards our primary objective; until we try and discover what can be done, we will go on as we have in the past, but once we concentrate on holding the first line and making a stand there, then, in the event of failure, it is right to fall back on our second line.

In illustration of what has already been done by the application of a similar academic principle and of reformation along physiological lines, I will quote the analogous case of infant feeding. Formerly our attention was largely directed towards perfecting substitutes for the natural food of the baby, and great success was attained in adapting the milk of another mammal, so as to enable the human infant to thrive on food never intended for it. Our textbooks devoted no more than a line or two to breast-feeding. There was a pious statement that it was best for infant and mother; there was a list of its contraindications with instructions as to how to disperse the milk when suckling was not carried out, and that was about all; whereas the preparation of substitutes and the modification of cow's milk and other possibilities took up pages and sometimes a whole chapter. No attention was given to the causes of failure to suckle and how they might be removed, or to the means of increasing mammary activity when inefficient or to the investigation of the reasons why the baby did not thrive satisfactorily at the breast. Now much of the work of the School of Mothercraft, which I instance because I happen to know it, is the re-establishment of breast-feeding after needless weaning of the baby. At any time may be seen there living evidence of what ten years ago would have been thought impossible, in the shape of mothers who have previously failed and failed repeatedly, and mothers whose infants have been weaned for six weeks or more, successfully nursing a contented baby. The error was that our energies had been devoted to providing a substitute for the function we did not attempt to control. We were clearly on wrong lines, for, however successful, such substitutes could never be as good as the real thing. We should rather have studied the function of lactation and how to improve it when defective—precisely what we are now learning to do.

given to confinements. Inadequate remuneration for work done under pressure of circumstances is very apt to spell haste, while haste in midwifery generally means meddlesome and unnecessary interference, with all its disastrous train of sequels.

Mr. Berkeley opened his paper by drawing attention to the lack of efficient teaching on such practical points as the proper method of application of obstetric forceps, and pointed out that in the last resort the responsibility for this inefficient teaching rested upon the General Medical Council, and still more upon the various examining bodies, which did not insist upon certificates of really adequate practical teaching. It would be laughable were it not so tragic to consider the elaborate care which is taken to teach students the technique of surgical operations which most of them will never have occasion to perform, while the technique of such obstetric operations as the application of forceps, which any one of them may quite possibly be called upon to perform within twenty-four hours of going into practice, is left to be picked up at his own will and from the teaching of a house-surgeon or junior assistant. Many practitioners must have had the experience of having to face an abnormal maternity case very early in their professional careers, and must have vivid recollections of the sense of futility and unpreparedness which then possessed them. If it be true—and all the indications point to its being so—that the main difficulty in the teaching of obstetrics is that of obtaining sufficient clinical material, then that is another very strong argument for the increase in the number of maternity hospitals throughout the country.

Mr. Berkeley next discussed the more common mistakes in connexion with the actual technique of the operation. These have been dealt with again and again, and must continue to be reiterated until, as a result of better and more practical teaching, both of the public and of the profession, conditions improve and correct technique becomes instinctive. He pointed out the value of exact knowledge of the mechanism of labour, and explained how the application of forceps could very easily interfere with this normal mechanism unless proper skill and care are exercised. In regard to the actual indications for the use of forceps he emphasized the opinion that they should be used to anticipate danger to the mother or child, and not when one or other is already in danger. Before using the obstetric forceps the relative sizes of the pelvis and the head, the condition of the genital canal, the strength of the uterine contractions, and the state of the child should all be ascertained. If this were actually done and the treatment based upon the results of such an examination, the application of forceps would undoubtedly be much less frequent than it is. The legitimate and proper use of obstetric forceps is one of the most beneficial operations known; their indiscriminate use is to be deprecated from every point of view.

Mr. Comyns Berkeley then went on to discuss delayed labour, which is perhaps the most common indication alleged for the operation, and pointed out, what is so often forgotten, that in the absence of such complications as haemorrhage a lingering first stage never does any harm either to the mother or to the child; even a lingering second stage, so long as the pains are not failing or becoming continuous, is less harmful than a rapid delivery with forceps. It may be taken as an axiom that delay in labour is, *per se*, seldom a cause of danger. The relatives and friends of the patient, however, think otherwise, and many a man has been hustled into the premature application of forceps or the adoption of some other method of rapid delivery against his own better judgement simply because he had not the courage and confidence to withstand the moral pressure of the anxious relatives. It is another great advantage of hospitals and nursing homes that they leave the judgement of the medical attendant untrammelled by distracting considerations of a more or less domestic or personal nature. In connexion with moderate degrees of contraction of the pelvis, Mr. Berkeley referred to Munro Kerr's statistics, which, amongst others, have shown so clearly the enormous value of leaving the labour to Nature. Eighty per cent. of borderline cases of disproportion end spontaneously when left to Nature. This is a statement which cannot be over-emphasized. The value of head moulding is not sufficiently appreciated. In how many cases, when a practitioner knows that he has to deal with a case of slight contraction of the pelvis, and thinks that in all probability forceps will ultimately have to be applied, does he proceed to apply forceps forthwith, in order "to get the case over," instead of giving the patient as long as possible to obtain the full benefits of moulding? No treatment could be more mistaken. Cases of difficulty not too great to be overcome by Nature should be left longer in the second stage, provided the general condition of both patients is satisfactory, than cases in which there is no special element of difficulty.

Dr. Fairbairn's contribution to the discussion was characteristically thought-stimulating. He laid emphasis mainly upon the importance of ante-natal care so that the condition of the patient and the circumstances of the confinement generally should be as favourable as possible. His paper is full of suggestive hints which will well repay perusal.

Of the details of the discussion itself it is not our intention to write. But we believe that there is no specialist in obstetrics who would not support Mr. Comyns Berkeley's main contentions whole-heartedly. As a protagonist in a debate Mr. Berkeley naturally stated his case as emphatically as the facts of his experience warranted. It should be remembered that the experience of a hospital obstetrician, and more particularly of a hospital gynaecologist, gives him a very different outlook from that of the practitioner, who sees mostly just his own or his immediate neighbour's work. The specialist is able to have a very much wider outlook, but at the same time he of course sees mainly the bad results of practice. Yet the incontrovertible fact remains that nearly half the work of a gynaecological ward is due to bad midwifery, and it is probably true to say that more of the bad midwifery lies in the abuse of forceps than in any other single procedure. If all the obstetric forceps in the world were cast into the depths of the sea there would be less reparative gynaecology than there is now; but there would be a still more remarkable and praiseworthy reduction in the need for reparative operations if the forceps were retained in the obstetric armamentarium, but always used properly and only in accordance with suitable indications.

The keys to the solution of the problem are, first, ante-natal care. "Forewarned is forearmed," and nine labours are made difficult by lack of adequate foreknowledge for every one that is inherently and persistently difficult. This preventive aspect of obstetrics, which is the most satisfactory development of midwifery in our generation, was ably discussed in the second paper by Dr. Fairbairn. In the next place, there is the importance of hospital provision for all

students and post-graduates. That the application of forceps should be regarded as in every way a surgical operation was no doubt absolutely true, but the practicability of the matter was different. Better-class or hospital practice and poorer-class practice were so different that they could not be considered together. No measure of asepsis could possibly be attained by anyone working alone—antisepsis was alone practicable and should be their mainstay. He was afraid that too often consultants were apt to forget the conditions under which the general practitioner often had to carry on his work. Shaving the vulva was obviously the proper procedure; but did the advocates of this measure realize how often the patient refused point blank to permit it and declined to have anything more to do with the doctor who suggested it? He was certain that prolapse readily occurred after a perfectly spontaneous labour without laceration. He thought that the minimum lying-in period should be extended to fourteen days. Dr. Ford was a warm advocate of Dr. Ballantyne's method of correcting malpositions by means of a pad and binder. He thought that the fear of performing Caesarean section in probably infected cases was allowed to exceed its proper bounds.

Mr. Louis Rivett (London) thought that the abuse of forceps was entirely due to failure of ante-natal care. He did not think that the use of forceps was a factor in producing prolapse if application was made after the head had entered the cervix. Damage to the perineum was a very small factor in causing prolapse; prolapse was very rare after complete rupture. He was strongly opposed to attempts being made to stretch the cervix digitally; it practically always meant tearing, not stretching. He regarded the application of forceps to the head before it was engaged in the pelvis as an absolute abuse of forceps. He would like to ask Mr. Berkeley how many times he had seen a student deliver a patient, and if he had ever shown even his house-surgeon how to apply forceps. He agreed that it was very difficult to persuade patients to have the vulva shaved.

Dr. D. McAskie (Southsea) said that to general practitioners the remarks of Mr. Comyns Berkeley were disturbing. They had often gone home in the early hours of the morning feeling happy that they had saved two lives. Now they should go home regretting they did not see the woman a month earlier and correct the malposition or malpresentation. Seventy per cent. of the midwifery cases were now in the hands of the midwives. Midwives did not palpate the abdomen; but if this method of examination was insisted upon the midwife could diagnose an occipito-posterior case and call in the doctor in time. He was now often called in only when Nature had failed, and had to make the best of a bad job. It was too late to convert an occipito-posterior to an occipito-anterior; too late to convert a mento-posterior into a mento-anterior; too late to turn a brow case or change it to a face or vertex presentation. This condition of things was very annoying and should make Mr. Comyns Berkeley pity the lot of the general practitioner. They had still got these cases to deal with, and Mr. Comyns Berkeley's general principles did not help them much in dealing with them. Mr. Comyns Berkeley did not give the indications for the use of forceps, but referred them to the textbooks. These seldom devoted a full chapter to the subject, but dismissed it in a few lines, saying they had been mentioned under the various forms of labour; and when they looked them up they found that the authors differed in their treatments. It was disappointing, therefore, that when this subject was brought up for discussion a full discussion of the subject was not entertained. In ante-natal treatment occipito-posterior cases were changed to occipito-anterior cases and breech cases to vertex cases. In occipito-posterior presentations nine out of ten cases rotated to the front, and Dr. McAskie questioned the advisability of interfering with them. He thought that those cases in which flexion occurred should be left to Nature; and only those that showed extension of the head should be changed to occipito-anterior cases. Mr. Comyns Berkeley said that the mechanism of labour was a natural process; but he did not tell them that Nature sometimes failed. There was failure of flexion and internal rotation sometimes in occipito-posterior positions. There was failure of extension in face cases, and in face cases they had to pull the chin down when it came through the pubic arch to prevent Nature presenting the mento-vertical diameter at the outlet. Failure of flexion and internal rotation in normal labour was not made much of in the English textbooks; but on the Continent failure of flexion and internal rotation in normal labour was put down as an indication for the use of forceps. As regards axis-traction forceps, in nineteen out of twenty cases in which they were used the head was in the pelvic cavity and ordinary forceps were just as good. Even in persistent occipito-posterior cases where the head was high experience had taught him that they were often better than axis-traction forceps. He had had a case of persistent occipito-posterior position in which his axis-traction forceps slipped three times. He sent for a neighbouring practitioner to help him; his colleague did not possess axis-traction forceps, and he put on ordinary forceps, and they did not slip. He was called again to assist another colleague whose axis-traction forceps kept slipping; he put on his forceps without the axis-traction and they did not slip. Mr. Comyns Berkeley said that forceps cases were more liable to become septic. This was not the experience of the general practitioner. He feared more the cases in which something was left behind in the uterus, and this was often due to delay in the use of the forceps, resulting in an atonic uterus. Mr. Comyns Berkeley had said that the morbidity in forceps cases was greater than in normal labour. That was comparing abnormal cases with normal cases, and was not fair reasoning.

Lieut.-Colonel Andrew Buchanan, I.M.S., demonstrated by means of models how the anterior part of the head could be made to come down. He said that the teaching of midwifery contained too many distractions so that the student was unable to grasp the ordinary mechanism of labour. He claimed that his models simplified the understanding of the elementary mechanical principles of parturition.

Dr. John Campbell (Belfast) said that Mr. Comyns Berkeley had given such sound and sensible advice that no fair adverse criticism was possible. Examination of the woman during pregnancy was most important; by it they could recognize whether there was pelvic contraction of such a degree as to prevent the head from coming down naturally. They had available not only the usual methods of abdominal and vaginal examination, but also the measurement of the pelvis by x rays. By comparing the radiogram of the patient with that of a normal pelvis they could get a very accurate idea of the size of the pelvic canal. The use of every method of examination before labour would get rid of the "bad forceps" cases and the "failed forceps" cases. Caesarean section was now so safe and satisfactory for both mother and child that it should more and more take the place of severe attempts at forceps delivery. One of the most frequent mistakes made was to attempt to deliver before the cervix was fully dilated. Too often the forceps was applied as soon as the cervical canal was wide enough to allow of the introduction of the blades. Fortunately they had a remedy in the judicious use of morphine. By it they could gain time; they also soothed the patient and mitigated the anxiety of the relatives and friends until the cervix had become fully dilated. Provided the case was one in which the use of forceps was legitimate, the danger of a forceps operation was very greatly lessened by the simple rule that the cervix should be fully dilated before the forceps was resorted to.

Mr. R. J. Johnstone (Belfast) thought the discussion should be a great lesson to the teachers of midwifery present, as from the dreadful list of disasters recited by the opener it was evident that students were not properly taught before being turned out on the world. In his opinion, if the os were fully dilated in a normal case there could be very little danger in applying forceps to shorten the second stage, and when a woman had been in labour for hours he could see no objection to putting a period to her pain. In his experience sepsis was less frequent after forceps than after unassisted deliveries. He thought that rupture of the perineum, and especially subcutaneous rupture of the levator ani, was rather prevented than produced by full chloroform anaesthesia and forceps delivery.

insulin. Thereafter it is recommended that the patient should be returned to his home and placed under the supervision of his medical attendant as regards his diet and general treatment. Examination of the urine ought to be carried out daily to determine the presence of sugar, and, if sugar be present, a daily quantitative examination should be done. In cases progressing favourably a blood sugar estimation is needed at least once a month. It is emphasized that unless these preliminaries are carried out in the case of each patient the satisfactory treatment of diabetes with insulin is almost impossible, and is certainly attended with very great danger. Not all diabetics require insulin, and in some cases—for example, renal glycosuria—serious harm may follow its administration. The Ontario Board of Health disclaims all responsibility for accidents which may follow the administration of insulin; this matter is entirely in the hands of the medical practitioner himself, and he must take the responsibility for the individuals who receive the treatment and also for the amount of insulin given. The pamphlet goes on to describe the standardization of insulin, the method of administration (subcutaneously, not intramuscularly, nor too near the skin surface, usually about a quarter to half an hour before food), dietetic treatment in diabetes, the treatment of acidosis and of coma, the complications of diabetes, and the dangers in insulin treatment. In conclusion, a memorandum is set out for diabetics using insulin. Accurate adjustment of diet and insulin dosage, it is insisted, are essential for successful treatment. Excessive exercises or heavy work should be avoided. Hypoglycaemia is serious; the patient should remember the symptoms and cure, and always have carbohydrate in some form readily available. If the supply of insulin be exhausted the patient should decrease the diet by one-third, and rest; the former diet should be resumed when fresh insulin arrives. Enough insulin for one month should be ordered, as it will not deteriorate in that period.

THE GUILD OF ST. LUKE.

The annual service of the Guild of St. Luke, the Evangelist and Physician, will, by kind permission of the Dean, be held at St. Paul's Cathedral on St. Luke's Day, Thursday, October 18th, at 7 p.m. Seats will be reserved for medical practitioners and students, all of whom are invited to attend whether they are members of the guild or not. This annual service, coming as it does very shortly after the reopening of the medical schools, affords a timely opportunity for men and women engaged in medical work, as well as for all for whose health they strive, to join together in public worship. The Guild of St. Luke, which was founded in 1864, has for its object the mutual encouragement and support of its members in leading a Christian life. It was meant primarily for medical students, by whom it was founded, as a help in the special difficulties and temptations of a medical student's life. It still desires to appeal especially to medical students, but it also serves to keep before the mind of all who deal with the diseases of the body that highest part of man's nature which finds its expression in religion. Membership of the guild is open to students and practitioners of medicine who are communicants of the Church of England, the clergy of which are eligible for election as clerical associates. The entrance fee is 1s., and the annual subscription not less than 2s. 6d. nor more than £1 1s. Chapters of the guild are held frequently in London, and there are wards at Cambridge and elsewhere. There are also in London a women's ward and a medical students' branch. Tickets for the service and further particulars concerning the guild may be obtained on application, accompanied by a stamped and addressed envelope, to the guild secretary, the Rev. H. Kirkland-Whittaker, M.A., M.D., Chaplain's House, Banstead Downs, Sutton, Surrey, or to the secretary of the women's ward, Dr. Isabel Pulteney, 2, Bryanston Place, London, W.1.

AN ISLAND WITHOUT DENTAL CARIES.

Dr. Michael Grabham of Madeira read a short paper in the Physiological Section of the meeting of the British Association in Liverpool on some recent researches he has been making among the people of Porto Santo, the northern island of the Madeira archipelago. He gave a detailed account both of the geology of the district and of his own mineral discoveries, and also a review of the meteorological and sea-current conditions which govern climatic features. The local springs are highly mineralized with chlorides, carbonates, and sulphates, in contrast with the sweet waters of Madeira. A thorough geological survey is long overdue and would yield important results. Trachyte is the main feature of the Porto Santo volcanic ejecta, as compared with the basalts of Madeira. Christopher Columbus resided at Porto Santo, was married there, and the house in which, according to tradition, he lived is still shown. Dr. Grabham suggested that the seeds and other jetsam thrown on the shores of the island by the sea currents helped to convince the great navigator of the existence of lands beyond the setting sun. The climate of Porto Santo is fresh and sunny, and less humid than that of the main island of the group, as is evidenced by the contrast between the vegetation at Porto Santo and the weedy profusion of esculents at Madeira. The features of the diet of the people at Porto Santo are that they take no milk or green vegetables and nothing involving grinding mastication. They take their food cold, and their main sustenance is derived from maize boiled with a modicum of lard, with a fitful addition of fish and an onion or two. Dr. Grabham saw no case of scurvy, but many instances of pulmonary disorder. The absence of diarrhoea and alimentary ailments was remarkable, and the mineralized waters seemed inimical to intestinal parasites. Dr. Grabham found no existing instance of malignant disease. Traditionally some cases have occurred, but no form of cancer has taken root at Porto Santo, and Dr. Grabham is inclined to associate this exemption with the simple feeding of the people and with the absence of animal fats, except the small quantity of lard consumed with the maize. In this connexion, too, he lays stress on the marked absence of alimentary disorders premonitory of cancer liability. Nearly 3,000 people live at Porto Santo, and the main object of Dr. Grabham's visit was to inquire into the boasted immunity of the inhabitants from dental caries. Six hundred natives were examined, and yielded 23 cases of well established caries. All of these people except seven had come from Madeira, and only two of the seven showed the sign which characterizes the Porto Santo dentition. This sign consists of a slight yellow band which develops in early life on the upper incisors. It occurs with a regularity which, in Dr. Grabham's opinion, clearly indicates a vitalizing permeation of the blood fluids among the columnar structure of the enamel, associated with an influence protective against the access of caries. Both the stain and protective influence are almost certainly conveyed in the highly mineralized water of the island, which is growing in repute and application in the colonies of Portugal, but Dr. Grabham wishes to be regarded as a pioneer whose work and inferences should be confirmed before any steps are taken to make the district available as a spa in a winterless region. Dr. Grabham showed a skull of a Porto Santo man of about 60 years of age taken promiscuously from an exposed grave; the teeth in this skull (which is now deposited in the museum of the Royal

Sir Gerald Giffard, I.M.S. (Madras), claimed to have put on forceps more often than anyone present, as he had lived for years on the premises of a maternity hospital where 2,500 cases were delivered annually. He felt sure that the abuse of forceps was nearly always due to faulty diagnosis. He sympathized strongly with the difficulties of the general practitioner; at the same time it was better to be safe than sorry. If they could persuade their patients to be examined before the onset of labour they would not get difficult forceps cases. He strongly advised his hearers never to be trapped into attending a maternity case where they had to put on forceps at once. It was the surprises of midwifery which created the difficulties. They should aim at securing institutional treatment for all their cases. At all costs students should be trained on the pregnant woman.

Dr. Purslow (Birmingham) thought that all present would agree with the opener as to the danger of the high forceps operation and the inadvisability of ever applying forceps with the head freely movable above the brim; but that, in regard to the low forceps operation, especially in cases of delayed second stage due to ineffective pains, there was room for difference of opinion, and it was interesting to see how the pendulum swung from one extreme to the other in the teaching on this point. About thirty years ago at an Annual Meeting of the Association, when he was secretary of the Obstetric Section, there was a discussion on the subject; it was opened by Playfair, who stated that when he was a student there was the greatest possible reluctance to apply forceps in this class of case, and he summed up his position in the discussion in these words: "Few, I think, will deny that unnecessary delay after the head is in the pelvic cavity is not only useless but pernicious, and that by timely interference we lessen the risk both to mother and child." He (the speaker) thought that few would now deny that since Playfair's day the forceps had been used with unnecessary frequency, but he thought Mr. Berkeley had gone too far in the direction of non-interference. He entirely disagreed with Mr. Berkeley in attributing vesico-vaginal fistula to the use of the forceps, and thought that it practically never occurred in that way, unless gross carelessness was used, but that it was almost invariably due to pressure necrosis from a prolonged second stage, and might have been avoided by a timely use of the forceps. He considered that it was very bad practice to rotate occipito-posterior positions with the forceps, and on two recent occasions when called in by practitioners on account of the advent of puerperal sepsis he had found, when he had made a complete examination under an anaesthetic, that there was a deep longitudinal tear extending the whole length of the vagina; the practitioner, in each of these cases, had rotated an occipito-posterior position with the forceps, and was quite unaware of the damage done, as it was not visible until a Sims's speculum was used. On this and other points, such as the wearing of rubber gloves, and the great advantage of having an anaesthetist present, he was in entire agreement with Mr. Berkeley. He thought it very unfortunate that the consulting obstetrician was called in, as a rule, during the puerperium when he could do little to help matters, and not during labour, when he might be of much more assistance, but the attitude of the public was largely to blame for this.

Mr. Comyns Berkeley's Reply.

Dr. Fairbairn's remarks were just as full of wit and wisdom as they always are, and I need hardly say that I agree with his appeal for preventive treatment as against operative. There is only one point upon which I would venture to disagree with him, and that is his statement that the sister midwife is the most suitable person to demonstrate normal delivery to students. If such is obtainable I think that a doctor, with adequate knowledge of his subject, is preferable.

I take it from his remarks that in the main Dr. Hendry agrees with me. I understood Dr. Ford to say that it was idealistic that students should be better taught. I cannot agree with this. Those of us who are accusto to teach medical students—and I have been doing so about thirty years—know that one must teach students to 100 per cent., for it is only by so doing that one teach them enough; since they will not be likely to remem more than 50 per cent., if as much. I did not mean in address to advocate that women should only be confined general hospitals, as Dr. Ford seemed to imply. I th the ideal method is that, if the home of the patient unsuitable, she should be sent to some institution where can be attended by her own family doctor, and that every town of any importance such institutions should established. Dr. Ford seemed to me to harp too mu on the fact that the saving of the life of t patient was the sum and total of all one endeavours, whereas the principal duty of hospit teachers is to stress the importance of preventi treatment, as carried out at ante-natal centres. Then D Ford found fault with my assertion that all women labour should have the pubes shaved, and said th "would not stand it." But it is the duty of the medic profession to educate the public, and it is but rarel if the reasons are properly explained, that women wi refuse to be shaved. Dr. Ford thinks that more cases prolapse of the uterus occur after labour without the us of the forceps than with its use. The impression I hav got from my experience of many years in the gynae cological wards at the Middlesex Hospital and at th Chelsea Hospital for Women does not lead me to agre with him, and I feel certain, if an equal number of cases i taken, that this is not so. He thought that the percentag of sepsis in cases of Caesarean section after the futile us of the forceps was exaggerated. Amand Routh, in his cele brated monograph on Caesarean section, including report on many hundreds of cases, states that the mortality o Caesarean section before labour and in selected cases was 1.6 per cent., whereas after attempts to deliver with the forceps had been made the mortality was 10 to 14 pe cent. I understood Dr. Ford to say that he did not think that his percentage of deaths—30 per cent. in Caesarean section after the use of the forceps or other interference—was too high, but I cannot help thinking that if this was the common experience Caesarean section would have to be banished from the list of justifiable operations.

Mr. Rivett emphasized the fact that if the students were not properly taught it was the fault of the teachers. Up to a point I entirely agree with him, though of late years many teachers have done all they could in this respect. One cannot make bricks without straw, and as long as the various examining bodies do not insist on students having experience as dressers in the gynaecological wards the teachers are seriously handicapped.

Dr. McAskie seemed to think that as a rule it was too late, when the patient was first seen, to get any information worth having from abdominal palpation. I could not have a better testimonial for my insistence on ante-natal supervision, and, moreover, it is not too late to ascertain that the head is above the brim, and that the forceps should not therefore be used, yet they are very commonly used in such circumstances. I think he misunderstood my reference to occipito-posterior positions. I did not say that all these should be rotated with the hand. On the contrary, I have been all my professional life insisting on the fact that Nature should be given every chance, and that the doctor should only interfere when she failed. It is certainly better to try and rotate an unreduced occipito-posterior position with the hands than with the forceps. He really seemed to me to be speaking of forced delivery all the time, which is absolutely contrary to what I advocate. If I understood Dr. McAskie correctly it is that I have made too much of the spectre of sepsis, and that in general practice it was not nearly so common as I seemed to infer. As a fact there is no diminution of sepsis mortality either in the United Kingdom or abroad. The statistics of childbirth deaths for 1919-20 were higher than in any other period, and in New Zealand, where the matter was taken up very strongly, it was thought that this was due to the indiscriminate use of

more especially, about what has not yet been found out but he hopes may yet be found out, through the application of the methods he has devised. The financial stability of the institute is still a matter of some anxiety. Sir James Mackenzie has himself been one of the most generous benefactors, and we are glad to hear that a special fund is being raised in Perthshire, his native county, to provide an endowment fund, which, it is hoped, may eventually reach £10,000. Already, it is stated, the sum of £5,000 has been received by the council of the Institute as a first instalment. Perthshire may well be proud of her son, and we fervently hope that the total aimed at may shortly be obtained.

INEQUALITY OF THE PUPILS IN PULMONARY TUBERCULOSIS.

Inequality of the pupils in pulmonary tuberculosis has been recently called the sign of Roques, who, in 1873, wrote his Paris thesis on inequality of the pupils in unilateral affections of various parts of the body. In addition to the inequality of the pupils, which is obvious and is spoken of as spontaneous, there is a latent inequality which becomes visible only after a mydriatic is put into both conjunctival sacs; this inequality is spoken of as provoked. In a small monograph, appropriately from the Laënnec Hospital in Paris, Dr. W. Jullien[1] deals with this question of anisocoria in pulmonary tuberculosis and records his observations on 61 cases of unilateral disease; he found spontaneous inequality in 26 per cent. and provoked inequality in 71.4 per cent. Inequality of the pupils may be due to dilatation caused by irritation of the sympathetic by pleuritic adhesions near the apex of the lung, or more rarely to myosis from paralysis of the sympathetic caused by a destroying lesion. But careful analysis shows that the pupils may be unequal in the absence of any apical disease, and therefore that these explanations will not fit all cases; it also proves the error of the hope that equality of the pupils, by rendering pleuritic adhesions improbable, would be evidence in favour of a successful artificial pneumothorax. As inequality of the pupils may accompany any disease of the lung, such as pneumonia, bronchiectasis, tumour, and hydatid, it appears probable that in many instances at least the inequality is reflex through the vagus, medulla, and superior irido-dilator fibres. Jullien divides the inequalities of the pupils into two groups: the slight and transient, accounting for most instances of this sign in pulmonary tuberculosis; and well marked inequality of the pupils, rare in pulmonary tuberculosis and found usually in syphilized patients.

The first Victor Horsley Memorial Lecture, which is to be given by Professor Sir Edward Sharpey Schafer, F.R.S., will be delivered in the Barnes Hall of the Royal Society of Medicine on Thursday, October 25th, at 5 p.m. The subject is the relations between surgery and physiology.

The Fothergillian Prize Committee of the Medical Society of London has awarded the Fothergillian Medal and Prize to Sir Arthur Keith, F.R.S., F.R.C.S. The presentation will be made at the general meeting of the Society to be held on Monday next, October 8th, at 8 p.m.

The first of the museum demonstrations for this session at the Royal College of Surgeons of England will be given by Sir Arthur Keith on Friday next, October 12th, at 5 p.m. The subject is hernial formations of an acquired nature which form at various points of the alimentary canal and at other sites.

[1] *Inégalité pupillaire et tuberculose pulmonaire.* Par le Docteur W. Jullien. Paris: Amédé Legrand. 1923. (Roy. 8vo. pp. 117: 2 plates, 13 figures.)

OPENING OF THE MEDICAL SCHOOLS.

ST. GEORGE'S HOSPITAL.

MR. E. B. TURNER'S ADDRESS ON "PRACTICE."

[*Abstract.*]

To do well in practice a very sound knowledge of your profession, though by far the most important, is by no means the only factor which makes for success. Personality, tact, sympathy, understanding, and a profound knowledge of human nature are indispensable, and you cannot commence to cultivate these essentials too early. If you, therefore, wish to do well you must become a "man of parts" in every sense of the word. For this reason I urge every one of you to have some interests outside your actual profession; cultivate some hobby. For some of you your inclinations may lead you to vary your work by taking up some other line of scientific research; but those of you to whom sport in any form is a real recreation, "grapple it to your soul with hooks of steel." Play the strenuous games while you are here, so long as you may be able; afterwards harass the ball in milder fashion, slay the grouse, or beguile the fish whenever you get the chance. A sporting reputation will often be of service to you in quite unexpected ways.

There are two subjects which, if you wish to do well, you must practically make a part of yourselves—anatomy and physiology. These are the twin rocks on which the whole edifice of your work, both here and in practice afterwards, is founded and built. The General Medical Council, when revising the curriculum last year, was so impressed with the necessity of a continuing knowledge of these two subjects that it enacted that the teaching of both should be continued during the whole course of professional education, and that the student's knowledge should be thoroughly tested in the final examinations, both in the anatomy of the living body and in that of the subject. Whenever you get a chance do things for yourselves. Do not be satisfied with watching others demonstrate how they should be done. Under the new regulations for examinations more value will be given for practical work; a brilliant theoretical paper will not in future outweigh bad clinical or practical work. Supplement your reading by the work of your hands on every possible occasion.

I most strongly advise every one of you to set your faces steadily towards house-office, either here or, if that be not possible, in some other institution. You will be infinitely better qualified for practice if you have worked as house-physician and house-surgeon under the supervision of the staff of some hospital. Not only will the experience gained from your cases and the responsibilities you will have to face be invaluable, but if, as I hope is still the custom here, you teach in the wards as you go round, that teaching will increase your own knowledge fourfold. The greater number of you will go out from here and start work as general practitioners, or in other words you will take up your positions in the first and front line of defence against disease and death. In London and the great industrial centres you will be the first to see the beginnings and earliest symptoms of mischief which in many cases may be but of little moment, but in others of the greatest importance. In the sparsely populated rural districts you will be even more responsible. In either case your motto must ever be "Principiis obsta," and the early exercise of your intelligence and acumen will save many a life and put a term to years of unnecessary invalidism. You will have the advantage of seeing your cases when it is possible to benefit them; your supports—the heavy guns, the consultant and the specialist—often have no chance of doing much good as they may arrive on the scene too late. Therefore, during your preparation for future practice cultivate without ceasing the ability to make an early and accurate diagnosis, coupled with a sound prognosis, in every case you may see, however commonplace and trivial it may appear at the first glance.

except a few sips of iced water. On the fourth day she was put to the mother's breast, and has continued feeding satisfactorily since.

This case, judging from the amount of the haemorrhage, would be considered a severe one. The sedative effect that the injections had on the child was surprising; they were followed in each instance almost immediately by profound slumber. The essential cause, in this instance, as in the largest number of cases of "the haemorrhagic disease of the newly born," was obviously the lack of some substance in the blood essential to coagulation.

F. W. ROBERTSON, M.A., M.D.

Newport, Mon.

Reports of Societies.

MANIPULATIVE SURGERY.

ON October 2nd Mr. R. C. ELMSLIE delivered his presidential address, on manipulative surgery, before the Orthopaedic Section of the Royal Society of Medicine.

The use of manipulative methods, he said, was becoming increasingly prominent. Because it could easily be acquired and could be carried out with little training, and was largely immune from gross accidents, it was frequently taken up by unqualified practitioners. Formerly such men were called "bonesetters," and claimed that by manipulation they replaced small bones. The term "bonesetter" was an ancient one, and was applied formerly to regular and irregular practitioners. In the seventeenth century there was a "bonesetter" and an "assistant bonesetter" on the staff of St. Bartholomew's Hospital; both were presumably surgeons. Recently the irregular practitioner had become known as a "manipulative surgeon" rather than as a "bonesetter." X rays had made the claim to replace small bones difficult to sustain. The osteopathists, rare in this country but common in America, still used this method of describing their work. They did this in spite of radiography, relying upon the comparatively complicated osteology of the spine. Sir James Paget investigated bonesetting, and published a clinical essay upon it in 1867. Howard Marsh followed his teaching, and recorded his views in the following succinct paragraph:

"Chirurgery, or handicraft, began, as we may well believe, in attempts to pull-in dislocated bones, to straighten distorted joints, and to restore movement to stiff limbs. In this dawn of the art nothing was known of anatomy or pathology; it was only seen that a limb was bent or stiff, and force was employed to overcome the defect, just as it might be used to straighten a crooked bar, or loosen a rusty lock. Soon, however, the primitive operators of those early days became ranged in two groups: the mere empirics, who went straight to the point of trying what force would do; and those who endeavoured to ascertain the nature of particular cases and the difference between one case and another—those, in other words, who cultivated pathology and diagnosis in order that they might use force with safety and advantage. The results of practice conducted on these different lines can easily be imagined. The empirics, applying force in all cases alike, and thus involving their patients in a mere game of chance, did good whenever such untempered force as they could use was appropriate, and harm whenever it was unsuitable; those who used force only when they could see a reason for doing so, and when they thought it was safe, while they did little harm, often, as their diagnosis was very rudimentary, missed an opportunity of producing a cure. In these conditions the empirics frequently had the best of it. Regular, but as yet very ill informed, practitioners were so often beaten in their encounters with disease that they lost credit in the public eye; while the empirics, making the most of their cures, and not seldom laying the blame of their failures on the surgeon whose previous treatment they alleged had done all the mischief, were accredited with powers that approached the miraculous. And we can understand their success, for every surgeon now well knows that instances are common enough in which pain and limited motion, resulting from sprains and other injuries, may at once be set right by even rough and unskilled movements, or, indeed, by an accidental wrench."

Better methods of treating injuries, together with the evolution of a well trained and experienced school of massage, had lessened the number of cases of gross stiffness of joints after injury, the class of case most often quoted by Paget, Marsh, and Wharton Hood. In spite of these improvements unqualified manipulators still appeared to be in some cases dramatically successful. The medical profession should look to its methods and inquire why so many of these cases passed into unqualified hands.

Certain factors favoured the irregular practitioner. The public tended always to believe in some peculiar ability in methods of manipulation possessed by the "bonesetter" and denied to the profession, or in an almost occult power of seeing what was wrong inside a joint. Moreover, the unqualified manipulator could advertise either directly or through the mouths of his patients. A third factor, and perhaps the most important, was the fact that the failures of the irregular practitioner were almost always hidden. The patient whom he cured boasted of the fact; the patient whom he failed to cure, or made worse, was perhaps somewhat ashamed of his credulity, and kept silent on the matter. The failures of the irregular manipulator were very many. Marsh mentioned two cases of sarcoma and one of spinal caries treated by manipulation. Such gross cases were perhaps becoming rarer, but Mr. Elmslie himself had seen a patient with myositis ossificans around the knee rendered so ill by the manipulation of a bonesetter that complete rest of the joint for two and a half years was necessary; a youth with slight spinal injury rendered a confirmed neurasthenic with coccydynia through manipulation of the coccyx; a young woman converted by osteopathy into an apparently hopeless neurasthenic; and a large loose body in a knee so manipulated that it blocked full extension for four years. Moreover, cases of obvious fraud could be quoted: a joint with bony ankylosis had been treated by manipulation for a year, the patient being promised a restoration of mobility; a dislocated thumb was treated for three months with improvement of movement in the direction of excessive hyperextension; and a normal shoulder was stated by a bonesetter to be dislocated. In this last case it appeared that the bonesetter, confronted with an x-ray photograph showing the joint in place, countered with a radiogram of a dislocated shoulder which he stated was normal.

Errors of omission in which the unqualified practitioner had stated that the condition was outside his province were common. Such patients were often cured by a simple manipulation by a medical man. In addition, cases in which manipulation had failed to cure or in which the trouble had recurred were in the experience of many. Often in these cases the bonesetter was not to be blamed for failure. If the patient had any justifiable complaint it was because a certain cure had been promised where no certainty was possible. But when failure was due to insufficient care in diagnosis or to inadequate knowledge of pathology, or to the use of irrational methods, the manipulator should be blamed.

All medical men had their failures. The real interest of the profession, and particularly of the orthopaedic surgeon was to frame such rules of treatment as would leave as few cases as possible for the unqualified manipulator to treat.

Looking back upon his own practice, the speaker would venture to make the following suggestions. It was most important that in treating all bone, joint, and muscle injuries, as accurate a judgement as was possible should be made upon the pathology of the condition. If there was inflammation present, or any condition indicating rest and contraindicating mobilization, let them say so. If they were right the patient would never be cured by any practitioner taking the opposite view. They should remember the common error of assuming that the inflammatory reaction to a simple injury indicated rest. That was not so. A sprain, providing that an important ligament was not ruptured or unduly stretched, recovered most rapidly with normal use. If necessary the joint should be supported. An injury to a small portion of muscle required use as soon as pain would allow. In cases of damage and displacement of the internal semilunar cartilage of the knee the joint should be used as soon as possible after the displacement had been reduced. Some years ago he treated an oarsman in training for an important race who displaced the internal semilunar cartilage nine days before the race. The displacement was reduced twelve hours after the injury. The patient was only kept out of his boat for twenty-four hours, and finally rowed with an apparently normal knee. He had had no trouble since.

MIDDLESEX HOSPITAL.

The opening of the winter session of the Middlesex Hospital Medical School took place at the Scala Theatre on October 2nd, when the Earl of Athlone presided, and Princess Alice, Countess of Athlone, presented the prizes to the students and nurses. An address, accompanied by the lantern, was delivered by Mr. Somerville Hastings, F.R.C.S., on "Team work in nature."

Mr. Hastings cited numerous examples, such as bees, ants, corals, migrating birds, to show how much team work there was among creatures of the same sort, but he went on to describe how plants and animals of different kinds also co-operated, how, for example, plovers lived with crocodiles, and sea anemones with hermit-crabs, to the advantage of both, how tiny seaweeds lived in the interior of marine worms, each party to the "contract" gaining by the association, and how the pollen of flowers was carried by insects. He spoke in particular detail of fungi, describing some recent investigation on the team work which was carried on by these lowliest of plants in association with other plants and animals. The lichen, for example, was really a dual organism, composed of a fungus united with a green plant (an alga), and both constituents benefited from the alliance; the alga obtained water and mineral matters collected from the soil by the fungus, and the fungus obtained carbon products which the alga collected from the air by the aid of light. Nearly all flowering plants had fungi associated with them at some stage of their life history. Many tropical fungi, again, showed an unmistakable adaptation for the dispersal of their spores by insects, or by slugs which ate the plant. Mr. Hastings concluded by applying his subject as a parable to the team work in the wards of the Middlesex Hospital, where physicians, surgeons, sisters, and nurses, not to mention the humble specialists, united in the single purpose of healing the sick.

The Dean of the School (Mr. A. E. Webb-Johnson), in a brief report of the year's work, after a reference to the losses sustained during the year, and to the honours gained, spoke of the additions which have been made to the Bland-Sutton Institute of Pathology during the year. The Council of the School decided early in the year to increase the accommodation for pathological research. A new top story was therefore added to the new building which had been put up in 1914-15, and this furnished accommodation for secretarial offices, a library, a large laboratory for public health work, and two smaller research laboratories. The building now consists of four stories, the three lower ones containing a museum, a lecture theatre seated for upwards of 160, and two large teaching laboratories with 70 working places.

After the prizes had been presented a number of complimentary speeches were delivered by Sir John Bland-Sutton, Dr. C. E. Lakin, Mr. Sampson Handley, and others. The Earl of Athlone expressed his great regret that Mr. Webb-Johnson was contemplating the relinquishment of his office as dean. It was no disparagement of his predecessors to say that Mr. Webb-Johnson's work would be remembered by Middlesex men for generations. At a critical stage in the history of the School he had conceived and carried out schemes for its development which its founder, Sir Charles Bell, in his most imaginative moments could hardly have thought to be possible. He had provided them all with an object-lesson of what could be done, even in difficult circumstances, by having a wide outlook, a discriminating judgement, a respect for tradition, and the will to strive until a worthy purpose was attained.

CHARING CROSS HOSPITAL.

The winter session of the Charing Cross Medical School was opened on October 3rd with the distribution of prizes by Dr. William Hunter, C.B.

Addressing the students, Dr. Hunter spoke of the romance connected with medical studies. This was a feature not very obvious to the student himself. The amount of knowledge he had to acquire was stupendous, ten times greater now than it was twenty years ago. Yet the medical student had great consolations, chief among them the interest of his studies, in particular the great problem of disease, the variety of forces marshalled for the attack against health, and still more wonderful variety of forces which the body marshalled in its own defence.

Dr. Hunter proceeded to set forth the stages in the advance of medical knowledge. First came the era of clinical medicine, when the symptoms and main characteristics of the different diseases were recognized. The second great stage, commencing about 1850, was the era of morbid anatomy; the third the era of bacteriology; the fourth (on which he spoke at some length) the era of surgical sepsis and antisepsis. At first the subject of sepsis appeared to be confined to the realm of surgery, but during the last twenty years a silent resolution had been brought about in the general view with regard to the importance of sepsis in medicine. The removal of the foci of septic infection in medical cases had been followed by results often as striking as those met with in surgery. One great point of practical interest in this development was that the seat of the sepsis referred to was connected in the great majority of cases with a region of the body most accessible to treatment—namely, the teeth and their sockets. The subject of oral sepsis should be of special interest to the students of that school, because it was from Charing Cross that the subject was first advanced.

Dr. Hunter went on further to speak of the era of antitoxin and protective inoculation, and of other great recent advances, and then turned to consider the object of medical education. This was not merely to acquire knowledge, but to train the faculty of observation, and for this purpose no class of education was better adapted than daily contact with patients. To emphasize unduly the importance of laboratory methods at the expense of clinical observation was disastrous alike to the patient and to the great science of medicine. Having spent the whole of his professional life with one foot in the wards and the other in the laboratory, he would say that if the alternatives were placed before him of seeing the laboratory reports or seeing the patient, he would rather base his diagnosis, prognosis, and treatment on his own bedside observations than on any series of laboratory reports, however detailed. At the same time he urged the students to make themselves fully acquainted with the meaning and the value of the laboratory method. In conclusion, he said that medicine offered a career of glorious adventure, and carried with it a human interest such as no other profession contained.

KING'S COLLEGE HOSPITAL.

The opening of the ninety-fourth winter session at King's College Hospital Medical School took place on October 3rd, when the prizes were presented by Mr. H. J. Waring, F.R.C.S., Vice-Chancellor of the University of London. Viscount Hambleden presided.

The Dean (Dr. Willoughby Lyle), in reporting on the work of the school, said that at the present time there were 244 unqualified students in residence; of these 94 were women; 97 were working at the preliminary and intermediate courses at King's College and elsewhere, and 147 were pursuing their final studies at the hospital. In the medical school there were also 44 qualified students who were preparing for higher qualifications and degrees. Much of the success of the work of the school during the past year had been due to the carefully organized teaching and to the energies of the whole-time experienced clinical tutors in medicine, surgery, and midwifery. He regretted to state that there were still something like a hundred beds closed to the public through lack of hospital funds.

Lord Hambleden thanked the students for the assistance which they had given on various occasions in raising money for the hospital. The greatest development at King's College Hospital which was being undertaken to-day was the establishment of a dental school. Dr. A. Livingston had been appointed director of dental studies and had been working very hard for some months on its organization and equipment, and he hoped that before long the school would be ready to receive students and afford treatment to out-patients. Every facility would be given to the students of

inferences and opinions "facts" has been one of the curses of science. We should all be the better for a severer discipline in verbal accuracy, even Mr. Ritchie. Lord Riddell, in his bright little book *Some Things That Matter*, sharply corrects this very error, rebuking those who describe inferences as "facts," and mistake inferences for facts. The witness-box is an admirable school for doctors of all faculties.

Under the head of teleology is not something wanting? Mr. Ritchie deals with the idea rather diffusely, but only with the faded misconceptions of a pre-existing mould or type or contrivance. But there is a returning inclination to a teleology of some form other than those outworn, narrower, and empirical notions; something architectonic, such as, in the gradual phases of the past, has marshalled the forces for the construction of a crystal or a brain; something, for instance, that governs the collections and troopings of cells as they sweep into orderly ranks, gathering together from parts near and remote as if animated by a common purpose, guided by an unseen wand each to its own group, for the construction of this part or organ or that; materials not blindly shaken into any sort of shape, but themselves seeming to foresee and conspire to some larger end.

C. A.

AVITAMINOSIS.

Dr. J. Lopez Lomba has published an interesting critical study of certain aspects of the vitamin problem supplemented by an account of his own original work. The monograph is entitled *Etudes expérimentales et critiques sur l'Avitaminose.*[2]

The author begins with a comparative study of the vitamin needs of various forms of vegetable and animal life, and goes on to discuss the needs of the lower forms of vegetable life, and particularly the needs of bacteria and fungi, for minute quantities of thermolabile substances. A great deal of work has been done on this subject, and the number of such substances described in the case of pathogenic bacteria threatens to exhaust the alphabet. Unfortunately the whole subject is in a very obscure state. The best established of such factors is the organic substance stated to be essential for the growth of yeast. Evidence for such a substance was first revealed in the celebrated controversy in 1870 between Liebig and Pasteur on the subject of spontaneous generation. In 1901 Wildiers definitely described an organic substance, which he named "bios"; it was, he said, essential f... yeast growth. In the last few years many mpts were made to identify "bios" with vitamin but these attempts failed, and recently Nelson, ner, and Cessna have produced strong evidence how that yeast does not require for its growth presence of any organic substance which the yeast cannot themselves synthesize. The very uncertain lts yielded by this prolonged controversy indicate how mplete is our knowledge concerning the part played egetable life by substances having an action in any analogous to that of the vitamins essential for ebrate life.

r. Lomba also summarizes existing knowledge con- ing the needs of invertebrates for vitamins, but in case also the evidence is very incomplete and often radictory. A good classified bibliography is given, ever, and this should be of great value to those rested in these problems, since the vitamin literature extensive that it is very difficult to obtain information erning the work done on any particular problem.

e author gives a fairly full account of our knowledge erning the comparative needs of different vertebrates vitamins, although no reference is made to some of work that has been done upon farm animals. The parison of the vitamin needs of vertebrates brings out y curious and inexplicable facts. For example, pigeons, s said, resist deprivation of vitamin A indefinitely, lst such deprivation kills fowls within two or three ths. The guinea-pig is killed by lack of vitamin C in a few weeks, whereas the adult rat and rabbit resist indefinitely. The comparisons set forth are highly interesting and the work is particularly valuable, because this aspect of the vitamin problem is rather neglected by most books on the subject.

The chief original work done by the author has been the study of the changes of weight produced by vitamin lack in the different organs of the body. He deprived large numbers of pigeons and guinea-pigs of vitamin B and studied the progressive changes in weight of the various organs from the commencement of vitamin deprivation until death. The curves obtained are very curious for many of the organs show extraordinary fluctuations in weight. The suprarenals, for example, at first lost weight and later, in the last week of life, underwent great increase; on the other hand, the testicles, pancreas thyroid, and spleen at first gained in weight and then lost weight rapidly during the last few days of life.

The changes observed in the guinea-pig do not altogether agree with those observed in the pigeon, but the facts brought forward show that the weights of the different organs observed after death from vitamin deficiency give little evidence as to the preceding changes during the progress of the deficiency process. From these curves and from other facts the author concludes that the symptoms physiological disorders, and pathological lesions observed in avitaminosis are, above all, dependent on functional derangements of the vegetative nervous system, produced by the lack of vitamins. That is to say, he believes that the essential effect of vitamin lack, and particularly of lack of vitamin B, is disorganization of the sympathetic and parasympathetic systems, associated with a disturbance of the functions of the endocrine organs, and that these disturbances produce the symptoms and lesions observed.

Thus, in a single bold effort of the imagination, the author links up avitaminosis, sympatheticotonia, parasympatheticotonia, and endocrine deficiency. The idea is audacious, but the facts established concerning all these subjects are so incomplete that it is doubtful whether such a comparison is likely to advance our knowledge materially.

TONSILS.

The importance which the pathology and surgery of the tonsil have assumed in recent years is reflected in two admirable monographs setting forth the views of the Boston school and the St. Louis school. The first of these is already well known, for Dr. Barnes established his reputation by a previous edition of his book on the *Tonsils*[3] nine years ago. In the second, Dr. Sluder has gathered into a well illustrated volume everything that there is at present to be said on the subject of *Tonsillectomy*[4] by means of the guillotine.

The anatomy, embryology, general physiology, and pathology of the tonsils are well reviewed in the opening chapters of both these works. In this part of the subject there is but little that is controversial, but none the less it is somewhat speculative, so that it is difficult to give a clear exposition. The authors, however, have been highly successful. It is when the subject of the surgery of the tonsil is reached that the great divergence of opinions is to be found, though on one essential point they are unanimous—namely, the necessity of complete removal.

Dr. Barnes describes fairly and adequately the various methods of removing tonsils, but he states that he always dissects tonsils himself "for the reason that good technique cannot be maintained if the operation is only done occasionally, and a certain number of tonsils must be removed by one of the dissection methods." This is a logical position, but the reason given for performing a more severe operation in all cases, when in most of them the quicker simpler operation of Sluder is sufficient, is inadequate. Dr. Barnes advocates the drainage of quinsy by removal of the tonsils. No doubt the drainage provided by this

[2] *Etudes expérimentales et critiques sur l'Avitaminose.* By J. Lopez Lomba, M.D., D.Sc. Paris: Jouve et Cie. 1923. (Roy. 8vo, pp. 347; illustrated.)

[3] *The Tonsils.* By H. A. Barnes, M.D. Second edition. London: Henry Kimpton. 1923. (Med. 8vo, pp. 217; 45 figures. 25s. net.)

[4] *Tonsillectomy.* By Greenfield Sluder, M.D. London: Henry Kimpton. 1923. (Sup. roy. 8vo, pp. 176; 20 figures. 25s. net.)

England and Wales.

MANCHESTER POST-GRADUATE COURSES.

A FREE course of lectures will be given alternately at the Salford Royal Hospital and Ancoats Hospital, Manchester, on Thursdays at 4.30 p.m. The subject of the first course will be "Surgical tuberculosis," and the lectures will begin on Thursday, October 18th. The intention is to get away from the usual style of post-graduate lecture, and for this reason a definite subject will be taken up for consideration. The lectures will be illustrated by lantern slides, pathological specimens, demonstrations of clinical cases, etc. The titles of individual lectures will be announced in the weekly diary published in the SUPPLEMENT. A free course of lectures of similar scope will be delivered after Christmas by the physicians of the two hospitals on a subject which will be announced later.

POST-GRADUATE COURSES IN LONDON.

The Fellowship of Medicine and Post-Graduate Medical Association has arranged a fortnight's intensive course in children's diseases, consisting of clinical demonstrations in all departments, to be given at the Victoria Hospital for Children from October 8th to 20th. A special course in laryngology, rhinology, and otology will also take place at the Central London Throat, Nose, and Ear Hospital from October 8th to 26th. Clinical lectures and demonstrations in the wards and out-patient department will be given each day from 9.30 to 5 p.m. From October 15th to 27th two short courses will be given in cardiology at the National Hospital for Diseases of the Heart, and in proctology at St. Mark's Hospital for Diseases of the Rectum; both courses will include clinical lectures and demonstrations by members of the staff each day. A short course in dermatology will be held at the Hospital for Diseases of the Skin, Blackfriars, from October 29th to November 10th. The next fortnight's "refresher" course in general medicine and surgery will be given by the Royal Northern Hospital, in conjunction with the Central London Ophthalmic Hospital, the North-Eastern Fever Hospital, and the Royal Chest Hospital, from November 5th to 17th. Copies of the syllabus and full particulars regarding the above courses can be obtained from the Secretary to the Fellowship of Medicine at 1, Wimpole Street, W.1. As the numbers are limited for some of the courses early application should be made.

SHEFFIELD ROYAL INFIRMARY.

The new x-ray department of the Sheffield Royal Infirmary was opened by the Lord Mayor of Sheffield, Alderman Fenton, on September 26th. Mr. H. H. Bedford, the chairman of the board, who presided, said that with the increase in the work of the radiological department the board were very anxious to re-house it, and the Orthopaedic Committee had given them £2,000 for this purpose; an old member of the board, Mr. Huntsman, had also promised £500 towards the building. The board had been further encouraged that morning by receiving a cheque for £500 from Mr. Dixon for the new ear and throat department. Dr. Rupert Hallam, who is in charge of the radiological department, described the new apparatus and gave a brief survey of the development of radiology. The first apparatus had been installed in the Infirmary in 1899, but while it had been improved year by year it had also become very expensive. It was now necessary to have three rooms, each with a separate equipment, to cope with the work; both out-patients and in-patients were passing through the department all day long, necessitating a whole-time staff of four persons. In designing the new department the first consideration had been the safety of the staff and patients. The control room was completely lined with thick sheet lead, and the very best apparatus had been installed.

SUNDERLAND ROYAL INFIRMARY: NEW THEATRE BLOCK.

On September 26th the new operating theatre block built and equipped by his family in memory of the late J. Y. Short, Esq., J.P., shipowner, at a cost of £7,000, was opened by his widow and his son, Mr. T. Short. Mr. Burnicle presided over the meeting and showed the necessity of this addition owing to the increasing work done in the Infirmary; although he had visited many of the largest hospitals during the last two years, he had seen no theatres that were at all comparable with these. Dr. Wm. Robinson, chairman of the Medical Board, described the new building and said that the site had been carefully selected so that the block would not interfere with the future extension of the wards of the Infirmary which was much needed because of the great length of the waiting list. The block consists of a suite of eleven rooms opening off a central corridor—namely, (1) a dark room for examination of the eye, ear, throat, and nose, cystoscopy, etc., and in which mastoid and similar operations can be done; (2) a recovery room with two beds; (3) surgeon's preparation room with six lockers, a long and a shower bath, wash-basin, and w.c.; (4) an anaesthetizing room; (5 and 6) two large theatres—one side of each is all glass and part of the sloping roof; (7) an instrument and surgeon's final preparation room; (8) a sterilizing room; (9) sister's room; (10) a housemaid's room; and (11) store room. Dr. Robinson showed that these two additional theatres would admit of a throat and ear department being established and also enlargement of the eight old wards which would be necessary in the future. Mr. Samuel Storey moved a vote of thanks to the donors, which Mr. T. R. Blumer seconded.

Scotland.

CENTENARY OF THE MORISON LECTURESHIP.

THE centennial course of the Morison lectures on mental diseases and disorders of the nervous system, founded in 1823, will be delivered in the Royal College of Physicians, Edinburgh, on Monday, Tuesday, and Wednesday, October 15th, 16th, and 17th, at 5 p.m., by Dr. Alexander Blackhall-Morison. The titles of the lectures will be respectively: A century of neurology—the instrument of mind; A century of psychology—the mind; A century of psychiatry—the mind diseased.

THE CHAIR OF MEDICINE AT ST. ANDREWS.

Dr. Adam Patrick has been elected by the University Court of St. Andrews to succeed Professor Stalker in the chair of medicine in the University of St. Andrews, and the directors of the Royal Infirmary, Dundee, have appointed him an honorary physician. Dr. Patrick, who is at present assistant to the professor of medicine in the University of Glasgow, was educated at that University, and graduated M.A. in 1904, M.B., Ch.B. in 1908, and M.D. (Bellahouston gold medal) in 1913. He holds the appointment of dispensary physician to the Glasgow Western Infirmary, and was formerly consulting physician to the City of Glasgow Fever Hospital and visiting physician to Bellahouston Hospital, Glasgow. During the war he held a commission in the R.A.M.C., and was for three years a specialist in bacteriology in Malta. He was honorary secretary of the Section of Medicine during the Annual Meeting of the British Medical Association at Glasgow in 1922. The St. Andrews University Court, in accepting Professor Stalker's resignation, has placed on record its high appreciation of his distinguished services during twenty-five years' occupancy of the chair.

NEW PROFESSORIAL CHAIR AT GLASGOW.

Until now the work in forensic medicine and public health in Glasgow University has been carried on in one department as one professorial chair. With the great advances of recent years in public health and preventive medicine, the creation of a new chair in these subjects has become necessary. The institution of this chair has been under consideration for some time, but through the generosity of Mr. Henry Mechan it has now been established, and will be known as the Henry Mechan Chair of Public Health. The University Court of Glasgow has appointed as its first incumbent Dr. John Ronald Currie, at present Professor of Preventive Medicine in Queen's University, Kingston, Ontario—a post he has held only a few months.

instance Mrs. Scharlieb's statement that "each young couple should exchange medical certificates of health and of fitness for matrimony," and Mr. C. J. Bond's suggestion that "the nation requires child fanciers more than dog fanciers, and homo-culture as well as horticulture and agriculture."

The "sex problem" occupies much of the attention of the authors of this book. In this case also there is some divergence in the views expressed in the various essays. Thus, in the opinion of Sir Frederick Mott, "it is a mistake to lead the young child, as a general rule, too far into experiences that the adult alone can understand and appreciate in their full biological significance." Professor J. Arthur Thomson, on the other hand, thinks that "there is much to be said for sound biological training," and that "the functions of sex and reproduction should be discussed in the physiology class in the higher school just as frankly and detachedly as the functions of secretion and respiration." At the same time the professor notes that no one can be sure on *a priori* grounds of the results of a course of instruction in sex hygiene in the higher forms in school. "It is a matter for experiment, and the basis of experiment is not as yet large. . . . When sex instruction becomes intimate and personal there is a risk of bringing sex feelings into the focus of consciousness prematurely." Mr. Bond goes further than his collaborators and says that "we must entrust the duty and privilege of giving advice and instruction on these vital subjects [that is, sex matters] to carefully selected and properly trained teachers or other suitable persons."

Several of the writers mention "self-expression" and "self-realization" as the true aim of life, and the Rev. R. C. Gillie asserts that the trend of enlightened education in recent years has been unmistakably in the direction of emphasis on personality. Whether self-realization is the aim of life, or whether greater happiness is to be found in a life of discipline and duty, is a matter for the philosophers; but Mr. Gillie suggests that "when personality has been developed, it may easily be perverted through lack or neglect of right channels of expression." "Some people," he adds, "are obsessed already by what has been called the fetish of self-fulfilment."

Sir James Yoxall writes an interesting little essay on the future for elementary education. He sees no prospect of the school segregation of classes in the community passing away during the present generation, but he looks forward to a dignifying, magnifying, and glorifying of the name and mission of the elementary school.

From the trend of the ideals of the writers in this volume it may be inferred that nearly all of them would view with equanimity a much larger control of the individual by the State than exists at present.

DENTAL TEXTBOOKS.

IN the training of the dental student two main lines of thought are apparent. On the one hand dentistry is regarded as an essentially mechanical art and the great object is to train the student's fingers; on the other hand, the mechanical is regarded as subservient to the biological factor and every effort is made to teach the sciences of life and death, of physiology and medicine, and to train the powers of observation. The four years' curriculum seems but a short time, yet the teacher must teach. A perception of the difficulties both of the student and teacher has induced Mr. CURZON-MILLER to attempt a *Physiology for Dental Students*.[7] It is written avowedly with an eye to the L.D.S. examination, and "while modern and generally accepted facts of the subject have been stated somewhat dogmatically, speculative discussions have been intentionally omitted." Quantity is thus greatly diminished, but quality suffers sadly. The charm and mental stimulus of a well stated argument are entirely lost, and sometimes, as in the sole brief reference to clasmatocytes (p. 13) or in the definition of absorption (p. 53), brevity has gone so far that the statements may apear meaningless to the student. If, however, to those whose teaching was conducted in a more leisurely fashion this volume seems to savour somewhat of the cram-book, the author must be given credit for having by judicious selection and elimination compiled a handbook of physiology which will not only suffice for the needs of the L.D.S. examination, but will help the student to understand many otherwise obscure statements in current medical and dental literature. In this latter respect we may, perhaps, make one or two suggestions. The dental student probably, in common with the medical student, would like to know how largely, in the physiologist's opinion, uric acid bulks as a factor in human health or disease; and the dental student, at least, would like to know his (the physiologist's) views as to the influence of thyroid, parathyroid, or other ductless gland, on the formation of the teeth. On these points the author might well depart from his accustomed brevity in his next edition.

Mr. GIBSON'S *Chemistry of Dental Materials*[8] is largely an elaboration of notes of lectures delivered to the dental students of Guy's Hospital, and, as it is intended only as an introduction to the more specialized literature of the subject, the author has limited himself to representative materials. To describe adequately the large and increasing number of substances available in dental practice would, the author says, require a comprehensive dictionary. Lest any dental student should thereby be terrified, we hasten to say we do not agree. The chemistry needed by a dental student can be, and should be, presented to him in comparatively small volume divested of that curious tendency to magnify and mystify so often apparent in dental education. The present volume seems, indeed, to cover the ground pretty thoroughly. It contains chapters on the general properties of metals; on platinum, gold, silver, copper, aluminium, mercury, zinc, tin, lead, iron, nickel, cadmium, antimony, bismuth, and their alloys; on porcelain, plaster-of-Paris, dental cements; abrasive materials; anaesthetics and antiseptics; rubber, vulcanite, and gutta-percha; with a short introductory survey of the materials and their uses. We may say at once that the work is generally of a very high standard, and, despite the author's prefatory warning, we detect no important omission. Perhaps we may be forgiven for asking how it shall benefit the dental student to learn, even in outline, the methods of extraction of metals from their ores—there are surely matters of more immediate concern to which his mind might be directed! While, however, the general standard is high, the book in places betrays its origin in amplified notes. Page 27 may be cited, and the description given there of a eutectic alloy particularly. The assertion that vulcanite is such a poor conductor of heat that the constant wearing of a vulcanite plate in the mouth causes a lowering of vitality of the soft tissues and an excessive resorption of the hard tissues is unconvincing. The note on the soldering of platinum takes no account of the common practice of soldering gold "backs" to the platinum pins of "pin-teeth" with gold solder. Perhaps the best chapter in the book is that on anaesthetics and antiseptics; it alone is a sufficient recommendation of the book.

NOTES ON BOOKS.

THE textbook on experimental bacteriology and infectious diseases by Professors W. KOLLE and H. HETSCH of Frankfort, which has now reached its sixth edition[9] and has been translated into French, Italian, Spanish, and Russian, consists of two volumes covering an enormous field. The work is divided into seventy-six lectures, of which the first fifteen are introductory and deal with microscopical technique, the morphology and biology of micro-organisms, disinfection, immunity, anaphylaxis, and serum diagnosis and treatment,

[7] *Physiology for Dental Students.* By A. G. Curzon-Miller, B.Sc., L.M.S.S.A.Lond., F.C.S. London: E. Arnold and Co. 1922. (Demy 8vo, pp. viii + 205; 81 figures. 10s. 6d. net.)

[8] *The Chemistry of Dental Materials.* By C. S. Gibson, O.B.E., M.A., B.Sc.Oxon., etc. London: Benn Brothers, Ltd. 1922. (Demy 8vo, pp. 176; 24 figures. 12s. 6d. net.)

[9] *Die Experimentelle Bakteriologie und die Infektionskrankheiten mit besonderer Berücksichtigung der Immunitätslehre.* Ein Lehrbuch für Aerzte und Studierende. Von Professor W. Kolle und Professor H. Hetsch. Sechste umgearbeitete Auflage. 2 Bände. Berlin: Urban and Schwarzenberg. 1922. (Double cr. 8vo. Band I, pp. xviii + 636; 41 plates, 79 figures. Band II, pp. xi + 1376; 73 plates, 135 figures.)

Notifications of Pulmonary Tuberculosis, 1920–23: Percentage Incidence according to Size of House.

	No. of Cases.	Per Cent.	Percentage of Population Living in Houses of Sizes Quoted.
One apartment	1,125	17.95	12.9
Two apartments	3 121	49.63	49.5
Three apartments	984	15.71	21.0
Four apartments and upwards ...	526	8 41	16.0
Institutions	485	7.73	
	6,239	99.83	

The indication of this table is that nearly 13 per cent. of the population living in one-apartment houses contributed nearly 18 per cent. of the cases, while 21 and 16 per cent. of the population living in three- and four-apartment houses contributed 16 and 8 per cent. respectively. Approximately one-half of the population living in two-apartment houses supplied one-half of the cases. The fact that a smaller proportion of the population living in one-apartment houses should contribute twice as many cases of phthisis as a larger percentage of the population living in four apartments and upwards contains the elements, at least, of a suggestion that the size of the house does play some part towards producing mass infection and increased incidence.

The extent of this, however, can only rightly be measured when corrections have been made for age and sex distribution, and a rearrangement of the figures given on page 20 of the paper already referred to shows that while the death rate from all causes in four-apartment houses equals 50 per cent. of the deaths occurring in one-apartment houses, the phthisis deaths in four-apartment houses form only 32 per cent. of those occurring in one-apartment houses. Is it not reasonable to attribute some part of this relatively greater incidence of phthisis in one-apartment houses to the element of mass infection which Dr. Walker is considering?

	Calculated Death Rates.		Taking 1-Apartment Rate as 100.	
	All Causes.	Phthisis.	All Causes.	Phthisis.
One apartment ...	20	1.83	100	100
Two apartments ...	17	1.36	85	72
Three apartments ..	13	0.17	65	45
Four apartments ...	10	0.61	50	32

—I am, etc.,

Sanitary Chambers, Glasgow.
Sept. 29th.

A. K. CHALMERS.

THE SHAW-MACKENZIE BLOOD TEST IN CANCER.

SIR,—An interesting and instructive case which demonstrates the value of the blood test in cancer, introduced by Dr. J. A. Shaw-Mackenzie, in doubtful cases, came under my observation recently. It was that of a friend whose family history in regard to cancer is not a good one. His maternal grandfather died of cancer of the throat, two aunts died of cancer (one of cancer of the uterus, the other of cancer of the bowel), and a sister died of cancer of the bowel.

The patient's age is 71 years. He had always enjoyed good health until June, 1923, when he began to suffer from pain in the chest and epigastric region, with loss of appetite, discomfort after food, and occasional sickness. This continued for four weeks, when the pain became acute. He was under the care of Dr. G. de Bec Turtle, who was of opinion that the patient was suffering from duodenal ulcer, but in view of the family history, age, emaciation, and illness of the patient, it was agreed, in consultation, that the condition could be better investigated in hospital. Examination of the stomach content in hospital showed the presence of achlorhydria, while *x*-ray examination seemed to suggest something more than simple ulcer. Considerable improvement and freedom from pain followed dieting, treatment, and rest in bed. But in the uncertainty of the diagnosis the option of an exploratory operation was given. This the patient was unwilling to undergo, and after seventeen days in hospital he returned home. On July 16th, by request, I visited the patient, with Dr. Shaw-Mackenzie and Dr. Turtle. The patient was in bed, and appeared to be very ill. On examination of the abdomen there was some fullness in the epigastric region with tenderness on gentle pressure. There was still uncertainty of the condition, and it was decided to examine the blood. For this purpose 5 c.cm. was taken. The subsequent report by Dr. Shaw-Mackenzie was that he had tested the serum, found the reaction absolutely "negative," and that anything more than simple ulcer could, for the time being, be definitely excluded.

On September 19th the patient was seen again. He had been out and about. On examination there were no physical signs. He appeared to have regained his former good health and spirits, had increased in weight, and had resumed his ordinary light diet. A specimen of blood was again taken and examined, with the same result as before—namely, that the blood reaction was normal.

The result in this case fully supports the clinical value of this new blood test reported in some 136 serums examined (including those from obscure abdominal cancerous, non-cancerous, and normal) published by Dr. Shaw-Mackenzie,[1] and noted in a further series of 53 cases.[2] In a more recent series of 32 cases, similar results have been obtained. Up to the present time, in a total of 221 serums examined, the method has proved correct in 212, or 95.5 per cent. The errors were associated chiefly with diabetic, tuberculous, sarcomatous, and febrile conditions. These difficulties met with were indicated in the first published series.

My object is to draw attention to the usefulness of this method, by which it has been possible to differentiate cancer of internal organs from other non-cancerous conditions in the majority of cases, and in obscure cases to exclude the presence of cancer. Most of these blood test results I have witnessed myself in the laboratories at King's College during the last two and a half years, a line of promising research to which I drew attention in the BRITISH MEDICAL JOURNAL of February 25th, 1922.—I am, etc.,

W. J. SIMPSON, M.D., F.R.C.P.,
Professor of Hygiene, University of London, King's College.

London, W., Sept. 22th.

MEDICAL PRACTICE IN NORTH AMERICA.

SIR,—The "Note on Medical Practice in North America," by Dr. H. Cecil H. Bull (September 22nd, p. 538), has awakened in me a sympathetic chord, for I, too, know the North American continent at first hand and can fully support all Dr. Bull has to say regarding medical education in those great countries. My experience of Canadian methods of teaching the medical student is confined to Montreal, in the wards and lecture rooms of the Ross Memorial Hospital and the General Hospital. Both of these institutions offer unrivalled opportunities for clinical work, but one could not but be surprised at the absence of students from out-patient clinics and "receiving rooms," while at lectures and surgical demonstrations students crowded in.

At the General Hospital, Montreal, there is an excellent "fracture clinic," in charge of a surgeon who gained his first experience with Sir Robert Jones at Liverpool, and is an enthusiast over his work; yet even here the paucity of students attending was remarkable.

So far as the Western States of the Union, and the prairie provinces and British Columbia in Canada, are concerned I must say that the average general practitioner is a long way ahead of his prototype in this country. And the reason of this, in my opinion, is the system of "open" hospitals that pertains in those parts. The hospitals there are open to every registered medical man, who can send his patients, both medical and surgical, into these institutions, and can do his own surgical work there. The result is, while one naturally comes across some poor operators, the majority of general practitioners tackle all operations, and tackle them well. No doubt this system of the "open" hospital has its disadvantages, but it does the general practitioner a great deal of good, in that it gives those with surgical leanings every opportunity to perfect themselves in the science and art of surgery. Not so in England, where our pernicious system of staffing our hospitals is not always productive of the best surgical—and medical—talent.

[1] *Lancet*, 1922, ii, 759.
[2] *Med. Press and Circ.*, 1923, i, 9.

themselves to prolonged operations without anaesthetics, and by the enterprise and manual skill of the operators. The ordeal was severe and it is not surprising to learn that often a week passed without any operation at one or more of the great hospitals. We find, for instance, that there were no operations at Guy's, St. Thomas's, and the Middlesex Hospitals in the last week of 1823.

Bleeding was still in full vogue. Every insensible person and everyone having any symptom of inflammation or fever was in danger of phlebotomy. Nobody questioned its efficacy. In the *Pickwick Papers* we read of how when the rival Eatanswill journalists were engaged in violent personal strife, "Ben Allen and Bob Sawyer had done nothing but dodge round the group, each with a tortoiseshell lancet in his hand ready to bleed the first man stunned." Also, when Mr. Winkle fell upon the ice, Mr. Allen strongly urged him to allow himself to be bled. Sir Astley Cooper, in his lectures on injuries of the head, advised bleeding, although he warned his pupils against it in case of concussion, when the pulse was feeble or slow. In the *Lancet* is described the case of a woman who had been run over and crushed. She had a ruptured liver and the usual profuse internal haemorrhage. Yet the apothecary who was called to the case bled her. A few years later we find a note about a man with a severe scalp wound who had lost a lot of blood. He was bled at once to the amount of eighteen ounces. But he recovered nevertheless.

The editorial articles of the *Lancet* bristled with personalities, and most of those who were denounced were labelled with nicknames which to-day seem somewhat puerile. The members of the staffs of hospitals were generally called "Bats," and any mistakes that they made were shown up in articles with such headings as "Blunders by Bats."

Travers of St. Thomas's was accused of having "haggled through the limb" in amputating below the knee. The patient was reported to have said to the operator, "I think, Sir, your tools are blunt!" Rival medical journalists also came in for abuse, especially Roderick Macleod of the *Medical and Physical Review* and James Johnstone of the *Medico-Chirurgical Review*. Macleod was later physician to St. George's Hospital and quite a worthy person, but he was referred to in the *Lancet* by many rude names, such as "Charity Roderick," "Blundering Blockhead," "The Yellow Goth," and his paper was called "The Yellow Fungus" and "The Excrescence," and the question was asked, "Was the editor of the Excrescence drunk when he perused or wrote this sentence?" He was accused of being a literary hack and the hireling of a bookseller in the following passage:

"This glandered, foundered spavined old hack is now we hear in the stables of Mr. Orme who deeply laments his purchase, as it has been attended with a very heavy loss, and it is not likely that he will obtain even a sixpence for the animal's punctured hide. It is expected that the wretched creature will not survive long, as he is in an exceedingly weak and tottering condition; and from castigations received in consequence of his former bad habits, there remain several *old sores*, from which issues a horridly fetid periodical discharge, of a dirty green colour." (An allusion apparently to the colour of the cover of the journal.) "Although *scanty* this discharge is so offensive, that the House of Longman and Co. has become notorious for its ill odour, and the only animals which now cheer the old hack by their presence are a few of the most ghastly and filthy of the Hospital Bats. Where the carrion is there will the crows be also."

After this elegant extract it will not be necessary to quote what was said of Johnstone, of Sir Anthony Carlisle, of Guthrie, Earle, Stanley, Sir William Blizard, or Sir Benjamin Brodie. All or nearly all had opprobrious nicknames, and in attacks upon the nepotism then rampant Sir Astley Cooper's nephews came in for many hard knocks. Bransby Cooper suffered most, and much more than he deserved. The libel action which he instituted was one of ten actions which were brought against the *Lancet* or its editor in the first ten years of its existence. Six of these were for libel, in which £8,000 in all was claimed and only £155 0s. 0½d. was awarded in damages.

In a few years the *Lancet* had sown its wild oats and settled down into its respectable and beneficent course, but in 1839 the *Medical Times* appeared and was nearly as abusive as the early *Lancets*. Much of its abuse was directed against Wakley, to whom was allotted the part of Peachum in a parody of the *Beggar's Opera*, but these personalities did him no harm and he wisely disregarded them, except in one remarkable instance. His successful libel actions against the editor of this paper in later years had to do with other attacks upon him.

After the *Medical Times* had mended its manners and had become the reputable paper which it remained until its end in the eighties, the medical press ceased to have this particular kind of attraction for the student of manners and of the humours of medical life. Whether physicians and surgeons have become a less irritable genus or no, at least they do not show their annoyance in the unmistakable way which was usual a century ago, and the change is all for the better.

THE HEALTH OF ABERDEEN.

What must be, so far as we know, a new departure is the issue, not of an annual report, but of one covering a period of six years, by Professor Matthew Hay, as medical officer of health for Aberdeen. The six years are 1916 to 1921 inclusive, and the vital statistics have the advantage of being based on the census of 1921. The census population of 159,915 was less than had been assumed, and rates now calculated on it are correspondingly higher.

Housing in Aberdeen, in respect of the number of rooms in dwellings, is better than in the other three great towns of Scotland. Only 44 per 1,000 of its population live in one-roomed houses, as against 47 in Edinburgh, 89 in Dundee, and 128 in Glasgow. For two-roomed houses the corresponding figures are—Aberdeen 326, Edinburgh 329, Glasgow 498, and Dundee 508. Aberdeen is also better than the others in respect of the average number of persons per room in the smaller houses, Glasgow being the worst. In 1921 the birth rate in Aberdeen was 26.6 per 1,000, as against a mean of 21.5 in the five previous years. Illegitimate births were 9.2 per cent. of the total births in 1921—a lower figure than in any of the five preceding years. The death rate, 14.3 per 1,000, was also lower than the mean of the previous lustrum (15.1). The infant death rate per 1,000 births was 108, as against the previous five years' mean of 127, so that here there has been a very decided improvement, though, of course, the cool weather of 1921 made it a favourable year. Professor Hay's statistical tables contain many interesting figures; Table VI, for example, shows the survivors at the end of the first year of life as a proportion of the total population. In 1921 they were 23.7 per 1,000, against an average of 18.9 in the lustrum 1916-20. From 1861-70 to the end of 1921 the percentage fall in the death rate at different age periods has been as follows: 0 to 5 years, 45 per cent.; 5 to 15 years, 68 per cent.; 15 to 25 years, 63 per cent.; 25 to 45 years, 54 per cent.; 45 to 65 years, 28 per cent.; and 65 years upwards, 13 per cent. All periods of life therefore have shared in the improvement. In comparing the birth, death, and marriage rates of the great towns of Scotland, Professor Hay introduces a new feature by including Paisley, with 85,000 population, and Greenock, with 81,000, in the comparison. The additional figures are useful, though the rates do not differ in any very striking fashion from the others, excepting that malignant diseases seem less prevalent than in the larger towns, the difference between Paisley's rate of 10.4 and Dundee's 17.2 being notable. Illegitimate birth rates are also comparatively low in Paisley and Greenock.

The report contains a chronological survey of the six years.

Acute poliomyelitis prevailed in 1916, there being 79 cases. The type was mild, the fatality rate being 5 per cent. (cases under one year old). In New York in the same year it was 24 per cent. The outbreak resembled epidemic meningitis in its distribution and transmission. The cases occurred in all parts of the city, and in houses above the average of cleanliness. In only a very few instances could any connexion be found between case and case. For the 75 cases that recovered with paralysis clinics were arranged. The cases were kept under observation for five years, and 54 completely recovered, whilst the remaining 21 are steadily improving.

Typhoid fever became epidemic in 1918, when there were 97 cases due to milk infection from a country dairy farm. The originating case had been regarded as influenza, but the typhoid bacillus was found in the faeces and typhoid agglutinins in the blood. The later cases were in contacts, and not due directly to milk. In 16

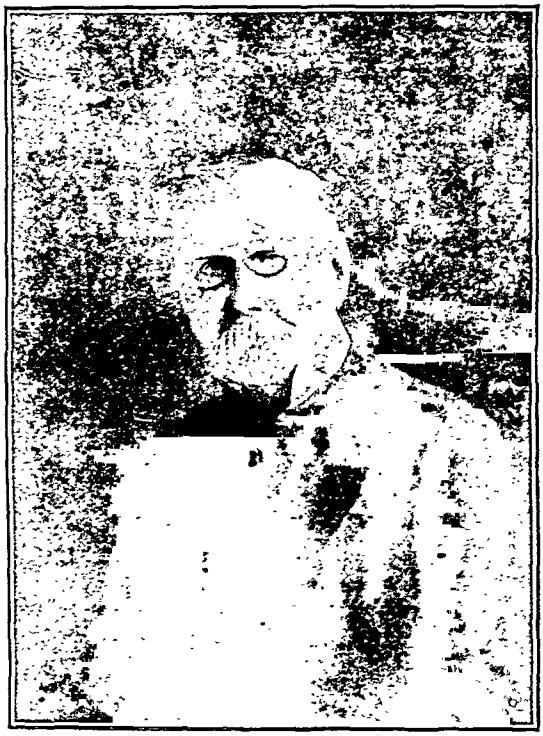
Obituary.

SIR JOHN HALLIDAY CROOM, M.D., LL.D., F.R.C.P., F.R.C.S.EDIN.,

Emeritus Professor of Midwifery, University of Edinburgh.

WE regret to announce the death of Sir John Halliday Croom, Emeritus Professor of Midwifery in the University of Edinburgh, who died on September 27th in his 77th year, within four months of the passing of his colleague and life-long friend, Emeritus Professor John Chiene. The University of Edinburgh has thus lost within a brief space of time two of those former professors who in their day were amongst the giants of the University life.

Sir Halliday Croom retired from his University chair and from practice a little over two years ago, and since then his health had been increasingly unsatisfactory. Idleness sits irksomely on men who have spent lives filled to the brim with active work, and retirement is not infrequently the herald of the last phase. So it was with Croom when cut off from the teaching which was as the breath of life to him. A severe attack of influenza greatly weakened him last winter, and an attack of bronchitis in the beginning of this month was followed by a gradually increasing congestion of the lungs, to which he succumbed peacefully on Thursday last. The news of his death will be received with a sense of personal regret by many hundreds in the medical profession throughout the whole civilized world, who were students under him. No teacher in Edinburgh held a surer place in the affections of his students than Sir Halliday Croom, and when it is realized that at the time of his retirement he had been teaching in the Edinburgh School for the long period of fifty years, the number of students who passed through his hands will be imagined.



SIR HALLIDAY CROOM.

Photograph by] [Elliott and Fry, Ltd., London.

John Halliday Croom was born in 1847 at Sanquhar, Dumfriesshire, where his father, the Rev. David Croom, was United Presbyterian minister. While he was yet a boy, his father was called to Lauriston Place U.P. Church, Edinburgh, and John Croom and his brothers received their early education at the Royal High School of Edinburgh. Subsequently he proceeded to the University of Edinburgh, where he graduated after a distinguished course in 1868. After some months spent in post-graduate study in Paris and London, he settled as a general practitioner at Brougham Place, Edinburgh; but success came to him with both hands so full that he soon moved to the more fashionable Hope Street, and thence ultimately to 25, Charlotte Square, which was his residence for many years. From the outset he engaged in teaching, being instinctively drawn to a form of work for which he had very outstanding qualifications. After a year as university assistant to Professor Laycock in the Chair of Medicine, he was appointed assistant to Professor A. R. Simpson in the Chair of Midwifery, a post which he held until 1877. He then began lecturing on his own account in the Extra-mural School at Minto House, where for many years his summer class on midwifery and gynaecology was a regular and brilliant feature of the school. As a lecturer his popularity was immediate and sustained, and few students in Edinburgh during the twenty-five years in which he lectured in the Extra-mural School failed to take out his three months' class in addition to the regulation six months' course at the University. The secret of his success and popularity as a lecturer was never far to seek. He was a brilliant speaker, nervously energetic in manner, endowed with a gift of the most vivid narration illuminated by a whimsical and sparkling humour; and his lectures were always essentially practical. No man could bring home an important lesson in more telling fashion, or in a single never-to-be-forgotten phrase throw such a flood of light on his subject. Many hundreds of Edinburgh men all over the world are at this moment carrying in their minds as guiding principles in their midwifery some of his epigrammatic aphorisms. Furthermore, he never spared himself in his teaching. It was throughout his whole life his first object and his dearest interest, and his students never failed to realize that, and to listen with alert responsive interest and quickened enthusiasm. In 1905 he succeeded Sir Alexander Simpson in the University chair, which he adorned for sixteen years, and where he endeared himself to succeeding "generations" of students. His last lecture was an occasion of great sadness not only to himself, but also to the students, who realized that it was the last appearance of one whose fame as a teacher had become a great tradition of their school.

For some years Croom carried on a large general practice, but as gynaecology developed more and more as a specialty, and as his knowledge and aptitude for it became more and more recognized, he was gradually compelled to give up all general work and devote himself exclusively to midwifery and gynaecology. He was early appointed to the hospitals. He became assistant gynaecologist to the Royal Infirmary in 1883 and succeeded to the charge of wards two years later. He held his wards for the full period of fifteen years, retiring in 1901, but returning for a period of one year between his appointment to the combined University chair and the subsequent formation of a separate lectureship in gynaecology. In 1901 he was appointed consulting gynaecologist to the Royal Infirmary. On the Maternity Hospital staff he was appointed an ordinary physician in 1877, and there he served for a period of twenty years. In 1899 he was appointed consulting physician to the hospital. In 1905, when he was appointed Professor of Midwifery, he returned to the staff of the hospital and again served on it for a further sixteen years. Throughout this long period of years his interest in the hospitals never flagged, and it is questionable if he was ever quite so happy as when giving some of his inimitable practical cliniques in their wards. It is interesting to note that he was the originator of clinical teaching in the Maternity Hospital, and that in introducing what was then regarded as a novelty of dubious propriety he had to carry his point against considerable opposition. It is not too much to say that in so doing he lifted the science and art of Midwifery out of the Cinderella-like position which they had previously held amongst the great sister branches of Medicine

situations has determined the presence of spinal compression. In a recent paper Cushing and Ayer[2] have shown the value of comparative pressure readings in five tumours of the cauda equina, in which the lumbar fluid taken from *above* the level of the tumour was highly albuminous, a finding which taken alone might have suggested that the tumour was at a higher level.

Still more valuable is Sicard's method of injecting lipiodol into the cisterna magna, and determining by *x* rays the level to which it spreads down in the subarachnoid space. This formed the subject of a demonstration by Mr. Percy Sargent at the Portsmouth meeting of the British Medical Association, at which he showed the possibility of establishing not only the site but also the extent of the tumour, by introducing lipiodol both by cisternal and by lumbar puncture. An account of his demonstration, illustrated by some excellent skiagrams, was published in a recent issue.[3]

The mechanism by which tumours reach and attack the cord was dealt with by Beriel of Lyons, who has recently published a series of articles on the subject.[4] In some cases neuro-fibromata appear to spread up the nerves from the periphery and to form either a large mass on a nerve root or a diffuse infiltration of the soft meninges; sometimes they actually invade the spinal cord. Being tumours of nerve substance they produce less damage to the function of the nerves or nerve roots than their size would suggest, and they often infiltrate the spinal root ganglia without giving rise to any root pains. In many cases the first symptoms attributable to them are those of compression of the spinal cord. Secondary carcinomata and sarcomata of the spinal bones, on the other hand, rarely pass through the dura mater, although they may produce a thickening on the inner surface of this membrane. Usually their effects are caused by pressure on the cord, and diminution of the blood supply to it. Occasionally spontaneous fracture-dislocation of the spine, due to its erosion by cancer or sarcoma, produces sudden and severe paraplegia.

The surgical treatment of spinal compression by laminectomy was dealt with by MM. de Martel and Robineau, and Beriel and Wertheimer. They all insisted that the operation should be done with the greatest care, and, in particular, that the cerebro-spinal fluid should be allowed to escape very slowly; rapid escape of the fluid or manipulation of the cord or of the roots caused rapid lowering of the blood pressure. Ether was the anaesthetic of choice. Finally, M. Béclère spoke of the treatment of spinal tumours by radiotherapy, and MM. Belot and Tournay recorded a case of spinal compression by tumour which appeared to have been completely cured by *x* rays, for the patient was able to walk as well as before. Many other cases of spinal tumour cured by surgical means were shown, and the meeting inspired the hope that, with the new and more exact methods of diagnosis and localization, the brilliant results which may follow the early eradication of spinal tumours will become increasingly common.

REFERENCE.

[1] *Revue Neurologique*, June, 1923, T. xxx, No. 6, pp. 561-730. [2] Cushing, H., and Ayer, J. B.: *Archives of Neurology and Psychiatry*, August, 1923, vol. x, p. 157. [3] Sargent, P.: British Medical Journal, August 4th, 1923, p. 174. [4] Beriel and others: *Lyon chirurgical*, T. xx, No. 2, p. 129.

THE BACTERIOLOGY OF PNEUMONIA.

In a report on the bacteriology of pneumonia,[1] recently issued by the Medical Research Council, Professor Ernest Glynn and his colleagues point out that the returns of the Registrar-General show that while the fatality of many other infective diseases has greatly fallen during the past few decades, the number of deaths to be ascribed to pneumonia in one or other of its forms is still relatively high and shows little or no diminution. The present report is an attempt to shed a little fresh light upon the etiology and pathology of pneumonia by studying (1) 140 cases and 50 acute empyemata chiefly bacteriologically, but also clinically; (2) salivas from 25 normal persons bacteriologically; (3) 41 miscellaneous pneumococcal and streptococcal infections. The report also contains a considerable list of references to recent work on this subject.

In 90.7 of the cases of pneumonia examined by Professor Glynn and his colleagues the pneumococcus was found to be present. For isolating this organism from sputum or saliva mouse inoculation was superior to other methods. Lung puncture was found to be a safe and valuable aid to bacteriological diagnosis; 14 out of 31 cultures of lung juice obtained in this way were positive in case of adults, and 8 out of 13 in the case of children. The probability of finding pneumococci in the lung juice increased with their abundance in the sputum, or their presence in the blood. Pneumococci were successfully cultivated from the blood in about 45 per cent. of the cases of acute pneumococcal pneumonia examined from the third to the seventh day inclusive; it is significant that the mortality among the positive cases was 71.4 per cent. as compared with 8.3 per cent. in the negatives.

With regard to the differentiation of the pneumococcus from other organisms, stress is laid on the characteristic appearance of its colonies when viewed with a hand lens or under a low power of the microscope. As a rule the bile solubility test was of great differential value, but about 5 per cent. of the pneumococci were found to be either insoluble or but partially soluble in bile. The fermentation of inulin was of little diagnostic value, since only 18 per cent. of the Type I and Type II pneumococci examined gave a positive result, and about 14 per cent. of salivary streptococci were found to ferment inulin. When cultivated in the presence of blood, over 90 per cent. of the pneumococci produced methaemoglobin.

Of some 852 strains of pneumococcus-like organisms investigated, 2.7 per cent. were found to be intermediate between the pneumococcus and streptococcus. Pneumococcus strains conforming to one or other of the three defined types of that organism were usually more virulent to mice than other pneumococci. The Rockefeller agglutinating serums were of great value in identifying specimens of the various types of pneumococcus; direct typing from the peritoneal fluid of the mouse was successful in 68.8 per cent. of the cases, but in the rest the peritoneal fluid had to be subcultured before typing could be successfully performed.

A careful study was made of bacteria other than pneumococci present in the cases including streptococci, staphylococci, Gram-negative cocci, and *B. influenzae*. In ten cases streptococci were regarded as the probable causal agent. Haemolytic streptococci were only encountered in three cases; the others yielded non-haemolytic streptococci chiefly of the *salivarius* class which the authors consider to be of pathogenic significance in such cases, although usually such salivary streptococci are of no pathogenic importance. Only a single case of influenzal bronchopneumonia was met with; and in another the meningococcus was the probable cause.

A special feature of this report is the attempt which is made to correlate the clinical features of the cases with the bacteriological finding. It is suggested that the primary lobular pneumonia of children described by West is usually a Type I infection of *exogenous* origin; while his broncho- or catarrhal-pneumonia is usually either a Group IV infection of *autogenous* origin, or a streptococcal infection, as it often follows measles, whooping-cough, etc.

The few cases—six in all—in which the therapeutic value of Type I serum was investigated clinically gave an encouraging result, but most of those who have tried this treatment will agree with Professor Glynn and his colleagues that this serum is not likely to come into general use until it is sufficiently potent to be administered subcutaneously. Apart from the inconvenience of the intravenous route at present advocated, the large bulk of serum that it is necessary to inject is another very serious drawback to its general application. That serum of increased potency, or some other method of raising the patient's specific resistance, is urgently needed will be realized when it is stated that Professor Glynn estimates that during 1919 no less than 8,000 persons died in this country of pneumonia brought about by Type I pneumococcus—about twice the number that succumbed to diphtheria over the same period. The report gives full details of a vast amount of careful work, and is a valuable contribution to a subject of increasing importance.

[1] *Bacteriological and Clinical Observations on Pneumonia and Empyemata, with special reference to the Pneumococcus and to Serum Treatment.* By Ernest E. Glynn, M.A., M.D., F.R.C.P., and Lettice Digby, F.R.M.S., assisted by H. Wallace Jones, M.D. 1923. Medical Research Council Special Report Series No. 79.

as an operator, and consulting work came to him rapidly from far and near. What between his teaching, his hospital work, and his consulting practice, it is difficult to understand how he managed to overtake it all, the more so as he always regarded his teaching and hospital duties as having the first claim.

Croom possessed an extraordinary clinical instinct (the result no doubt of long experience) which seldom failed him and which greatly impressed his pupils. His numerous contributions to literature were of a high order and always attracted attention. He inherited high traditions as the son of saintly parents whom he revered. By nature he was extremely sensitive, which tended to make him shrink from personal contact with unpleasant and disagreeable matters, but at the same time enabled him to get into touch very easily and readily with the minds of others. He delighted in friendly argument and would often take up and even appear warmly to defend some thesis, just for the pleasure of the discussion, while all the time his sympathies were for the other side, as in the end he would laughingly admit. His courtly and dignified bearing always attracted attention and gave him the distinguished appearance which is associated with the polished and punctilious gentleman of the later Georgian era, reminding one of the beloved Colonel Newcome, who so worthily represented the best elements of that age.

He was, moreover, one of the kindest of men and at the same time one of the most unostentatious. Not even his most intimate friends knew the extent of his charity. He was always touched by genuine distress and misfortune, and though sometimes deceived by unworthy persons this never embittered him. One incident serves to illustrate his kindness of heart. On one occasion in his younger days he had been called out in consultation to a poor woman *in extremis* who was also in destitute circumstances. There was no clothing for the baby and Croom promptly divested himself of one of his own warm garments to wrap the child in, returning home in the small hours of the morning shivering with cold. He was a deeply religious man, albeit somewhat sensitive in speaking of such matters save in moments of expansiveness to his most intimate frends. He had a horror of hypocrisy and cant and his religion was of the most practical kind. He had two great sorrows—the death of his charming wife twenty-five years ago, and that of his eldest daughter fifteen years later. Though a distinctly sociable man and an ideal and most hospitable host in his own house, he did not go out much into society, and it was difficult to persuade him to leave his happy domestic circle in the evenings. His home life and his work were all-sufficient for him. He was, however, always accessible to anyone seeking his advice and never seemed too busy to listen sympathetically.

When he retired from the Chair of Midwifery in the University he keenly felt the giving up of his work and the termination of his teaching—all the more so as he had few interests outside his profession. Reading was his chief pleasure and he was catholic in his tastes. He took great delight in the visits of his friends. His health, however, became feeble and sapped his former energy, and this unfortunately prevented his devoting himself to writing. Had he been more vigorous, it is not unlikely that he would have left behind him some memoirs, which would certainly have been of great interest. But alas, fate decreed otherwise. His life's work was accomplished; he was ready for his summons; and like his great prototype he reverently answered "Adsum" to the Call. He leaves behind him a record of good work well done, and the affectionate remembrance of a host of friends. "Clarum et venerabile nomen."

Dr. H. J. F. SIMSON (London) writes:

To those of us who were privileged to know Sir Halliday Croom as a teacher, counsellor, and friend, the news of his death came with a peculiar sadness for ourselves, not perhaps unmixed with gratitude for him. Twenty-five years ago Croom was almost everything that a young assistant or house-surgeon looks for and hopes to find in his chief. He was a man of indescribable charm of manner; a joyous enthusiasm in his work stimulated those who came in close contact with him. A real Scottish humour with a repertoire of real Scottish stories made an invitation to dine with him an event not lightly to be disregarded, and above all he had an amazing courtesy which made one love to meet him and talk with him. To all who were closely associated with him he preached courtesy.

Twenty-five years ago the sudden and quite unexpected death of Mrs. Croom, one of the most charming and lovable of women, left him bereft of nearly all but his unfailing courtesy. From that day it was as if his outlook was fixed on a day which was hidden from him, but which we, alas! now know was September 27th, 1923. There was one memorable occasion when he was his old radiant self again. On his retirement from the chair of obstetrics two years ago his old assistants and house-surgeons dined with him, and he was once more the chief amongst a band of men whose careers he had always followed with an intense personal interest. When in his prime he was working in Ward 28 at the Royal Infirmary. It is impossible to imagine a happier corner in any hospital than Ward 28. Those were the days when gynaecology was still considered a physician's business. One side of the ward was occupied by Dr. Affleck's patients and the other by Dr. Croom's. There were perhaps no two men at the Royal more dissimilar than Croom and Affleck, except in one particular—they seemed to vie with each other in unfailing courtesy, and the link that bound us all together was Sister Stewart.

Much has been written and said about Croom's success as a teacher; "a peerless teacher" was a term often applied to him, and in this connexion it is interesting to know that his lectures were all extemporary. It was his habit to prepare his lecture carefully and write it out fully, but only on one side of the paper; on the blank page he would write two or three words in blue pencil which would rapidly recall the written page to his mind. When he lectured he always put on an old-fashioned swallow-tail coat, the lapels of which he grasped nervously with his hands as he spoke; then suddenly, in order to emphasize some point, the right hand would shoot forward, the first two fingers straight and the third and little fingers bent on the palm: "Gentlemen, let me *implore* you, if you remember nothing else, remember *this*." He was always most particular about his clothes; in fact it was often said that he had a different pair of trousers for each day in the month. The thing he disliked most was untidiness, and the thing he liked most was cleanliness. For the greatest part of his really active life he had a Turkish bath once a week, which recalls to mind an incident he was always fond of relating. In the early days of aseptic surgery, a somewhat famous German gynaecologist came to Edinburgh and dined at Charlotte Square. After dinner the conversation naturally turned to surgery, and the German authority with pronounced emphasis was heard to say, "And on my operation day I always begin by having a bath and put on a clean shirt." "But my dear professor," replied Croom, "I do that every morning."

As a gynaecologist Croom was a pioneer, but his highly nervous temperament and intense sympathy with the suffering were not suited to the strain of surgery in the days when hysterectomy was performed by fixing the stump by steel skewers to the abdominal wall. The anxiety of the after attendance of abdominal operations in those days can hardly be realized at the present day, when an exploratory abdominal operation is considered justified even for diagnostic purposes. As an obstetrician Croom was second to none. Long before the days of the antenatal clinic he used to teach the folly of "the ostrich with its head in the sand hoping for the best." An examination under an anaesthetic was almost a routine procedure at the thirty-sixth week in a primipara. "Leave nothing to chance," and "You can't do more than you can do, but you never know what you can do till you try," were words of advice often on his lips. For graduates of the time of Croom, Edinburgh still contains many friends—but the chiefs are going. Croom's place among them is an enviable one.

were rendered to the public directly, in the extensive inquiries which were made into such subjects as the adulteration of food, nursing in workhouses, and the cholera epidemics on the Continent. In each of these and in others the *Lancet* stepped into the place which should have been occupied by a public authority, and the very valuable work which was done served still further to increase the respect in which the paper was held by the lay public. For even the most frenzied antivivisector or antivaccinator could not detect in these activities any possibility of the grinding of a medical axe.

The retrospect of one hundred years takes in a wonderful period in which the transformation in surgical practice was at least as startling as that made in other branches of knowledge and in industry. It includes the whole of the Victorian age, at which it is just now the fashion to sneer, but which to many of us seems in many respects the greatest in our history. Looking back now from the vantage point of a century, there does not seem so very much difference between the surgery of Astley Cooper and that of Ambroise Paré, yet the author of an historical retrospect in 1824 confidently stated that "Surgery, operative surgery, has now nearly achieved all that can be expected from it." So many advances have been made in our time that we expect more of the future than did the writer in the *London Medical and Physical Journal*, and putting all that anaesthesia, antiseptic and aseptic surgery, and radiology have done on the credit side, we are not so confident of finality now as our forefathers were in the days when the great Sir Astley performed minor operations in his consulting room with the assistance of his footman, did not invariably remember to wash his hands between operations, and received the Prince Regent with blood-stained shirt-collar and cuffs. Imagination boggles at the attempt to realize what a prolonged major operation, such as a difficult lithotomy, then meant to the unfortunate patient of any class in society, and it is fortunate for us if we cannot conceive what were the sufferings of a patient submitted to operation in a public hospital, before death put an end to them, as it so often did.

The fortunes of innovations and improvements in surgery and medicine may be followed week by week in the pages of the *Lancet*, some quickly and widely accepted and some stubbornly opposed by the many and only advocated by the enlightened few, until the logic of facts carried conviction to all. We may also see some inventions, such as phrenology, extolled by many besides the editor of the *Lancet*, only to fade into insignificance as time proved their worthlessness.

Our contemporary has been fortunate in having as its editors the three generations of the family of Wakley, and the present occupant of the editorial chair, Sir Squire Sprigge, to whose practised pen we think that we may venture to attribute this masterly summary of the activities of a century which ought to find a place on the bookshelves of every medical practitioner. There is no other man living so well qualified for this task as the author of the *Life and Times of Thomas Wakley*, who has himself been a member of the staff of the paper for over thirty years and for fifteen years its editor. Fortunate it has also been in the groups of distinguished assistants whom its editors have from time to time chosen to assist and advise them. Their names are recorded in the supplement, and a consideration of them shows that with such support the *Lancet* must have deserved the success to which it attained.

THE USE AND ABUSE OF OBS FORCEPS.

The Annual Meeting of the British Medic tion in Portsmouth was the occasion of n esting and important discussions, but perha calculated to interest a wider section of the than that on the use and abuse of obstetr which was introduced by Mr. Comyns Ber Dr. J. S. Fairbairn, both well known to midwifery and gynaecology. In dealing "abusive" side of his subject Mr. Comyns dealt as faithfully with his colleagues in the schools of this country as with the practitio neither the one section of the profession nor can justifiably resent his criticism, although t not all entirely agree with his views. We this particularly, because a querulous note di to find its way into the discussion, and som general practitioners in his audience seemed to resent what they deemed a slighting jud A calm perusal of what Mr. Comyns Berkeley said will, we are confident, extinguish any such wherever it may have been generated, and selves we welcome the opportunity provided publication of his paper to record our cordial ap tion of his public spirit in calling attention to w believes to be bad in the teaching and in the p of present-day midwifery. It is quite true tha this is no less than the duty of the specialist subject—a duty owed alike to the public, to h leagues in the profession, and to his own conso But at the same time it always takes courage to such an indictment in public; and in the p instance this is particularly the case, because th no aspect of his work about which the general p tioner is more sensitive of criticism than his midw A shrewd element of truth lurks in the epigram statement of an eminent obstetrician, now re that "every practitioner regards himself a specialist in midwifery." It is merely one wa stating the obvious fact that in midwifery the ge practitioner does, and is expected by the general pu to tackle single-handed emergencies and diffi operative deliveries, the equivalent of which in gen surgery or in medicine would appear both to him to his patients to call unequivocally for the specialis services in private or in hospital.

Such is the prevalence of the use of forceps in m wifery to-day, and so wide is the range of conditio which, justifiably or unjustifiably, may be claimed indications for the operation, that a discussion on th subject is bound to be discursive and to range ov almost the whole subject of practical midwifery. Th root causes of the abuse of forceps are to a larg extent the same as the causes of bad midwifery i general, and of the persistent puerperal mortality from which we suffer. They are to be traced not only to the imperfections of teaching, the lack of ante-natal care, and the lack of skill or judgement on the part of an individual practitioner; they are entangled with the economic aspect of midwifery amongst the industrial and poorer sections of the populace, and with the ignorance on the part of the public as to the conditions necessary for the safe delivery of a woman. We are rather surprised that more emphasis has not been laid upon the economic aspect of the case. For no part of his work is the practitioner less adequately paid than for his midwifery, and it is surely no reflection upon the profession to suggest that if more appropriate fees were forthcoming more time and attention would be

lieutenant-colonel in 1917, was transferred temporarily to the non-effective list, on account of ill health, in September, 1920, and retired in July, 1921. Soon after joining he served in the China war of 1900, and took part in the relief of Peking, receiving the medal with clasp. He then joined the political department, and successively held the posts of Residency Surgeon in the Persian Gulf, at Bushire, and as Agency Surgeon of Deoli, and subsequently of Kotah and Jhalawar, in Rajputana. At the beginning of the recent war he rejoined for military duty, serving from November, 1914, to March, 1916, as medical officer of the 106th Hazara Pioneers, when he took part in the operations in Baluchistan in June and July, 1915. From March to May, 1916, he served in the Indian Expeditionary Force in Mesopotamia, and from the middle of 1916 in the operations in Persia, as senior medical officer of the Shiraz Column.

Surgeon Captain Edward Dominic Joseph O'Malley, R.N. (retired), of Southsea, died suddenly at Haslar Hospital on September 20th, aged 51. He was the son of the late Deputy Inspector-General O'Malley, R.N., and was educated at Middlesex Hospital, taking the M.R.C.S. and L.R.C.P.Lond. in 1895. Entering the navy as surgeon in 1897 he attained the rank of surgeon commander on May 25th, 1911, and retired with the honorary rank of surgeon captain on August 13th, 1922. He leaves a widow but no children.

Medical News.

A DISCUSSION on the use of insulin in general practice will be held by the Section of Therapeutics and Pharmacology of the Royal Society of Medicine on Tuesday, October 9th, at 4.30 p.m. The subject will be introduced by Professor H. Maclean, Dr. George Graham, and Professor J. J. R. Macleod of Toronto.

THE annual general meeting of the West Kent Medico-Chirurgical Society will be held on Friday, October 12th, at 8.45 p.m., at the Miller Hospital, Greenwich, S.E.10. Clinical cases will be shown by Mr. Willmott Evans, Mr. C. A. Joll, Dr. H. Nockolds, D.S.O., and Dr. H. Pritchard.

IN order to further the study and teaching of dermatology in London a comprehensive scheme of co-operation has been completed in connexion with St. John's Hospital for Diseases of the Skin. The teaching will be carried out at St. John's Hospital in Leicester Square, under the auspices of the London School of Dermatology; it will be conducted by the honorary medical staff of the hospital, together with the physicians in charge of the dermatological departments of the twelve London hospitals with undergraduate schools attached. Full details will be published later, but in the meantime attention may be drawn to the announcement which appears in our advertisement columns of lectures to be given on Tuesdays and Thursdays at 5 p.m. during the winter session.

THE sixth congress of the Spanish Association of Urology will be held in Madrid, under the presidency of Dr. Barragán, from October 17th to 20th. The subjects to be discussed are: Hypogastric cystoscopy, introduced by Dr. Camiña of Bilbao, and indications for operation in reno-ureteral lithiasis, introduced by Dr. Miraved of Madrid.

THE thirty-second French Congress of Surgery will be held in Paris from October 8th to 13th, with Dr. Témoin as president. Drs. Jeanbraut and Pauchet will open a discussion on blood transfusion, Drs. Bégouin and Savariaud on the surgical treatment of genital prolapse, and Drs. P. Mathieu and Villaret on non-calculous obliterations of the chief biliary passages. Further information may be obtained from the secretary of the congress, 12, Rue de Seine, Paris (VI).

THE annual health week of the Deptford Borough Council is being held this week in the Borough Hall, New Cross, concluding on Friday, October 5th. The programme includes lectures, infant consultations, and two films dealing with public health subjects; there are also numerous stalls exhibiting infant foods, model meals, model garments, and so forth.

THE fourteenth congress of the Italian Society of Orthopaedics will be held in Rome on October 23rd, when a discussion on the treatment of long-standing irreducible dislocation of the hips will be opened by Professor Gazzotti. There will be a discussion also on articular rheumatism in infancy, introduced by Professor Cattaneo. Further information can be obtained from the secretary, Clinica Ortopedica, Policlinico, Rome.

THE legislatures of the States of Washington and Oregon recently passed laws prohibiting the manufacture and sale of margarines containing vegetable oils, but trading interests in both States have succeeded in getting the laws suspended until November, 1924, when they will be submitted to a referendum.

THE Royal Medical Benevolent Fund (11, Chandos Street, London, W.1) has received from Sir Thomas Barlow a donation of £300, which has been invested for the benefit of the annuitants.

SIR ROBERT JONES, who is chairman of the Central Committee for the Care of Cripples, addressed a large meeting of voluntary workers among the 9,000 cripples on the register of the Shaftesbury Society and Ragged School Union at the John Kirk House, John Street, Theobald's Road, London, on September 28th, with Dr. T. N. Kelynack in the chair. Sir Robert Jones emphasized the need of a national scheme for dealing with the hundred thousand juvenile cripples in this country, and illustrated from the organization already in being in Shropshire and Oxfordshire the kind of provision that is possible on a national scale.

THE Lancashire Insurance Committee recently discussed a proposal to assist M. Spahlinger of Geneva to proceed with his production of serums and vaccines for the treatment of tuberculosis. It was recorded that in May last a deputation from the Committee visited the Ministry of Health to seek approval for a grant of £1,000 to be made for this purpose out of the local General Purposes Fund. Dr. H. F. Oldham of Morecambe challenged a statement that the medical profession accepted the Spahlinger treatment as effective. The proposal that a subcommittee should go to Switzerland to investigate the financial position was defeated by 13 votes to 10, and a motion that the whole matter be referred back was carried.

THE Right Hon. Sir William Joynson-Hicks, Bt., M.P., Minister of Health, has appointed the Lord Erskine, M.P., to be his parliamentary private secretary, Mr. Douglas Veale, of the Ministry of Health, to be his private secretary, and Mr. H. Nevil Rucker, of the Ministry of Health, to be his assistant private secretary.

THE annual dinner of the Chelsea Clinical Society will be held at the Café Royal, Regent Street, on Tuesday, October 30th, at 7 for 7.30 p.m. The honorary secretary is Dr. P. Seymour Price, 41, Sloane Gardens, S.W.1.

THE Chalmers gold medal for the best work on tropical medicine by investigators under the age of 45 has been awarded to Dr. Rouband, general secretary of the Société de Pathologie exotique of Paris.

PROFESSOR BERGONIÉ of Bordeaux and Dr. Calmette, sub-director of the Paris Institut Pasteur, have been nominated Grand Officers of the Legion of Honour.

DR. BELA SCHICK, who invented the well known test for diphtheria susceptibility, has been made an extraordinary professor of pediatrics in the University of Vienna.

AT the meeting of the French Association of Urology in Paris on October 10th, when Professor André of Nancy will preside, the chief subject for discussion will be the treatment of gonorrhoea by serotherapy and vaccinotherapy.

THE Berlin Medical Society has closed its library owing to financial stress.

THE Chartered Society of Massage and Medical Gymnastics is holding its annual congress on October 4th, 5th, and 6th. The proceedings opened at the Wigmore Hall on Thursday morning, when Professor G. Elliot Smith delivered a lecture on "Muscles and nerves." In the afternoon Dr. Bellis Clayton gave a demonstration at King's College Hospital, and in the evening Mr. A. S. Blundell Bankart gave a lecture on "Scoliosis." On Friday lectures will be delivered at the Wigmore Hall by Dr. G. H. Hunt and Professor F. R. Fraser, and Miss Driver will give a demonstration of eurythmics at the Northampton Polytechnic Institute at 3 p.m. On Saturday Sir Alfred Fripp will give a lecture at 11 a.m. at the Wigmore Hall on "The knee-joint."

THE chief subjects for discussion at the meeting in Paris on October 12th of the French Society of Orthopaedics will be pes cavus, opened by Dr. Laroyenne of Lyons; cysts of bone (omitting hydatid cysts), opened by Dr. Roederer of Paris; and congenital elevation of the scapula, opened by Dr. Delchef of Brussels.

THE *Journal of the American Medical Association* states that approximately 10.6 per cent. of the graduating classes of 1920 and 1921 at the United States Naval Academy failed to attain the minimum height for officers of 5 ft. 6 in., and an attempt was made to stimulate growth in a group of undersized midshipmen, who volunteered for the experiment, by endocrine therapy. The conclusions arrived at by Captain D. N. Carpenter and Lieutenant D. Ferguson, of the United States Navy, were as follows: growth is not stimulated by thyroid and pituitary therapy in persons at or near maturity; preparations of anterior pituitary extract appeared to be inert as growth stimulants in these men, when administered orally; there is possibly an appreciable percentage of thyropenia in the United States.

parts of the country and all classes of the community. Nothing is more obviously a weakness of the present situation than that practitioners should be expected, and should indeed be compelled, to do obstetric operations in circumstances and surroundings that would paralyse the activity of a general surgeon. Thirdly, there is the importance of greater reliance on what Dr. Fairbairn called the "first line of defence"—the natural efforts—and the observance of "the test of labour" in all primigravidae. Fourthly, we would specify in particular that the forceps should never in any circumstances be applied until the cervix is fully dilated. We believe that if this one rule were observed strictly Mr. Berkeley's ground for complaint would be diminished almost to vanishing point. Never is brute force to be used. If it prove really necessary the case is not properly one for forceps delivery. Gone are the days when an obstetrician could afford to boast of the very small pelvis through which he had dragged a moribund infant. To be faced with the alternative of extracting such a child by brute force through a pelvis which is bound to be seriously bruised and lacerated or of performing craniotomy on the living child is often the fate of a practitioner in the country, or in urban districts where hospital facilities for the performance of Caesarean section are lacking. It sounds almost too idealistic to say that the time is surely coming when such a cruel dilemma will cease to present itself. But it is the case—provided we all religiously practise ante-natal examination and care, and preach the value of it to our patients and to the public, in season and out of season.

THE SCHOOL OF HYGIENE.

We have more than once commented upon the lengthy incubation period, now amounting to six months, which has followed the decision to proceed to the appointment of a director of the new School of Hygiene. Our contemporary, the *Medical Officer*, in its issue of September 15th, expresses an astonishment, which we share, at the delay. Other opinions expressed by our contemporary are, we think, less well grounded. Its opinion that the director should be "a practical man with a knowledge of research, with a broad outlook on hygiene, with imagination, tact, discretion, and a wide experience of men and affairs," will certainly be endorsed by all; but the inference that "the best and most up-to-date sanitarian of the English public health service is the only possible appointment which can be made to ensure the success of the school and command the confidence and support of public health officers in this country and abroad" does not follow, and even suggests some confusion of ideas.

The object of the School of Hygiene is certainly not to provide instruction in the technique of public health administration, any more than the object of a university school of jurisprudence is to teach the practice of the courts. Many years ago, in a criticism of English legal education, Walter Bagehot said that "the training for judicial legislation should be one of jurisprudence in the highest sense—of the jurisprudence which Burke must have been thinking of when he called it the 'pride of the human intellect.' It must be a knowledge of the reasons which make laws good or bad, eligible or ineligible in given cases. But no one will contend that such knowledge is now taught 'in chambers,' nor is it possible that it should ever be taught there." Bagehot argued that the qualities which enable a lawyer to succeed in practice might be wholly alien to those requisite in the good teacher, and we think he would have been surprised to hear that a successful barrister or even a popular judge would, on that account, be a suitable source of inspiration for a school of jurisprudence.

These considerations are fully applicable to the case of the School of Hygiene. That its director should have something more than the general knowledge of research possessed by medical officers of health in common with other educated men, that he should have acquired the more intimate knowledge only to be gained by direct participation in some form of research and necessarily rarely possessed by men actively engaged in public health administration, are paramount qualifications. If there is any English medical officer of health who possesses these qualifications and is willing to undertake the duties of directorship, his claims to consideration are very great. But we deprecate strongly any emphasis of the "practical" aspects of the matter. A school of hygiene which professed to manufacture sanitary administrators would be as great a laughing-stock as a school of jurisprudence which attempted to manufacture legal practitioners. It is the business of a university to teach principles. Those who have been well grounded in principles will profit by the practice of the world of everyday life, and become sound practitioners.

The ideal director of a university school is a man of principles in that sense. That he happened to be by training a bacteriologist, a chemist, or indeed a research worker in any department of human knowledge whatsoever, should not operate as a disqualification. It is the personality of the man himself, his breadth of mind and ideals, which are all-important. That these high qualities are to be found in the ranks of the English public health service we are proud to think is certain, but we are equally confident that they are to be found in all the other branches of the medical profession.

FREE DISTRIBUTION OF INSULIN IN ONTARIO.

The Provincial Board of Health of the Province of Ontario has issued a pamphlet[1] giving information regarding the free distribution of insulin in suitable cases of diabetes, arrangements having been made by the Board to supply insulin free to medical practitioners for patients in Ontario who are unable to pay for the drug themselves. It is emphasized in the pamphlet that the majority of patients suffering from diabetes do not require insulin, and can be better treated by dietetic measures alone, and, in order to determine the necessity for insulin, patients are whenever possible placed in a hospital for three weeks to determine the severity of the disease. In hospital it is advised that the following investigations should be carried out: estimation of the quantity of urine passed in twenty-four hours; examination of urine and quantitative determination of sugar in urine; blood sugar determinations. The patient should then be placed on a weighed maintenance diet calculated from the patient's basal metabolism rate, and examinations should be repeated daily to determine the power of carbohydrate utilization. Then, if insulin is required, the amount and the time of the doses should be scientifically worked out. While in hospital the patient should be taught how to weigh and prepare his diet; how to examine his urine; the symptoms and danger signals of his disease; how to administer insulin to himself; and the symptoms and treatment of overdose of

[1] *Insulin: Information for Physicians regarding Free Distribution of Insulin in Suitable Cases of Diabetes.* Ontario: Provincial Board of Health.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

250. Urticaria Pigmentosa.

C. W. FINNERUD (*Arch. Derm. and Syph.*, September, 1923, p. 344) reports a case of urticaria pigmentosa (nodular type), and summarizes the literature (308 cases in all). About 58 per cent. of the cases were males, 48.6 per cent. occurring during the first six months of life, and 24 per cent. after puberty; 64 per cent. presented the macular type of lesion, 9.4 per cent. the nodular, and 26 per cent. the maculo-nodular; and of those cases collected since 1905 5.5 per cent. were associated with vesicle and bulla formation, 7.7 per cent. being of the "xanthoma type." Three well marked types are usual—entirely macular, entirely nodular, and mixed macular and nodular. The chief features in the reported case were the small number of lesions, the nodules of which were soft mole-like in appearance, and only slightly pigmented. All the lesions appeared when the patient—a girl—was about 4 months old, with the exception of one of the right palm, and they all appeared within a few days of each other. The swellings remained distinctly red for three or four months, after which they began to change to a light brown tan colour, and so persisted with occasional itching, when they became swollen and pinkish. At 4 years old none of the lesions had disappeared, and some seemed to the mother to be increasing in size. The family history showed nothing of note and the child had always been well.

251. An Epidemic of Extra-genital Syphilis.

O. GRÜTZ (*Deut. med. Woch.*, June 15th, 1923, p. 782) gives an account of an epidemic of extra-genital syphilis among farm labourers in Holstein. A touring threshing machine was manned by 24 labourers, one of whom was cohabiting with a widow, who was subsequently found to be suffering from syphilis. None of the other labourers confessed to extra-marital relations. The labourers ate and drank from the same vessels, and one after the other suffered from a sore throat and other signs of syphilis. Altogether 13 of the 24 labourers developed syphilis, but only the labourer who cohabited with the syphilitic widow showed signs of an old chancre on the penis. It was instructive that though these labourers had consulted several doctors for their sore throats, the true nature of the disease was overlooked for a long time, and only gargles were prescribed. Vigorous treatment with salvarsan and mercury was instituted, and the response to this treatment was perfectly satisfactory, confirming the old observation that syphilis acquired by extra-genital infection is as amenable to treatment as syphilis acquired in the usual manner. The author suggests that his material is well worth following up with a view to ascertaining whether or not a single strain of the syphilitic virus possesses certain neurotropic peculiarities; for it has been suggested that tabes and general paralysis may be the result of a special strain of the *Spirochaeta pallida*, and this hypothesis would be strengthened either if none of the author's patients, or if most of them, were subsequently to develop syphilis of the central nervous system.

252. Rickets and Tetany.

H. B. MILLS (*New York Med. Journ. and Med. Record*, August 15th, 1923, p. 193) urges the importance of distinguishing between the two kinds of rickets arising from the disproportion between the amount of calcium or phosphorus in the system, in one (low calcium rickets) the calcium being low and the phosphorus normal or above, while in the other (low phosphorus rickets) the phosphorus is low and the calcium normal or above. The estimation of the blood calcium and phosphorus content is advisable, even at the risk of a day or two's delay in waiting for the laboratory report, a little over 10 mg. of calcium and 5 mg. of phosphorus to 100 c.cm. of serum being normal. While the administration of both calcium and phosphorus in all cases of rickets may be of use, the advantage of being able to give the maximum dose of the one that is deficient, and the minimum, if any, of the one that is normal or above, as ascertained by a laboratory test, is obvious. Heredity may occasionally be a predisposing causative factor, but in this connexion more weight attaches to prematurity. Tetany, which may occur apart from rickets, as when parathyroid insufficiency interferes with calcium metabolism, is due to low calcium content, and is therefore essentially a complication of low calcium rickets. The disease (rickets) occurs in both breast- and bottle-fed infants, so that diet alone is not causative, and breast milk should be given for the first nine months, supplemented by fruit juice after the fifth month. In the absence of breast milk certified cow's milk is best, but, failing that, recently prepared pasteurized milk should be given. Cod-liver oil, with calcium or phosphorus as indicated, is the only drug treatment, and syrup of calcium lactophosphate in drachm doses or 1/200 grain of phosphorus may be given. Good hygienic surroundings and exposure to the sun's rays should be aimed at, and in the absence of sunshine the ultra-violet rays are beneficial.

253. The Treatment of Migraine with Luminal.

J. STRASBURGER (*Klinische Wochenschrift*, August 20th, 1923, p. 1592) gives his experience of the treatment of migraine with luminal. He records in detail nine cases treated by this drug in the last two years. He concludes, from his experience, that continued treatment of migraine with luminal in a daily dose of 0.1 gram or a little less diminishes markedly the number and severity of the attacks. Improved general condition and increased activity are also observed. After discontinuing the drug, in course of time attacks of migraine again occur. Bad results were not observed when the dose mentioned was taken daily. An increase of the dose was not necessary. The drug was given in the evening in one dose of 0.1 gram, or half this quantity was given twice a day. During the luminal treatment many patients complained of a tendency to constipation, so that aperients had to be given from time to time. The action of luminal appears in migraine, as in epilepsy, to be specific. Other observers have also recommended it.

254. Chronic Acquired Trophoedema.

A. HENRY (*Paris méd.*, July 14th, 1923, p. 49) states that since 1898, when Henry Meige read his paper before the ninth congress of neurologists and alienists at Angers, all the dystrophic oedemas of unknown cause, but probably of nervous origin, have been grouped together under the name of "trophoedema." In some cases it is an isolated occurrence, in others it is hereditary and familial. Sometimes it is congenital. Acquired trophoedema, of which Henry records a case, may be a sequel of various infectious diseases, trauma, nervous disorders, or without any definite cause. The lower limbs are chiefly affected, as a rule on one side only. The upper limbs and face are rarely involved. It is easy to distinguish chronic oedema from acute cardio-renal oedema, phlebitis, cachectic oedema, or oedema due to tabes, syringomyelia, hemiplegia, or exophthalmic goitre. The diagnosis from elephantiasis is difficult, but can be cleared up by finding *Filaria bancrofti* or *loa* in the blood. The pathogeny is obscure. The condition has been attributed to disturbance of the sympathetic system or to endocrine disorder. Treatment consists in administration of a nerve tonic such as strychnine, arsenic, or sodium glycerophosphate, or pluriglandular extracts (thyroid, pituitary, ovarian, and suprarenal) associated with warm baths and massage. Henry's case was in a woman, aged 22, in whom trophoedema of the right lower limb developed at the age of 20, following an attack of erysipelas at 11. He attributes the condition to changes in the cells of the cord in the lumbo sacral region, due to the acute infection.

255. Prophylaxis of Measles by Serotherapy.

G. SALOMON (*Deut. med. Woch.*, August 31st, 1923, p. 1151) notes that according to official returns the mortality from measles in Germany in the first quarter of 1923 was five times as great as in the previous year. In a children's asylum in Berlin he has been confronted by the problem of preventing measles from spreading to young and ailing children. He was unable to obtain an adequate supply of the serum of convalescents, and he was therefore obliged in many cases to fall back on the serum of adults who had contracted measles in childhood. The following observations suggest that this serum is almost as valuable in aborting an attack of measles as is the serum taken from a child in the stage of convalescence. At the asylum there were 193 infants over the age of 3 months. Infants under this age were not included in this investigation because they are comparatively immune to measles. The 193 infants were classed in three groups: The first included 60 infants who were given no prophylactic treatment; the second group included 62 infants given prophylactic injections of the serum of convalescents; the third group included 76 infants who were given prophylactic injections of the serum of adults. All three groups were exposed to infection, and every one of the

College of Surgeons of England) were all sound; he exhibited besides many specimens of the soil, the vegetation, and the mineral water, with analyses. Porto Santo is now accessible by fairly large steamers, but Dr. Grabham, who is now well advanced in his eighty-fourth year, accomplished the voyage of forty miles from Madeira in an open sailing boat during the night in safety and with satisfaction.

EARLY MEDICAL JOURNALS.

Everyone interested in the history of medical journalism who can read Italian will enjoy the scholarly article on the dawn of Italian medical journalism by Professor Castiglioni,[1] the well known medical historian of Trieste, to whose fascinating study of Benvenuto Cellini we have drawn attention (March 10th, p. 433). Although primarily concerned with the history of early Italian medical journals, the article contains several instructive facts relating to the origin, not only of medical and scientific journals, but also of the lay press. The first newspaper, as we pointed out in "Nova et Vetera" on October 28th, 1922, page 808, was due to the initiative of a medical graduate of Montpellier named Théophrastus Renaudot, who published the first number of his *Gazette* on May 30th, 1631. The first scientific journal in which medical articles appeared would seem to have been the *Journal des Sçavans*, which was published in 1665, a few months before the *Philosophical Transactions*, the organ of the Royal Society of London, first appeared. The earliest journals devoted exclusively to medicine had only a short existence. In 1679 the empiric Nicolas de Blegny started the *Journal des nouvelles découvertes sur toutes les parties de la médecine*. It continued publication for only three years, when the editor, as the result of accusations of ignorance and immorality brought against him by the Paris Faculty of Medicine, was thrown into prison. The first medical journal to be published in England, *Medicina Curiosa*, appeared in 1684, but it had an even briefer span of life; Germany's first medical journal, entitled *Der patriotische Medikus*, survived from 1724 to 1726. The first Italian medical journal, *Giornale di medicina*, was published at Venice in 1726. It was issued weekly, and consisted of eight quarto pages; it was in two parts, the first containing reviews of the principal foreign journals, and the second articles by Italian medical writers. It ceased publication in 1781, and two years later another appeared entitled *Giornale per service alla storia ragionata della medicina di questo secolo*, which lasted until 1795. Dr. Castiglioni devotes a special section of his article to the account of a journal which was published monthly at Trieste by Benedetto Frizo, a well known physician and writer, under the name of *Giornale medico e literario di Trieste*. Its interest, however, lay less in its medical importance than in the fact that it represented an independent expression of Italian thought in spite of Austrian repression. With the beginning of the nineteenth century Italian medical journals began to assume a greater importance and enjoy a wider circulation than before. The *Giornale della Societa Medica-Chirurgica di Parma*, which first appeared in 1806 and lasted till 1815, occupied a very important position in Italian medical literature. It was published monthly and consisted almost entirely of signed original articles. Dr. Castiglioni gives the following statistics relating to medical journals in recent years: At the end of 1913 the total number in existence throughout the world was 1,654, of which 630 were American, 461 German or Austrian, 268 French, 152 British, 75 Italian, and 29 Spanish. Dr. H. O. Hall, director of the Surgeon-General's Library at Washington, calculated that the number fell from 1,895 in 1916 to 1,240 in 1921, so that the war was responsible for a reduction in the number of medical journals by about a third.

[1] *Archeografo Triestino*, vol. x della iii serie. Trieste: Tipografia del Lloyd Triestino. 1923. (6½×9½, pp. 40; 6 plates.)

BIOMATHEMATICS.

We think it was no less a man than Sir Francis Galton who, having occasion long after his school days to study some properties of an ellipse, was a little disheartened by the mass of information presented in a textbook of conic sections. Certainly smaller men, intrigued by the mathematical notation of so many physiological, biochemical, and medico-statistical papers, who have consulted the school books of their sons, have experienced even more disappointment than Galton, who had a first-rate mathematical brain. Many attempts have been made to explain to grown men the notation of mathematical methods, but we are not acquainted with any work which covers so wide a field as Dr. W. M. Feldman's *Biomathematics*.[1] Dr. Feldman does not attempt to teach mathematics *sensu stricto*, and he refrains from the logically rigorous demonstration of various fundamental theorems. What he does is to explain the notation and to illustrate each symbolic process upon a concrete example likely to interest a medical reader. Many of the examples are themselves of considerable biomedical interest; hardly any—except perhaps those of animal mechanics—are so much simplified as to remind one of the immortal very small elephant whose weight might be neglected. The concluding chapter, on biometrics, is based upon Caradog Jones's textbook, and some sections of it are rather beyond the scope of readers not specially interested in mathematical statistics. In his luminous introduction Sir William Bayliss uses the following words: "The variety of knowledge that the physiologist, for example, has to call to his aid is so vast that he really cannot spare the time to master these textbooks [that is, regular textbooks of mathematics]. The present work seems to me to have succeeded in giving just what is likely to be useful." The book is not, of course, easy reading: the inherent difficulties of the subject are considerable, but Dr. Feldman has taken great pains to reduce difficulties to a minimum. The preparation of such a book as this must have been difficult and laborious. We hope that the medical profession will profit by the author's labour. He has really left no excuse for the neglect of scientific papers employing mathematical notation by those educated men who sometimes almost seem to boast that they cannot understand "mathematics."

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

The St. Andrews Institute for Clinical Research, founded by Sir James Mackenzie five years ago, has in that period accomplished a great deal of valuable research work in clinical medicine, much of which has been reported by Sir James Mackenzie and his fellow workers in our columns. The latest instance is the essay by Professor Herring on the regulating and reflex process, the first part of which is published in our issue of this week. The Institute occupies two large houses looking out on the North Sea on the further or eastern side of the famous golf links. As he has himself recounted in this Journal, Sir James Mackenzie has succeeded in enlisting the active co-operation not only of most of the scientific staff of the University of St. Andrews, but also of many medical practitioners in the town and district. Patients are seen at the institute, researches are carried out, and elaborate notes kept. Visiting practitioners are welcomed, and Sir James Mackenzie gives frequent informal talks about what has been found out, and

[1] *Biomathematics. Being the Principles of Mathematics for Students of Biological Science.* By W. M. Feldman, M.D.Lond., F.R.S.E. Introduction by Sir W. M. Bayliss, M.A., D.Sc., LL.D., F.R.S. London: C. Griffin and Co., Ltd. 1923. (21s. net.)

pain in the epigastrium, low acidity, marked emaciation, and history or evidence of luetic infection, and a good result with specific treatment. The patient is usually under the age for carcinoma, and the course is often over a period of years. The *x*-ray findings were usually much like those found in carcinoma, with signs of obstruction and filling defects. J. W. Larimore also contributes a paper on this subject in the same journal (p. 133). He finds that gastric syphilis has no characteristic clinical picture. A clinical course unlike that of the suggested disease gives the clue; the diagnosis in large part is made by exclusion. The presence elsewhere of other signs of syphilis is a very large support to the diagnosis, and when they are absent care must be taken in making that diagnosis. Successful medical treatment is diagnostic only in early gastric syphilis. Restoration to normal cannot be expected in well advanced cases. Surgery is indicated in late cases with permanent impairment of the gastric motor function; it is indicated by the clinical course and *x*-ray findings. Resection of the pre-pyloric part of the stomach is the preferred operation, and appears to give good results.

Radiology and Electrology.

262. Radiography in Gall-Bladder Disease.

A. W. George (*Arch. of Radiol. and Electrotherapy*, July, 1923, p.33) points out that in the early days of gastro-intestinal radiology, when studying the duodenum by the plate method shadows were occasionally found either distinctly due to gall stones or very suggestive of such a condition. It was found after a time that these shadows might in some cases be due to the condition of the gall bladder itself. Speaking generally, the normal gall bladder cannot be demonstrated, therefore the shadow seen in these cases was the gall bladder rendered visible due to some change within itself with or without gall stones. Kirkland has more recently obtained comparable results from the *x*-ray point of view. It was found that the normal healthy gall bladder did not cause pressure, so that it would outline on the barium mass. When the pressure deformity was obtained, it was almost conclusively due to disease of the gall bladder. The effect of the gall-bladder pressure is exercised upon the first part of the duodenum in both the antero-posterior and lateral diameters. This pressure effect may be found with or without the presence of adhesions between the gall bladder and the duodenum. The author concludes that the stomach, when in either the prone or lateral position, cannot in certain circumstances push to one side a gall bladder in close approximation to the duodenum. The second important structure involved is the second portion of the duodenum, and its position has great significance in the diagnosis not only of gall-bladder disease but of other conditions. Pressure upon the antrum of the stomach will occur as frequently as pressure deformity in the first part of the duodenum, whilst another observation of the value is transposition of the jejunum from its normal position, from the left to the upper right quadrant. An observation not of quite such definite value is the filling of the ampulla of Vater. If the ampulla can be shown throughout a series of plates full of barium, it is significant of two conditions, gall-bladder disease or disease of the pancreas. The change in position of the proximal portion of the transverse colon is of considerable importance. It may form a secondary hepatic flexure and may be the only diagnostic sign pointing to the gall bladder. There is, therefore, considerable evidence to help towards the diagnosis of a pathological gall bladder or stones, besides the visible gall bladder. A series of excellent radiograms are shown to illustrate the above points.

263. Interpretation of the Normal Shadows of the Roots of the Lungs.

L. Delherm and R. Chaperon (*Journ. de Radiol. et d'Électrol.*, July, 1923, p. 329) find that there is still much uncertainty among well known writers on this question. The views held are that these shadows denote (1) opacities in the bronchial tree, (2) a vascular origin, (3) opacities in both vessels and bronchi, (4) a lymphatic origin, most frequently due to chains of enlarged glands. Moreover, the descriptions of "normal" shadows differ widely. Delherm and Chaperon consider that the anatomical relations and landmarks have been insufficiently studied; these differ widely in normal subjects. They agree that the hilus shadow scarcely exists in the cadaver and little resembles that seen in the living subject, nevertheless they have injected opaque substances successively into (1) the pulmonary arteries (through the inferior vena cava), (2) the trachea and bronchi, and (3) the pulmonary veins (when possible) through the abdominal aorta. They have taken numerous skiagrams of these cadavers in various planes and find that: (*a*) The superior vena cava is always visible, and has been hitherto mistaken for the ascending aorta. (*b*) The pulmonary arteries produce opaque shadows, and are always visible in the normal living subject; they form the greatest part of the normal hilus shadow. (*c*) The trachea and larger bronchial tubes yield clear images in which certain segments may be seen in normal subjects. (*d*) The pulmonary veins—scarcely visible in young subjects—contribute only slightly to the production of the shadow; in old age and in cardiac disease their appearance may modify the form of the hilus. (*e*) The vascular network, and especially the interlacing of veins and arteries, may superimpose small opaque shadows like a vertical string of beads, disappearing when the subject turns slightly in an oblique direction. (*f*) The arterial shadows cannot be homogeneous, the larger bronchial tubes cross their direction, and their clear image tends to diminish the opacity of the pulmonary arteries. The authors describe three types of thorax—the normal, elongated (with vertical heart), and the large (with transversely placed heart). Six diagrammatic plates illustrate the changes in the anatomical relations found in these varying thoracic types, and in changes of position. It was found that normal lymph nodes are quite as invisible as those in other regions, but any pathological changes accompanied by periadenitis modify considerably the form and size of the hilus shadow. The arteries are not distinctly seen; they are blended in a more or less soft shadow which merges in that of the heart. There is no doubt that the extremely close vascular network has been interpreted too often as a sign of sclerosis, fibrosis, or again as the evidence of bacillary lesions. The vascular crossings have been mistaken for small calcified nodules. The differential diagnosis may be made by observing the displacement or disappearance of the shadows when the patient's position is changed.

264. X Rays in the Diagnosis of Diseases of the Pancreas.

Oscar Gross (*Klinische Wochenschrift*, July 16th, 1923, p. 1346) observes that diagnosis of pancreatic disease is usually difficult on account of the rarity of symptomatic pain and the anatomical position of the pancreas. The use of bismuth meals in conjunction with *x* rays will often show extensive displacement of the stomach, duodenum, etc., by pancreatic cysts or solid tumours. Observations upon the motility of the stomach and duodenum have been made by Eisler and Kreuzfuchs in a case of cancer of the pancreas. Stierlin attaches great importance to the appearance of duodenal stenosis or distortion, due to the pressure of a pancreatic growth. Several authors have described the formation of numerous duodenal diverticula due to pancreatic sclerosis, resulting from chronic inflammation. Gross describes the mechanism of the production of these diverticula, and states that the ampulla of Vater is sometimes involved in the process. It is probable that the mechanical obstruction produced by the increasing pressure of a pancreatic tumour on the duodenum leads to chronic infective changes in these diverticula, and later in the pancreatic ducts and parenchyma, but the relation of chronic pancreatitis to cholelithiasis is not so clear and is denied by some authors. Püschel has classified the characteristic changes produced by the fibrotic contraction following chronic pancreatitis thus: (1) formation of small prominent stomach shadows; (2) flattening of the lesser curvature; (3) production of changes simulating gastric carcinoma; (4) compression and displacement of the duodenum; (5) compression of the transverse colon. The differential diagnosis of pancreatic tumours is also difficult and skiagrams do not assist; when a tumour has been growing for a year or more without the appearance of dangerous symptoms it is probably cystic. Gastric and duodenal ulcers sometimes play an important part in the production of pancreatitis, either by adhesions or by the extension of an infective process.

Obstetrics and Gynaecology.

265. Uterine Fibromyomata.

P. E. Truesdale (*Boston Med. and Surg. Journ.*, July 19th, 1923, p. 97) reviews the end-results of 300 cases of fibroids on which he has operated since 1906. The total mortality was 1.4 per cent., and it is interesting to note that only 2 per cent. were associated with malignant changes in the uterus, and also that no occurrence of cancer in the cervical stump took place in any of his cases, which leads the author to advise a supravaginal hysterectomy and not a panhysterectomy, as more patients would die from the increased scope of the operation than from the chance of cancer in the remnant stump. Among the married women 27 per cent. were sterile, and among all cases 8 per cent. were found to have gall stones.

Let me warn you that you will not see in private practice the same sort of cases which you meet with in hospital. In a great hospital you have gathered together persons afflicted with severe and pronounced disease and cases which, from their nature and environment, are beyond the possibility of proper treatment by the outside practitioner. In industrial districts and mining areas such cases are more frequent, but if your lot should be to look after the well fed, well clothed, well housed sections of the community you will be surprised at the small proportion of cases of really serious illness you will be called on to attend. Being familiar with all the grave manifestations of disease which you meet with in the wards, you will be able to go with exceeding confidence into a house, in the sure and certain faith that whatever you may there find cannot be worse than that which you have habitually seen treated here. But above all things, never forget to carry with you into your private practice that habit—the most important of any you may acquire in hospital—the habit of always examining and noting the condition of every organ in every case. A very large proportion of the mistakes made are due not to any lack of knowledge or skill but solely to the fact that one or more important organs have not been carefully passed under review.

Cultivate at all costs that which, wanting a better term, I will call your clinical instinct. Make your diagnosis with your brains, your eyes, your fingers, and your ears; and then bring in your machinery to confirm or disprove your findings. Of late years I have noticed that many men are chary of expressing an opinion, even upon a fairly obvious case, until they have made the way plain before them by laboratory tests and instrumental assistance. To use the invaluable methods of modern research in this fashion is to degrade them to the function of crutches, whose constant use will enfeeble your intellectual muscles and doom your independent perceptions to atrophy. Times without number you will find the eye, the finger, and the stethoscope, used with a trained clinical intelligence, beat the test tube, the *x* ray, and the swab.

At all times be very gentle with your patients. The heaviest-handed and kindest-hearted physician that ever went round the wards of this hospital, what time he severely pounded an extremely tender and sensitive abdomen thus exhorted the students standing round: "Never excruciate your patient; you can find out all you want without excruciating your patient; never excruciate your patient." The particular victim in this case had the gift of humour and fully appreciated the precept and the example. Take great pains to make an invalid as contented as possible; let the yoke of your restrictions be as easy and the burden of your directions as light as the exigencies of the case will allow. The bed of sickness is not the bed of Procrustes; you must fit the bed to your patient, not your patient to the bed. The drastic drugs which are the salvation of a navvy are anathema to a thin-skinned, fair-haired, blue-eyed girl. Never prescribe for a person until you have shaken hands with him and thus assured yourself of the texture of his skin; and in speaking of treatment let me remind you that year by year you will see the rise and follow the decline and fall of many loudly vaunted remedies. It will be your lot to watch an endless procession of fetishes, each one surviving until pushed out of the limelight by its successor. In the morning they flourish like a green bay tree; in the evening they are cut down, dried up, and withered.

"Truditur dies die,
Novaeque pergunt interire lunae."

In the course of your future work you are bound to come in contact with your fellow practitioners in many ways and on many occasions. In our profession we are extremely individualistic, and friction at times is inevitable. If you make it a rule to put yourself in the other man's place, and act as you think he should act towards you, fighting will be at a discount and ethical rules superfluous. Should you ever hear from a lay person that a doctor has given some extraordinary opinion, don't believe it. A dear old friend of mine once asked me whether it was possible that a certain person had some fearful and wonderful disease. I replied, "No." "But her doctor told her so," she said. I told her that no doctor could have told her such a medically and surgically ludicrous thing. "But," she insisted, "So-and-so distinctly told me that was what her doctor said." My reply finished the discussion—"I am quite sure he did not, for I am So-and-so's doctor."

In whichever branch of your profession you finally practise you will make lifelong friendships. You will acquire merit where you deserve blame, and blame when worthy of praise. For those of us whose lot, sooner far than later, will issue from the Urn—whose lancet, like the arms and war-weary lute of Horace, will soon be laid aside—the time is at hand when we must humbly hope that we may say, with him, "Militavi non sine gloria."

ST. MARY'S HOSPITAL.

The commencement of the winter session at St. Mary's Hospital Medical School, on October 1st, was signalized by the holding of the annual dinner of past and present students that evening at the Connaught Rooms. The chairman, Mr. V. Warren Low, C.B., senior surgeon at the hospital, was supported among many others by Mr. H. J. Waring, Vice-Chancellor of the University of London; Mr. A. R. Prideaux, Chairman of the Hospital Board; Surgeon Rear-Admiral J. Chambers, the new Medical Director-General of the Royal Navy; Lieutenant-General Sir William Leishman, F.R.S., Director-General A.M.S.; Air Commodore David Munro, Medical Administrator R.A.F.; Sir Leonard Rogers, Sir John Broadbent, Sir William Willcox, Mr. Ernest Lane, and the Mayor of Paddington. The chairman, in proposing prosperity to St. Mary's Hospital and Medical School, began his entertaining speech with a few personal reminiscences drawn from nearly forty years' association with the Hospital and its School. He remarked on the praiseworthy shortness of the toast list, observing that after-dinner speeches were often too much like sermons, and modern sermons too much like after-dinner speeches. St. Mary's, he said, could not claim antiquity; it had only reached the respectable age of 80 years, and must rather look more to descendants than ancestors for its traditions. Nevertheless, the Hospital had already been most fortunate in the distinguished line of physicians and surgeons who had devoted themselves to its service. Among those Mr. Warren Low mentioned in particular the Lane family, Dr. Cheadle, Sir William Broadbent, and Mr. Edmund Owen. The toast was responded to by the Chairman of the Hospital Board and the Dean of the Medical School. Mr. Prideaux in his reply was able to give a satisfactory account of the hospital's finances during 1922 and 1923; instead of heavy deficits as in the two previous years, the income now balanced the expenditure. None of the hospital wards were closed, but the problem of providing paying wards for persons of moderate means still awaited solution. Dr. C. M. Wilson, in his brief account of the fortunes of the Medical School, spoke first of the valuable work carried out in the teaching of the preliminary subjects. The success of the school, he said, must be based on its anatomical and physiological departments. The unit system was a great feature of the present-day clinical teaching, though this had meant the sacrifice of beds by other members of the medical staff. The students now numbered 400, but the difficulty of providing material for the instruction of so many had been largely met by the arrangements entered into by St. Mary's with the Paddington Infirmary, and more recently with Queen Charlotte's Hospital. The post-graduate course during the past summer had been most successful, and was attended by very large numbers, showing the appreciation felt for this work by old students. In response to the chairman's invitation, Dr. Milner Moore of Eastbourne, as the senior of the old students present and one of the founders of the annual dinner, told very briefly something of the origin of these annual gatherings in the late sixties. The concluding toast was the chairman's health, submitted in very warm terms by his friend and colleague on the Council of the Royal College of Surgeons, Mr. Waring.

An Address

ON

SOME CHANGES IN OBSTETRIC PRACTICE SINCE THE FOUNDATION OF THE MEDICAL SOCIETY OF LONDON.

DELIVERED BEFORE THE SOCIETY ON OCTOBER 8TH,

BY

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THE Medical Society of London was founded in 1773 at an important period in the history of British midwifery. The renaissance of midwifery occurred later in England than in Continental countries, and dated from the publication in 1651 of William Harvey's *De generatione animalium* with the chapter on "Labour," which was the first original English work on midwifery. The conservative principles and the observation of Nature which Harvey advocated had been carried on by a succession of teachers, of whom Smellie—one of the greatest obstetricians of all times and countries—had died only ten years before the Medical Society was founded; he was succeeded by William Hunter, Denman, Osborn, and others.

The practice of midwifery during the preceding century had been slowly passing into the hands of men midwives since Clément had been ennobled by Louis XIV and appointed "accoucheur" to Madame la Vallière in 1673. The advice of Harvey to imitate Nature, "who is a perfect operatrix," had been in the main followed by British obstetricians, who have always considered the interests of the mother superior to those of the child. This attitude, which is indubitably the best for cases where the pelvis and child are of normal dimensions, led to the death of many children and mothers when it came to be applied in cases of contracted pelvis. For cases of slight contraction the powers of Nature were often sufficient, aided by the "hanging-legs" position of the mother (Scipione Mercurio, 1595). Version (an ancient operation which had been revived by Ambroise Paré, and recommended by Harvey "when there is necessity for handiwork in the business") and forceps (invented by Chamberlen and greatly improved by Levret, Smellie, and Benjamin Pugh) proved unsatisfactory when serious contraction of the pelvis had to be dealt with. Experience has shown that these measures involve considerable risk to the mother and child; and the dreadful alternative, embryotomy, necessitates the sacrifice of the child.

It was just at this time that important advances were made in the study of the contracted pelvis. Smellie in 1754 had been the first to give a representation of the rickety pelvis. At the same time he measured the diagonal conjugate of the pelvis, and R. W. Johnson in 1769 published his method of direct measurement of the true conjugate diameter with the hand. In 1772 Stein published a description of his internal pelvimeter, and in 1775 Baudelocque described his instrument, which is still used for the measurement of the external diameters of the pelvis. Smellie's plates (published in 1754) and W. Hunter's *Gravid Uterus* (1774) raised the artistic representation of pregnancy and labour to the highest point of excellence.

Sir Fielding Ould, who was master of the Rotunda Hospital from 1760 to 1766, made the first observations on the entrance of the head into the pelvis and laid the foundations of the "mechanism of labour." He pointed out the danger of the high forceps operation in cases of contracted pelvis, invented an instrument (the "terebra occulta") for perforating the child's head, and stigmatized Caesarean section as "a detestable, barbarous, illegal piece of inhumanity." At this time, too, there was a great movement in the world towards the development of the special study of obstetrics. Lying-in hospitals and chairs of obstetric medicine were being founded, particularly in Italy. At Padua, where Harvey had studied, a chair of obstetrics was instituted in 1769. In Vienna extensive lying-in wards were being built in the Allgemeine Krankenhaus and were opened in 1784.

FIG. 1.—Jean René Sigault, who performed the first symphyseotomy (October 1st, 1777). (From a print in the library of the Royal College of Physicians.)

In 1786 Lucas Johann Boër (1751-1835) went to study in Paris under Baudelocque, Lauverjat, and others. After spending fifteen months in Paris he came in 1787 to England, where he studied under Denman, Osborn, Clarke, and Lowder. His travels in Great Britain, where midwifery was conducted on conservative, or at least expectant, lines—following the teaching of Harvey, Smellie, and W. Hunter—made a great impression on Boër: "he had learnt in France what art, in England what Nature, could do." He carried out his conservative principles while professor of the lying-in wards of the great General Infirmary in Vienna, which he raised to the first position in Europe. Boër held the chair of obstetrics in Vienna for thirty-three years. In 2,926 labours he only employed the forceps 19 times and perforated the head 8 times. He laid down very strict rules for the artificial interference with labour, insisting that this should only be resorted to in cases of necessity, and then in the gentlest and most suitable manner; "all artificial means apart from strict necessity are mere bungling, involving the risk of torturing and destroying mother and child." While Boër was in Paris he saw the patient Souchot, on whom Sigault had performed symphyseotomy: she was suffering many discomforts as a result of the operation—the uterus was prolapsed, the pubic joint was ununited, and there was incontinence of urine from a fistula.

On the Continent other attempts were made to solve the difficulty of the contracted pelvis by symphyseotomy and by Caesarean section, but the results of these operations were not such as to commend them to the British obstetricians.

LUCAS'S RESTRICTED DIET.

Measures directed towards the mother having proved unsatisfactory, an ingenious attempt to overcome the difficulty of labour in contracted pelves by procuring a small child by restricting the diet of the mother was made by James Lucas, surgeon at the Leeds General Infirmary. His paper was read before the Medical Society of London on

the dental school for studying medicine and surgery; it was hoped that they would go on to take the degree of practitioner of dental surgery of the University of London and that the majority of them would obtain a medical as well as a dental diploma.

Mr. H. J. Waring, having presented the scholarships, prizes, and certificates, addressed the students. He said that it had occurred to him that it might be useful to the students if he offered some remarks on the way in which they should arrive at their conclusions in the practice of medicine, and how it could best be ensured that those conclusions were the correct ones. If the conclusions were to be sound they must be based on accurate data. He laid stress first upon the intelligent use of the senses. The stethoscope revealed nothing except to the trained and discerning ear, and the finger of the physician or surgeon was itself an instrument so delicate and sensitive that he could not overestimate its services. On more than one occasion he had seen a medical student make a careful examination of an artificial eye and make a report on its optical capacity without discovering that it was not real. Why was Lister such a great force in surgery, and what was it that enabled him to revolutionize surgical practice throughout the world? It was his constant habit of patient observation. There was nothing he more emphasized in his teaching than the value of the observant eye. He was also very keen on the necessity for a thorough grounding in the preliminary sciences.

The general practitioner was concerned less with the prosecution of research than with immediate diagnosis and treatment, but this offered as great a sphere as any other for continuous and intelligent observation. The general practitioner had on occasion to make quick and important decisions under conditions of extreme difficulty, and the use of eye, ear, touch, and smell was of fundamental importance. Even the negative evidence of the senses could be of great use. It enabled certain possibilities to be ruled out, and the field of alternatives to be correspondingly narrowed. It remained for the mind to balance the evidence, sometimes apparently contradictory, of the senses. A small and insignificant difference in the initial data might prove of enormous consequence when it had to turn the scale in forming a conclusion. At the end of his brief address, Mr. Waring emphasized the value of logic and of carefulness in deduction.

Dr. Raymond Crawfurd moved a vote of thanks to the Vice-Chancellor, which was seconded by Sir Lenthal Cheatle.

LONDON SCHOOL OF MEDICINE FOR WOMEN.

The opening of the new session of the London (Royal Free Hospital) School of Medicine for Women took place on the afternoon of Monday, October 1st, when the inaugural address was given by Sir Humphry Rolleston, K.C.B., President of the Royal College of Physicians of London, on "The problem of success for medical women." The address is printed in full in the opening pages of our present issue. The audience included many members of the teaching and hospital staffs and a large number of past and present students. The report of the Dean, Dr. Louisa Aldrich-Blake, showed that there has been a decrease in the entry of students; the total number is now 438, of whom 53 have entered this session. The report drew attention to the ample opportunities for professional practice now open to experienced women, and noted with gratification the success of qualified students of the London School of Medicine for Women in obtaining appointments. The vote of thanks to Sir Humphry Rolleston for his address was proposed by Dr. A. G. Phear, Physician to the Royal Free Hospital, who remarked that a visit to the rowing, tennis, swimming, and social clubs in connexion with the school would show that the woman medical student knew how to play as well as how to work.

THE MEDICAL SICKNESS, ANNUITY, AND LIFE ASSURANCE SOCIETY.

The annual general meeting of the Medical Sickness, Annuity, and Life Assurance Society, Limited, was held at the offices of the company, 300, High Holborn, W.C.1, on October 1st, when Dr. F. J. Allan was in the chair.

The Chairman said that the members of the society co[illegible] congratulate themselves on the steady progress made dur[illegible] the year, as shown in the annual report, which had b[illegible] circulated. In the sickness and accident branch the number [illegible] policies issued was 353, an increase of 113 over the previo[illegible] year. During the year £19,072 had been paid out on account [illegible] sickness and accident claims, a decrease of £1,200 as compa[illegible] with the preceding twelve months.

In accordance with the resolution adopted at the last annu[illegible] meeting, bonuses amounting to £15,402 had been returned [illegible] members. Letters were constantly being received fro[illegible] members expressing their grateful thanks for the assistanc[illegible] which the society had rendered to them while incapacitated [illegible] for the sympathetic way their claims had been dealt with, fo[illegible] the absence of unnecessary restrictions, and for prompt settle[illegible] ment. Many of the letters expressed regret that so many [illegible] medical men did not take advantage of the excellent terms [illegible] offered by the society. Some of the applications for sickness [illegible] and accident policies were received through recommendations of [illegible] existing members, and the chairman urged all members to [illegible] assist by bringing the benefits of the society to the notice of [illegible] their friends, and to point out the advantages of being insured [illegible] in a society formed by and for doctors and dentists on mutual [illegible] lines.

The life assurance branch showed a gratifying increase of about 30 per cent. over the preceding year; the sum assured amounted to £77,950 net, which clearly showed that the profession was realizing the value of the policies which the society offered at such reasonable rates of premium. The claims through death were well within the expectation. Members were asked to study carefully the varied methods of life insurance set forth in the different tables in the latest prospectus, and the society was always willing to consider the wants of applicants who might desire some special form of insurance other than those shown in the tables. Over £5,000 was being paid out in annuities to members over 65, and it was expected that that amount would increase for some years. Only two annuities had been taken out during the year, but that was not a matter of regret, as, owing to the prolonged life of annuitants, annuity business was considered by many life assurance companies to yield little if any profit at the rates at present charged, which were based on experience of longevity as it existed forty years ago, when life was shorter than it was now. It was anticipated that the rates for annuities would be increased as the result of an investigation by a committee of actuaries, whose report was expected to be shortly issued.

The rate of interest earned on investments was £3 14s. 6d per cent. after deduction of tax, which was 3s. 6d. more than last year. The greatest care was always exercised in selecting securities of the best class.

In concluding his address the chairman said that the board desired to express its appreciation of the way in which the business of the company was conducted by the staff; he moved the reception of the annual report.

Dr. G. Porter, in seconding the adoption of the report, referred to the fact that when he joined the society the funds amounted to £75,000, whereas at the present time they had over £360,000. He considered that the directors had to be very much congratulated.

In reply to an inquiry the Chairman stated that about sixty women medical practitioners had joined the society.

The motion for the reception of the report, having been put to the meeting, was carried.

The next item of business was the election of two directors, and as Dr. F. J. Allan and Dr. W. K. Sibley had had to retire, but were eligible for re-election, Dr. Martley took the chair. On the motion of Sir William Willcox, seconded by Dr. Harvey Hilliard, the two retiring directors were re-elected. Dr. Allan thereupon reoccupied the chair.

Messrs. Harber, Sturges, and Fraser were reappointed auditors for the ensuing year.

With reference to a resolution adopted at the last annual general meeting granting extra remuneration to the chairman and directors, which had not been carried out since it was found that proper notice had not been given, it was now proposed by Dr. Campkin and agreed that remuneration in addition to that mentioned in Article 28 of the company's Articles of Association be paid to the directors as follows:

> To the chairman and each director the sum of £1 1s. for every attendance at the meetings of the board or of committees of the board and general meetings.

The following resolution, moved by Dr. D. Forsyth, was adopted:

> That with a view to carrying out the resolution passed by the last annual general meeting, a sum of £552 6s., in addition to the ordinary remuneration, be voted to the directors for their past services.

On the motion of Dr. Vinrace a hearty vote of thanks was accorded to Dr. Allan for his services in the chair.

girls to normal womanhood and motherhood, it is more in sorrow than in anger that I see the unpopularity of the operation with many foreign obstetricians and their failure to follow the three simple rules above enumerated, which are essential for success.

ANTISEPSIS AND ANAESTHESIA.

Before I proceed to consider Caesarean section for contracted pelvis it may be well to review the development of the antiseptic treatment which has revolutionized this and other operations.

In 1772 Charles White of Manchester published a *Treatise on the Management of Pregnant and Lying-in Women.* In this work White speaks of puerperal fever as a putrid fever which is contagious and arises from putrefaction of retained products or from the air of lying-in wards. White's contribution to the study and treatment of puerperal fever was an important one and has been dealt with very fully by Professor Adami in his Lloyd Roberts Lecture.

In 1843 Oliver Wendell Holmes published in the *Quarterly Journal of Medicine and Surgery* a paper on "The contagiousness of puerperal fever," in which he adduces strong evidence of the contagiousness of the disease and points out effective means of preventing it. He specially mentions changing the clothes and washing the hands with chloride of lime after visiting cases of puerperal fever; he reports that by adopting these precautions a doctor was able to attend other cases of labour which ran a perfectly normal course.

In 1846 Ignaz P. Semmelweis became assistant in the lying-in wards of the General Hospital in Vienna. From 1784 to 1822 these wards had been under the care of Zeller (1784-89) and Boër (1789-1822) and the mortality from puerperal fever had been 1.25 per cent. over the whole period. Under Boër's successor Klein medical students were allowed to practise anatomy and to dress suppurating wounds while attending cases of labour, and Semmelweis noticed that the mortality was much higher in the wards attended by the medical students than in those attended by the midwives. In the five years before Semmelweis's appointment the mortality in the students' wards had risen from 6.56 to 9.92 per cent., while that in the midwives' wards had fallen from 5.58 to 3.38 per cent.. Semmelweis adopted the method of washing the hands with chloride of lime, with the result that the rate of mortality fell from 8.3 to 2.3 per cent.

It is the undying merit of Semmelweis to have pointed out that puerperal fever arose not only from infection from corpses, but from any putrefying organic substances. What putrefaction was due to was shown by the researches of Pasteur in 1860, and Lister in 1867 gave to the world his antiseptic treatment, which laid the foundations of the modern aseptic surgery, by which the danger has been almost completely removed from operations which a few years ago were uniformly fatal.

The introduction of *anaesthesia* by means of ether (Morton, 1846) and chloroform (Sir James Simpson, 1847) was one of the greatest advances ever made in medicine. For prolonged operations I think there can be no doubt that ether is preferable; but in ordinary midwifery cases chloroform, administered *à la reine*, is still the best and safest means of alleviating the pains of labour, and it is excellent, administered until the child is delivered, in cases of the classical Caesarean section. The attempt to produce painless labour by the injection of scopolamine and morphine has not proved successful and is not free from danger to mother and child.

FIG. 2.—Headpiece of Sacombe's *Éléments des accouchemens* (1802) depicting Hercules destroying the Caesarean hydra.

CAESAREAN SECTION.

Caesarean section has always been interesting, and never more so than at the present day. The origin of the word "Caesarean" is unknown. On the supposed birth of Julius Caesar by means of this operation, based on an error in the translation of a passage in Pliny, Sacombe has given his opinion in the following terms: "Pliny was a lying historian whom it would have cost no more to split the belly of Aurelia with his pen in order to deliver Caesar than to split the rocks with vinegar to open up a way across the Alps for the troops of Hannibal."

The first volume of the *Memoirs* of the Medical Society of London contains a most learned paper in the form of a letter addressed to Lettsom on the character of Aesculapius. The writer of the letter describes the birth of Aesculapius by Caesarean section as mentioned in Ovid's *Metamorphoses*,

natum flammis uteroque parentis
Eripuit geminique tulit Chironis in antrum.

Despite these illustrious examples, Caesarean section attained but little popularity until the end of the eighteenth century, although it had been practised on the Continent, with only occasional success.

In England it was twenty years after the foundation of our Society—in 1793—that the first successful operation was performed on a living woman by Barlow of Bolton; the child did not survive.

FIG. 3.—Medal struck in honour of Edoardo Porro to commemorate the twenty-fifth anniversary of the performance of the first amputation of the uterus after Caesarean section (1876).

Ambroise Paré (1510-1590), having seen two Caesarean sections performed by his pupil Guillemeau, with fatal results to the mothers, was opposed to the operation: "Je ne conseillerai jamais de faire tel œuvre où il y a si grand péril sans nul espoir."

In 1581 Rousset had published the first work on the subject under the title *Hysterotomotokie.*

In 1595 Scipione Mercurio had recommended the operation. He had seen patients on whom it had been performed in Toulouse, where he said it was as well known as bleeding for headache. He gave an illustration of the operation and recommended that the incision should be made to the right of the middle line in order to avoid the spleen.

At the time our Society was founded there was a widespread desire amongst obstetricians to avoid the horrible craniotomy which at the end of the eighteenth century was performed frequently, especially in England. The most eminent of these obstetricians was Jean Louis Baudelocque. On the "17 ventôse de l'an iv" (1796) Baudelocque performed Caesarean section on a patient who had previously had a living child at term; the patient died three days after

Professor Currie had a distinguished career as a student in various universities. In 1891 he graduated M.A. at Edinburgh University, and thereafter proceeded to Lincoln College, Oxford, with a scholarship. He took a first class in classical honour moderations, and was presented to an exhibition. He graduated B.A. there in 1896, and M.A. in 1910. His medical education was obtained in Glasgow University, where, after a course of much distinction, he qualified as M.B., Ch.B. with commendation in 1898, and, in 1910, M.D. with high commendation. After a year's training in the Glasgow Royal Infirmary as resident physician and surgeon he took up medical practice in Birmingham, and while there he took the D.P.H. in that University. He returned to Glasgow and held a resident appointment in Belvedere Fever Hospital under the Glasgow Corporation. From this period his work has been confined to preventive medicine. In 1906 and 1907 he acted as M.O.H. for the counties of Stirling and Dumbarton in the absence of Dr. John C. McVail. Thereafter he held in succession similar posts in the city of Chester and in the counties of Fife and Kinross. In 1912 he entered the service of the National Insurance Commission in Scotland, where he remained, except for a period of three years' war service, till 1919, when he passed into the service of the Scottish Board of Health. In August of last year he was appointed Professor of Preventive Medicine in Kingston, Ontario. He has at various times contributed largely to medical literature, especially on public health subjects, and he is the author of several exhaustive reports on similar matters under Government departments. He was responsible for the history of medical recruiting in Scotland during the war, entitled *The Mustering of Medical Service in Scotland*, which was published in 1922, and reviewed in our issue of January 6th, 1923 (p. 24).

Ireland.

Ministry of Health in the Irish Free State.

Rising out of a discussion in the new Dail on the appointment of Ministers, Sir James Craig, M.D. (Dublin University), expressed much regret that nothing had been said about the creation of a Ministry of Health. The medical profession, at all events, had been looking forward with some hope that in the new appointments to be made in the present Dail a Ministry of Health would be among the ministries formed. He had not urged this matter very strongly because of the expense connected with it. It was not desirable to multiply the number of ministries, but, as he said on a past occasion, surely the health of the people was of more importance than the fish in the rivers and in the seas, for the protection and improvement of which a ministry had been established. It was generally realized, at all events, that they could not have a healthy population if the health of the people was not looked after, and he said deliberately that the public health of the country was in a very serious condition. Sir James Craig added that he was not going to press this matter at the present moment, because he felt like an orphan in that assembly. He was not going to press the President to add to his ministries that other Ministry of Public Health, but he was going to suggest that the Government should do the next best thing, and that a Public Health Department should be formed within the Ministry of Local Government, and that there should be a parliamentary secretary in the Dail who would be responsible for the Public Health Department of the Government. Sir James Craig then expressed his admiration for the work done as Minister for Local Government by Deputy Blythe, who had made himself thoroughly acquainted with the matters relating to the public health of the country, and proposed to introduce a Public Health Bill, which was one of the bills delayed owing to the work that the Government had to do before the dissolution of the last Dail. It would be a difficult matter to get a Minister able to follow in the footsteps of Deputy Blythe. Perhaps the President would give some encouragement by saying that the Government would form such a department within the Ministry of Local Government, and that some deputy would be responsible for public health matters in the Dail.

Mr. Ernest Blythe (late Minister of Local Government), in reply, said, with regard to the remarks of Deputy Sir James Craig, he thought it should be clear there could be no question of having a Department of Public Health and a Department of Local Government at the same time. The Department of Local Government was really, as far as it went, a Department of Public Health. Nearly all the activities of that department, except roads, were concerned with public health. Housing and the relief of the necessitous were really matters for a Department of Public Health. The medical charities or the provision of medical relief was also a matter for the Public Health Department. In the Ministries Bill, which it was not possible to bring before the Dail, he believed it was the intention that the name should be Department of Local Government and Public Health, and that the National Insurance Commission would come in under the department. It would then be merely a matter of choosing a name. It could be the Department of Health, or the Ministry of Health, or any other name that was suggested. It was intended really to give a substance to the Department of Health, with one or two functions added to it for administrative convenience.

Early Treatment of Mental Disorders.

In his report for the year 1922, Dr. S. J. Graham, medical superintendent of the Belfast District Asylum, emphasizes the value of early skilled mental treatment in hospital in improving the chances of recovery from mental disturbances. He remarks that the Lunacy Law, as applicable to Ireland and as at present framed, does not encourage early treatment. It is illegal to receive as voluntary boarders early uncertifiable, mentally afflicted patients, also certifiable harmless patients (who are willing to submit to such treatment) without certification. Dr. Graham maintains that if the lunacy laws were amended to meet such conditions, the stigma of certification, so much dreaded by patients and their relatives, would be removed. This would enable the patients to be advised and encouraged to submit to such treatment and so facilitate early recovery. He expresses his warm approval of the "Voluntary Boarders" section of the Mental Treatment Bill, recently introduced into the Imperial Parliament by Lord Onslow, and urges that all the privileges thus conferred should receive the attention of the Government of Northern Ireland, so that the mentally afflicted in Northern Ireland may receive the same benefits as those mentally deranged in England and Scotland.

Correspondence.

THE SOCIAL ASPECTS OF TUBERCULOSIS.

Sir,—In the course of an exceedingly interesting opening paper on "The social aspects of tuberculosis, with special reference to its infectivity," which appears in your issue of September 22nd, there occurs, on page 513, a statement which Dr. Jane Walker will probably pardon me for referring to. The point under discussion is the occurrence of massive infection and the bearing which overcrowding in smaller-sized houses has on the frequency of this. The sentence reads:

"Several points are emerging which seem to show that overcrowding even is not quite so responsible for cases of tuberculosis as we thought it was. For example, whether people live in one room or in six, as far as Glasgow is concerned, does not appear to make much difference in the incidence of tuberculosis."

I am not quite sure whether Dr. Walker has based this view on some statement in one of the annual reports issued by this department or on the rates contained in a paper on "The house as a contributory factor in the death rate," issued about ten years ago, but it may be well if I quote from both sources in order that they may be the more readily compared. The house distribution of the cases is taken from the notifications of 1920-23, while the death rates are calculated on a standardized house population as described in the paper on "The house, etc.," above referred to.

Finally, the writer of the article appeals for protection for women in childbirth against the ill judged enthusiasm of the untrained obstetrician.

It is evident that Caesarean section, which Sacombe thought he had put an end to in 1798, has shown marked evidence of revival, and his hydra has developed "heads" which were non-existent in his day. The performance of Caesarean section for cases of placenta praevia, accidental hemorrhage, malpresentations, and eclampsia is being overdone, though not to the same extent as for "contracted pelvis."

It is sad that such a beneficial operation as Caesarean section, which has been developed to such a pitch of perfection that a woman, however deformed, can be delivered with safety to herself and child, should be brought into disredit by being performed in cases for which it is unnecessary.

Antenatal Diagnosis.

I have endeavoured to show some of the changes which have occurred in the treatment of contracted pelvis in the lifetime of the Medical Society of London. Further improvement of the treatment depends on more accurate measurement of the pelvis and foetal head, probably by means of x rays. Every woman should have her pelvis measured to see if she is fitted for child-bearing. During pregnancy she should be examined at the thirty-fourth week to ascertain the presentation of the child and its size relative to that of the pelvis. If the pelvis is contracted, it should be treated by one of the methods suitable for the particular case. Of these methods at the present time, in my opinion, induction of premature labour is employed too little and Caesarean section too much. As opinions are of less value than facts I give the results of three years' practice at University College Hospital, where the routine mentioned above has been adopted.

In the three years (1920, 1921, and 1922) 5,647 women were delivered. Of these, premature labour was induced for contracted pelvis 113 times, all the mothers and 101 of the children surviving. Caesarean section for contracted pelvis was performed 32 times, all the mothers and 30 children surviving. Craniotomy was performed 4 times (twice for dead children and twice for hydrocephalus); the four mothers recovered. Forceps were used (for various reasons) 168 times (that is, in less than 3 per cent. of the cases), all the mothers recovering. I am indebted to the obstetric registrar, Mr. Leslie Williams, for these figures.

Remaining Risks of Caesarean Section.

Caesarean section entails risk of hernia, of adhesions, and rupture in subsequent pregnancy. These risks are probably avoidable in aseptic cases by proper suturing and sutures. How great these risks are can only be ascertained when obstetricians publish all their cases instead of a selection of cases done in favourable conditions before or in the early stages of labour, other cases being treated by craniotomy or hysterectomy. The sterilization of a woman after Caesarean section in an uncomplicated aseptic case is, in my opinion, not justifiable; in complicated cases hysterectomy is sometimes required.

Conclusion.

In conclusion, I hope I may be pardoned for bringing a somewhat technical subject before the Medical Society of London. In the past some hard things have been said of obstetricians; in recent days, however, they have been commended as integrators of medicine. Agreeing with Sir Clifford Allbutt as to the importance of that integration, I have placed my views before a Society which by its constitution and practice is the best example of the advantage to be derived from discussion of medical subjects by physicians, surgeons, and general practitioners. With the assistance of the medical and surgical secretaries, of whose devotion to the interests of the Society I have already evidence, I hope to be kept mindful of that integration at the meetings over which it will be my privilege to preside.

References.

[1] *London Medical Journal*, March, 1798. [2] *Journ. Obstet. and Gyn. of the British Empire*. 1926.

THE REGULATING AND REFLEX PROCESS.*

BY

P. T. HERRING, M.D.,

PROFESSOR OF PHYSIOLOGY, ST. ANDREWS UNIVERSITY, AND PHYSIOLOGIST TO THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

Part II.—THE NERVE IMPULSE: THE IMPORTANCE OF THE RECEPTORS: AND THE PRODUCTION OF PAIN.

The anatomical unit of the nervous system, the neurone, consists of a nucleated cell body and one or more processes, one of which is always an axis cylinder. The other processes, when present, are dendrons, and frequently break up into numerous small branches known as dendrites. The function of the whole unit—dendrons, cell body, and axis cylinder—is to conduct the nerve impulse. The conducting element is a watery fluid containing protein and lipoids in the colloidal state, and possessing the physico-chemical attributes of living matter in this condition. No fibrils can be seen in the living neurone, though they appear in the dead nerve after certain methods of fixation and staining have been employed. The cell body and dendrons frequently contain a store of reserve energy in the form of nucleo-protein, which, when coagulated by certain fixatives and suitably stained, gives rise to the so-called Nissl bodies. The nucleus presides over the nutrition of the whole neurone and maintains it in a condition suitable for carrying the nerve impulses. But the presence of the nucleus and cell body is not essential for the passage of the nerve impulse, for, if cut off, the remainder of the neurone can still conduct for a limited time before it dies.

The nerve impulse, when excited by artificial means in an isolated nerve fibre, travels in both directions from the point of stimulation, but in the intact nervous system the nerve impulse travels normally in one direction only. The synapses between the neurones are irreciprocal, possessing a valve-like action which prevents any accidental impulse that may have been carried in the wrong direction from passing into the next neurone. The synapse only allows a nerve impulse to pass from the endings of the axis cylinder of one neurone to a dendron or cell body of the next neurone. Consequently the nerve impulse can only take the one direction through a physiological unit, and the neurone, when in a state of activity, only transmits its impulses in a forward direction.

The cell bodies of the peripheral afferent neurones are found in the ganglia on the posterior roots of the spinal cord, and in the corresponding ganglia on the cranial sensory nerves. The peripheral nerve fibre of each cell, though it possesses an axis cylinder, is morphologically the dendron of what was originally a bipolar cell. This dendron runs directly into an axon at the T-shaped junction near the body of the nerve cell in the ganglion, and there is evidence that the nerve impulse passes directly over this junction. Some of the spinal ganglion cells have small intracapsular dendrons, and consequently nerve impulses can reach the neurone through them, in which case the cell body must also be concerned in conduction. But little is known about the function of the intracapsular dendrons of the spinal ganglia. Their presence, however, indicates that a certain amount of analysis and redistribution of nerve impulses may take place in these ganglia.

In the olfactory nerve the cell body of the first afferent neurone lies in the olfactory membrane itself, and its dendron is a specialized portion of the cell which forms a tiny projection on the surface of the membrane. In the auditory and vestibular nerves the cell bodies are bipolar, and the peripheral process of each cell, though really a dendron, forms arborizations among the cells of the sense organs which are developed as special receptors. Little is known about the afferent neurones of the viscera, but there

* The expense of this research was in part met by a contribution from the Medical Research Council.

As to the quackery that flourishes in both Canada and the U.S.A., I was informed by one of the leading medical men in Seattle, Oregon State, that there were men in actual general medical practice in Seattle, describing themselves as "hydrotherapeutists," whose sole claim to medical knowledge was the fact that they had been attendants at Turkish baths, and who were permitted by the laws of the State to attend women in childbirth and also issue death certificates.—I am, etc.,

Vincent P. Norman,
F.R.C.S.Edin., D.P.H.Lond., L.M.C.Canada.

Bradford, Sept. 24th.

BETEL CHEWING AND CANCER.

Sir,—Dr. Archibald Leitch, in his paper on the "Causes of cancer" (British Medical Journal, July 7th, 1923), says, with regard to betel chewing as a possible cause, that "the number of cases of cancer of the cheek actually observed by any one medical man [in Southern India and the Philippines] seem to be surprisingly few," and goes on to state that this "should make us cautious in accepting this [betel chewing] as an instance of cancer due to tobacco, or *even as an example of an irritation cancer at all*" (italics mine).

Now, I with many other surgeons in Ceylon firmly believe that betel chewing furnishes as good an example of irritation cancer as one could wish to see. Whatever may be the experience of medical men elsewhere it cannot rightly be said of Ceylon that "the number of cases of cancer of the cheek seen by any one medical man are surprisingly few"—that is, by any one medical man with full opportunities to judge; for these cases gravitate to the large hospitals, and the surgeons of these institutions, rather than general practitioners, have the best chance to form an opinion of their frequency.

I am sorry I cannot lay my hands on figures just now, but I do not think I exaggerate when I state that the cases of cancer of the cheek coming to the General Hospital, Colombo, in any one year are at least as numerous as the number of weeks in a year; and this despite the dread the people of this country have of operations and the breezy optimism of *vedaralas* who keep promising cures until the patient is dead.

Even so, it may be argued, the number is very small compared with the thousands who indulge in betel chewing. Still it is numerous enough to suggest more than a mere coincidence and to drive home a strong conviction. Why deny to betel chewing what one is so ready to credit to paraffin and arsenic? Are not cases of cancer due to these also relatively few?

Cancers of the cheek are among the commonest malignant growths encountered in Ceylon; they are as common in women as in men, betel chewing being a luxury not limited to sex.

Dr. Leitch very rightly draws attention to the fact that "the betel preparation is a crude mixture of areca leaves [I presume he means either betel leaves or areca nut], lime, and probably other substances as well as tobacco, and the effect of these accessories cannot be discounted." I am inclined to think it is the lime that provides the continuous irritant, though the potency of the crude tobacco should not be under-estimated. Cancer of the cheek as one sees it here almost invariably begins as a leucoplakia or a roughening of that part of the buccal mucous membrane that lies in contact with the molars and pre-molars, which are always more or less discoloured and coated with rough deposits of tartar and lime providing a sandpaper-like surface. One has but to see a series of such cases to be convinced that here we have cause and effect.

Carcinoma of the penis is another astonishingly common form of malignant disease in this country. Between June, 1911, and June, 1915, no fewer than 91 cases were operated on by me at the General Hospital; and I was but one of three surgeons. Here the specific irritant seems to be the pent-up smegma, caked and disintegrated; for congenital phimosis is the almost invariable accompaniment. Carcinoma of the penis is never seen in Moors who practise circumcision; it is most common among Cingalese cultivators. Here, too, the disease begins as a leucoplakia of the glans and preputial mucous membrane, passing on to roughening, erosion, and craggy ulceration or exuberant growth.—I am, etc.,

Colombo, Sept. 6th. R. L. Spittel.

ETHER *VERSUS* CHLOROFORM.

Sir,—Dr. C. F. Hadfield's reply (September 22nd, p. 543) to my letter is very welcome, and makes it clear that the correspondence ought to be prolonged a little, because open ether and its modifications is supposed to ensure a factor of safety for the average patient when administered by the average practitioner. In such circumstances the views of the average surgeon are bound to come in. The question centres round muscular relaxation, and until this is measured by some standard method the facts will never be known and we cannot profitably argue about them. As Dr. Hadfield says, "many surgeons are tonometers of excessive delicacy"—especially on a bad day! The order of onset of relaxation in the sets of muscles will require to be determined both for ether and for chloroform. Personally, I see no objection to using a tonometer in or near the wound if it can be sterilized and does not get in the way, and as this would render the study more scientific it ought to be done.

I understand, for instance, that the combination of morphine and chloroform was abandoned by anaesthetists lon[illegible] and dangerous, as it produces in [illegible]tion of narcosis with muscular rigi[illegible]nosis from laryngeal spasm and slowe[illegible]ved generally by inspiratory stridor. In this condition the patient may appear to be deeply anaesthetized, but is anything but ready from the surgical point of view, being, as Dr. Hadfield says, "not under any anaesthetic," but rather in a transition stage of a sequence. Usually it is an emergency case in which morphine has been given, unknown to the anaesthetist, for pain or transport; given empirically, and not according to body weight. If the induction has been by ether or ethyl chloride, or if ether continues the sequence and the patient is an alcoholic or otherwise not a suitable subject for ether, the dilemma may be a very real one. Chloroform intensifies the symptoms already detailed and the respirations become slowed and ultimately cease. The way out appears to be to increase the concentration of ether vapour by the use of apparatus or to add a small quantity of a third anaesthetic such as ethyl chloride. A tonometer in these circumstances would further indicate the prevailing state and show whether the increasing concentration of ether was likely to be sufficient. But there is such a large personal factor in every case of general anaesthesia that one anaethetist will pass to the later stages in one way and another in another way according to the case.

Dr. Hadfield mentioned a point I left out. That bronchitis may be due to the disease and also to the operation, no one will deny. There is a difference in this respect between the upper and the lower abdomen, and between septic and aseptic cases, but even making these allowances the bronchitis rate in abdominal cases generally seems to me to be greater now than it used to be when chloroform was used more frequently.—I am, etc.,

G. H. Colt.

Aberdeen, Sept. 25th.

TESTS FOR DRUNKENNESS.

Sir,—In your issue of September 15th Dr. L. A. Parry (p. 487) writes to seek information on the question "Drunk or sober?" In my little work *Practical Forensic Medicine*, published by Lewis of Gower Street, I dealt with the question at some length. The book was killed, I think, in the war, because I have heard nothing of it since, and it deserved death, being sadly out of date. If Dr. Parry will borrow the work from the British Medical Association library (I do not advise him to buy a copy) he will find in it the result of twenty years' experience in the subject.—I am, etc.,

Graham Grant.

London, W.C., Oct. 1st.

the same neurone to inhibit the contraction of local terioles. The same neurone is here clearly capable of ...eying nerve impulses which have different end-results, nd the same receptor must be the source of origin of the erve impulse. The nature of the ending of the neurone ...inly determines the result of the nerve impulse, but does not follow that all nerve impulses in the same eurone are equally effective in the production of each nd-result.

The synapse and the receptive substance at the termina-ions respectively of the neurone in the axon reflex may e so adjusted that each responds to nerve impulses of ifferent frequency. In the artificial stimulation of vaso-motor nerves the frequency of the stimulus is an important actor in determining the character of the end-result when plied to a nerve trunk containing both vaso-constrictor d vaso-dilator fibres. The point of importance to the resent argument is that the same receptor and the same eurone can be concerned with the production of more than ne kind of end-result. It appears to us probable that by the branching of the afferent neurone in the central nervous system, and its communication with other neurones similarly branching, the necessary pathways are present for the production of many end-results from the stimulus of a single receptor at the periphery. That the nerve impulse in an afferent nerve does not normally spread beyond certain well defined limits is explainable by the resistance it meets with in the synapses in the central nervous system; but, as will be shown later, the resistance of the synapses can be altered by abnormal conditions and very great spreading of afferent nerve impulses may occur.

The receptors concerned with some forms of sensation are well known, but others—and these unfortunately some of the most important from the clinical aspect—have not been definitely located. The nature and site of the receptors in the skin for the senses of touch, tactile discrimination, heat, cold, pressure, and pain, are uncertain. The histological structures in the skin recognized as receptors have had various functions assigned to them by different observers. They are being made the objects of a special investigation in the Clinical Institute, and a discussion of them is beyond the scope of this article. With the exception of the proprioceptors, so well elucidated by Sherrington, even less is known of the nature of the interoceptors. Some of them can give rise to sensation, notably of pain, but most, if not all, are concerned with the initiation of reflexes.

Many afferent neurones form free nerve endings or arborizations, especially in epithelium, which present no indications of possessing any special form of receptors. Indeed the free nerve endings are themselves regarded as the receptors. They appear to be the only nerve endings in the cornea, and as the sensation evoked by stimulation of the cornea is one of pain it is naturally inferred that the free nerve endings are the receptors for pain. But other effects are produced by stimulation of the cornea—namely, reflex closure of the eyelids and lacrymation. If the cornea be lightly stimulated by a fine wisp of moist cotton-wool no pain is felt but the reflex is produced, and the only sensation is that of the reflex itself. A stronger stimulus, and one that is actually injurious to the epithelial cells on the surface of the cornea, provokes a stronger reflex accompanied by pain. A minute foreign body, if of a harmful nature by reason of its hardness or chemical composition, occasions pain of an intense and widespread character. Similar free nerve endings are found in the skin, but the living cells amongst which they ramify are protected by the dead and horny cells of the outer layers. A stronger stimulus must consequently be applied to the skin in order to produce pain, and the sensation thus elicited is a mixed one because the skin is capable of other sensations. Any modification of the epithelium alters the reaction. The application of a mild irritant soon abolishes from the area affected all sensations of heat and cold and tactile impressions, leaving an epithelium which, like the cornea, responds to all stimuli by reflex action and by the sense of pain. The pain is very like that of the cornea, being unmixed with other sensations, widely spread and incapable of exact localization.

The condition of the epithelium is, in our opinion, of very great importance in the maintenance of function of the receptors in the skin, and we regard the epithelial cells as the true receptors and not the free nerve endings. The free nerve endings lie among living cells in the epidermis. In the epidermis these cells are intimately connected one with another by intercellular bridges of protoplasm. Injury to any cell probably involves a widely spread response, and it may be that the reaction of the cells to the injury furnishes the effective stimulus which results in pain. Whether the actual nerve endings contain a receptive substance or not is unknown. It is quite possible that they do, and that the afferent end of each element in a reflex arc is alike endowed with a material which has the specially developed property of excitability as distinguished from that of conductivity. Such an element is present in the receptor organ of the sense of smell and in the receptive substance of the effector organ of voluntary muscle. In our opinion too little account has been taken in modern researches on sensation of the importance of the receptor and its re-establishment with the ends of regenerating nerve fibres.

The Sense of Pain.

Many tissues and organs of the body are insensitive to stimuli which in the skin produce pain. This is not because of the lack of afferent nerves, but because the receptors present are not adequate to such forms of stimulation. Most of these tissues are productive of pain when the stimulus is of such a nature as to excite the receptors, although the pain may not be felt in the organ affected but is referred to some other situation which is normally capable of sensation. The only known receptors in voluntary muscle are the muscle spindles, which are chiefly concerned with the initiation of reflex action but may give rise to muscle sense. Muscle is insensitive to ordinary forms of stimulation which cause pain in the skin. Pain of varying degrees of severity can occur in muscle, but it is always associated with some degrees of activity of the muscle, and is probably due to some condition which exaggerates the normal adequate stimulus of the muscle spindles, or renders these receptors more sensitive. The fact that pain in muscle is found to be associated clinically with contraction of its fibres makes it probable that the muscle spindles are the receptors for pain in voluntary muscle. The normal contraction of muscle is painless, but becomes painful when the circulation of blood through it is interfered with.

Pain can also arise from cardiac and involuntary muscle although these tissues are insensitive to ordinary forms of stimulation. Nothing is known about the nature of the receptors in these structures. They appear to be primarily concerned with the production of reflex action, and by analogy one would assume that they are stimulated by the activity of the structures in which they reside. This is found to be so, for pain in cardiac and involuntary muscle is associated clinically with activity of the organs in which it occurs, though some other factor appears to be necessary such as a deficiency in blood supply. It is often stated that tension is the exciting factor in the production of pain. But the term "tension" is apt to be misunderstood in its application to muscle. The function of muscle is to produce tension; the contraction of muscle does not necessarily imply its shortening, but it does imply tension in the muscle, and this tension is probably the adequate stimulus for the receptors in it. The artificial tension of muscle produced by the distension of a hollow viscus gives rise to pain, but it probably does so by stimulating the contraction of the muscle to overcome the distension. Great care is necessary in making clinical observations on the production of pain in the viscera that the results of reflex action—for example, slowing of the heart, vascular changes, faintness, nausea, and other symptoms—are not mistaken for pain.

We are of the opinion that pain in muscle, whether voluntary, cardiac, or involuntary, is always associated with the contraction of the muscle, but that some other factor or factors are necessary and that a deficient blood supply is one of the most important.

and Surgery, and that the obstetricians of to-day owe no small debt of gratitude to his pioneer work in this respect.

In practice Sir Halliday Croom's success was conspicuous. He was called far and wide as a consultant and operator—to Rome, Paris, London, and all over Great Britain—while his fame as an obstetrician attracted many distinguished patients to Edinburgh who sought the advantage of his services. In spite of the claims of such a practice, however, and of his almost passionate absorption in teaching, he found time for much professional writing. His papers were nearly all clinical and practical, and they range over almost the whole of practical midwifery and gynaecology. His observations on *The Bladder during Parturition* and his *Handbook of Minor Gynaecological Operations and Appliances* were both published in book form, and the latter had a great success, running through several editions in this country and in America. In all he wrote some hundred articles, addresses, and monographs, all of which had their special points of interest and importance. Amongst the more notable are those on "Retention of Urine in the Female," "The Causation of Face Cases," "The Systematic Use of Antiseptics in Midwifery," "Dysmenorrhoea and Sterility," "The Diagnosis of Early Extra-uterine Gestation," "Caesarean Section in Eclampsia," "Mittelschmerz," "Senile Uterine Catarrh," "Exophthalmic Goitre in relation to Pregnancy and Labour." These are but a few amongst many, but they serve to show the catholicity of his observations and writings.

Sir Halliday Croom was a Fellow of the Royal Society of Edinburgh, of the Royal College of Physicians and of the Royal College of Surgeons of Edinburgh; and it was in 1902 when he was President of the latter College that he received the honour of knighthood. He was throughout his whole professional life a devoted Fellow of the Edinburgh Obstetrical Society, and one of the most regular contributors to its debates. The fact that he was elected to the presidential chair of the society three times shows the position which he held in the hearts of his colleagues. His eminence in his specialty led also to his election as President of the British Gynaecological Society, whilst among the foreign societies of which he was appointed an Honorary Fellow were the American and the Belgian Gynaecological Societies. He was President of the Obstetrical Section of the British Medical Association Meeting at Carlisle in 1896. Dublin University conferred upon him its Honorary M.D., while on his retirement his Alma Mater sealed her acknowledgement of his life-long services by making him an Honorary Doctor of Laws amid a scene of unequalled spontaneous enthusiasm on the part of the student audience.

Amongst his many services to the profession and to the cause of midwifery must not be forgotten his work in connexion with the Central Midwives Board for Scotland. He gave the full weight of his influence and authority to the movement which eventuated in the passage of the Midwives Act for Scotland, and he was unanimously appointed the first Chairman of that Board, serving on it from the time of its inception in 1915 until 1920.

Sir Halliday Croom married in 1875 Miss Anna Isabella Walker, and one son and three daughters were born of the marriage. His wife died in 1898, and this sorrow was a great blow to him. His eldest daughter ably took up her mother's duties in the household and acted as her father's hostess for many years until her marriage to Dr. A. J. Beattie. Her premature death in 1913 was therefore a second very severe blow which aged him considerably in the eyes of his friends. The two younger daughters and his only son survive, the latter, David Halliday Croom, being a well known physician in Edinburgh.

Sir Halliday Croom was a man of extraordinary personal attractiveness, and of an almost womanly charm which was so spontaneous and innate as to elude any attempt at analysis. His tall graceful figure, always immaculately clothed, was one of the best known public figures in Edinburgh. His courtly and aristocratic appearance were but the outward marks of a nobly sensitive nature. He was a man of extraordinary courtesy to rich and poor alike, quick in sympathy with anything in the nature of suffering, hating cruelty, hypocrisy, and disloyalty above all things. His sensitiveness made him somewhat quick in temper and impulsive in action, but his wrath was never long sustained because his nature was essentially generous. His vivacious sense of humour was delightful, and found expression in whimsical and unexpectedly forcible phrases which gave extraordinary point to his teaching and to the stories with which he used to delight both his classes and his friends and guests. He was an inimitable and most hospitable host and enjoyed nothing better than having his friends round him at dinner. A true son of the manse, he never lost the impress of the early days and the early teaching. He was a man of deep but simple beliefs, to which he clung with unalterable loyalty. The affairs of the United Presbyterian and subsequently of the United Free Church always claimed a generous share of his interest, and like a true Scot he loved nothing better than a good-going theological discussion.

Sir Halliday Croom was buried in the Dean Cemetery on Saturday, September 29th, in the presence of a large concourse of his fellow citizens, representing every class and every profession and activity, and on the Sunday a largely attended memorial service was held in Lauriston Place United Free Church, his father's old congregation, in which he himself had served as an elder for many years.

Dr. JAMES HAIG FERGUSON (Edinburgh) writes:

I have been asked as a former assistant of the late Sir Halliday Croom to give a short appreciation of my old chief, and it is with a full heart that I do so. I would recall him as a teacher, as a physician, as a man, and as a valued friend. Sir Halliday Croom's name will go down to posterity as that of a great teacher. As such he was in the first rank, and it is safe to say that no more successful or popular teacher, whether in the lecture room or by the bedside, has existed in the Edinburgh Medical School in this generation. His didactic method was always impressive, his enthusiasm was contagious, and his unfailing sense of humour and lightness of touch, coupled with a wonderful vivacity, all combined to make his lectures telling and effective. Teaching was ever a joy to him; it seemed to come to him so easily, but only those behind the scenes knew the infinite trouble he took to prepare his systematic lectures even down to the smallest details. He put his whole mind and soul into their preparation and delivery. Even in his younger days at the end of a lecture he was often worn out by his efforts, though it all appeared so spontaneous and easy to his hearers at the time. While often physically exhausted by his teaching, he was mentally exhilarated and he often used to say that he seemed to absorb fresh mental stimulus and vitality from the crowded benches of eager and enthusiastic young minds whose attention he never allowed to flag for an instant. His illustrations and apt remarks were always striking, and culled as they were from a ripe experience they have become (many of them) aphorisms indelibly fixed in the minds of the thousands who, in the course of his fifty years of teaching, have had the privilege of passing through his hands. In truth he had the great gift of making the dry bones live. Nothing was such a joy to him as the appreciation of his students, and the pleasure which this gave him brought out all that was best in the man, and showed the unaffected simplicity of his real nature.

Croom's enthusiasm for his department has undoubtedly done much to raise obstetrics and gynaecology to the high place they now hold in medicine and to rescue them from the neglected and somewhat despised position to which in times past they were apt to be relegated. As a young graduate and while still assistant to the late Sir Alexander Simpson he rapidly acquired a large and lucrative general practice. Gynaecology was then in its chrysalis stage, but as it gradually emerged (and Croom was one of the pioneers who promoted its development) he gradually dropped general practice. He used to say that he regarded this preliminary experience as having been of great value to him in after life. Few certainly could deal with patients more successfully and tactfully than he did and he seemed to have an intuitive knowledge of their thoughts and feelings which at once put them at their ease and won their confidence and regard to a remarkable degree. He also quickly gained the confidence of the profession by his skill

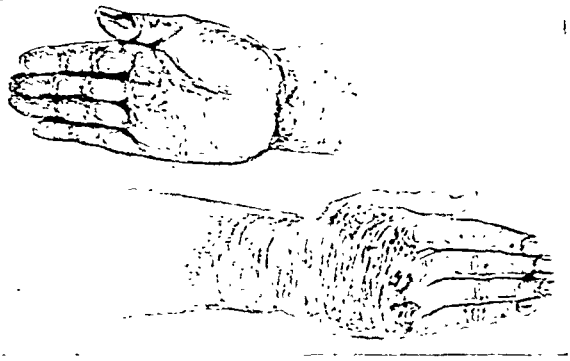

FIG. 1.—The hands and wrists in Case I.

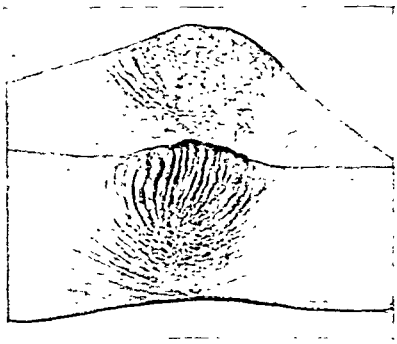

FIG. 2.—The knees in Case I.

FIG. 3.—Appearance of face in Case I.

SYDNEY SMITH AND MOHAMED EMARA:
FRACTURE OF SKULL.

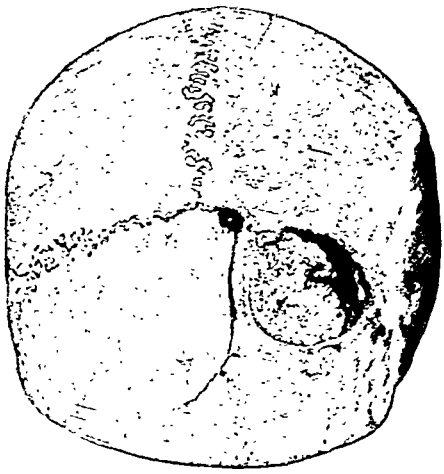

FIG 1.—Showing external aspect of bone.

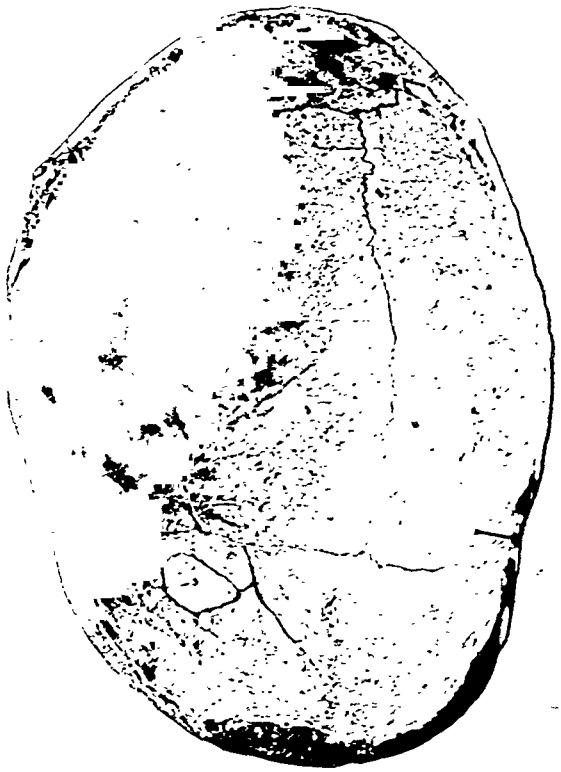

FIG 2.—Showing the inter

The death took place at Macduff, Banffshire, on September 22nd, of Dr. J. I. McArthur, at the age of 71. James Irvine McArthur was educated at the University of Aberdeen, where he graduated M.B., C.M. in 1882. Over forty years ago he went into general practice at Gamrie, Banffshire, where he remained until his retirement some three years ago. Although he had one of the most extensive practices in the county he also superintended the working of two farms which had the reputation of being the best managed in the district. He was medical officer to the Gamrie and King-Edward Parish Councils, and for many years was surgeon lieutenant to the Banffshire Artillery Volunteers. He was a justice of the peace for the county of Banff, and a member of the British Medical Association.

We regret to record the death of Dr. Alexander Reid Stoddart, of Fishergate, York, on September 25th, after a long illness due to war service. He was the eldest son of the late Dr. John Stoddart of Kirkcaldy, Fife, and received his medical education at Edinburgh University, where he graduated M.B., C.M. in 1887; he afterwards studied at Prague and Vienna. After holding the appointment of house-surgeon at Edinburgh Royal Infirmary he went into practice at York in 1891, where he was a successful practitioner and popular with his professional colleagues; some years ago he was elected president of the York Medical Society, of which he was also honorary librarian. He was a member of the British Medical Association. Dr. Stoddart joined the 5th (York) Battalion of the West Yorkshire Regiment in 1896, in which he attained the rank of surgeon major. During the great war he held a commission in the R.A.M.C., and served in France; in 1916 he was mentioned in dispatches. When he returned to York at Christmas, 1918, it was evident that the war had left its mark upon him, and he suffered from ill health up to the time of his death. The funeral service in St. Martin's Church on September 29th was attended by a large congregation, which included most of the medical practitioners in York. Dr. Stoddart is survived by his widow, four daughters, and one son.

We regret to record the death on September 18th, in his 70th year, of Dr. W. H. Smith of Boston, Lincolnshire, the son of Dr. B. A. Smith, who practised for over fifty years at Sibsey. William Henry Smith received his medical education at St. Mary's Hospital, London, where he obtained the L.S.A. in 1876 and M.R.C.S.Eng. in 1877. He was house-surgeon at the Beckett Hospital, Barnsley, and at Hull General Infirmary, before going into practice at Revesby and later at Boston. Dr. Smith was appointed honorary surgeon to the Boston Hospital in 1897, and on his retirement in 1916 was appointed consulting surgeon. During the war he acted as medical officer to the Holden House Red Cross Hospital. He held the appointment of medical officer to the Boston Board of Guardians for thirty-three years. He was one of the oldest members of the Holland Division of the British Medical Association, of which he was chairman for some years, and representatives of the Division attended his funeral. Dr. Smith was also a member of the Panel Committee. He was unmarried.

Universities and Colleges.

UNIVERSITY OF LONDON.

The Vice-Chancellor, on behalf of the University, addressed on September 11th to His Excellency the Japanese Ambassador a letter of sympathy with the Japanese nation in the overwhelming destruction of life and property experienced during the calamitous earthquake. His letter contained the following passage: "We remember at this sad hour the many and various ties which link our countries and their universities, and we most earnestly hope that your country will emerge successfully from this ordeal to continue her great and beneficent mission of civilization and culture." A message of appreciation in reply was received from the Japanese Embassy, thanking the University of London for its expression of sympathy.

The Semon lecture for the year 1922-23, entitled "The advancement of laryngology," will be given at the rooms of the Royal Society of Medicine, 1, Wimpole Street, by Dr. A. Logan Turner, lecturer in laryngology, otology and rhinology in the University of Edinburgh, on Thursday, November 1st, at 5 p.m. The chair will be taken by Mr. Charles A. Parker, F.R.C.S. Admission is free, without ticket.

The Stansfeld lecture for 1923-24 will be delivered at Bedford College in February, 1924, by Mrs. H. A. L. Fisher, on "The endowment of motherhood," treated in its historical and scientific aspects.

Guy's Hospital Medical School.

The following scholarships have been awarded:

Open Scholarship in Arts: W. S. Baxter, J. W. Crow, equal £50 each. Scholarships for University Students: War Memorial Scholarship, D. Lurie, B.A.Oxon., £80; Open Scholarship, W. D. B. Read, B.A.Oxon., £31. Scholarships in Junior Science: Confined Scholarship, E. T. Conybeare, £100. Open Scholarship: R. E. Fossey, E. M. Sharples, equal £50 each.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

Calendar for 1923-24.

The current *Calendar* of the Royal College of Surgeons has been issued this week; it includes, as usual, the report of the proceedings of Council, together with lists of officers, fellows, members, and diplomates, and the customary official information. In the period under review 49 diplomas of fellowship were issued, including one to a medical woman; 621 membership diplomas were issued, including 137 to women; the licence in dental surgery was issued to 238 persons, including 10 to women. The following are the numbers of diplomas granted during the year jointly with the Royal College of Physicians: Public Health, 66; Tropical Medicine and Hygiene, 39; Ophthalmic Medicine and Surgery, 24; Psychological Medicine, 21. The recipients of the D.P.H. included 12 women. Surgeon Vice-Admiral Sir Robert Hill, K.C.B., K.C.M.G., late Medical Director-General R.N., and Mr. J. Howard Mummery, C.B.E. (members of twenty years' standing) were admitted to the fellowship without examination. The subject of the Jacksonian prize essay for the year 1924 is "The Pathology, Diagnosis and Treatment of Oesophageal Obstruction." Dr. K. N. G. Bailey has been appointed the second Streatfeild scholar; his research will be carried out at St. Bartholomew's Hospital.

Amended regulations for the licence in dental surgery have been drawn up by the Board of Examiners in Dental Surgery and approved by the Council, these changes being rendered necessary by the alterations in the regulations for the diplomas of M.R.C.S. and L.R.C.P. Regulations for the issue of a diploma in laryngology and otology, in association with the Royal College of Physicians, have been drawn up and are now available for intending candidates. Examinations for the diploma will be held in December, 1923, and June, 1924. The regulations for the D.P.H. have been revised so as to bring them into conformity with the new regulations and rules issued by the General Medical Council; they will come into force on January 1st, 1924.

The financial report states that the income of the College, exclusive of income from Trust Funds, amounted to £42,967, or £3,152 more than in the previous year. The total expenditure in respect of revenue amounted to £38,090, or £4,838 more than in the previous year. The balance of the revenue account amounted to £4,877. In the year just completed more than £3,700 was expended out of revenue on structural and other alterations in the nature of capital expenditure. The Conservator's report states that the most noteworthy event concerning the history of the museum is the completion of the series illustrating the principles of pathology—the great series now exhibited on special stands on the floor of Room III. The Librarian in his report records that the *Lives of the Fellows* has now been carefully indexed, and the process has brought to light a considerable number of references of interest to medical historians at large, but especially to those in search of information as to the history of operative methods, views on disease, and hygiene. The valuable collection of letters relating to College affairs and medical politics during the last eighty years has now been catalogued and put in order.

The Services.

On October 1st Surgeon Rear-Admiral Joseph Chambers, C.B., C.M.G., took over the appointment of Director-General of the Medical Department of the Navy, in succession to Surgeon Vice-Admiral Sir Robert Hill, K.C.B., K.C.M.G., C.V.O.

THE BLANE MEDAL.

The gold medal founded by Sir Gilbert Blane, Bt., has been awarded by the Director-General of the Medical Department of the navy and the Presidents of the Royal College of Physicians and the Royal College of Surgeons to Surgeon Lieutenant-Commander Julian L. Priston, M.B., M.R.C.P., D.P.H., R.N., who obtained a first-class certificate at the examination held in February last for promotion to the rank of Surgeon Commander.

DEATHS IN THE SERVICES.

Lieut.-Colonel de Vere Condon, Indian Medical Service (retd.), died at Waltham Abbey on September 13th, from illness contracted on active service in Persia, aged 49. He was born on April 13th, 1874, the son of the late Major E. H. Condon, and educated at Trinity College, Dublin, where he graduated B.A. in 1895, M.B., B.Ch., and B.A.O. in 1897, and M.D. in 1906. He took the diploma of the London School of Tropical Medicine in 1912, and the D.T.M. and H. at Cambridge in 1913. He entered the I.M.S. as surgeon lieutenant on January 28th, 1898, attained the rank of

the youngest of four children—the others are alive and well. Two of these children are said to have had rickets when quite young. The patient was a full-term child and fed for the first few weeks on the breast. She was then fed on cow's milk and water, on which she developed diarrhoea at the age of 6 months. For the next few months she was fed on a diet consisting of arrowroot, cornflour, and water. For a number of years the child has taken a fairly full diet. The parents are of moderate means and her diet has been that of any other normal child. As a baby she had intractable diarrhoea, since when she has always had to "leave the table in a hurry." Her bowels were inclined to be especially loose in the summer. She has had measles, mumps, and whooping-cough, all when quite young.

Present Illness.—She first walked at 13 months, and her present difficulty seems to have dated from about her fifth year, when she started school. She has progressively become worse since. At one time she seemed quite normal mentally, but in the past three or four years she has become more and more "childish" and nervous. She has hallucinations of sight and hearing and has a continual fear of being murdered. She is inclined to repeat the same sentence over and over and is fast becoming more and more mentally backward. The rash was first noticed when quite young, perhaps at 3 or 4 years of age; certainly it has been present ever since 1915. Every spring her hands, feet, face, and neck become red and peeling and at times large blisters appear on them. The rash remained all summer. During the period the rash is present all the child's symptoms are aggravated.

On admission she was seen to be a well developed and moderately well nourished child. Her complexion was fair and her hair almost auburn. She had a dull face and it gave one the impression that she was mentally defective at the first glance. The most striking thing about her, however, was a red peeling condition of the whole of the face, neck, and exposed parts of the body, including the hands and feet and shins. In the popliteal spaces there was also well marked peeling. The skin felt harsh in these areas and reminded one of an exaggerated "ichthyosis." At the neck there was a sharp line where the red peeling condition suddenly gave way to the normal white skin. Her mentality would be about that of a child of 3 or 4. She was babyish in her speech and ways. She had marked hallucinations and believed that an attempt was being made to poison her. She was extremely emotional and cried for small things in an unreasonable way. She screamed out at night that someone was trying to cut her throat with a knife, or was trying to poison her. Her reflexes were all exaggerated. The plantars were flexor, and pseudo-clonus was present. The ankle-jerks were brisk. There was no ocular paresis and no ptosis or strabismus was present. Her speech was slow and deliberate. She walked in a spastic manner and with a broad base, and seemed quite unable to lift her feet properly from the ground. As she walked she held her head forward and kept the arms held out from her sides as if to balance herself. Sensation was not impaired to heat, cold, or pain. All the cranial nerves were normal. Her co-ordination with her arms was good.

While in hospital she had recurring attacks of diarrhoea. The stools were loose, offensive, and contained slime and undigested food. At these periods she would lose her appetite. A test meal showed that her gastric acidity was about half that of the normal. Her cerebro-spinal fluid was normal and the Wassermann reaction in both this and the blood was negative. The blood count showed 16,000 white cells present in normal proportions. The urine was normal. An examination of her discs showed no neuritis.

By October, 1922, the rash had completely disappeared. The mental condition showed well marked improvement. She seemed to be walking better. In April, 1923, her mother wrote: "She is still about the same, walking about the house a little, but resting every minute. Her face is already burnt with the sun and peeling again. She continued to improve right up to the beginning of March, but then her legs began to fail and she got tired very easily. She is inclined to dribble her saliva."

When shown at the Children's Section of the Royal Society of Medicine in the latter half of April the rash was not present, as by keeping the child protected from the sun her mother had prevented the reappearance of the rash to any extent. Mentally she seemed improved, but her walking was much the same as it had been ten months previously.

Comment.

In both these cases the rash and affection of the nervous system appear to be typical. Apart from the fact that at some period prior to the onset of symptoms both children were fed on large quantities of "cornflour," there is nothing in the history which would fit in with the various theories of the causation of pellagra. In Case II, at all events, the diet seemed to have contained a sufficiency of protein of high biological value.

These children had both resided all their lives in England and it is probable that the disease is commoner in this country than is at present realized, many cases remaining undiagnosed.

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Fatal Pellagra in two English Boys, C. R. Box, BRITISH MEDICAL JOURNAL, July 5th, 1913, pp. 2-4.

English Pellagra in Early Childhood, C. R. Box, BRITISH MEDICAL JOURNAL, August 23th, 1913, p. 337.

A CASE OF FRACTURE OF THE SKULL CAUSING DEATH AFTER ELEVEN YEARS.

(*With Special Plate.*)

BY

SYDNEY SMITH, M.D.EDIN., D.P.H.,

PRINCIPAL MEDICO-LEGAL EXPERT, EGYPTIAN GOVERNMENT SERVICE;

AND

DR. MOHAMED EMARA,

ASSISTANT MEDICO-LEGAL EXPERT.

THE following case is of considerable medico-legal interest:

An Egyptian, aged about 40, when admitted, was said to have been struck on the head with a stick during a quarrel eleven years earlier. He was rendered unconscious and removed to hospital, where he remained for one month and was discharged cured without paralysis or other disability. For eleven years he worked as a labourer without having the slightest trouble.

On May 15th, 1923, while sitting with some friends he suddenly became unable to speak and felt numbness and heaviness in his right arm and leg. There had been no quarrel, no excitement, nor undue exertion. On May 16th he was taken to hospital. He was then semi-conscious, could understand a few words, and responded by indistinct syllables to all questions. There was no squint, no nystagmus, no conjugate deviation. Right arm and leg motionless, muscles not atrophied, no tremors or twitching. Pupils normal.

Superficial Reflexes.—On the right side the plantar, abdominal, cremasteric, and corneal superficial reflexes are all absent. On the left side the plantar is flexor type, corneal and abdominal present.

Deep Reflexes.—On the right side, biceps, triceps, supinator, and wrist-jerks are all exaggerated; knee- and ankle-jerks almost normal. On the left side all are normal.

There are no deformities. Blood pressure: systolic, 160; diastolic, 70, pulse 72, full. Diagnosed right hemiplegia with aphasia and an old depressed fracture on the left side noted.

The patient remained in hospital till June 2nd—that is, sixteen days—and was prepared for operation, when he died. There were no signs of abscess or other septic condition. The temperature was between 37° and 38° C. throughout.

On *post-mortem* examination the limbs on both sides were found symmetrical, no contraction or atrophy being observed. There was a transverse scar 3 cm. in length adherent to the skull over the left side of the frontal bone. Under this was found a depressed fracture of the frontal bone 2 cm. to the left of the middle line measuring 3.25 cm. in the antero-posterior diameter and 3.9 cm. in the transverse, about two-thirds of the depression being on the frontal and one-third on the parietal bone. Its position was slightly above Broca's area and a little in front of and impinging on the Rolandic area. The posterior and lower segment of the wound was depressed to a greater extent than the rest, the floor of the depression gradually sloping upwards to the normal level. The sharp posterior margin was smoothed and rounded. To the right of this depression there was a healed fissure which passed forwards for 5.5 cm. from the fronto-parietal suture. On the right of the middle line on the fronto-parietal suture the frontal bone was raised above the level of the parietal, due to the opening of this suture by the blow, and 5 cm. from the middle line to the right a healed fissure arising from this suture and passing downwards towards the base with an inclination backwards could be seen.

Internally there was a roughly circular depression 4.2 cm. in diameter composed of five depressed fragments and showing fissures which could not be seen externally; there was no callus formation. All the edges were smooth and no signs of sepsis could be observed. (Figs. 1 and 2.) The dura mater was not thickened nor were there any special adhesions. The brain was congested and oedematous and there was a depressed area in the cortex opposite the fracture. The cerebro-spinal fluid was increased in amount. The cortex of the brain appeared normal, but on section the deeper tissues and wall of the left lateral ventricle were found lined with soft pultaceous material, and similar brownish material was found in the ventricle, the cavity of which was larger than the right. The optic thalamus and caudate nucleus appeared very soft and broke up on the slightest touch.

The other viscera, including the kidneys, appeared normal; there was no atheroma to be observed. There was no middle-ear disease or any other septic focus.

The brain was submitted for microscopical examination to the Pathology Department, and Dr. Serour found, in sections from the softened area, foci of sepsis with areas of interstitial haemorrhage and necrosis, and very slight thickening of the blood vessels.

This case appears to be of considerable interest from many points of view—namely, the rapid and apparently complete recovery and subsequent freedom from symptoms with a considerable area of bone depressing the cerebral cortex over the motor area; the rapid onset of cerebral softening without premonitory signs or apparent cause; the extraordinary period intervening between the injury

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* British Medical Journal *alone unless the contrary be stated.*

Correspondents who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the Journal *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

Authors desiring reprints of their articles published in the British Medical Journal are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

In order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the Journal be addressed to the Editor at the Office of the Journal.

The postal address of the British Medical Association and British Medical Journal is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the British Medical Journal, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediseera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

Income Tax.

"M. R." submits the following query: A, B, and C had equal shares in a practice; A retired, selling his one-third share to B and C, who sell a one-sixth share in the practice to D. What proportion of A's expenses should D be allowed?

*** The question does not really arise. For the year following the change B, C, and D are liable to be assessed on the average profits of the previous three years, taking A's actual expenses into account for each of those years. D will, of course, be liable in respect of one-sixth share of that amount, and B and C in respect of five-twelfths each. When the profits are being calculated for the year during which D was a partner his actual expenses should, of course, be taken and not estimated by reference to A's. For instance, for the second income tax year after the change in the practice B, C, and D will be jointly liable on an assessment calculated on an average of three years, two of which will be affected by A's actual expenses and one year by D's actual expenses.

"M. D." has been refused deductions for (*a*) the annual subscription to a local medical society, and (*b*) his subscription to the International Radiological Conference and the cost of his attendance thereat.

*** (*a*) "M. D." can deduct a proportion of his subscription, determined by the ratio of the total subscriptions to the society to the society's expenditure on furthering the interests of its members. (*b*) If the expenditure was for the purpose of extending his own knowledge—or that of the world generally—it cannot be deducted as an expense of earning his income; it is in some respects capital expenditure analogous to the cost of improving the professional equipment.

"Only one Lung"?

"E. K." would like to know if it is really true that Grace, the famous cricketer, had from his childhood only one lung. In a book, *The Best I Remember*, 1922, by Arthur Porritt (Cassell and Co., Ltd.), it is stated that Grace affirmed "that he had only one lung, and had, in fact, had only one lung since his childhood."

LETTERS, NOTES, ETC.

Diabetes and Insulin: Correction.

Sir Thomas Horder asks us to correct a slip in the report of his presidential remarks introducing the discussion on insulin in the Section of Medicine. On page 445 of the Journal of September 15th, thirteen lines from the end of the page, the words "If I were asked . . . modern conception of *diabetes*," should read "modern conception of *diet*."

Congenital Deformity.

Dr. Thos. Carruthers (Kilbarchan, Renfrewshire) writes: Dr. Walker (September 22nd, p. 546) has only to refer to Gould and Pyle's *Anomalies and Curiosities of Medicine* (Rebman, W. B. Saunders, 1897), Chap. IV, "Minor Terata," to find all the information he desires. My copy was picked up second-hand many years ago, and the book is doubtless out of print, but I shall be glad to put it at Dr. Walker's disposal for reference. The book is a wonderful collection of oddities in medicine and surgery from about the days of Adam, and is profusely illustrated. Reference to it is necessary before deciding that anything extraordinary is an extraordinary thing.

Dr. Henry H. Haward (Northwich) writes: When a medical student at St. Thomas's Hospital in July, 1892, I delivered a poor woman, in a loft over a stable off Kennington Lane, of a female child having little or no vestiges of arms or legs, apparently precisely similar to that recorded in your issue of September 22nd by Dr. John Walker of Paisley. The child attempted to breathe, but artificial respiration was practically impossible, and it died after a few minutes. The cord was short and absolutely untwisted. I remember well how the presentation puzzled me until the vulva was exposed, and how much difficulty there was in delivering the head. There was practically no furniture in the room and not even a basin or a cup. There were the remains of a bed but no bedclothes. The poor woman was impoverished and glad to accept 5s. and allow me to take the body away, and I took it to the hospital museum, where Professor Shattock dissected it and set it up as a specimen. It is figured in Treves's *System of Surgery*, 1896 edition, vol. ii, p. 87.

Herpes and Varicella.

Dr. C. H. Sedgwick (Weedon) writes: The connexion between herpes and varicella is well brought out in the following instance: A few days ago, whilst on a visit to some friends, I learned that my hostess, the mother of three young children, had just recovered from a moderately severe attack of herpes affecting the right arm and shoulder. I remarked to her that now possibly her children would develop chicken-pox. To-day, six days afterwards, I hear this has actually happened, her eldest child, 4 years of age, having developed the disease. I understand there is no other known source of infection.

Dislocation of Semilunar Cartilage: Nature's Cure.

Dr. Charles J. Hill Aitken (Kilnhurst, near Rotherham) writes: Some ten years ago a middle-aged man took part in a game of hockey "to fill a gap," and, unused to the exercise, damaged his knee. The diagnosis was undoubtedly dislocation of the left internal semilunar cartilage. He was unable to lie up. Two years ago the cartilage would slip out under very slight provocation. Luckily there never was synovitis, and if the cartilage slipped out of place easily it would as easily slip back into position. The patient then got work that involved much walking and bicycling on country roads. Six months later it suddenly struck him his cartilage had ceased to bother him. The other day he told me that for eighteen months his cartilage had never once slipped out. Presumably the exercise of walking and cycling had so strengthened the thigh muscles that they were able to keep the cartilage in its place, although it is not likely that it is fixed.

Pulmonary Tuberculosis in a Young Child.

Dr. W. Baly Peacock (London) writes: A girl of 4½ years was brought to me with the complaint that she had a heavy cold which she "did not seem to throw off" and that she was losing weight. On examination she appeared thin and anaemic but quite cheerful. The temperature was normal. There was no undue prominence of the superficial veins on the thorax. On percussion there was a large area of dullness on the right side over the position of the lower lobe of the lung. On auscultation there were signs of a bronchitic type over the left lung and also to some extent over the right one, but over the area dull on percussion was marked tubular breathing and numerous crepitations. I found the child had a cough, but no sweating at night, nor was there any history of her being in contact with any tuberculous person. I gave the mother a sterile bottle and she was able to persuade the child to spit into it. The borough tuberculosis officer, Dr. MacDonald, kindly examined this and found numerous tubercle bacilli present. He afterwards examined the child and agreed with me that it was undoubtedly a case of tuberculosis of the lungs of an adult type. From the literature I have at hand on the subject it would appear to be rather an unusual type for so young a child.

Unusual Position of Child during Delivery.

"Country G. P." writes: Your correspondent Dr. W. F. Moore (September 29th, p. 565) has not mentioned the condition of the mother and child after the prolonged labour with the head in an unusual position.

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 32, 33, 36, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34, 35, and 36.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *159*.

The slightest markings or "graininess" on a screen make it quite unsuitable for kidney work.

The mid-ureters are next examined, or the whole tract may be done in two sections. Here again a rapid exposure should be made, for although the ureters, or at any rate the greater part of them, do not move with respiration, a shadow, such as a calcified mesenteric gland would cast with respiratory movements, would be blurred. The blurring in itself would be of some significance, but it is better to get a sharp outline rather than a blurred one. The tube should be parallel to the film in this section of the tract.

The bladder region is next examined, and it is of vital importance that the tube is well tilted so that, with the patient supine, the opening of the extension tube points well into the opening of the pelvis. If this is not done small shadows at the base of the bladder and in the prostate or prostatic urethra will certainly be obscured by the overlapping shadow of the pubic arch. If the patient is examined from below and lying prone, it is necessary to "open" the pelvis by putting an air cushion under his thighs. If the patient is screened in this position the clearer view is very striking as compared with that taken when he is lying flat.

This, then, is probably the technique most frequently adopted in routine cases and as a preliminary in the more difficult ones. An improvement of much value is the use of the Potter-Bucky diaphragm, for the results obtained are of much finer quality and of correspondingly greater diagnostic value. If a shadow is found which is rather indefinite, or which suggests that it might be due to intestinal contents, it is usual to repeat the examination in a few days' time after further purgation. If the shadow was due to faeces it is most improbable that it will still be present in the same position on the second examination. It is a very sound procedure to confirm abnormal shadows in the urinary tract unless there seems no doubt at all about their interpretation.

Radioscopy of the urinary tract is of considerable value. Stones, especially the larger kidney and bladder ones, can be seen, but perhaps the chief value of screen work is in determining the relative movement of a supposed stone shadow to that of the kidney and its direction of movement with respiration. This is really the same as the method of taking two films, one on deep inspiration and the other on deep expiration, and comparing the relation of a shadow to one of the poles of the kidney on the two films. Radioscopy is also of great value in the diagnosis of movable kidney. Another use is in the examination of an exposed kidney at the time of operation. Though not often made use of in this country it is of value in certain cases.

We may now pass to the more special technical methods which, although they may not be employed in every case, are nevertheless in everyday use in selected cases. They are specially indicated when it is required to know the exact relation of a shadow to some part of the urinary tract or the shape and size of the kidney itself.

Lateral views of the kidney and ureter are taken, with the patient lying preferably on his back and with the tube at his side. The position of the kidney lies superimposed on the bodies of the first, second, and upper part of the third lumbar vertebrae, but one does not see its actual outline. It cannot be too strongly urged that a lateral view is of the utmost value in the differential diagnosis of shadows in the renal area, especially on the right side. In cases of movable kidney, if the patient is lying on his side the kidney may fall forwards, and it is for this reason that the supine position is recommended as more accurate. Stereoscopic views are also made use of, but the writer thinks that they are not of as much value as antero-posterior radiograms combined with lateral.

Perirenal injection of oxygen or CO_2 consists of injecting the perirenal fat with 200 to 600 c.cm. of oxygen or CO_2 through the loin by a lumbar puncture needle. In very large or stout cases it is of considerable help in demonstrating kidney stones which it would be exceedingly difficult or even impossible to show without its aid, but it is hardly likely to be adopted as a routine measure. It is also of much help in showing up renal tumours. The chief difficulty is getting the point of the needle in accurate position in the perirenal fat, for the amount of this varies greatly in different people.

If oxygen is used the best results are obtained by making the exposure a few hours after the injection, as it has then had time to diffuse evenly. If the exposure is made at once the oxygen is located mostly about the lower pole of the kidney. CO_2, on the other hand, diffuses more readily and is absorbed more quickly, so that the exposure is made at once.

The contraindications for this procedure are dense adhesions around the kidney such as follow an operation. It is a comparatively painless method and is safe, though cases have occurred in which the kidney tissue has been punctured.

Pneumoperitoneum is a method by which oxygen or air is injected through a hollow needle inserted through the anterior abdominal wall into the peritoneal cavity under local anaesthesia. By its means a very well defined shadow of the kidneys is obtained, and it is of special value in the diagnosis of renal tumours. Care should be taken not to mistake the shadow of the spleen for that of the left kidney. With this technique the lateral view is of special value. The patient is put in the prone position with supports under his chest and thighs so that the stomach, intestines, and other organs with mesenteric attachment fall forwards, and the tube is at the side of the couch. This view shows clearly the retroperitoneal structures, and, owing to the falling forwards of the intestines, etc., creates a clear prevertebral space. This is of great value in the differential diagnosis between masses arising retroperitoneally, such as a kidney growth or a psoas abscess, which encroaches forwards on the prevertebral space, and other masses arising from the abdominal organs, which fall forwards and so leave the retroperitoneal and prevertebral spaces clear.

The procedure is unfortunately accompanied by a certain amount of discomfort and is not without danger. I have had one fatal case, due to the presence of minute perforations on one side of the diaphragm which caused a pneumothorax, collapse, and death within a few hours.

Colon inflation is a much simpler method than the two foregoing, and consists simply of pumping in air through a rectal tube. It should be done under the control of the screen, for there seems to be an optimum effect which can only be determined in this way. It is quite painless and free from danger, and is a method worth bearing in mind when there is difficulty in showing up the kidney outlines clearly. If too much air is pumped in one is apt to get confusing shadows from the sacculations of the colon.

An opaque ureteral bougie, passed by means of the cystoscope, is of special value in determining the relation between shadows in the neighbourhood of the ureter and the ureter. When *in situ*, films should be taken in two positions at different angles, and if the shadow is seen in the same close proximity to the bougie in the two films one is justified in assuming the shadow to be a stone in the ureter. In exceptional cases, however, such as hydroureter, there may be a space between the shadow and the bougie and yet the condition be one of ureteric stone.

Pyelography is one of the most valuable aids we have in urinary examination, but the cases in which it is done should be selected. It consists of injecting very carefully an opaque solution into the pelvis of the kidney through a ureteral catheter by a syringe or by gravity. At the present time the solution most in favour is a 10 to 20 per cent. solution of sodium iodide or bromide. Collargol, previously much in vogue, should not be used on account of its irritating properties. It must be admitted, however, that the ideal solution for this work is yet to be found. It is advisable that only one side should be done at a time, and it is safer not to use compression. As its name implies, its special value is in outlining the renal pelvis and showing whether it is dilated or distorted. It also shows the relation of the kidney pelvis to the shadow of a stone already found in the kidney region.

Lateral pyelography is frequently used; here the pelvis is seen as an elongated shadow over the body of the

60 infants in the first group developed measles. As many as 35 of these 60 infants died. Of the infants given the serum of convalescents 59.7 per cent. failed to develop the disease; of the infants given the serum of adults only 36, or 47 per cent., developed measles. There were only 4 deaths among the infants given the serum of convalescents and only 5 deaths among the infants given the serum of adults.

256. Hypochlorhydria and Dyspepsia.

P. Savy and P. Dufourt (*Journ. de Méd. de Lyon*, July 20th, 1923, p. 425) give details of six cases (four men and two women) in which free HCl was entirely absent on admission. The total acidity was very low, and in only one case (male, aged 55) free HCl was found after two months' dietetic and antisyphilitic treatment (this patient had a ++ Wassermann reaction). Another patient (female, aged 45) was cured by subtotal hysterectomy and ovariotomy for a large fibroma. The majority of the male patients were careless in eating; two were alcoholic and took coffee and smoked to excess. The authors found no evidence of gastroptosis, and in only one case (VI—the patient cured by hysterectomy) was any pyloric spasm seen. They conclude that certain dyspeptics exhibit a complete absence of HCl, which in all their cases was associated with rapid evacuation of the stomach and delayed pain—symptoms usually considered indicative of hyperchlorhydria. Absence of HCl, say the authors, is found in normal subjects who make no complaint of dyspepsia. They suggest that "the other secretions of the digestive organs" may supplement and correct the deficient secretion of the gastric mucosa.

Surgery.

257. The Diagnosis of Surgical Lesions in the Right Iliac Region.

A. B. Cooke (*Journ. Amer. Med. Assoc.*, August 25th, 1923, p. 627) says that most intra-abdominal operations are in reality exploratory. After every diagnostic resource has been exhausted it happens with disconcerting frequency that conditions are encountered at operation of a different and far more serious character than was anticipated. This is especially true in lesions of the right iliac fossa, in which the appendix so completely dominates the diagnostic picture. As a matter of fact, fully 90 per cent. of the surgical lesions of this region do originate in the appendix. But the remainder constitute too large and too important a clinical group to be ignored or lightly considered. Cooke cites four cases which, when first seen, presented every appearance of a typical acute attack of appendicitis, and delay for more prolonged consideration seemed both unwise and unwarranted. In the light of the operative findings it was quite evident that accurate differential diagnosis would not have been possible even had time for investigation been unlimited. The actual conditions found were as follows: (1) An inflammatory mass in the ileum, with volvulus; (2) necrosis of the caecum and base of the appendix; (3) a short ascending colon, freely mobile caecum, and highly inflamed appendix in contact with the gall bladder; (4) a greatly thickened caecum with a distinct tumour as large as a medium-sized fist, occupying the whole of the space between the origin of the appendix and the ileo-caecal junction, the appendix being in no way involved; the tumour proved to be a diverticulum of the caecum containing a firm, round faecalith approximately three-quarters of an inch in diameter, in a mucus-lined pocket more than an inch from the lumen of the intestine. These cases indicate the diagnostic uncertainties and emphasize the operative difficulties and complications that may be associated with the surgery of appendicitis. The author goes on to deprecate the promiscuous operating for appendicitis which he suggests is prevalent in America, and demands a minimum standard of fitness for the practitioner who undertakes major surgery.

258. Dupuytren's Contraction.

A. Q. van Braam Houckgeest (*Nederl. Tijdschr. v. Geneesk.*, September 8th, 1923, p. 1032) states that Dupuytren's contraction has hitherto been regarded chiefly as a surgical affection, and has therefore received more attention in surgical than in neurological textbooks. He is, however, inclined to agree with Neutra in the view that there is a connexion between Dupuytren's contraction and the central nervous system. He considers it improbable that injuries caused by manual labour play an important part in its production, as precisely the same phenomenon occurs in the foot. Moreover, the rarity of the affection in relation to the enormous number of persons engaged in manual labour and the occurrence of inherited cases are against manual labour or injury being a causal factor. It is also noteworthy that operative treatment is only rarely successful. Houckgeest has recently seen three cases in one family—namely, the father, aged 62, and two sons, aged 29 and 25 respectively. The third child, a girl, was unaffected. The father showed cerebral symptoms in the form of a tendency to suicide and disturbance of speech. He first developed Dupuytren's contraction at the age of 47, and the two sons shortly after the age of 20. In the father both hands were affected, in the elder son the right hand only, and in the younger the left hand only. Both the sons were of a nervous disposition; the elder had had hysterical amblyopia and the younger son continuous tremors. Neither of them was engaged in manual labour. Houckgeest recommends that in autopsies on cases of Dupuytren's contraction a systematic examination should be made of the central nervous system.

259. Gangrenous Balanitis.

J. B. Cross and R. B. Zevalkink (*Urol. and Cut. Rev.*, September, 1923, p. 561) define gangrenous balanitis, which is sometimes known as "the fourth venereal disease," as a specific and infectious venereal disease due to symbiosis of a vibrio and a spirochaete, with local and constitutional symptoms varying with the severity of the infection. The condition was first described in 1891 by Batille and Berdal, who reported 120 cases. The disease, which is comparatively uncommon, rarely occurs except in those with long foreskins. Two types of the disease are described—namely, the ulcerative and the gangrenous, the latter being merely an advanced stage of the former. The ulcerative type is characterized by the presence of one or more ulcers varying in size from a pin's head to a pea, which in most cases become deep and gangrenous. They differ from the large ragged ulcers of chancroid and from syphilitic chancre in not being indurated and being more painful. A thin characteristic muddy pus is present, which has a foul permeating odour. Gangrene quickly sets in and the glans becomes converted into a friable, slimy, soft, black mass. The foreskin is thickened, red, and oedematous, and cannot always be retracted. The inguinal lymph glands are not usually involved. The patient presents evidence of a general septicaemia with a temperature varying from 100° to 104° F. The disease must be differentiated from chancroid syphilis, gonorrhoea, herpes preputialis, and simple balanitis. The author's treatment is as follows: *If the foreskin cannot be retracted easily a dorsal slit is performed under local anaesthesia and the infected area is thoroughly cleansed with hydrogen peroxide. The penis is then immersed for fifteen minutes in a hot solution of potassium permanganate 1 in 3,000, after which a loose bandage soaked in the same solution is applied. The bandage is kept moist by application of a fresh solution every half-hour. Every four hours it is removed, the parts are again cleansed with peroxide, and the procedure repeated. After three or four days' treatment a line of demarcation appears and the necrotic area can easily be removed. The use of oxidizing agents should be continued until all evidence of active necrosis has subsided.*

260. Treatment of Inequality of Length in the Lower Limbs.

As N. D. Royle (*Med. Journ. of Australia*, June 30th, 1923, p. 716) points out, there is probably no more conspicuous disability than that caused by inequality in length of the lower limbs. This deformity is particularly burdensome to girls, and relief is usually sought by massage or attempts to equalize the length by alterations in the footwear. It is far better to equalize the length of the lower limb by some operation on the bony skeleton. It is easy to remove a section of bone from the lower limb, and this he has done in five cases. A piece of bone may be removed from the femur, this being approached from the lateral aspect. The length to be removed is marked off and the bone drilled in three places; it is then divided between the drill holes with a sharp osteotome. This leaves surfaces which interlock easily. An intramedullary splint may also be made from the exsected piece of bone. The limb is then fixed in plaster of Paris for eight weeks and a Thomas's knee-splint worn till union is satisfactory. The muscles and skin presented no difficulty in the shortened limb.

261. Syphilis of the Stomach.

W. A. Brams and K. A. Meyer (*Surg., Gyn., and Obst.*, August, 1923, p. 127) assert that acquired syphilis of the stomach anatomically proved may be considered a rare disease, judged by the number of reported cases. Only 14 recorded cases could be discovered which were definitely proven. Resected specimens showed the following characteristic changes: thickened submucosa, shallow, multiple, and irregular ulcers, and the presence of visible miliary gummata. The entire pyloric portion of the stomach was thickened and infiltrated. The clinical evidence depends on

chondrosis, then downwards and inwards towards the base of the bladder. When a stone obstructs the ureter its position may become greatly altered. Stones in the ureter are usually of a small size, of an elongated oval shape, and lying in the line of the ureter. If the ureter is much dilated the stone or stones may be very much larger. The larger the stone, the more the ureter tends to run external to the transverse processes. Stones may travel forwards and backwards from the renal pelvis to the lower end of the ureter, but not from the bladder back into the ureter. For this reason a film should be taken on the day of operation if the *x*-ray examination was made some days previously. A frequent site for a ureteric stone is at the entrance into the bladder, where it seems to be held up before passing through the orifice.

The following conditions may be mistaken for ureteric stone:

(*a*) Calcified abdominal glands.
(*b*) Accessory epiphysis for the tip of the transverse process.
(*c*) Concretion in the appendix.
(*d*) Calcification of the iliac artery.
(*e*) Calcification of the sacro-sciatic ligament.
(*f*) Phleboliths.

Calcified abdominal glands. (See under the kidney area.)

An accessory epiphysis for the tip of the transverse process will lie in the line of the ureter, but its base, fitting exactly to the rest of the transverse process, should make one suspicious. A small ureteric stone may, however, be completely superimposed on the shadow of a normal transverse process.

A concretion in the appendix or the stump of an excised appendix treated with iodoform paste may lie in the line of the right ureter and present a shadow suggestive of stone. An opaque bougie with films taken at two angles should help to differentiate.

Calcification of the iliac artery may occur in the line of the lower part of the ureter. The lime deposit is wavy in appearance and should not be mistaken for stone.

Calcification of the sacro-sciatic ligaments is streaky in appearance, and not like that of stone.

Phleboliths are often liable to be mistaken for ureteric stones, and in some cases it is difficult to differentiate. They may occur, as age advances, without any pathological significance, and are due to the formation of small calcareous nodules in the pelvic veins. They show as small rounded shadows along the sides and lower parts of the pelvis. At times they are oval, and are then more likely to be confused with stone. Frequently one or more are seen near the ischial spine. They are distinguished by being usually external to the line of the ureter, are generally rounded in shape, and usually multiple. An opaque bougie is often necessary to differentiate them, with two views at different angles. Even this is not infallible and it may be necessary to take two films—one with a soft pliable opaque bougie which adapts itself to the pelvic curve of the ureter, and the other with a rigid metallic dilator which straightens it out.

III. *Bladder Area.*

The position of the bladder is well known, but it should be clearly realized that its base is below the level of the pubic arch, so that a true antero-posterior view will not give a clear view of its lowest part. As already stated, the tube or the patient should be well tilted to avoid the pubic arch. Vesical calculi are usually larger than kidney or ureteric ones, are generally rounded or oval in shape, and may show different densities owing to the deposition of layers of different chemical composition. At times a typical vesical stone or group of stones may be encountered in an abnormal position, and it is then well to consider if they are in a diverticulum of the bladder. In the diagnosis of a diverticulum opaque solutions are used, with films taken at different angles. The patient then voids, and another film taken will show the amount of retention. Diverticula are of considerable etiological importance in the formation of stone. The diagnosis of stone in the bladder is usually easier than in renal or ureteric stones owing to their size and relative immobility of the organ in the pelvis. The following conditions may, however, have to be differentiated:

(*a*) Prostatic calculus.
(*b*) Faecal masses in the rectum.
(*c*) Calcified fibroid.
(*d*) Phleboliths.
(*e*) Dermoid cyst containing opaque material.
(*f*) Calcification of seminal vesicles.
(*g*) Foreign bodies.

Prostatic calculi are much commoner than is usually supposed, and it is thought that many have been overlooked by the overlapping of the pubic shadow. They are seen lying very low in the pelvis, and may be single or multiple. If the latter, they usually show a radiating appearance from the mid-line. They are usually not so large nor so dense as vesical calculi.

Faecal masses in the rectum are not so dense as stone, and should not be mistaken for them. They are due to inefficient clearing out of the bowel.

Calcified fibroids show as large, dense, irregular masses, but should not be mistaken for stone in the bladder.

Phleboliths are usually external to the bladder, and from their small rounded shape and from usually being multiple they should not be confused with stone.

A dermoid cyst containing opaque material, such as a tooth, may be mistaken for a stone.

Calcification of the seminal vesicles, due to old age or tuberculosis, may cast a shadow which has been confused with stone in the bladder.

Foreign bodies in the bladder, especially in the female, have been mistaken for calculi, or phosphatic deposits on them may have turned them—from a practical point of view—into stones.

IV. *Urethral Area.*

For the detection of urethral stones it is of even more importance than in bladder work that the tube should be well tilted to avoid the shadow of the pubic arch. These stones may either have formed higher up and become lodged in the urethra, or they may have formed in the urethra itself or in some cavity communicating with it. The most common site is in the prostatic urethra, and these are frequently due to prostatic calculi forming pockets in the gland which tend to establish communication with the urethra. A urethral stone may, however, be found in any part of the urethra, and is then usually due to a stricture impeding its downward passage; not only is it held up but its size may be increased by phosphatic deposit from the unhealthy urine.

The investigation of conditions of the urinary tract other than stone demands careful and elaborate technique, for here one has to depend largely on the outlining of the soft organs. Probably not so much information regarding the shape and size of the kidneys is furnished as might be in ordinary routine examination. If the outlines of the kidneys are seen as they should be, then the report should include some information as to their size and shape. Their position as seen on films is not so trustworthy, because if compression has been used it is more than likely that this has had some effect and a movable kidney may be pushed up into its normal position. With films of good quality it should not be very difficult, with experience, to say whether a kidney appears enlarged and whether its shape is normal. It is possible, in conjunction with the clinical notes, to make a fairly accurate diagnosis of pyonephrosis simply by the routine method, especially when the shadow shows increased density from inspissated pus with deposition of lime salts.

For more accurate diagnosis of these conditions further technical methods are required, such as pneumoperitoneum or perirenal inflation, to show up the kidney outline, or pyelography to show the size and shape of the pelvis and calyces of the kidney. The normal outline of the injected pelvis is well enough known not to require description, and when it becomes distended it presents a more globular shape and the calyces become more elongated. The pyelogram is undoubtedly one of our greatest aids in making the diagnosis of pyonephrosis and in determining

The end-results were excellent, 86 per cent. being well and only 6.5 per cent. complaining of even slight pelvic discomfort, this being referred in most cases to the bladder. The author advances a new theory regarding the bleeding which occurs with fibroids; he states that it is not due so much to lack of tone of the uterine muscle as to a hypertonicity around the tumour which retards the return flow of blood, and on that account small veins rupture and cause bleeding. Pain is stated to be of rare occurrence, and if present the abdomen should be explored thoroughly for another lesion. It is in fibroids situated in the lower part of the uterus, which is supplied by the hypogastric plexus through the inferior hypogastric nerve, that pain is most common, whereas those occurring in the fundus, which is supplied by the ovarian plexus, give rise to no pain. The author advises that operation should not be done if the patient comes under any of the following categories: (1) If the fibroid occurs during the child-bearing period, and the patient being desirous of a child suffers little from the disease. (2) If the fibroid occurs in a pregnant uterus, but is causing no or little discomfort. (3) When the patient suffers from some dangerous intercurrent disease—for example, diabetes, chronic Bright's disease, etc. (4) When fibroids are present in old women, but have ceased growing and produce no symptoms. The author concludes by stating that myomectomy is the best operation for patients under 35 when the fibroids are single or few in number, and that it is no more precarious an operation than hysterectomy. In performing supravaginal hysterectomy the cervical stump is coned out and the round ligaments are implanted into the stump.

266. Vagitus Uterinus.

B. Nyström (*Finska Läkaresällskapets Handlingar*, July–August, 1923, p. 469) notes that the prognosis for the infant who cries aloud before birth is good, only 8 out of the 58 infants reported to have done so being born dead (Stoeckel's summary in 1923). Many of the infants born alive were said to have cried hours and even days before they were born. The author contributes the following new case. A pluripara, aged 27, showed a head presentation, the membranes being intact, and the pulsating umbilical cord being palpable between the membranes and the foetal head. As the cord could not be replaced, and there were signs of its being compressed during labour pains, and as the os was almost fully dilated, the membranes were ruptured under ether anaesthesia, and the cord was simultaneously thrust back into the uterus. While pressure was being exerted on the head and attempts were being made to displace it and secure one of the legs, the infant cried aloud repeatedly, the cries being audible to all present. Version was rendered difficult by the size of the infant, and it was not till the head had been displaced up into the fundus of the uterus that the crying ceased. Labour was completed immediately after version had been performed, a well developed male infant, weighing 4,190 grams, being born. The slight asphyxia observed at birth passed off almost at once, and the mother and infant were discharged from hospital in good health.

267. Treatment of Pyelonephritis in Pregnancy.

Martin (*Journ. d'Urologie*, June, 1923, p. 445), in a paper on the indications for treatment of the more serious types of pyelonephritis of pregnancy, states that while death is very rarely the termination of this condition, yet it has been reported, and he considers that the current belief that this is a benign condition is largely because the more grave cases have not been published. He emphasizes the importance of having a more precise mode of procedure for dealing with these cases. As regards artificial termination of pregnancy he quotes 10 cases, in 7 of which the results were excellent and immediate. Speaking of nephrostomy, 9 cases of which are noted, including one of his own, abortion followed in 3, and in 3 a secondary nephrectomy had to be performed, but in the latter the cases were probably not true pyelonephritis of pregnancy but cases of renal disease antedating the pregnancy and aggravated by it. Further, although nephrostomy is not of itself serious, yet it is not without danger, for the possibility of secondary haemorrhage should always be borne in mind. He finds it impossible to give definite indications for nephrostomy on the one hand, and for the artificial termination of pregnancy on the other, but believes that in the light of our present knowledge, if for any reason it is not possible to catheterize the ureters in this condition, it is better to interrupt the pregnancy or perform nephrostomy. He concludes by saying that ignorance of the indications for the last two procedures is a consequence of the lack of clinical evidence available on this subject, in that the graver type of case is seldom reported.

Pathology.

268. The Fixation of the Kidney.

A. H. Southam (*Quart. Journ. of Med.*, July, 1923, p. 283) gives the results of an exhaustive investigation into the question of the fixation of the kidney. The author cut sections of six foetuses and seven adult bodies, examined over forty bodies and made plaster casts of the renal fossae, in addition to making numerous clinical examinations of patients and analyses of hospital records. He finds that the renal fossae differ in shape in the two sexes; in males they are pear-shaped and narrower below, while in females they are relatively narrow above and broaden out below; the right fossa is usually a little larger than the left. The kidney is enclosed with the suprarenal capsule in a fascial envelope composed of a strong posterior and a thinner anterior layer. This fascial sheath is firmly attached to the diaphragm, vertebrae, and transversalis fascia; above and at the outer side it is closed by the fusion of its anterior and posterior layers; at the inner border the layers come together but do not fuse, while below they can be easily separated. There is thus a potential channel below ready for the kidney to descend into should prolapse of the organ occur. The position of the kidneys in man is such that they are constantly exposed to the action of gravity, which tends to produce their prolapse. The most important factors giving support to the kidneys are the perirenal fascia, the renal pedicle, and the maintenance of intra-abdominal tension. Mobile kidney occurs more frequently among females, owing mainly to the shape of the renal fossa. The determining factor in many cases is a relaxed abdominal wall, and this affects females more than males, owing to the inferior muscular development in women, pregnancy, and the different mode of living in the two sexes, which leads to loss of muscle tone in the female. Displacement of the right kidney is more common, not only on account of the shape of the renal fossa, but on account of the presence of the liver on that side; the left kidney is also more securely supported by neighbouring structures. The paper is illustrated by a number of interesting diagrams and by photographs and microphotographs of specimens. It concludes with a full bibliography.

269. The Virulence of the Nervous Centres in Sydenham's Chorea.

P. Harvier and J. Decourt (*C. R. Soc. de Biologie*, July 21st, 1923, p. 468) report the result of some researches which they have conducted on the virulence of the central nervous system in chorea. The brain was removed from a man of 86 years of age, who during the last week of life had manifested incessant choreic movements, generalized, and accompanied by purpura of the trunk and limbs, as well as signs of mitral endocarditis. Microscopical examination revealed only minimal lesions in the cortex and grey centres. Two rabbits were injected intracerebrally and inoculated on the scarified cornea with an emulsion of fragments of the brain tissue. One of the animals developed a very mild keratitis which cleared up in a week; the other showed intense keratitis with conjunctivitis and chemosis, and died on the tenth day. By taking the corneal exudate of this second rabbit it was found possible to transmit a keratitis in series; the first two animals developed keratitis but got well; the third rabbit developed keratitis and died on the twenty-eighth day; the eighth rabbit died on the twenty-first day, and the thirteenth rabbit died on the tenth day. The brains of the animals which succumbed were found to be virulent for normal rabbits. Whether they died after corneal or subdural inoculation, the animals showed the same lesions at autopsy. These consisted in an intense mononuclear meningitis and in subcortical and parenchymatous perivascularitis. Further researches are being conducted to determine the relationship of the virus isolated from this case with that responsible for encephalitis lethargica.

270. The Leucocyte Count after Blood Transfusion.

H. L. M. van der Hoff (*Nederl. Tijdschr. v. Geneesk.*, August 11th, 1923, p. 571) states that when a blood examination is made at intervals of a quarter or half an hour during the first eight hours after transfusion of 300 to 500 grams of citrated blood the following results are obtained: (1) The number of leucocytes usually increased during the first few hours. This phenomenon was not constant, as in some patients there was a leucopenia. (2) All the patients showed a distinct increase in the neutrophil polymorphonuclear leucocytes in the first few hours after transfusion. (3) This increase took place at the expense of the lymphocytes as of all other forms of leucocytes. (4) The change in the number of the phagocytes was insignificant. The same could be said of special cells, such as plasma cells, and Türck's "irritation cells."

urinary system was examined; in fact, one of his greatest difficulties in the past had been the differential diagnosis of the shadows which were visible. With the aid of the blackboard Dr. Rowden then proceeded to describe his methods in more detail. He concluded by saying that the object of his remarks had been to draw attention to a method of radioscopy together with palpation which simplified the present methods both in regard to time and cost, and which would, he thought, take the place very largely of photographic work, especially photographic work in the transverse direction, from which it was often extremely difficult to get good results.

Dr. G. B. BATTEN (London) said that he would have liked Dr. Salmond to have included in his paper some further reference to the very valuable method, one of the greatest developments in urinary work, followed by Dr. Carelli, of Buenos Aires, and expounded by him eighteen months ago to the Section of Radiology of the Royal Society of Medicine.[1] It depended upon the perinephritic injection of oxygen or carbonic acid gas.

Dr. JAMES METCALFE (London) said that the whole question of the radiography of the urinary organs depended crucially upon the technique employed, and personally he would certainly depend upon films to get an accurate knowledge of the conditions. No eyes could be as sensitive as the x-ray emulsion. He agreed with Dr. Batten in thinking that one of the greatest developments in urinary work was the method elaborated by Dr. Carelli, of Buenos Aires. A year or two ago he saw Dr. Carelli apply this method in a case at the French Hospital in London. The extraordinary clarity of the picture which was obtained with the perinephritic injection of oxygen or carbonic acid gas was so remarkable that it must mean a great improvement in the present methods of diagnosis. When one could see the suprarenal body quite distinctly and judge as to its condition and as to the presence of extraneous growths and other things of a like character, one could not but think that the method must come very largely into vogue in this and in other countries. Dr. Carelli could apparently make his injections with absolute safety, and had no trouble of any kind whatever. Another valuable improvement lay in the use of the Potter-Bucky diaphragm. An extraordinarily large proportion of the people affected with kidney calculi and disease of the kidney were very stout people, and although he had heard a prominent radiologist say that, with the use of compressive methods, he could squeeze even the stoutest person into a sufficient thinness for this purpose, this was not so readily done in a good many cases, the people objecting very strongly to such compression as that. The Potter-Bucky diaphragm certainly eliminated a number of the disturbing shadows, and, with very little compression, furnished a picture of great clarity which made diagnosis infinitely easier. In the speaker's opinion the whole subject was in a state of flux at present, though it was true that great advances were being made which in the course of time would enable medical men to say with the greatest accuracy to what the condition was due—whether a calculus or disease or some extraneous trouble.

Dr. R. M. BEATH (Belfast) referred to one class of case in which pyelography was of great value. One came across a good many cases where the symptoms were such that one would expect to find a calculus either in the kidney or in the upper part of the ureter. Clinically the condition seemed very much like that of calculus, and yet nothing could be seen. When, however, a pyelogram was taken a very definite kinking of the upper part of the ureter would be found, not due at all to the bending of the catheter in the ureter. On operation those cases were found to have a definitely abnormal renal artery crossing the ureter and compressing it. In two or three cases which had been followed up a division of that abnormal renal artery had completely relieved the symptoms. That was a condition which he did not think could have been shown except by a pyelogram.

[1] X-ray Diagnosis with Artificial Pneumoperitoneum and Perinephritic Emphysema, BRITISH MEDICAL JOURNAL, December 17th, 1921, p. 1037.

The PRESIDENT (Dr. Gilbert Scott) said that the success of x-ray examination of the urinary tract depended, first of all, on proper technique, and, secondly, on accurate interpretation. Interpretation was rendered easier if the technique was correct. He did not think that Dr. Salmond had laid quite enough stress on the importance of attention being paid to minute or apparently unnecessary small technical details. Two of the most important of those details were the preparation of the patient and efficient compression. As to the respective merits of films and screen examination, personally he preferred films, but if one used intensifying screens for kidney work one should be sure that one did not overexpose. It was much better to have a definitely underexposed plate if the intensifying screen was being used for kidney work. All sorts of weird shadows would be found on the plate if there had been slight overexposure. It was important that the plates should be carefully examined in proper lighting. He desired to lay stress on the value of showing the shadow of the renal outline. He did not think that pyelography was used to anything like the extent it should be. Mr. Ogier Ward considered it a laborious and troublesome affair, but personally the speaker was able to do the whole operation in half an hour. It depended, to a certain extent, on the surgeon; the surgeon must co-operate, but if he was expert in passing the catheter without delay the whole thing could be done in half an hour. There must, however, be absolute co-operation. Pyelography was of extreme value, and he did not think the surgeon used it to anything like the extent he should. With regard to the matter of perirenal inflation, he had been rather disappointed. He could not persuade the surgeon to take it up, and he could not do it himself, as he did not think it was for the radiologist actually to place the needle and pump in the air. He thought it ought to be considered as an operation. He had been trying to persuade many surgeons to do it, but they would not; they said that the danger of penetrating the artery was too great. His own view was that, if ordinary precautions were taken, there would be no danger, and it would be of great value in certain cases. He desired to ask Mr. Ogier Ward whether, after using his 20 per cent. of sodium bromide, haematuria had occurred in any of his cases. It had been reported to him that sodium bromide did tend to cause haematuria after it had been used. He agreed with Dr. Rowden that the screen examination was not sufficiently used. Personally he used a screen examination after he had seen a suspicious shadow on the plate. For further investigation screen examination was invaluable. He did not quite agree that every case should be dependent on screen examination only, because he had seen faint shadows on a plate, and on screen examination had absolutely failed to find them. Although he knew exactly where they were, he could not see them. Therefore he had come to the conclusion that while in ordinary work screen examination would certainly be quite reliable, in very fine work a shadow, possibly of vital importance in the diagnosis, might easily be overlooked. At the same time, screen examination was of extreme value, and to his mind was not used sufficiently. He thought it was not enough appreciated.

Mr. OGIER WARD, in reply to the President's question, said that he had not come across any case of haematuria in his hospital resulting from the use of 20 per cent. sodium bromide. Dr. ROWDEN said that his method was to screen first, and then to radiograph in the old-fashioned way.

Dr. R. W. A. SALMOND, who also replied, said that the remarks and criticisms of the President of the Section were very welcome, as Dr. Gilbert Scott was well known to be a past master in this branch of radiology. The speaker, however, did not agree with him that proper compression did not immobilize the kidney, because in earlier days it was possible to demonstrate the sharp outline of the kidney with an exposure too long for the patient to hold his breath and with only compression as a help. With regard to the relative values of ureterography and opaque bougie, he agreed that the former was the more important. He was greatly interested in Dr. Rowden's remarks in advocacy of screen examination with palpation, and he had no doubt whatever

September 8th, 1788, was communicated by our founder, J. C. Lettsom, and is printed in the second volume of the *Memoirs* of the Medical Society of London (1794). The treatment consisted in "temperance in diet, a diminution in the usual quantity and a change in the quality of the food, an increase in exercise, the occasional loss of a few ounces of blood, and the moderate use of cooling aperients. This regimen was more strictly enjoined in the last months of pregnancy from a persuasion that an observance of it in the former months would avail little if neglected in the latter."

Lucas mentions a case of contracted pelvis where embryotomy had been performed in the two previous labours; under his treatment the next labour was remarkably less tedious and the child was delivered without difficulty. He gives other instances of the benefit of this treatment. This method of starving the mother to diminish the size of the child is usually attributed to Prochownick, who published a paper on the subject in 1901. It is interesting to find that it was first published by the Medical Society of London more than a century before. The method, of course, has its limitations and is very rarely employed at the present day; but I have recently seen a patient who was successfully delivered in America of a small child after adopting the treatment recommended by Lucas.

Symphyseotomy and Pubiotomy.

In the year 1772 Jean René Sigault published a paper, "An in partu contra naturam sectio symphysis ossium pubis sectione caesarea promptior et tutior?" Five years later, on October 1st, 1777, he first performed the operation on a patient named Souchot, delivering her of a living child, the mother recovering with the discomforts and inconveniences already mentioned. The Faculty of Medicine of Paris had a medal struck in Sigault's honour and in many directions there was great enthusiasm over the operation. But next year, in 1778, Piet reported that he had previously delivered the patient Souchot of a large child with prolapse of the cord without much difficulty, and thus took away a little of the credit of Sigault's achievement. Gradually the enthusiasm died down on the Continent and in England the operation was looked on with disfavour, mainly owing to the researches and writings of the Hunters and Denman. The first time this operation was performed in England was in 1782 by Welchman.[1] The child was dead and the mother succumbed.

It was only in Italy that the operation continued to be performed, though sporadically, till it was revived by Morisani in 1881 and by Pinard in 1900; the latter in 100 operations had a mortality of 12 per cent. for the mothers and 13 per cent. for the children. Since that date the division of the symphysis and its modification pubiotomy have been extensively practised on the Continent and to a less extent in this country, with a gradually diminishing rate of mortality. The reason why it has not been more in favour is that it inflicts considerable injuries on the mother and has a higher rate of mortality for the child than Caesarean section. It has the advantage that in a doubtful case it permits a trial of the effects of labour without increasing the risk of the operation and may be employed in a limited class of cases of slight pelvic contraction. In this country, however, the enthusiasm of some of its advocates appears to have evaporated. I have never performed the operation, and am of opinion that it is very rarely indicated if the cases of contracted pelvis are properly investigated during pregnancy. The disadvantages of symphyseotomy and pubiotomy have led to other operations for enlarging the pelvic cavity, such as excision of the pubic bones and of the sacral promontory; but these operations have not led to any practical results.

The Induction of Premature Labour.

Of this life-saving operation, purely English in origin, we have the first account in Denman's *Introduction to the Practice of Midwifery* (third edition, 1801, p. 394). It was given to Denman by Dr. C. Kelly, who informed him that

"about the year 1756 there was a consultation of the most eminent men in London at that time, to consider the moral rectitude of, and advantages which might be expected from the practice, which met with their general approbation. The first case in which it was deemed necessary and proper fell under the care of Dr. Macaulay and it terminated successfully. The patient was the wife of a linen draper in the Strand. Dr. Kelly had himself performed the operation three times on the same woman and twice the children had been born living."

Denman defines the limitation of the operation in these words: "It is in those cases only in which there is a reduction of the pelvis to a certain degree and not beyond that degree that this operation ought to be proposed or can succeed." He mentions the case of a lady of title who had had four dead children at term. Labour was induced early in the eighth month of her pregnancy and the child was born alive and survived.

Denman induced premature labour by puncturing the membranes, and stated his opinion that the operation is perfectly safe to the person on whom it may be performed. Puncture of the membranes is still used by some obstetricians (for example, v. Herff) as a means of inducing labour; but the favourite method is the bougie method, first employed by Sir J. Simpson in 1854. It is usually described as Krause's method, whose publication, like Simpson's, is dated 1855.

The induction of premature labour has always remained an essentially British and mainly English operation. In France it was opposed by the great authorities Baudelocque and Capuron, and not till 1830 was it favoured by Stolz. In Paris it was first performed by P. Dubois in 1840, but was condemned on insufficient grounds by Pinard in 1900. In Germany Wiedmann wrote in its favour in 1779; his pupil Wenzel was the first to perform it in 1804, and his paper with Froriep's commendation led to its adoption in Germany, where it is still practised, but is by no means a favourite operation. In Berlin it was first employed by v. Siebold in 1819. In the Scandinavian countries it was not performed till the year 1827. In America Whitridge Williams, of Johns Hopkins Hospital, Baltimore, states that he has never found it necessary to resort to the induction of premature labour in contracted pelvis. His erroneous reasoning in adopting this attitude has been pointed out by Dr. Herbert Williamson in an excellent article.[2] I will only add here that in his alternative treatment by Caesarean section Dr. Whitridge Williams finds it necessary to resort to the mutilation of the mother by hysterectomy with remarkable frequency.

From this brief historical review of the induction of premature labour it will be seen that the operation has met with little favour on the Continent of Europe and in America. If one inquires into the cause it is found in three factors—that the operation has been performed in unsuitable cases, at unsuitable times, and by unsuitable means.

The cases of contracted pelvis suitable for the induction of premature labour are those with a true conjugate diameter of not less than 3¼ inches; the operation should not be undertaken before the thirty-fifth week from the last day of the last menstruation, and the bougie method of Simpson or rupture of the membranes is the best method for ordinary cases. Champetier de Ribes's bag may be required in special cases, though it has the great disadvantage (amongst others) that it displaces the presenting part. For a pelvis with a conjugate diameter less than 3¼ inches in length Caesarean section is more suitable, though I have delivered by induction at the thirty-fifth week through a pelvis with a 3-inch conjugate a child who grew up to womanhood. The mother died some years later after an operation for cancer and the pelvis is exhibited to-night.

Carried out in the manner indicated induction of premature labour is an excellent operation, giving results to the child less favourable indeed than Caesarean section, but to the mother even better than those of natural labour at term. The operation has been repeated in one of my cases twelve times with the result of twelve living children. The larger the pelvis over the 3¼-inch minimum the later the induction should be deferred, but for pelves with a 3¼-inch true conjugate it is better generally to let the patient go to term unless the head is unusually large. It is important that the delivery of the premature child be left to the natural powers, forceps and version being particularly injurious to these infants.

Having had a large experience of this beneficial operation, having watched the upgrowing of some of these premature

3. An optic tract which transmits faithfully the two retinal pictures which the brain has to fuse.
4. A cortex which forms concise pictures of the two retinal images—that is, what is known as good fusion sense.

A man who is suffering from imperfect co-ordinated action of his extrinsic ocular muscles is said to be heterophoric—in extreme cases he squints. Many men, probably the majority, have one eye that lags behind the other to a greater or less degree in co-ordinated movements. It is part of what we mean when we say a man has a "master eye." But it is not all—to find the cause of his heterophoria one must go back probably to infancy. One eye begins by being better than the other, and the worse eye gets careless and "neglects." No one, I suppose, can explain why one eye is born worse than the other or in what developmental fault the difference consists. It may, I presume, be one or more of several parts of the machinery which are defective.

Whatever it is, if there is inequality the better eye tends to do the work. Thus to us the word "heterophoria" connotes more than merely "latent squint," an unequal action of extraocular muscles moving the eyeballs. It means some of the above conditions are causing bilateral disharmony.

Thus in the treatment of heterophoria we aim not only at exercising eye muscles—for example, by use of the amblyoscope—but also at re-educating neglecting eyes and teaching them to observe—for example, by Wells's stereoscopic charts. In our view a man with one eye, or with one totally neglecting eye, who has learnt to judge stereoscopically by other means—namely, experience of distance, light and shadow, parallax, or alternating head movements—is less dangerous than a two-eyed man whose one eye only occasionally strikes work.

To Wing Commander Clements (ophthalmic specialist to the R.A.F.) belongs the chief credit of realizing the importance of orthophoria amongst aviators. Under his supervision organized treatment is undertaken in the R.A.F. for flying personnel suffering from heterophoric conditions. Bad landers, suffering from manifest signs of heterophoria, are sent to the school. The results so far encourage us to believe that real improvement is effected. Indeed, we *know* that real improvement has been effected in a number of cases of heterophoric bad landers, but we have not yet got controlled statistics to show how far this improvement can be definitely proved to be due to the methods of eye training pursued, and to those only—or as to how long improvement is maintained.

The effects of glare are also of great importance in connexion with heterophoric conditions. No doubt the importance of these conditions is not confined to air force flying, but in the other services those engaged in work such as range finding have to be watched similarly. I know that it has been considered in the navy.

Recent experience seems to show that for the pilot the most important effect of glare is to cause lack of convergence and accommodation, thereby making visual judgement difficult and causing difficulty in landing. The other effects of glare, such as retinal asthenopia, headache, conjunctivitis, etc., being later and more obvious effects, were not of such immediate importance to the pilot. According to the *Report on Glare in Egypt* by Squadron Leader Rippon in which 150 cases were dealt with, supported by orthotelemeter examination, and to Flight Lieutenant Livingston's reports on some 50 cases in India, the main effects were: (1) fatigue of the ciliary muscles; (2) lack of convergence and accommodation associated in some cases with spasm of accommodation; and (3) aggravation of any existing imbalance of ocular muscles. It was emphasized that the chief effects of glare were produced on the ground and only became dangerous factors when the pilot went into the air.

II.—Wing Commander CECIL CLEMENTS, R.A.F.M.S.

Judgement of Distance.

The part played by the eyes in the judgement of distance has always keenly interested me, and in the British Medical Journal of December 8th, 1906, I called attention to errors of vision as a factor in motor-car accidents.

Observation before the war of private and hospital patients engaged in certain occupations showed that in every case their disabilities were associated with ocular muscle imbalance and by employing a modification of existing treatment with the "Worth-Black" amblyoscope and the stereoscope the normal balance was again restored without recourse to prisms or glasses, and when this was attained the associated physical symptoms vanished.

During the latter part of 1916, as ophthalmic specialist to the 4th Northern General Hospital, I came into contact for the first time with large numbers of officers and cadets of the flying services. It became increasingly evident on examination that these same conditions were present in those officers and cadets whose judgement of distance was faulty, and also in a certain number of gunnery officers complaining of similar symptoms.

Investigations at the flying schools revealed the fact that 80 per cent. of all crashes in training squadrons occurred whilst landing machines. An independent inquiry by Graeme Anderson gave almost identically the same figures in two different series, while Rippon found the proportion was 65 to 70 per cent. at Hendon Aerodrome.

At this time I had no special experience of flying and knew little of the visual requirements of aviation. Permission was therefore requested and obtained to study such conditions. It was found that, of all parts of elementary flying instruction, "landing" provided the greatest difficulties, and that these increased with the newer types of machine which, owing to increased engine power, landed at greater speeds.

The conclusions arrived at were:

1. Correct judgement of distance was a necessity in aviation.
2. That failure to land machine correctly was mainly due to faulty judgement of speed and distance, which was associated with lack of ocular muscle balance and with poor binocular vision.
3. That from financial consideration alone apart from injury to pupils and pilots it was uneconomical to train such pupils owing to (*a*) damage to machine, (*b*) waste of instructors' time, unless something could be done along the lines of my previous experience to help these bad landers to do better, and thus enable them to continue their training and to remain in the flying services, which were then urgently in need of men to meet the combination of war wastage and expansion.

The following is a brief description of the routine tests used to discover and estimate these ocular conditions which I will not label as "heterophoria" and so wander into discussion of definitions, but will simply designate together as "X."

Test for Convergence Power.—Hold a pencil in front of the patient at about 1 foot from his eyes, with point on a level with the root of his nose. Tell him to fix the point, then steadily move it forward, watching what happens to his eyes as they converge. What may happen is: (1) Both eyes may converge, fixing the pencil until it gets within an inch or two from the root of the nose—that is, no want of convergence. (2) One eye may continue to fix up to an inch or two from the root of the nose but the other will cease to follow and may turn outwards at any distance from the nose—he may or may not see double. (3) On convergence breaking down neither eye may fix and he may look into the distance stating he sees double anywhere inside 10 inches; further, he may resist by throwing back his head and complaining that it hurts him. In No. 2 he has learnt to become monocular and such a response is taken to mean that he has had the trouble for some time. In No. 3 the trouble is recent and he has not yet learnt to fix with one and ignore the other confusing eye. This condition is found after crashes, influenza, fatigue, and debilitating diseases. Convergence power is estimated by giving the following values: 2 inches or under, very good, possibly excessive; 2 to 3 inches, good; 3 to 4 inches, fair; 4 inches and over, poor.

Cover Test for Muscular Defect.—Again ask the patient to fix a pencil held in a similar manner and with the other hand cover one eye with a card, move the pencil from side to side and then uncover; watch whether the eye moves on uncovering. Repeat the test for the other eye in a similar manner. A perfectly balanced pair of eyes will remain fixed on the pencil whether one is covered or not, whereas movement inwards or outwards on uncovering shows some lack of balance. If there is a convergent or divergent latency, it is described as slight, medium, or marked, and the response to the uncovering may be rapid, medium, slow, or no recovery. This to us signifies a good, bad, or indifferent reflex arc.

Red-Green Test at 20 feet.—The essential feature is that a suitable tint of red glass in one eye will cut out any rays of light from a green glass, and vice versa green glass in the other eye will cut out red rays. A slot 1/2 inch wide by 5 inches long is glazed in the upper 2½ inches with red glass and the lower 2½ inches with green. The person under examination—wearing a pair of reversible frames, glazed red in one eyepiece and green in the other—is told to look at the slot illuminated from behind and asked to state what he sees, and in event of both red and green being perceived what are their relative positions. A displacement of more than 0.5 of a degree of arc (about 2½ inches at 20 feet) is not

the operation. As a result of this unfortunate experience Baudelocque was assailed with the most violent obloquy by Jean François Sacombe, an eloquent, witty, and scurrilous charlatan, who occupies such a remarkable position in the history of Caesarean section that a few particulars of his career may be worth mentioning.

J. F. Sacombe.

Sacombe was born about the year 1750 at Carcassonne. After studying obstetrics at Montpellier and in England under Osborn and W. Hunter he went to Paris to practise as an accoucheur. He gave out that he could deliver any patient with his hand alone, without the use of any instrument. He was especially bitter against those who performed Caesarean section, and from the year 1790 onwards he disseminated his views by lectures, pamphlets, and posters. In one of the pamphlets he pilloried Baudelocque as a "murderer," for which libel he was condemned to pay a fine of 3,000 francs. Unable to pay the fine, he fled from Paris, but returned under the altered name of Lacombe in 1813. Having lost his obstetric practice he gained a living by selling secret remedies. "Deserted by Lucina, he paid attention to Venus," wrote a work entitled *Venusalgia*, and died discredited and neglected in 1822.

In order to carry on his campaign against Caesarean section, Sacombe founded his "École anti-Caesarienne" in 1798. Here lectures were given and an annual festival was held at which a silver medal was awarded to one of the pupils; on one side of the medal was the figure of Hercules slaying the hydra, with the inscription "No more Caesarean section"; on the other side a beehive and flying bees, and the inscription "Sacombe's anti-Caesarean School." The recipient of the medal had the privilege of embracing Madame Sacombe.

A statue of Bonaparte was set up in the school and Sacombe dedicated one of his works to him, and at one time praised the Consul for "muzzling the Caesarean tigers." In 1815, however, he was imprisoned for writing against the Emperor. Sacombe was a prolific writer, both in prose and verse. In his *Lucine Française* (1803) he gives an account of François Rousset, whose work on Caesarean section had been highly praised by Haller and Portal. Several faculties of medicine had disputed the glory of conferring a degree on Rousset, and Catherine de Médicis had appointed him her physician.

"However, I resolved," says Sacombe, "to overturn this colossal statue, to break it and to prove to my pupils that celebrity in medicine can only be desirable when based on talents and virtue. I will demonstrate that Rousset was neither a physician nor a surgeon, but a fanatic and ignorant criminal, and the vile instrument of depopulation of which the infamous Catherine de Médicis made use against the Protestants."

In his *Élémens de la science des accouchemens* (1802) he styles himself "Professeur de médecine et de chirurgie des accouchemens," yet he speaks contemptuously of accoucheurs as "hermaphrodites of the art" and "midwives in breeches." Of Clément, the first "accoucheur," he writes:

> Clément dut au hazard sa vogue et son crédit
> Il enrichit moins l'art que l'art ne l'enrichit.
> Accoucheur des Laïs, en dépit de Lucine
> Clément fit fortune où maint amant se ruine.

Sacombe's *Élémens* contains a portrait of the author and a plate of the École anti-Caesarienne, with a figure of the Caesarean hydra struck down "30 brumaire, an vii" (Fig. 2). Of this monster he writes:

"Born in the midst of the civil wars which desolated France towards the middle of the sixteenth century the Caesarean hydra, attracted by the odour of human blood, has raised again its hideous head amidst the scaffolds which crowned the soil of France at the end of the eighteenth century."

He ends his work:

"My task is complete; I have avenged Nature and consoled humanity in giving the death blow to the Caesarean hydra."

It was, however, not by the École anti-Caesarienne nor its discredited founder that the performance of Caesarean section was rendered infrequent, but by the almost uniformly fatal results of the operation at the end of the eighteenth century.

In 1866 Murphy found that of 56 operations in Great Britain 46 had terminated fatally (82 per cent.). Even as late as 1874 the maternal mortality was 54 per cent. in Europe and America.

Porro and Sänger.

In 1876 Porro (Fig. 3) introduced his method of amputating the uterus after the section. The effect of this, combined with Lister's antiseptic method, was to lower the death rate considerably, so that in Truzzi's great collection of all the "Porro" operations published up to 1901 the death rate was reduced to 24.8 per cent.

In 1882 Sänger introduced his method of suture, which still remains the favourite, and though various modifications have since been recommended, such as the incision into the lower segment and the subperitoneal and transperitoneal incisions, the Sänger conservative method with silk sutures carefully buried by a continuous peritoneal stitch has advantages over other methods in uninfected cases. The advantages of the Sänger incision and suture are (1) the rapid delivery of the child in an unasphyxiated condition; (2) the operation can be repeated with safety; (3) adhesions and rupture are rare if the wound be properly sutured with silk.

Results of Modern Caesarean Section.

The results of the modern Caesarean section in non-infected cases are highly satisfactory. Thus Routh in 1910 found a maternal mortality of 2.9 per cent. in "clean" cases, of 10.8 per cent. in cases with ruptured membranes, and of 34.3 per cent. in cases where frequent examinations or attempts at delivery had been made. From those and from figures collected by Holland (who dealt with hospital cases only) it is seen that to obtain a low mortality rate it is necessary that the mothers should not be infected when operated on. In such cases the operation should be free from mortality, and in my personal practice has been so.

Abuse of Caesarean Section.

The safety of the operation in skilled hands has led to a great abuse of the operation by its performance in cases in which it is quite unnecessary and often quite unsuitable. I have known it proposed for a patient with a large pelvis solely because she was 38 years of age; she was easily delivered by Nature of a 9 lb. child. When we read of hospital staffs and even individuals performing a hundred Caesarean sections in a year, it is time to make a protest against unnecessary operative interference. The most marked instance of "meddlesome midwifery" is contained in a work by I. W. Potter entitled *The Place of Version in Obstetrics* (1922). This author delivered 1,130 women in the year ending August 31st, 1921; of these, 100 were delivered by Caesarean section and 938 were delivered by version. It is to be regretted that such a line of practice should be advocated, as it will inevitably be attended with disaster in the hands of less skilful imitators.

Francis Bacon commends as excellent for the advancement of learning the keeping of Registers of Doubts, with the caution that "when the doubts be thoroughly sifted and brought to resolution, they be from henceforth omitted, discarded, and not continued to cherish and encourage men in doubting."

In obstetrics there have been many doubts. But doubt that natural labour is in ordinary cases preferable to operative labour should have been discarded long ago.

In the *Boston Medical and Surgical Journal* of June 14th, 1923, there is a thoughtful and remarkable article on Caesarean section, in which the author says:

"In the minds of certain obstetricians or surgeons Caesarean section is the only method by which a self-respecting patient can be delivered and maintain her standing in the community."

He also states—

"that the mortality statistics of Massachusetts show that of the women dying during pregnancy and labour in a given period approximately one-third die of complications which have been treated by Caesarean section."

flutter. Special attention should therefore be given to improving the general health, and especially the nervous health of beginners. If ocular balance was upset by glare, might it not be that the motor reflexes were embarrassed by strong centripetal impulses, and might the same not be true of intestinal or stomachic irritation? The speaker once measured a distinct alteration in his oculo-motor relations during a temporary attack of colic, and indeed the temporary squint produced in children by worms might be classed in the same category. All this emphasized the importance of the general health. Another suggestion he offered was to supplement the tests in near vision already described by others on a scale more proportionate to the distances with which aviators had to do. Ought not, for example, version tests in distant vision to receive attention? Again, would it not be possible partially to reproduce the conditions required for landing, as, for example, to let a seated man down rapidly with a rope, and let him pull a handle at the appropriate moment? He could be let down perpendicularly, or, better still, swingwise. It would not be so easy to make an appearance of the earth to rise up towards a stationary man, but perhaps even that might be achieved optically, as by the beam of a searchlight moving very quickly at right angles to itself.

Major CARRUTHERS (Liphook) had seen at Hampstead the result of Wing Commander Clements's training of cadets who had crashed and broken many machines, and was astounded at the results. Wing Commander Clements was not only an original worker who formed his own theories, but had the unique opportunity of putting his theories to actual test. However much his theories might be open to criticism, his results were facts and were beyond criticism. Major Carruthers hoped that Wing Commander Clements would remember that life is short, and would publish his methods and his results without long delay, as they would be of the greatest value to everybody interested in ophthalmology.

Major R. E. WRIGHT, I.M.S. (Madras), asked Commander Clements whether the methods utilized by otologists in investigating nystagmus produced by rotation were of value in connexion with the examination of men in the air force. Such methods had been highly developed by ear specialists, and would appear to have a very direct bearing on experimental ophthalmology in the air force. With reference to the President's question as to glare and its effects in India, Major Wright knew nothing beyond what had already been published in works dealing with the subject. It was a very difficult thing indeed to put into concrete form the actual ophthalmological results of glare. Normal eyes in healthy individuals seemed to stand glare very well. There was undoubtedly such a thing as glare conjunctivitis, or sunburn of the conjunctiva.

Mr. J. A. VALENTINE (Southsea) said that the amount of convergence necessary during a landing when the plane was some ten to twenty yards from the ground was less than a fraction of a degree; in a case of orthophoria with convergence insufficiency there should be no difficulty in effecting this minute amount of convergence. The same applied to the amount of accommodation necessary in approaching the ground. Was it credible that even a large amount of convergence insufficiency could make any difference whatever to an otherwise orthophoric airman in effecting a landing?

The PRESIDENT congratulated the Section on the excellent discussion. Mr. Clements's work was an admirable example of how such research should be carried out. Whether one agreed with all his deductions or not was relatively immaterial, for a measure of criticism stimulated further research. His work also showed how any research revealed new problems which had to be investigated. He (the President) had had some experience of the visual problems which confronted all three services during the war. Investigations and experiments had to be carried out hurriedly and unsatisfactorily during the stress of war, and practical results—often of doubtful validity—had to be obtained and acted upon. These problems ought to be investigated during peace time, with the assistance of experts obtained if necessary outside the services. Funds had been made available for the air force, because the air force could not be efficiently maintained if such researches were neglected. Funds had also been found for industrial research, and allotted to the Industrial Fatigue Research Board. The problems which confronted the combatant services were of supreme importance, and he (the President) hoped that this discussion might stimulate the Government to provide the machinery and the means for solving them.

Openers' Replies.

Air Commodore D. MUNRO, in replying to the discussion, referred to the stimulating suggestions of Mr. Maddox, and said that whilst the services had contributed something to the discussion, speaking for himself, new aspects of eye problems had appealed to him since he came into the room, and he thought that the service members would take away a great deal to think about. Speaking for the air force, they were fortunate in that all these problems were submitted finally to the President of that Section himself, Sir John Parsons, who was a member of their Medical Advisory Board.

Wing Commander CLEMENTS, R.A.F.M.S., in reply said: The question of "master eye" was one having a great deal of bearing on a pilot's capacity to fly certain machines. It was usual to land looking out from the left side of the aeroplane. Further, some machines were notoriously "blind" right or left, and in the past enough attention had not been paid by designers as to whether a pilot's vision was restricted too much. With reference to "glare," Air Commodore Munro had said that the glare which affected landing ability was not acquired whilst in the air, but whilst on the ground prior to entering the aeroplane. Glare and the question of night-blindness might be taken together; all those suffering from glare, if not definitely night-blind, showed more or less signs of lengthened adaptation time to night conditions. Efficient convergence was considered important because it was thought that it was one of the essentials for appreciation of fine ocular muscle movements. It was his (the speaker's) argument that what was called fusion was in reality only the power of interpreting fine muscular movement in terms of depth; and that, binocular vision being acquired, true fusion was only attained by repeated trial and error in these fine muscular movements. It was an automatic act, the stages of which had been lost to consciousness but not to subconsciousness, and that if anything affected the final adjustment it would show up as an error of judgement in consciousness, and would then cease to be automatic. With regard to the toxicity cases mentioned by Sir J. Parsons and Mr. Bishop Harman, he was certain that there was undoubted evidence of their occurrence, and he himself had quoted influenza as a frequent cause of loss of convergence. Regarding the value of rotation tests and nystagmus times, labyrinthine sensations only gave information as to position in regard to the thing with which the person was in contact, but in an aeroplane during flight it was quite impossible for the labyrinth to give any information as to position in relation to the ground. As an example of this he quoted the well known effect of flying in clouds: a pilot had been known to emerge at the same point as he entered, but flying not only in the opposite direction, but also upside down, not realizing the fact until he was able to get a glimpse of the horizon. From this it would appear that vision was the final judgement in the recognition of position in space. In response to the request for information about training methods, Wing Commander Clements gave the salient features in relation to the various types requiring treatment.

Resolution.

At the close of the discussion the following motion was put to the meeting by the PRESIDENT:

> That this meeting of the Ophthalmological Section recommends that the Council of the British Medical Association press strongly upon the Government the great need for research upon

is reason to believe that they are similar to those of the other afferent neurones except that their cell bodies may be smaller and their processes finely medullated.

The afferent neurone conducts nerve impulses into the central nervous system. Its axis cylinder, after reaching the brain or spinal cord, as a rule divides into ascending and descending branches, which in their turn give off other branches ending in synapses with the dendrites of other neurones. The path taken by the nerve impulse in the central nervous system is partly determined by the anatomical distribution of the axis cylinder carrying it, and partly by the character and resistance of the synapses it meets.

The Nerve Impulse.

The nature of the nerve impulse is unknown. It is not an electrical current, but is immediately preceded by a temporary change in the electrical potential of that portion of the axis cylinder which is at the moment conducting the nerve impulse. Such change in the electrical potential is common to living tissues in a state of activity, and by suitable means can be demonstrated as a "current of action." The whole neurone does not go into activity simultaneously, but responds to a stimulus in a characteristic manner. The response takes the form of a nerve impulse which travels from the point of excitation at a definite rate of about 120 metres per second. The nerve impulses, though capable of following one another at a frequency of from 50 to 60 per second, cannot fuse because after the passage of each impulse the nerve fibre is for a minute fraction of a second in a refractory state, during which it is incapable of conduction.

The nerve fibre requires a supply of oxygen to enable it to maintain its power of conduction, but it shows no measurable sign of oxidation, no rise of temperature, and no fatigue, even after long-continued activity. Further, the individual nerve impulse, as shown by the work of Keith Lucas and Adrian, is practically invariable in strength. It obeys the law of "all or nothing." The weakest stimulus that is effective produces a maximal response in the neurone. In other words, there is no grading of the individual nerve impulse. The number of impulses carried in unit time may vary, but cannot exceed a maximum imposed upon the neurone by the length of the refractory period. The only exception to the constancy of strength of the nerve impulse lies in the fact that immediately after the refractory period there is a supernormal phase in the neurone during which the response is a little stronger. The nerve impulse is always of the same nature by whatever nerve it is carried. This principle is the basis of Müller's law of "specific energies" or "specific irritability." It means that the end-result of the stimulus of nerve is determined, not by the character of the nerve fibre, but by the nature of its ending.

If we assume that the neurone has no power of automaticity, and that it only conducts in a forward direction, we are driven to seek the origin of all nerve impulses in the receptors on the afferent side of the nervous system. Whether the first assumption is true or not for all parts of the nervous system, it is so as regards the production of normal sensation and of reflex action, and it provides a good working hypothesis for clinical purposes. The nature and site of the receptors become matters of special importance.

The Receptors.

The receptors are widely different in structure and possibly in the manner in which they convert the adequate stimulus into a nerve impulse. In some instances the receptor appears to be a part of the dendron of the first afferent neurone itself. In the olfactory mucous membrane the dendron of the olfactory cell forms a fine projection which is stimulated by chemical substances in solution on the surface of the olfactory membrane. In the retina the outer ends of the rods and cones, modified dendrons, are stimulated by light, and possibly the actual stimulus is again a chemical one, depending upon the decomposition by light of a photo-chemical substance in them or in their neighbourhood.

In other sense organs the receptors are not always a part of the neurone itself, but special organs with which the neurone comes into close association. In the cochlea and vestibular apparatus the receptors are hair cells which are adapted to respond to a mechanical stimulus, and their response is converted into a nerve impulse in the neurones. Now nerve fibres are comparatively inexcitable whereas receptors respond to forms of energy which have no effect upon nerve, and which may be infinitesimally small in amount. The receptor is specially adapted to respond to some particular form of energy, and it acts as a transformer of this energy, and when necessary adds energy of its own in order to produce the excitation of the neurone. The most effective stimulus of nerve is an electrical one of a very definite character. The nature of the optimal stimulus of nerve—the "characteristic" as it was named by Waller—has been more exactly determined by Keith Lucas. It is not so much a matter of difference of electrical potential as of the rate at which the alteration in potential takes place. Changes in electrical potential of this nature occur in living structures when set into activity, and it is possible that this factor is made use of in the excitation of nerve by some receptors. The receptor is set into activity by an appropriate stimulus for which it is adapted by structure, the stimulus being of a physical or chemical nature, and the change of potential thereby induced in the receptor may be the actual cause of excitation of the adjacent nerve fibres.

The receptors of the body are divided into two main categories: the exteroceptors, which receive stimuli from sources of energy outside the body, such as light, sound, and pressure; and the interoceptors, which are affected by events taking place inside the body. The proprioceptors are an important variety of the latter, and are the receptors which are excited by the tension of muscle, ligaments, and tendons, and the action of gravity. The proprioceptors give origin to the reflexes concerned with the maintenance of muscle tone and the posture of the body.

Receptors are not provided for all forms of energy—as, for example, Roentgen rays and ultra-violet light—and unless appropriate receptors are present such forms of energy do not excite nerve impulses nor give rise to sensation or reflex action. They may exert an influence upon the tissues of the body, but not of a nature adequate to excite nerve impulses until damage to the tissues is actually done.

The same form of energy may excite different receptors, especially when it differs in degree. Heat affects the receptors in the skin, and gives rise to the sensation of heat. If the wave-lengths are appropriate they excite the receptors in the retina and the sensation of light results. The same stimulus may excite the production of more than one sensation. Heat applied to the skin may cause a sensation of heat and a sensation of pain; pressure the sensations of pressure and of pain. The two sensations may be ascribable to the action of the same stimulus upon different receptors, and the paths of the nerve impulses are then separate from their origin to their termination in the higher levels of the central nervous system. There are receptors which, when excited by an adequate stimulus, give rise to nerve impulses producing reflexes, but which are not normally associated with consciousness. Many of the interoceptors are of this nature, and initiate reflexes which are unaccompanied by sensation. On the other hand, the receptors which are concerned with the production of sensation may at the same time initiate reflexes. In the "conditioned" reflex the same receptor probably serves for both sensation and reflex. In some instances the same receptor gives rise to a nerve impulse which almost immediately spreads into two or more afferent channels and is carried to different parts of the brain. Light falling upon the retina excites its receptors, and the nerve impulses set up pass by different paths to produce the sensation of light and the reflex movements of the pupil. The retina is exceptional in that it contains several short neurones and intervening synapses, which allow an immediate spreading of the nerve impulses, but an example of an immediate spread of the nerve impulse is also found in the "axon" reflex. Certain receptors in the skin give origin to nerve impulses which pass to the central nervous system and at the same time spread along branches of the axis cylinder

sponge rubber buffer to support the forehead and shield the eyes from extraneous stimuli. For gun-sighting telescopes the experimental firing with this device took place at sea in H.M.S. *Canterbury*, off Portsmouth, and I watched the successful issue of the trials with great interest.

NAVAL CODE OF LIGHTING.

Service Afloat.

1. In order to see well, several factors are concerned—fair health, good eyesight, normal retinal adaptation, sufficient light flux, adequate distribution and direction of light, and quiet contrast.

The Eye.—Vision is a complex affair, the eye being highly trained and delicately sensitive in retina and iris to the balanced reversible electro (chemical) reactions resulting from impact of light energy around the sensitive retinal terminals of the optic nerve. The eye is a trigger, as it were, that starts into action nervous impulses which arrive at the cortex of the brain where perception results, and whence highly complex co-ordinated actions originate. It is not the eyes only, but the whole mechanism of vision that is liable to fatigue under conditions of faulty illumination and mal-hygiene generally.

2. In any system of lighting, light will be reflected from surrounding objects, deck bulkheads, sides and impedimenta. Light so reflected will vary in quality and amount and such variation is important and is calculable in any system under the term "coefficient of utilization," usually 0.2 to 0.6 according to size, shape and tinting of enclosing surfaces.

3. The intensity of light, measured in lumen (1 lumen = 0.929 c.p. per square foot), to be maintained, should not vary appreciably from the following—with 25 per cent. margin for deterioration on instalment. [The table is omitted.]

4. Glare, glitter, and, on the other hand, gloom, are to be avoided. Source of light should be shaded, so that naked direct light subtends, at the eye, an angle of 75 degees or thereabouts (brow angle) with the visual horizon, when the eyes are directed straight forward.

5. Lamps should be mounted overhead in closer range (1 to 1) than in civilian practice, where the ratio of height of mounting above working plane to distance apart of the lamp is as 1 is to 1½.

6. *Dome Lighting.*—The principle of naval lighting is thus direct (ensuring economy) with total absence of dazzle (minimizing eye fatigue) and amounts in effect to a lowering of the "light ceiling"—the light issuing from a number of unobtrusive domes.

7. On the area of the working plane light should fall uniformly, and not vary over that area more than 4 to 1. Brightness contrast should not exceed the ratio of 20 to 1. For example, on a billiard cloth, beneath a shaded light source, the red and white balls receive the same uniform flux of light, but the whites reflect so much more light than the red ball, that annoyance is caused if total flux be excessive.

8. *Police Lights.*—[Details omitted.]

9. *Chart-room illumination* presents a threefold problem: (*a*) day lighting; (*b*) partial day and artificial lighting; (*c*) artificial lighting. In (*a*) a curtain or blind or green frosted glass housable shutter to be provided for sunglare. In (*b*) dome-shaded direct light from the upper left and rearward side of the navigator. This should be on a dimming resistance so that light flux may be reinforced when, in (*a*), flux of daylight is insufficient. In (*c*) as in (*b*) with added attention in providing an adequate coefficient of utilization.

10. *Submarines*—to be illuminated internally as in 1918 recommendations—care being taken that light flux be sufficient in amount and controlled by accessible switch, on rheostat. For use in harbour dome-shaded (75 degrees brow angle) lamps may be added. *Emergency lighting* by self-luminous radium bromide (foveal) spot lighting in vermilion-tinted fluting on levers, dial pointers, level surround and salient lines of control room (experimental research advised).

11. Reflecting surfaces should be free from glitter, of matte surface and champagne hue. Reflecting factor should be low from surfaces below and 30 degrees above the horizontal eye level—and high from surfaces above that angle.

12. Controlling levers and switches should be easily visible and naturally accessible.

13. In a bright light the eye is adapted or tuned to a high level of brightness and visualization remains good if variation in brightness be neither great nor rapid. Figures given in this code relating to artificial lighting must be X 2 for day-lighting at least, and partial day-lighting necessitates reinforcement by artificial.

14. A properly trained staff should be held responsible by the captain for cleanliness and condition of lamps, shades and reflectors.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL CASE OF PNEUMOTHORAX.

THE following notes of an uncommon condition seem to be worthy of publication. The patient was a schoolboy aged 18 years, who received an injury to the chest while playing Rugby football.

The family history is as follows: Maternal grandfather lived to over 80 years and paternal grandfather died aged 86. He has no definite knowledge of his female grandparents. Father alive and well aged 75 years, mother 55 years and healthy. Two brothers alive—one aged 20 years healthy, the other aged 12 years described as delicate. One sister died at 2 years—cause unknown. There is no known history of pulmonary tuberculosis.

The patient had pneumonia in 1914, followed by whooping-cough, otherwise he has rarely been ill.

He was playing football on November 17th, 1922, and was in the act of scoring a try when an opponent knelt heavily on the back of his chest. He felt a very slight pain but no dyspnoea. The next morning he complained of slight pain in the left side of the chest over the precordium. There was no evidence of fractured rib. In two days he felt perfectly well. He played football again on November 24th and, after the game, complained of slight shortness of breath.

I found the following physical signs in the chest: There was no alteration in the percussion note over either lung, nor any change in vocal fremitus or resonance. Over the right lower lobe posteriorly there was an area of high-pitched distant bronchial breathing. I sent him to Dr. A. J. Cleveland of Norwich for an opinion, especially having in view the *x*-ray findings. The following are his notes of the case:

"I saw this patient on November 28th, 1922. I found that both lungs were resonant all over. The heart apex was just outside the nipple line. Over the right lower lobe there was a fair-sized patch of bronchial breathing. I got a modified 'bell sound' but no metallic tinkling. With *x* rays it was obvious that there was a moderate-sized pneumothorax at the outer and lower side of the right pleural cavity. I could find nothing to suggest a fractured rib. In 1914 he had a bad attack of right lobar pneumonia and whooping-cough, and I conclude this must have left some weakness of the alveolar walls, which gave way under the strain caused by a heavy man falling on his chest. I saw him again a fortnight later and the physical signs were much less definite and, after another fortnight, I could not detect any evidence of pneumothorax either with *x* rays or the stethoscope. At no time could I find any evidence of pulmonary tuberculosis. When I last saw him he appeared to be in excellent health."

He returned to school on January 20th, 1923 (he had been resting quietly at home till then). He began to play hockey about a fortnight later and played regularly until the end of March. I examined his chest several times and could not detect the slightest abnormality.

A. S. HENDRIE, M.B., Ch.B.Edin.,
Medical Officer, Gresham's School.

TWO CASES OF LIGHTNING STROKE.

THESE two cases are considered worthy of record as I have not seen a similar train of symptoms recorded elsewhere.

Both men were standing in the door of a cowshed while a violent thunderstorm was in progress. A flash of lightning struck them, throwing both to the ground, one on top of the other. They were seen about half an hour later. Both had arborescent markings on the left side of the face and neck of an erythematous nature. The marks lasted for about twenty-four hours.

One was rendered unconscious by striking his head on the brick floor. As a result of the fall this man developed a traumatic cataract. From the time of the injury he complained of blindness in the affected eye and there was considerable conjunctival suffusion. Opacity of the lens was not obvious until about the tenth day; it then gradually increased, and the eye has been operated on.

Both men complained of pain in the supraclavicular region radiating down the arm. Weakness of the affected limb and sensations of pins and needles were present for two or three weeks, but this condition cleared up, leaving no disability.

Burgess Hill, Sussex. I. H. LLOYD-WILLIAMS, M.B., B.S.

We regard pain as a sensation which under certain conditions is superadded to the reflex, and the nerve impulses giving rise to pain we regard as excited by the same receptors and carried into the central nervous system by the same afferent neurones as those which bring about the reflex. Pain may be readily added to the reflex, as in the case of the afferent neurones from the cornea, or more rarely added, as in those from the heart muscle. The harmful stimulus, as has been shown by Sherrington, takes precedence of all others in bringing about its distinctive reflex, even in the spinal animal in which there can be no perception of pain. These observations appear to us to point to the reflex as the more important end-result of the harmful stimulus. In certain cases of injury to the spinal cord where areas of hyperalgesia are found in the skin the slightest stimulation of the latter results in pain. We cannot but conclude that here we are dealing with a central change, and that the nerve impulses excited at the periphery, which in the normal individual would cause no pain, now do so because of their more ready access to the pain tracts in the spinal cord. The actual cause of this increased passage of nerve impulses into the pain tracts appears to us to be explainable by a decreased resistance in the synapses between the endings of the afferent neurones and the dendrons of the neurones which constitute the pain fibres of the spinal cord. We know that the nerve impulses giving rise to pain are carried by fibres which decussate to the opposite side of the spinal cord soon after the impulses have reached the cord, and that this decussation is not made by the incoming afferent neurones. Consequently there must be a synapse intervening between the incoming afferent neurone and the neurone which carries the impulses upwards on the opposite side of the spinal cord. This synapse, guarding as it were the entrance to the pain paths, is of great significance, for it interposes a resistance which is probably very varied for different afferent neurones, and is in each case susceptible to those changes which are characteristic of the synapses in general. So far as we know the afferent fibre on arrival in the lower level of the central nervous system gives off a number of branches and makes connexions with other neurones. Pathways are thus provided for a great many reactions.

It seems to us that neither pain from tissues endowed with common sensibility, nor from the viscera, requires special nerve fibres from the periphery, and that the analysis of the afferent nerve impulses takes place in the lower level of the central nervous system. Pain from tissues endowed with common sensibility becomes educated, capable of localization, and modified by other sensations. Pain from the viscera is comparatively rare, uneducated, unmodified by other sensations, and the nerve impulses which cause it, on coming into the lower level of the central nervous system, excite the same neurones in the pain paths and give rise to pain which is referred to those areas of higher sensibility with which it has by education been associated.

There is, therefore, no necessity to postulate the separate existence of special receptors and special nerve fibres for the sense of pain. It is not indeed reasonable to assume that structures like the ureter and other viscera are provided with special receptors and special nerve fibres to meet a pathological event which may not occur for generations. The stimulus which is adequate to excite pain in the viscera or elsewhere may do far more than this. It sets up nerve impulses which spread widely in the lower level of the central nervous system, and may give rise to nausea, vomiting, sweating, vasomotor, cardiac, respiratory, and other reflexes, or even shock. Pain may or may not occur in association with any or all of these symptoms. Pain is a concomitant very often, but is not the cause.

Pain is one of the most important manifestations of ill health, and when it occurs is of special diagnostic value because the site of its excitation can be more or less definitely located. In this way a clue is given to the site and cause of the disturbance which is not to be obtained from the other symptoms occasioned by the spreading of the nerve impulses in the central nervous system.

PELLAGRA IN CHILDREN IN ENGLAND.

(With Special Plate.)

BY

ROBERT HUTCHISON, M.D., F.R.C.P., PHYSICIAN, AND DONALD PATERSON, M.B., M.R.C.P., PHYSICIAN TO OUT-PATIENTS,

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Our object in reporting two cases of pellagra in children is to draw the attention of clinicians in this country to the fact that pellagra is endemic in England.

The diagnosis, except in typical cases seen during the spring and summer months, when the rash is well marked, is not easy, and a considerable number of cases probably remain undiagnosed on this account. In 1913 and 1914 Dr. C. R. Box described three cases of pellagra in children, two of them fatal. In one of these cases the pathology was described in detail by Sir Frederick Mott. All of these children had lived throughout life in England.

Case I.

Edna S., aged 6 years and 10 months, admitted to Great Ormond Street Hospital, April, 1923. The complaint was loss of walking power and shaking of the limbs. This had been noticed for six months. The family history appeared quite normal, no other person being affected. She was breast-fed for six weeks, then put on Nestlé's milk up to 11 months, since when she has had the same food as her parents. She had meat first at 3 years. She had always had plenty of milk, eggs, vegetables, and fruit. She was always fond of "cornflour" and would take nearly half a pint daily. She seemed a healthy child up to the age of 3½ years. She had lived at Little Blackenham—five miles beyond Ipswich—all her life except between the ages of 4 and 5½ years, when she had lived at Walthamstow. She had had "eczema" every year, starting in the spring. It was first noticed to occur after an illness, said to be "meningitis," at 3½ years of age. This illness lasted three months and was accompanied by fever and drowsiness; recovery was gradual. The rash appeared as the child got better. It appeared on the hands, feet, neck, and face. It appeared on the knees last year for the first time. It usually lasted four to five months, appearing first in March. In July, 1922, the child complained of "giddiness," and began to fall about. This came on suddenly, the child falling down when out walking. She did not lose consciousness and the attack lasted one and a half hours. A month later she had two similar attacks.

Present Illness.—The patient was comparatively well until six months ago, when she gradually ceased to walk more than a few steps, and tremor of her hands and arms developed. She walked with the aid of the furniture. She complains of pains in her head which seemed to start at the back of her neck and shoot over her head. Her eyesight failed and she could not recognize objects across the street. She had some frequency of micturition by day and night.

On admission, the child was miserable but well nourished. There were patches of dermatitis on the face, neck, hands and inner surfaces of the arms, knees, and backs of the thighs. The tonsils were large and injected. There was incontinence of faeces. The child had a tremor of her arms and hands. The pupils were equal and reacted to light. No cranial nerve palsy was noted. All her deep reflexes were increased. The plantar reflexes gave a flexor response, and the abdominal reflexes were not obtained. No ankle clonus was elicited. There appeared to be a certain amount of anaesthesia to pin-pricks over the legs and abdomen, but there was no definite distribution and it was difficult to be sure. Her Wassermann reaction was negative. The cerebro-spinal fluid was normal. Her mental condition was very backward and she seemed to have the feeling that she was continually falling. Nothing definitely pathological was made out from an examination of the fundi. The urine contained a few cells and a trace of albumin. The urea concentration test showed a normal output of urea by the kidneys. The blood urea was normal: 37 mg. per 100 c.cm. The rash which was present had the appearance of a dermatitis produced by exposure to the sun. A test meal showed a well marked reduction of the total acidity of the gastric juice. No free hydrochloric acid was present.

The patient was seen by Dr. L. W. Sambon, who stated that the distribution and character of the rash and nervous symptoms were typically those of pellagra. The child became much worse during the first week in May, 1923, and passed into a state of coma and died. Unfortunately no necropsy could be obtained.

Case II.

Helen S., aged 10 years and 9 months. Admitted to Great Ormond Street Hospital, July, 1922. The complaint was progressive mental deterioration and inability to walk, and in addition a rash on the hands, feet, face, and neck which came in the spring and summer and disappeared in the winter. She has lived all her life at Acton, a suburb of London, without leaving the district. The mother and father are both alive and well. The patient is

point. The experiment was designed for the purpose of measuring the glucose equivalent of insulin—that is, the amount of glucose that each unit of insulin could cause to be metabolized. His clinical associates had tried very carefully to determine in what they called "pedigree" patients—patients with a definite diabetic history, carefully controlled, and dependable for observations—how many grams of carbohydrate one unit of insulin was capable of causing to be metabolized in the diabetic organism. They found that the glucose equivalent varied considerably; one unit of insulin would sometimes give a glucose equivalent of nearly 2½ grams, and under another set of conditions one as low as 0.75 gram. It interested them to find out the reason for this variability, and they started with the assumption that the clinician was faced with a necessary error in that he had to use a patient who was not completely "depancreatized," and whose glucose equivalent, therefore, could not be expected to be always the same. The experiment accordingly was carried out on "depancreatized" dogs, and the results were remarkably constant in different animals; when 20 units of insulin were given per day the glucose equivalent was about 5.8; when 40 units were given it was about 3.0. When the animal was excreting considerable quantities of sugar, the unit of insulin had a much greater effect than it had when the animal was almost sugar-free. One could imagine that when insulin was given in small quantities, all of it was used in the organism, and came into contact with the glucose molecules which it caused to be metabolized. It seemed to the speaker that it would be of value to the patient to be treated with very small quantities of insulin, and investigations were now proceeding on the introduction of these in some special way. Such quantities would gradually increase the patient's ability to metabolize carbohydrates, and might make just the necessary difference to bring about a tolerably healthy state in those persons who were suffering from the milder forms of the disease. A good deal had been said about the skin irritation which sometimes followed administrations of insulin. So far as he could discover, this depended on the fact that insulin preparations always contained the trace of a protein. Insulin was prepared sometimes from the pancreas of the ox and sometimes from that of the pig. When a patient showed irritation after the administration of one kind of insulin, he frequently showed no such irritation on changing over to the other kind. From the discussion there appeared to be a difference of opinion as to whether patients should be given a sufficient amount of insulin to keep them normal in respect of blood sugar, or should be allowed to carry a certain load of glycosuria constantly. He thought that at the outset of treatment with a substance like insulin it would be safer to proceed on the basis that the blood sugar should be kept at the normal level. There was not sufficient evidence to justify the assumption that an excess of blood sugar might be regarded as a physiological condition. Another point was that in a case of diabetes going on for some time in which there was marked diuresis as well as glycosuria, treatment with insulin removed the glycosuria, but in a great many cases not the diuresis. It was well to remember also that adrenaline might not act in removing the symptoms of hypoglycaemia unless there was a store of glycogen in the liver; it was well to be prepared to give an intravenous injection of glucose in cases in which adrenaline might not act. Lastly, Professor Macleod described the arrangements in Toronto, made through the Ontario Medical Association, for giving a two-day course of instruction to general practitioners, at the rate of forty a week, the instruction taking the form of lectures and clinical demonstrations on dieting and insulin. As a result of these measures, no serious accidents had occurred in Canada from the use of insulin by the profession at large. The provincial Government through the Health Board had placed at the disposal of those doctors who had taken the recognized course free supplies of insulin for their poor patients.

Dr. E. P. Poulton agreed with the views of Dr. Graham and Professor Macleod that the governing aim should be to get the blood sugar within normal limits. He believed that in the majority of cases it was possible to treat the patient efficiently in general practice, without doing blood sugar determinations, provided the process was carried out slowly and the practitioner had had some experience of the treatment. He had not yet come across a case of glycosuria with a high blood sugar which had not been benefited by insulin treatment, and it was remarkable that the feeling of tiredness and general ill health disappeared even in patients in whom the diabetic condition might almost be regarded as secondary. In the treatment of diabetic coma one started with fairly large doses; he usually gave 40 units, which was repeated in four or six hours, and every specimen of the urine was tested for blood sugar. In one of these cases the patient, after being brought round to some extent, ultimately died; on testing the urea in the blood in this case it was found to be considerably above normal, although to the naked eye—a pathological examination had not yet been made—the kidneys appeared to be perfectly normal.

DIABETES AND INSULIN.

Sir William Willcox, who was inducted to the chair of the West London Medico-Chirurgical Society on October 5th, delivered his presidential address the same evening before a large gathering at the West London Hospital. He said that recent discoveries in the treatment and etiology of diabetes had been one of the romances of medicine. Seldom, if ever, had such a rapid succession of epoch-making researches on one disease been forthcoming in so short a period. Diabetes was a disease which had been recognized for centuries. Willis, in the seventeenth century, gave an accurate description of it, and Dobson, in the eighteenth, actually demonstrated the presence of sugar in the urine; but it could not be said that the knowledge of its treatment had appreciably advanced until within the last decade, when the modern dietetic treatment with its principle of pancreatic rest was introduced. Formerly the diabetic patient, owing to the hyperglycaemia and acidosis usually present, was always on the brink of disaster. Any disturbing circumstance, such as an added infection or a physical or mental shock, might be sufficient to raise the toxic effect of the hyperglycaemia and acidosis beyond the point of tolerance and cause the development of a fatal coma.

The discovery of insulin meant a great further development in treatment. The administration of insulin to a diabetic patient brought about rapidly an effect which otherwise could only be attained after several days of careful dietetic treatment and fasting. Insulin raised considerably the carbohydrate tolerance of the diabetic and enabled him to take with impunity a dietary the calorie value of which approached normal. The ultimate isolation of insulin by Banting and his co-workers was an excellent illustration of the value of careful and accurate scientific research, and he thought that in this country also we had reason to be proud of the staff work and organization whereby an admirable preparation of insulin was made widely available. In France, on the contrary, he was told on a recent visit that there had been the greatest difficulty in obtaining insulin for patients, and also in obtaining preparations which did not give rise to abscess-formation.

Coming to the selection of cases for treatment, Sir William Willcox said that the presence of glycosuria in any patient was a serious symptom and called for careful clinical examination. It was important to determine the blood sugar curve. For this purpose, first thing in the morning, before any food was taken, and after the bladder had been emptied, 30 grams of glucose dissolved in 150 c.cm. of water were given; samples of blood were taken immediately before the administration of the glucose, and every half-hour for three hours afterwards, and the nature of the curve usually showed at once whether the case was one of diabetes mellitus. He exhibited comparative curves. In the normal subject the curve would begin at about 0.10, rise to some figure below 0.18, and fall in one and a half to two hours to something below the starting level. Even in apparently mild cases it was advisable to determine the blood sugar curve, because this furnished information of the greatest value in arriving at any decision as to the right line of treatment. A marked alteration in the blood sugar curve in certain cases followed the effect even of slight dietetic modification. A mild type

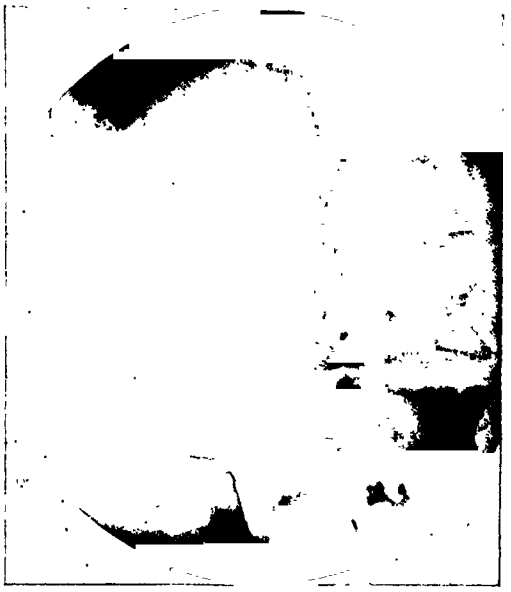

FIG. 1.—Gall stone, seen outside the kidney shadow.

FIG. 2.—Distended gall bladder with stone, seen separate from kidney shadow. (Dr. Hepworth's case.)

FIG. 3.—Lateral view with colon inflation, showing kidney tumour.

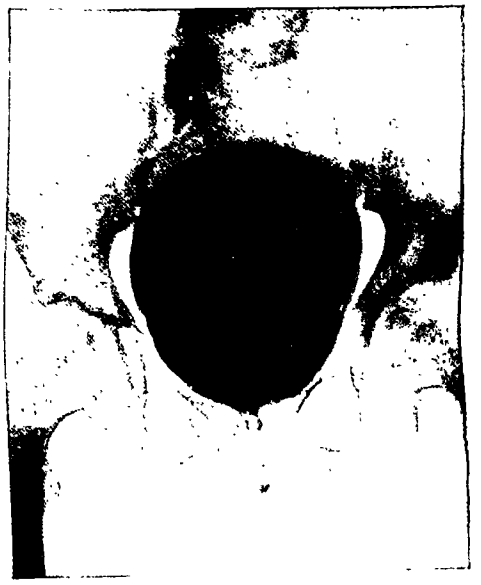

FIG. 4.—Normal cystogram.

FIG. 5.—Multiple stones in bladder sacculi. (Mr. Clifford Morson's case.)

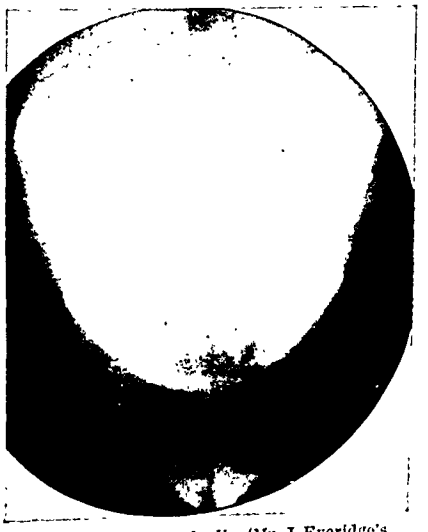

FIG. 6.—Prostatic calculi. (Mr. J. Everidge's case.)

Reviews.

ATSCH'S THEORIES OF EVOLUTION.

he end of last century, when Professor Gustav f Strasbourg was demonstrating that Neander- represented a distinct species of humanity, he in his investigations by a young anatomist from ho forced himself on the attention of the world by the dogmatic, almost overbearing, way he expressed his opinions. His name was KLAATSCH. He was born in 1863, and had been Gegenbauer's, and assistant to Waldeyer, but modelled himself on was Ernest Haeckel. Like e was capable of doing good work and also of air of finality to the most rash kind of sup- Like Haeckel, Klaatsch made the problems re- aan's origin the chief interest of his life, and, case with his prototype, was careless whether ook his colleagues with him so long as he could rge ear of the public. Klaatsch, indeed, carried rofessional work the bearing and methods of a ilist, and the frontispiece of this posthumous s, *The Evolution and Progress of Mankind*,[1] his physique was in keeping with his professional

bust German professor had an immense ork. Having made his preliminary comparison l remains of the Neanderthal and modern types which he published voluminous reports—we find gium and England studying the kinds of stone which ancient men of those countries made Then he hurried off to Australia and neighbour- o study living men of the most primitive existing e rightly perceived that in no other way could cture be formed of man's life in Europe during es. Then in 1906 he was back again in Europe to ir of anatomy in Breslau, and in time to see the eidelberg mandible unearthed and to help his d Hauser to uncover very important finds of in France.

hus be seen that Klaatsch was eminently quali- r as actual experience is concerned, to write a the evolution of man. His death in 1916, at 53, robbed anatomy of one of its most interesting His treatise on man's evolution—written purely audience—had to be completed by his friend, Heilborn. It is this treatise which has been by Mr. Joseph McCabe and now published in

the doctrines which are here preached with such assurance rest on a most slender basis of fact no ultimate good except in so far as they pro- who know to undertake the thankless task rating them to be erroneous. When examining of Neanderthal man Klaatsch was impressed, y so, by the number of points in which they the corresponding bones of the gorilla. He be- ould recognize a similar combination of charac- e skeletons of robust kinds of West African To account for these common characters he sup- the gorilla, Neanderthal man, and the African branches of a single ancestral phylum. Without geological support he supposed that this ancestral s represented—not by an anthropoid stock—but ape kind of being and that the gorilla was a representative of this humanoid ancestral stock. ized a resemblance—a very superficial one— e orang and the Mongolian races of Asia. To this resemblance he supposed that the orang, l, the Australian aborigine—whom he almost well as the European, represented another phylum e from his purely hypothetical ancestral stock s. Anyone familiar with the intimate structural similarity which exists between all the races of mankind and the structural differences which separate man and anthropoids, to say nothing of the structural agreement which links anthropoid to anthropoid, will at once realize the almost childish impossibility of Klaatsch's theory of a separate phylum for the orang and Mongol on the one hand, and another for the gorilla and negro on the other. Time after time his guesses have been riddled by facts and argument.

But fact and argument fell from Klaatsch as water from a duck's back. In this volume all the old unsupported statements are reproduced as if they were undeniable gospel. He again reiterates the belief that man has retained, in the form of his teeth and shape of his palate, parts of a primitive heritage, borrowed from the lowest of primates, whereas the evidence of embryology and of fossil man leaves no doubt that the human teeth and palate are reductions from a true anthropoid form. We find him supporting the prevalent misconception that all the characters shown by a human foetus are ancestral and primitive, the truth being that in the majority of instances such characters are recent and new. He even cites the long period during which the human child is dependent on the mother as embryonic and ancestral at bottom. Klaatsch's theory is a relapse to the wild doctrine of Lord Monboddo, who regarded apes as degenerate kinds of humanity.

In spite of the many false doctrines promulgated in this book there is much also to be praised. Klaatsch may have been eccentric in his support of evolution, but he was never half-hearted. He had the most unbounded belief in Darwin, in Huxley, and in the Australian aborigine as well as in himself. He had no fear of any problem; he broached the origin of man, his religion, his clothes, his home, his marriage, his morals—all that is man and of man. He may raise in his expert reader a powerful sense of opposition but he never permits him to go to sleep.

The translation reads easily, but there are certain points in which an expert anatomist could have given the translator some help. The femur of the poor man of Java should not have been printed upside down; the turbinate processes of the nose should not have been called "muscles," nor is it right to speak of the external ear as a "muscular shell"; nor should the cortex of the brain have been labelled as motor, *sensitive*, and sensory; nor the anterior belly of the digastric muscle described as a "double-bellied chin"; nor the ventricular pouches described as coming off under the vocal cords; nor the upper end of the precentral convolution be described as "lying nearest to the skull"; nor the skull of the Combe Capelle man as being 200 cm. long—that is, ten times too much.

The type is large and clear, the illustrations well printed, but the book, if light to read, is terribly heavy to hold in one's hands.

[1] *tion and Progress of Mankind.* By Professor Hermann D. Edited and enlarged by Professor A. Heilborn, M.D. Joseph McCabe. London: T. Fisher Unwin, Ltd. 1923. 315; 111 figures. 25s. net.)

DISEASES OF THE NERVOUS SYSTEM.

To produce in one volume a complete textbook of neurology and psychiatry and to keep it up to date is an ambitious task. Drs. JELLIFFE and WHITE may fairly be congratulated on the result of their labours, which appears as a handsome volume replete with figures and diagrams.[2] Their confessed aim has been to treat the nervous system and its diseases as a whole and thereby to bridge the gulf between nervous and mental diseases which exists in so many textbooks. In this book may be found a wealth of information fully illustrated by photographs and diagrams and admirably supplemented by reference to the literature incorporated in footnotes.

The general arrangement of the work and the classification of the material is good, though on a closer examination certain disadvantages appear. Thus the chapters on methods of examination are perhaps unnecessarily long and contain matter which would be more appropriately placed under the diseases of different parts of the nervous system. In some respects there has been an unequal treatment of material. Thus, for example, while eighteen pages

[2] *Diseases of the Nervous System. A Textbook of Neurology and Psychiatry.* By Smith Ely Jelliffe, M.D., Ph.D., and William A. White, M.D. Fourth edition. London: H. K. Lewis and Co., Ltd. 1923. (Roy. 8vo, pp. 1119; 475 figures, 15 plates. £2 2s. net.)

and onset of symptoms; the nature of the injury itself and the manner of its infliction.

First, as to the causation of the original injury, the appearance of the bones at once shows that a blow from a stick was not the causal factor. The acute, sharp-edged depression of the posterior and lower margin of the main area, the shelving of the floor, and the characters of the floor indicate that a blunt rounded instrument of heavy nature and small striking surface was used. Such weapon was in all probability a hammer or the blunt end of a fass (a kind of grabber used by the fellaheen in their work and a common instrument of offence). The blow was struck from the front by a right-handed man, the weapon being swung laterally. One blow only was struck, the forward drive of the weapon causing bending and compression of the skull, and bursting of the fronto-parietal suture was the natural consequence. The anterior and posterior fissures were caused simultaneously, the first by the bending at the site of impact, the second arising when the opening suture reached a point in the bone where it became thin enough to offer less resistance than the suture. This is a common feature of skull fractures.

Secondly, the rapid recovery after injury with definite pressure on the cerebral cortex is relatively common in this country, and we regularly see cases of fracture of the skull, which in Europe would appear hopeless, in which recovery takes place without sequelae and without medical attention.

Thirdly, the sudden onset on May 25th of aphasia of the right limbs, followed by paralysis of the right side, indicates either rapid damage to both the motor area and Broca's speech centre or to the fibres passing from such areas, and as the softening was most marked about the optic thalamus and caudate nucleus we may assume that the motor and sensory tracts in the internal capsule were affected.

Such a condition would naturally lead to the diagnosis of thrombosis of the middle cerebral artery with consequent softening of the parts supplied. There was, however, nothing to indicate that there was any disease of the vessels whatever, and no reason for either thrombosis or embolism, the slight amount of thickening in the small arterial vessels being quite insufficient to account for thrombosis. The presence of septic foci in the softened area, the localization of this area under the old fracture, the absence of other disease, injury, or other cause, raises the assumption that the old injury to the skull and brain was the cause of cerebral necrosis and death after a period of quiescence of eleven years.

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF RADIOLOGY AND ELECTROLOGY.

S. Gilbert Scott, M.R.C.S., L.R.C.P., President.

DISCUSSION ON THE X-RAY EXAMINATION OF THE URINARY TRACT.

OPENING PAPER

BY

ROBERT W. A. SALMOND, O.B.E., M.D., Ch.M., D.P.H., D.M.R.E.,
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(With Special Plate.)

Since the advent of x rays urology has undergone an enormous advance in more accurate diagnosis. This advance has only been obtained by the co-operation between urologists and radiologists. In the earliest years of radiology it was thought almost sufficient if a shadow of a stone could be demonstrated; but as years have passed, experience accumulated, and technique made more perfect, very much more is expected of the radiologist, and, in the more obscure cases, the technique has to be much elaborated. For some years only a positive result was of value, but now a negative one is, or should be, of almost equal value. The success of x-ray examination of the urinary tract may be said to depend on two main factors: (1) proper technique, and (2) accurate interpretation; the latter can only be got by combining the experience of the radiologist with that of the urologist.

As the technique is so important it will not be unprofitable to deal with it in full. As regards the x-ray apparatus, this should be capable of making the correct exposure in a fraction of a second, or at most in two or three seconds. The more rapid the exposure the less time the patient has to bear the compression and the easier it is to ensure immobility of the kidneys with resulting sharpness of outline. If the outfit is not so powerful it is still possible to do good kidney work with longer exposures, provided the kidneys are kept at rest by proper compression. Even with rapid exposures it is better to apply some form of compression for the purpose of displacing the coils of intestine to one side or the other, and so giving a less thickness of solid parts to be traversed. A pneumatic bag which can be blown up to various degrees of distension is very satisfactory for this purpose.

If the examination is to be of any value it is necessary that the patient be prepared beforehand. For this two days should be allowed, during which he keeps on light diet and takes an aperient on each of the two evenings preceding the examination, so that the bowels are well cleared out. Early on the morning of the examination an enema should be given and as light a breakfast as possible taken. For the patient's comfort it is therefore better to make the examination early in the day rather than late. As regards the aperient, it does not matter much what is used, although some avoid castor oil as causing too much distension of the bowel with gas. Preparation of the patient, however, should not be overdone, as it is believed that if the intestines are empty and quite collapsed it is more difficult to show the outline of the kidney than if a certain amount of gas is present.

The patient having been properly prepared, one is ready to make the exposure. The tube should be soft rather than hard, with just sufficient penetration to get through the parts. The patient may be lying on his back or on his face according to the radiologist's method of technique. If the patient is supine the film is placed under his back in such a position that the last two ribs and the top of the iliac crest will be included. It is important to observe whether the skin of the back is free from papillomata or scars, and that it is in close apposition to the film. This can generally be managed when the compression is applied, or by some little manipulation, such as raising the knees or shoulders or both.

The tube should be tilted so that its extension tube points under the costal cartilages and thus avoids any calcification which may be present. As the centre of the kidney is normally at the level of the second lumbar vertebra the central ray should pass through this level, so that the kidney outline will show the least amount of distortion. It is immaterial whether both kidneys are done simultaneously on a larger film or whether each one is done separately, but it is most essential that the entire urinary tract of both sides should be done in all cases. Cases turn up every now and then in which the pain from a stone is referred from one side to another, and if both sides are not examined the examination would be more misleading than if it had not been done.

The films of the kidney region should show clearly the whole of the kidney outline, the last two ribs, the transverse processes of the lumbar vertebrae, outer margin of the psoas muscle, and part of the crest of the ilium. The writer prefers to use unscreened films, but there is no objection to screens of the first quality such as Patterson's

e full account of details which are of such nce in actual practice.

is, however, one which practitioners will find for it represents a real attempt to show how al knowledge of the actions of drugs can be actual treatment of disease.

MEDIES OF THE DARK AGES.[3]

downfall of the Graeco-Roman civilization system of antiquity was submerged and was y after a lapse of centuries. The scientific ncient medicine were not understood or appreestern minds until the close of the middle cientific output had ceased altogether with Galen (201 A.D.). Greek medical writings bstracts of Galen, and Latin medical writings of the Greek, and so yet further removed riginals. The material continued to deterio-corner was probably turned with the eleventh new ideas of "Arabian" origin began to e, mainly through the agency of Constantine died 1087).

before Constantine may rightly be termed Age" so far as medicine is concerned. The nts that reach us from this period are, in the f the nature of "herbals" or they are receipt "antidotaria" or prescription lists The ellect of the Latin West rejected all theoretic d concentrated on "practical" ends. This ains as a lasting object lesson to the world us results of the exclusive application to ms. That lesson is one of the most valuable history has to teach. The danger is one from edical world—even the scientific world—is g free at this day.

SIGERIST has made a very thorough, learned, ly arranged study of the earlier receipt e documents of which range from the seventh e eleventh. The earliest of all his documents ble manuscript in the Harley Collection of Museum which is of great interest to scholars the oldest Latin-Greek dictionary extant. ntidotarium is also memorable as having been ossession of that very remarkable Renaissance e Rhinelander Nicholas of Cusa (1401-1464). s exercised an influence on the course of h hitherto has not been adequately recognized. tion of this document is one of many inrating his scholarly judgement and foresight. t shows that, even on the wretched level to ceipt literature had sunk, for century after opying was of the most slavish kind. Such came to these antidotaria were never original ays from sources already in existence. The uity was so much over men's minds that they o introduce even the current magic into these feeble though they are, are on this account e from superstition in the ordinary sense. t has thus presented us with a most valuable ntal deterioration. He traces his list of k to Marcellus Empiricus of Bordeaux Aetius of Amida (c. 550), and Alexander of 05) through a series of "dark age" anti- the high middle ages and the Renaissance, rescriptions were still in vogue, having outand years. Photography has introduced into ientific comparative methods, comparable to aboratory. Dr. Sigerist in his Zürich home is tudy at his leisure manuscripts from London, hn, Cambridge, St. Gall, and many other ies. The result is the evolutionary study fore us. Its learning differs as much both degree from the old-fashioned antiquarian anatomical textbook of the seventeenth century. Science and scholarship thus act and react on each other.

Dr. Sigerist's monograph is a worthy addition to the series of studies issued from the Institute for the History of Medicine at Leipzig over which Professor Sudhoff presides with much energy and learning.

MALIGNANT DISEASE OF THE INTESTINE.

IN his work on cancer of the intestine[4] Professor OKINCZYC has produced a very detailed and complete account of malignant disease, sarcoma and carcinoma, of the several segments of the bowel (duodenum, jejuno-ileum, vermiform appendix, and colon). Of cancer of the duodenum it is stated, in contrast to the general opinion in this country, that the duodenum is more frequently the seat of epithelioma than any other part of the small intestine and that three-fourths of the epitheliomas of the small intestine are found in the duodenum. The majority of these occur at the bile papilla, but 25 per cent. are stated to arise above or below the papilla. In treating of carcinoma of the jejuno-ileum, reference is made to the frequency with which acute obstruction is the first symptom to be brought to the notice of the surgeon. On the other hand, an early and rapid alteration in the general health is recognized as one of its most constant symptoms. A diagnosis is rarely made before operation.

The mortality after operation depends upon the presence or absence of acute obstruction: if this is present the mortality is 70 per cent., if absent 17.6 per cent. With regard to the remote prognosis, cases are reported of survival for more than seven years after operation. Sarcoma of the jejuno-ileum is stated to be more frequent than carcinoma, and it occurs in three forms—circumscribed, diffuse, and pedunculated, the last projecting into the lumen or on the surface of the bowel. It differs from carcinoma in its slight tendency to produce stenosis.

Carcinoma of the vermiform appendix is met with as a columnar-cell or spheroidal-cell growth, the latter being the more frequent. The spheroidal-cell variety occurs in young subjects (maximum twenty-four years), and shows no tendency to produce metastases or to recur after removal. It has been regarded by Oberndorfer as similar to the basal-cell growths met with in various parts of the intestine, and termed by him "carcinoids."

In the description of cancer of the colon stress is laid on the importance of appreciating the initial symptoms. The disease produces general effects by repeated haemorrhages or by toxic action, or local effects by irritation, and according as one or other of these predominates the initial symptoms will assume the form of symptomatic pernicious anaemia, dyspepsia, or enteritis. Cases are cited in which valuable time has been lost in treating the disease as a gastric affection. The author deprecates the tendency to individualize each localization of the growth in the several segments of the colon. Cancer of the transverse colon possibly deserves a separate description, but for the rest it is convenient to classify the cases in two groups, those of the right and those of the left colon. Cancers of the right colon are generally large, fungating, with no great tendency to cause stenosis, rapidly adhering to surrounding parts and often infected. Those of the left colon are more often small, stenosing, scirrhous, and rapidly complicated with obstinate constipation and occlusion. The author gives a very clear account of the numerous operative procedures that have been designed for the removal of the growth, illustrated by twenty-three diagrams of the different operations. In a series of resections of the colon performed during the last twenty-five years the immediate mortality was 39.7 per cent. Other series show considerable variations from this figure; but in those statistics which are based on not less than forty cases the mortality becomes almost the same, and varies between 35 and 48 per cent. One of the most successful series is that of Vuichoud, comprising twenty-eight excisions with three deaths; of the fifteen cases living

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Texte zur frühmittelalterlichen Rezeptliteratur. Von igerist. *Studien zur Geschichte der Medizin.* Heft 13. Sudhoff. Leipzig: Johann Ambrosius Barth. 1923. , pp. VII + 219.)

[4] *Cancer de l'Intestin.* Par J. Okinczyc. *Bibliothèque du Cancer:* H Hartmann et L. Berard. Paris: Gaston Doin. 1923. (Roy. 8vo, pp. 235; 78 figures. Fr. 15; post free fr. 15.50.)

second lumbar vertebra with the calyces projecting above and below like horns.

Pneumo-pyelography is a similar method to the preceding except that oxygen is used instead of the opaque solution. The advantage claimed is that it does not obscure the shadow of a stone in the kidney pelvis as an opaque solution does. It is also said that the oxygen is more permeable than the solutions, and so will pass a constriction or obstruction more readily. The disadvantage is that any gas in the intestine overlying the kidney may be confused with the oxygen in the pelvis and calyces.

Ureterography is the outlining of the ureter by an opaque solution. It is of value in showing dilatation of the lumen and also kinks. For the demonstration of kinks it is better to withdraw the catheter well down into the bony pelvis and then inject the ureter. If the catheter be left in the ureter it acts as a splint and may obliterate any kink. Some kinks can only be made visible with the patient in the upright position.

In regard to cystography, while occasionally a bladder full of normal urine will show distinctly on the film, one cannot depend on this to show its outline. To demonstrate this it is usual to fill it with some opaque solution, such as 10 per cent. sodium iodide or an emulsion of barium and oil, or even air, although the last is not without its dangers. In this way any filling defect due to a growth inside the bladder will cause an irregular outline. It should be remembered that blood clot may sometimes cause a filling defect. A diverticulum, if it projects above the upper outline of the bladder, will be seen, but films taken at different angles may be necessary. Cystography is of special value in determining the shape and position of the bladder, the presence of diverticula, and the diagnosis of hydro-ureter, with incompetence of the uretero-vesical valve. It is also helpful in the diagnosis of calculi in the prostate or prostatic urethra. The urethra does not lend itself well to the injection of opaque solutions, as it is difficult to maintain any pressure of the fluid.

Before passing to the important question of interpretation and differential diagnosis I would like to state briefly but emphatically that the photographic technique in urinary work probably requires more care and skill than in the examination of other parts.

One has next to deal with the interpretation of the various shadows found in the region of the urinary tract and their differential diagnosis, and also to consider the abnormal shadows of the outline of the kidney or bladder. It will perhaps be best if they are discussed under the headings of kidney, ureter, bladder, and urethral regions.

I. *Renal Area.*

The normal position and size of the kidney should be clearly visualized in one's mind. Its size will, of course, vary with the size of the subject, and it is at present a matter of personal experience as to whether a kidney is thought to be larger than normal. Marked variation in size is found in various individuals, but there is usually very little difference in the size of the two kidneys in the same individual. This is of great help in the diagnosis of enlargement, for any appreciable variation in the size of the two kidneys should be regarded as distinctly pathological. The movement of the kidney in full inspiration and expiration varies from one to two inches in ordinary individuals. It is essential that the outline of the kidneys is shown on the film, for if an abnormal shadow is seen in either loin but clear of the kidney outline, then obviously it cannot be a renal calculus.

Kidney stones are characterized by being seen superimposed on the shadow of the kidney; they move with the kidney on respiration—in other words, they maintain a constant relation to some part of the kidney on expiration and inspirations; they are usually of homogeneous density, and have sharply cut outlines. The horn-shaped stone filling the renal pelvis and the branching stone filling the pelvis and calyces are quite characteristic. If seen on the screen their direction of movement with respiration is downwards and outwards. In the lateral view they are seen superimposed over the bodies of the first to the third lumbar vertebrae, although occasionally a stone may lie behind or just in front of the vertebrae if the kidney is enlarged.

There are other conditions which cause definite shadows in the renal areas and which must be differentiated. The following are the most important:

(*a*) Intestinal contents, including shot from game.
(*b*) Calcified abdominal glands.
(*c*) Gall stones.
(*d*) Calcification in a tuberculous kidney.
(*e*) Calcification in a malignant kidney.
(*f*) Papilloma on skin of the back.
(*g*) Foreign bodies.

Intestinal contents are due to inefficient preparation of the patient, and, unless the patient has been taking bismuth, are usually not so dense or so definite as a stone. The easiest way to clear up the question is to repeat the examination after further purgation. Shot eaten in game have been mistaken for stone.

Calcified abdominal glands may be very confusing, and may be found over any part of the urinary tract. The gland itself is rarely of any size, but when a group is clustered together the shadow may appear like that of one large gland. The density of a calcified gland is not homogeneous but irregular, due to the deposition of the lime salts in the areas of necrosis of the gland. For this reason they usually present a somewhat mottled appearance. They may be nearly as dense as a kidney stone, and are usually denser than a gall stone. The chief characteristic of a calcified abdominal gland is its great mobility. If two separate plates are taken with compression the position of the shadow will almost always be seen to show a great variation; in fact, it may be quite outside the field of one of the two plates. In a lateral view the shadow of these glands is nearly always in front of the vertebrae, but Thurstan Holland has recorded a case where a calcified gland lay against the front of the kidney and moved with it. In such a case it would be exceedingly difficult to differentiate it from a renal stone.

Gall stones are, of course, found on the right side. Their characteristics are a clearer central nucleus with a denser peripheral area; occasionally they are dense all through. The picture of multiple small faceted stones in a distended gall bladder is quite characteristic. Their density is rarely as much as either a renal stone or calcified gland. Under fluoroscopy their movement with respiration is more vertical than kidney stone. It is of immense value to get a film showing the outlines of both the kidney and the gall bladder. In this way alone it is quite possible to exclude renal stone. If the shadow is superimposed on that of the kidney, then a lateral view is of the greatest value in differentiating. A gall-stone shadow is well in front of the vertebral bodies, whereas a renal stone is usually level with the bodies or behind them. A lateral in conjunction with an antero-posterior view is of more value than stereoscopic in the diagnosis between gall and kidney stones.

Calcification in a tuberculous kidney shows as an irregular calcification in its substance. It is rarely so dense or so well defined as stone, and usually the kidney outline will be seen to be enlarged.

Calcification in a malignant kidney is more rare, and presents much the same appearance as the last mentioned. The outline of the kidney will almost certainly be enlarged and its regular bean shape altered by the growth.

A small papilloma or wart on the back may cause a shadow exactly similar to that of a stone. Previous inspection should prevent any error.

With regard to foreign bodies, I have seen more than one case of a piece of shrapnel which had been thought to be a stone in the kidney. We had a case at hospital two years ago which was diagnosed by x rays as a stone in the kidney, and on operation was found to be a piece of shrapnel partly embedded in the kidney tissue and partly free in the renal pelvis, the latter portion having become encrusted with phosphatic deposits.

II. *Ureteric Region.*

The normal position of the ureter is along or just internal to the tips of the transverse processes of the lumbar vertebrae, from the second down to the sacroiliac

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

FEATURES OF THE FRENCH MOTOR SHOW.

The eighteenth international Automobile Salon in the Grand Palais will close to-morrow (Sunday, October 14th) and the seventeenth international Passenger Car Show promoted by the Society of Motor Manufacturers and Traders, under the patronage of the King, will be opened to the public at Olympia, Kensington, on Friday, November 1st. But it will be preceded, on Monday next (October 15th), by the yearly international Motor Cycle Show, which will, therefore, be the first of the motor exhibitions to be held in the enlarged building. The Paris Motor Car Show is purely French as regards 85 per cent. of the exhibitors. The British industry is represented by two makes of cars only, the Austin and the Rolls-Royce, the 7-h.p. chassis of the former make being the only example made in this country with a 4-cylinder engine of 1 litre capacity only, whereas French builders make several machines in this category. Owing to the state of the exchanges and to the 45 per cent. import duty, the British exhibitors in Paris are in much the same case as the American—they can be there for the sake of show, scarcely for business. General Motors, the great corporation that produces Chevrolet, Buick, Oakland, and Cadillac vehicles, is represented by a fine exhibit, especially of Buick and Cadillac machines, the three larger makes having brakes to all four wheels; this is a new feature of many American-made cars, as will be seen at Olympia, but a familiar thing in the cars of many of the leading French makers. No British exhibitor shows any chassis with four-wheel brakes in Paris, though many will be standardizing them or offering them as an option at Olympia, including Armstrong-Siddeley, Austin, Aston-Martin, the new 14-h.p. Bean model, Bentley, the new Beverley-Barnes, Deemster, H.E., the new 6-cylinder 21-h.p. four-speed Lanchester, Sunbeam, Talbot-Darracq, Vauxhall, Warwick, and Waverley.

Front Wheel Brakes for Popular Priced Cars.

The first big effort by the French industry to introduce front wheel brakes was made five years ago. Much has been learnt by French automobile engineers in the interval. M. Henri Perrot's patents for diagonal application, and so forth, have been combined with those of Captain Hallot, the inventor of servo mechanism; and a vast variety of engineering talent has been brought to bear on detail of problems of axle design, suspension, and so forth. The result is that, in regard to the application to standard cars, the development is in a satisfactory state as far as the French industry in general is concerned because its members have made many mistakes and learnt much. Further, the engineering talent brought to bear on the subject by Delage and Hispano-Suiza among standardized car builders, and by Talbot-Darracq among firms that experiment by way of racing, has had very valuable results. M. Perrot, who is regarded as the man with most experience in the world on this subject—more than half a generation of it, considers American automobile engineers as a class to be at the same point to-day that French firms were in this respect five years ago. Like the French, he expects the Americans will have to spend quite a couple of years experimenting before they develop front wheel brakes which can be placed in the hands of the ordinary user with perfect safety. Nevertheless, some American manufacturers, including General Motors, are using certain of his patents under licence; this comment applies to the general, not to the individual, American case. French experience to date, which extends over 20,000 cars of various makes in the hands of private owners, has proved that some sort of servo mechanism is absolutely essential for all but light and comparatively slow cars.

From the technical point of view front wheel brakes should not be studied as a brake problem only. Suspension and steering are so intimately related to brakes on the front wheels that the three must be considered as one problem; hence the difficulties. It is surprising to find that the use of any servo mechanism is almost entirely absent from the American designs. By contrast, in the designs used in this country by the more responsible engineering house widest experience it is observable that there is no he about working the Perrot-Hallot patents under But, as among the French makers, so among the such firms as Bentley, Lanchester, Sunbeam, Vauxh others show extraordinary fertility of inventive re each dealing on wholly original lines with a num ancillary problems hitherto overlooked.

Of exhibits at the French Show there is nothing m add in respect of brake design, because undoubted leading automobile engineers have there solved prac all the problems necessary for safe use in the hands public. It is observable this year that the leading makers are offering special axles, complete with front brakes, thus making it comparatively an easy matter fo builders to apply these component units to their chassis

A point which will interest medical men is that the 10 Renault models are now fitted with front wheel br Again, Chenard-Walcker produces one chassis on w there are brakes on the front wheels only, and none on back, an independently controlled brake operating thro the transmission. There have been some changes in reg to the front wheel brakes and axle mechanism of the nomi 30/40-h.p. overhead valve 6-cylinder engined Fiat int duced last year. It has now been developed in detail to extent that enables it to be standardized on a large sca The 15/20-h.p. Fiat has lightweight aluminium pistons wi thin cast-iron skirts.

Overhead Valve Engines on the Increase.

A census of the valve systems used at the Paris Sho reveals that there is no question about the overhead valv gaining in favour at the expense of the side-by-side setting It is observable that the French industry does not fit over head valves for the mere sake of falling in with an assumed vogue. Practically all the builders employing this system of valve gear do so to obtain greater economy and greater power; and, what is not invariably the case in this country, they achieve both. The 8-cylinder-in-line engine tempts many manufacturers, including Rolland-Pilain, who have employed the type for racing, and Chenard-Walcker, who produces one with 69.5 by 130 mm. bore and stroke measurements. The latest Chapuis-Dornier engine produced by that firm of specialists, whose products are fitted to many Continental vehicles, is a 4-cylinder unit with overhead valves and only 1,100 c.cm. volume, the bore measurement being 59 mm. and the piston travel 100 mm. In nearly all designs the overhead valve gear is worked by push-rods and rockers enclosed in aluminium covers, this being the cheapest of the really effective forms of operation. The little Dornier power plant develops 20-h.p. on the Froude brake. Peugeot introduces a 10-h.p. model with 4-cylinder overhead valve engine, having detachable cylinder heads. De Dion-Bouton introduces a 20-h.p. 4-cylinder overhead valve engined chassis of 95 by 140 mm. cylinder bore and stroke, as does Rochet-Schneider. On all the larger Renault models this firm's small car practice of placing the gearbox on the front end of the torque tube is exploited. Delage uses a 4-cylinder overhead valve engine for his new 12-h.p. car. The motor has a five-bearing crankshaft, forced lubrication, and the chassis a gearbox giving four speeds forward and, of course, brakes to all four wheels. Both Citroën models remain without any important changes. From Belgium there are sent Minerva and Métallurgique cars of the smaller middle size with brakes to all four wheels.

A Cheap, Light, Silent, Covered Body.

There are in the Salon various examples, including those standardized on the Delage and the Talbot-Darracq chassis, of the patent Weymann silent, cheap, lightweight, flexible, durable, easily cleaned, covered body schemes, the British rights of which were acquired by the Rotax Motor Accessories, who have granted licences to Daimler, Rover, Sunbeam, and Talbot, among others; these firms will standardize this class of coachwork from the November London show onwards. I made a test of this type of bodywork on a large 40-h.p. Renault chassis, driven by the holder of the French aeroplane records, including sundry "

the amount of destruction of the kidney. In large hydronephrosis the pelvis should be drained before injection, otherwise the injecting fluid becomes diluted. Pyelography is also the best method in the early diagnosis of kidney tumours. As, however, pyelography is the subject of a special paper by Mr. Ogier Ward, it is unnecessary for me to enter further into it.

Pneumoperitoneum is also of great help in the diagnosis of enlargements of the kidney. The importance of the prone position and lateral vie[illegible] between tumours and masses arising [illegible] and those intraperitoneally has already been mentioned. In the antero-posterior view also the kidney outline is well seen, and there may be uniform enlargement with regular outline as in cases of compensatory hypertrophy and certain types of nephritis. The enlargement may be uniform, but with a smooth nodular outline, as in polycystic kidney or secondary carcinoma. One or other pole may be enlarged with the regular outline maintained, as in some cases of hypernephroma, or the enlargement may be irregular, as in sarcoma or other cases of hypernephroma.

Perirenal and colon inflation are other techniques which are of value in demonstrating variations in the outline of the kidney.

Having discussed the various methods at the disposal of the urologist and radiologist, and the differential diagnosis of the various shadows found in or about the urinary tract, one may now try to estimate the present-day value of x rays in the examination of this tract. This may be prefaced by stating that it should be constantly borne in mind that a uric acid stone will probably not cast any shadow to x rays, and although this is well known to radiologists it is perhaps not so frequently stated in their reports on negative cases as it might be. All other urinary stones show a definite shadow. Calcium oxalate stones show the densest shadow, then the phosphatic ones, and lastly the urates. There still occasionally seems to be a mistaken idea that the more rare cystin and xanthin calculi do not show, but even when almost pure they show quite a definite shadow, due to the sulphur element in their composition. It is probably not of much importance to attempt to diagnose the composition of the stone; it is of far greater value to be able to say with accuracy whether a stone is present or not, so far as x rays can go.

Another idea which seems to be prevalent is that urinary stones are rare in childhood. According to statistics this is not so, for the presence of stone in childhood and infancy is frequent. Some of these stones are known to have remained symptomless for some years, and it is likely that certain of the stones found in adults have had their beginnings in the early years of life.

All x-ray examinations of the urinary tract should be done so carefully that a negative opinion as regards stone may be, in the radiologist's mind and conscience at any rate, of real value—bearing in mind, of course, that such an opinion does not exclude a uric acid stone. Fortunately, however, uric acid stones rarely grow large enough to become of surgical importance.

With proper technique, if necessary with the help of one or more of the more elaborate technical methods, and with accurate diagnosis in collaboration with the urologist, there is no doubt that the value of x rays in urinary diagnosis, especially as regards the presence or absence of stone, is of the very highest importance. Most surgeons and urologists who have worked in conjunction with the radiologist and so made full use of x rays, will fully bear this out. There have been many mistakes in diagnosis by x rays, and there probably always will be some, as in every branch of medicine and surgery. It might, however, be pointed out that some of the shortcomings of x rays in this work would probably be avoided if only a closer relation existed between the clinician and radiologist. This lack is more noticeable in hospital than in private work. Radiology is indeed inseparably connected with urinary diagnosis, for although the eye, by the aid of many ingenious contrivances, has penetrated into many of the hidden parts of the body, yet it cannot possibly hope to penetrate everywhere as can x rays.

GENERAL DISCUSSION.

Mr. R. Ogier Ward (St. Peter's Hospital, London) dealt with the subject of pyelography and cystography. He said that there was a general feeling, not so much amongst radiographers as amongst medical men in general, that the making of pyelograms involved a difficult, painful, and dangerous procedure. He was sure that radiographers who saw the work done would disagree with that idea. It was more correct to say that the work was tiresome to the radiographer, because pyelography required more time and trouble than a simple skiagram of the kidneys; it was tiresome to the surgeon, because he had to get a good deal of apparatus together; and it was tiresome to the patient, because a cystoscope had to be passed; but it was not really more than that. It should not be painful, as the modern cystoscope was a slender instrument, and if in difficult cases a cystoscope such as that which was used for children was employed the passage of it through the urethra produced very slight discomfort, particularly if a little novocain were introduced first. He considered that an anaesthetic should not be used, because one of the chief indications as to the filling up of the renal pelvis was that the patient complained of a discomfort in the loins, at which stage it was known that the dangerous limits were being reached. If the operation was done under an anaesthetic it was very difficult, unless one waited for the patient to come round, to fix the kidney sufficiently to obtain a satisfactory x-ray picture, and to wait for the patient to come round was rather tedious. There was no particular disadvantage in doing the operation under an anaesthetic if a special apparatus was used, such as Pannett had recently described, where the pressure of fluid which was passed into the renal pelvis could be very accurately regulated; but on the whole it was much better not to use an anaesthetic at all. He usually employed 20 per cent. sodium bromide warmed to about body temperature. He ran it in by joining a glass syringe on to the end of the ureteric catheter. It was important not to put on too great pressure; very serious accidents had happened in the past from that cause, particularly when an attempt had been made to perform the operation under anaesthesia. Pyelography had many obvious uses in urinary surgery, but perhaps its most important value was that it gave information of the condition of the kidney and its pelvis which could not be obtained by any other means. Mr. Ogier Ward, in conclusion, exhibited slides illustrating the value of pyelography.

Dr. L. A. Rowden (Leeds) drew attention to one point in the diagnosis of renal calculus—namely, the importance of screen examination combined with palpation. He considered that not sufficient attention had been drawn to this in the past. In the corresponding Section at the Annual Meeting of the Association in London in 1910 he drew attention to this matter.[1] Speaking of the radiographic prints which were hanging in the room illustrating the urinary tract, Dr. Rowden said that he was certain he could have seen on screen examination, with proper technique, every shadow that he saw on those prints. That was rather an astounding statement to make, but he had been careful to qualify it by the words "with proper technique." First of all, it was necessary that the tube should be a Coolidge tube, so that it was possible at any moment to alter the penetrating quality of the rays to suit the case under examination. Secondly, it was absolutely essential that the tube should be brought as close to the patient as possible without sparking on to the patient. Thirdly, the eyes of the observer must be properly prepared for the examination. The examination was conducted always with the patient lying on the couch in a horizontal position. The diaphragm was not a mechanical one, but a fixed one, less in size than the area of a postage stamp, and by preference it should be tubular. The box which contained the tube should have free movement up and down and crosswise, but he desired particularly to emphasize the fact that the tube should be as close to the patient as possible. By that means it was astonishing what could be seen on the screen when the

[1] L. A. Rowden: The Value of Screen Examination in the Diagnosis of Renal Calculus, British Medical Journal, August 27th, 1910, p. [illegible].

British Medical Journal.

SATURDAY, OCTOBER 13TH, 1923.

THE REMUNERATION OF THE INSURANCE MEDICAL SERVICE.

NOT very far short of one-third of the total population of Great Britain is provided with its ordinary medical attendance and treatment through the National Health Insurance system. By no means all of these persons need the provision which the State has made for them: some never take advantage of it at all. Many insured persons are well paid weekly wage-earners; many others are members or dependants of well-to-do families. Most of these would receive the medical attention they need through the ordinary method of private practice if the insurance system were not in existence. Nevertheless, it is to be reckoned a national advantage that the remainder, constituting the great majority of the insured population, should have this help in obtaining medical attention, and it is an asset to the profession as a whole that this work should be provided for it with the certainty of regular payment therefor quarter by quarter.

The State, being responsible for the establishment and administration of this system, and paying fully two-ninths of the cost thereof, quite properly makes provision for defining the range of service which doctors shall be expected to give in connexion therewith and the general conditions under which this shall be given, and for securing that the duties undertaken shall be carried out with reasonable care and efficiency. So long as there is no interference between doctor and patient as to the actual advice and treatment given, and so long as any penalty falls only upon those who have wantonly broken or failed to perform a contract into which they have chosen to enter, regulations and arrangements must be accepted as a necessary inconvenience; though unfortunately rules have a tendency to become more complicated, and helpful supervision to degenerate into unhelpful inspection. There are many general practitioners who do not care to enter into any contract at all; these stand apart from the service. There are others who do not join the service because they feel a sufficiently strong dislike to some particular conditions of the actual contract which have to be accepted. The essential things in this connexion are that the profession shall have its full weight in deciding the terms and conditions, and that those who are chosen to conduct negotiations on its behalf shall be fully aware of professional opinion and sympathetic towards the traditions of the profession.

The community, however, should, and presumably does, require from a service like this something more than the mere treatment of individual persons when they are ill. To alleviate suffering and to cure sick persons is doubtless a national as well as an individual advantage; but it may be of even greater importance in the long run to use preventive methods by giving advice and instruction with regard to personal, domestic, and workshop hygiene, to use the unrivalled opportunities which such a service provides for research into the beginnings of disease and other cognate problems, and to gather and supply any information which may reasonably be required from time to time by local or central health authorities. Practitioners who enter the service undertake important duties to the State as well as to their individual patients, and there is no reason why there should be any clashing between the two functions—at any rate to a greater extent than is sometimes inevitable in any kind of medical practice.

Such a service is obviously an essential basis for wider things in two directions. It is the fundamental benefit upon which any other benefits of the insurance scheme depend. Without it, sickness benefit and disablement benefit in the form of cash payments, maternity benefit, and any other additional benefits such as dental, ophthalmic, nursing, or convalescent, could not be economically given or wisely used. Hence arises the extreme importance of medical certification for the success of the scheme. The general practitioner medical service, too, is the foundation on which any further expansion or extension of consultation or specialized work, whether for diagnostic or therapeutic or research purposes, must be built. Such a development of the service, involving the co-operation of hospital staffs, pathologists, radiographers, and other members of the profession, has long been foreshadowed. But without an adequate and thoroughly efficient general practitioner service as the first stage, these developments would fail of half their usefulness and would tend to become a wasteful extravagance.

It might be supposed that the enormous importance of this service, so extensive, so powerful for national health purposes, so essential for the safeguarding of other expenditure, and so fundamental for future developments, would be obvious to any Minister of Health. Yet in the official attitude towards the present negotiations as to the terms of service for insurance practitioners after the end of this year there has been so far no evidence of wide outlook, of real vision, or of statesmanlike grasp. It is obvious that if the insurance medical service is to be useful to the community and worthy of the nation, it must make its appeal to the great body of the profession, it must attract such numbers of the practitioners as will lead to a wide distribution of insured persons among doctors of their own choice who will have time to do good work without distinction between one class of patient and another. To do that it must enlist and retain the help of successful and experienced practitioners, as well as those who are just entering the profession and those who are constrained to remain in the service by sheer economic need. The whole profession will support the Insurance Acts Committee in saying that the level of remuneration should be directed to this end, and it is to be expected that public opinion will also declare that it is not sufficient for the Minister merely to ask himself, "What is the lowest fee for which I can get a number of doctors to treat insured persons when they are ill, and to give the necessary certificates?" What is the reason for this shortsightedness?

The 14,000,000 insured persons are mainly grouped in approved societies. They are compelled so to group themselves if they wish to reap the proper advantage from the insurance scheme, but only a very small fraction of them take any interest whatever in the constitution or administration, or even in the rules, of the society to which they belong. The great majority, having joined a society, have no further real connexion therewith; many even do not know which society they are members of. Yet the officials of these societies technically "represent" insured persons; they administer all benefits other than medical benefit,

that in Dr. Rowden's hands this had given most valuable results; he could not feel, however, that it should be adopted as a routine, but rather as a procedure to be followed after the films had been developed, and some doubtful point remained to be cleared up. He could not agree that the majority of gall stones as seen in films of patients showed a homogeneous shadow; in his experience there was usually a denser periphery producing a somewhat ring-like appearance. He was very pleased to hear Mr. Ogier Ward praising pyelography so highly; it was gratifying also to hear the same speaker advocate lateral views, which some others had spoken of rather disparagingly. As Mr. Ogier Ward had pointed out, lateral views would often avoid the necessity of making a pyelogram. He entirely agreed with the remarks of Dr. Metcalfe and Dr. Batten on the advantages of perirenal injection and the Potter-Bucky diaphragm.

DEMONSTRATION.

The Silhouette Radiograph.

In the Pathological Museum in the course of the meeting Mr. A. P. Bertwistle (Resident Surgical Officer, General Infirmary, Leeds) gave a demonstration of a simple method which he had devised for the more ready interpretation of prints from *x*-ray negatives. Owing to the inability of printing papers, especially bromide, to indicate a structure whose density is so slight as that of flesh, *x*-ray prints commonly show no trace of flesh outline, although such outline may be clearly indicated on the negative. To bring out the skin contour without the sacrifice of the definition of the bone is a matter of some difficulty. The demonstrator has adopted the simple expedient of scratching the skin outline on the negative—in the case of a film, scratching both sides—with a pin before printing. The result in the print is a black line corresponding to the contour of the part. The background in the print is then filled in with Indian ink, thus completing a silhouette radiograph.

The silhouette radiograph has for its object the correlation of clinical findings with those of *x* rays. It is a shadow of flesh and bone, not of bone only, as in the ordinary printed radiograph. After some experience of silhouette radiographs, Mr. Bertwistle said that one could very well predict from the surface appearance what the radiographic findings would be. Certain deformations became immediately indicative of conditions of bone. The bulbous finger-tip, for example, often revealed a periosteal whitlow, and a spindle finger indicated tuberculous dactylitis, both alterations being typical. The "wave" deformity of the arm meant a "greenstick" fracture of the radius and ulna. An injury to the knee, followed by loss of extension and a transverse groove over the site of the patella, made it probable that there was a fracture of bone. Similarly in an injured hand which was radially deviated and displaced backwards in the "dinner-fork" position, it was easy to visualize an impacted fracture of the radius, with marked displacement of the lower end. One of the points in the diagnosis of tuberculosis of bone was the extreme wasting of the surrounding muscles which accompanied the condition. Rachitic and malignant diseases were not accompanied by such wasting, nor was osteomyelitis, in which condition irregularities due to sinuses were frequently apparent. The relation of swellings to bony changes was readily demonstrated by this method.

An important use of the silhouette radiograph was its indication of the position in which the limb was *x*-rayed. It gave the observer his bearings. The demonstrator suggested that the scratching of the negative in the manner he had indicated, before the print was made and dispatched, would greatly increase the value of the print to the practitioner who asked for it. Again, from the point of view of the publisher, the addition of the black background enhanced the bony definition and gave the picture a more finished appearance. It enabled him to print several illustrations of different density on the same page without producing an inartistic effect. Moreover, the clean-cut silhouette was easier to obtain and often revealed more than the mediocre photograph. For example, an encephalocele so treated indicated both the tumour and the defect in the skull. The geography of sinuses was readily ascertained by this method; a sinus into which a probe had been passed or bismuth injected would show the relation of its terminations to the skin. A foreign body, instead of appearing in a state of vague suspension, would assume a reasonable situation. Altogether, the addition of the silhouette imparted reality to the radiograph, a factor which would assist in diagnosis and treatment.

The demonstrator expressed his acknowledgements to Dr. L. A. Rowden of Leeds for his interest in the work, and to Dr. Seargill and the radiographic staff of the General Infirmary for the preparation of material.

SECTION OF OPHTHALMOLOGY.

Sir John H. Parsons, C.B.E., D.Sc., F.R.S., F.R.C.S., President.

DISCUSSION ON OPHTHALMOLOGY IN ITS RELATION TO THE NAVY, ARMY, AND AIR FORCE.

OPENING PAPERS.

I.—Air Commodore DAVID MUNRO, C.I.E., R.A.F.M.S.

Some Eye Problems Special to the Services, with Particular Reference to Flying.

With the advent of flying the functions performed by the eyes in co-ordinative movements have assumed particular importance. To the cricketer whose eye is not "in" nothing worse than a "duck" can happen; to the aviator it may mean anything from a bad landing to a fatal "crash." A single-seater service aeroplane approaches the ground to land at a high speed, and to perform the evolutions required in landing the pilot has to alter the course of the machine from the gliding angle at which it is descending to a horizontal position—what is called "flattening out." He has to judge the exact moment at which to "flatten out," and the judgement is dependent on his estimation of the pace of his machine in relation to its distance from the ground. If he flattens out too high up he will lose flying speed before he reaches the ground, and gravity—the vertical component of the parallelogram of forces which is producing his diagonal glide—will take the upper hand. The machine then will fall vertically in the latter part of its course. If he neglects to flatten out till too late he will fly into the ground at an angle.

This correct estimation of pace and distance seems to depend on "eye" exactly as in games the estimation of pace and distance in hitting a ball depends on "eye." What does "eye" in this connexion mean? Doubtless in the act of landing an aeroplane, just as in other complicated co-ordinative acts, the brain takes note of afferent stimuli other than those which it gets through the eye.

Tactile sensation from the skin through the pressure of the wind on the face assists the pilot for an estimation of pace, also pressure of body against seat of machine. Muscular sense also is of the highest importance; as in riding, "hands" make all the difference. The sound of the engine tells its tale to the man who knows, yet in the main it is through the eye that the brain gets information and makes its controlling judgement.

Briefly we affirm that for a pilot it is necessary that the whole optic tract should be functioning normally. We lay stress on good visual acuity in both eyes, for two emmetropic eyes are more likely to work together than two eyes of unequal refraction; but we lay most stress on the co-ordinative machinery by means of which accurate binocular vision is automatized. Inequality in function between the two eyes we regard as dangerous. Hence I venture to say that while there may be many good players of ball games who have indifferent visual acuity there are few if any who have any marked degree of inequality in functions between the two eyes.

The essentials for good binocular vision would seem to be:

1. Correct co-ordinative movements of the eyeballs as performed by the extrinsic ocular muscles.
2. Unison in the associated movements of convergence and accommodation as performed by both extrinsic and intrinsic muscles.

think it probable that a considerable number of remain undiagnosed. On these points they are eement with statements in the *Manual of Tropical cine* by Castellani and Chalmers. It is there hat for the diagnosis of pellagra two conditions ecessary: first, the observer must suspect its nce and be on the look-out for it in any and every ry; and secondly, he must not be unduly swayed y etiological theory, but be prepared to make a osis of pellagra in a person of any age, any race, social condition, living in any place, whether al, temperate, or frigid, and in any town or ry. They also make special mention of the fact in lunatic asylums the possibility of the occur- of the disease should always be borne in mind. admonition is reinforced in the recent report of oard of Control for 1922. It is there stated that e six years ending 1918 the number of deaths uted to pellagra in mental hospitals in England Wales was 45 (39 females, 6 males) In 1919 were no deaths from this cause, but there were 920, 1 in 1921, and 18 in 1922; of these 21 cases, ere in females and 3 in males Most of the 66 s in mental hospitals in the ten years 1913-22 red in the Lancashire County Mental Hospital ainhill. In a note appended to the report Dr. . Watson states that during the years 1913 to inclusive 36 cases in all were definitely diagnosed . Several other cases of central neuritis were ved in which the typical dermatitis only was ing to complete the clinical picture of pellagra. ig 1922, 14 new cases were diagnosed in this al hospital (3 males and 11 females). The toms in almost all are described as very typical. natitis, always present on the back of the hands wrists, was very frequently seen also on the face. and various other pressure areas, such as the s, elbows, and scapula. The character and distri- n of the dermatitis are well shown in the photo- is reproduced in the special plate published this . At Rainhill it was invariably symmetrical; its t and severity, however, had little or no relation e other symptoms. The gastro-intestinal sym- s were marked in all the patients except one, a an who recovered; they consisted of diarrhoea, npanied in some cases by vomiting, in most by stomatitis, and in one by extensive ulceration e tongue. The nervous symptoms were chiefly sis, especially of the lower limbs; in some in- es the nervous symptoms came on suddenly, exaggerated knee-jerks, jactitation or choreiform ements of the limbs and face, and frequently with euliar alteration of articulation

hen all allowance is made for our want of liarity with pellagra and the real difficulties of osis except in well marked cases, it nevertheless s probable that the disease is uncommon in Great in, though it is certainly one which ought to be e in mind, especially in cases of diarrhoea with sional dermatitis in children.

THE MINISTRY OF HEALTH.

ESPONDENCE between Dr. F. E. Fremantle, M.P., and Prime Minister, dealing with the reorganization of in Government departments, has been published. Dr. antle suggested that the Ministries of Health and ation should be combined, that housing should be ferred to the Office of Works, and local government e Home Office. While admitting that any such ges require further investigation, Dr. Fremantle essed the view that they would be practicable and advisable. The true progress of public health, he argued, "is due to intelligent use of the human factor throughout the whole machinery of government—in factories and workshops under the Home Office, schools under the Board of Education, ships under the Board of Trade, throughout the Services and Colonies and Dominions, in fact in every department of local or national government, as well as in what, because of former deficiencies, have been looked on as works of sanitation—water supply, sewerage—or housing or hospitals, which only go to repair the failure of the health factor throughout national life under all departments of government. But the two activating principles of public health are research (under the Privy Council) and public enlightenment, which surely should come under the Board of Education." Dr. Fremantle went on to say that the outstanding and continuous decline in infant mortality since 1900 was shown at the Portsmouth meeting of the British Medical Association to be mainly due to public enlightenment. "The main value to public health of medical officers of health," he continued, "is as a centre of public enlightenment, and it is as well that they should also be, as they often are, the school medical officers. The knotty problem of the medical services under the Ministry of Health and Board of Education—still awaiting solution—would be solved by fusion of the two departments." In conclusion Dr. Fremantle said that while he was aware that some would wait for a complete anatomy of our whole system of local government by Royal Commission, he himself believed that it would be wise and useful to begin by the regrouping he proposed. His suggestion has been interpreted as amounting to the abolition of the Ministry of Health. It was so taken by the Prime Minister, who, in his reply, spoke of the proposal as one for "redistributing amongst other existing departments the functions now assigned to the Ministry of Health." To such a proposal Mr. Baldwin objected on general grounds. The problem, he said, was one of exceptional difficulty, and the result of basing a policy on a *priori* generalizations might be the reverse of successful. In the sphere of business, he continued, it is never a safe rule to assume that whatever is logical is also expedient. So important a problem of administration, he held, "should be closely studied from every angle (including choice of a suitable moment) before a final decision is taken to tear up everything by the roots or to leave everything alone." His considered conclusion is that "any attempt at the present moment at concentration on a big scale would be premature and inopportune and might easily lead to the loss of far more money than, on any reasonable assumption, it might be expected to save, as well as to decrease of efficiency." In reply to the Prime Minister's letter Dr. Fremantle did not specifically repudiate the suggestion that his proposal would amount to the disappearance of the Ministry of Health by the distribution of its duties to other Government departments. We can see many advantages in bringing the school health service directly under the Ministry of Health, but on the other hand would deplore any change which would result in relegating the central administration of public health once more to a subordinate position. In saying this we believe we express the opinion of the medical profession as a whole. We cannot believe that the abolition of the Ministry of Health as an independent Government department would be approved by the profession or be to the advantage of the public.

THE JAPANESE PATHOLOGICAL SOCIETY.

THE Japanese Pathological Society is a very active body, and the last volume of its transactions (vol. xii) contains several contributions of interest. In it Suzuki describes experiments which he considers throw light on the nature of nephrosis (chronic parenchymatous nephritis)

considered good. An exophoric case may give at first an esophoric displacement owing to overcompensation, but as fatigue sets in the red image appears to swing through normal to the exophoric position. Hyperphoria or hypophoria combined with exophoria or esophoria exaggerates any liability to bad landings. Tendency to neglect one or other eye or each alternately is a marked and frequent feature in bad landers.

*Bishop Harman's Movable Diaphragm Test.**—This test has proved invaluable as a check on the others above mentioned. It has been found that a reading of 3 is a "border-line" one and that 5 is bad. First-class landers usually give a reading below zero; average landers, zero to 2; doubtful landers, 2 to 3; whilst those giving readings of 3 to 5 or more fall into the category of bad landers. Most of the individuals who landed badly had normal visual acuity and little if any error of refraction.

I wish to emphasize one point—namely, that I am considering the subject in terms of conditions "in the air," and I would ask readers to keep an open mind and not judge my remarks too critically by standards which operate "on the ground." I ask this for these reasons:

1. From birth upwards all our judgements of distance have been made with one known quantity—our contact with the ground. When, however, the aeroplane wheels leave the ground the pilot is in space, and this previously known quantity is immediately lost. What is more, before he can successfully land his machine he must make as correct an estimate as possible of the distance he is from the ground.

2. From the air all verticals are foreshortened and the known size of objects therefore varied from those which we have learnt as normal on the ground.

3. The action of centrifugal force on ocular muscle balance during turns, spins, loops, etc., has to be taken into consideration. If flying in a tight spiral looking in the direction of the aeroplane's course, or towards the centre of the "funnel" down which one may be travelling, no unpleasant effects will be felt; but if one looks outwards—that is, away from the centre rotation—the pain of having one's eyes apparently pulled out of the head is agonizing and a more comfortable position will be rapidly taken up. On coming out of a spin the horizon will appear to be going round in the reverse direction, and if the action has been excessive the pilot may be under the impression that he is not yet out of the spin, and make some further adjustment which results in his resuming spinning in the opposite direction with possible damage to himself or even fatal results. If a pilot has some tendency to imbalance then it would seem that rotation will be likely (by putting undue strain on the affected pair) to increase such tendency and to make his judgement faulty.

In conclusion I would like to make the following observations: The independent investigation of Group Captain Flack, made on Air Ministry instructions in the war, showed 80 per cent. of successes from eye training, and that by only treating suitable cases this percentage has improved since that time. Not only is greater proficiency in landing obtained, but also in game shooting and all fast ball games as the patients attest. The course only occupies a short time daily for three to five weeks.

The Air Ministry after careful investigation of results now sanctions the training of service officers who develop the defect, and bad visual judgement, even though visual acuity is up to standard, is now a definite cause of rejection for candidates. Lastly, instructors are sufficiently satisfied with the results to apply at once for an opinion where a pupil shows signs of inability to land.

GENERAL DISCUSSION.

Major-General Sir William Macpherson, A.M.S., said that he responded with great diffidence to the President's invitation to take part in the discussion. The army had nothing like the scientific accuracy and ophthalmological researches of the flying services. In fact, the work of the flying services had given an entirely new aspect to the ophthalmological problems of the services. For a long time the tests in the army were by dots representing at a given distance the bull's-eye of a target at 600 yards. This was eventually replaced by the test types; but there was no differentiation between tests for visual acuity and errors of refraction. It was only the latter that was tested. But some years ago the Adjutant-General considered that artillery officers should have absolutely normal vision, and should not need to use glasses. Now this showed a wrong idea of ophthalmological conditions, because a myope with perfect visual acuity was really more valuable in long range work of artillery than a man with a less degree of visual acuity but with little defects in refraction, because he was bound to use field glasses for his observations. During the war the fighting services were given spectacles. The chief difficulty with the infantry was that spectacles got dimmed by rain and mist, or got broken. One curious effect of the war was that spectacles had to be issued to the presbyopic.

Mr. Ransom Pickard (Exeter) said that during the months of February to April, 1915, he examined a number of men in a regular division in France. It became obvious in the first two months that those who had visual troubles were mostly those who had more than 1.5 of H; and that difficulty in seeing at night existed much more in these than in other men examined. In the next two months, with an equal number with refraction above 1.5 H, there were no complaints of night-blindness—when the nights were shorter. It was obvious that the difficulty at night was one of muscular strain in most cases. The practical issue was whether men having more than 1.5 H could, under present recruiting conditions, be excluded from the army.

Major E. B. Spaeth (U.S.A. Army) described some cases of plastic repair of the lids and the sockets by means of two methods, the first the presentation of the use of pedicle flaps for the simultaneous repair of both of the lids, and the fundus of the orbit also, should that be necessary; and the second a series of photographs showing ophthalmic correction of various defects and deformities according to the method of epithelial inlays of Gillies.

Mr. M. W. B. Oliver (London) did not agree altogether with the methods of Major Spaeth, and especially criticized the forehead flaps. He discussed the question of glasses, and suggested that no man should be considered fit whose vision was not sufficiently good without, as glasses were frequently lost in action. He also discussed the question of night-blindness, and some methods of protection from missiles.

Mr. N. Bishop Harman (London) said that the work that had been presented to the Section by Wing Commander Clements, R.A.F.M.S., was a most valuable contribution to their knowledge of the causes and effect of defective muscle balance. There were few conditions in civil life where such severe and sudden stresses occurred as those found in flying. But in the long continuance of ill health, especially those due to disorders of the alimentary tract, where there were at one and the same time defective nutrition and toxic absorption, there were to be found conditions which brought about ocular states very much akin to those set up by the more severe stresses. He illustrated this condition by cases of hyperphoria becoming troublesome for the first time in such states of ill health, and the immense comfort which could be secured for the patient by the discovery of these defects of muscle balance and their correction. Relief to these patients was the more important since their ill health often left them few relaxations beyond reading, and the ocular defect made reading difficult, even distressing.

Mr. E. E. Maddox (Bournemouth) said that provided both eyes had good visual acuity, and the ocular balance and motor apparatus were good, the existence of a master eye was not incompatible with excellent orientation, and of this fact his old teacher, Dr. Argyll Robertson, was a good illustration, for although one eye was perfectly normal, and a complete master, while the other was astigmatic, he was as true an archer as to be included in the King's Body Guard for Scotland, and was esteemed by many to be the best beautiful operator in Britain. In the selection of candidates for aviation, Mr. Maddox suggested taking account of the nervous system as a whole, since defective ocular balance was so often accompanied by slight nerve defects elsewhere. In effecting a landing, coolness and self-collectedness were necessary to give the motor apparatus its proper training; there must be an absence of nervous

* For description of this test see *Ophthalmological Society's Transactions*, vol. xxx, p. 56.

to other investigators, and 14 were grants to scientific workers to enable them to employ laboratory assistants or to purchase equipment; the total expenditure on these grants was £50,000. The total expenditure of the Committee during the financial year was £497,549, of which £264,493 came directly from the Exchequer, while £89,603 represents fees for tests and special investigations for outside bodies, and repayments from the Service departments.

DETACHMENT OF THE RETINA.

The treatment of detachment of the retina is so unsatisfactory that it seems worth while to record any suggestions, and we therefore give particulars of an operation recently devised by M. Félix Lagrange and described by him in *Glaucome et Hypotonie*, published in Paris last year. The operation, to which the term "colmetage" is applied, is performed under cocaine anaesthesia. With the galvano-cautery a series of points is burnt more or less deeply into the sclerotic, round one half of the limbus; these points are arranged in three rows; it is not necessary to dissect up a flap of conjunctiva first. The burning point is laid on, for the first row, just beyond the limbus, and a half-circle of dots, usually about ten in number, is burnt; the second row is placed a little further back, and the last row further back still; in this way half the circle of the limbus is surrounded, and the other half may be completed at another sitting if necessary. We have heard of one case of retinal detachment treated here in this way; the immediate result was brilliant, for very useful vision was regained; after a year, however, the man returned with a recurrence, and this has resisted all treatment. The theory of Lagrange's operation is that the burning induces sclerosis of the tissue surrounding the filtration area of the eye, and that in consequence the tension is raised in eyes in which the tension is low and in which detachment has occurred. Of course, before undertaking this operation it would be necessary to see that the retina was untorn and that the vitreous was in a healthy state; with a torn retina and with an unduly fluid vitreous, as evidenced by a gross amount of freely movable opacities, any operation could be undertaken only with considerable hesitation.

THE LONDON SCHOOL OF DERMATOLOGY.

We announced briefly in our last issue that in order to further the study and teaching of dermatology in London a comprehensive scheme of co-operation had just been completed in connexion with St. John's Hospital for Diseases of the Skin. For many years past it has been recognized that dermatology in the metropolis has suffered from want of concentration and combined effort. Each of the London general hospitals has its dermatological department, for which as a rule one physician takes responsibility. The new scheme is the outcome of negotiations that have been proceeding during the last few months between the medical staff of St. John's Hospital and a number of leading London dermatologists, with a view to developing further the existing facilities at St. John's, and combining to establish a central school for the study of clinical dermatology and cutaneous pathology. The hospital, situated centrally in Leicester Square, presents ample clinical opportunities and possesses considerable facilities for concerted teaching. Under the new scheme additional members have been appointed to the staff of St. John's Hospital. Thus Sir Malcolm Morris and Dr. J. H. Stiles have joined the consulting staff, and will each have a seat on the board of management; Dr. Wilfrid Fox and Dr. Henry MacCormac have been appointed to the active staff; Dr. J. M. H. MacLeod becomes director of the pathological department; and the venereal diseases department will be in the charge of Dr. Wilfrid Fox. The other feature of the scheme is the establishment of a school of dermatology, having an intimate connexion with the hospital, where all the teaching will be carried out. The management of the school, though working in close touch with the medical committee of the hospital, will be in the hands of a larger body, consisting of the medical staff (both consulting and active) of St. John's Hospital, together with the physicians in charge of the dermatological departments of the twelve metropolitan hospitals with medical schools attached. Under the auspices of the school the Chesterfield lectures, constituting a systematic elementary course in dermatology, will be given on Thursdays at 5 p.m. from October to March, by the honorary medical staff of St. John's Hospital. Special lectures and demonstrations will be given on Tuesdays at 5 p.m. by the physicians in charge of the dermatological departments of the London teaching hospitals. Instruction will also be given daily in the out-patient department, and it is proposed to make arrangements for classes or individual instruction to be given in the pathological department. Further information on all these matters may be obtained from the Dean, Dr M. G. Hannay.

THE COUNCIL DINNER.

The Council of the British Medical Association is holding its second Annual Dinner on Wednesday, October 24th, at the Hotel Victoria, Northumberland Avenue, at 7 for 7.30 p.m. The chief guest will be Sir Dawson Williams, and the dinner will be made the occasion of celebrating his completion of twenty-five years as Editor of the British Medical Journal. Among those who have accepted the invitation, issued in the name of the Chairman and members of Council, are the Minister of Health, the President of the Royal College of Surgeons of England, the President of the Royal Society of Medicine, Sir George Newman, Sir Arthur Robinson, the heads of the Medical Departments of the Services, and the newly appointed Medical Adviser to the India Office (Major-General J. B. Smith). The dinner last year was very successful, and there was not enough room for all who wished to attend; a larger hall has been secured for this occasion. Members may bring guests, and ladies will be welcomed. Applications for the remaining tickets should be made at once to Mr. L. Ferris-Scott, Financial Secretary and Business Manager, 429, Strand, W.C.2. The price is 10s. 6d., exclusive of wine.

THE MEASUREMENT OF PROGRESS IN PUBLIC HEALTH.

Sir Arthur Newsholme delivered the William Farr lecture at the London School of Economics and Political Science on October 4th. His subject was "The measurement of progress in public health." The first part of the lecture was devoted to an examination of the work of William Farr, who was appointed compiler of statistics in the General Register Office in 1837, and for forty years subsequently devised the methods and supervised the actual compilation of national mortality statistics. Farr's guiding principles were that the evil factors at work in the community, making for injury to life and health, must first be measured, that their relative incidence in respect of age, sex, social condition, and so forth should next be ascertained, and that finally public attention should be drawn by every possible means to the facts thus ascertained. Most vital statistics consisted of aggregates in which it could not be ensured that one causal factor was isolated from others which were in action at the same time. Thus infant mortality was directly related to poverty, but extreme poverty or prosperity might both be

many unsolved problems of vision in relation to the requirements of the combatant services which have been brought before it. The meeting is convinced that efficiency and economy can only be obtained through the solution of these problems.

Mr. A. C. Roper (Exeter), in supporting the resolution, said that some practical result should ensue from the important discussion on ophthalmology in the services, and that could be best attained by pressing upon the Government the importance and absolute necessity, in the interests of the public weal, of instituting research on these vital points.

The resolution was carried unanimously.

VISION IN NAVAL GUN-LAYERS.

BY

Surgeon Commander W. K. D. BRETON, R.N.

The efficiency of a gun-layer or range-taker must very largely depend on his degree of visual acuity, and it seems to me that in such highly specialized ratings existing convention is hardly stringent enough. When we say that an individual can read normal vision, or 6/6, we infer that he can recognize, as disparate, objects which subtend at the nodal point of the eye an angle of approximately 1 minute of arc. It has long been recognized that many can read 6/5 or even 6/4 and better, and in doing so define for themselves a visual angle that is very much smaller than convention demands. Hartridge and Owen in 1922 pointed out that with a single black line on a wide white field, where the conditions of simultaneous contrast are perhaps ideal, the width of the black line may subtend an angle of as small as 3.1 seconds of arc before visibility ceases. It is therefore very obvious, without going into further detail, that between existing convention and experimental result a wide hiatus exists. I have made a point of refracting, under a mydriatic, all men who failed to read 6/4 easily, and it has been my experience that in practically every case a small cylindrical error, often with a certain obliquity of axis, has been present.

During the last six or eight months I have examined 186 ratings, qualifying or requalifying for higher rating. Of these 114, or 61.3 per cent., read 6/4 in each eye, 11, or 6 per cent., read 6/5 in each eye, 9, or 5.3 per cent., read 6/6 in each eye, whilst the remainder showed varying degrees of defective vision. It must, of course, be emphasized that one is dealing with picked men in the third and fourth decades of life, and that, as executive ratings, they had all passed an initial test demanding 6/6 in each eye. To quote one example from our latest Admiralty Order on the subject, gun-layers may be passed for initial test if they can read 6/9 in each eye tested separately, and if any spherical or cylindrical error can be corrected by, at most, a 1 *plus* or *minus* spherical or cylindrical lens, or combination of these lenses. Requalifying tests, every two and a half years, are similar, but permit 6/12 in each eye. My problems then are: (1) The practical significance of small cylindrical errors which permit a man to read 6/6 or perhaps 6/5 partly, but no more. (2) Whether it is justifiable to assume that every healthy emmetrope should easily read 6/4. (3) Whether considerations along the lines I have indicated justify more stringent regulations in assessment. (4) Whether it is definitely proven or not that, apart from gross disease, as diabetes, there is evidence to show that an initially determined axial error may change from time to time.

Stereoscopy.—A wide controversy has for long existed as to the merits of the stereoscopic range-finder against the coincidence or monocular instrument; the latter, of course, depends for its efficient use entirely on monocular visual acuity. As far as I know a convention, as the visual angle, does not exist in estimating stereoscopic efficiency. Measurements are usually made and recorded in terms of parallactic change, and triangulation determined by taking the I.O.D. as the common base and the distant objects as the apices. Ability to judge distance, after eliminating all monocular potentials, is recorded in circular measure. Various figures have been recorded from time to time which show a mean stereoscopic accuracy of 8.2 seconds. In my own experiments during 1921 a mean accuracy of 4 seconds was frequently obtained. It must be observed, however, that such tests have been carried out under laboratory conditions, and there is no evidence to suggest how soon inefficiency and asthenopia from fatigue will supervene. My problems therefore are: (1) To find a convention that may be defined as normal stereoscopic vision. (2) To ascertain whether an initial high standard of stereoscopic efficiency will rapidly tend to wane either from fatigue or stress of circumstance.

Muscle Balance.—Present regulations disqualify where any imbalance exists exceeding 2 degrees prism, except in the case of stereoscopic range-takers where orthophoria is demanded. As far as inco-ordination in the vertical meridians is concerned, I am inclined to reject any candidate for higher rating, however small the imbalance. My problems are: (1) To what degree deviations in the horizontal meridian may be permitted in monocular work, as in coincidence range-finding, laying, etc. (2) The prognosis and treatment of moderate deviations in the horizontal meridian. A case recently came under my observation (a candidate for gun-laying—that is, monocular work) who read 6/4 in each eye, but had 9 degrees prism of exophoria. According to regulations he is unfit. Should this be so?

Colour Vision.—I have found few subjects more difficult to fathom than the various theories of colour vision. In any service we are naturally more concerned with practical tests than theory. I think I am right in assuming that the older tests—as Holmgren's wools, coloured beads, etc.—are obsolete and untrustworthy. I am at present using a series of test cards devised by Edridge-Green which appear to me an effective method of rapidly categorizing colour defectives or those showing a shortening at either end of the spectrum. My problems are: (1) Whether any other test of greater practical value exists. (2) Whether a tetrachromic (that is, an individual who can only distinguish four spectral colours—red, yellow, green, violet) may be considered normal for all practical purposes; in my series of 186 I had three dichromics who could apparently only distinguish the spectral ends red and violet.

NAVAL LIGHTING.

BY

Surgeon Captain R. J. E. HANSON, R.N.V.R.

The senior service is keeping well abreast of recent work in ophthalmology, for no section of the community is more exposed to dazzle or more susceptible to the ill effect of faulty illumination in the confined spaces of modern naval craft.

A Naval Code of Lighting (see below) is now available for the guidance of those engaged in illumination. A discussion on the matter of this code would be helpful to the service and much appreciated.

Special attention has been given to certain inquiries from the hydrographic department of the Admiralty. In the tropics dazzle is a serious problem in boat work surveying. To eliminate this factor a pale green-tinted matte surface for drawing paper has been designed, this surface to be held, when possible, so that sunlight is not directly reflected into the observer's eyes.

The linear markings and notation on the survey staves have been revised, in conjunction with Captain Douglas, R.N., Assistant Hydrographer—so that the relative height and width of the foveal field is maintained when reading off lines and figures through glasses. Experimental work has been done at Whale Island, also in the submarine department, and at Kew Physical Institute, respecting visual and postural fatigue in the use of periscopes and gun-sighting telescopes, etc. As the "orbital cone" of muscles effects the finer co-ordinate movements of the eyes, so the "spinal polygon" (small recti capitis muscles) are in co-ordination with the orbital cone, and effect, by their action, an increase in range of vision field without movement of the trunk.

To allow these two sets of muscles unharassed action (absence of fatigue and strain) it is necessary to give rest position to the large head-neck-trunk muscle groups. This has been achieved by use of an alternating head rest and

NSANITY AND MENTAL DEFICIENCY.

nual report of the Board of Control for 1922, to a brief reference was made in our issue of er 29th (p. 573), again brings to our notice the s connected with the insane and mental defectives. s revealed in the report as to the incidence of these s are serious and cannot lightly be ignored by the ity.

Increase of Insane Persons under Treatment.

e end of 1922 there were no fewer than 106,247 cer- tients in England and Wales, and the total expendi- the upkeep of the county and borough asylums, and maintenance, supervision, and treatment of patients , amounted to £7,658,823. These figures do not the numbers or cost of the certified mental defectives e insane and defectives in Poor Law institutions. ect admissions during last year were 23,125, the umber the Board has ever recorded with the solitary n of 1914; the average annual increase in the resident in county and borough mental hospitals in ee years 1920-22 was 3,482 as compared with an pre-war yearly increase of 2,095 for the ten years December 31st, 1913. The increase in the numbers issions is somewhat disquieting, as it suggests a y for insanity to increase out of proportion to an of the population. The admission rates, however, own marked fluctuations in the past, and it is ng to read in the report that, while the ratio of ons to 10,000 of the population in England and Wales was 6.28, in 1922 it was only 6.06. Quite apart from ed question whether insanity is tending to become evalent, we are faced with the definite fact that the of inmates in mental hospitals is rapidly increasing. ecrease is due, of course, to accumulation, as the ons are more numerous than the discharges and The death rate has considerably diminished in hospitals and will no doubt continue to do so as the d of comfort, treatment, and nursing is raised, and rd points out that, should the large rate of increase numbers resident in mental hospitals continue, the odation available at present and in the immediate will be sufficient only for the needs of the next three years.

The Outlook.

thus evident that, unless we are able to diminish the ce of insanity or effect more recoveries, the segrega- an increasing number of certified cases will be ble. We believe a pessimistic attitude in regard to oblem to be quite unjustifiable. Psychiatry is full rises. A resistive, degraded, hostile, and deluded , insane for ten years, may completely recover and well; a paranoiac to whom a hopeless prognosis has signed may lose his delusions and resume his place world—saner than he has ever been. In such cases nknown change has occurred in the organism which in cure, and it is obviously the task of medicine to r those mysterious processes of Nature which both nd cure disease. The first essential for the preven- d cure of insanity is more knowledge of its causes, is therefore satisfactory to find the Board ready to age the development of research in mental hospitals. port includes a record of work which has been under- during the year, as well as a number of proposals for anization of future research centres and laboratories. line of the section in the report dealing with research en in a recent number of this JOURNAL.

Importance of Research Work.

e increasing burden of insanity is to be diminished, ly is research essential, but early treatment as well. is sufficient evidence to justify the view that a certain proportion of cases of mental disorder can be prevented from drifting into chronic insanity if remedial measures are taken at an early stage of the illness. The main problem at the moment is how to get incipient cases under medical treatment, and some means must be found of inducing patients and their friends to invoke curative treatment in time. The difficulty is largely a legal one, and it is most desirable, as we have frequently urged in these columns, that those legal restrictions which at present stand in the way of early treatment of mental disorder may speedily be removed by appropriate legislation.

Out-patient Clinics.

Apart from this, the Board of Control strongly advocates the creation of out-patient clinics in connexion with general hospitals for the treatment of mental cases. They point out in their report that there is a natural reluctance on the part of most people to undergo institutional treatment anywhere, and, except perhaps for the purpose of a thorough examination, it is scarcely to be expected that persons really in the incipient stage of mental disorder will submit themselves to treatment as in-patients within an institution—be that a general or mental hospital. The Board agrees that it is probably during this incipient stage that the patient most clearly feels and realizes that something is amiss with himself; being then still in possession of sufficient insight, he can himself most effectively supplement and respond to the efforts of the physician. The importance, therefore, of providing, at this stage of the illness, treatment which is acceptable as well as effective is so manifest that the Board hopes for a large extension of this valuable service. It is encouraging to read of the out-patient centres now actively at work in various parts of the country, and we feel that the good which is thus being done by early and preventive treatment may eventually result in an appreciable diminution of the admissions to the mental hospitals.

Mental Deficiency Act.

As the Mental Deficiency Act has now been ten years in existence the Board has included in the report a general review of the work that has been accomplished under its provisions. The war, and the consequent financial restrictions coming so soon after the Act came into operation, greatly curtailed the possibility of its full development. The Board, however, considers that enough experience has been gained to make plain future possibilities and to point out the lines of further advance. Certain defects have been revealed in the Mental Deficiency Act; in particular it is not at present ensuring that unity and continuity of control which is necessary to secure adequate treatment for the mentally deficient, though the Act undoubtedly aimed at creating the machinery by which these conditions could be secured. The chief difficulty arises from the lack of co-operation between the authorities responsible for mental defectives. The Education Board is responsible for feeble-minded children from 7 to 16; the Home Office is responsible for those dealt with under the Children Act, and also through the Prison Service for adult mentally defective criminals; while the Ministry of Health, through the Poor Law, deals with very large numbers of all types and ages of the mentally defective. These central authorities have corresponding local authorities, and, although the Mental Deficiency Act created an elaborate system whereby a defective could be transferred from one authority to that of another, the Board of Control has found that, in practice, it is most difficult to secure complete co-operation between the various local authorities. They feel that it is still to a large extent true that "mentally defective persons pass from one authority or institution to another, helped or detained a little in each, but permanently cared for by none."

In spite of the difficulties the Act has not been altogether unfruitful and under its provisions it has been possible to

Reports of Societies.

INSULIN IN GENERAL PRACTICE.

At the meeting of the Section of Therapeutics and Pharmacology of the Royal Society of Medicine held on October 9th, Sir William Hale-White presiding, a discussion took place on the use of insulin in general practice.

Professor Hugh Maclean, in opening, said that personally he had seen nearly a hundred diabetic patients who had been treated with insulin, and in every case the result was beneficial, often it was dramatic. He believed that insulin might be quite safely used by the average general practitioner, though stringent precautions must be taken and certain contingencies guarded against. The most important of these precautions was to go ahead very gradually. Short cuts must not be tried in general practice. Insulin when given carelessly might result in the death of the patient. The symptoms produced by an overdose of insulin varied considerably. Generally they consisted of flushing of the face, with sweating, often followed by some degree of pallor; often also there was a sense of constriction about the throat and chest, and giddiness and physical weakness might be present. The occurrence of these and other clinical phenomena was associated with the action of insulin in lowering the blood sugar concentration. When insulin symptoms were in evidence they were more severe the lower the blood sugar. But even though the symptoms of the hypoglycaemic complex might be very severe, fortunately they responded easily to treatment. The giving of sugar by the mouth would quickly remove the condition, so that there was little or no danger if the patient was carefully warned to take some sugar whenever any symptoms appeared. It was a good plan to keep a glucose solution (50 per cent. strength) ready to hand, and to instruct the patient to take from 1 to 2 oz. of this on the occurrence of symptoms. The effect of insulin on the diabetic condition was to restore the patient to the condition of the normal individual, though it was now generally accepted that insulin did not cure diabetes; while it was being administered the symptoms disappeared and the patient regained health and strength, but on stopping the insulin the symptoms returned. The general practitioner, to begin with, must make certain that he was not attempting to treat an unsuitable case. In general it was most important to be sure that the case was really one of diabetes or very marked glycosuria with high blood sugar content before giving insulin. In most cases the ravages of the diabetic condition were sufficiently obvious, but there were cases, often in elderly individuals, in which the examination of the urine showed a large amount of sugar, but no ketone bodies or only traces of them, and in which the patient was not emaciated, and might appear in quite good condition. In these cases a careful régime should first be ordered, and only if this was not successful in removing the glycosuria and materially reducing the blood sugar should insulin be employed. If a patient's urine did not give an acetone reaction great care must be exercised, and the possibility of "renal glycosuria," which it would be dangerous to treat with insulin, must be kept in mind. Occasionally one saw a patient in whom the diabetic condition appeared to be very severe, but whose response to diet was extraordinarily good; here insulin was not indicated. In a case suitable for insulin, the diet should first be arranged and the patient given the necessary amount of insulin to keep his blood sugar within normal limits. It was better to give a patient a moderately good diet with the maximum amount of insulin, even when such diet produced glycosuria, rather than to keep him on starvation diet, with which the glycosuria might be much diminished or even absent. The dieting and the dose of insulin should be carefully correlated. The patient should be placed on a fixed diet sufficient for his wants, and then increasing doses of insulin should be given until satisfactory results were obtained. The daily dietetic allowance should contain from 10 to 15 calories for every pound of the patient's weight. The protein allowance should be in the neighbourhood of half a gram or less per pound weight, while the carbohydrate should be small, and the fat content comparatively high. Having arranged a definite diet, the patient should be kept in bed, or at all events indoors, for a few days at the beginning of treatment. His urine should be collected and examined each day for sugar and ketone bodies. The daily injections of insulin, beginning with 5 units in the morning and 5 in the evening, should be slowly increased until the urine became free from sugar, or until the dose given was one beyond which the medical man did not feel inclined to go. It was safer not to give more than 50 units a day as a maximum. The best time to give insulin was thirty minutes before the morning and the evening meals. If on reaching the extreme dose—which in a table he showed was 30 units twice daily—the glycosuria still persisted, it was well to continue for a little time with this dose, and to cut down gradually the carbohydrates of the diet. The majority of his own patients remained in good health and without glycosuria on a dose of from 10 to 25 units of insulin twice a day. The important point was not to hurry too much at the beginning of treatment, but to give progressively increasing doses over a fairly long period. In diabetic coma large doses should be given. The treatment might begin with an injection of 20-25 units, followed by a similar amount in two hours or less if no definite improvement took place. Sugar ought not to be given in these cases along with insulin; in certain cases it did no harm, but in some it seemed to neutralize the insulin. Generally in diabetic coma insulin acted in a dramatic manner, but its effect could not be forecasted with certainty.

Dr. George Graham said that although insulin was of great value in diabetes it could not be regarded as a substitute for the ordinary dietetic treatment. Cases must still be dieted, though possibly not so strictly. The Toronto school, and also Allen and his co-workers, believed that insulin should be so used that the blood sugar curve became normal, and with this view the speaker was in agreement. Other workers both in America and this country seemed to think that the clinical appearance was of first importance; others held an intermediate view, that the urine should be sugar-free, but that it did not matter so much if the blood sugar was slightly raised. He gave an account of 23 severe cases treated at St. Bartholomew's, of which 19 returned to the normal blood sugar curve with insulin. From a study of the exceptions it seemed that there were some cases in which the normal blood sugar could never be reached. The insulin dose, which to begin with was one dose of 10 units a day, was gradually increased, but large doses should only be given while the patient was in hospital or nursing home under intelligent supervision. He had never sent patients out of an institution while they were taking more than 20 units in the morning and 20 at night. It was comparatively simple to bring down the blood sugar to normal if one waited long enough and gave big enough doses; the difficulty was to know what to do afterwards. At present he was aiming at gradually decreasing the dose of insulin as the patient improved until only one dose of 10 or 15 units a day was given; then he increased the protein and the fat of the diet, and delayed the addition of bread for as long as possible. While the result of the treatment of advanced cases of diabetes with insulin was quickly known, the result of the treatment of early cases could not be stated until some years had elapsed. To six patients who had had fairly recent attacks he was giving small doses of insulin, and was holding his hand with regard to carbohydrates; the result was yet to be seen.

Professor J. J. R. Macleod (Toronto) confessed to being somewhat at a loss in talking on the subject from the clinical side. The previous speaker had touched upon the possible value of small quantities of insulin. It was the experience of most of those who had used this method of treatment that, although it might not be possible with very small quantities to bring about any great change in the objective symptoms of the disease, it often resulted that the patient felt very much better in himself as a result of these administrations. He and his colleagues had lately been carrying out an experiment which bore upon this

students. The health of "The Chairman" was proposed by Dr. Cuthbert Lockyer, and Dr. T. Watts Eden briefly responded. During the evening an excellent musical programme was carried out by Dr. Beaton, Dr. P. V. Davies, Mr. Green, and by Mr. Malcolm Scott and other artists from the Coliseum.

SCHOOL OF PHARMACY.

At the opening of the eighty-second session of the School of Pharmacy of the Pharmaceutical Society of Great Britain, on October 3rd, the inaugural address was delivered by Dr. W. E. Dixon, F.R.S., Reader in Pharmacology in the University of Cambridge, who spoke on "Drug treatment: past, present, and future."

Dr. Dixon said that he desired to give the students some reasons for believing that treatment by drugs was as yet in its infancy, and to offer them, therefore, encouragement in their profession, which he believed had a great future and unlimited possibilities. The whole outlook on treatment had been altered by reason of the gradually accumulated knowledge that the animal body elaborated its own drugs, stored them generally at the seat of formation, and doled them out to the tissues to meet the needs of the animal economy. The normal functions of the body were regulated, at least partly, by these natural drugs—of which adrenaline and pituitrin were examples—and it might be that all functionings were of this nature, and that the object of a nerve supply was to localize the liberation of the drug in some definite situation. Obviously, then, animal products had assumed once again a great importance in pharmacy and pharmaceutical chemistry—such an importance, indeed, that some knowledge of the animal anatomy and physiology was almost an essential to the educated pharmacist of to-day, and he had little doubt that before long it would form a not unimportant part of the pharmacist's curriculum.

Passing to consider how far drug treatment had advanced in the cure of disease due to the introduction into the body of some extraneous factor, Dr. Dixon pointed out that in several instances, especially in diseases due to protozoa, it was possible to destroy the causal agent of the disease by drugs; the disease was cured, but, curiously enough, the action was not necessarily brought about by the direct effect of the drug on the causal agent. The organic compounds of arsenic had no decided effect on the spirochaetes of syphilis in the test tube, but they destroyed them in the body; emetine, an alkaloid from ipecacuanha, did not kill the amoeba of tropical dysentery except in the human body. Chemists and pharmacologists had as yet made little progress in their attack on bacterial diseases such as tuberculosis, but the fact that one of the quinine derivatives, ethylhydrocuprein, administered to man in appropriate doses, destroyed the micro-organisms causing pneumonia suggested a happy augury even in this field.

After stating some physico-chemical problems as to drug action which still awaited solution, the lecturer said that drugs might act not by any particular action on the living matter, but because they collected in such quantities in living cells as to clog the working of the machine. The vast group of hypnotic drugs, differing widely in their chemistry, had one common factor, the power of diffusion into living cells, comparative insolubility in water, and a greater solubility in fat and fat-like compounds. It was not a general rule, however, that drugs which exerted a selective action on some tissue tended to collect in that tissue; strychnine did not collect in the spinal cord, nor morphine in the brain. Adsorption, or the concentration of soluble substances on surfaces, accounted for the action of some drugs. Osmosis, again, was the principal factor concerned in the action of the saline purgatives and diuretics. Dr. Dixon concluded with some advice to those students who were to become retail chemists: he spoke of their need for an understanding of life and of men, as well as for an accurate knowledge of the art of dispensing.

The Dean (Professor H. G. Greenish) reported that negotiations with the University of London with a view to establishing a science degree in pharmacy were making good progress, and he hoped that before the next session of the school they would have reached a satisfactory conclusion.

PUBLIC HEALTH IN SOVIET RUSSIA.

BY

L. HADEN GUEST, M.C., M.R.C.S.

I. THE EPIDEMIC SITUATION.

IN the years 1918, 1919, and 1920 the statistics of disease and of epidemic conditions in Russia gave figures which aroused incredulity and were almost incapable of realization in terms referable to ordinary Western European experience. Typhus and relapsing fever were dealt with in millions and other diseases, such as typhoid fever, small-pox, diphtheria, malaria, and scurvy, in thousands. By June of the present year (1923) the monthly figure for typhus cases had sunk down to thousands and small-pox and relapsing fever to hundreds. One may say, indeed, that the epidemic situation is well in hand.

The figures in the tables below are taken from the *Statistical Bulletin* of the People's Commissariat of Health for July, 1923, and have been checked by the *Epidemic* Commission of the League of Nations. While not comparable as regards accuracy with the figures of the notification of disease in Great Britain they are substantially correct.

The large figures of the railway and river service probably give the key to the efficiency of the work. For a real effective and sanitary control of railway and river transport has been established, and a separate medical sanitary and hospital service created for the purpose.

	TYPHUS.			RELAPSING FEVER.		
	Russia in Europe.	Siberia, Caucasus and Central Asia.	Railway and River Service.	Russia in Europe.	Siberia, Caucasus and Central Asia.	Railway and River Service.
January ...	43,256	6,279	52,162	47,855	9,131	60,247
February ...	32,709	6,144	40,323	32,643	6,095	39,827
March	30,745	3,513	33,021	23,315	4,509	29,103
April	21,953	3,027	25,994	16,732	3,145	20,803
May	13,967	1,930	15,552	9,313	2,207	12,163
June 3–9 ...	1,463	334	1,371	811	352	1,243
„ 9–16 ...	1,323	203	1,563	836	219	1,147
„ 16–23 ...	801	116	961	419	121	525
Total ..	146,343	21,661	176,247	131,455	25,777	165,234

	SMALL-POX.			MALARIA.		
	Russia in Europe.	Siberia, Caucasus and Central Asia.	Railway and River Service.	Russia in Europe.	Siberia, Caucasus and Central Asia.	Railway and River Service.
January ...	4,163	1,571	6,447	64,546	13,349	94,377
February ...	4,260	1,572	6,243	75,633	17,564	101,693
March ..	4,319	1,651	6,174	153,953	29,322	159,503
April	4,118	1,323	5,582	233,891	36,349	292,617
May	3,256	806	4,203	293,375	37,915	344,616
June	—	—	—	211,495	39,374	253,687
June 3–9 ...	439	141	605			
„ 9–16 ...	429	116	574			
„ 16–23 ...	326	66	405			
Total ...	21,416	7,626	30,123	1,022,293	173,413	1,349,033

The sanitary control of the railway and river communications is carried out as follows: In each large railway station there is a real effective sanitary control, a medical officer is present at the arrival of each train from the south (the area of epidemics), and a medical inspection of passengers is carried out. This is not an individual examination but an individual questioning. Previous to the arrival of the

of diabetes, to which the name "renal glycosuria" had been given, did not present the usual clinical symptoms of diabetes, and the blood sugar curve at once differentiated cases of this class from those of true diabetes. The occurrence of glycosuria here was due to a low kidney threshold. In such cases insulin treatment would be very dangerous. All that was necessary was the restriction of carbohydrates within moderate limits and the avoidance of sugar in the dietary. Cases of glycosuria also were not infrequently met with in which the cause might be dietetic indiscretions, nervous shock, or some constitutional disturbance such as an acute toxaemia from a septic focus. In such cases rest and appropriate dietetic and other treatment might lead to rapid disappearance of the glycosuria.

The plan of treatment to be adopted depended upon the persistence of the glycosuria and the character of the blood sugar curve. Clinical observation was of first importance. In certain cases, as in elderly or tuberculous people, a too strict adherence to a rigid dietetic treatment might do more harm than good. Each case must be treated on its merits. When a diabetic condition was established it was essential, unless there were special contraindications, that a definite course of treatment be carried out. One of the most important considerations in the treatment of diabetes was the possibility of infection. It was well known that severe glycosuria might result from the toxaemia of acute infections, and clear up when the septic focus was removed. His experience at St. Mary's had been that the removal of any focal sepsis in diabetic cases improved the tolerance in every case, and in some cases of diabetes of several months' standing raised the tolerance practically to normal. If a toxic focus was present in diabetes, insulin was not going to do any good, for the effect of the septic focus was to neutralize the insulin. This fact, he thought, explained insulin failures. A septic focus must be sought for very carefully. The ordinary examination of the teeth was not sufficient; they should be examined radiologically. Similarly the most careful examination should be made of the tonsils. The removal of the septic focus was not attended by danger, provided proper precautions were taken. In the severe cases of diabetes, with a low tolerance and hyperglycaemia, insulin was invaluable. It was also of great value in cases where acid intoxication was present. But the haphazard administration of insulin in diabetic cases was not likely to lead to any permanent benefit, and, moreover, was fraught with danger. Only along methodical lines were good results to be expected. If an ordinary dose of insulin was given to a person with a normal blood-sugar curve it had no toxic effect, owing to the neutralizing action of the blood sugar, and therefore some might assume that it would be feasible and advantageous to give a patient with a high blood sugar curve three or four times the normal dose. This, however, was not the case at all, for the simple reason that these diabetic patients had no sugar reserve. Another precaution which he mentioned was the undesirability of giving insulin after midday. A 10-unit early morning dose might be given, perhaps increased to 15 or 20 units, and in a severe case a third of the early morning dose might be given at midday, but not later.

In conclusion, he said that there was no question that insulin in severe cases had markedly beneficial effects. It was of the utmost value where acidosis was present and coma was threatened. In cases where acidosis was present it was well to give fairly large doses of insulin, and with the insulin to give glucose by the mouth, and a fairly liberal allowance of sugar. Up to the time of the discovery of insulin diabetic coma was incurable, but now there were quite a number of cases reported of complete recovery after diabetic coma had developed. The cases which failed were cases in which the coma arose when something more than the pure diabetic condition was present.

NEWCASTLE AND NORTHERN COUNTIES MEDICAL SOCIETY.

The first meeting of the new session of the Newcastle-upon-Tyne and Northern Counties Medical Society was held in the Royal Victoria Infirmary on October 4th. The President, Dr. R. Esmond Moyes, was in the chair, and about one hundred members were present. A large number of medical and surgical cases were demonstrated by the following members: Professor W. E. Hume, Drs. George Hall, G. A. Berkeley-Cole, S. Whately Davidson, J. C. Spence, Professor H. Brunton Angus, Messrs. Hamilton Drummond, W. A. Hewitson, H. Harvey Evers. A series of pathological specimens from the museum of the University of Durham College of Medicine was arranged by Mr. W. E. M. Wardill, the Curator.

The Society meets monthly during the winter session, and in addition to the ordinary meetings two clinical and pathological meetings have been arranged for the convenience of country members, at 4.30 p.m. on October 24th, and January 23rd, 1924. The annual address and dinner will take place on December 6th. On February 7th, 1924, an address will be delivered by Dr. Hugh Thursfield, London, and on March 6th a discussion will be opened by Dr. Leith Murray, Liverpool, on "Caesarean section, its history, indications, and limitations."

CELTIC MAN ON THE SUSSEX DOWNS.

A special meeting of the Brighton and Sussex Medico-Chirurgical Society was held on September 22nd, 1923, when the President, Dr. Eliot Curwen, F.S.A., departing from the usual custom, invited the Society to Park Brow, a hill in the parish of Sompting, and there delivered his presidential address on "Celtic man on the Sussex Downs." Beginning with a survey of the geological and climatic conditions of Sussex in prehistoric times, he proceeded to show that the chalk areas in the south-east of Britain supported the most settled and civilized inhabitants of the country during the five or six centuries which preceded the Roman conquest. He spoke of the great quantities of corn which were grown in the south-east parts of Britain from the time of Pytheas (323 B.C.) till the end of the Roman occupation, and then proceeded to demonstrate on the ground the evidence still remaining that Park Brow was inhabited from the beginning of the Early Iron Age (about 550 B.C.) to the fifth century A.D. He pointed out the "lynchets," or cultivation-balks, of the Celtic fields, and explained their characteristics and the manner in which they were formed; he also demonstrated what he stated to be one of the longest and most interesting stretches of Celtic road in Sussex. The members then walked down this road to the circus, or moot, of the Celtic community, and when they were seated on its low, broad banks, the president explained its origin and character and the purposes to which it was put. Attention was next drawn to the site of the town, or village, at the entrance of which the circus was situated, and the character of the dwellings was described. A storage pit for grain, 6 ft. deep and 8 ft. in diameter, was then shown, and it was pointed out that the pottery found therein belonged to the Hallstatt and earliest La Tène periods, about 500 to 400 B.C. Evidence was adduced to prove that the early inhabitants on Park Brow spun their own wool or linen, and wove it into fabric; and after a brief description of the ground culture attained, as shown by Early Iron Age finds elsewhere, an endeavour was made to obtain an insight into the mind of the late Celtic inhabitants of the land by the evidence offered (if they might be taken as genuine) by the Triads of Moelmud.

At the annual meeting of the Association of Certificated Blind Masseurs Sir Robert Jones, the president, referred to the progress made by the association during the past year. At the end of this, the fourth, year of its activities, its members numbered 160, 81 of whom were blinded soldier masseurs, 37 civilian masseurs, and 42 masseuses. The thanks of the association were due to St. Dunstan's Hostel for Blinded Soldiers and Sailors, which had made a grant of £448, and the National Institute for the Blind, which had made a grant of £224, to further the work of the association. The income for the year was £848, and there was a balance in hand of £64. Sir Robert Jones pointed out that the association was not of the nature of a transient war charity, as 79 of the 160 members were civilians. He insisted that the notion that a blind masseur could not equal the skill of a masseur with sight had no foundation in fact; the blind were, indeed, specially suited to become masseurs, and they acquired in certain directions a deftness and delicacy of touch not often met with in an ordinary masseur.

which very many have broken down. Thus a recent writer in a Communist paper stated that 75 per cent. of the Communist party were ill as a result of strain, overwork, and war conditions, and the general level of health of all towns-people has certainly greatly deteriorated. It is only this year, for the first time, that Communist leaders, Government officials, and important workers in all grades have been able to take a holiday. The trains to the health resorts of the Caucasus and the Crimea (a Russian riviera and very beautiful) have been packed, and tickets were only obtainable with difficulty. But the taking of holidays is at least a sign of the strain relaxed and this will probably be reflected in a general health improvement at a later date.

Scotland.

GLASGOW SOUTHERN MEDICAL SOCIETY.

THIS Society met in the rooms of the Glasgow Medical Club on October 4th, when Dr. J. Grant Andrew delivered his honorary presidential address on "Molière and the doctors." He gave a sketch of Molière's life, and surveyed the state of medical practice during *le grand siecle*. The battle of the three great corporations in Paris in the seventeenth century were recounted and the narrow boundaries of the humoral view of medicine were traversed. Dr. Andrew noted that three of the great discoveries of the century—the circulation of the blood, and the therapeutic use of quinine and antimony—were scouted by the faculty for the pettiest of reasons. The profession of those days made an admirable butt for the shafts of a great satirist, himself a sufferer at the hands of pedants and charlatans, and the change from the light raillery of the earlier plays to the ferocity of the later attacks was well brought out by the speaker. Before the address, the President (Dr. D. George Carmichael) presented Dr. Grant Andrew with the diploma of the society, and referred appreciatively to his public and professional work in Glasgow before leaving that city to make his home in Bournemouth.

POST-GRADUATE STUDY IN GLASGOW.

The success of the graduate courses held last winter in Glasgow has induced the board of the Glasgow Post-Graduate Medical Association to make arrangements for graduate teaching in Glasgow on similar lines during the coming winter, from November to May. The teaching will be available in three forms: (*a*) weekly demonstrations, (*b*) special courses, and (*c*) clinical assistantships. The series of demonstrations will be given on Wednesday afternoons, and has been arranged much as in former years. The range of subjects is wide, including medicine, surgery, obstetrics, diseases of children, ophthalmology, and other special subjects. This series is intended to appeal particularly to those practitioners who wish to keep in touch with recent advances in a general way, and to compare the methods of diagnosis and treatment employed in different institutions. The fee for this course, to which attending practitioners may send their own cases to be demonstrated and discussed, is three guineas. In order to provide opportunities for more intensive and systematized post-graduate study a number of special courses have been arranged, dealing for the most part with two or more allied subjects. The number of graduates attending each course will be limited, and the aim has been to provide for the serious clinical study of certain special subjects rather than a series of unconnected demonstrations on a variety of subjects. The special courses include one to be carried on at the Royal Infirmary, the Royal Hospital for Sick Children, and the Royal Maternity and Women's Hospital, providing opportunities for the study of a number of closely associated subjects connected with the welfare of the mother and the newborn infant. A course on genito-urinary surgery will be conducted in the Western Infirmary. A course of eight meetings upon medical ophthalmology will be conducted by members of the staff of the Eye Infirmary, the Ophthalmic Institution, and the general infirmaries; these meetings will be general in character and their aim will be to demonstrate the importance of ocular conditions in the diagnosis and prognosis of general disease, as well as the part played by constitutional disease in the causation of those conditions. A special course on fractures will be held at the Western Infirmary, and will comprise the surgical and pathological anatomy of fractures in general, with special reference to actual cases and demonstrations and treatment of such cases as may be in the wards. A series of clinical demonstrations on surgical diseases of children will be given at the Royal Hospital for Sick Children. The fee for each of the special courses (except the last, for which no fee is specified) is two guineas. In a certain number of the institutions taking part in the work of the Post-Graduate Medical Association a limited number of clinical assistantships are available to graduates who desire opportunities for the detailed study of a special subject. A clinical assistant must enrol for a period of three months, and must be prepared to devote to the work either the whole or part of a day, according to the terms of the particular clinical assistantship which he holds. The syllabus of the courses, containing full particulars, may be obtained from the secretary of the Association, Dr. James Carslaw, 6, Woodside Crescent, Glasgow, W.

Ireland.

BELFAST MUNICIPAL SANATORIUM.

DR. STEWART, medical superintendent of the Belfast Municipal Sanatorium, states in his report for 1922 that 375 tuberculous patients were admitted during the year, a number considerably less than in the previous year: this fall was due to the diminished accommodation owing to extensive painting and repairs which had to be undertaken. There was an increase in the proportion of young adult males. The deaths numbered 85 (55 males, 26 females, and 4 children), 70.5 per cent. of these 85 had a negative family history. In 61 patients the disease was reduced to a clinically quiet state; 121 were much improved, of whom a fair number were judged capable of carrying on certain light duties. The benefit in the other cases consisted in an alleviation of suffering and the prevention of infection.

TYPHUS FEVER IN MAYO.

At a recent meeting of the co. Mayo Board of Health, the Minister of Local Government forwarded, in connexion with the occurrence of cases of typhus fever in the Belmullett district, the report of Dr. O'Dwyer, Medical Inspector, which was as follows:

I have been in Belmullett for some time endeavouring to get the Belmullett fever hospital into a habitable condition. I must prelude my remarks by pointing out that the fever hospital is quite unsuitable for its purpose, because: (1) It has no separate water supply. (2) Sanitation consists of outside dry closets only, and no arrangement for regular cleansing. (3) The building is in need of much repair (estimated cost £287). (4) It is within 100 feet of the old workhouse, now a military barracks, and has a common approach within the latter. (5) There is no accommodation for other than fever patients, and Belmullett is forty-two miles from the nearest hospital.

In these circumstances, I would strongly urge on the Board of Health the necessity for providing other accommodation, and, if necessary, building a hospital to meet the requirements of the area. On my arrival on August 20th I found that the nurse obtained by Dr. McHale had gone away. I wired to Ballina for another nurse and I could get none. I then wired to Miss Swan, district nurse in Achill, and she immediately came, and it is thanks to her energy that the hospital was put into some order. At my request she is stopping on pending the Board of Health meeting.

Ambulance.—Three horse ambulances in Belmullett are either out of repair or broken up, and the local contractor would not undertake to repair them. I consequently had to get the spare fever van in Ballina and also utilized it to bring in beds from Ballina. I would make the following suggestion to the Board of Health:

Staff.—It is absolutely necessary to have a staff at the hospital always. When an outbreak takes place if you have not the staff there and the place ready, it is too late by the time these matters have been arranged. In addition, if the stock is left in an unoccupied building it is either stolen or so seriously deteriorates from damp that a new stock is required at each outbreak. I would suggest to the Board of Health that they should keep a wardsmaid and a nurse constantly in the hospital. They should

are devoted to a very full and detailed description of migraine, only two pages are allotted to myasthenia gravis. The account of the symptomatology of cerebral tumours is disappointing and there is no mention at all of tumours of the third ventricle.

Vascular lesions of the brain are dismissed much too shortly, and we consider that the authors go too far in their avoidance of any clear differentiation between haemorrhage, embolism, and thrombosis. The student in search of an account of the sensory disturbances in cerebral lesions must look for them in the chapter on cerebral apoplexies; this surely is a defect in arrangement.

The various forms of syphilis of the nervous system are described together in one chapter, for which we have nothing but praise. Here the important question of treatment is fully discussed. The general symptomatology of the lesions of the brain stem and cerebellum are well described, with the aid of numerous diagrams, many from Dejerine's classical textbook. Anatomical and physiological considerations throughout receive careful attention and this is a valuable feature of the book.

Undoubtedly the most debatable aspect of the whole book is its treatment of the neuroses in general and of their etiology in particular. The authors are whole-hearted followers of Freud and present their case accordingly. Had other views been allowed more consideration this section would have had greater value.

The section entitled the endocrinopathies contains many hypotheses which are presented as though they were facts, a criticism which applies also but with less force to the section on vegetative neurology. The chapters on mental diseases are short and concise; they succeed in conveying a satisfactory account of the symptoms and nature of the more common psychoses.

The illustrations are very numerous, and in most cases good, though suffering in some instances from too much complexity.

The fastidious English reader will probably find many expressions to which he may object, and some sentences the exact meaning of which he may legitimately be excused from appreciating. In a short review it is difficult to draw attention to all the points which invite criticism; while cordially welcoming this edition we have thought it right to emphasize some aspects of the book in which we think it falls short of being an ideal textbook for students. Of great value to the senior and experienced student, it is perhaps too unwieldy for the capabilities of the junior, as well as too one-sided in some of its views; yet, without doubt, it is a monument of industry and, read with discrimination, a very valuable addition to the library.

URGENT SURGERY.

The English translation of Professor Lejars's well known book, published with the title *Urgent Surgery*, was carried out so well by Mr. W. S. Dickie and Mr. Ernest Ward, that it has now reached its third edition.[3] It has been prepared to accord with the eighth French edition. All the chapters have been revised, and have undergone some modifications, embodying the lessons of war surgery. Thus the work of Fiolle and Delmas is used in the description of ligature of the vessels, and most of the surgery of accidents bears the imprint of our more recent acquisitions of knowledge. Professor Lejars is, however, an excellent and discriminating author, who knows well what to choose and what to leave out. He gives as a rule no more than one method of treatment, and does not obfuscate the issue with a mass of alternatives and irrelevancies. We doubt the wisdom of the advice given on page 782, to curette the medulla in acute osteomyelitis. A sufficient removal of bone cortex allowing of free medullary drainage is equally efficacious, is more in accord with general surgical principles, and less likely to lead to death of the bone with subsequent sequestrum formation. The section on whitlows might well be revised in future editions. The book, we have no doubt, will continue to make a wide appeal. It is ideal for the occasional operator, for the practitioner who may be called upon suddenly in some emergency to relieve, say, an acute abdominal condition. Such are happy to have so wise a mentor and one who so clearly expresses his meaning. In this respect no little credit is due to Mr. Dickie and Mr. Ward, who have made a model translation, neither distorting the author's meaning nor substituting their own personalities for his. The production of the book is well worthy of Messrs. Wright and Sons' high reputation, and the thousand illustrations are in every way admirable.

[3] *Urgent Surgery.* By Félix Lejars. Third English edition. Translated from the eighth French edition by William S. Dickie, F.R.C.S., and Ernest Ward, M.A., M.D., F.R.C.S. Bristol: John Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd. 1923. (Sup. roy. 8vo, pp. xiv + 803; 20 plates, 1085 figures. 63s. net.)

PHARMACOLOGY AND THERAPEUTICS.

The *Text-book of Therapeutics*, including the essentials of pharmacology and materia medica, by Dr. A. A. Stevens, is a well established and standard textbook, for it was first published in 1895. The fifth edition appeared in 1916, and the new (sixth) edition[4] has been practically rewritten and descriptions of twenty-five new drugs introduced. The author states that the object of his book is "to present a concise description of the most important pharmacological reactions and to show their practical use in influencing the various disturbances that occur in disease." It is a large book (793 pages), and as the title indicates it covers a wide range, for it is practically an attempt to combine a textbook of pharmacology with an index of therapeutics.

The author deals first with the pharmacology of drugs, classifying them roughly according to their chief actions; and in the last third of the book the treatment of different diseases is discussed. The unfortunate gap that exists between the teaching of pharmacology and the practice of therapeutics is notorious, and the attempt Dr. Stevens makes to bridge this gap by including the two aspects of the subject in one volume is laudable, but the arrangement naturally leads to a certain amount of duplication.

The account given of the pharmacological action of drugs is clear and concise, and in most cases embodies the latest information on the subject, although the description is to a certain extent hampered by the absence of illustrations. A few of the statements, however, seem scarcely to represent the latest knowledge. For instance, the production of spinal anaesthesia by cocaine is described, and it is stated that the death rate in spinal analgesia by cocaine probably exceeds 1 in 1,000. Later on it is mentioned that cocaine as a spinal anaesthetic has been superseded largely by less toxic substances, such as tropacocaine and stovaine. This scarcely gives a correct impression of the methods usually practised, for those surgeons with most experience of the method agree that cocaine should never be used as a spinal anaesthetic, and claim that the mortality of spinal anaesthesia is far below 1 per 1,000 when a proper technique is employed.

The general classification of drugs is always a difficult problem, and that adopted by the author might in some cases be improved; for example, the general term "alteratives" is made to include arsenic, iodides, colchicum, and extracts of endocrine glands. The pharmacological section is followed by a section of forty pages describing the action of heat, light, electricity, x rays, massage, bleeding, and transfusion. Descriptions are given of the treatment of a selected list of diseases, and in each instance treatment as a whole is described, and not merely drug treatment. But the space at the author's disposal (200 pages) has been too limited to allow him to give a complete account; for instance, rickets is dealt with in one page.

The chief criticism we have to make is that the author has tried to get too much into one volume. In the pharmacological section an account is given of all the drugs in common use, with the result that the actions of the more important ones are described in rather a summary fashion; with subsequent sequestrum formation. The section on whitlows might well be revised in future editions. The book, we have no doubt, will continue to make a wide appeal. It is ideal for the occasional operator, for the practitioner who may be called upon suddenly in some emergency to relieve, say, an acute abdominal condition. Such are happy to have so wise a mentor and one who so clearly expresses his meaning. In this respect no little credit is due to Mr. Dickie and Mr. Ward, who have made a model translation, neither distorting the author's meaning nor substituting their own personalities for his. The production of the book is well worthy of Messrs. Wright and Sons' high reputation, and the thousand illustrations are in every way admirable.

[4] *A Text-book of Therapeutics, including the Essentials of Pharmacology and Materia Medica.* By A. A. Stevens, A.M., M.D. Sixth edition. Philadelphia and London: W. B. Saunders Co. 1923. (Med. 8vo, pp. 793. 30s. net.)

than to be burdened with a colostomy for life and with a rectum occasionally discharging urine as well.

The operation he advocates certainly cures the incontinence of urine, but is he not recommending a greater evil than that which he set out to cure?—I am, etc.,

Morpeth, Sept. 20th. LESLIE DAGGER, M.B., M.R.C.S.

ETHER *VERSUS* CHLOROFORM.

SIR,—The recent correspondence has, somewhat surprisingly, taken no account of the mixture of these two anaesthetics which has been extensively employed in recent years; it has undoubted conveniences, and has been extolled as an eminently "safe" anaesthetic agent. As a matter of fact the "safety" of chloroform and ether mixtures has been grossly overestimated, as is shown by the statistics recorded in recent reports of the Registrar-General, which are as follows:

In 1921 the return of deaths under pure chloroform was 75, under chloroform and ether 72, and under A.C.E. mixture 12.
In 1920 the deaths under pure chloroform were 88, under chloroform and ether 85, and under A.C.E. mixture 7.

The original intention of mixing chloroform with a less toxic agent was to dilute the chloroform vapour, and so minimize its lethal properties. From the point of view that chloroform kills solely by overdosage, no doubt the reasoning was good, but unfortunately the premisses were wrong, and the cold logic of the figures quoted above will do much to remove the still prevalent idea that the inhalation of an attenuated vapour is the royal road to safety.

In using chloroform it is essential to follow precisely the degree of its own particular anaesthetic effect; this is obscured by admixture with other anaesthetic vapours, and so a death under C.E. mixture may be a particularly insidious event, and difficult to guard against: it is, I believe, far easier to take suitable precautions when using pure chloroform.

I feel sure that the lethal potentialities of chloroform mixtures are unknown to the majority of those who employ them, and I trust that these few words of warning may be of service.—I am, etc.,

London, W., Sept. 27th. A. G. LEVY.

REPEATED TAPPING IN ASCITES.

SIR,—I have under my care a man, aged 38, who, after being out of sorts for some time, one morning last February on getting out of bed vomited a bowlful of dark blood mixed with food. About eighteen years previously he had syphilis and had been treated for it. I found that he had paresis of the left external rectus, causing diplopia. I referred him to an eye specialist, who, finding the Wassermann reaction positive, gave him six injections, at intervals of a week—except on the last occasion, when the interval was two weeks—of novarsenobenzol, beginning with 0.3 gram and increasing to twice that dose. The diplopia improved, but when I saw the patient again he had ascites, oedema of the legs, some vomiting, slight jaundice, and conjunctival injection. The abdomen was tapped and over 240 oz. of straw-coloured and somewhat milky fluid was drawn off. At a consultation the opinion was expressed that he was suffering from arsenical poisoning and cirrhosis of the liver. Afterwards he was tapped at intervals of four to six days, and about 200 oz. of fluid drawn off on each occasion. The liver was firm, but not greatly enlarged, it was not tender, and there were no nodules. He was in the habit of taking one glass of whisky a day. The urine was very free from albumin and measured about 24 oz. in twenty-four hours. In July he again vomited dark blood; about the middle of September continuous drainage was instituted by means of a Jacques rubber catheter kept in as suggested by Sir John O'Conor in the BRITISH MEDICAL JOURNAL of December 4th, 1920. The treatment had to be discontinued as the catheter became blocked with yellowish débris and there was considerable pain and depression. The patient is now again being tapped every four or six days, but the amount withdrawn is decreasing, owing to formation of adhesions, probably due to ingress of air when the catheter slipped out. The question is whether it is desirable to continue the tapping. Cases have been recorded in which a tolerable state of health has eventually resulted, accompanied by great varicosity of the abdominal surface, but in this case the question arises whether there may not be a syphilitic lesion, possibly a gummata, to account for the portal obstruction, which obviously exists.—I am, etc.,

October 7th. A. E.

PAY OF THE R.A.M.C.

SIR,—The letter of "Major R.A.M.C." in your issue of September 29th (p. 587) gives a perfectly accurate account of the chief grievances of the officers of the R.A.M.C., which may be summed up as inadequate pay, frequent and expensive moves, specialist pay given with one hand and taken away with the other, slow promotion, no rise of pay after fifteen years' service until promotion, an inadequate pension, and too much foreign service.

As the result of these unsatisfactory conditions the corps is melting away rapidly. Almost every *Gazette* contains the names of majors and captains R.A.M.C. retiring voluntarily. Optimists tell us that a little new blood will do the corps no harm. But unfortunately the corps is bleeding to death and no new blood is available. How can it be saved? It would be nothing short of a disaster if the R.A.M.C. were to follow the I.M.S. into the pit of oblivion.

I do not profess to be able to find a solution for all the points of the problem. It would be easier to get blood from a stone than to wring an increase of pay or pension from the Treasury, but every effort should be made to resist the threatened reduction of pay, which, if it took place would certainly give the corps its quietus.

The frequency of moves is due to some extent to the shortage of officers, and to such extraordinary calls as was made by Constantinople, but every effort should be made to reduce them.

The juggling over specialist pay is a very sore point, and one which could easily be rectified. The Treasury rule is that when an officer holds a permanent or semi-permanent appointment he must pay income tax on his lodging and furniture allowances. The result is that a specialist's appointment, which is nominally for three years, though it carries with it the extra pay of 2s. 6d. or 5s. a day, renders its holder liable for income tax on his allowances. Now these appointments are not *de facto* permanent appointments. They are liable to be interrupted by many different amenities. I could quote several instances where officers holding so-called permanent appointments have been moved in the middle of them. I know one officer who had in the course of four years three appointments, each supposed to last three years. Therefore, as they are not by any means permanent appointments, why call them so? Let it be an understood thing that a specialist will not be moved more often than is absolutely necessary, and leave it at that. His 2s. 6d. will then be worth at least 2s. to him instead of 5d., as it is at present.

The fact that there is no provision made for any rise of pay after fifteen years' service except on promotion is evidence of a serious oversight on the part of those responsible for the Royal Warrant. Such an injustice cannot have been committed intentionally, and the mistake should be rectified by giving a rise of payment at twenty years.

I now come to the burning question of the large proportion of foreign to home service, which may be as much as two-thirds foreign to one-third at home, and is never less than one-half. This is the matter above all others which makes for the unpopularity of the corps. The first tour of service in India may be not only tolerated but enjoyed, but to the married man the second and third tours are the events he dreads most in his service. Separation, expense, ill health, have all to be faced without any compensating advantages, now that life in India is no longer cheap, and Indian pay is little if any more than home pay.

The only remedy for this unhappy state of affairs seems to be the creation of an Indian branch of the R.A.M.C. on similar lines to that of the Royal Engineers. Let the officers of the R.A.M.C., like their R.E. brothers, be allowed after a few years' service in India to volunteer for

at the time of his report, one had recurrence; nine of the cases had died; the history of one could not be traced; and the survivors had lived from one to twenty years after the operation.

HUMAN EMBRYOLOGY.

The manual of human embryology[7] written by M. Vignoli is a primer or synopsis composed at their request for first and second year students. The author states that at first he refused the request, but finally decided that a book of the kind was needed, since the student of to-day has too little time at his disposal to permit of his devoting more than a week to the study of embryology and requires only summary notions of the subject, enabling him to pass his examinations and comprehend the development of the principal organs. The aim of the book is therefore modest and does not embrace more than the A, B, C of the subject, which is presented in a purely diagrammatic form. Such being the author's aim, it may be said that he has carried it out with great skill. The arrangement of the subject matter is good and the descriptions, although short, are clear and sufficient. The author has made a point of rendering his statements comprehensible to the student; every page, before going to press, was submitted to a student and passages considered to be obscure were rewritten.

The book contains one hundred and ninety-six diagrams; there is scarcely a statement that is not illustrated in figures. It is divided into three parts. The first includes the study of fecundation, segmentation, the development of the embryonic area, and the differentiation of the embryo and adnexa. The second part includes the development of the extra-embryonic part of the ovum and the embedding of the ovum in the uterine mucosa. The third deals with the development of the embryo and its principal organs; and the fourth with the full-term foetus and membranes. An explanatory list of embryological terms in common use is given in an appendix.

NOTES ON BOOKS.

A third edition of the *Manual of Instruction for the Royal Naval Sick Berth Staff*[8] has been issued by H.M. Stationery Office. It has been prepared by Surgeon Commander G. O. M. Dickenson, R.N., who has thoroughly revised the volume and rectified several errors of omission and commission. The alterations thus effected, according to the author, are of an extensive character. The thirty-three chapters cover a very wide range of medical subjects—from somewhat more than elementary instruction in anatomy and physiology to descriptions and treatment of surgical conditions and diseases, both general and systemic. General nursing, cookery, anaesthetics, pharmacy and dispensing, stretcher drill, saluting regulations, preparations for a naval action, landing parties, care of the feet and of surgical instruments, and a variety of subjects which probationary sick berth attendants and sick berth staff are expected to know complete the volume. One can only say that if they assimilate all that is contained within the covers of this manual they will have a very wide elementary knowledge of the science and practice of medicine and surgery. In some respects the information contained in it is not quite up to date. It would be as well, for example, to emphasize in a future edition the use of the Thomas splint for fractures of the extremities. Its use for this purpose is only cursorily noted, whereas, as the result of experience in the late war, it is in the R.A.M.C. training one of the most important features in the instruction of the orderlies. Again, although there is much detailed instruction regarding bacterial infections, toxins, and antitoxins, there is no mention of the prophylactic use of inoculations in the description of enteric fever. Amongst the many diseases described, including encephalitis lethargica and sleeping sickness, there is no mention of sandfly fever, which is so common on the Mediterranean littoral, and would therefore be, it might be supposed, of some importance to the naval sick berth staff. The risk of overcooking of vegetables and meat—an extremely practical point in the prevention of scurvy—has not been noted. It is suggested that the author in a future edition might consider these points. The print is clear and the illustrations numerous and good.

[7] *Manuel d'Embryologie Humaine.* Par J. Vignoli. Paris: A. Maloine et Fils. 1923. (Cr. 8vo, pp. 180; 196 figures. Fr. 8.)

[8] *Manual of Instruction for the Royal Naval Sick Berth Staff.* By Surgeon Commander George O. M. Dickenson, M.B., B.S.Durh., R.N. London: H.M. Stationery Office. 1923. (Cr. 8vo, pp. 529; 262 figures. [illegible])

MEDICAL DEFENCE UNION.

The annual general meeting of the Medical Defence Union was held at the Royal Hotel, College Green, Bristol, on Saturday, September 29th, 1923. The President, Sir Charles Ballance, K.C.M.G., C.B., M.V.O., occupied the chair, and upwards of thirty members were present.

In moving the adoption of the annual report of the Council for the year 1922-23, the President said that he was glad to be able to congratulate the members upon the continued expansion and satisfactory progress of the Union. On only one previous occasion had the annual meeting been held in Bristol, and that was fourteen years ago. At that time the membership was approximately 7,700; now it was over 10,700. The income of the Union then was only a little over £4,000; now it was over £10,000, and with this improvement in the financial position the Union was able to do far more for its members than formerly. Every additional member meant greater protection for all, and medical practitioners should realize that in joining the Union they were not only protecting their own interests, but were doing something for others. One noticeable feature of the last few years had been the increase in the number of women members. Over 400 women doctors had now joined the Union. Three women were on the Council, and their advice had been most helpful in many cases.

Efforts had recently been made to induce the Union to make some concession to those practitioners who were also members of the British Medical Association, but the Council had declined to make any differential treatment in favour of B.M.A. members. Similar overtures had been made to the London and Counties Medical Protection Society, with the like result. Both the protection societies felt that they were mutually concerned in maintaining complete independence, and with a view to the promotion of good feeling, and, where necessary, co-operation, a Standing Joint Committee, consisting of representatives of each society, had been constituted and would meet at regular intervals.

The transfer to the new offices in Bedford Square had been effected without any serious interruption to the work of the Union, and the change was much appreciated. In view of the higher costs of litigation, the Council had thought it prudent to raise the amount of the insurance indemnity after January 1st next to £3,000, the improved financial position of the Union enabling the Council to provide the additional cover without any increase in the annual subscription to the Union.

The President specially pointed out that charges of negligence and malpraxis against medical practitioners were no less frequent to-day than formerly. By far the greater number of the allegations which doctors were called upon to meet were a mere pretext for evading the payment of professional accounts. He could not conceive how anyone engaged in active practice could be so foolish as to refuse to avail himself of the protection which an organization such as the Medical Defence Union afforded. He regarded membership of a defence society as equally important with registration as a medical practitioner, and was glad to find that the newly qualified were joining the Union in increasing numbers.

The annual report of the Council and the statement of accounts were adopted.

Dr. M. Hallwright, Dr. W. Rigden, and Dr. H. Robinson were re-elected members of the Council.

On the recommendation of the Council the following resolution was unanimously adopted:

"That the Council of the Medical Defence Union, having full discretion under the articles of association as to the cases which it shall undertake on behalf of a member, shall have full discretion in any case in connexion with divorce proceedings to withhold or partially withhold the indemnity insurance afforded to members in respect of damages and costs of the other side which may be awarded against them."

A hearty vote of thanks was accorded to the President and Council for their services during the past year.

The Council, at its meeting on October 4th, unanimously appointed Mr. Walter G. Spencer, O.B.E., F.R.C.S., president of the Union for the ensuing year.

Gordon. He was present at the battle of Abuklea, in the centre of the desert, where Colonel Burnaby was killed, in which "Fuzzy Wuzzy" "broke the British square" with disastrous results for himself, for no Arab who broke into the square got out again alive. For this campaign Robertson received the medal, with three clasps, and the Khedive's bronze star. He resigned his commission in 1888 and went into practice at Hayling Island, but retired some ten years ago. During the recent war he served again as medical officer of the Southern Command School of Musketry. His son was killed in Flanders during the war.

Medical News.

THE post-graduate demonstrations of the University of Bristol have been resumed. Dr. Carey Coombs, clinical lecturer in medicine and in charge of the cardiac research department of the University of Bristol, will deal with principles of prognosis and treatment of heart disease at Swindon on October 10th. On October 12th, at Boscombe, Mr. C. F. Walters, F.R.C.S., surgeon to the Bristol Royal Infirmary, will discuss the differential diagnosis of acute abdominal conditions.

THE winter course of health lectures arranged last year by the Sheffield Joint Hospitals' Council and attended by fully 10,000 people were so much appreciated that to meet the wishes of hospital contributors a further series will be given this year. The first lecture was given on Tuesday, October 9th, by Dr. Lazarus-Barlow, Professor of Experimental Pathology at the Middlesex Hospital, who has taken for his subject cancer research, prevention, and cure. On October 23rd the lecturer will be Professor Leonard Hill, F.R.S., of the National Institute of Medical Research, whose subject is clothing and its relation to health. On November 20th Professor M. S. Pembrey, F.R.S., lecturer on physiology, Guy's Hospital, will discuss physical exercise—its value and limitations. Dr. Harold Scurfield (late M.O.H. Sheffield) will give a lecture on child life on December 11th, and Dr. Major Greenwood, medical statistician, Ministry of Health, another on the preventable mortality of middle age on January 15th, 1924. Other lectures will be given as follows: on January 29th by Dr. H. M. Vernon (of the Industrial Fatigue Research Board) on health and ventilation; on February 19th by Dr. Ethel Bentham on common-sense rules of diet and health; and on March 4th by Mr. C. J. Bond, F.R.C.S., member of the Medical Research Council, on the effect of medical research on public health; on March 25th the course will be brought to an end by Sir Arthur Newsholme, K.C.B., M.D., who will speak on the moral aspects of public health. It will be seen, therefore, that the Sheffield Joint Hospitals' Council has been fortunate enough to obtain the service as lecturers of authorities on each of the subjects with which they deal, and we do not doubt that the lectures this winter will be as well attended as were those of the last year's course. The lectures will be given in the Victoria Hall at 7 p.m. on each day.

A SERIES of lectures, free to medical practitioners, is being given at the Hospital for Sick Children, Great Ormond Street. The first lecture was given by Dr. Poynton on Thursday last. The second will be given on Thursday next by Dr. Paterson at 4 p.m. Other lectures will be given on Thursdays, ending on December 6th. Clinical instruction is given by the members of the staff at their visits; the fee for three months' attendance is 5 guineas, for perpetual tickets 10 guineas. Clinical clerkships and dresserships are open to students at a fee of 1 guinea a month.

THE programme of the Hunterian Society of London has been issued. The new session opens on October 22nd with a dinner meeting at Simpson's Restaurant, Cheapside, when Sir Bruce Bruce-Porter will deliver his presidential address on the pitfalls of medical practice. On November 19th Mr. W. B. Maxwell will open a discussion on medicine and letters at Cutlers' Hall. On December 17th a discussion on the influence of ductless glands in infancy, middle and old age, will be opened from different aspects by Dr. W. Langdon Brown, Dr. J. H. Thursfield, Dr. Leonard Williams, and Dr. H. Crichton Miller. The Hunterian lecture will be delivered on January 14th, 1924, by Sir John Thomson-Walker on infections of the urinary tract due to the *Bacillus coli communis*. The annual dinner will be held on February 12th, and the Hunterian oration will be given on March 3rd by Sir Sydney Russell-Wells on changing standpoints in cardiac medicine.

THE annual dinner of the Society of Medical Officers of Health will be held at the Hotel Cecil on Friday, October 19th. The president (Dr. T. W. Naylor Barlow, O.B.E.) and Mrs. Barlow will receive the guests at 7.10 p.m., and dinner will be served at 7.30. Amongst those who have already accepted invitations are the Right Hon. Sir Willi[illegible] M.P. (Minister of He[illegible] Humphry Rolleston, K.C.B., P.R.C.P., the [illegible] Swift, Lord Riddell, Sir George Newman, [illegible] Williams, and Sir Squire Sprigge. Th[illegible] followed by a few speeches and a music[illegible] Ladies are invited, and members are as[illegible] notice to the executive secretary at 1, [illegible] Street, Russell Square, W.C.1, of their intent[illegible] with the names of their guests. A payme[illegible] each ticket should be made with applicat[illegible] October 16th; after that date the cost o[illegible] 15s. each.

THE annual dinner of the Royal Society o[illegible] as already announced, be held on Tuesday, [illegible] at 7.30 for 8 p.m., at the Hotel Victoria, [illegible] Avenue, when the Prince of Wales will hon[illegible] by his presence. As it is anticipated that a [illegible] large number of Fellows will wish to attend, [illegible] not to issue tickets for guests until November [illegible] date, if there is room available, Fellows who h[illegible] tickets for guests will receive them. Ticke[illegible] exclusive of wine) will be issued strictly i[illegible] applications received.

THE annual dinner of the Reunion Asso[illegible] Prince of Wales Hospital, Tottenham, N., w[illegible] Pagani's Restaurant, Great Portland Street, W., [illegible] November 8th, at 7.30 for 8 o'clock. The [illegible] occupied by Dr. George Chappel. The price o[illegible] will be 12s. 6d. (exclusive of wine) for membe[illegible] guests. The secretaries are Dr. Jenkins Oliver, [illegible] Place, W.1, and Mr. S. O. Rashbrook, 7, Well[illegible] Chiswick, W.4.

THE winter scientific demonstrations arran[illegible] North of England Branch will be resumed on Th[illegible] at the North Riding Infirmary, Middlesbrough [illegible] 2.30 p.m. Dr. J. P. Higham will speak on the di[illegible] treatment of corneal ulcers. Professor W. M. [illegible] follow, on the treatment of heart disease, and [illegible] Henry will discuss the opposing theories of t[illegible] There will then be an interval for tea, after which [illegible] Martin will speak on the diagnosis and treatment [illegible] knee injuries, and Dr. J. A. Longley on the *x*-ray [illegible] of malignant disease.

A COURSE of lectures on surgical tuberculosis wi[illegible] at the Salford Royal Hospital and the Ancoats [illegible] beginning on October 18th, at 4.30 p.m., when at t[illegible] Royal Hospital Mr. Garnett Wright will speak on th[illegible] of pulmonary tuberculosis.

A CONFERENCE is being arrange1 by the Fede[illegible] Medical and Allied Services to take place at 12, [illegible] Place, London, W.1, on Wednesday, October 24th, a[illegible] to consider what practical means, if any, are po[illegible] extend in this country the system of providing [illegible] periodical medical examination of the larger life as[illegible] policy holders. Representatives of the managem[illegible] medical staffs of the principal life offices have been in[illegible] attend.

THE opening meeting of the Royal Society of T[illegible] Medicine and Hygiene for this session will be h[illegible] 11, Chandos Street, Cavendish Square, on Thursday, [illegible] 18th, at 8.15, when the President, Surgeon Rear-A[illegible] Sir Percy Bassett-Smith, K.C.B., will deliver his ina[illegible] address. The meeting will be preceded by a demo[illegible] tion at 7.45 of the development of the malaria parasite [illegible] mosquito. Refreshments at 10 p.m.

A COURSE of seven public lectures on psychology [illegible] psychotherapy will be given in the Examination Scho[illegible] Oxford by the Wilde Reader in Mental Philosophy [illegible] William Brown) on Mondays at 5.45 p.m., commen[illegible] October 15th.

THE programme of the Child-Study Society, London, fo[illegible] ensuing session has now been issued. On October [illegible] Mr. F. S. Boas, LL.D., will lecture on "Some aspects of [illegible] Departmental Report on English"; on November 8th [illegible] Jessie White, D.Sc., on "Auto-education"; and on Nov[illegible] ber 22nd Mr. J. J. Findlay, Ph.D., on "Rhythm, labour, [illegible] child development." The lectures are given at the Ro[illegible] Sanitary Institute, 90, Buckingham Palace Road, S.W., [illegible] 6 p.m. On January 8th, 1924, there will be a conference [illegible] educational associations at University College, Gower Stre[illegible] at 5 p.m. The object of the society is the scientific study [illegible] the mental and physical condition of children and also [illegible] educational methods with a view to gaining greater insig[illegible] into child nature and securing more sympathetic and scie[illegible] tific methods of training the young. The president is S[illegible] Edward Brabrook, C.B.; the chairman, the Hon. Sir Jo[illegible] A. Cockburn, K.C.M.G., M.D.

THE Minister of Health [illegible]

which is another way of intimating that the tests of silence and so forth were very searching. The principle of the construction is to embrace a considerable amount of aeronautical engineering practice. Nevertheless the lines of the coachwork can be made whatever the purchaser desires. The main features of the constructional scheme consist of putting a flat platform on the chassis, and mounting the seats, instrument board, and so forth on that, the sides and roof of the covered body being a quite independent unit, and constituting a shell. It is a cheap body to make; and no coachwork so durable has been brought forward before. The one point of objection may be that, when it is brand new, it has not that mirror-like surface that can be got by ordinary systems of construction. Against this is the fact that these surfaces deteriorate sadly in anything from a month to three months' service; whereas the Weymann finish remains in its pristine condition for two or three years and, even thereafter, it is practically none the worse for wear. Things can be done with this construction impossible with any other. Thus a door may be forcibly twisted sideways, but on relase flies back into its normal shape, none the worse. A very ingenious cam action is the principle of the wholly original door-lock, ensuring silence and absolute security. The lightness of the construction enables a chassis to behave with full scale, luxuriously equipped, and large covered body as though it had a two-seat open racing shell on it. For instance, on a large Renault the whole body, including the very ample cushioning and so forth, scaled 5¼ cwt. only, with all the usual glass and so forth.

What Doctors Need.

All the joints in this type of body are separated, as to their component parts, by canvas. The panelling is of a special synthetic leather which has some quite extraordinary qualities. For instance, in hot summer weather the car may be driven all day in scorching sun with an opening in the front windscreen only, so that the driver is protected from heat and dust, yet on getting out, though he will find the panels bulged somewhat here and there, yet by the time he has had lunch the coachwork will have reassumed its normal shape. In like fashion one of these panels may be punched really hard, and a welt raised on it. But, again, after a short time search for the blister will be in vain. Rather a curious story attaches to this quality. The inventors thought that, if this material were so serviceable for coachwork, what a fortune could be made in boots! After wearing boots fashioned of this synthetic leather for a fortnight, however, and finding that they came back to their original shape every morning, so that the user had the discomfort of putting on brand-new boots every day, it was realized that this quality was rather a disadvantage than a gain. All the sliding windows of the Weymann bodies are fitted in rubber channels. This body is, in effect, resilient and free from strain. The methods of construction and the materials used enable wringing stresses to be withstood; and the rattle-free condition of the machine is permanent. This type of coachwork has other important qualities from the point of view of the medical man in that, whereas one dare not dust an ordinary body because the surface would become scratched and lose its gloss, and one has to be very particular about washing for the same reason, by contrast this type of panel can be washed or dusted, in quite an unskilled fashion, without the vehicle losing its original appearance. The cheapness enables a limousine, or saloon body, as well as the landaulette type, to be produced at a cost not exceeding 10 per cent. more than that of constructing an open touring type body, the weight being approximately three-fifths only of the weight of a body of a similar style constructed on ordinary coachbuilding principles. Altogether it constitutes a very notable development of prime interest to the medical man at this juncture. There is nothing experimental about it, the type having been tested over several years. Further, never has such a degree of engineering knowledge been brought to bear on the problem of coachwork construction as is embodied in the very clever framework employed by the Weymann principle. And the saving of voice strain in the course of a day's run has to be experienced fully to be appreciated.

Large Section, Low Pressure Tyres.

In 1916 the Dunlop Company experimented with large section, low pressure tyres. At the Paris Show a number of vehicles, particularly of the smaller sorts not over well sprung, are exhibited with proportionately very large section Michelin tyres, which will constitute a feature of exhibits at the forthcoming show at Olympia, where a number of vehicles will also be shown with Dunlop tyres evolved independently on this principle. From the purely technical point of view it should be pointed out that this is quite a different thing from fitting over-size tyres because these new style "comfort" or "balloon" low pressure, large section tyres are set on very wide rims, so that the strain on the walls is reduced materially. The main object is to ensure comfort on an ill-surfaced road. In other words, the tyre industry is here bringing forward something to cover the faults of the automobile engineer who does not understand springing, or who has not the money at his disposal with which to supply adequate springs to his vehicles. At an earlier period I should have regarded the development as dangerous. But now that the corded tyre principle can be exploited without infringing patents and is, therefore, being taken up universally as being by far the best method of cover constructing, these tyres can be run under conditions of relative abuse with much greater safety, and under-inflated to give very much better results along these lines than have been attained hitherto. Michelin offers 715 by 115 mm., 750 by 130 mm., and 775 by 145 mm. "balloon" or "comfort" tyres to replace the 80 mm., 90 mm., and 105 mm. sections.

One inevitable result of this new movement, however, will be that people will run anything from pedal bicycles to motor cars with ordinary tyres at low pressures. Than that nothing could be more extravagant, or dangerous. Such pneumatics are not designed for running below the pressures specified and there is grave risk of them coming off the rims at corners, and so forth. The over-size "comfort" tyre, as the new type is styled which is being produced by the industry both in the Old and in the New World, is designed for the special conditions it has to fulfil. Michelin even introduces a special type of safety ring which prevents a deflated tyre coming off at high road speeds, as has been demonstrated on the Continent on some racing cars. The roads there are less satisfactory on the whole than in this country and, of course, cars are driven at vastly greater speeds, for one thing because the open, level, and straight roads encourage that; for another because the surfaces are not treated for dust, therefore you must scorch or be choked with dust of other folk's raising. A number of automobile engineers who have tried these tyres on their cars state that the increase of comfort is great. But they find that when corners are taken at high speed, they seem to experience an inclination to sea-sickness.

There are many other interesting inventions in the Paris Show, but the majority are of no more than academic interest to medical men; incidentally, this applies to Mr. George Constantinesco's new form of transmission to dispense with clutch, gearbox, and back axle drive on a motor car. Whatever its merits this could not be standardized by manufacturers in this country for the coming season. The device has been evolved by the inventor of the "C.C." gear whereby machine guns were fired in war time through propellers of aeroplanes.

The Cambridge University Press has recently published for the Cambridge Philosophical Society the first number of a biological part of the *Proceedings* of the society, which until now have contained, in a single series, mathematical, physico-chemical, and biological papers. In separating the biological papers from the others it is hoped that a medium will be established for the publication of biological work of general interest done in the various departments of the university and possibly elsewhere. A Publication Committee, consisting of professors and other representative biologists, has been appointed. It is proposed to issue the new *Proceedings* in quarterly numbers.

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

271. Treatment of Encephalitis.

For more than two years Ross Moore (*Journ. Amer. Med. Assoc.*, September 15th, 1923, p. 928) has been treating certain patients showing symptoms referable to the basal ganglia by injecting intraspinally their own blood serum. Twelve or fifteen cases of chronic paralysis agitans have been treated by this method. In more than half these cases improvement occurred, temporary in nature it is true, but of a quality different from that seen in the course of other treatment. This improvement has been usually in the nature of muscular relaxation; relief from tremor has not been marked. All patients who had a well developed tremor of long standing continued to have it even though very great muscular relaxation was secured. There were several cases of very acute encephalitis in which the progress was apparently uninfluenced by the injections. There appeared to be overwhelming infection, as if the protective mechanism of the body was not functioning. Rosenow's experimental antiencephalitis serum was used in half a dozen cases. In four cases it was given intravenously twenty-four hours before blood was taken for intraspinal use. In the other two it was given intraspinally. Although results were negative, the efficacy of the serum is not, says the author, disproved because the cases treated were extreme ones. In the present state of our knowledge it is impossible to say exactly when nerve cells die that are being attacked by infectious disease or toxic processes. They may be poisoned and inactive functionally a long time before they actually die. If they are inactive functionally, their inactivity will give rise to the same symptoms as their later death. Functional inactivity anywhere in the body is amenable to treatment.

272. Urotropine in the Treatment of Epidemic Encephalitis.

Lehrmann (*Deut. med. Woch.*, June 22nd, 1923, p. 822) has observed more than 40 cases of epidemic encephalitis since July, 1922, and he has tried a variety of remedies. First he gave collargol by intravenous injection and found it unsatisfactory. Then he tried urotropine, recommended by Cushing because it is the only drug which enters the cerebro-spinal spaces and acts as a disinfectant on the cerebro-spinal fluid. The author first gave urotropine in small quantities, only 2 c.cm. of a 1 per cent. solution being given by intralumbar injection. This did no harm, but it also did no good. Better results were obtained when 4 to 6 c.cm. of a 1 per cent. solution were injected, 4 c.cm. being given at the first injection and 6 c.cm. later. In each case from four to eight injections were given, the interval between each injection being one of two to six days. Such reactions as fever, headache, and vomiting were rare, and the therapeutic results were very promising, particularly in the lethargic cases. This treatment not only reduced the severity of the disease, but also seemed to cut its course short. There were, however, several cases which proved refractory to it.

273. Incidence of Erysipelas.

D. Herderschee (*Nederl. Tijdschr. v. Geneesk.*, June 2nd, 1923, p. 2367) states that the incidence of facial erysipelas is greater in women than in men, since out of 604 cases 256 were in men and 348 in women, whereas of 605 cases of other forms of erysipelas 298 were in men and 307 in women. The disease is most dangerous during the first months of life—4 out of 9 cases of facial erysipelas and 8 out of 23 other forms of erysipelas in infants were fatal. The disease is also very dangerous above the age of 70, as 10 out of 48 cases of facial erysipelas and 33 out of 85 cases of other forms at this age were fatal. The mortality among patients aged from 6 months to 7 years was as follows: facial erysipelas, 538 cases with 20 deaths—a mortality of 3.7 per cent.; other forms of erysipelas, 487 cases with 47 deaths—a mortality of 8.8 per cent. The duration of the disease chiefly depended upon whether the streptococci penetrated deeply into the tissues or not, so as to cause cellulitis. The occurrence of this complication was much less frequent in facial erysipelas than in other forms. Thus out of 607 cases of facial erysipelas only 52, or 8.6 per cent., required incision, whereas out of 607 patients with other forms of erysipelas one or more incisions were required in 205, or 33.9 per cent.; 112, or 18.5 per cent., of the cases of facial erysipelas gave a previous history of the disease, and 14.4 per cent. of the other forms had also had a previous attack. Albuminuria was present in 42 per cent. of the cases of facial erysipelas and in 44 per cent. of the other forms. As a rule the albuminuria was of short duration, and in only one or two cases was haemorrhagic nephritis found. A positive urobilin reaction was obtained in 13 per cent. of the cases of facial erysipelas and in 17 per cent. of the other forms. Of 563 patients with facial erysipelas whose urine was tested for sugar, 24, or 4.3 per cent., showed glycosuria, as compared with 23, or 4.2 per cent., among 547 cases with other forms of erysipelas.

274. The Danger of Fumigating with Hydrocyanic Acid Gas.

H. Oeren (*Tidsskrift for Den Norske Laegeforening*, June 1st and July 1st, 1923, pp. 601 and 717) has published two papers, one a month after the other, in the first of which he warmly recommends hydrocyanic gas fumigation for the destruction of vermin in furnished dwellings. He insists that various precautions must be taken to prevent serious poisoning by this gas, which is remarkably effective in destroying lice. As medical officer of health for Trondhjem he was responsible for the disinfection of 323 dwellings by this means between the autumn of 1920 and the end of 1922. Only in two cases did the vermin reappear a few months later. In his second paper the author publishes a case of fatal hydrocyanic gas poisoning. Four homes in one and the same house were fumigated. Two of the families slept elsewhere during the following night. The two other families returned to their homes on the day of the fumigation, and several members of one of these families fell ill, and an infant aged 18 months died of hydrocyanic gas poisoning. In connexion with this matter H. M. Gram (*ibid.*, p. 716) points out that in most of the countries in which this method of fumigation has been tried fatalities have followed, and the benefits of this procedure are out of all proportion to the serious risks.

275. Amoebic Dysentery in Children.

S. Maggiore (*La Pediatria*, September 1st, 1923, p. 913), who records seven cases in children aged from 6 months to 4 years observed at Palermo, states that amoebic dysentery may occur in temperate climates in an endemic form, and may assume an epidemic character. The disease is mainly spread by carriers, the number of whom has been considerably increased by the war, as was shown by Charpino, who found the specific amoeba in the faeces of 20 per cent. of the soldiers who had returned from the front with gastro-intestinal disturbances. In infants weaning is an important predisposing cause, and in older children infectious diseases, as Maggiore had recently shown was the case in bacillary dysentery. In infants acute forms most frequently occur, closely resembling the bacillary type. In older children cases of the chronic and cachectic type are chiefly encountered. Administration of emetine is the best treatment, and the sooner it is given the better. In infants the results of specific treatment are not so satisfactory as in older children, in whom, even in chronic cases, gratifying results may be obtained, provided the drug is given for a long time and in progressively increasing doses.

276. Treatment of Gastric and Duodenal Ulcer.

A. Oblianski (*Klinische Wochenschrift*, July 16th, 1923, p. 1359) records the results in cases treated according to Sippy's method in Professor Umber's wards. The principle of this method is to render the gastric contents permanently alkaline by frequent doses of alkalis, intermitting with a diet rich in calories, given in frequent small quantities. The acid secretion is diminished, the pain relieved, and healing is promoted. Every hour, from 7 a.m. to 7 p.m., 100 c.cm. of a mixture of equal parts of milk and cream is given. In the intermediate half-hours, from 7.30 a.m. to 9 p.m., alternately one of the two following powders is given: (1) Magnesium oxide 0.5, sodium bicarbonate 0.5; (2) calcium carbonate 0.5, sodium bicarbonate 1.5. After two days a lightly boiled egg and bread-and-butter in the morning and 100 grams of rice or oatmeal gruel in the afternoon may be added to the diet. At the end of the first week two or three eggs and 200 to 300 grams of gruel may be allowed, in addition to the hourly milk and cream; but no meal should exceed 100 grams. The patient should remain in bed for seven to ten days. After four weeks three light meals of 300 to 400 grams of soft food may be allowed (prepared from milk, cream, carbohydrates, potatoes, vegetable purées, and stewed fruit), and between these

and are thus the distributors of large sums in cash benefits weekly; formally they have an extensive control over the National Health Insurance Fund through which vast sums of money, contributed by insured persons and their employers, and added to by the taxpayers, pass every year, and out of which credits are assigned to the various societies according to their membership. Some of these societies are very large; some are very small. Some are highly centralized; others have thousands of branches throughout the country, and for purposes of valuation and many other purposes these branches are autonomous units. All of them have secretaries, large or small. Many other offices in societies and groups of societies have been created. Some are filled wisely; some not; this is natural enough. Altogether there has grown up in this way a great vested interest, with great power for good or otherwise, in organized communication with millions of people, controlling or having powers of obstruction with regard to large sums of money, and wielding therefore a great political influence.

From the beginning the medical profession has seen that one of the dangers of the insurance scheme was that approved societies might become so dominant as to usurp the place of the community, and by dictating to Ministers control the whole service, including medical benefit, from the administration of which they were, as such, excluded by the efforts of the medical profession in 1912. Recent events have shown that this danger has become a real one. The profession has shown its willingness to provide the services which the State asks for, and to arrange with the representatives of the whole community—Parliament, the Minister of Health, and the Government—the terms on which it will provide them, but it may be taken as certain that it will unite in refusing to become subservient to any particular section, however powerful. The representatives of approved societies are now engaged in directing the Minister of Health what fee he must pay insurance practitioners for their services, and forbidding him to advance one penny on what they are willing he should give. The view they take is narrow, but the Minister seems himself to have adopted it: it is that the sum must be the lowest for which any barely sufficient number of doctors can be obtained to attend their members when ill. We are sure that many of the officials of the societies appreciate the unwisdom of this attitude, and we still hope that the Minister will take the wider view of national needs and possibilities, and so secure the willing services of the main body of general practitioners of all types.

The case of the Insurance Acts Committee, the constitutionally authorized executive of the insurance practitioners and of the whole British Medical Association in this matter, is that for many months past it has been trying to cultivate friendly relations with all concerned in the insurance service, including the representatives of approved societies, that it has suggested or accepted remedies for all those defects of the service which were considered important, and that for such a service, in its national and individual aspects, no fee less than the 9s. 6d. at present given can be justly offered. If the arbitration award of 11s. in 1920 is taken as just, it is difficult to see how any sum less than 10s. 4d. should be paid in present conditions; but this is not insisted on, although no argument in the Minister's reply shakes the conclusion reached. Viewed in another way it is found that the fees derived from private practice or from much non-State contract practice among the classes of society from which insured persons come alike compare favourably even with the present capitation fee. The acceptance of 8s. 6d. would necessitate a standard of living appreciably lower than that of pre-war times, even expressed in its lowest terms, and without regard to the effects of increased taxation. It is certain that the lowering of the fee would have its reaction on the rewards of all branches of professional work; and this fact, together with the other questions of freedom from approved society dominance, and of avoiding any set-back to the development of an insurance medical service which will be worthy of the profession and of the nation alike, constitutes a situation which must be viewed with grave concern and which calls for united and immediate action.

The reasoned reply by the Insurance Acts Committee to the Minister's offer (SUPPLEMENT, October 6th, p. 149) is printed in this week's SUPPLEMENT (p. 161). The matter is now in the hands of the Local Medical and Panel Committees, which will send representatives to a Conference to be held in London on October 18th. At that Conference most important decisions must be taken. There is little time to secure a satisfactory adjustment; but we hope that the Minister of Health may yet be able to make some further move that will enable a full, contented, and nationally useful service to be established.

PELLAGRA.

WE publish this week an account, illustrated by photographs on a special plate, of two cases of pellagra recently observed in the Hospital for Sick Children, Great Ormond Street, by Drs. Robert Hutchison and Donald Paterson. The disease appears to have been more commonly observed in Italy than in other countries; it was recognized there first as a distinct disorder early in the eighteenth century, and still prevails to a considerable extent. It has been observed also in France, Portugal, Austria, Hungary, Rumania, Macedonia, Egypt, and in some parts of the North of France. In the British Isles a case was recognized by Brown as long ago as 1860; another case was noticed by Cranston Low in Scotland in 1909; and in 1913 two cases were reported in our columns by Dr. C. R. Box from St. Thomas's Hospital. His paper was illustrated by coloured plates (1913, vol. ii, p. 2) showing the appearance of one of the patients and the histology of the nervous lesions described by Sir Frederick Mott in a paper also published in that issue. The two patients were brothers, and both died. The family had resided first of all at Leyton in Essex, afterwards at Catford (within the Metropolitan area), and later at Slough, Buckinghamshire. In 1914 Dr. Box recorded another case in our columns (vol. ii, p. 397); this patient also was a child, and the disease appears to have begun at the age of 1 year and 8 months, while she was residing at a village in Yorkshire. Of the two patients whose cases are now recorded by Drs. Hutchison and Paterson, one had lived in a village near Ipswich and at Walthamstow, Essex; the other at Acton, Middlesex—districts which can both be described as within the confines of Greater London.

The writers of the paper published this week state that their main object is to draw the attention of clinicians in this country to the fact that pellagra is really endemic in England. As the diagnosis, except in typical cases seen during the spring and summer months, or when the rash is well marked, is not easy,

pressure exerted on the cord from w[illegible] in the upper dorsal spine. The [illegible] has been undertaken as an at[illegible] which have failed to respond to [illegible] A thorough trial is given to conserv[illegible] paralysis is becoming more extensi[illegible] to. The operation consists in simple [illegible] of the affected vertebrae with [illegible] above and below the site of the les[illegible] bency on a Whitman's frame fol[illegible] improvement of the paralysis invariably [illegible] ing of the spine follows the operation [illegible] and permanent. Four cases are [illegible] operation was successful [illegible] a spinal pressure which is [illegible] which if unrelieved may [illegible] changes.

283. Treatment of Tuberculous Peritonitis by Laparotomy and Heliotherapy.

M. TEMOIN (*L'[illegible]* July 10th, 1923, p. 1041) [illegible] obtained in cases of tu[illegible] laparotomy combined w[illegible] types are amenable to this [illegible] peritonitis is localized [illegible] caseous, or fibrous var[illegible] children and adolescents [illegible] cavity, the sides of the [illegible] rays are allowed to [illegible] fifteen to twenty minutes [illegible] very rapid. The temperature [illegible] rise, the appetite returns [illegible] condition improves. When [illegible] open the abdomen later [illegible] culosis can be found [illegible] author considers the [illegible] of the peritoneum under [illegible] which causes an increased [illegible]

Ophthalmology.

284. Tournay's Reaction.

P. G. DOYNE (*Brit. [illegible]* p. 420) examined the eyes of [illegible] of the insane for the presence [illegible] Tournay describes the reaction [illegible] whose ocular apparatus is not [illegible] reacting normally to light [illegible] with movements of convergence [illegible] strongly to his right and [illegible] pupil becomes larger than the left [illegible] the rule in anterior fixation [illegible] lateral fixation. In addition to [illegible] of the insane Doyne examined [illegible] of routine examination other [illegible] to the conclusion that, while [illegible] will be found to dilate, it [illegible] of the adducted eye contracted [illegible] which dilatation of the pupil [illegible] obtained varied within wide [illegible] of the surrounding illuminated [illegible] the case. With regard to the [illegible] paralysis of the insane, dilatation [illegible] eye was not obtained in the [illegible] inactive to light and accommodation [illegible] the eyes of those cases which showed [illegible] and reflexes.

285. Effect of Blood Transfusion on the Retinitis of Pernicious Anaemia.

HAROLD L. GOSS (*Amer. [illegible]* [illegible]) records his observations of the [illegible] cases of pernicious anaemia [illegible] transfusion. The changes in the [illegible] in pernicious anaemia are pale [illegible] retina, haemorrhages which [illegible] exudates or plaques, and changes [illegible] Of the 13 cases examined, 9 had [illegible] or exudates, and the remaining [illegible] no haemorrhages or exudates. [illegible] caused an improvement in the blood [illegible] cases, yet it appeared to have little [illegible] retinitis. Goss comes to the following [illegible] fusion does not prevent the further [illegible] rhages in the retina. (2) Transfusion does [illegible] period [illegible] of the [illegible] towards [illegible] [illegible] of the [illegible] in the [illegible] of the [illegible] B.

286. Ophthalmoplegic Migraine and Recurrent Paralyses of the Eye Muscles.

[illegible]

Obstetrics and Gynaecology.

287. Tuberculosis and Pregnancy.

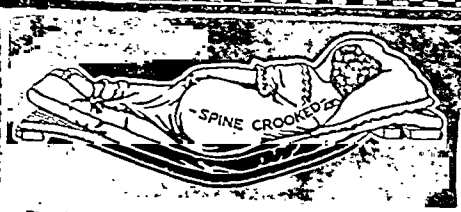
[illegible] be [illegible] conservative, but [illegible] its merits. Inter[illegible] contraindicated, [illegible] of the rapidity of pro[illegible] if the pregnancy [illegible] further than three months, intervention

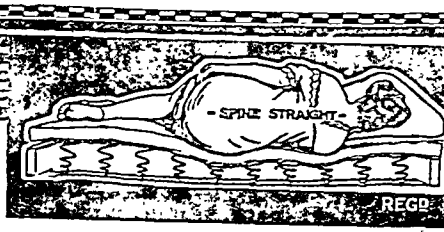
He fed rabbits for about six months on the ordinary diet (tofukara), to which fresh meat was added. No renal symptoms or microscopical changes in the kidneys resulted. At the end of the period the meat was withheld, whereupon the appetite gradually diminished, the animal wasted, albuminuria appeared, and in many cases death ensued. Oedema was a frequent symptom, and there was an increased tendency to infection. Microscopically the kidneys showed swelling of the epithelium of Bowman's capsule and cloudy and fatty degeneration of the tubular epithelium. In addition there was hyaline degeneration of the capillaries of the glomeruli. Suzuki is of opinion that the nephritis was the result of derangement of the general metabolism of the body due to the abnormal diet, and that the similar disease in man is probably due to analogous metabolic changes. Kusano describes experiments bearing on the influence of an excess of nutrient material on the liver. Six series of experiments were carried out: (1) feeding with cane sugar (30 to 60 grams daily) for prolonged periods (30 to 135 days), and (2) for shorter periods (2 to 65 days); (3) feeding with glucose; (4) feeding with casein (15 to 50 grams); (5) with peptone; and (6) with casein and cane sugar combined. In all of these experiments atrophic cirrhosis of the liver resulted; there was a deposit of fibrous tissue at the periphery of the lobules, together with parenchymatous degeneration of the epithelium, the two changes being, in the author's opinion, independent of each other. Kawamura and Kazama, following up a previous observation that the young of rabbits infected with *Schistosoma japonicum* showed evidences of rickets, found that the disease could also be produced by injecting the parasite directly into the young animals. Both macroscopic and microscopic evidences of rickets were present, and the calcium content of the bones was reduced. Generally a complete cure resulted in about a hundred days; it was hastened by the administration of thyroid powder. Miyagawa has studied the toxic action of the cells of the alimentary mucous membrane in relation to the formation of gastric ulcer. He was able to produce iso-gastrotoxins and iso-enterotoxins, by means of which ulceration of the digestive tract could be induced; similarly with regard to auto-gastrotoxins and auto-enterotoxins. The formation of cytotoxin varies in different individuals, and the susceptibility of normal animals to the cytotoxin varies also. In addition to their direct action in producing ulcers, the author considers that the cytotoxins hinder the healing of ulcers arising from other causes. An enterotoxin or hepatotoxin will at times produce a gastric ulcer, but not with the same degree of certainty as gastrotoxin.

SCIENTIFIC AND INDUSTRIAL RESEARCH.

THE Report of the Committee of the Privy Council for Scientific and Industrial Research for 1922-23[1] shows the far-reaching importance of the work carried on under the auspices of this Committee. The civil departments concerned in public administration, it is noted, are making larger use of the machinery now existing for the scientific attack upon problems that affect them. As part of the policy of co-ordination, periodic conferences have been held between representatives of the Department of Scientific and Industrial Research, the Development Commission, and the Medical Research Council, at which the biological secretary of the Royal Society has been present. These conferences, the report states, have provided valuable opportunities for the consideration of such matters as the responsibility for the conduct of investigations at borderlines, the possibility of co-operative action in the conduct of investigations in which more than one of these departments may be interested, and the continuance of research work which has developed in such a way as to bring it outside the scope of the fund originally aiding it. These discussions have helped to define the common problems of human and animal disease, and have emphasized the interdependence of biological and physical research. They have driven home to the Committee the conviction that a national policy in research, complex though it might be and directed by diverse and suitably designed organs, must be conceived and implemented as a unity. A series of conferences were held during the year with the management of the British Empire Exhibition, and a departmental committee was appointed to consider how science and the application of science to industries could best be represented. It was agreed with the exhibition authorities that they should appoint a small committee, nominated by the Royal Society, to assume responsibility for the organization of the central scientific exhibit, and a larger committee, acting on behalf of the research associations, to deal with the general organization of sectional scientific exhibits. With regard to the plea that was made in last year's report that a vigorous search for new knowledge and the more effective application of science to industrial processes offered a potent means of re-establishing our country and maintaining its population, it is recorded with satisfaction that in December, 1922, an Act with a similar end in view was passed in France, creating a national office for scientific and industrial researches and invention in connexion with the Ministry of Public Instruction. The report includes a summary of the work of the various research boards and committees of the Department of Scientific and Industrial Research. At the National Physical Laboratory, in addition to the researches which it necessarily undertakes in the discharge of its primary functions as the custodian of national standards, with a view to the improvement of measurements of all kinds, including those relating to standards of quality, much research work of a general character is carried out. It includes researches involving continuous observations over a very extended period of time, and researches requiring the use of exceptionally expensive equipment or other special facilities—for example, work at very high voltages or at very low temperatures. The Food Investigation Board dealt with varied problems affecting fruit, meat, fish, and eggs; many of these have been noted in our columns. Among new investigations which are being carried on are the design of a commercial gas store for fruit, the growth and respiration of fungi under various conditions, the study of vegetables in transit from producer to market, the autolysis of meat and of fish, the bacteriology of fish, and the freezing point of eggs in relation to the risk of overcooling. A report from the Oxygen Committee, shortly to be published, contains descriptions of the improvement of the known method of handling liquid oxygen and liquid air on a practical commercial scale; of these methods the Committee has been principally concerned with the development of the double-walled vacuum vessel as a container. Among the other boards and committees carrying on different branches of research work are the Fuel Research Board, the Geological Survey Board, the Radio Research Board, the Physics, Chemistry, and Engineering Co-ordinating Research Boards, the Fabrics Co-ordinating Research Committee, the Adhesives Research Committee, and the Lubrication Research Committee. During the academic year 1922-23 the Committee made 403 grants to research workers and students in training; of these 252 were allowances to students to enable them to take advantage of the facilities offered by various universities and colleges or other research institutions, 33 were personal grants to research workers to undertake independent research or to act as scientific assistants

[1] H.M. Stationery Office. 1923. Price 4s. net.





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"COMMONSENSE HEALTH-

SLEEP STRAIGHT."

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"A specific stimulant of the Renal cells."

"A diuretic in cardiac and hepatic dropsy and forms of Bright's disease."

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associated with a high or low infant mortality, and in any social situation the complex poverty and the complex infant mortality both needed to be investigated before it was decided what were the factors at work in a particular instance. The chief difficulty in mass statistics was to segregate from a number of coincident factors the factor which was under investigation. It was because Farr saw the difficulty so clearly and endeavoured to provide for it in the public work he did that his name was held in such high honour by statisticians and among those interested in public health. Sir Arthur Newsholme paid a tribute to Farr's mathematical genius, and mentioned that he was one of the two members of the medical profession admitted to the honorary fellowship of the Institute of Actuaries. His work had been extended by his successors, notably by Dr. T. H. C. Stevenson, and the appreciation of the value of vital statistics as an instrument of research, a guide to sanitary effort, and a means of public enlightenment, was becoming widespread. The function of statistics was to sum up many individual experiences in a single statement. Among the causes of error the personal equation of the observer himself in the selection and use of data was of importance, and it might be necessary to remain satisfied with a qualitative interim judgement, although this in some cases was as likely to be erroneous as an attempted quantitative judgement. Inadequate evidence could never be made more complete by continuing to scrutinize it. As an illustration of the pitfalls of statistics he quoted the official report issued in 1920 giving the results of the physical examination for military service of 2,500,000 men in the eleven months ending October, 1918. Of these men over 10 per cent. were found permanently unfit for military service. Unduly pessimistic inferences had been drawn from these figures. He agreed that what the figures disclosed was a serious state of affairs, but before accepting implicitly the percentages for each of the four grades into which the men were divided it was necessary to have some assurance that the physiological standards applied were appropriate and uniform. Could mass statistics be trusted which were gathered at examinations by a large number of different medical boards all over the country working in very different circumstances of leisure and adequacy? The men who were examined were those left over after the fittest men of the nation had already enlisted. Another illustration of possibly erroneous deduction from statistics concerned the figures relating to crime in certain family stocks; from these figures the inheritance of criminal instincts was sometimes deduced, but was there not such a thing as moral contagion? Again, it was generally stated that one-third of all prostitutes were feeble-minded, with the apparent implication that to that extent the prevention of prostitution consisted in the control of the feeble-minded. But before this became a practical policy it must be ascertained by examination of successive random samples from the social groups from which prostitutes were derived whether the percentage of mental defect among prostitutes was in reality greater than in these random samples; he believed that this would be found not to be the case. While pointing out these and other limitations in the applicability of certain classes of statistics, he welcomed the increasing use of statistics in public health work, and the help which statistical experts could give to the solution of the many public health problems still outstanding. Lord Eustace Percy, Parliamentary Under Secretary to the Ministry of Health, who presided, said that the audience would carry away from the lecture certain necessary cautions with regard to the use of vital statistics. He mentioned the tests for mental deficiency applied to men offering themselves for enlistment in the United States Army during the war, the results of which had been quoted to suggest a ludicrously high proportion of mental defect in the American population. He did not think that the results could be taken as a general indication of intellectual capacity, or that they need arouse apprehension in any quarter. At the same time, statistics brought out significant facts; one to which public attention should be directed at the present moment was that while the infant mortality rate was falling the puerperal death rate was not falling.

MUSEUM DEMONSTRATIONS.

The course of museum demonstrations open to advanced students and medical practitioners at the Royal College of Surgeons of England (Lincoln's Inn Fields) began on Friday, October 12th, when Sir Arthur Keith, F.R.S., the conservator, gave the first of three demonstrations on hernial formations. In this he dealt with acquired hernial formations at various points of the alimentary canal. In the second demonstration, to be given on Friday, October 19th, he will deal with hernial formations of developmental origin which occur along the alimentary and respiratory tracts; and in the third, on Friday, October 26th, he will discuss the distinction between congenital and acquired forms of true hernia. Three demonstrations will also be given by Professor Shattock, F.R.S., pathological curator, on Mondays, beginning on October 15th, when he will deal with necrosis. The second demonstration on October 22nd will be on arteries, and the third on actinomycosis and Madura disease. All demonstrations will begin at 5 p.m.

THE INSURANCE SERVICE AND THE MINISTRY OF HEALTH.

In last week's Supplement we published the reply of the Minister of Health to the statement by the Insurance Acts Committee regarding the remuneration of insurance practitioners from 1924 onwards. This week we publish the rejoinder by the Insurance Acts Committee, which, it is hoped, will be read not only by insurance practitioners but by the profession generally. The present issue of the Supplement contains also the reply of the Minister of Health regarding the proposed changes in the Regulations, and in order that the circumstances may be fully understood we follow it with a summary of the position as to the proposed alterations. Lastly, we publish the final reply of the Insurance Acts Committee on this matter to the Minister, in which attention is drawn to various points upon which agreement has not so far been reached.

The gold medal of the Royal Society of Medicine will be presented to Dr. F. Gowland Hopkins, F.R.S., Sir William Dunn Professor of Biochemistry in the University of Cambridge, at a social evening of the Society, to be held on October 30th at 8.30 p.m. At 9 p.m. Professor Hopkins will deliver an address on stimulants of growth.

The munificent gift made by the Rockefeller Foundation to University College, London, and its Medical School will not have been forgotten. It has been, however, long understood that the Foundation did not intend to limit to London the financial assistance it would give to medical educational institutions in Great Britain. We understand that the Foundation has for some time been making inquiries in Edinburgh, and is about to provide the cost of a clinical research laboratory there; it is also considering the endowment of a chair in clinical surgery.

Sir John Bland-Sutton, President of the Royal College of Surgeons of England, will take the chair at the first Victor Horsley Memorial Lecture to be delivered in the Barnes Hall of the Royal Society of Medicine by Professor Sir Edward Sharpey Schafer, F.R.S., on Thursday, October 25th, at 5 p.m. Admission to the lecture is free.

THE WISDOM OF THE BODY:

The Harveian Oration,

DELIVERED BEFORE
THE ROYAL COLLEGE OF PHYSICIANS OF LONDON
ON ST. LUKE'S DAY, 1923,

BY

ERNEST HENRY STARLING, C.M.G., M.D.Lond.,
Sc.D.(Hon.)Cantab. and Dublin, M.D.(Hon.)Breslau,
Doct.(Hon.)Strasbourg, F.R.S.,
Foulerton Research Professor of the Royal Society;
Fellow of the College.

"Who hath put wisdom in the inward parts? or who hath given understanding to the heart?"

Mr. President and Fellows of the College,—We are met here to-day to celebrate our annual feast, founded by the immortal Harvey with the twofold purpose of promoting mutual love and affection among ourselves and of commemorating the famous men who, by their works, have benefited the College. This is our day of All Saints, when we canonize in our memory and record our indebtedness to not only those who have assisted our work by material gifts, not only those Fellows of the College who have been teachers and leaders of successive generations in the science and art of medicine, but also all those of any race or profession on whom the mantle of Harvey has fallen and who, following his injunction to our Fellows and Members, to "study out the secrets of nature by way of experiment," have enlarged the bounds of science and increased the powers of our art.

It is customary and right in this our annual oration to begin by calling to mind the work of the Founder himself, and especially the great discovery of the circulation of the blood, *which represents the beginning and the foundation* of all that we know in physiology and medicine. Harvey's treatise on the Motion of the Heart is throughout so modern in spirit, so akin in conception and treatment to records of research of the present day, that we may easily fail to appreciate the stupendous advance in human physiology that it embodies, and to wonder that we have had to wait so long for the full fruition of Harvey's discovery. But it must be remembered that the ordered knowledge of the world around us, whether living or dead, which we call science, forms a connected whole, and though, as its line advances, a brilliant discovery may push one part of the line in advance of the rest, such an outpost must remain more or less in the air and incapable of further advance until the whole line has moved up to its support. We now know that many of the problems raised by Harvey, with the promise to himself and his readers of further consideration at a later date, depended for their solution on the progress of other branches of human knowledge. And that is why to-day in our minds and memories we are reckoning among our saints not only the distinguished line of Fellows of the College, but also men such as Boyle, Mayow, Hales, Cavendish, Lavoisier, Bernard, Pasteur, and a host of others, who were only in spirit our colleagues and most of whom were not even students of medicine. Indeed we might say that, during the two hundred years succeeding Harvey's work, the whole scientific world has been travailing in order that medicine might be born, and thus it is that our science has had to wait until our own days for the attainment of those ends which Harvey had in mind in his dream of the results of his discovery.

"Finally, reflecting on every part of medicine, physiology, pathology, semeiotics, therapeutics, when I see how many questions can be answered, how many doubts resolved, how much obscurity illustrated, by the truth we have declared, the light we have made to shine, I see a field of such vast extent in which I might proceed so far, and expatiate so widely, that this my tractate would not only swell out into a volume, which was beyond my purpose, but my whole life, perchance, would not suffice for its completion."

by the great clouds of ignorance which had still to be dispersed. But the advance of knowledge, though slow at first, has progressed with ever-accelerating speed. When I compare our present knowledge of the workings of the body, and our powers of interfering with and of controlling those workings for the benefit of humanity, with the ignorance and despairing impotence of my student days, I feel that I have had the good fortune to see the sun rise on a darkened world, and that the life of my contemporaries has coincided not with a renaissance but with a new birth of man's powers over his environment and his destinies unparalleled in the whole history of mankind.

Not but there is still much to be learned; the ocean of the unknown still stretches far and wide in front of us. But for its exploration we have the light of day to guide us; we know the directions in which we would sail, and every day, by the co-operation of all branches of science, our means of conveyance are becoming more swift and sure. Only labour is required to extend almost without limit our understanding of the human body and our control of its fate.

Harvey's Greatest Gift to the World.

The great gift which Harvey gave to us was, indeed, not his discovery of the circulation of the blood, but his method of formulating and solving a problem. For countless ages man had learned slowly and painfully by experience. The more observant among them had from time to time noticed certain recurring sequences in the infinity of fortuitous phenomena continually presented to them, and as a result mankind had by slow degrees improved his lot and his powers over the forces of Nature. But how slow was the rate of progress! There is no evidence that the age-long duration of the period during which man had sticks and stones to defend himself and to procure his food, the long delay in the discovery of the working of bronze and later of iron, are to be ascribed to any mental inferiority of those men as compared with those of the present day. What was lacking was the method. Mankind had advanced by fits and starts as the result of discoveries which were probably accidental, and these discoveries spread gradually along the lines of commerce and culture by imitation and the exact copying of ritual. But with the realization of the possibilities of the method of experiment—that is, the creation and repetition of a chosen experience under controlled conditions, such as we find in its full development in Harvey's treatise—man came almost at a bound into the full use of the brain capacities which he had evolved during a long struggle for existence against the warring forces of an inclement nature.

It is true that the ultimate goal and the biological justification of science is the improvement of human conditions; *but for the full and untrammelled exploitation of the advantages of the experimental method it is essential that mere material advance shall not be the target of our ambition.* This great secret of success in science was fully realized by Harvey, when he enjoined us to search out by experiment not the causes and cure of disease, but the secrets of Nature. This implies that we are to give free scope to the spirit of curiosity, with some measure of which everyone, at any rate in his youth, is endowed. We must look upon that part of the order of Nature and of knowledge that we see as contributory to the science of medicine.

The Work of the Heart.

Since this was the spirit that actuated Harvey, it is evident that his whole life would have sufficed for the completion of the work upon which he set himself by his great discovery. Under its light he could see many vistas to be attained and the beginning of paths which must be followed. But long and arduous search was necessary before these paths could be traced out in their entirety. Thus the determination of the output of blood from the heart and the cause of its variations evidently seemed to Harvey a problem whose solution was ready to hand. He says:

accomplish much useful work on behalf of the mentally defective. Thus while the accommodation existing when the Act came into operation was about 3,000 beds, at the present time there is accommodation for 19,262. The summary of mental defectives under care shows that on January 1st, 1923, they numbered 15,786; compared with the numbers on the same date a year before there is a total increase of 1,976. As the report states, the increase in the numbers would no doubt have been materially greater had not the local authorities been informed that, owing to the pressing need for economy, only "urgent" cases should be dealt with. Much useful work is being done in providing supervision for those defectives who, for economic or other reasons, cannot be sent to institutions. At the beginning of the present year there were 9,854 defectives under statutory supervision, and in this connexion the Board refers very favourably to the work being done by the Central Association of Mental Welfare in establishing occupation centres for defectives who live at home. The Board is of opinion that the regular occupation and training afforded by this form of supervision will tend to reduce the number of cases who will ultimately have to be sent to an institution.

The report includes interesting details connected with the administration of mental hospitals and various suggestions for their improvement. We have thought it well, however, to emphasize more particularly the incidence of insanity in our midst because this is a matter of vital concern to the community as a whole.

OPENING OF THE WINTER SESSION.

WESTMINSTER HOSPITAL.

THE annual dinner of the past and present students of Westminster Hospital was held at the Trocadero Restaurant on Thursday, October 4th, when 116 were present, with Mr. Walter Spencer, the senior surgeon, in the chair.

In giving the toast of "The Westminster Hospital and Medical School," Mr. Spencer reminded his audience that Westminster had the distinction of being the first hospital entirely supported by voluntary contributions, and had now entered on its third century of existence in the neighbourhood in which it was founded. The voluntary system had persisted throughout and there was, he felt sure, every prospect of a continuance if the appeal shortly to be made to meet the cost of rebuilding was successful. The new building would have 235 beds and there were to be new special departments, operating theatres, and improvements of every kind which experience had shown to be necessary. In giving the toast Mr. Spencer coupled with it the name of Dr. A. S. Woodwark, the Dean of the Medical School, to whose indefatigable efforts he paid a generous tribute.

Dr. Woodwark in his reply described the condition of the school as satisfactory in every way. Each year since the war had witnessed a steady increase in the number of students, a succession of examination pass lists which compared well with those of any other medical school in the metropolis, and a gradual return to pre-war conditions as regards social and athletic activities. Although the medical school was carrying on efficiently, if under difficulties in the present circumstances, he hoped to see the hospital reopened by March and perhaps earlier. The cost of renovation was £50,000, and on completion the equipment would satisfy the most fastidious. Sir James Purves-Stewart proposed "The Universities." They had, he said, the exceptional privilege of entertaining that evening the Regius Professors of medicine of Oxford and Cambridge, the Vice-Chancellor of London University, and the Dean of the Medical Faculty of the University of Cardiff, so that the oldest universities and the youngest were represented. All were closely in touch with Westminster through members of the staff and students. With personal reminiscences, Sir James Purves-Stewart identified each of those representatives with the toast.

In his reply, Sir Archibald Garrod gave a brief but fascinating résumé of the relation of biochemistry to clinical practice. Sir Clifford Allbutt addressed himself particularly to the present-day students and drew an optimistic picture of the possibilities open to those who preferred to devote themselves to the more academic side of their profession. Mr. H. J. Waring said that the solicitude of London University was not so much as regards the size of the medical school as the quality of the work it achieved, and congratulated Westminster upon its efficiency as indicated by examination results. Professor David Hepburn pointed out that although they had their own qualifications in Wales they liked to regard the degrees and diplomas obtained in the metropolis as a kind of post-graduate finish. A considerable number of their students had passed through Westminster with reciprocal satisfaction.

Mr. William Turner proposed "The Past and Present Students," adding that this was generally the most popular toast of the evening, but superseded on this occasion by that of the Chairman, to come later, to whose retirement he referred in sympathetic terms. He coupled with the toast the names of Dr. Robert Nimmo Watson, who had most patriotically come all the way from Harrogate, and Mr. R. A. Hickling. Dr. Watson, in a much appreciated speech, ably voiced the sentiments of the men in general practice who had known Mr. Spencer throughout the whole of their career and had found every year more reasons to express their gratitude. Mr. Hickling, in representing the present students, said that the only thing to complete their satisfaction would be the provision of an athletic ground of their own.

Mr. Arthur Evans, in proposing "The Visitors," said that besides the distinguished guests from the universities they were happy to welcome, among others, the Head Master of Westminster School, Mr. H. Costley-White; the High Master of St. Paul's School, Dr. Hillard; the Head Master of Epsom College, Mr. Arnold Powell; the Chairman of the Hospital, Sir Edward Pearson; the Secretary, Mr. C. Power; the Architect, Mr. Percy Adams; and Dr. Eric Marshall, who would be remembered as one of Sir Ernest Shackleton's party. He coupled with the toast the name of the Rev. Harold Costley-White. Mr. Costley-White expressed his very great pleasure at being entertained by the hospital, with which he was so closely associated and for whose kind services he had abundant reasons to be grateful. As a schoolmaster, he regarded a medical education as a very liberal one, and a medical career as an ideal for which he had always felt that a boy required a very early preparation psychically as well as academically.

Dr. de Havilland Hall, with many affectionate references, proposed "The Chairman," his old colleague now retiring from the staff of the hospital, which he had served so loyally for thirty-five years. Mr. Spencer briefly replied.

CHARING CROSS HOSPITAL.

The annual dinner of past and present students of Charing Cross Hospital was held on Wednesday, October 3rd, at Gatti's Restaurant, with Dr. T. Watts Eden in the chair. The toast of "The Hospital and Medical School" was proposed by Mr. Peter Daniel, who commented upon the fact that the medical school, having welcomed women students during the war, had no intention of shutting its doors upon them; the women students had added to the strength of the school. Dr. W. J. Fenton, Dean of the Medical School, who replied to the toast, said that the position gained by the school in recent years had been well maintained; the number of students at present was 170, and 33 had qualified during the past twelve months. The health of "The Guests" was proposed in felicitous terms by Sir Herbert Waterhouse, and replies were made by the Right Hon. Sir Donald Maclean, M.P., Sir Humphry Rolleston, President of the Royal College of Physicians, who told a Scots story, and Professor Walter W. Chipman, professor of obstetrics in McGill University, Montreal. Professor Chipman said that Canada was proud to act as a liaison between the old country and America. He contrasted the hospital dinner with the "Year Dinners" in Canada, which were run entirely by the

'ou will remember that Harvey insists on the essentially secular nature of the heart. "It was not without good unds," he says, "that Hippocrates in his book *De 'de* entitles it a muscle; as its action is the same, so is function, namely, to contract and move something ." Increasing dilatation of the heart means increased gth of its muscular fibres, so that we can express law of the heart as a relation between length and ergy—the longer the muscle fibre the greater the energy its contraction. In this form we find that the law the heart is that of all muscular tissue, whether voluny or involuntary. The Swedish physiologist Blix showed ny years ago that the energy evolved in the contrac- n of a frog's muscle was proportional to its initial gth, and A. V. Hill has proved that this holds good for heat production during activity, and therefore for the al chemical changes which are responsible for the con- ction and recovery of the muscle. So that in searching er the cause of the heart's power of adaptation we are ought into the region of final causes, in which we asso- te function with structure, and see in muscular con- ction the expression of molecular changes occurring the surface of longitudinal fibrillae. Thus we bring gether in one formula the sum total of our experi- es with regard to the nature of excitation itself, velopment of mechanical energy, and the chemical, ctrical, and heat changes which accompany muscular ntraction. We are still far from a complete under- nding of these matters, and still farther from any ssibility of reconstructing a muscle fibre. But the path, far as we can see along it, seems to lead to no impass- le barrier, and to promise a complete description of the s of excitation and contraction as molecular events curring at surfaces.

THE LIMITS OF ADAPTATION.

Is there any limit to this power of adaptation? In skeletal uscle an increase in the length of the muscle fibres leads an augmentation of the energy changes of contraction, cceeded later by a diminution as the muscle becomes over- etched. In the healthy mammalian heart the limits are by the strength of the muscle fibres themselves. Freed om the pericardium, we find the heart goes on increasing e strength of its contraction with increasing dilatation ntil the muscle fibres are actually ruptured; and when the art finally fails we find its substance beset with haemor- ages. In the body this overstrain of the heart is pre- nted by the tough fibrous sac of the pericardium. When e demand on the heart is so great that the heart dilates to e limits of the pericardium, any further dilatation and erefore increased strength of beat becomes impossible; the tput therefore falls off, and in the whole animal this minished output results in defective supply of blood the muscles and brain, giving rise often to fainting nd at any rate enforcing complete rest. Further tivity of the animal becomes impossible, and the art is automatically given less work to do, so that it n recover, unless the increased activity of the animal nd of the heart is a necessary condition of the nimal's continued survival, as in a fight to the death. this case when the heart comes up against the ericardium the fight is finished and the animal succumbs. e find the same story in the terminal changes of heart sease, where the process of compensation which I have scribed above becomes insufficient. Here again enforced st may give time and opportunity for re-establishment of sufficient circulation; but with advance of the fundamental orbid condition, even complete rest becomes powerless to lieve the heart: the output falls off, the circulation is sufficient for the needs of the tissues, and we get all the condary results of failure of compensation—suppression urinary secretion, waterlogging of the body, and mal- utrition of all its organs which usher in the fatal rmination.

During the last few years great advances have been made our knowledge of the causation of many of these morbid nditions, and this increased knowledge has, as always, hanced our powers of dealing with such cases, of staying the course of the disease or delaying its fatal issue. It is interesting to note that these advances are the direct out- come of researches made with the sole object of elucidating the intimate nature of muscular contraction. In his book Harvey remarks: "Of these things we shall speak more opportunely when we come to speculate upon the final cause of this motion of the heart." Such speculation at that time would have been in vain. It seems probable that he antici- pated finding the solution in the study of the generation of animals, but we know now that to penetrate more deeply into the final cause of the action either of skeletal muscles or of the heart requires a physical and chemical know- ledge which even now we are only beginning to attain. I would remind you that the string galvanometer, the employment of which has thrown so much light on the essential nature of disturbances in the heart rhythm, was invented by Einthoven with a view to studying the electrical changes accompanying activity in any kind of tissue.

THE INHERENT CONTRACTILE POWER OF THE HEART.

In dealing with the origin of the rhythmic power of the heart Harvey rightly ascribes it to the heart muscle itself, and brushes aside any suggestion that it is dependent on the nervous system, or the liver, or any other organ. His assurance on this point was due to his observation of the developing chick, in which the first sign of life was the pulsating spot of blood in the region where the heart was being formed. It is interesting to note that it is the same method—namely, the investigation of development—which has settled the question of the seat of the rhythmic power of the heart and has revealed to us the origin and course of the rhythmically recurring wave of contraction in the heart of man. By means of a technique, first devised by Harrison in the United States, it is possible to cultivate living tissues outside the body, in much the same way as we have learned to grow micro-organisms. Using great care to exclude infection, we are able to transfer to plasma or salt solution on a glass slide fragments of tissue which, being kept warm, live and multiply. From such a preparation further generations can be brought up, and in one such case a preparation of the muscle cells of the heart of a chick has been kept alive, growing and dividing, for twelve years, a time far beyond the natural span of the life of the fowl. Such a result proves that mortality is but an accident of the complexity of our living machine and not a necessary quality and fate of the tissues of which the body is composed. But during these twelve years the muscle cells have not ceased to contract rhythmically, showing that in their peculiar properties must be sought the origin of the rhythmic beat of the heart, thus finally disposing of the various views which have been held, according to which the origin of the heart beat was to be sought in the nervous ganglion cells and fibres present in different parts of this organ.

And it is by the embryological method—that is, by observing the processes of generation—that Keith and Flack were able to lay the anatomic foundations of our present knowledge of the origin and course of the con- tractile processes in the heart of the higher animals. In the developing heart, as in the lower vertebrates, the beat originates in that part of the contractile tube which later will form the sinus venosus. In the course of the changes undergone during development, Keith showed that this sinus tissue persisted at definite parts of the mature heart and could be distinguished under the microscope from the surrounding parts of the heart. This special sinus tissue was given the name of the sino-auricular node and the auriculo-ventricular node.

The Cardiac Cycle.

The brilliant experiments by our distinguished Fellow, Sir Thomas Lewis, have resulted in a complete knowledge of the part played by these nodes in the cycle of the heart's contraction. He has shown how the sino-auricular node is the pace-maker of the heart, how the contractile process originating here spreads through the auricular

train the "contrôleur" of each railway coach questions personally each passenger and any cases of suspected illness are noted; passengers are also questioned as to any illness they have noticed among others. There is also a medical inspection at each big railway junction. Attached to stations where inspection takes place are hospitals and disinfection plants for dealing with cases of actual illness and with suspects.

I can testify from my own observation that railway stations and railway carriages are kept clean and tidy. I travelled from Moscow to Minsk, a twenty-seven hours' journey, on an ordinary slow train and had many opportunities of getting out at wayside stations, to get meals or buy papers or just walk about, and all were in excellent order. The food was good and cheap, though served in a somewhat rough and ready way; most stations had on sale different kinds of white bread, chicken, sausages, meat of various kinds, eggs, milk, lemonade, bottled beer, chocolate, etc. Little children sold fruit, chiefly apples. Drinking water is provided at most stations, and at many hot water is provided for making tea.

The first-class carriages were fitted as four-berth sleeping compartments; I had a compartment to myself most of the way, and the conductor made me tea whenever I wanted it. No bedding was provided (bedding is provided, however, on the express trains and the wagons-lits), but the carriages were quite as clean as those on the Polish side of the frontier and were certainly better lighted at night. From Minsk to the Polish border (a three hours' journey) I travelled in a third-class coach with wooden seats and no upholstery of any kind. The paint was ancient but the coaches were clean.

A factor in the improvement of the sanitary condition of the country is undoubtedly the general return towards normal which is a marked feature of Russia at the present time. For with this there goes an improvement in the moral of the population and so of their cleanliness. The peasants also, despite high taxation, are on the whole better off than they were, and considerable numbers of new houses are being built in the villages. But the largest share is probably to be put down to the sanitary campaign of the Commissariat of Health, which, under the leadership of Dr. Semasko, has carried its propaganda and its organization from one end of Russia to the other. This organization is particularly noticeable on the Volga, where each vessel coming from the south has to moor at a sanitary quay (which is provided everywhere) and each passenger is questioned closely about himself and about others. It is an effective system of mass inspection which supplements notification of illness by the officials of the vessel concerned.

The control of persons leaving Russia is also very strict; only certain frontier points are allowed to be used legally, and evasion is difficult and hazardous. At each point it is necessary to present a certificate that the person has been examined for (*a*) typhus fever, (*b*) relapsing fever, and (*c*) cholera.

Large epidemics other than those already mentioned do not exist—the number of cholera cases has been less than 100 for the whole of Russia during this year, and although there was (August, 1923) a small epidemic of plague, about 100 cases, near Tsaritsin, which is close to the endemic centre in the Steppes, it is at present strictly localized.

Among other important factors which have helped in the control of the epidemics it is necessary to mention first the Epidemic Commission of the League of Nations, acting through Dr. Haig and Dr. Panteleoni, which has played an important part. The executive and organizing ability of these two officers and the existence of an office at Moscow have undoubtedly been of the greatest service to Russia.

Another helpful factor was the work of the American Relief Association, which in addition to aiding the relief of the famine on a very large scale, helped also in the equipment of hospitals all over the country, so that numbers of institutions are still carrying on their work with materials supplied by the American Relief Association. Indeed, practically every relief unit of every nation did some more or less medical work and contributed some medical supplies.

The return to the normal, previously referred to, has been largely helped by the opening up of free trade within the country. But the political fact must not be forgotten that the possibility of organization within the country or of help from without has only been possible on any extensive scale since the cessation of military intervention against the Bolsheviks and the opening up of diplomatic and trade relations with foreign countries, which dates (effectively) only from the beginning of 1921. The medical work accomplished up to the present, therefore, has been largely done during the last two and a half years, a fact which makes its success the more remarkable considering the heritage of disorganization and even of military destruction—as of railway lines and bridges for instance—with which the sanitary administration has had to grapple. In this work not only have the doctors worked heroically, very many unfortunately having died at their posts, but the Communist party, the rulers of Russia, have supplied personnel to do some of the more terrible and dangerous sanitary services, such as cleaning out towns encumbered with corpses and filth. Very few doctors in Russia are Communists; but, politics apart, it must be recognized that in the ranks of that party there have been found men and women with the cold 2 a.m. kind of courage that has enabled them to face the danger of almost certain death from infectious disease, when carrying out the more horrible and dangerous tasks in a great sanitary campaign, and not when acting as principals but as subordinates.

Now that the louse-borne epidemics have been controlled the mosquito-borne epidemic is to be tackled. At present almost all equipment is lacking and the supply of quinine is quite inadequate; it is estimated that 20,000 kilograms of quinine hydrochloride are required at once.

The groundwork for the antimalarial campaign is, however, already laid, as, apart from the general medical service which works efficiently and devoutedly, there are 250 doctors who have attended special antimalarial courses organized by the Epidemic Commission of the League of Nations, and in October of this year another 100 will have completed their course. Part of this course is given by Russian doctors, professors of universities, and specialists, and part by medical men from other countries. Representative men from France, Italy, Czecho-Slovakia, and Germany have already taken part in this work, but up to date no one from England.

The amount of typhus and relapsing fever recorded in June is probably that normal for the country, and not to be completely removed until the social conditions of certain endemic centres in Moscow, Petrograd, and other large towns can be changed. The effort to make these changes is now being made and will probably be successful in a few years' time. Meanwhile the problem of malaria remains one of urgent importance, and the statistics here show an unfortunate increase in illness on a large scale. The mortality is also very high, in the absence of quinine or other methods of treatment, and it is even stated to amount to 40 per cent. of cases attacked in some places. The severe forms of malaria occur in the Caucasus and the South, but there is much malaria in other towns. Fortunately, that in Moscow is of a mild type.

Beyond the question of malaria there looms up the question of syphilis and of tuberculosis. Tuberculosis is said to be more than twice as prevalent now as before the war; but syphilis in some districts affects 80 per cent. of the total population, and its treatment must be a matter of years.

A harvest of disease still to be reaped will accrue from the after-effects of the famine in the southern parts of Siberia. The actual famine is now over and relief measures are no longer required. But there are still places where food conditions are not good, and there are all the results of deprivation still remaining among the survivors of the famine which will only become fully apparent in the course of some years. Of the general effects of conditions in Russia on the health of the population it is too early to speak, but it is already clear that, while many peasant villages have not been largely affected, the residents in the towns have been subjected to a very great strain, under

last few years that definite proof has been brought forward showing that these effects are due to the removal of chemical messengers normally produced in the testes. The whole differentiation of sex, and the formation of secondary sexual characters, are determined by the circulation in the blood of chemical substances produced either in the germ cells themselves or, as seems more probable, in the interstitial cells of the testis and ovary, which themselves are probably derived from the germ cells of the embryo. Thus it is possible by operating at an early age to transfer male into female and vice versa. Removal of the ovaries from a hen causes the assumption of male plumage; the removal from a young cock of the testes and their replacement by the implantation of ovaries cause a disappearance of the comb and the assumption of the plumage of the hen. Each animal as concerns its general build and colour has a neutral form which, as has been shown by Pézard, results from the extirpation of either testes or ovaries. In fowls the neutral form, as judged by the plumage, approximates the male, whereas in sheep the neutral form resembles the female. There is no question that, by the implantation of ovaries or testes into the foetus at a sufficiently early age, one could produce the whole development of the internal and external genitalia corresponding to the sex of the gland implanted. It is worthy of note that these sex characters affect also the mentality and the reactions of the animal, although they are quite independent of any nervous connexions. Here, as in the case of the thyroid, the functions of the central nervous system in their highest manifestations depend on the circulation in the blood of chemical substances or hormones. The wonderful development that takes place in the female after conception to fit her to nourish the foetus as well as the young child, is also due to hormones, produced in some cases perhaps in the ovaries, in other cases in the product of conception itself.

The Hormone of the Adrenal Medulla.

We owe to Schafer the knowledge of the internal secretion of the medulla of the suprarenal bodies. As Cannon has pointed out, this secretion is poured into the blood during conditions of stress, anger, or fear, and acts as a potent reinforcement to the energies of the body. It increases the tone of the blood vessels, as well as the power of the heart's contraction, while it mobilizes the sugar bound up in the liver, so that the muscles may be supplied with the most readily available source of energy in the struggle to which these emotional states are the essential precursors or concomitants.

The Pituitary Hormones.

Wonderful, too, is the influence exerted by the secretions of the pituitary body. This tiny organ, which was formerly imagined to furnish the mucus to the nasal cavities, consists of two lobes which have different internal secretions. That produced by the anterior lobe seems to influence growth, excess producing gigantism or acromegaly, while deficiency leads to retarded growth and infantilism. The posterior lobe, which in aspect would seem but a small collection of neuroglia, nevertheless forms one or more substances which, circulating in the blood, have the most diverse influences on various parts of the body. They cause contraction of the uterus and of the blood vessels (these are possibly two distinct substances); they may increase or diminish the flow of urine; they affect the excretion of chlorides by the kidney; and, according to Krogh, their constant presence in the blood is essential for maintaining the normal tone of the capillaries. In the frog the post-pituitary hormone is responsible for the protective adaptation of the colour of the skin to the environment, an adaptation which is effected by retraction or expansion of the pigment cells or chromatophores of the skin; and if we may accept Kammerer's conclusions, the pituitary hormone which is poured into the blood for this purpose affects the germ cells themselves, so that individuals born of parents that have lived in light or dark surroundings are correspondingly light or dark—a real transmission of acquired peculiarities, effected not by the gemmules of Darwin, but by the influence of a soluble diffusible hormone on the germ plasm.

Integration of Functions.

In the multiplicity and diversity of the physiological effects produced by these various chemical messengers one is apt to lose sight of the fact that we are here investigating one of the fundamental means for the integration of the functions of the body. These are not merely interesting facts which form a pretty story, but they are pregnant of possibilities for our control of the processes of the body and therewith for our mastery of disease. Already medical science can boast of notable achievements in this direction. The conversion of a stunted, pot-bellied, slavering cretin into a pretty attractive child by the administration of thyroid, and the restoration of normal health and personality to a sufferer from Graves's disease by the removal of the excess of thyroid gland, must always impress us as almost miraculous. In the same way we may cure or control for the time being diabetes insipidus by the injection of the watery extract of the posterior lobe of the pituitary body. The latest achievement in this direction is the preparation by Banting and Best in Canada of the active principle normally formed in the islets of the pancreas, and the proof that the diabetic condition in its severest forms can be relieved by its subcutaneous administration.

The Therapeutics of Hormones.

In my Croonian Lectures I asserted that if a mutual control of the different functions of the body be largely determined by the production of definite chemical substances in the body, the discovery of the nature of these substances will enable us to interpose at any desired phase in these functions, and so to acquire an absolute control over the workings of the human body. I think I may claim that, in the eighteen years that have since elapsed, we have made considerable progress towards the realization of this power of control which is the goal of medical science. But there still remains much to be done and many difficulties to be unravelled, and it may be worth our while to consider along what lines researches to this end must be directed. There are no doubt many hormonic relationships of which at present we are unaware, since every year research adds to their number. But assuming we know that such and such an organ produces an internal secretion which is necessary for the normal carrying on of a given function or functions, we may desire to diminish or enhance its effects in a patient or to replace it when it seems to be entirely lacking. There seem to be three possible methods by which we medical men can interpose our art in the hormonic workings of the body.

I.

In the first place we may find what is the effective stimulus to the production of the hormone, and, by supplying this, increase its production by the responsible cells. For instance, we know that by the administration of acid, or at any rate by increasing the passage of weak acid from the stomach to the duodenum, we can enhance the production of secretin and so of pancreatic juice and the other juices. Probably, therefore, when we give dilute acids to assist gastric digestion, we are setting into motion the whole chain of reflex processes in the alimentary canal, and the chief value of our administration may be its effect on the pancreas. But in a large number of cases we do not yet know what is the effective stimulus to the production of these internal secretions. In the case of the adrenals we know the secretion can be augmented through the central nervous system and the splanchnic nerve under the influence of emotions or of lack of oxygen, but we have no knowledge of the factors determining the production of the pituitary hormones or of insulin by the islets of Langerhans, and this condition of ignorance extends to most of the other ductless glands.

In some cases deficient production of a hormone may be due to the absence from the food and drink of some necessary constituent. Thus iodine is essential to the formation of the specific secretion of the thyroid gland (iodothyrin).

apply to the District Nurses' Association to supply one of their nurses, who would, in case of an outbreak, nurse in the hospital and would nurse the sick in the district at other times. This would provide the very necessary service of district nursing in Belmullett, and at the same time an hospital staff for emergencies. The Board of Health would pay the nurse's salary, board, etc., which would cost £150 10s. to £163 a year.

Whether the hospital is to be in its present position long or short, the roof must be patched and the gutters repaired, and also fire grates put in all the rooms. The Board of Health will also require to get tenders for driving the ambulance, and provide some sort of shelter for it.

The board decided to adjourn further consideration of the report and, in the meantime (1) to ask the military to evacuate the workhouse, and (2) to appoint a ward maid at £40 a year and rations.

Correspondence.

THE PROBLEM OF SUCCESS FOR MEDICAL WOMEN.

Sir,—Will you allow me very briefly to refer to one paragraph in the interesting address delivered by Sir Humphry Rolleston at the London (Royal Free Hospital) School of Medicine for Women on October 2nd? I do so at his request.

In considering the problem of success for medical women, he stated that "in 50 per cent. or more of women the monthly rhythm is a distinct handicap." Now happily the more rational life lived by women to-day has so altered the incidence of pain and malaise during menstruation that, whatever may have been the fact in the past, recent investigation shows that a very small minority of women suffer from any such disability.

Miss Wiltshire, M.Sc., published in the *Lancet* of August, 1921 (p. 388), the results of observations on basal metabolism and oxygen consumption, showing no monthly change.

Dr. Hollingworth of Columbia University made careful observations on men and women with the object of observing any effect which menstruation might have in women on speed of movement, steadiness of hand, accuracy of perception, and association of ideas. The result was that no inefficiency in practical or mental work could be detected, during the menstrual period, as compared with other parts of the cycle, nor was fatigue more readily induced at that time.

Dr. Sanderson Clow, in a paper published by the British Medical Journal on October 2nd, 1920, gives useful guidance in the rational treatment of adolescents during menstruation, and shows that the percentage of girls in a large college who suffered no pain or disability of any kind was increased from 73 to 85 per cent. when baths and usual exercises were continued throughout the period. In only 2 per cent. was serious disability present.

I may refer those interested in the subject to Dr. Chisholm's article in the *Encyclopædia of Midwifery and Diseases of Women* (Oxford Press) and to the chapter on menstruation in *Womanhood and Health* by Dr. Christine Murrell.—I am, etc.,

Florence E. Barrett.

London, W.1, Oct. 9th.

BETEL CHEWING AND CANCER.

Sir,—The letter of Mr. R. L. Spittel on the relationship between betel chewing and cancer of the cheek (British Medical Journal, October 6th, p. 632) is both valuable and welcome. Hitherto the data necessary for establishing a causal relationship between them have been disappointingly meagre. As far as my reading goes, no estimate of the prevalence of this cancer has yet been offered, and in spite of repeated interrogation of medical friends who might have a first-hand knowledge of its occurrence I have failed to elicit good evidence. For all we know to the contrary epithelioma of the inside of the cheek might be no commoner in betel chewers than in other populations not addicted to the practice. And for that reason I ventured to advise caution in accepting a proposition which, personally, I was far from denying.

Mr. Spittel's rough estimate of its frequency dispels that hesitation. May I respectfully urge him to communicate at greater length his experience of betel-chewer's cancer? The age incidence, its frequency as disclosed by hospital or other records, its latent period, its precancerous forms, and its course are some of the important points on which he can speak with unquestionable authority.—I am, etc.,

Archibald Leitch.

London, S.W., Oct. 6th.

Sir,—Mr. R. L. Spittel's letter on "Betel chewing and cancer" (October 6th, p. 632) raises the question of the source of cancer infection. Those who, like myself, do not accept the theory of irritation as a cause of cancer will look for some source of infection of the irritated region. Is the betel not put into the mouth by a hand contaminated by soil? Is the irritated penis not infected by a hand contaminated by soil? In this country is the irritated lip not infected by a contaminated hand of the man who labours on the land? Is alimentary cancer of the stomach and intestine not a result of infection from food handled by an imperfectly washed hand, such as that of a gardener?

All domestic animals and birds are liable to cancer of the alimentary tract. Soil contaminated by them or by human beings may contain the infective organism, which finds its resting place on an irritated surface. Soil is, of course, not the only thing which may harbour the infective organism. My point is that we must not concentrate too much on the "irritation." There is something else to which the irritation is only a handmaid.—I am, etc.,

John Campbell.

Belfast, Oct. 6th.

THE TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

Sir,—I notice a letter from Dr. George W. Cheater in the Journal of September 29th (p. 585) asking if the cases published by Dr. L. Williams in a recent issue are the only ones treated by the Spahlinger serum or vaccine. As I have just returned from Geneva, where I spent several weeks with M. Spahlinger, and had every opportunity afforded of visiting his institution at Carouge and seeing and examining many cases, may I point out that there are authentic records of over 400 cases treated, with 80 per cent. recoveries. Many of them were advanced cases, regarded as hopeless. The most remarkable fact in connexion with them is the permanency of the results. I saw and examined cases treated in 1913 and 1914 who are now quite well, following their ordinary occupations, and exhibiting no trace of disease. Prejudice seems to exist in the minds of many members of the profession from the fact that M. Spahlinger is not a medical man, and from a suspicion that these serums and vaccines are in the nature of secret remedies. There is no secrecy; any member of the profession who will go to Geneva and visit the laboratory, as several very eminent men have already done, will be courteously received, and be able to see the preparation of the serum and examine cases. M. Spahlinger—who, by the way, has never charged one half-penny for any of his serum or vaccine, notwithstanding the fact that he has had several very tempting offers, amounting to several hundred thousand pounds, from commercial interests for the sole right of producing and distributing his remedies—hopes, as soon as he has produced a sufficient quantity of serum and vaccine to demonstrate its efficacy, to publish the whole of his methods for the benefit of suffering humanity.—I am, etc.,

Thomas Watts, M.D., M.P.

Manchester, Oct. 9th.

COLOSTOMY AFTER TRANSPLANTATION OF URETERS.

Sir,—I agree with Sir Thomas Myles's letter (September 15th, p. 486) that incontinence of urine "causes distress to both mind and body." He advocates transplantation of the ureters, in this condition, into the rectum, and, on account of the risk of infection of the kidneys, recommends a complete colostomy to be performed, the rectum being shut off to act as a reservoir for the urine.

Even though there is a risk of infection of the kidneys after transplantation of the ureters, which I do not dispute, in my opinion it would be better to run this risk

Cameron Prize Lectures

ON

THE PRESENT POSITION OF THE VITAMIN PROBLEM.

Delivered in the University of Edinburgh, June 27th and 28th, 1923,

BY

F. GOWLAND HOPKINS, D.Sc., F.R.S.,
Professor of Biochemistry in the University of Cambridge.

LECTURE I.

I find that the Cameron Prize which I have had the honour of receiving from the University of Edinburgh is awarded for contributions to the advance of practical therapeutics. I cannot claim, however, to have had any influence whatever upon the progress of this branch of knowledge, save perhaps in a very humble degree with respect to deficiency diseases and their prevention and cure by dietetic adjustments. Modern developments tend more and more to make dietetics a branch of therapeutics, and part at least of this tendency is due to the discovery and study of dietetic essentials which we have agreed to call vitamins. Lecturing, then, as the honoured recipient of a prize possessing the associations just mentioned, I find that to take vitamins as my subject is almost a logical necessity. Otherwise, I think, I would not have chosen just the present moment for a discussion of these elusive substances. I have some faith that we are near the moment when the constitution of one or another of them will be known. Then, indeed, both lecturer and audience might find greater pleasure in considering them.

Since the necessity of postulating the existence of factors in diet of which the concentration is very small, but the importance very great, became evident (and there can be no doubt of that necessity), much work has been done in the endeavour to discover what may be the nature of these factors. That end has not yet been reached, and as a consequence all discussion must suffer from definite limitations. But the real and objective existence of vitamins must not be doubted, and I feel the more tempted to express here and now a strong opinion on this point because it is in Scotland, and I think, save very early, in Scotland alone, that doubts about their existence—or perhaps I ought to say doubts about their practical importance in dietetics—have arisen.

When I recall certain published statements and certain oral expressions of opinion which have emanated from two important northern centres of scientific activity, I almost feel that I have crossed the border to accept a challenge!

It may be, and it is not surprising, that in certain quarters the importance of the subject has been exaggerated or its significance distorted. Unhappily, it seems that no line of genuine scientific study which bears in any way upon the food of mankind can escape attention and misrepresentation at the hands of the quack, the trade advertiser, and the less informed press. The intelligent public is made tired of facts before they have time to become fully established. Moreover, as in other subjects of inquiry calling for a technique which is apparently simple, amateur investigators have been active in this domain, and not all that has been written about it is sound. It would, however, be, I think, disastrous if those who have no time to appraise the evidence as a whole should receive any general impression that it is other than conclusive.

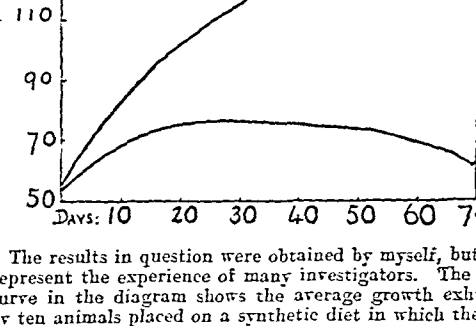
As you well know, the last century closed with a consensus of opinion on the part of students of nutrition that the main determinant of dietetic efficiency was the energy value of the food consumed. The view tended to crystallize into the form of Rubner's law of isodynamic equivalence. One foodstuff might, it was taught, with unimportant limitations be replaced by another so long as the total energy supplied was undisturbed. The only food

was orthodoxy even ten years ago. The change whic
come over our views concerning nutrition may be suffic
described as one involving a greater recognition o
qualitative factor in diets; a recognition which, of c
leaves the importance of quantitative factors quit
disturbed.

In a limited sense the law of isodynamic equivale
true and indisputable. Because the body as a ph
system is subject to the first law of thermodynamic
energy it gives out must be proportional to the e
liberated from its food, whether this liberation occu
physiological lines or not. But the body is not a
engine. Its machinery and its fuel are not to be sh
distinguished. Energy must be liberated in various f
in the right places, and with due regard to co
sequences. Much of this organization is due to th
fluence within the body of the chemical agents whic
call hormones. It may be that we can best defin
substances we are considering by thinking of the
exogenous hormones—a term due, I think, to Sir Arch
Garrod.

Even the classical teaching of the latter part of the
teenth century had to reckon with the specific nu
properties of protein, but there was a tendency to min
the importance even of these. It is now clear that pr
is not the only dietary constituent with highly sp
functions, and we know, moreover, that it is not
to say that a quantitative sufficiency of proteins,
carbohydrates, and minerals makes a diet physiolo
The long dominant assumption that it did so always l
a proper basis, because that sufficiency had never
tested on pure materials. The actual fact is that a di
consisting of pure protein, pure fat, pure carbohydrate
a fully efficient salt supply may be well digested, nor
absorbed, and duly oxidized in the body of an animal,
wholly failing to support it. This highly significant f
firmly based upon experimental results which are ea
obtain and always reproducible. Not less significant
complementary fact that such a diet can be made efi
by additions which are quantitatively almost infinitesi

I apologize for asking attention here to the results
experiment which is of a kind now very familiar. I
like the fundamental facts just mentioned to be f
in mind before I proceed.



The results in question were obtained by myself, but
represent the experience of many investigators. The
curve in the diagram shows the average growth exh
by ten animals placed on a synthetic diet in which the
fat constituent was a purified vegetable fat. The
curve shows the growth of ten similar animals upo
same diet, with the sole difference that each receiv
addition 5 milligrams per diem of crude cod-live
The animals in the former set, it will be seen
ceased to grow. By the seventieth day six o
the ten were showing serious lesions of the eyes,
all would have soon died had not their diet
altered. Those in the second set grew well, a
curve shows, and remained in good health until the e

permanent service in that country at increased rates of pay and pension. Probably by these means sufficient officers would be obtained for Indian necessities, and the remainder of the corps, after one tour in India, would have little foreign service.

Whether these views are accepted or not, it is high time that some steps were taken to alleviate the undoubted hardships of the officers of the R.A.M.C., who at present, while enjoying few compensating advantages, have more frequent moves and more foreign service than any other branch of the army.—I am, etc.,

October 5th. FIELD OFFICER.

Obituary.

SIR FREDERICK BRADSHAW, K.C.B., M.R.C.P., Major-General A.M.S.(ret.).

MAJOR-GENERAL SIR ALEXANDER FREDERICK BRADSHAW, K.C.B., K.H.P., Army Medical Service (retired), died suddenly at Oxford on September 27th, aged 88. A month ago, on the occasion of the marriage of his daughter to Lieut.-Colonel Stewart Gordon, he was knocked down and injured by a motor car.

He was born in London on December 5th, 1834, the son of Mr. G. Bradshaw, of the Inland Revenue Department, and was educated at St. Bartholomew's Hospital, taking the L.S.A. in 1856 and the M.R.C.S. in 1857. He entered the army as assistant surgeon in 1857, attained the rank of surgeon major-general on March 10th, 1891, and retired on March 10th, 1895. For the first eight years he served in the Rifle Brigade, 2nd Battalion, with which he took part in the suppression of the Indian Mutiny, serving at the siege and capture of Lucknow, for which he received the Mutiny medal with the clasp for Lucknow. In 1863-64 he was garrison surgeon at Delhi, and in 1865 was posted to the Chestnut troop of the Royal Horse Artillery. In 1869 he was appointed surgeon to the commander-in-chief in India, Sir William Mansfield, afterwards Lord Sandhurst; and continued to hold that post under the two succeeding commanders-in-chief, Lord Napier of Magdala and Sir Frederick Haines. On the staff of the last named he served in the Afghan war of 1879, receiving the medal. From 1884 to 1886 he was principal medical officer of the Quetta division, and in that capacity served as P.M.O. in the Zhob expedition on the north-west frontier of India in 1884, when he was present at the action at Hamza village, and was mentioned in dispatches. The frontier medal was not granted for this campaign. In 1886-87 he served as P.M.O. of the Frontier Field Force in Egypt, after which, for a short time, he held the post of P.M.O. of the northern district in England. From 1887 to 1892 he was again in India as P.M.O. of the Rawal Pindi division, and with that division served as P.M.O. in the Hazara campaign of 1891, when he was mentioned in dispatches in the *London Gazette* of October 20th, 1891, and received the frontier medal with a clasp, and the C.B. From his promotion to surgeon-general till his retirement he held the appointment of P.M.O. of H.M.'s forces in India, the second post in the service, next to that of director-general. He was appointed honorary physician to the Queen in 1899, and promoted to K.C.B. in 1912. He was also a F.R.G.S., and in 1882 had taken the M.R.C.P.Lond.

After his retirement he settled in Oxford, where he did much public work, as honorary secretary of the Oxford Eye Hospital, as member of the Oxford Town Council, and as a member of the committee of the Warneford Asylum. He became a Fellow Commoner of Worcester College in 1897; the university gave him the honorary degree of M.A. in 1900, and the full degree of M.A. in 1910. During the late war he acted as honorary consulting physician to the military hospitals in Oxford. He edited a memoir of Katherine Grace Loch, R.R.C., who was chief lady superintendent of Queen Alexandra's Military Nursing Service for India. In 1864 he married Ellen, daughter of Colonel R. S. Ewart, Bengal Army, and had three sons and five daughters. His youngest son was killed in the late war. The other two sons are Lieut.-Colonel F. E. Bradshaw, D.S.O., late Rifle Brigade, and Colonel C. R. Bradshaw, Indian Army. His daughters are Lady Lenox-Cuningham, O.B.E., Mrs. Cecil Kekewich, Mrs. Hunt, wife of Professor A. S. Hunt of Oxford, and Mrs. Stewart Gordon. His remains were cremated at Golders Green on October 2nd, a funeral service being held at the same time at St. Margaret's Church, Oxford.

Universities and Colleges.

UNIVERSITY OF LONDON.

A COURSE of eight lectures on the histology of the nervous system is being given by Dr. C. da Fano (Reader in Histology in the University) at King's College (Strand, W.C.2) at 4.30 p.m. on Wednesdays. The first lecture was given on October 10th.

A course of eight lectures on newer aspects of nutrition is being given by Professor V. H. Mottram, M.A., at King's College for Women (61, Campden Hill Road, W.8) on Mondays at 5 p.m. The first lecture was given on October 8th. Admission to these courses is free, and attendance on them is recognized in connexion with the B.Sc. (Honours) Degree in Physiology.

The newly elected Jodrell Professor of Physiology, Dr. A. V. Hill, will give a public inaugural lecture on the present tendencies and future compass of physiological science on Tuesday, October 16th, at 5.30. The lecture will be held in the theatre of the new anatomy building at University College. Professor E. H. Starling will take the chair. Cards of admission will be sent on application to the secretary of the college: such an application should enclose a stamped addressed envelope. The new anatomy building will be open to inspection as from 4.30 that afternoon.

UNIVERSITY OF SHEFFIELD.

THE Diploma in Public Health has been awarded to Samuel Bryson and Patrick Kane.

UNIVERSITY OF ST. ANDREWS.

THE following candidates have passed in the examinations indicated:

FIRST M.B., CH.B.—*Organic Chemistry*: B. W. Anderson, Agnes C. Cunninghame, J. W. L. Dickson, W. J. Frain, A. Thornton, R. O. Whyte. *Inorganic Chemistry*: B. W. Anderson, R. O. Whyte. *Botany*: T. Thornton. *Physics*: J. A. Blain, Adowale Doherty, J. Feldman, Victoria M. Willoughby.

[illegible] *Medicine*: A. P. R. Borrowman, Barbara T. [illegible]

[illegible] Leslie, Ena M. Liddell, [illegible] Robertson, B.Sc., Janet O. Morrison, J. R. [illegible] C. R. Baxter, T. F. Stephen, Gertr[illegible] [illegible]aing, Jeannie P. Laird, Black, Ellen D[illegible] [illegible]urray, P. C. Robertson, Victoria R. L. Leslie, [illegible] Gertrude J. Sturrock. *Midwifery*: Monawar Khan Afridi, C. R. Baxter, T. F. Black, N. T. Brown, W. F. Dorward, B.Sc., L. Farrell, A. A. Finnigan, A. Henderson, Lilian A. M. Johnston, B.Sc., Lutfur Rehman Khan, G. D. Laing, Jean R. Mason, J. R. Miller, N. Nelson, P. C. Robertson, Jalati Dass Sagger.

FIRST D.P.H.—*Physics and Meteorology*: Frances Heron-Watson, J. Lamberton.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

AT the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on Monday, October 1st, the following were admitted, after examination, as Fellows:

[illegible] Ch.B., B.Sc., D.P.H. (Glasgow), John Aitken (Leicester), Alexander Reginald Lester, Colin William McRury, M.D. (Manitoba), [illegible] Manuel Joseph Saldanha, M.B., B.S. (India).

A copy of the bronze medal, struck in commemoration of the octocentenary of St. Bartholomew's Hospital, has been presented to the Faculty by Dr. Alexander Macphail, Ministry of Health, London.

The Services.

NAVAL MEDICAL COMPASSIONATE FUND.

AT the quarterly meeting of the directors of the Naval Medical Compassionate Fund, held on October 9th, the Medical Director-General of the Navy, Surgeon Rear-Admiral Joseph Chambers, C.B., C.M.G., in the chair, the sum of £44 was distributed among the several applicants.

DEATHS IN THE SERVICES.

Dr. John Robert Stevenson Robertson, of Hayling Island, Hants, died suddenly in London on September 26th, aged 64. He was the second son of the late Alexander Robertson, J.P., of Berwick-on-Tweed, and was educated at Edinburgh, where he graduated as M.B. and C.M. in 1881. In 1883 he entered the army as surgeon and served in the Sudan campaign of 1885, taking part in the expedition up the Nile and across the desert for the relief of

cases disappointing. Hofmeister, for instance, having made from rice meal a preparation which certainly contained vitamin B in relatively large amount, obtained from it a crystalline base, but nothing else which gave evidence of purity. The base proved quite inactive. The much earlier attempts of Casimir Funk ended in a similar way, and so twelve years ago did endeavours of my own. The pursuit of pure chemistry has never involved analytical problems of such complexity, and there exists no classical technique for their solution. Maybe we shall have to replace the familiar use of selective solvents and precipitants by some new technique. Some have felt that there may be hope in the adoption of physical methods such as electrical transport, or in the use of selective adsorbents, on the lines of Willstätter's current endeavours to isolate enzymes. Vitamins would seem to be considerably more stable than enzymes, and the work done in attempts to purify them has encouraged at any rate a faith that the problem will be solved. I have already ventured an opinion that we shall not have to wait very long before the constitution of one or other of them is known.

Much current work is being done in the endeavour to decide how vitamins produce their effect in the body. It has from the first been clear that the influence of each is exerted on specific lines. The clear differences in function demonstrated by differences in the effects of deprivation have indeed constituted the main evidence for our belief in their diversity. In studies of metabolism, however, it is well to remember that chemical events in the organism, though they may often be more or less isolated experimentally, form an organized whole. No one process in the body can be rendered abnormal without ultimate effects upon other processes. Since there is a harmonious concurrence of events in normal metabolism, and since vitamins individually affect different aspects of metabolism, it is not unlikely that an optimum supply in the food would be one in which—apart from the absolute amounts—a definite proportionality obtains among them. Some unpublished experiments of my own seem to show that within certain limits this is the case. Vitamin A and B were supplied to rats on a synthetic dietary. In one experiment each was supplied in very small quantity, but the amount of the one bore a definite ratio to the amount of the other; growth was maintained, but was subnormal. In a second experiment the absolute amounts were increased, but the ratio was undisturbed; growth was normal. Next both vitamins were given in relatively very large amounts, but with the ratio still the same; growth was again normal and the animal's health was undisturbed. When, however, in another case, animals received A in the small amount employed in the first experiment and at the same time took B in the large amount of the third experiment, they showed little or no growth and failed to flourish, though there were no acute symptoms to suggest a direct deleterious effect from the large dose of A. These experiments require extension. If the results are confirmed they will show in respect of vitamins the importance of that balance among factors which has been demonstrated by others in the case of the mineral constituents of diets, and which E. Mellanby has recently insisted upon in the case of still other constituents.

In the hope of discovering the seat and mode of action of individual vitamins some have studied the effects upon functions, and others the nature of the anatomical or histological changes in the organs, which result when the animal is deprived of one or another of these substances. The remarkably specific lesions in the cornea seen in animals which have lacked a supply of vitamin A have been very fully studied (Stevenson and Clark, Mori). The

weight the adrenals increase to two or three
weight of those of control birds. This I find
in the rat. Certain secretions have been said to
vitamin B is absent, but causal relations here
been fully established. Hess, Abderhalden, a
have found that the oxidizing capacity of the
diminished in animals which have been deprived
B, and Funk has brought forward evidence that
tions of this vitamin have some special concern w
hydrate metabolism. In estimating the present
is well to remember that studies of the kind just
are continuously going on. They have not yet to
precisely is the function or mode of action o
vitamin, but they are making to that end. T
reported by various workers seem to be reprod
are therefore real.

There is one suggestion sometimes made in c
observations such as those I have been discuss
those concerned have a right to resent. I
suggestion that we are not exploring the pro
nutrients unrecognized before, but are carelessl
in removing or supplying familiar necessities—a
of iron, for instance, or other minerals. This im
those devoted to vitamin studies lack common s
unbiased and close consideration of the technique
will show how essentially baseless the suggestion
even though here and there insufficient attention
been given to a general balance in the exp
dietaries employed.

One important aspect of the whole matter call
reference. Some few, while accepting the results
from animal experiments, feel that it is easy to e
their importance in human nutrition. There is,
nothing more characteristic of recent studies t
tendency to emphasize this importance. Species
the details of metabolism, and different species
their response to lack of vitamins; but the
shown are superficial. They comprise variatio
actual severity of particular symptoms and in th
of their occurrence. Fundamentally the event
same. We now possess actual experimental d
apart from the more general evidence from
diseases, which link the behaviour of the rat suffe
vitamin deficiency through that of higher anima
of human subjects. Although it be true, as is so
said, that a civilized adult community suffers
from any lack of vitamins it is different (this too
frequently said) with the children in that comm
the conception of vitamins were a myth, inste
important corrective to older views concerning
its advent would yet, in my opinion, have serve
purpose. The discussion which it has called for
the last ten years has assisted in directing special
to the importance of all that comes under th
"quality," as distinct from quantity, in the
children, and this, in my opinion, has alread
benefited the community.

THE REGULATING AND REFLEX PR

BY

P. T. HERRING, M.D.,

PROFESSOR OF PHYSIOLOGY, ST. ANDREWS UNIVERSITY
PHYSIOLOGIST TO THE ST. ANDREWS INSTITUTE FO
CLINICAL RESEARCH.

PART III.—THE IMPORTANCE OF THE SYN THE REFLEX OR REGULATING PROCE

THE nerve impulse is practically invariable in

At a meeting of the Society of Superintendents of Tuberculosis Institutions to be held at 122, Harley Street, at 4 p.m. on Monday, October 15th, a discussion on thoracoplasty will be introduced by Mr. W. H. C. Romanis, F.R.C.S., and a report from the committee which has been considering the question of the training of tuberculosis nurses will be presented.

A Medical Prayer Union meeting will be held, by invitation of Dr. Mary Scharlieb, at 149, Harley Street, W.1, on Thursday, October 25th. An address will be given by Mr. Rendle Short, F.R.C.S., on evolution in relation to Christian inciples. An intimation of intention to be present will) welcomed by the honorary secretary, Dr. Tom Jays, lvingstone College, Leyton, E.10.

The method adopted for ventilating the Council Chamber f the London County Council was described at the autumnal neeting of the Institution of Heating and Ventilating Engineers by Messrs. P. M. B. Grenville and T. Moodie. By means of trunks under the chamber an individual supply is provided for each seat. Besides the main inlets, special registers are so arranged to every seat that each member can direct the incoming air either towards himself or vertically out of his range. The plant is capable of delivering 3,000 cubic feet an hour for every occupant of the chamber. The apparatus consists of a humidifier, heating batteries, automatically controlled from the chamber itself, and fans and ice tanks for cooling. The main building is heated by means of forced circulation of hot water to over two thousand radiators, having a total heating surface of 68,349 square feet. The hot-water supply to over eight hundred lavatory basins and sinks is capable of providing 71,400 gallons of hot water in an hour.

Acute poliomyelitis was made a notifiable disease in all the communes of the province of Rome on September 4th.

From July 23rd to August 15th 103 cases of plague were notified in Egypt; 7 occurred in Port Said and 4 each in Alexandria and Suez.

Dr. Hermann Dold has succeeded Professor Uhlenhuth as director of the Behring Institute of Experimental Therapeutics at Marburg.

Owing to financial conditions forty-five hospitals were closed in Prussia during 1922, including nine private hospitals with 1,049 beds in Berlin alone.

Messrs. Watson and Sons (Parker Street, Kingsway, W.C.2) have issued a new bulletin describing the x-ray combination horizontal couch, vertical screening stand, and high-tension transformer which they manufacture.

A preliminary summary of the vital statistics for 1922 of Prince Edward Island, Nova Scotia, New Brunswick, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia has been published. The average birth rate of these Canadian provinces was 28.8 per 1,000, compared with 26.3 in the previous year; British Columbia had the lowest birth rate, 18, and New Brunswick the highest, 29.2. The average infant mortality rate was 86.6, ranging from 64.6 in British umbia to 103.7 in New Brunswick. The average death at all ages was 10.4 per 1,000, compared with 10.6 in ; of the deaths 75 per 1,000 were due to cancer and 68 to erculosis.

Letters, Notes, and Answers.

he postal address of the British Medical Association and British Medical Journal is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the British Medical Journal, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"X. Y." would be glad of any references to literature dealing with sterility following mumps oöphoritis.

Vitamins and Chlorophyll.

"J. R." (London).—Vitamins B and C occur regularly in substances free from chlorophyll. There is no reason to suspect any relation between them and chlorophyll. Vitamin A is nearly always found associated with chlorophyll. Pure chlorophyll, however, contains no vitamin A. There is a possibility that vitamin A is a substance related in some way to chlorophyll. It may be a pigment body related to, but not identical with, chlorophyll; ay be that the presence of chlorophyll aids its formation.

Income Tax.

"Caecum" sold some war stock in June, 1922, and for the year to April, 1923, returned for assessment half a year's interest. The inspector of taxes says he is liable to be charged tax on a full year's interest—that is, on the amount of interest received *in the previous year*, that being the basis of assessment for untaxed interest.

*** The inspector's statement is correct as far as it goes. If, however, when "Caecum" sold out the war stock he did not then hold and did not acquire during 1922–23 stock of identical or similar nature, he appears to be entitled, under Sec. 34 of the Income Tax Act, 1918, to have the assessment for 1922–23 reduced to the amount of the untaxed interest for that year—under the principle laid down in Brown *v.* The National Provident Institution.

Car Transactions.

"H. T. M." bought a second-hand motor cycle in 1921 for £110 (new cost £135); he sold it in 1923 for £65, buying a new car for £256.

*** The total expenditure of (£256 – £65 =) £191 was partly an outlay of capital by which an improved vehicle was obtained, and "H. T. M." is entitled only to that part which represents the cost of replacing his cycle with one similar in make and condition to the cycle as it was when he purchased it—that is, to £110 – £65 = £45.

Book Debts.

"A, B, and C" have been assessed as partners on the basis of cash receipts; the inspector has now intimated that book debts should be included.

*** Unless there is some special reason for the request—as, for instance, if "A, B, and C" have taken over a part or the whole of another practice—we do not think that the inspector's attitude is likely to be sustained on appeal before the local commissioners if "A, B, and C" resist his request. Where the gross receipts of a practice are more or less constant the amount of the actual cash receipts must approximate closely to the correct *value* of the gross bookings. For this reason cash receipts have for many years been accepted as the basis for income tax returns, even in those cases where the bookings were falling (as during the war) and the cash receipt basis therefore worked against the taxpayer. In these circumstances, and in view of the great difficulty in estimating the value of any given amount of bookings, "A, B, and C" may reasonably resist the inspector's action and appeal to the commissioners (local or special) with reasonable prospect of success if he refuses to give way.

LETTERS, NOTES, ETC.

Mr. H. Jessop of Burnley, whose advertisements have often appeared in our pages in recent years, asks us to suggest to practitioners who dispense for their patients that this is the time to order their winter supply of dispensing bottles.

Difficult Labour due to Foetal Spasticity.

Dr. C. H. S. Horwitz (Streatham, S.W.) writes: Mrs. P., a primipara, aged 32, gave birth to a full-time child on September 29th. Calculating from the first day of her last period she was about three weeks overdue. Her measurements were normal, and an x ray photograph showed that there was plenty of room for the head to pass into the cavity of the pelvis. The head of the child remained above the brim until labour commenced. There was an undue amount of liquor amnii. Labour proceeded quite satisfactorily until the head reached the perineum, where it remained for several hours in spite of good pains. So I decided to apply forceps, and a small amount of chloroform was administered. The head was easily extracted, but I experienced the greatest difficulty in delivering the rest of the body, which seemed so rigid. Upon the birth of the child there was a post-partum haemorrhage of some severity and difficult to control. The child was somewhat blue, and held its body in a condition of opisthotonos. It soon cried and continued to do so almost continuously for twenty-four hours. It would not attempt to suck, but could swallow water administered with a spoon. There was evidently some meningeal irritation, with the left side of the body more affected than the right. The rigid condition of the child's body, with marked head retraction, would account for the difficulty I had experienced in delivering it. The pupils were equal and reacted to light, but there was slight ptosis of the left lid. Vertical nystagmus was present. There was marked rhythmical twitching of both arms and hands, more violent on the left side. The thumbs were strongly flexed and adducted; the elbows and wrists were flexed. The legs were spastic, but to a less extent than the arms, and the feet were flexed. The child died about forty-eight hours after birth. No *post-mortem* examination was held.

Vacancies.

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 33, 34, 35, 38, 40, and 41 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

king place in the synapse is unknown. It appears to brought into action automatically both by nerve im-ulses carried into the nervous system by afferent nerves, hether concerned with the production of reflexes or sen-tion, and by efferent impulses coming from the cerebral rtex and other higher levels. Possibly the refractory in-rval after each impulse may be the operating factor. owever produced its effect may be compared with that a system of water pipes in which there are numerous ps capable of being turned off or on so that the direction the flow is regulated. The nerve impulse arriving by rtain channels automatically controls the pathways taken that the end-results are of a definite character. The thways are more or less stable in the decerebrate animal, it in the intact nervous system can be altered by ntrol exercised by the higher levels. The pathway in e "unconditioned" reflex is accurately adjusted and less liable to be interfered with by impulses from the gher levels, whereas the pathway for the conditioned flex is readily changed by any of the numerous reactions which the higher levels are subject. The power of in-ibition is pre-eminently a function of the cerebral cortex, ut its voluntary employment is limited to the inhibition the efferent neurones which supply the voluntary muscles ith nerve impulses causing their excitation. There is me evidence that the reception of nerve impulses which ormally give rise to sensations, particularly of pain, can interfered with in certain conditions, of which hysteria an example. The explanation is probably to be found an alteration in synapses somewhere along the chain neurones which conveys the nerve impulses to the higher vels of the nervous system. The reflexes of involuntary uscle and of glandular secretions cannot be altered by olition, but may be increased or inhibited by emotional nditions. Tears, blushing, pallor, increased heart rate, nd other visceral reflexes are examples of the kind.

The Action of Drugs and Toxins on the Synapses.

The synapse is readily affected by drugs and is far more isceptible to them than are the neurones. We expect, herefore, that when a drug is of sufficient strength in he body to alter the reactions of the nervous system it will o so by acting upon the synapse long before it can directly ffect the neurone. There is evidence that the toxins pro-uced by some micro-organisms also first exert their in-uence upon the synapse. Strychnine converts many of he synapses which should be inhibitory into excitatory nes; tetanus toxin has a similar effect. Under the in-uence of either of these poisons co-ordination of muscular ovement becomes impossible because nerve impulses en-ering the lower level of the nervous system spread to all he efferent neurones of voluntary muscle and general con-ulsions follow. The toxin of hydrophobia also converts nhibition into excitation by its action upon certain ynapses. In this condition a voluntary effort to open the outh, instead of inhibiting the muscles which close the ower jaw, excites their contraction, and the more the atient tries to open the mouth the more firmly it is closed.

Chloroform converts the excitatory phase of the synapse nto an inhibitory one; ether and alcohol have similar hough less powerful effects. These drugs show a selective ction upon the central nervous system and pick out the ynapses of different levels in a definite order. The ynapses in the highest level are the first affected, and con-usion of thought and judgement is manifested. Other ynapses in the lower levels become involved with dis-urbance of the co-ordination of muscles, especially at irst of those concerned with the finer movements such as acial expression and skilled actions. The reflex arcs of ostural activity and locomotion are affected, and last of ll the reflex arcs which have to do with the vital processes f respiration and cardiac action. Other drugs may affect he same synapses in different order, or may act upon the eceptive substances which are analogous to the synapse. tropine paralyses certain of the receptive substances at he endings of efferent neurones in the heart and in some hibitory action of the vagus, beats more rapidly. similar action is exerted by atropine upon many glan which as a result fail to receive excitatory impulses a cease to secrete. Larger doses of atropine impair the va motor control of the blood vessels, and delirium may res from the involvement of the synapses in the higher lev of the nervous system.

Nicotine is another poison which has a selective acti in the first place upon certain synapses, and its local app cation to the ganglia on the autonomic nervous system h provided a valuable experimental method of ascertainin the sites of the synapses between the pre-ganglionic a post-ganglionic fibres. After painting the ganglion wi a weak solution of nicotine the synapses are rendered i capable of conduction, whereas the neurones are unaffecte Nicotine, when injected into the blood vessels, stimulat the receptive substance of muscle so that the muscles into a state of contraction. Curare has the reverse effe and paralyses the receptive substance of voluntary musc so that the nerve impulse can no longer pass from t neurone into the muscle. Adrenaline, one of the autaco of the body, exerts its action upon the receptive substan which lies between the endings of the sympathetic neuron and the organs they innervate. When injected into t blood vessels it stimulates these receptive substances, a the result depends upon the character of the recepti substance. If excitatory, as in the case of t vasomotor nerves of the blood vessels, the musc contract and the arterioles are constricted and the blo pressure in the arteries rises. If inhibitory, as in the sy pathetic supply to the greater part of the muscles of t alimentary canal, the muscles of the gut are relaxed a cease to contract while under its influence. Adrenali furnishes an example of a chemical material which exer a selective influence upon certain portions only of t nervous system. It picks out the receptive substanc at the ends of the efferent sympathetic neurones, a affects no others than the sympathetic. Several substanc of a like chemical nature to adrenaline have a simil action, and these drugs have been called by Da "sympathomimetic," because on injection into the blo they bring about effects which resemble those produced stimulation of the sympathetic nerves.

There is therefore abundant evidence that the action drugs upon the nervous system is one which is exerted up the synapses or upon the receptive substances between t endings of the efferent neurones and the organs they inne vate. We know also that fatigue is brought about by t action of waste products formed during activity upon t same structures. There is also evidence that certain toxi have a like action. Different substances pick out the synaps of different parts of the nervous system, and spread others in definite manner. The action may be first man fested upon the synapses in the highest level of the nervo system, as in the case of chloroform, and gradually spre to the lower level involving the synapses upon the pat ways of the vital reflexes last of all; or it may begin the receptive substances and cause death from paraly of the muscles of respiration, as happens in poisoning curare. It may gradually spread to the higher levels, as atropine poisoning or in the continued use of overdos of digitalis. We suggest that many of the manifestatio of ill health are due to toxins acting upon different par of the nervous system. The symptoms of botulism are e plainable in this way, and their serious nature is due to the fact that the toxin involves the synapses upon the reflex arcs of the vital processes at an early stage. Other and more common conditions are the results of toxins acting upon less vital processes. Forms of exhaustion, nausea, lack of appetite, changes in temperature, cardiac, vasomotor and visceral disturbances may sometimes be ascribable to the action of toxins upon the synapses of the pathways which are concerned in regulating normal processes. Disturbances of the normal processes are to be recognized by the sensations experienced by the patient and by the alterations that take place in the reflexes,

meals the milk and cream should be continued hourly. This treatment should be continued for one year, the alkalis being gradually diminished. The author records the results in 28 cases (13 of ulcer of the stomach, 3 of ulcer of the duodenum, 12 of hyperacidity). In 5 they were negative; in 23 good or brilliant. In 10 of the 23 successful cases improvement followed immediately; in 13 gradually. On examination two to twelve months after leaving the hospital only 4 of the 23 cases remained free from symptoms. These had continued the treatment for a long time—two to twelve months; 9 patients who had continued the treatment for one to six months were not quite free from symptoms, but felt much better than before the treatment; 5 patients who had continued the treatment for only one to three months suffered from a recurrence of the symptoms. Sippy's treatment is strongly recommended, especially in chronic cases associated with gastralgia. It should be continued for several months, if possible for a year; and Orlianski advises that it should always be tried before operation is undertaken.

Surgery.

277. Tuberculosis of Vesical Diverticula.

Duvergey (*Journ. d'Urologie*, July, 1923, p. 1) records the cases of bladder diverticula infected by tuberculosis so far reported in the literature, together with one of his own. He has found two undoubted cases of tuberculous infection of a diverticulum, one of which, his own case, involved a diverticulum arising from the urachus. A third case showed the involvement, not of a true bladder diverticulum, but of an inguinal cystocele; whereas the fourth case, a typical bladder diverticulum arising from the left wall of the bladder, though infiltrated and ulcerated, was not shown pathologically to be definitely tuberculous, although this patient succumbed to bilateral renal tuberculosis. He finds that the condition in question is rare; it invades the diverticulum by extension from a vesical lesion following a primary renal infection. It is only by means of the cystoscope that diagnosis can be made. As the infection of the diverticulum coexists with other tuberculous lesions of the genito-urinary system, treatment is limited to intradiverticular lavage and instillation. Palliative surgical treatment—drainage of the diverticulum—is only indicated in the presence of such complications as severe infection and retention. The author considers that the drainage should be direct (diverticulostomy), but in cases in which the diverticulum is not directly accessible it should be indirect (transvesical) after a preliminary cystotomy.

278. Operations for Inguinal Hernia under Local Anaesthesia.

J. C. Bloodgood (*Amer. Journ. of Surg.*, August, 1923, p. 185) considers that this operation can be performed with as great a certainty of success under local anaesthesia, and with far less risk to the patient, as with a general anaesthetic. He employs 1/4 per cent. solution of novocain as the local anaesthetic. The patient is put on a light diet before the operation, and he finds the majority do better without the hypodermic injection of morphine. The line of the skin incision is infiltrated subepidermally until it stands out like a large hive. After its division the aponeurosis is infiltrated and divided. The other structures are similarly treated as they become exposed. The sac is isolated and opened and any contents reduced, and the sac is then closed with a suture. The closure of the wound follows and is usually painless. The author does not transplant the cord, but sutures the sheath of the rectus muscle and internal oblique to Poupart's ligament. Where there is obliteration of the conjoined tendon it is advised that the cord should be transplanted. The healing of the wound after local infiltration is not as perfect as with general anaesthesia, but any breakdown is usually confined to the skin and fat and has no influence on the result. The advantages of local anaesthesia are the elimination of the dangers of general anaesthesia, and the period of convalescence is shorter. For success it requires considerable experience and practice.

279. Living Sutures in the Treatment of Hernia.

W. E. Gallie and A. B. Le Mesurier (*Canadian Med. Assoc. Journ.*, July, 1923, p. 469) point out that interest in the subject of hernia has recently been aroused by the extraordinary number of recurrences which have developed after operations performed on soldiers during the war. A study of recurred herniae showed that in most instances the muscular and aponeurotic structures which had been sewn together in an attempt to close the abdominal defect had not remained firmly healed together, but had separated to allow the protrusion of another sac. In the hopes of preventing this the authors undertook a clinical and experimental study of the principles underlying the various types of operations. Experiments showed that by scarifying and overlapping the edges of divided fascia and aponeuroses the union was increased, but even this was insufficient when the line of union was subjected to unusual strain. Attempts to reduce the failures following such operations led to the idea of filling the defects in the abdominal wall with pedunculated transplants of aponeurosis or free transplants of fascia lata. This method was abandoned as unsatisfactory, the results being so little improved. It was then decided to overcome these difficulties by the use of living sutures. Sutures of fascia from a rabbit's back behave like ordinary fascial grafts and live practically unchanged. Over catgut and similar sutures they have the great advantage that they are not absorbed and continue for all time to perform their function. This method has been applied to the radical cure of inguinal hernias, many of which had previously recurred after operation. The results have been satisfactory, and no recurrences have been reported. It is useful in all cases of direct hernia and oblique hernia which have recurred after operation. Sutures of fascia lata when used in these cases, if firmly anchored into aponeurotic structures, will permanently close the inguinal canal. Further, when used in large ventral herniae, this type of operation has been most satisfactory in the authors' hands.

280. Periarterial Sympathectomy.

A. Wojciechowski (*Lyon. Chir.*, July–August, 1923, p. 421) asserts that the operation of periarterial sympathectomy has now a definite place in surgery. Although the value of this operation is recognized clinically, our knowledge of the physiology of the periarterial plexus is somewhat indefinite. With a desire to elucidate this problem further, the author has carried out certain experimental investigations in order to discover the physiological and anatomical effects produced by the operation. The experiments have been done on rabbits, which animals appear well suited for these procedures. The operation was performed on the carotid and femoral arteries. After noting the results of the operation on the blood vessels the portion of the vessel affected was excised and carefully examined microscopically. The experiments showed that after division of the sympathetic the vessel is contracted below the site of the operation, but the same evening the limb becomes warm and the vessels in the digits are dilated. This continues for one or two weeks, after which it is impossible to distinguish any difference in the temperature or the circulation. In other words, the sympathetic system treated by excision tends to return to the normal after a certain time. At the point where the sympathetic has been divided a scar appears; to avoid the formation of this scar tissue it is necessary to surround the vessel with fat or omentum. These results were obtained in animals and differ somewhat from those found in man; it is, therefore, necessary to study carefully in the future specimens obtained after sympathectomy in the dead subject.

281. Camphoric Acid as a Urinary Disinfectant.

E. Liebmann (*Schweiz. med. Woch.*, July 12th, 1923, p. 672) has found acidum camphoricum a very useful urinary disinfectant. Its potency in this field has hitherto been overlooked because it has been given in too small doses—that is, 1 to 2 grams. If, however, 3 to 4 grams are given in the course of the day, its action is much more effective, and the author records in detail 7 cases of infected urine in which complete or almost complete cures were obtained. In most of these cases the acid was urine, and the cystitis and pyelitis were due to coliform bacilli. Good results were, however, also obtained in cases of alkaline fermentation of the urine. Even in cases of chronic cystitis, due to such causes as hypertrophy of the prostate, the results were very satisfactory, although other urinary antiseptics had proved disappointing. In about a quarter of all the cases in which it was given, camphoric acid failed, but in these cases salol, urotropine, hexal, and other popular urinary disinfectants also proved useless. On the other hand, there were several cases in which these popular antiseptics failed, and in which camphoric acid was promptly successful. When it causes gastric disturbances, it should be discontinued.

282. Treatment for the Paralysis of Pott's Disease.

John Fraser (*Edin. Med. Journ.*, September, 1923, p. 385) comments on the development of paralysis in association with tuberculous disease of the spine as a most disappointing and distressing complication. Months or years may have been spent in the recumbent treatment of the disease when paralysis of the limbs may gradually appear. Spinal paralysis in tuberculous disease develops owing to a localized

CASE II.

An advanced case lasting for three years, having previously had tabes dorsalis for three years. The patient was so infirm that only three paroxysms were allowed to develop. He did not seem to be affected by the treatment; decline was continuous thereafter, death occurring on May 30th, 1923.

CASE III.

Transferred to Bangour Hospital, where the infection "took." This case formed the starting-point of a similar experiment at Bangour.

CASE IV.

Duration of disease, eleven months.

Before Inoculation.—Mentally the patient was highly elated; had numerous tawdry delusions of grandeur—for example, could run 100 yards in six seconds; was imperial ruler of the universe; the greatest poet, preacher, and statesman in history. Facile and generally enfeebled; memory defective; frequently confused and disoriented. Physical state: Pupils unequal, right fixed; tongue and lower facial muscles tremulous; amimia; gait ataxic; other stigmata of general paralysis marked. Wassermann reaction in blood and cerebro-spinal fluid strongly positive.

Inoculation.—Incubation period, twenty-eight days; number of rigors, eight.

Present Condition.—Tolerated the treatment well, but was markedly anaemic at the end of it. Physical signs of general paralysis less obvious, but can be elicited on examination. Mentally is distinctly better. Is not now delusional and has a large measure of insight into his former state. His recent memory is now more dependable. There still remains a slight degree of euphoria and general mental enfeeblement, but the general improvement is striking.

CASE V.

Duration of disease, three and a half years.

Before Inoculation.—Mentally the patient was always dull and apathetic; habits faulty; distinctly enfeebled. Physically he was thin and enfeebled; pupils unequal and did not react to light; deep reflexes diminished; speech movements much impaired. Wassermann reaction in blood and cerebro-spinal fluid strongly positive.

Inoculation.—Incubation period, twelve days; number of rigors, nine.

Present Condition.—Tolerated the treatment well considering his condition. Highest temperature recorded 105°. Physical signs of general paralysis unchanged, but general condition better. Mentally there is little, if any, improvement.

CASE VI.

Duration of disease, one and a half years.

Before Inoculation.—Mentally the patient was stupid and mildly confused; had an exaggerated sense of well-being, with absurd delusions of grandeur, which, however, were beginning to fade before treatment; was silly in manner and speech; judgement obviously impaired and self-control diminished. Physically, he was fat and gross; pupils irregular, unequal, and unresponsive to light; marked impairment of speech—slurring and hesitant; great difficulty with test phrases.

Inoculation.—Incubation period, thirty-two days; number of rigors, eleven.

Present Condition.—Tolerated the treatment well, and improved under it. Had a severe degree of secondary anaemia from which he has now recovered. Trombone movement of tongue and difficulty in articulation not so prominent as before. Pupils now almost equal, and both react to light and accommodation. Physical health generally better. Expresses no delusions, but will concur in any imputation of great wealth, power, etc. His bearing as a whole is less aggressive.

CASE VII.

An early case; duration of disease, six months.

Before Inoculation.—Mentally, he was euphoric, lacking in common sense, full of impossible projects; deficient in self-control, especially when thwarted; there was slight impairment of recent memory. All these symptoms were present in a mild form. Physically, he presented all the characteristic signs—pupils very unequal and did no[illegible] lips and tongue; failed at test phrases, et[illegible] blood and cerebro-spinal fluid positive.

[illegible] eriod, nine days; number of rigors, eleven.

Present Condition.—Devoid of insight into his condition, and intolerant of opposition to his whims. Always slightly elated. Physically much improved, and mentally has not lost any ground since inoculation.

CASE VIII.

Duration of disease, two years.

Before Inoculation.—The patient was silly and facile; memory much impaired; garrulous and incoherent; numerous grandiose delusions. Physically he was obese; musculature flabby; pupils unequally contracted and did not react to light; deep reflexes exaggerated; marked tremor of tongue and facial muscles; failed badly at test phrases. Wassermann reaction strongly positive in blood and cerebro-spinal fluid.

state was comparable to his mental state. Had had nu series of seizures, all of which produced further deterioratio lost weight progressively. All the stigmata of general p prominent. Wassermann reaction in blood and cerebro-spin positive.

Inoculation.—Incubation period, nine days; number of eight.

Present Condition.—Distinctly improved physically, thou signs of general paralysis may still be elicited. Is rapidly good his loss of weight. Mentally is very taciturn, but takes more interest in his surroundings. When induced to he shows a great improvement in articulation. Habits reformed.

CASE X.

Duration of disease, two years.

Before Inoculation.—Mentally the patient was stupid, a silly, and facile; had no definite delusions, but was unwarr happy and self-satisfied. Physical state: Pupils contract fixed to light; marked tremor of tongue and lower facial m speech slurring; great difficulty with test phrases. Wass reaction positive in blood and cerebro-spinal fluid.

Inoculation.—Incubation period, eleven days; number of twelve.

Present Condition.—Less confused and does not obtrude notions. Memory improved. Tidy in his habits and more and alert. Speech difficulties remain quite marked. Pup unequal but react sluggishly to light.

CASE XI.

Duration of disease, four years.

Before Inoculation.—The patient was simple and de vaguely delusional; amnesic. Examination showed the deep to be exaggerated; pupils contracted and very sluggish reactions to light There was tremor of lips and tongue; slurring. Wassermann reaction strongly positive in blo cerebro-spinal fluid.

Inoculation.—Incubation period, eight days; number of twelve.

Present Condition.—Treatment has had a general bracing both mentally and physically. Mental attitude more al responsive. Little change physically.

CASE XII.

Duration of disease, four years.

Before Inoculation.—Mentally the patient was facile, amne becoming progressively more demented; inert and indolent. state: Pupils R. > L.; both irregular in outline and slu reaction. Other signs of general paralysis well marked.

Inoculation.—Incubation period, nine days; number of eleven.

Present Condition.—No apparent alteration as the resul treatment.

General Results.

In interpreting the results which have so far it is of supreme importance to remember that time i essence of the experiment. The disease tends to course of something less than five years on the a and its progress even when untreated is often inte by remissions of varying duration and completeness. is therefore necessary not to attribute to any give of treatment results which are possibly only incidents unfolding of the disease. Not until the diagn general paralysis is placed on an unshakable fou and the possibility of the "cure" being nothin than a remission has been eliminated by the pas time, can one be certain that this or that mode of tre is a success. Quite recently, for example, a patient i House, suffering from general paralysis, after an sive course of antisyphilitic treatment had a remissi ing for fifteen months, during which he was able to the active management of a large legal business. end he relapsed and died of general paralysis. several others who had been similarly treated not o the same experience—which goes to illustrate t fallacy of arguing from *post hoc* to *propter hoc*. Si from the very nature of the disease itself, it is o necessary at this stage to assay the results of the n experiment with equal caution.

Looking at the results as a whole, there is a c absence of what, even when the term is generously preted, might be described as "cures." Such a keeping in mind the degenerative changes invol

is unnecessary also in advanced or malignant cases; in "cicatricial" stationary disease; and in patients whose social conditions admit of prolonged and adequate medical treatment and whose tuberculous disease seems readily susceptible of cure—for example, by artificial pneumothorax. Accordingly bilateral lesions, progressing yet judged still curable, in women of the working classes who are not yet three months pregnant, are those which furnish the best indications for intervention. Tuberculosis before the fourth month of pregnancy is much more likely to be met in medical than in obstetric practice. Intervention should preferably take the form of induction of abortion, hysterectomy being reserved for certain older multiparous women. The vast majority of cases encountered call only for medical treatment, of which probably the most useful form is the induction of pneumothorax.

288. Mucous Polypus of the Uterus.

According to L. Michon (*Lyon méd.*, July 10th, 1923, p. 583), the discovery of a mucous polypus of the uterus affords good grounds for the suspicion that other morbid gynaecological conditions are present. In young women these consist most frequently in chronic adnexal infection, simple metritis, or cystic or sclero-cystic ovarian degeneration; in middle-aged subjects there is in the majority of cases a coexistent uterine myoma; and in aged patients a mucous polypus may mark the early stages of cancer of the body or carcinoma of the cervical endometrium. In cases in which careful examination fails to demonstrate an associated lesion it is unwise to be content with simple ablation of the polypus, and intrauterine exploration is definitely indicated. The clinical signs of mucous polypus *per se* consist in (1) leucorrhoea, which is continuous and abundant and may lead to pruriginous dermatitis; (2) haemorrhage, which is as a rule slight and intermittent. The polypi are most frequently inserted either just above or below the junction of the cervix and body, or in the fundus in the neighbourhood of the orifice of a Fallopian tube; menstruation or pregnancy may cause a notable augmentation in their size. Histologically their epithelial investment may be squamous or cylindrical, according to the site of origin, and signs of chronic inflammation are invariably present.

289. Sarcoma of the Uterus.

Auvray (*Bull. Soc. d'Obstét. et de Gynécol. de Paris*, 1923, 4, p. 280) describes three unusual cases of sarcoma of the uterus. In the first a 4-para, aged 36, suffered during six years from menorrhagia, followed by metrorrhagia and fetid intermenstrual discharge and progressive loss of weight. Examination showed a friable vegetating tumour of the cervix and considerable enlargement of the body of the uterus. The pre-operative diagnosis was carcinoma of the cervix and of the body, but microscopical examination of the specimen showed a squamous-celled carcinoma of the cervix separated by a normal zone from a sarcomatous tumour involving the posterior wall of the body. In the second case a nullipara, aged 36, was operated on for a large cystic abdominal tumour of four years' duration, thought to be ovarian. Six litres of chocolate-coloured fluid having been evacuated, the cyst was found to be implanted on the summit of the uterus. Microscopically no epithelial lining was present, and an external muscular layer was clothed internally by oedematous sarcomatous tissue which exhibited intracystic buddings. The third patient complained only of "falling of the womb"; examination showed the vagina to be occupied by a smooth non-ulcerated tumour which had reached as far as the vulva, and appeared to have the characters of a simple hypertrophy of the anterior lip of the cervix. The histological appearances were those of a myosarcoma. This patient, like the second, was apparently well two years after hysterectomy.

Pathology.

290. The Genesis of Renal Tuberculosis.

G. Söderlund (*Acta Chir. Scand.*, vol. lvi, Fasc. 1, 1923, p. 27) records four cases of renal tuberculosis which came to operation at an exceptionally early stage. In every case there was a tuberculous cavity situated within a pyramid, evidently constituting the oldest focus. In every case a fistula led from this cavity to the renal pelvis, the whole surface of which showed superficial microscopic tuberculous changes which were most marked near the opening of the fistula. In none of the four cases was there any tuberculous focus in the parenchyma except a solitary cavity, and in no case was the renal pelvis free at any point from superficial tuberculous inflammation. The author argues that these cases are remarkably confirmatory of Ekehorn's theory, according to which renal tuberculosis begins as a bacillary embolus in the parenchyma. This embolus gives rise to caseation and cavitation, the process being very slow as long as there is no communication between this cavity and the renal pelvis. Two of the author's cases gave a history and showed signs indicating that the primary haematogenous focus had been latent in the parenchyma for a long time, perhaps for years, being completely shut off from the renal pelvis, and at first causing no other symptom than slight backache. When, however, the disease has extended to the renal pelvis it is probable that it runs a comparatively acute course, for the superficial changes, invariably found by the author in the renal pelvis, were indicative of a rapidly progressive inflammation. This was, indeed, not demonstrable to the naked eye, but the microscopic examination showed typical tuberculous granulation tissue and commencing necrosis.

291. Spinal Anaesthesia and Blood Pressure.

F. Virgillo (*Arch. Ital. di Chir.*, August, 1923, p. 529) states that writers are not agreed as to the effects of spinal anaesthesia on blood pressure, some maintaining that the influence of spinal anaesthesia on the arterial tension is very slight and transient, while the majority are of opinion that during spinal anaesthesia there may be a considerable fall of pressure which may endanger the patient's life. Virgillo, who made observations on forty cases, came to the following conclusions: (1) Spinal anaesthesia carried out with 2 c.cm. of a 6 per cent. solution of novocain to which has been added a decimilligram of adrenaline per cubic centimetre, and accompanied by subcutaneous injection of 0.25 gram of caffeine, causes a fall of blood pressure ranging from 10 to 20 mm. Hg, and in some cases as much as 100 to 120 mm. The fall of blood pressure is more marked in the case of the maximal than of the minimal pressure. The oscillometric index also shows an almost constant fall. The oscillometric curve assumes the form of a hypotonic or cardiac type. (2) In Virgillo's cases the fall of blood pressure was not accompanied by any general symptoms of an alarming kind. (3) In order to obviate the dangers of the fall of blood pressure caused by intrathecal injection of novocain it is advisable to give subcutaneous injections of caffeine in doses of 0.25 to 0.50 gram two to two and a half hours before the intrathecal injection. If this be done the maximal and minimal pressures and oscillometric index, which fall thirty to sixty minutes after the injection of caffeine, rise again in two hours' time, and the oscillometric curve assumes a definitely hypertonic form. (4) There is no evidence of any definite relation between arterial pressure and intraspinal pressure.

292. Phenolsulphonephthalein as a Test of Renal Efficiency.

Marion (*Le Scalpel*, August 18th, 1923, p. 909) states that Albarran's test of renal efficiency—that is, the quantity of urea eliminated in two hours after ureteral catheterization—requires a further test. A patient who is about to have a nephrectomy may excrete a considerable quantity of urea from the other kidney, and yet that kidney may be insufficient to support life, the apparently satisfactory quantity of urea excreted coming from a concentration of blood urea. These cases are rare, but nevertheless they exist. Marion cites a case of tuberculous kidney: the patient excreted 1.14 grams of urea from the apparently healthy kidney; the tuberculous kidney was removed and the patient died of uraemia; nothing to explain that renal inefficiency could be found. In another case of advanced pyonephrosis of the right kidney (due to calculus) the left kidney excreted 1.54 grams of urea in two hours; but the phenolsulphonephthalein test done at the same time yielded only 13 per cent. of that drug. A blood urea test yielded 1.21 grams of urea. The patient suffered so greatly from sepsis and fever that nephrectomy was done, but anuria gradually supervened and the patient died in eight days from uraemia. As a complementary test Marion thinks that "Ambard's constant" is too delicate and difficult for ordinary purposes, and prefers phenolsulphonephthalein, as he finds that it accords with the "constant" in almost all cases and also permits comparison between the efficiency of the two kidneys. Marion injects 6 mg. of the drug into a vein and collects the urine from each kidney every half-hour. It is unsafe to entrust the specimens to more than one observer as "colour appreciation" varies so greatly in individuals. The author gives numerous examples of the variations of the excretion of the drug in normal and pathological conditions. In a case of unilateral tuberculosis the healthy kidney eliminated 50 per cent. while the other yielded 0 per cent. In a case of renal calculus the healthy kidney excreted 46 per cent. and the diseased kidney only a trace.

It has been said that life in the invertebrate host increased whilst life in the vertebrate host decreased the virulence of the parasite, and again that the absence of true sexual reproduction would weaken the parasite, but we are of the opinion that the virulence of "W" strain is increasing. Temperatures now tend to higher levels than they did a year ago.

In our cases the blood for inoculation has, as a rule, been withdrawn from the host after allowing as many rigors as possible, often after ten rigors, our object being to use blood with as many parasites present as possible, and thus diminish the chances of the inoculation being unsuccessful. The parasites may become more attenuated the longer they are in the body, but on the other hand they may become more virulent owing to the fact that possibly only the fittest may survive.

In one case (No. 5) spontaneous recovery took place. In our experience the most noteworthy features of inoculated malaria are (1) entire absence of relapses, and (2) the promptitude with which the temperature subsides and parasites disappear from the blood on the administration of quinine. These features were pointed out by Wagner-Jauregg; in explanation he suggests that the parasites which reproduce themselves only in the asexual way are less capable of resistance.

In the first patient to be inoculated with the "W" strain, the blood was withdrawn from a patient in the Liverpool School of Tropical Medicine, and after being citrated was placed in a thermos flask which was kept as far as possible at body temperature. The time that elapsed between the taking of the blood and injecting it into the patient in this hospital was two and a half hours. The inoculation was successful. In another case citrated blood was sent from here to Liverpool, and patients were successfully inoculated. Ten days ago we sent some blood to Aberdeen, but at the time of writing the patient does not seem to have developed malaria.

The cases under review in this article were not specially selected; they were at very different stages of the disease, ranging from early to advanced, and showing psychoses of the most varied types. The ages ranged from 21 to 56 years, the former being a case of juvenile general paresis which exhibited some unusual features.[4] In all cases diagnosis was confirmed by the serological findings. Wassermann tests were made on the blood, and on the cerebro-spinal fluids Wassermann, Lange gold, and colloidal gamboge tests were made; in each case the cerebro-spinal fluid was examined for protein and a cell count was made. There has been no difficulty in obtaining the consent of relatives to this method of treatment.

The method of inoculation is as follows: From a vein of a patient who has received a malarial infection an amount of blood varying from 2 to 4 c.cm. was drawn, and about 2 c.cm. injected subcutaneously in the region of the shoulder-blade of the patient to be treated, the needle being moved about a little to cause a slight haemorrhage. In two cases blood was injected intravenously. If the patient to be inoculated could be brought into the same ward the blood was injected as it had been drawn. If this were not possible it was citrated. Blood films were examined in all cases at least once daily, in some others twice daily, and in others every two hours from rigor to rigor. These films have been preserved and may be further inquired into at any time. It has been our experience that once the parasites appeared they were present at all times and increased in number daily until the fever was controlled by quinine in the third week. In several of the cases the blood was taken during an interval free from fever, and from a practical point of view it seems immaterial whether the blood for injection is taken during a paroxysm or not. Where

and for four days after. In all four cases th
failed to develop malaria.

Of 34 cases successfully inoculated with benig
it was noted that the first rise of temperature abo
took place on an average between the ninth
days after inoculation. Parasites appeared be
twelfth and thirteenth days on an average. Th
day on which parasites were found for the first
the fifth day, and the latest on which parasites w
for the first time was the twentieth day.

The length of time we allowed to elapse be
finding of the parasites and the giving of qu
largely determined by the physical state of the
General paralytics seem to stand malaria well.
temperature does not seem to inconvenience the
extent that might be expected. The number of
allowed was usually from eight to twelve, but
number has been exceeded on certain occasions.

It has already been said that one of the featu
promptitude with which the temperature subside
parasites disappear on the administration of quini
is usually no fever after the first dose, and in the
of cases parasites are not found after the second
day. During the past year we have not had a singl
This is contrary to what has been experienced in
ment of malaria in the ordinary way, where t
can be controlled but relapses are frequent. Th
of relapses may be accounted for by the absen
intermediate host and consequently the absence
sexual reproduction, or by the fact that the para
in some way acquire properties, or lose some of t
already had, during the time they are in the b
general paralytic.

While the cases inoculated with quartan malar
a fairly typical temperature chart, those inocul
tertian malaria showed for the most part atypic
the general tendency in these tertian cases seems
while during the first few days of fever the char
fairly typical, in the later stages they become qu
irregular.

To cut short the malaria Wagner-Jauregg advis
bisulphate in doses of 0.5 gram twice daily for t
in succession and then 0.5 gram once daily for
days—a total of 10 grams. Our first few cases w
quinine in total amounts varying from 32 to 48 g
in these cases the administration of quinine was
for about two months, although the parasites di
from the blood in a day or two after treatment b
was begun. From Case IX onwards, however,
found that a total of 2 grams of quinine sulph
for three days produces an equally good result.

In one case instead of quinine we gave 0.15 g
arsenobenzol, and next day an examination of b
did not reveal any parasites, although a few hou
the giving of the neosalvarsan there were on a
51 per 100 microscope fields (1/12 inch). Con
with the quinine treatment weekly doses
arsenobenzol, novarsenobillon, or silbersalvarsan
given in 17 of the cases. Six doses have usually b
—0.3 gram, 0.4 gram, and four of 0.6 gram.

The following cases present features of unusual i

CASE I.

E. M., male, aged 37. Admitted July 11th, 1922.

History.—Patient served in the army during the wa
discharged as unfit in November, 1916, after having bee
in the head by a fragment of shell. He subsequently re
employment and was able to work until May 9th, 1922
attracted the attention of his fellow workmen by an
outburst." On admission he was mentally confused and
give a satisfactory account of himself. He was disori
time and place, and at times became lacrymose for

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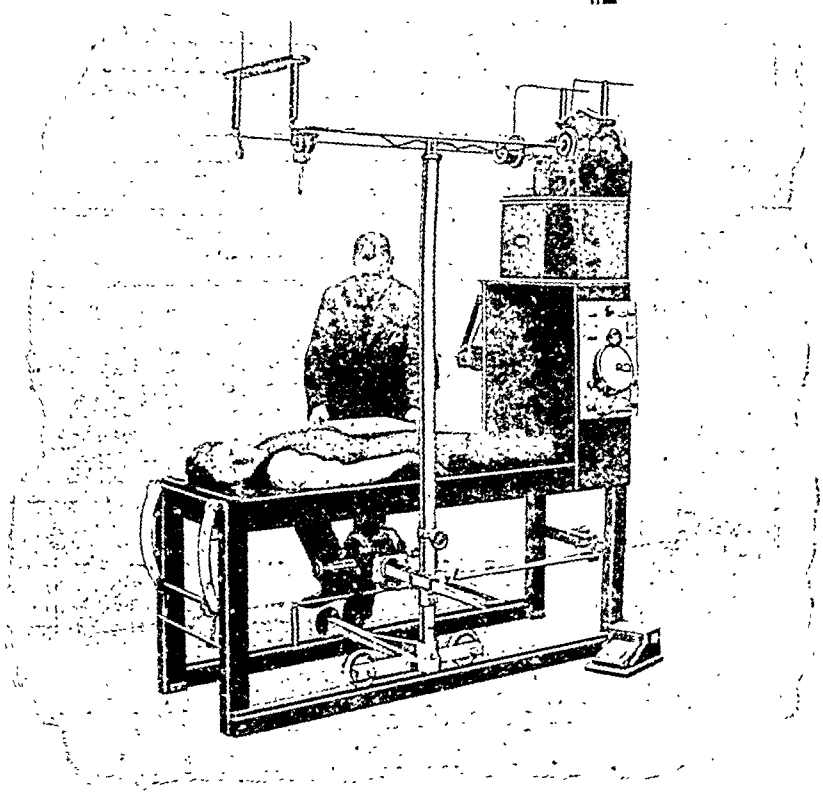
HUMAN
TO USE
THEY HAVE HAD NO PREVIOUS EXPERIENCE IN RADIOGRAPHY.



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while, on the other hand, these factors in themselves may each suffice to produce a condition of "nervousness." In the case of rheumatic chorea the cause is demonstrably organic.

It is obviously desirable and very important that diagnosis should be exact as to the condition present, and as to the primary cause. The term "chorea," however, as generally used is a comprehensive one. Commonly associated symptoms are those already mentioned—namely, nervousness, lack of control, spasms—and with these frequently "turns," or "faints," or "fits," and mental peculiarity. A large proportion of such cases is diagnosed chorea. Under this term in addition to cases of Sydenham's chorea undoubtedly occur cases of excessive fidgetiness and cases of habit-spasm. Both these conditions are sometimes very hard to diagnose from true chorea. Sturges remarks that there is *no* sharp division between the movements of mild chorea and of excessive fidgetiness, and Still writes of some cases which he diagnosed as "?Chorea ?Habit-spasm." But with care and accuracy in examination such doubtful cases are very uncommon. The fact remains, however, that a considerable number of children suffering from excessive fidgetiness or from habit-spasm are designated choreic, and for present purposes I would include in one group (Group 1) children designated "choreic" and whose condition falls within the category of these three conditions.

There is, however, another, and though a very much smaller yet a very important, group of cases which occurs under the designation "chorea." In this minority group are cases of encephalitis, epilepsy, and mental defect (Group 2). In still other conditions choreiform movements may at first confuse, but the diagnosis should quickly be clear on careful observation. Such are cases of "cured" meningitis, of cerebral tumour, and of birth injury. An inco-ordinate peripheral paralysis may be mistaken for a paralytic chorea, but in such a case also a correct diagnosis should quickly be reached.

But in connexion with the conditions mentioned under Group 2 the difficulties in diagnosis are often much greater. The child who has suffered from encephalitis may lack a definite history of the original illness. These are "nervous" children who display abnormality of conduct, of the nature of excessive naughtiness of healthy children. There is obvious lack of nervous control, and sometimes tremor and rigidity. Alfaro[1] considers that, just as Sydenham's chorea is due to the virus of acute rheumatic infection, so there is a form of chorea due to the virus of encephalitis lethargica. It is too soon as yet to tell the possible degree of recovery in the mental condition of these children. There is, however, no doubt that re-education without strain and in healthy environment is essential, and the experience of teachers is, in many cases, hopeful.

In cases of children in which a suspicion of epilepsy arises accurate diagnosis is often of extreme difficulty. In some of these children convulsions occur only after emotional excitement; the children are "nervous" and excitable, and habit-spasms are common. In others the mental hebetude produced by epilepsy is very similar to that which often persists for long in the choreic child. History is particularly liable to be inexact in connexion with a condition such as epilepsy, and the fact remains that a small number of cases of epilepsy are at first labelled "nervous" or "chorea." Choreiform movements are common among mentally defective children. The important point in diagnosis is recognition that the "chorea" is merely a symptom occurring in a mentally defective child.

TREATMENT.

Cases of "nervous" children, when considered from the standpoint of the diagnosis of chorea, have hitherto been

tunities for examination permit of accurate dia each individual case, and consequently mark more c necessary line of treatment. It is from the point o institutional treatment that the two Groups 1 an been defined.

Twenty-five years ago Sir Robert Jones and D Macalister were largely instrumental in found Country Hospital for Children at Heswall, whic amalgamated with the Royal Liverpool Children's Liverpool. The object of the hospital was the children requiring prolonged treatment in the cou within the hospital was developed a school. Du years that have elapsed since the foundation, the of the founders has won widespread acceptation a nition. Complete orthopaedic work under a ma revolutionized a branch of surgery, and has taught to physicians in their own sphere. The founder hospital recognized no less the potentialities here cine, in the directions both of prophylaxis and peusis. A large number of the children admitte medical wards are cases of a nervous type, and fallin the category of "chorea" as here alluded to. Th material is rich and the types varied. Observa study demonstrate striking points.

This communication is based primarily on a stu cases. Of these, 53 were private cases seen in within recent years, and 141 were cases of old pa the hospital—some of them patients so long as fift ago—whom I have been enabled to follow up. mission to investigate these latter cases I am ind the generosity of Dr. Macalister, and the valued a of members of the Child Welfare Association. The ing 123 cases were recent hospital cases of my own.

My experience leads me to emphasize certai which seem to corroborate the validity of the pres of care of these cases.

The first outstanding feature in the private cas importance of heredity. In 60 per cent. of these c was a marked neuropathic heredity. The next feature was improper feeding and disturbed digest this may be noted usually absence of sign of an endocrine dysfunction. Preceding and at the puberty these well-to-do children are the subject attention and examination. The whole question of is thoroughly investigated and arranged with stud and with a view to the later work of life. In so the wisest course is roughing it with his fellows, but others restrictions and special courses are necess is particularly the period when moral neuroses may not only sexual, but petty theft, causeless lying, et ever course is adopted, constant, wise, non-me observation is necessary.

How is it with the child of the hospital c regards immediate treatment, for this nervous " child, when of doubtful type, such a hospital as Heswall affords accommodation impossible to ob hard-worked city hospital which has perforce to acute cases. In the Country Hospital he is retai an accurate diagnosis is made. The question th Is he a suitable case for prolonged treatment, occupying a bed which could be filled to better ad It is here that justification for Groups 1 and 2 although there can be no absolutely fixed dividing

Members of Group 2 are, with few exceptions, u On the other hand, members of Group 1 are mos as inmates for such a hospital, if on full exa hospital treatment is advisable at all. When an diagnosis has been made, prolonged treatment bring about cure—otherwise almost impossible. In to ordinary medical and nursing care these patien

numerous observations which I have made on the subject. Meantime, this much I know, and would here proclaim to all, that the blood is transfused at one time in larger, at another in smaller quantity; and that the circuit of the blood is accomplished now more rapidly, now more slowly, according to the temperament, age, etc., of the individual, to external and internal circumstances, to naturals and non-naturals—sleep, rest, food, exercise, affections of the mind, and the like."

But many years had to elapse before we could give a quantitative expression both to the amount of blood under normal conditions and to its variations, and explain the manner in which these variations are brought about. The Rev. Stephen Hales, second only to Harvey as an experimental physiologist, has only calculations based on measurement of the dead organ. The determination of the output in the living animal was first made in our own times, and it is only within the last ten years that methods have become available which reveal in man himself the quantity of blood leaving the heart in each unit of time, and therewith enable us to estimate the total work of this organ. Such methods have been devised by Krogh and by Haldane. If we accept the results of the former, we may say that in a normal man at rest each cavity of the heart expels about 4 litres a minute. During violent exercise, when, as we know, the requirements of the body for oxygen may be increased tenfold, this quantity rises to 24 or even to over 30 litres a minute. These figures convey only imperfectly the enormous rush of blood which is being effected by the heart under these conditions. An ordinary laboratory tap will deliver nothing like 30 litres minute; to obtain this amount it is necessary to have recourse to a large tap such as that which is supplied to a bath. It means that the whole blood must pass through the heart and round the body every ten seconds and complete the circulation of the body six times in every minute. And it must be remembered that the heart is putting out this colossal amount of blood against an arterial pressure which is higher than normal and which may amount to 150 to 180 mm. Hg, as against the 100 to 110 mm. which is the ordinary systolic pressure in the arteries of a resting individual.

We see, therefore, that the heart has a marvellous power of adapting its work and its performance in accordance with the needs of the body as a whole, and is fully deserving of the feeling of respectful admiration which inspires Harvey to speak of it as "the sun of the microcosm," "the household divinity," "the foundation of life," "the source of all action."

Its Power of Adaptation.

To search out the intimate character of this power of adaptation is a problem almost as enthr[illegible] heart the demonstration of the circulation [illegible] to show that the increased output of blood [illegible] increased during exercise is simply an expression of [illegible] that inflow into this organ, the heart being so constituted that under normal conditions it will send on into the arteries all the blood that flows into it from the veins. Harvey probably had some inkling of this power when, in speaking of the action of the auricles, he ascribes to them the property of exciting a stronger contraction on the part of the ventricles, comparing the latter to the tennis player who can strike more forcibly and further if he takes the ball on the rebound.

In the intact animal a large number of processes, nervous as well as chemical, are involved in the increased action of the heart during muscular exercise. By the action of the central nervous system and of other physiological processes involved, the strain thrown on the heart is minimized, so that it can effect the increased work with the greatest possible economy of effort. But the intimate character of this power of adaptation is only fully displayed when we cut away these protective mechanisms which are normally shielding the last citadel of life, and study the reaction of this organ when it is entirely isolated from the central nervous system and is reduced to the condition of a muscular pump with valves, working rhythmically and steadily in virtue of its own automatic powers.

We can make a "heart-lung preparation" in which, the lungs being retained in connexion with the heart, the blood passing through this organ is kept properly aerated. The systemic circulation is, however, replaced by a system of elastic tubes passing to a venous reservoir, in which we can vary at will the inflow of blood into the heart, the arterial pressure (and therewith the resistance to the expulsion of blood from the left ventricle), and the temperature of the blood supplying the heart, while we can measure the pressures at any moment of time in all the cavities of the heart as well as the changes in volume of this organ. In such a preparation we find that, within very wide limits, the output of blood corresponds exactly to the inflow. Whatever is supplied to the heart on the venous side is expelled by it on the arterial side. And again, within very wide limits, whatever is the resistance to be overcome in the arteries, so long as we keep the inflow of blood constant, the output of blood by the left ventricle remains unaltered whether the pressure in the aorta be 40 or 200 mm. Hg.

We know now that the energy for all vital movements is derived immediately from the food, and in each tissue from the oxidation of the constituents of the tissue or of the blood circulating through it. It is possible in such an isolated heart to measure its respiratory exchanges and therewith the extent of the oxidative processes responsible for the energy of the heart's contraction. We then find that the amount of oxygen taken in by the heart and converted for the most part into carbonic acid is proportional to the amount of work that the heart is set to do. The isolated heart is like the whole man—the harder he works the greater are his respiratory exchanges. I am accustomed to compare the heart with an ideal motor car which, without action on the part of the driver, would automatically admit more petrol and air when the resistance to the movement of the car increases—as, for instance, in going uphill.

The Law of the Heart.

The heart has thus the power of automatically increasing the chemical changes and the energy evolved at each contraction in proportion to the mechanical demands made upon it, behaving in this way almost like a sentient and intelligent creature. But the cause of this power must lie in the muscular walls of the heart itself, and a study of the conditions under which it occurs and the concomitant changes in the heart has revealed the secret of its wonderful power. The solution is simple. We find that, in the isolated heart, every increased resistance to its contraction is associated with an increased diastolic volume of the cavity or cavities, which have to overcome the resistance. Putting the matter in another way, we may say that the larger the diastolic volume of a given heart, the greater is the force of the contraction which immediately ensues. The energy of contraction is therefore a function of the diastolic volume of the heart. Dilatation of this organ is not merely a pathological phenomenon, but is the means by which the heart achieves its purpose, and maintains an activity which varies with the needs of the organism for more or less blood.

In this relation we find also the secret of the power of compensation, such as occurs in cases of valvular disease and has been always a puzzle to pathologists. Injury, for instance, to an aortic valve, with the production of regurgitation, causes increased filling of the left ventricle at the following diastole, since this receives blood not only in the ordinary way from the pulmonary veins and left auricle but also by a reflux through the damaged valve. The dilatation invokes an immediate increase in the force of the contraction, so that within a few beats the left ventricle sends on into the aorta the total amount of blood flowing into it during the preceding diastole, and the aorta receives sufficient blood not only to supply the body, but to make up for the amount leaking back through the damaged valve. The same reasoning applies to the compensation which occurs for any valve lesion, whether it be of the nature of a leak or of a stenosis, increased filling or increased resistance and in an otherwise healthy individual constant increase in work has as a secondary result increased growth and hypertrophy of the cardiac muscle, so as to make it fit to meet the abnormally increased demands throughout life of the individual.

Quinquennia.	Acute Pericarditis per 100 rheumatic In-patients.
1870-74	13.57
1875-79	10.96
1880-84	12.07
1885-89	9.18
1890-94	13.18 (?)
1895-99	10.90
1900-04	9.53
1905-09	4.88
1910-14	5.09

(From *St. Bartholomew's Hospital Reports*, vols. viii-lii.)

The figures for the later years tally with those I have obtained from the St. Thomas's Hospital reports, which show about 5 per cent. of pericarditis in rheumatic in-patients. The Guy's Hospital figures (Sandison) for the decade 1900-1910 are 7.7 per cent. (St. Bartholomew's for the same period are 7.20).

I think, therefore, that there is small doubt that the incidence of acute pericarditis, the second most serious rheumatic manifestation, is falling. It would be interesting to know what is happening to the death rate from rheumatism, including rheumatic heart disease, in the country. Unfortunately the Registrar-General's returns do not permit of these figures being known with accuracy.*

Still we may at least say that some progress has been made, and it would seem probable that it is to clinical work rather than to public health administration that we attribute what improvement has occurred. It appears to affect the severity rather than the frequency of the disease, and this suggests that earlier diagnosis and more efficient treatment have been the factors responsible for the improvement.

Take what comfort we may from these considerations, there is not one of us here that is not profoundly dissatisfied with the rate of progress made, for rheumatism still remains one of the great serious infections of our land. What are the factors that tend to hinder us in dealing with this disease more successfully? They are numerous. We are hindered by lack of knowledge in some particulars, by lack of decision born of controversy in others, and (must I not add?) by a sensation of apathy due to familiarity with the disease. These are the matters we are to discuss to-day, and as they are so numerous, I venture to suggest that we might keep our thoughts the better in order by considering them under three headings, in each case referring to the problems of etiology and treatment:

1. The problem of the rheumatic infection.
2. The problem of heart disease in the rheumatic subject.
3. The problem of chronic cardiac insufficiency in rheumatic heart disease.

THE PROBLEM OF THE RHEUMATIC INFECTION.

As I have already said, the whole question of heart disease in early life is bound up in the problem of the rheumatic infection itself. This is the fundamental matter. I start with it, and I hope in our discussion we shall not shirk this, the most important question of all.

The modern view of rheumatism is that it is a special or specific bacteriaemic infection, working by repeated recrudescences and reinfections, and producing no sort of immunity against itself.

* Dr. R. Dudfield has kindly supplied me with the following figures from the Registrar-General's returns for the London area. They refer only to cases between the ages 5 to 15 years. They show the average annual mortality from (1) rheumatic fever, and (2) heart disease, and the mortality rate per 10,000 inhabitants. Triennia round the census years have been studied. The figures for heart disease include "pericarditis" and "endocarditis, valvular disease," but no exclusion of non-rheumatic cases is possible.

Perhaps the only point that I need refer to in th is the claim that rheumatism is a "specific" infecti is becoming increasingly difficult to define what w by this phrase, but I mean by it here neither more than this—that the rheumatic infection produces a condition so clear-cut and differentiated that it m due (if an infection at all) to one type or strain of organism. Bacteriologists often speak as though were no true disease "rheumatism," but we canno this. To see the infection at work in case after case, ducing the same clinical picture again and again, i sure of our contention. Difficulties may arise in di from time to time: we may have to think of scar rheumatoid arthritis, malignant endocarditis, fib erythema nodosum, peliosis rheumatica (so called), the centre, as it were, there is a clear-cut entity re itself in hundreds of cases, which is rheumatism. more than one case out of a hundred is there any and to-day we are concerned with the ninety-nine researches into the histopathology of the disease s ously conducted by Dr. Carey Coombs, while they the bacteriaemic character of the infection, amply s *its specific or special nature.*

I pass now to consider the main difficulties that h to be met in dealing with this disease.

1. *Rheumatic Environment.*

I do not think anything hampers us more than o of certain knowledge in connexion with the rhe environment. What is the link connecting rheumati poverty? Is there any truth in the traditional asso of rheumatism with damp houses?

Shortly before the war I was able, by private a ment, to trace many of the cases of rheumatism in P ton. The housing conditions were reported to me, times by amateur visitors, sometimes by the visitors ing for Dr. Dudfield, the medical officer of health. was a great uniformity in the reports as to the da of the houses; many cases came from *basements*, wh found wet walls, mildew under the oilcloth, even concrete foundations,* and so forth. How these compared with others in the district I do not know, war put an end to my investigations; but when o known, as I have, of three families occupying in suc the same basement, and the children of each i developing rheumatism, it makes one think that the must be of importance.

This is a public health question, and should be the appointment of some small committee of investi We do not need inquiry into thousands of cases, bu tailed investigation of the home circumstances of a h or so instances. Only severe cases, and preferabl attacks, should be included. These could easily be through hospitals, and it might, perhaps, be best f an investigation to be undertaken in one of the provincial cities, so as to keep the cases to a smalle than London.

If we were sure of our facts and knew what we to do, to make rheumatism notifiable might be o service; but let us have the facts first and notifica advisable, later.

2. *Education of the Public.*

We are hampered in our efforts to get hold rheumatic child as early as possible by the ignora the public, which still holds that rheumatism does no in childhood. To call attention to the dangerous fre of the disease I should hesitate to suggest any great ganda movement such as we have seen in connexio tuberculosis, leading to such inordinate expense an remarkably poor results. By going more steadily achieve much in these directions. The parents of rhe

muscle to the auriculo-ventricular node, and then passes rapidly through the bundle of specialized muscular tissue, known as the A-V bundle, to all parts of both ventricles. We have in this bundle an interesting example of a muscular tissue differentiated to serve the propagation of excitation rather than for contraction, so that it closely resembles nerve in the manner of its function. To the same fine and careful experimenter we owe the explanation of one of the commonest conditions of the diseased heart —namely, auricular fibrillation or delirium, which is responsible for the irregular ventricular contractions, often leading rapidly to exhaustion and failure of the heart. It is remarkable that the clue to the explanation of this condition was first given by the observations of Romanes on the contractile tissue of jellyfish, which by its rhythmic pulsation propels these graceful animals through the sea-water. It was shown by Mayer for the jellyfish and by Mines for the frog's heart that it was possible to obtain a ring of contractile tissue in which a wave of contraction passed continuously round the ring, and the merit of Lewis's observations is the proof that delirium is of the same nature as this circus movement, so that the contractile wave continually progresses over the muscular tissue, exciting each part in turn but in a completely inco-ordinate fashion. It was long ago shown by Marey that the rhythmicity of the heart was bound up with the prolonged refractory period affecting the heart muscle after its contraction, during which period it was insusceptible to any form of excitation. Lewis has shown that the [illegible]us movements which are responsible for fibrillation [illegible] due to a disturbance in the normal relation between [illegible] rate of conduction of the excitatory process and the [illegible]ractory period in the heart muscle. Thus instead of an [illegible]derly progression of impulses from one node to the next [illegible] so to the auriculo-ventricular bundle and ventricles, every individual fibre is contracting rhythmically but independently of what is happening in its surroundings.

The Central Nervous System and the Heart.

Time will not allow me to deal with the manner in which the heart, already so perfect as it would seem in its power of adaptation, is controlled by the central nervous system, so that the adaptation to changes in the environment and to the needs of the most distant parts of the body can be carried out with greater perfection and with the least possible drain on the energies of the heart muscle. Among such adaptations must be included those attendant on the emotions—"every affection of the mind that is attended by either pain or pleasure is the cause of an agitation whose influence extends to the heart." But indeed, Harvey's treatise, being the foundation of modern physiology, might serve as a text to a commentary, from which but little of our present-day knowledge of the organs of the body could properly be omitted.

I should like, however, to be permitted to allude to another chapter in modern physiology, which can be said to have grown out of Harvey's discovery of the circulation of the blood, and which is becoming every day of increasing importance.

Hormones.

In the dedication to his work Harvey compares the heart to the sovereign king, and throughout he continually recurs to what we should now describe as the "integrative function" of this organ. In virtue of the circulation which it maintains, all parts of the body are bathed in a common medium from which each cell can pick up whatever it requires for its needs, while giving off in return the products of its activity. In this way each cell works for all others—the lungs supply every part with oxygen and turn out the carbon dioxide which they produce, the alimentary canal digests and absorbs for all, while the kidneys are the common means of excretion of the soluble waste products of the body. Changes in any one organ may therefore affect the nutrition and function of all other organs, which are thus all members one of another. But, in addition to enabling this community of goods, the circulation affords opportunity for a more private intercourse between two or at any rate a limited number of distant organs.

It is now eighteen years since I drew the attention of this College to the chemical messengers or hormones which are employed by the body for this purpose. As an illustration of the method by which they work, I adduced the example of carbonic acid gas, which is the product of all cellular activity and at the same time has a specific excitatory effect on the respiratory centre, so that the respiratory movements keep pace with the needs of the whole body for oxygen. The typical hormone, however, is a drug-like body of definite chemical composition, which in a few cases is actually known, so that the substance has been synthesized outside the body. It is more or less diffusible and may even withstand without alteration the temperature of boiling water. It is generally easily oxidizable in a neutral or alkaline medium, so that after its production it does not remain long in the blood; it delivers its message and is then destroyed. Each specific hormone is manufactured by a group of cells and turned into the blood, in which it travels to all parts of the body, but excites definite reactions in one or a limited number of distant organs. The production and action of these substances are continually going on in the normal animal. They are necessary to health and their production in excess or in deficit give rise to disease and maybe to death. Typical of these substances is secretin, a substance produced in the epithelial cells lining the upper part of the small intestine when these come in contact with weak acid, so that it is produced in normal circumstances by the passage of the acid chyme from the stomach into the duodenum. Directly it is produced it is absorbed into the blood and travels round to the pancreas, to the liver, and to the intestinal glands, in all of which it excites secretion. By means of this chemical reflex the arrival of the products of gastric digestion in the small intestine evokes within a couple of minutes the secretion of the three juices whose co-operation is necessary for completing the work of digestion and solution of the food already begun in the stomach. It is probable that this mechanism is but one of a whole chain of chemical reflexes responsible for the orderly progression of the various stages in the digestion of food.

These hormones may apparently be formed by any kind of tissue. In many cases a gland which has, in the evolutionary history of the race, poured its secretion by a duct into the alimentary canal or on to the exterior, loses its duct and becomes a ductless gland, the secretion being now transferred either immediately or through the lymphatics into the blood stream. In either case these chemical messengers may be formed from masses of cells which have at no time had a glandular structure and may be modified nervous tissue, germinal tissue, or some part of the mesoblast.

The Thyroid.

As a type of the ductless gland derived from one with an external secretion the most familiar example is the thyroid. The physiological action of its internal secretion and the morbid results of its excess or deficiency, affecting tissue growth and development, metabolism and mentality, are familiar to all. In recent years the active substance has been actually isolated, and its constitution determined, by Kendal, who has shown that it is an iodine derivative of an amino-acid, tryptophane. It seems almost a fairy tale that such widespread results, affecting every aspect of a man's life, should be conditioned by the presence or absence in the body of infinitesimal quantities of a substance which by its formula does not seem to stand out from the thousands of other substances with which organic chemistry has made us familiar.

The Sexual Hormones.

But although we do not yet know their constitution, the chemical messengers associated with the reproductive organs are possibly even more marvellous in the influence they exert on the different parts and functions of the body. The effects of castration have been the subject of observation almost from the beginnings of civilization, but it is only during the

regurgitation or pericardial adhesions, but of which the most characteristic feature is the greatly diminished power of recovery in the heart muscle.

How do such cases arise? The first and most obvious thought is that they are our failures—the infection has beaten us. This brings me to the first question for discussion: Is it infection or mechanical strain that has done the harm? I believe it is infection rather than exertion every time. Lack of rest may predispose to further cardiac infection, but the heart of a child never breaks down by mechanical strain alone; always there is reinfection. Therefore we must look upon these cases of chronic heart crippling as the result of repeated infections. Herein lies the importance of the problem I have already emphasized—the source of these recrudescences and reinfections.

In the face of such difficulties what can be done in the way of preventing and treating chronic cardiac insufficiency?

1. *Salicylate Therapy.*—Once the heart is hopelessly damaged and the patient in a condition of chronic rheumatic toxaemia the action of salicylate is, as I have already said, disappointing. Nevertheless I believe it to be true that the more freely and persistently we use salicylate in the earlier rheumatic attacks, the less often shall we be faced with these dreadful failures. My own practice in these chronic toxic cases is to continue small doses (60 grains daily) in the hope of preventing fresh activity on the part of the infection, and to give double that dose for a few days at a time if the temperature appears to be mounting. I am aware that it is said that to persist in the use of the drug is to render it inoperative, but when I recall all the antisalicylate views that have been expressed in the past, I do not feel called upon to regard this statement as necessarily true. For my own part I believe that, although the persistent use of salicylate helps but little in getting rid of the last symptoms of rheumatic activity, yet it does help to prevent recrudescences of that activity. I feel the responsibility of omitting salicylate is far greater than that of ordering it.

2. *Cardiac Drugs.*—Drugs of the digitalis group play but a small part in connexion with the heart disease of young people. In the presence of active rheumatic carditis they are of no avail; in its absence they are seldom indicated. Occasionally they may be beneficial, used on the same lines as in the heart disease of older people.

3. *Vaccine Therapy.*—In spite of recent reports with *S. viridans* from America I cannot think that this line of treatment is very hopeful. It has been extensively tried in this country, and even at the time when vaccine therapy was so much more fashionable than it now is, the reports were conflicting and mainly disappointing. The reasons are not far to seek. The chronic cases, such as we are now considering, are for the most part far too toxic and too ill to react to inoculation treatment. But even used as a prophylactic, is it likely to be of value? I think not, for if we know anything about the rheumatic infecting organism it is that it fails to produce in the human subject any immunity against itself.

4. *Tonsillectomy.*—In the earlier attacks of rheumatism with carditis I believe tonsillectomy to be the correct treatment where the tonsils are obviously diseased, and I do not hesitate, if the condition of the heart permits, to recommend operation where the temperature refuses to settle down. I have never had cause to regret such a decision, although on theoretical grounds it would seem possibly dangerous; on the contrary, the results are often extremely gratifying, the temperature showing a quick return to the normal. In later cases, where the toxicity is extreme and persistent, there is seldom a chance of removing the tonsils owing to the condition of the heart. I have already said that tonsillectomy at this late stage [illegible] recrudescences and reinfections.

blood will give us assistance in getting rid of smould rheumatic infection I cannot say, as I have had no e ience of it in this condition. I think it might be worth a trial, as I feel it might turn the scale in patient's favour.

6. *Régime.*—At the present time the best that s available for these cardiac cripples is prolonged treat under a régime partly that of a hospital and partly convalescent home. There are some here to-day who given much time and thought to this subject, and I to them to tell us of their experiences in our discus I shall not do more than try to sketch the principl the treatment and to enumerate the various alterna before us.

The one great object which we have in view is to pre fresh rheumatic activity. In the absence of this the h will gradually right itself as far as the previous dar done to it will permit. As regards rest, I think most will agree that prolonged and strict rest is ne necessary nor advisable. The essentials of this lin treatment would therefore seem to be: (*a*) prolonged rather than strict rest; (*b*) correct hygiene; (*c*) close n cal observation and opportunities for strict treatme necessary; (*d*) some facilities for education.

The possible ways by which such treatment can be ca out for long periods are not very many:

Hospitals.—The pressure on hospital beds renders an impossible scheme even were it practicable on grounds.

Ordinary Convalescent Homes.—Even were these r to take heart cases we could not recommend for this pu these homes as at present run. The ordinary convale home in the country or at the seaside is too happy lively a place for the chronic heart case. I think physicians have quite given up sending such cases to valescent homes even where they will be accepted.

Hospital Convalescent Homes.—Many children's hos finance and manage their own convalescent homes there these cases do well. The children are admitted full instructions for treatment, they are visited by who have seen them when at their worst, and the p hospital is ever ready to readmit the case should nece arise. The length of the patient's stay sometimes p strain on the management of the home, but on the this is a satisfactory arrangement except for the la educational facilities.

Special Heart Homes.—In many ways special h would constitute the ideal way of treating these cases, I am glad to say that at last some such homes have opened and more are in the process of being pla Such homes should be within touch of the hospitals, I fear that there is no doubt that every large city fill a home of this sort. Difficulties seem to have a concerning the provision of educational facilities, but should not be insuperable. The chief disadvantages o scheme of providing special homes for heart cases seem to be that they must always be costly to run other cases are admitted, and the long delay before supply of such homes can be adequate. It has taken than ten years, to my personal knowledge, to get the h now available; and I am not without hope that we be able to prevent these cases more quickly than we be able to provide for them at the present rate of pro

Special Beds in Convalescent Homes and Country pitals.—I think much might be done, and without u delay, by the setting aside of special beds in the exi convalescent homes and country hospitals. It has suggested that chronic heart cases might well be tak conjunction with surgical cases of tuberculosis. In groups there is the same need for prolonged treatmen much rest and for a certain amount of education a some time. If the governing bodies would be co

If iodine be entirely absent from the drinking water and the soil, so that it is not contained even in minute quantities in the vegetable food grown in the district, the thyroid undergoes hyperplasia—in a vain endeavour to make bricks without straw, to produce its proper hormone without iodine. This seems to be the cause of the great prevalence of simple goitre in certain districts—especially in Switzerland and in parts of the United States. It has been shown that goitre can be practically eliminated from these districts by the occasional administration of small doses of iodine or iodides (Marine, Lenhart, Kimbull and Rogoff). These results were communicated in 1917 to Dr. Klinger of Zürich, and as a result of his experience the Swiss Goitre Commission has recommended the adoption of this method of goitre prevention as a public health measure throughout the entire State. Already great progress has been made in the abolition of this disease from the country. Thus the incidence of goitre among all the school children of the canton of St. Gallen has been reduced from 87.6 per cent. in January, 1919, to 13.1 per cent. in January, 1922.

II.

Where a disordered condition is due to diminished production of some specific hormone we may extract the hormone from the corresponding gland or tissue in animals. It is characteristic of these hormones that, so far as we know, they are identical throughout all the classes of vertebrates, and it is possible that they may be found far back in the vertebrate world. This method is easy when, as in the case of the thyroid, the active principle is stored up in the gland and is unaltered by the processes of digestion, so that we can obtain all the curative effects of the hormone if we administer dried thyroid by the mouth. We have no evidence that any other of the hormones with which we are acquainted partake of this resistance to digestion, so that to produce their specific effects they have to be introduced by subcutaneous injection—a great drawback when the administration has to provide for the constant presence of a small concentration of the hormone in the blood and tissues. In the case of insulin, for instance, it seems necessary to repeat the injection every twelve hours to obtain any continuity of action, and the same thing probably applies to the pituitary extract, while in the case of the genital hormones no reliable effect has been obtained except by the actual implantation of the organ from an animal of the same family.* We may, however, look forward to the day when the chemical constitution of all these hormones will be known, and when it may be possible to synthesize them in any desired quantity. We may then be able to overcome the inconvenience of subcutaneous injection by giving relatively colossal doses by the mouth, or we may be able to modify their constitution to a slight extent so as to render them immune to the action of digesting fluids without affecting their specific action on the functions of the body.

III.

The ideal, but not, I venture to assert, the unattainable, method will be to control, by promotion or suppression, the growth of the cells themselves whose function it is to form these specific hormones. Though this method seems at present far from realization the first steps in this direction have already been taken. It must be remembered that the power of controlling growth of cells involves the solution of the problem of cancer. Here the experiments on the growth of normal cells outside the body have shown that they can be stimulated to vie with cancer cells in the rate of their growth, or can be inhibited altogether according to the nature of the chemical substances with which they are supplied. And we know that the growth of certain cells, such as those of the mammary gland or of the uterus, is excited by specific chemical substances produced in the ovary or foetus; and we may be able to find specific substances or conditions for any tissue of the body which may excite growth which is retarded, or diminish growth when this is in excess. It may be that in some cases purely mechanical interference will suffice. Thus in experiments by Steinach and others it has been found that ligature of the vas deferens close to the testis, while causing atrophy of the seminiferous cells, brings about overgrowth of the interstitial cells, which, as we have seen, are chiefly responsible for the hormones determining the secondary sexual characters. Among these secondary sexual characters must be classed the whole of a man's energies. Virility does not mean simply the power of propagation, but connotes the whole part played by a man in his work within the community. As a result of this hypertrophy these authors claim to have produced an actual rejuvenation in man, and thus to have warded off for a time senility with its mental and corporeal manifestations. Further experiments and a longer period of observation are necessary before we can accept these results without reserve, but it must be owned that they are perfectly reasonable and follow, as a logical sequence, many years' observations and experiments in this field.

It would indeed be an advantage if we could postpone the slowly increasing incapacity which affects us all after a certain age has been passed. Pleasant as it would be to ourselves, it would be still more valuable to an old community such as ours, where the arrival of men in places of rule and responsibility coincides as a rule with the epoch at which their powers are beginning to diminish. The ideal condition would be one in which the senile changes affected all parts of the body simultaneously, so that the individual died apparently in the height of his powers. For it must not be thought that in any such way we could prolong life indefinitely. Pearl has pointed out that if all the ordinary causes of premature death were eliminated, this would increase the average duration of life by not more than thirteen years. On the other hand, he shows that the children of long-lived parents have an expectation of life which is twenty years greater than that of the average individual.

It is evident, then, that if longevity is our goal it is not medical science we must look to but eugenics, and I doubt whether the question is one with which we are concerned. The sorrow of life is not the eternal sleep that comes to everyone at the end of his allotted span of years, when man rests from his labours. It is the pain, mental and physical, associated with sickness and disability, or the cutting off of a man by disease in the prime of life, when he should have had many years of work before him. To us falls the task of alleviating and preventing this sorrow. In our childhood most of us learnt that suffering and death came into the world through sin. Now, when as physicians we stand on the other side of good and evil, we know that the sin for which man is continuously paying the penalty is not necessarily failure to comply with some one or other of the rough tribal adjustments to the environment, which we call morality, but is always and in every case ignorance or disregard of the immutable working of the forces of Nature which is being continually revealed to us by scientific investigation. In spite of the marvellous increase in knowledge, to some aspects of which I have drawn your attention, suffering is still widespread amongst us. Only by following out the injunction of our great predecessor—to search out and study the secrets of Nature by way of experiment—can we hope to attain to a comprehension of "the wisdom of the body and of the understanding of the heart," and thereby to the mastery of disease and pain which will enable us to relieve the burden of mankind.

* In my Croonian Lectures in 1905 I reported some experiments made in conjunction with Dr. Lane-Claypon, in which I had produced hypertrophy of the mammary glands in virgin rabbits, and in some cases actual milk production, by the daily subcutaneous injection of the filtered watery extract of young rabbit foetuses. Similar results were obtained by Fox. But a weak point in these experiments was that the ovaries had not been previously extirpated. Ancel and Bouin have shown that in the rabbit the mere rupture and discharge of a Graafian follicle, with the subsequent growth of a corpus luteum, are sufficient to cause hypertrophy of the mammary glands (the effective hormone presumably having its seat of manufacture in the luteal cells). It seems possible, therefore, that the effect of our injections may have been on the ovaries, and that the growth of the mammary glands was only a secondary and indirect result. I do not therefore now regard our experiments as conclusive.

or repeated sore throats, and of these no case developed heart disease when under observation and care; 41 had had chorea, either alone or with acute rheumatism, and 16, or 39 per cent., developed heart lesions. In children a rheumatic history was obtained in a majority of cases of heart disease, and as in no one of these 24 rheumatic cases did heart lesions arise when they were cared for, it would appear that prevention had been secured. But the care of the child with a nervous manifestation of the disease—namely, chorea—was found to be much more difficult to control. That was a clearly defined part of the problem. Through school examination these cases could be located. It would appear that some good could be done to them, and no doubt much useful information could be gained regarding the natural history of the disease by systematic investigation. The Chief Medical Officer of the Board recognized this, and had recommended examination, re-examination, and special school where necessary.

The third group, the slightly affected child, presented the same problem—namely, the prevention of reinfection or recrudescence of the disease. Dr. Allan did not propose to go into details of method; more information on many points was wanted, much of which was no doubt available if the facts of many workers could be collected and sifted. They wanted to know definitely the habitat of the organism. They wanted to know the factors that predisposed to the disease. And then they might, by suitable treatment and by providing a suitable environment—be it in convalescent hospital or open-air school—do something to lessen the incidence of the disease. Dr. Miller had suggested that any progress in the past might be ascribed to clinical rather than to administrative methods, but Dr. Allan felt that the progress might have been much more rapid if, instead of isolated clinical observation, some concerted action had been taken by workers in different parts of the country. To get the full benefit of work on such a subject there should be a clearing house where information could be received, correlated, sifted, and discussed. A committee or association linking up various workers would be in a position to influence medical and lay opinion in the direction of most useful activity. New York had already done much of the spade work in that direction, and with so much success that its association was likely in the near future to become a national body. Dr. Allan believed the time was ripe for some such definite movement in this country. A recent paper by Dr. Poynton in the BRITISH MEDICAL JOURNAL had brought forward correspondence which showed an awakened interest in the subject, and a discussion on the same lines at a recent meeting of physicians was marked by remarkable unanimity.

Dr. Allan proposed: "That the Council of the Association be recommended to appoint a special committee to consider the best steps to be taken to combat the grave menace to the community arising from chronic cardiac disease." This recommendation was seconded by Dr. REGINALD MILLER and supported by Dr. CAREY COOMBS, and was carried unanimously.

Dr. J. G. EMANUEL (Birmingham) said that in young people they recognized that not only was rheumatism the all-important cause of heart disease, but that in a child who was suffering from organic heart disease, albeit well compensated, the danger to this child in the future was not over-exertion but reinfection. When a *post-mortem* examination was made on a child who had died from heart disease evidence was invariably found of recent endocarditis, myocarditis, or pericarditis. In children they did not have to contend, as in adults, with long-continued high blood pressure, progressive myocardial degeneration, progressive coronary artery disease, new rhythms like auricular fibrillation, or prolonged physical and mental strain.

required rest in bed if infection was going on, it requi exercise if there was no active infection. Exercise just as necessary for keeping efficient a damaged heart it was for keeping the normal heart efficient, but exerc must not be commenced until all active infection was ov

When they had under their care a child suffering fr subacute rheumatism, it was very difficult to say whet active infection of the myocardium or endocardium present, that was to say, whether the patient might le bed and begin some form of graduated exercise. physical signs determined by auscultation and percuss would not help them. Alteration in the size of the he the presence of murmurs, modification in the heart sou or in their spacing, x-ray or electrocardiograph exami tions would not determine the presence or absence of ac infection. Abnormal cardiac physical signs were evide of anatomical changes, often compulsory, that follo infection, and they might be entirely absent when seri infection was present. There was one exception to general statement afforded by pericardial friction. T meant pericarditis, and pericarditis meant more or myocarditis and frequently endocarditis.

The signs of infection in active rheumatic carditis w similar to those in other infective diseases—for exam pulmonary tuberculosis. In a case of phthisis they did gauge active tuberculosis by alteration in the percus note or in the breath sounds, but by such signs as pyre loss of weight, and anaemia. They should look similar signs in cases of rheumatic carditis; but rheum carditis often ran an apyrexial course—even in infec endocarditis pyrexia might be absent for weeks toget In carditis anaemia was often too slight to be a guide, in any case might be due to other conditions, and the s held for loss of weight. Dr. Emanuel believed that the p rate afforded the surest indication of active infectior the heart. A quick pulse, 100 or more when the pat was at *rest in bed*, indicated a carditis demanding tinued rest. If infection was at an end the pulse w resume a normal rate. The reaction of such a pulse to digitalis afforded further information as to infect For, if the heart was beating rapidly because it was b excited by the rheumatic toxin, digitalis would not the rate. The same thing was seen in pulmonary tu culosis, pneumonia, and Graves's disease. So long as heart muscle was stimulated by the tuberculous, pnet coccic, or thyro-toxin, digitalis would not slow the he So, for instance, in a convalescent case of chorea stil bed, if the pulse was high and the rate was unaffecte digitalis, he would regard this as evidence that there active infection of the heart. If, however, *digitalis sl* the pulse, he would conclude that all active infection over. The question of a rapid pulse rate was not c so simple as he had stated it to be, and it was for very reason that the digitalis test was so *useful*. He stated that in a patient convalescing from rheumatic i *tion, a quick pulse meant* that the heart was still the of active infection and further rest must be enjoi A quick pulse rate might mean, however, want of ca tone, and want of cardiac tone meant that the patient been in bed long enough, and should get up and exercise. These two conditions could be distinguishe watching the effect of allowing the patient to get up the pulse remained rapid, infection was active and patient must return to bed for a time. If the pulse slo the rapid rate was due to loss of cardiac tone and gr ated exercise might advantageously be started. A qu and safer test, however, was to give digitalis in doses for two or three days and ascertain if the responded physiologically by slowing. If it did, patient might get up, for there was no longer infec if it did not, he must continue to rest.

ultimately between life and death, amounted quantitatively to one part in twenty-five hundred of the total food eaten. We now know that if a particular fraction of the oil had been given, instead of the intact oil, the amount might have been much less than this.

Such facts, abundantly confirmed as they are, surely imply that the dogmatic teaching of twenty years ago must be profoundly modified; they have indeed no inherent lack of probability which would justifiably stand in the way of their frank acceptance. We are familiar in quite other connexions with the potent influence which infinitesimal quantities of specific material may exert in biological phenomena. In the region of nutrition itself we have been learning that even micro-organisms with highly developed synthetic powers may require in their environment substances which specifically stimulate growth, and this especially when they are adjusted to parasitic habits and therefore to complex media. The animal is essentially parasitic upon the green plant, and there is no reason why its needs should be confined to the substances which the plant makes in large amount. It is sure from the work of recent years that if we wish criteria for an adequate diet we must not confine our consideration to pounds and ounces, nor, for that matter, to calories. This is a scientific certainty; whether it has practical importance is a matter for separate consideration.

I have so far spoken almost as though I were putting before you a new and unfamiliar subject. My only justification for doing so is that I feel these general observations to provide a background for the presentation of some technical details. I can in reality, of course, assume a general familiarity with the facts. I must do so, indeed, in the short time at my disposal I am to attempt a personal estimate of the present outlook. All I can do, indeed, is to report upon certain facts established by the most recent researches which seem to make firmer the basis for a belief in the objective reality of these accessory nutrients, and to illustrate the practical importance of their study.

I can assume your acquaintance with the fact that at least three distinct substances are known to exist which conform to the only available definition of a vitamin. Each possesses, that is to say, a nutritive importance which is very great, while its actual concentration in natural foodstuffs is very small. Perhaps, for convenience of reference, I may just enumerate them, familiar though they be. They are: (1) vitamin A, originally known as the fat-soluble vitamin; (2) vitamin B, the antineuritic substance; and (3) vitamin C, the antiscorbutic factor. That we should speak of them in this non-committal way, with merely alphabetical labels, was a suggestion due to McCollum, which at present seems well justified. It is well, too, that we should adopt Drummond's suggestion and write "vitamin" instead of "vitamine," as by doing so we avoid certain unjustifiable chemical connotations in the name. In my second lecture it will become clear that the vitamins A, B, and C probably do not stand alone in their class.

It is clear that if the distribution, properties, and functions of substances are to be established, quantitative methods for their estimation are a prime necessity. It is no less clear that to find such methods in the case of substances which have not been isolated, and cannot therefore be weighed, is no easy task. Nevertheless, owing to pioneer efforts made years ago at the Lister Institute, and to the later work of many—in particular that of Osborn and Mendel, of Drummond and Zilva, and of Mottram—it may be honestly claimed that we have now a technique of sufficient accuracy in the quantitative sense for the establishment of many definite conclusions. This technique is based upon biological experimentation. It consists essentially in determining the minimal amount (or the relative amount in comparison with a standard preparation) of the material under study which will induce certain observable effects in a standard animal—the smallest amount, for instance, which, when added to a dietary previously proved not to maintain growth, will enable this normal growth to occur in a young animal; or the amount which will prevent or remove symptoms experimentally produced in an animal by deprivation of the particular vitamin in question. I must not stop to discuss the details of technique. All cautious observers have found that such methods call for experience, and call for standardization, but all agree that reliable results are to be obtained. The number of such observers is becoming legion. Experiments which began in this country and were immediately prosecuted with great enterprise in the United States are now being carried out in almost every civilized country.

The application of the above methods is continuously increasing our knowledge of the exact *distribution* of vitamins. This assuredly, if we are to believe at all in their significance, is a subject of much practical importance, but one upon which I need not dwell.

We are learning much that is interesting concerning the *origin* of vitamins. Although the statement may ultimately have to be qualified, it may be said generally that it is to the plant cell we must look as the essential place of origin. Vitamins arise in the green plant as the result of photosynthesis, though in the case of A at least, to judge from the work of Coward and Drummond, as part of events which are independent of the chlorophyll function. The relatively great stores of A which accumulate in the livers of fish take origin from the diatoms and algae of the sea (Hjort; Coward and Drummond).

Concerning the general *chemical and physical properties* of vitamins there is one statement to be made which is of considerable practical importance. There long existed a very general belief that these substances as a class were easily destroyed by heat, and upon this was based the popular assumption that any form of cooking necessarily reduces the vitamin content of natural foods. It must not be supposed that this belief is wholly wrong, but it requires considerable modification. Three years ago I was able to establish the fact that the vitamin A is resistant to heat though very prone to destruction by oxidation. Since then various observers, in particular Hess and Zilva, have shown that the same is true of vitamin C. Zilva has further determined very carefully the conditions which make for stability in the case of the latter (the antiscorbutic) substance. He found, for instance, that decitrated lemon juice when left slightly acid (*p*H 6.8) could be boiled for two hours in an atmosphere of carbon dioxide without loss of antiscorbutic potency. By boiling, however, for only one hour in a current of air the potency was greatly reduced. The process of oxidation, which in the latter case was mainly responsible for the destruction, occurs much more slowly if the fluid be rendered more acid. At *p*H 2.2, for instance, oxidation is found to be quite slow. In the alkaline condition vitamin C is much less stable, though in this case also it is oxidation rather than the effect of heat which determines its rapid destruction (Harden, Zilva). The vitamin B has long been known to be resistant to heat.

It follows from the facts just enumerated that if access of oxygen be avoided foodstuffs may be heated to boiling point with relatively little danger from the standpoint of vitamin destruction. It should be remembered, however, that ordinary cooking operations in no case wholly exclude oxidation.

Considerable progress is being made in our knowledge of other chemical and physical properties of the individual vitamins. This knowledge, together with a realization of the conditions which make for their stability, is notably assisting current attempts to isolate the substances. Although in no case has final success been reached, preparations of each vitamin have been obtained possessed of such potency as to indicate that they contain the active substance in a concentration enormously in excess of that in the original source.

In the case of vitamin A, for instance, several observers have been able so to fractionate cod-liver oil as to obtain a product of which much less than a milligram could serve as an efficient daily ration for a rat. Of the B vitamin Seidall has made a preparation capable of preventing polyneuritis in pigeons when administered in doses of at most 1 milligram. In spite of the high activity of such preparations the final endeavour to separate from them an active pure substance has so far proved in all

resolution, to direct its energies. The programme before any committee that would be set up might be divided into prevention, propaganda, and treatment, and he hoped that prevention would be given first place. Even slight cardiac rheumatism might, as Sir Thomas Horder had taught, leave a valve injured, too little, it was true, to lead to mechanical cardiac failure, yet none the less open to fatal infection of the type seen in chronic ulcerative endocarditis. For this reason, as well as for others already alluded to by other speakers, an examination of the conditions predisposing to infection should take a foremost place, and in this connexion the Medical Research Council should be asked to co-operate as it had already begun inquiries of this kind. Dr. Poynton's plea for propaganda recently published in the BRITISH MEDICAL JOURNAL might be taken as giving a lead in this part of any programme of attack on rheumatic heart disease. As to treatment, he warmly endorsed Dr. Emanuel's plea for auxiliary hospitals where cases could be treated over long periods of time, in co-ordination with the existing voluntary hospitals; and thought that much might be done at once if the Poor Law infirmaries were more readily available for the purpose.

Dr. WILFRID ATTLEE (Eton) said that as a doctor to a public school there was one matter in connexion with this subject which particularly interested him, and it was the care of the adolescent heart. In public schools they saw very little of the rheumatic heart, in fact rheumatism and chorea were decidedly uncommon in the type of boy who went to public schools, at least that was their experience at Eton. In looking through the notes of old patients in the school, Dr. Attlee and his partner, Dr. Amsler, could find only one case of definite chorea as having come under their care during the last nineteen years, and they could not find records of, or remember, a single case of rheumatic fever. Also in the medical histories of 1,600 boys as given to them when they entered the school, there was mention of rheumatic symptoms in only sixteen. So it was rare for them to see a heart crippled by rheumatism. But there was a type of heart which gave them a good deal of trouble, the heart which, in its physical signs, failed to conform to the ordinary book description of a normal heart, while it appeared to do its work perfectly well. Numberless boys came to the school with the statement that they had outgrown their hearts, or with histories of heart strain or some other cardiac derangement. On going into the case it was usually found that the patient himself experienced no inconvenience, and had had no symptoms of any kind, but abnormal physical signs had been noticed in the course of routine examination. There might be a murmur or perhaps a reduplicated second sound, or some disordered action such as tachycardia on slight exertion, which ceased immediately the patient lay down, or arrhythmia. The boy, as a rule, could play games without any distress and quite as well as other boys. The abnormal signs were, as often as not, found accidentally. They often varied from day to day, and appeared to be as easily produced by a large meal as by exercise. The important point to him was the absence of symptoms. In fact, in this kind of heart he emphatically differed from the distinguished President when he said, in his well known medical notes on diagnosis, "One physical sign is worth many symptoms." In a boy's heart he believed one symptom was worth many physical signs. However that might be, the home doctor, in consequence of these signs, often wrote to the school advising restriction of games and sometimes even their total prohibition. Dr. Attlee wondered how far the total prohibition of games was ever justifiable in these cases, and how far restriction was necessary and advisable. Dr. Miller in his opening paper said the heart of a child never broke down by mechanical strain alone, and to his mind there was considerable doubt whether the prohibition of games did any good to the heart often got into a habit of loafing and became introspect and morbid, and in consequence a dull companion, so that was a nonentity in his house. Even worse might befall h and Dr. Attlee had known it to come finally to a choice tween a possible risk of damage to a heart, and vicious hab which could not be stopped without games of some sort. T home doctor and the parents saw the boy only in his ho where his surroundings could easily be adapted to him, at school they saw the other side of the picture, in which square peg was with difficulty being squeezed into the rou hole. So his partner and he aimed at getting boys on some routine of games as soon as they could possibly man it. Of course, they began gradually and watched symptoms after each addition to the programme. The gar as played in different schools varied considerably; t football games at Charterhouse and Rugby and Eton w not in the least alike in the amount of energy and str involved. It was really only the doctor at the school w knew just what was required of boys in any particular ga who could decide the form of exercise most suitable to individual. At Eton they usually began a boy on sh runs, fives, and squash racquets and cricket. Later ca football in some of the less strenuous positions in the fi In athletic sports, short races such as 100 yards and h and long jumps seemed to put very little strain on the hea and they could be allowed long before the quarter-mile the steeplechase, races which were only suitable for the fit people. Rowing came into a different category. A could row without going in for races, and could get v good and harmless exercise in doing so. At Eton the jun races were short races. The junior fours, which were bu ing races, were rowed on four consecutive nights and e race lasted only a few minutes. The senior sculling, which there was probably an entry of perhaps twenty of bigger boys, lasted about nine minutes. These races, course, gave rise to a good deal of strain. But Dr. At often thought Etherington Smith was right in his view view held by other rowing men as well—that a boy's br was seldom sufficiently developed to make him row him really out. In other words, in the average boy the power failed before the body was exhausted. He though would be interesting to know what had happened to som his old patients who caused him or their home doc anxiety as to their hearts while they were at school. S wrote to several of them a few weeks ago. Twenty-one replied, and not one had had any trouble with his he since he left school. One who left in 1910 to go up to C bridge caused the late Dr. Michell to write to him follows: "X. is rowing. I think he is running a grave and have said so." That boy afterwards stroked 'Varsity boat in two boat races and also rowed in a Lear crew at Henley. He had had no illness due to his he since. Another who left in 1909 rowed in many impor races at Oxford and Henley and had had no trouble si Dr. Attlee concluded by quoting one letter written by an boy who left fifteen years before, a letter which might be taken as the text for these remarks: "Neither at sc nor since has my heart caused me the slightest inconveni or trouble. I suspect that the symptoms that you and o doctors discovered in me as a boy are common to all yo animals when growing rapidly and call for no special tr ment. Certainly cutting a boy off from his games is a price to pay, unless the risk is a real one. If I had kn then what I know now, I should certainly have quarre with my over-anxious mother on this point."

Dr. M. O. RAVEN (Broadstairs) said that there see to be general agreement that while fresh air was impor in the treatment of the rheumatic state of childhood, ordinary convalescent home was much too excitin place for the successful treatment of rheumatic child and the only solution was, as Dr. Miller had sugge

upon other structures which are more susceptible to its action than the neurones. But we know that the end-result of a reflex, or any other form of nervous activity, is manifested in various degrees of strength, so that there must be some method of graduating the response of the *effector organ*. The *individual* nerve impulse is invariable, but the number and frequency of the nerve impulses in the neurone may vary within certain limits, as can also the number of neurones set into activity. The latter factor is probably the most important one in bringing about the graded response.

It is only seldom that the full activity of any organ or tissue of the body is required, and in some of them there is evidence that the active units are constantly varying. The phenomenon of fluctuation or variable activity can be demonstrated in the capillaries where changes are constantly occurring in the amount of circulation going on in any one capillary field. It is probable, though not certain, that the same phenomenon takes place in the nervous system. In the production of a minimal response in any effector only a few neurones suffice to carry the nerve impulses necessary, and it is likely that the ones actually employed are continually varying, there being active phases and resting phases for each individual neurone or groups of neurones. Such distribution of function is possible where there is a large reserve of units, and provides the body with a system which is capable of nicely graduated response to the widely different conditions it has to meet, and at the same time avoids the occurrence of fatigue in those parts of the nerve pathway, the synapses and receptive substances, which are susceptible to its incidence.

The first analysis of stimuli takes place in the receptors, which are so fashioned that normally they respond only to certain forms of energy. Light is the only stimulus which is normally capable of exciting the receptors of the retina, and is ineffective elsewhere. Similarly heat, cold, tactile impressions, and other stimuli, can only excite nerve impulses if they meet with receptors which they are capable of stimulating. If suitable receptors are not present in a tissue the stimulus is incapable of exciting nerve impulses unless it is so gross as to be a direct excitant of the neurone itself. The tissue is therefore incapable of sensation and of reflex response to such stimuli. On the other hand, forms of energy which can excite the receptors present set up nerve impulses which are carried by afferent neurones into the central nervous system. The individual nerve impulse is the same, no matter what its origin may be, so that its end-result must be finally determined by the nature of the response of the organ to which it is carried. In its passage through the central nervous system the nerve impulse has a number of potential pathways opened up to it by the branching of the neurones over which it travels, and is therefore capable of [illegible] routes and so giving rise to a variety of end-results. The pathways are not, however, equally open. The synapses between the neurones interpose different degrees of resistance to the passage of the nerve impulse. The synapses, therefore, are structures which regulate the number of neurones engaged. The factors which alter their resistance will be discussed at a later stage.

If the nerve impulse is to give rise to sensation it must be carried to some part of the higher level of the central nervous system which is associated with the reception and interpretation of that particular form of sensation. If it is to bring about a reflex it must be conveyed by efferent neurones to some effector organ. The separation of the impulses giving rise to sensation and reflexes can take place at various levels in the nervous system.

While the end-results of the nerve impulse in any neurone is mainly determined by the anatomical connexions of that [illegible] it is also dependent upon the nature of the amount in [illegible] substance the nerve impulse meets with material under study [illegible] neurone. The final efferent neurones effects in a standard [illegible] carry nerve impulses which excite instance, which, when [illegible] hibit the activity of the muscle accord- not to maintain growth [illegible] substance between the neurone and to occur in a young [illegible] substance" of Langley, or prevent or remove symptoms exp[illegible]liott—is of an excitatory or [illegible] case of voluntary muscle the final efferent neurone ends only in excitatory material in the muscle, and the nerve impulses conducted to it always produce contraction of the muscle.

Voluntary muscle, however, is capable of being inhibited just as involuntary muscle is, and the process by which this is effected is similar in character though different in the site of its operation. In the case of voluntary muscle inhibition is exercised upon neurones in the lower level of the central nervous system, and the actual site appears to be in the synapse which intervenes between the last efferent neurone and the one immediately before it. Instead of the muscle being directly acted upon the inhibition is exercised upon the efferent neurone which supplies the muscle; in other words, the inhibitory substance is not in the muscle but in a synapse in the lower level of the central nervous system.

The Synapse.

We do not know the nature of the process which goes on in the synapse or even its exact anatomical structure, but many facts have been ascertained about the results it produces, and all point to its extreme importance. The synapse is irreciprocal and only allows the nerve impulse to pass through it in a forward direction. It does not conduct the nerve impulse as rapidly as does the neurone, and the passage of the impulse is always delayed there. The synapse interposes resistance, and a resistance which is capable of great variations in degree. A single stimulus of an afferent nerve sets up a nerve impulse which may fail to pass the synapse or synapses interposed on a reflex arc, even in a spinal animal, and it is only by repetition that the synapse becomes penetrable. The resistance of the synapse can be altered by a variety of circumstances. The repeated passage of a nerve impulse over it results in a lessened resistance, and the impulse then passes more readily. Repetition facilitates the passage of the nerve impulse over the synapses in any chain of neurones, and the effects may be more than temporary, so that one gets what is sometimes spoken of as "canalization." This implies that a path has become so "grooved" or deeply worn by frequent use that nerve impulses entering it tend to run in the same channels and produce the same end-results. As far as we know, such grooving of paths in the central nervous system is one, not of the neurones, but of the synapses which lie between them. The lowering of resistance occasioned by repetition of the nerve impulses through the synapses is of great importance. It is part of the normal process of education, and habits and skilled movements are thus acquired. Bad habits and abnormal ones may also be established by repetition, and the more frequently the nerve impulses pass through the same synapses the more difficult it becomes to re-educate the synapses, and to direct the nerve impulses into other pathways. This is true not only of the synapses on the pathways of nerve impulses bringing about reflexes, but also of those which carry nerve impulses giving rise to some forms of sensation. Conditions of hyperaesthesia and of hyperalgesia may be due to several causes. The receptors may undergo changes in adaptation and become more sensitive to stimulation, or the synapses may become less resistant in some part of the afferent paths, thus allowing the nerve impulses to pass more readily to the cerebral cortex. In conditions in which there is an increased irritability of the central nervous system the increased reaction appears to be due to a lessening of resistance in certain synapses; the response of the neurones is not altered in amount or in character but is more easily elicited.

The synapses may undergo alterations which modify not only their resistance but may completely change the nature of the influence the nerve impulse is capable of exerting upon the following neurone. Just as the receptive substance of muscle may be excitatory or inhibitory so the synapse may be excitatory or inhibitory. The synapse, however, differs from the receptive substance in that it can apparently alternate between the two phases and be excitatory or inhibitory as required. The inhibitory action exerted by the synapse appears to be more than a mere block to the passage of a nerve impulse, because it may prevent the neurone which it inhibits from being set into activity by other neurones. The nature of the alteration

agreed that the chance of prevention depended on propaganda relative to the subtle character and disastrous possibilities of rheumatism in childhood. But he did not agree that such propaganda should be restricted to hospital physicians or to some specially created league or committee. On the contrary, the most efficient agency, and the one which could be regarded most hopefully, was the general body of the medical profession. It was to individual rather than to mass teaching that expectation could be attached. Broadly the position was that rheumatism in adults was comparatively rarely complicated by heart disease while in children such complication was frequent. Further, the disease in adults was accompanied by pain in the joints, and this compelled rest from an early date. In children, on the contrary, rheumatic manifestations were not commonly accompanied by joint pains, and hence early rest was not secured. Was it not reasonable to suppose that therein lay the explanation of the escape of the heart in the adult and its penalty in the child? If that view was accepted, even as a possibility, the aim obviously was to secure for the rheumatic child the prompt protective rest which, so far as our present knowledge went, was the most helpful agency in the prevention of cardiac disease. This rest was not secured because parents did not know that what appeared to them minor ailments were really "rheumatism" and meant the risk of heart disease. They could only know these truths when the medical profession gave them the necessary information, and the individual who was likely to be most effective for this purpose was the family practitioner. In short, it should be the recognized duty of every practitioner when in any fashion he had learned of rheumatic tendencies in any family in his charge to warn the parents that such events as tonsillitis, growing pains, febrile temperatures, chorea, etc., meant in their children the danger of heart disease, and that only by complete and prompt rest could that danger be avoided. How far the universal adoption of that policy would be successful it was impossible to say. But at the very least the profession could claim that it had done its best to utilize such knowledge as it possessed for the protection of children from the incalculable mischiefs of organic heart disease. Such a course was an easy, simple, and straightforward one; it offered no interference with schemes for the treatment of actual sufferers; and it left open what other prophylactic measures the future might happily bring.

Dr. A. P. THOMSON (Birmingham) reviewed his personal experience in dealing with the problem at the Baskerville Institution in Birmingham. The outstanding clinical difficulties were two: (1) To determine when the infection giving rise to carditis had become quiescent. (2) To discover when the child had become free or relatively free from the danger of reinfection. He described the methods that he had made to obtain an answer to these questions, but stated that simple reliable tests of general application had not yet evolved. Dr. Thomson stressed the importance of education in dealing with these children and claimed that one solution lay in proper use of the Defective Children Act, but he agreed fully with the view that the patients should not lose touch with the medical schools.

Dr. ELIZABETH J. MOFFETT (Birmingham) said that the type of choreic or rheumatic case met with now certainly seemed to be milder than in the nineties. She found difficulties in diagnosis: a child was anaemic and under weight, and it was often hard to say offhand whether the tuberculous or rheumatic poison was the cause. The Birmingham mothers, in the city of Bright, Chamberlain, and Dale, were well up in all the symptoms of rheumatism, and rheumatic pains were just as useful as lumbago and sciatica in the war—especially when they occurred in a girl likely to be

Moffett advised their own doctor at home or a free dispen sary note with home treatment, or rest in bed, and she sen the school nurse to see that treatment was carried out Later convalescence was given. Much longer periods o continuous treatment were, however, required. Recentl the organizer of a very successful Cripples' Union had se out to form a similar society for the care of rheumati cripples. The municipal Cripple School was taking a fe of these cases. It was, however, a small number as com pared with the total. The education of these children pre sented difficulties. They were backward from delicacy an prolonged absence from school. When they returned the were worried by their low position in school and tried t catch up, with the result that they often broke down again They should be taught separately in smaller classes on modified Dalton plan. Expense, however, barred the way a present. Dr. Moffett had a suspicion that the gap betwee the curriculum of the infant school and that of the uppe school was too wide, and in the attempt to bridge it choreic were manufactured. She suggested making the transitio more gradual, but she said that she was treading o dangerous ground there as she was not an educationis Many heart cases were very resistant to advice and persiste in working beyond their strength, in spite of repeated warn ings. When examining for the Women's Volunteer Reserv early in the war, Dr. Moffett found a surprising number o organic heart cases among a set of young women of magnif cent physique and very capable. Many were leading ver strenuous lives with no symptoms and no knowledge of thei cardiac trouble. It seemed cruel to enlighten them. Sh always warned the parent that it was not the heart conditio that mattered, but the recurrence of rheumatism, and urge that they should put the child to bed if it were feverish.

Sir THOMAS HORDER (London) referred to the etiologic difference which existed between mitral regurgitation an mitral stenosis. Although both of these forms of valv damage were undoubtedly due to the operation of th rheumatic virus, mitral regurgitation was in most instanc the residual effect of an acute rheumatic infection, where mitral stenosis was generally a progressive sclerosing end carditis resulting from subacute or chronic rheumat poisoning. He quite agreed with Dr. Hawthorne when h said that, even though they might be ignorant of the chi causative agent in acute rheumatism, they were able recognize the disease process within very narrow limits. H thought, however, that a much greater difficulty present itself in the case of subacute and of chronic rheumatic infe tions associated with carditis; in them there was room fo the consideration of non-specificity in relation to the variou cases met with.

Dr. G. J. LANGLEY (Manchester) said that it was perha as well to remember that the recognition of subacute rhe matic phenomena in children might be exceedingly difficul especially in the busy out-patient department of a gener hospital, and the frequency of unexplained cardiac lesio later would indicate how frequently these cases were mis Further, the investigation of rheumatism was included the pathology of the streptococcus; the work of Roseno in America and Dible in England showed only too clearly th great difficulties involved when dealing with this group organisms, and so progress was doubtless delayed. Refe ence had frequently been made in the meeting to th parallelism between tuberculous and rheumatic infection and Dr. Langley wished to carry this a step further. Th work of Marcus Paterson had fully shown how a benefici auto-inoculation might be both produced and controlled b graduated exercise in tuberculosis, the temperature cha giving a faithful record of the response of the patient to th inoculum. At present the response of the rheumatic patie to such inoculation was only recognized in the form of recrudescence of the disease, and it was probably to this th the breakdown of rheumatic patients in adolescence mig

subjective or objective, should be carefully recorded and analysed. Many of them appear to be common to a number of different conditions, but it is hoped that they will eventually be capable of classification, and thus provide the material for an early diagnosis of the conditions producing them.

THE TREATMENT OF GENERAL PARALYSIS BY INFECTION WITH MALARIA.

BY

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This paper is intended to give a preliminary account of an experiment in the treatment of general paralysis of the insane which has now been in progress for several months in the Royal Hospital at Morningside under the supervision of Professor George M. Robertson. Despite the fact that the etiology and the pathology of the disease—at least in their more significant details—have been successfully worked out, treatment has lagged far behind. Indeed, for the time being an impasse has been reached in the approach to the problem along the accustomed lines, and resort is being had to more empirical modes of treatment. Not that these are to be despised—if their fruits justify them, few will be found to cavil at their use.

In this latter category of reputed remedies one must place the treatment of general paralysis by inoculation with the plasmodium of malaria. The method has been used for a few years by Wagner von Jauregg in Vienna and by Weygandt in Hamburg, with results which, if confirmed, can hardly fail to arrest attention. It is claimed, for example, that out of a large number of patients treated in the course of twelve months no fewer than 41 per cent. can be regarded as completely cured; 20 per cent. sufficiently recovered to be able to resume their occupation though still retaining minor disabilities; and 10 per cent. as improved but not sufficiently so to warrant their discharge. The remainder failed to respond adequately to the treatment. The difference in the response to treatment seems to vary with the length of time the disease has been in progress before inoculation with malaria is resorted to. Thus, among the "cures" the duration was never more than two and a half years; among the "improved" the period was three and a half years; while in the case of the others the disease was of old standing. In practically every case, however, some improvement followed the treatment. In the most successful cases the physical signs of the disorder are said to have disappeared completely, though the laboratory findings—for example, the Wassermann reaction in the blood and cerebro-spinal fluid and the cell count and globulin content of the latter—remained unchanged. On the mental side there is reported a corresponding improvement. In other cases, though the results have been less satisfactory, there has apparently been some alleviation of the severity of the symptoms and a retardation of the rate of deterioration so characteristic of the disease. Such claims, confirmed as they were by the testimony of visitors to Wagner von Jauregg's clinic, seemed eminently worthy of practical investigation, and so the experiment was set in train.

Mode of Inoculation.

The first difficulty encountered at Morningside, when the experiment was resolved upon, was to procure a suitable supply of the virus. The help of the local health authorities was enlisted, but an exhaustive inquiry elicited the surprising fact that there was not at that time within the Edinburgh area an uncomplicated case of benign tertian malaria. The London School of Tropical Medicine was then approached, but even had a supply of the organism been available from that source, the practical difficulty of transporting it alive to Edinburgh was deemed insuperable. Just then there was admitted to Craig House from Burmah a young man whose mental breakdown was attributed to recurrent severe attacks of malaria, though no accurate information as to the type could be gathered. In due course this patient had a bout of fever which on clinical grounds appeared to be benign tertian malaria, and this was confirmed in the laboratory. As an additional precaution Colonel Marshall, Lecturer in Tropical Diseases in the University of Edinburgh, was called in consultation and confirmed the laboratory findings. But for this fortunate coincidence the initiation of the experiment might have been indefinitely postponed.

On March 29th of this year the patient referred to had a paroxysm, at the height of which venipuncture was performed and sufficient blood withdrawn in an ordinary syringe to inoculate twelve cases of general paralysis. Each of these received a subcutaneous injection of approximately 2 c.cm. of infected blood. The site of the injection was the loose skin just below the angle of the scapula. When the needle was inserted the subcutaneous tissues were probed in all directions to a distance of about 1½ inches so as to diffuse the plasmodium and promote absorption as rapidly as possible. A simple dressing of sterile gauze was affixed to the puncture by means of collodion, and any swelling resulting from the injection gently massaged. The patients immediately resumed their normal mode of life, but careful records were kept of their temperatures.

On reflection it would appear more prudent, in view of the difficulty of obtaining supplies of the virus, to substitute individual inoculation for the mass inoculation practised in this instance. In this way the virus can be kept alive for a long period of time by the inoculation of one patient from another in series. The one drawback would be that results would take longer to accumulate.

Incubation Period.

In every case the infection "took," though there were considerable variations in the length of the incubation period. The earliest cases had their first definite attack after eight days; a group followed the next day, and the others were spread out at irregular intervals till the sixteenth day. One case did not react till twenty-eight days had elapsed; while in another the interval was thirty-two days. Whenever a case was reported as having developed malaria a microscopic examination of the blood was made to confirm the diagnosis.

Subsequent Treatment.

The infection was allowed to run its course unimpeded for any number of paroxysms up to twelve—the average number being ten. During this time sponging was resorted to when required, but nothing more was done so long as the patient tolerated the condition well. In only two cases was it considered advisable to kill off the infection before the regulation number of paroxysms had occurred. In one of these an intercurrent affection occurred two days after the inoculation (and in no way dependent on it) and ended fatally, while in the other the decrepit condition of the patient before inoculation held out little hope that he would successfully carry the additional burden of a series of severe malarial attacks. He was therefore allowed to have only three paroxysms. To arrest the infection quinine hydrochloride was given in doses of 10 grains four-hourly for three days, and thereafter 5 grains thrice daily for fourteen days. In every case the temperature began to subside immediately after the administration of quinine was commenced, and by the fourth day was as a rule stabilized. In none of the cases has there been to date any recurrence of the malady.

The manifestations of malaria were in no way modified by its occurrence in cases already suffering from general paralysis, except that its discomfort was as a rule borne with forbearance which was as praiseworthy as it was unusual. On the fourth day after the subsidence of the temperature an intravenous injection of 0.3 gram novarsenobillon was given. This was repeated at weekly intervals for six weeks. There was generally a well marked degree of secondary anaemia after the infection had run its course, treatment for which was given simultaneously with the antispecific remedy.

Following is a brief account of the twelve cases treated:

Case I.

An advanced case of general paralysis lasting for two and a half years. The patient died of peritonitis three days after inoculation.

spasm—are hysteria, tobacco, alcoholism, rheumatism, out, and conditions causing local congestion, like emphyema. The mixture of emphysema and tobacco, on a gouty asis, is a frequent cause of cough and spasm of the glottis. hat the local disturbance sometimes plays but a small part these phenomena, in proportion to the central disequilirium, is shown by observing how frequent these cases are children who are the subjects of rickets, or tetany, or alarged thymus, or of some general enfeeblement, and who ave only a slight "catarrhal laryngitis."

II. *Neuroses of Motion in Glottic Spasm.*—But not only ensory disorders, but irritation of the motor nerves may roduce spasm. Any lesion which irritates the recurrent aryngeal nerve in the neck, or on the left side in the ediastinum, may excite spasm. Hence it may be caused y aneurysm, tumours, or cancerous growths in the mediatinum or oesophagus, glands in the neck or mediastinum, oitre, tuberculous glands, or tuberculous pleuritic lesions.

III. The central nerve lesion which most commonly proices spasm is that of locomotor ataxy. Glottic spasm may lso occur in tetany.

IV. Hysterical spasm is a well known form of functional nspiratory glottic spasm in adults. Functional spasm ccurs in epilepsy.

The Phenomena of Glottic Spasm.

Whatever the cause—whether peripheral, or in the course f a sensory or motor nerve, or central—the sequence of vents is much the same. They begin with a sensation of ickling or irritation in the larynx; short, sharp, and udden coughs are thus stimulated, and in these the xpiratory efforts follow each other so rapidly and are so n excess of inspiratory movements, that the patient realizes hat he is rapidly losing his capital of reserve air. This larms him, and if he has had similar attacks previously, he auto-suggestion of memory adds to his anxiety, weakens he volition with which he might still check the oncoming pasm, and precipitates the climax. This is reached when here is no more pulmonary air to expel; all breathing eases, with the cords spasmodically clenched together (or, n the case of abductor paresis, with the flaccid cords sucked together by the negative chest pressure): the patient's face looks agonized and is pale or cyanosed and athed in perspiration. In this drama—which may end in a ragedy—fear, apprehension, neurasthenia, hysteria, vanity, nd desire for theatrical effect, may all play their part.

The attack ends (1) by resolution, the cords partially pening to allow a long-drawn stridulous or sonorous inspiration; (2) by death from asphyxia; or (3) by death from cardiac syncope. Relief may not be immediate and complete: a slightly stridorous cough may remain; and the attack may recur with equal or diminished intensity.

The fatal cases are generally ascribed to asphyxia. But I have often noted that most cases of death following on adually advancing laryngeal stenosis (whether l or muscular) show the symptoms of cardiac om a bulbar reflex, rather than those of only mention this, in passing, as it is part subject I am now studying.

spasm occurs in certain organic affections nerve centres in the medulla; the most comoduced by locomotor ataxy. These *laryngeal motor ataxy* are particularly interesting as amongst the very earliest symptoms of are liable to be misunderstood.

atient consulted me for some slight discomfort I found an abductor paralysis of one vocal cord, investigation showed loss of knee-jerks, Argyll pupils, but no ataxy or other symptoms of tabes. oned that he was also subject to "spasm of his throat" tness. At one of his visits he reported that he had zed with one of these attacks in the street, had lost ness, had been picked up by the police, and as they an odour of alcohol in his breath, he had been carried e police station. (It was soon after luncheon, at which he had *imbibed* a whisky and soda.) He sent for his brother, no had to produce his hospital ticket and other evidence that he was under my care, before he was released. It was lucky for him know the usual spasmodic glottic closure which takes place when, owing to post-diphtheritic anaesthesia of the pharynx, food or drink may enter the larynx. Glottic spasm may also occur in tetany. In hydrophobia there is spasm of the abductors.

As we well know, several *chest lesions*, by pressure on the recurrent laryngeal nerves, may cause paralysis of one or both vocal cords. The most common are aneurysm, enlarged glands, and malignant disease of the mediastinum, the oesophagus, or the thyroid. I have notes of 11 cases in which this paralysis was caused by pulmonary (probably pleural) tuberculosis. Now, in all such cases, not only may the lesion in early stages—before the nerve is compressed—cause, by irritation, attacks of glottic spasm, but these may occur after paralysis has been established. In other words, these and similar lesions may cause spasm, or paralysis, or both.

Gouty, Rheumatic, Cardiac, or Pulmonary Causes of Spasm.

No inconsiderable number of cases of spasm of the glottis have come under my observation which were functional, which never developed into any serious local trouble, but which seldom got quite well. These generally occur in elderly men and are most common at night. The patient, as a rule, goes comfortably to sleep and wakens after midnight, or in the early hours of the morning, with an irritation or tickling in his throat; soon this becomes so violent and spasmodic that he springs from bed to rush for help or to hold on to some article of furniture while he passes through the stages described under "Phenomena of glottic spasm."

Similar attacks, in stout and elderly men with emphysema, may occur in the morning, while dressing. Slight pharyngeal irritation—like brushing the teeth—may start them; they may end with retching or vomiting and relief comes with the expulsion of much mucus from the trachea. They are less severe and alarming than when due to the following causes:

The cardiac causes are more anxious: they appear to be more frequent in emphysematous subjects: the attacks may be amongst the earliest symptoms of disease of the heart, aorta, or mediastinum.

The gouty or rheumatic causes are more difficult to diagnose and may only be postulated by a process of exclusion.

In that rare affection, true pachydermia laryngis, there may be spells of cough with glottic spasm. I have watched some cases for years. But I am not certain that the pachydermia is the cause, for I have seen the disease persist while the cough and spasms entirely disappeared.

Amongst toxic causes of glottic spasm, acting directly on the medulla, are the virus of *whooping-cough*—though I do not feel quite sure whether the laryngeal phenomena of this affection are due to adductor spasm of abductor paresis. Anyhow, typical attacks of what we call spasm are not unfrequently, and unexpectedly, met with in the abortive forms of pertussis occurring in adults.

A well known colleague in large practice in Bayswater called me up at 7 o'clock one morning to come along at once with my tracheotomy instruments as he was choking. I found him looking very distressed and in undisguised alarm about himself. He reported that he had gone to bed the previous evening feeling tired, but in his usual health, and had been troubled with a spasmodic cough through the night. In the small hours of the morning he woke with a feeling of strangulation and suffocation so severe that he lost consciousness. On recovering he felt intense irritation in his larynx, with explosive, spasmodic, and "choking" cough. He had to exert great self-control to mitigate these spasmodic coughs, and dreaded that if he had another he might choke to death in one of them unless I speedily performed tracheotomy, for which he was quite prepared. His face was dusky and suffused, his skin clammy with exhaustion and fear, and his pulse was bounding. His air passages were perfectly free, there was no stenosis anywhere, and his cords moved freely and normally. But there was very striking evidence of the stress and strain of the glottic spasm he had endured—the palate and fauces were irregularly studded with purple patches of ecchymoses. These were the consequences and not the cause of his choking spells. The severity of the latter was further shown by small petechiae on his face and body, and by a ruptured right membrana tympani, through

every sign that the malady was gaining the mastery. He appeared to be quite demented, and physically he was but a pitiable shadow of his former robust self. To-day he is to all outward appearance in excellent physical health. His habits are tidy; his speech movements, which were formerly almost wholly disorganized, are now well co-ordinated; and his vitality is not now drained by bouts of severe seizures as it previously was. Admitting, as one must do, that it is difficult owing to his taciturnity to assess the degree of mental enfeeblement which remains, yet one cannot but be struck by the general transformation. The other case is described above as No. IV. Here the conspicuous change is in the patient's mental state, though his physical health is also improved. To those who knew him in his former phase he now appears a new creature, a different personality altogether. In the remaining cases lesser, though often substantial, changes are common, but it is now generally recognized that many of these changes (for example, in the character of the pupillary reaction) may develop in the ordinary course of the disease. The average duration of the disease in the twelve cases was two years, and in every case the greatest care in the diagnosis was taken, all the usual serological tests being applied. At the moment these are again being investigated and so far as this has been done Wagner von Jauregg's conclusion that the condition of the blood serum and cerebro-spinal fluid is not materially altered by the malarial infection has been confirmed.

To the extent, at least, that none of the patients are any the worse for their experience, the experiment has been justified. Time alone will show whether any further justification will be forthcoming. Assuming that the results eventually turn out to be more favourable than they seem at the moment, how is the phenomenon to be explained? As long ago as 1883 Clouston described two cases in which mental disorders had been arrested by incidental sepsis, originating in one instance in the parotid gland and in the other in the hand. This led him to prophesy that "some day we shall hit upon a mode of producing a local inflammation or manageable septic blood poisoning, by which we shall cut short and cure attacks of mania"—the type of disorder from which his two patients suffered. The hypothesis underlying Wagner von Jauregg's work is virtually identical with that which Clouston here adumbrates, though it is applied to a very different form of mental disorder. Their common quest is for an infection which, while not of itself endangering the patient's life, will either stimulate the common bodily defences against the original disease or else will facilitate the operation of remedial agents. With this end in view some experimental work has been done with tuberculin and vaccines of different strains of staphylococcus. Apart from the risks involved in the use of these, the results from a therapeutic point of view have not been encouraging. Later still, attempts have been made to produce a more active bodily defence along some particular line without evoking the risks and discomfort of a general febrile disturbance. In this connexion some work has recently been done in Morningside with substances—for example, phlogetan—which produce a leucocytosis without the other accompaniments of fever. Here again, though a definite leucocytosis could be maintained for a prolonged period, the results of such treatment in cases of general paralysis were negligible. Whether the method of treatment with malaria will prove more efficacious time and a large field of experiment will be necessary to show. And even if the claims made for the treatment are in the long run substantiated there will remain to be answered many questions: Is the high temperature which can be produced incompatible with the well-being of the spirochaete? Has the infection with malaria any influence on the permeability to salvarsan of the choroid plexus? If the success of the method does not depend on such more or less mechanical effects, what subtle chemical changes occur? That these cannot be answered at the moment is enough to invest the further progress of the experiment with engrossing interest.

Conclusions.

1. Of the nine cases in whom the treatment was completed two are conspicuously improved; in one case the emphasis is on the mental, in the other on the phy improvement.

2. Besides these, four other cases show some imp ment, although not so marked.

3. In the remaining three cases no distinct chang occurred. It is noteworthy, however, that in none of cases has there been any progressive deterioration. T specially true of the only early case—No. VII.

THE TREATMENT OF GENERAL PARALYS BY MALARIA.

BY

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Wagner von Jauregg's[1] malaria treatment of ge paresis, and the excellent results published by hi Gertsmann,[2] Weygandt,[3] Kirschbaum, Delgado,[7] and ot first attracted our attention in the early months of and through the kindness of Professor Stephens o Liverpool School of Tropical Medicine, who inoculate first cases for us, we were able to commence this treat in July, 1922.

Mosquitos are common at Whittingham, and recogn the possibility of spreading malaria we had, prior to mencing treatment, examined many mosquitos c within a mile of the hospital building, and felt sat that only varieties of Culex were present. In Septe of this year, however (fourteen months later), a fu hunt for mosquitos revealed the presence of *Ano plumbeus.*

Whilst recognizing the impossibility of the restor of degenerated cells and fibres we hoped for destru of spirochaetes and complete and permanent arre degeneration. Authorities explain the influence of ma upon the course of general paralysis in different ways. is the destructive influence of high temperature as suc spirochaetes, as shown by Jahnel and Weichbrecht;[4] conceivable that waves of high temperature, as in mal may be more efficacious than continuous temperat Muehlens and Kirschbaum[5] believe that following i lation there is a marked impoverishment of the l followed by a rapid regeneration of blood, which to a non-specific reactivation of the immunity cesses. This theory would be supported by the vie Hauptmann. If these theories be correct, then temperature and impoverishment of the blood shoul aimed at.

It seems possible that different strains of *Plasmo vivax* give different clinical types of malaria. authorities recognize only three species of *malarial* sites, while others count double this number; it w appear that Muehlens and Kirschbaum were usin strain of *P. vivax* giving a *different clinical* typ malaria from ours, for in their experience of 76 cas artificial malaria jaundice occurred in 12 cases, whil our 40 only one case of jaundice has been observed.

It was with these considerations before us that, inoculating cases with quartan, malignant tertian, two strains of benign tertian, we decided to allo strains to die out except the second strain of b tertian, which we named "W." This strain from first gave a reasonably high temperature and a m degree of anaemia. It has produced no untoward e no local disturbance at the seat of injection, and no marked enlargement of the spleen. All cases ha once responded to quinine, and there have so far be relapses. This strain has already passed through hosts and is at present in use in other hospital seems advisable to name the strain so that it m traced, for many points, such as increase or weak of the virulence of the parasite, and various other tions which arise, will be more easily answered whe strain has passed through many more hosts tha present.

action of the anaesthetic on the medulla. I have over and over again pointed out the presence and persistence of this stenosis during my operations of laryngo-fissure. The larynx is, in that operation, split open and absolutely shut off from any connexion with the trachea and lungs; the anaesthetic (administered through the tracheotomy opening) does not come in contact with the laryngeal mucosa, which is rendered insensitive with cocaine; and no mucus descends from the pharynx to irritate it. Yet the cords (or the one cord, when the other has been removed) remains in the cadaveric position, within whose orb it continues to make its limited to-and-fro excursions. Is this position due to spasm or paresis?

Laryngismus stridulus is, doubtless, the best known manifestation of "laryngeal spasm," but is it a spasm and due to overcontraction of the glottis-closing muscles, or may it be due to loss of abductor tonus or even paresis of the postici muscles? Certainly a very comprehensive and modern medical dictionary defines laryngismus stridulus as "a disease of children marked by sudden laryngeal spasm, with a crowing inspiration and the development of cyanosis."[3] I studied this question very carefully some years ago, before writing the chapter on the subject in my textbook, and then came to the conclusion that the phenomena were not caused by a spasm of the glottis-closing muscles, but by a paresis of the opening muscles; that it occurred more in the flabby and feeble than in the hypersensitive and readily responsive; and that, therefore, treatment by stimulation, tonics, and improved nutrition was not only indicated but was, in practice, more successful than soothing treatment by sedatives, anaesthetics, and so forth. It is certainly not due to a peripheral nerve lesion. There is no endolaryngeal cause, and the name, "*laryngitis stridulosa*," is a misnomer. It is curious that it should be more common in male children. But as we have the opportunity to-day of hearing the views of those who must see a good many more cases than the laryngologist, I should be very glad to hear their opinion on these points.

Is Hiccup a "Glottic Spasm"?—A sudden, complete, and involuntary closure of the glottis, announced by the well known sound, certainly takes place. But is the affection not a good illustration of my thesis that many cases of what are readily accepted as spasmodic contraction of certain muscles are really due to the paresis of their opponents? Surely the sudden, powerful, and irregular contraction of the diaphragm, innervated by the phrenics, is the most important feature; and this sudden unexpected descent takes the glottis, so to speak, unawares when its abductor tonus is impaired by neurosis (as in asthmatic or hysterical subjects), or when the respiratory centre is depressed by alcoholic intoxication, by uraemia, or after haemorrhage, cholera, or other serious illness. The spasm, surely, is in the diaphragm; the vocal cords, no longer held at the correct "concert-pitch" by the abductor tonus, are suddenly sucked together, and the characteristic click of a hiccup is directly due to a paretic and not a spasmodic laryngeal action.

Clonic Spasm of the Larynx.—Time does not permit of my referring to the interesting cases of rhythmical twitchings—clonic spasm or nystagmus—affecting the cords or arytenoids, and generally associated with similar spasms in the pharynx and fauces. They are said to occur in paralysis agitans, after meningitis, in syphilis of the brain, in pressure on the medulla from tumours of the cerebellum, and in disease of the medulla in the neighbourhood of the accessory nucleus.

TREATMENT.

As regards treatment I can be brief. It depends on the diagnosis and the etiological factors. It will vary according to our decision that the symptoms are produced by adductor contraction or by abductor paresis.

revulsive effect of strong smelling-salts, cold affusion, and suggestion will prove useful. The patient should be ordered to keep the mouth closed and to breathe quietly through the nose. A few puffs into the pharynx of a weak solution of cocaine (2½ per cent.) will check a large number of cases. It is not wise to put this remedy in the hands of patients with functional spasm.

Between the attacks the exciting cause must receive appropriate treatment. In all cases any source of irritation, such as dust, alcohol, tobacco, indigestion, or excitement, should be avoided. In functional cases the undue sensitiveness may be allayed by bromides and a sedative lozenge. But the important thing is to treat the patient's general condition by regulating the diet, hygiene, and habits, and eliminating all possible causes. In some inveterate cases I have traced the spasm to the morphine or cocaine habit.

The treatment of spasm of central origin is purely symptomatic, as the primary disease is usually incurable. In tabetic crises, bromides, iodides, chloral, antipyrin, and morphine quiet the excitability of the centre. Tracheotomy may be required, and I have had to advise in cases of recurrent paralysis associated with attacks of spasm. But I have never had to perform it during an attack, nor have I ever met with a case of functional spasm where it was necessary.

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SIR JAMES DUNDAS-GRANT, K.B.E., M.D., F.R.C.S.,

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AFTER the interesting and stimulating review of the subject presented by Sir StClair Thomson, I propose to confine myself to a few personal observations and views. Such spasmodic conditions of the glottis may be due to hyper-excitability of the cortical centres for adduction of the cords (the phonatory centres), or to overaction of the centres in the bulb of which the adductor centres appeared to be the stronger. The former is probably the main element in the glottic spasm of children (laryngismus stridulus), the latter in adults.

Laryngismus stridulus must be distinguished from laryngitis stridulosa, the usual condition spoken of as croup. My experience confirms the statement that the former occurs almost exclusively in the subjects of rickets. In this disease there is a deficiency of calcium in the blood. Calcium is known to act as a sedative to the nervous system, and its absence leads to a relative hyper-excitability, with the natural consequence—an abnormally vigorous reaction to any irritation, either local or distant. Among the former may be cited the irritation produced by the increased pharyngeal secretion accompanying adenoids in the nasopharynx. A singular instance of a distal source of irritation is illustrated by the case of a young male infant brought to me in view of the possibility of laryngeal obstruction. The little patient had attacks of stridor with violent excitement, followed suddenly by a state of exhaustion. This suggested the infantile masturbation described most graphically in Braune's work on *Kinderkrankheiten*. Inquiry elicited from the father the observation that during the attack there was a condition of priapism, and on inspection there was found an excessive tightness of the prepuce. Circumcision was advised, and it was followed by complete recovery.

I have observed the occurrence of laryngeal spasm in women at the menopause. A very suggestive instance of laryngeal spasm of sexual origin is quoted by Moritz Schmidt as narrated by Stoerk. It occurred in the person of an impotent widower and his second wife.

He was inoculated with benign tertian on September 8th, 1922. During the attack of malaria and for some weeks afterwards his mental condition underwent a change. From being apathetic and lacrymose he developed well marked auditory and visual hallucinations, and also delusions of persecution, which for a time made him very troublesome with his food. Gertsmann refers to similar cases and seeks to explain the presence of the auditory hallucinations by the greater infiltration of the temporal lobes. The patient, however, made a good recovery and was discharged. He has since written a letter to his medical officer which shows that he has at present remarkably good insight.

On his discharge (June 30th, 1923) the following notes were made: *Nervous System.*—Pupils: right, slightly irregular, reactions (direct and consensual) to light sluggish; left, dilated, oval reactions to light, direct sluggish, consensual absent. All superficial reflexes equal and present; tongue, no tremors; speech, no impediment. Right knee-jerk diminished; left knee-jerk diminished; sensations normal, gait normal; Rombergism absent. Plantars flexor; sphincters normal. In good bodily condition. Cerebro-spinal fluid: Lange gold test, zone 2 curve; gamboge, precipitation in all five tubes; cell count 61; Wassermann test positive. Blood: Wassermann test positive 1 in 5.

Case II.

J. A., male, aged 36. Admitted October 11th, 1922. *History.*—Patient is unmarried. He is stated to have had ordinary health prior to being wounded in the head during the late war. He was, however, in the army until September, 1919, and was able to follow his employment until July, 1922, when he complained of severe headaches. No history of his having contracted syphilis has been given. On admission he was rambling and incoherent in conversation, disorientated, wet and dirty in habits. He usually lay in bed with his legs drawn up, and his face partially or wholly covered with blankets. He was in poor bodily health; unable to walk; his weight was 9 st. 4 lb.

On examination, the cardio-vascular and respiratory systems were normal. The pupils were small, unequal, irregular, and sluggish; tongue and lips tremulous; speech slurring; knee-jerks positive; plantars both flexor; showed intention tremors in hands. The blood and cerebro-spinal fluid both gave a positive Wassermann reaction; Lange gold test, zone 1 curve; gamboge test, precipitation in all five tubes; protein tests, positive; cell count 24.

He was inoculated with benign tertian on January 25th. At the end of March he was noted to have improved a little mentally—he was not so apathetic; there was also a slight improvement in his physical condition and he was just able to walk. In another month his condition improved both mentally and physically; he still remained wet and dirty in habits, but was able to walk a great deal better. By the end of June he was no longer wet and dirty in habits. His weight had increased by 2 st. and he was able to walk fairly well. At the time of writing he is in good bodily health, is able to walk fairly well, takes an interest in his surroundings, but his memory is very defective for recent and remote events.

Case III.

J. W. B., male, aged 52. This patient contracted syphilis in 1906; he was diagnosed as a case of general paralysis in 1915 in another mental hospital, and was discharged presumably in a state of remission. He was admitted here in December, 1921. From the date of his admission until May, 1922, the disease did not seem to be making much progress so it was decided not to inoculate him with malaria. In the beginning of May, 1923, however, he had several seizures and his condition began to deteriorate rapidly. He became wet and dirty in habits, and eventually a bedsore developed. It was then decided to inoculate him with malaria. This was done on June 9th, and on June 20th he was put on quinine. Since that date he has improved steadily. He is up and able to walk about, the bedsore is practically healed, and his mental condition has improved a great deal.

Case IV.

J. B., male, aged 54. On admission the patient was simple and childish; was completely disorientated for time and place. He was in feeble physical condition. Since March of this year he had been confined to bed and he was unable to walk. He had marked tremors of his hands and was unable to do anything for himself. He was inoculated on June 5th. He continued to improve rapidly after inoculation and is now able to walk about. He still has tremors of the right hand, but is able to work in the ward. His mental condition is much better; he is now orientated for time and place. The rapid amelioration of his mental and physical condition was commented on by his relatives.

Case V.

R. B., male, aged 44. This patient made a spontaneous recovery from his attack of malaria. Parasites appeared in his blood nine days after inoculation; they remained in the blood for thirty-nine days, and then disappeared. He has had no rise of temperature since, nor have any parasites been found in his blood. A period of over three months has now elapsed.

Of the 40 cases under treatment during the past fourteen months, 6 have died. Three patients have been discharged to their homes and are now following their usual occupations. Three patients formerly wet and dirty in habits have ceased to be so. Two of the cases formerly confined to bed have regained their strength to a considerable degree and are able to be up and about.

We are of opinion that this form of treatment is worthy of an extended trial, as, in our experience, benefit seems to be obtained in almost every case. In 296 cases Gertsmann claims to have obtained a complete remission in 38 per cent. So far, we are not in a position to make a similar claim. Our idea in this article has been to record preliminary observations on the 40 cases under treatment in the hope that we may be able to refer to them at a later date.

It has been suggested that better results might be got from subjecting the patient to relapsing fever, a spirochaetal infection which produces a continuous fever for three or four days instead of an intermittent fever for a longer period. It is hoped that the antibodies produced will have an effect on the *Spirochaeta pallida*. We have, again, through the kindness of Professors Stephens and Yorke, been able to inoculate with relapsing fever, and we hope to be able to refer to this form of treatment again.

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THE CARE OF CHOREIC CHILDREN.

BY

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The overflowing nervous energy of healthy children exhibits itself in lively motor activity, which to the adult eye appears constant, and *may* be regarded as uncontrollable. The healthy child is nervous in the sense that his nervous system is comparatively unstable; but, granted moderate heredity and suitable hygiene and environment, he develops within the bounds of an ever-increasing power of control. Psychoanalysis and neurology must here be based on child-study and experience of children; knowledge of the characteristics of childhood is the essential basis for the interpretation of nervous phenomena. Much can be learned by close observation of emotional control, mental activity, and the neuromuscular condition, but it is important not to exaggerate the significance of nervous symptoms. A marked form of expression of nervous instability is muscular spasm, and this spasm in some form is a common symptom in most illnesses. Its form of expression ranges from general restlessness to twitching of individual muscles, from violent convulsion to faint tremor.

Diagnosis.

The "nervous" child oversteps the limit of self-control. The mild initial symptoms of "nervousness" are excessive motor and mental activity. Later, it may be noticed that, while the mental activity remains excessive, it becomes increasingly associated with emotionalism, and a lack of sustained or reserve motor power. The child is easily tired, he is irritable, he cries readily, and jumps at sudden sounds, etc. There may be motor lethargy, unwillingness and inability to play strenuous games. With further development of the condition emotionalism becomes more strongly marked, lack of reserve mental power and even mental peculiarity supervenes, and motor spasms occur. The cause of such a "nervous" condition is usually complex. Neurotic heredity is common, and, when present, is usually supplemented by neurotic environment. An extreme sense of responsibility on the part of the parents or guardians, or their ignorance or fear, often develops the unsuitable environment.

Frequently, however, the nervous element, whether in heredity or environment, is not primarily at fault. The common basal error in these cases is digestive. Irregular, improper, or excessive diet deranges digestion, and manifold sequelae result—among them nervous instability, diminution in the power of control, spasm. Endocrine function is sometimes, but rarely, markedly affected.

This "nervous" child is, further, exposed to the common hazards of childhood. In outstanding degree he is liable to suffer shock from the onset of puberty, from arresting and violent psychical stimuli, and from rheumatic infection;

GENERAL DISCUSSION.

Dr. PETER MACDONALD (York) stated that he had had a special opportunity of observing this condition, as a near relative had a partial thyroidectomy performed, leading to damage of the nerves of the glottis. She had had several attacks of laryngeal spasm each year, during sleep as a rule. One vocal cord was paralysed. A manœuvre which seemed to help was a knee-elbow position, with depression of the mandible, an endeavour being made at the same time to phonate the sound "aa."

The PRESIDENT said that the general practitioner saw these cases, not the consultant. Tracheotomy might actually be called for. He mentioned a case in which introduction of an endoscope gave rise to spasm of the larynx and diaphragm. He quoted Sir Felix Semon's advice to the patient to hold his breath while twenty was counted and then to take short rapid nasal breaths.

Dr. WILLIAM HILL (London) quoted two cases, one a syphilitic who died in hospital without operation, while the other died, as laryngotomy was being performed, from heart failure.

Mr. A. J. WRIGHT (Bristol) spoke on the occurrence of laryngeal spasm in whooping-cough in adults, and quoted a case which occurred in an old lady.

Dr. DAN MCKENZIE (London) said the cause of the condition had to be diagnosed in a few seconds. He agreed that the lingual tonsil was a common origin for the reflex.

Mr. SOMERVILLE HASTINGS (London) said that b it was rarely fatal, medical men were apt to feel to about laryngeal spasm. He recorded a case in which motor ataxy being present, he performed tracheotom saved the patient.

Mr. E. D. D. DAVIS (London) quoted a case of of the larynx following passage of an antral cannula

Mr. MARK HOVELL (London) referred to Mackenzie's account of spasm; gastro-intestinal de ments, he said, were a large factor, which was most mon among children of the poor. It led to enlargem the lingual tonsil, which was the most prominent ca glottic spasm.

Dr. DAVIDSON (Queensland) quoted a case followi operation for tonsils and adenoids, which was cur tracheotomy and artificial respiration.

Sir STCLAIR THOMSON, in reply, said that he wa averse to tracheotomy; he had ordered its perfor often in tabetic cases. In regard to Mr. Mark H remarks, he always read Morell Mackenzie, and he a about gastro-intestinal trouble; the lingual tonsil tainly, in his opinion, deserved attention. Male ch more commonly had laryngismus stridulus. The pharyngeal nerve was very important as a starting for a spasm. Sometimes artificial respiration was nec after a successful tracheotomy.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ANTE-PARTUM HAEMORRHAGE DUE TO PLACENTA PRAEVIA, ASSOCIATED WITH ALBUMINURIA AND ECLAMPSIA.

THE following case of placenta praevia associated with albuminuria, which is the second I have had, is perhaps worth recording, because when ante-partum haemorrhage is associated with albuminuria it is usual to regard the haemorrhage as of the accidental type. When, however, two cases like this occur in the practice of one medical man within two years, it seems probable that the association of placenta praevia and albuminuria is not uncommon, and that the usual inference that ante-partum haemorrhage with albuminuria means that the bleeding is of the accidental type is not always a safe one to make. The point has an important bearing on treatment because, although this particular case recovered under expectant methods, the mother would have been spared a recurrence of haemorrhage and probably would have recovered more rapidly from the albuminuria if labour had been induced, as is usual in cases of placenta praevia.

A married woman, aged 35, had two children: the first died in infancy, and the second when six weeks old developed snuffles and was cured by antispecific remedies. On April 18th, 1923 I received an urgent summons to visit the woman, and on arrival found that she had had a smart uterine haemorrhage over a pint of blood having been lost. She was about six months pregnant. Haemorrhage had ceased. Her pulse was rapid and thready, the rate 120 per minute. She was pale and restless, and complained of pain in her back, she had no headache and no vomiting.

The history revealed that her last menstrual period was in September, 1922, but the definite date in that month could not be obtained. Examination per vaginam showed the cervical canal quite closed and, with the exception that a clot was found in the vagina and was not disturbed, the examination was negative. She was placed in the supine position and left since bleeding had stopped, with instructions to send immediately should

urine, which on examination was found to be loaded with al I then prescribed magnesium sulphate, ʒj every four hour ordered her to have copious draughts of water and barley frequently, she also had a mixture of potassium citrat spiritus aetheris nitrosi. At this time she was passing a pint of urine in the twenty-four hours.

Next day she had no more convulsions and no further ble she said she felt much improved. On the following day (S her condition was the same. On the Monday she was during the morning and her condition was found to be sa tory. About 3 p.m. on the same day, however, I was cal her and found on arrival that she had had another haemorrhage. She was in a condition of collapse. On ex tion per vaginam the os could just admit the tip of the finger: no placenta was felt.

A diagnosis of ante-partum haemorrhage of the accidenta due to toxaemia was then made, and the patient was st advised to go into hospital with a view to terminatin pregnancy. This she persistently refused to do. Mr. C Oldfield then saw her in consultation with me on the fol day and confirmed the diagnosis. From this time her tempe ranged between 101° and 105°, and the pulse rate remair about 136, and markedly dicrotic. There was no further bl and very little pain, but urine was very scanty and th very dry. Her condition was most unsatisfactory and I be despair of her life. On the Saturday, however, Dr. Alderton whom I am a partner, saw her in consultation with m confirmed the previous diagnosis and was also unable to out any placenta praevia. Upon his suggestion I put the p on tinctura jaborandi, ʒv every three hours, and also con to give magnesium sulphate every four hours. In the ev at 8.30, I visited her and not only found the skin mois discovered her to be literally bathed in perspiration and evi responding to the treatment by jaborandi. Her temperatu now normal, but the pulse rate was the same and her min still confused at intervals.

From this time onwards the temperature was mostly nor subnormal, and on two occasions only was raised to 100°. was copious, between one and two quarts daily. The puls gradually came down to 112, and then remained at about 110. A month later, on May 26th, I went for a holiday a the patient under the care of Dr. Alderton. On the night o 28th, at 11 o'clock, he was urgently summoned, and on arri found that there had been severe haemorrhage. On exam

Certain points stand out prominently in the records. Chorea commonly recurs; it is not uncommon to meet with cases of recurrent chorea in which there is no other evidence of rheumatism and no cardiac lesion; but with recurrent chorea the heart is usually involved. In connexion with tuberculous infection the following points were noted: habit-spasm is common in the cases of children suffering from tuberculous lesions; chorea sometimes occurs after acute localized tuberculous infection or an operation for the same, and in such a case, so far as here noted, is non-rheumatic; tuberculous infection sometimes supervenes after true Sydenham's chorea with cardiac involvement.

But the most outstanding feature in the records is as regards home conditions. Many of these children relapse frequently, become weakly invalids, have little education, and find it hard if not impossible later to obtain any work for which they are fitted. On the other hand, those children, even when crippled by heart affection, who survive childhood with a modicum of education, with fair vitality, and who are able to work and find work suited to them, are those whose home conditions, though poor and often to the outside eye dismal, are described as good of their class.

Apart from actual lack of the necessaries of life and maternal overwork, lack of wisdom in the home is the common determining factor in the welfare of the child. Members of the Child Welfare Association do a great work in attempting to remedy this—a work ultimately of lasting educative value, and which deals with the problem at its root. But the day is yet far distant when the possibilities and wisdom in our poorer homes will prove a satisfactory or thoroughly responsive medium for even the wisest of health visitors. For the wisest of our well-to-do the problem is very difficult, and particularly so at the time of puberty and with the vista of life's work in view.

Our children's hospitals receive in their wards children till the age of puberty, and with the development of country hospitals such as Heswall suitable and picked cases may reach this age with possibilities otherwise unattainable of a useful active life. But at this most critical period adequate support suddenly fails. True, if the patient be sufficiently ill he will be admitted to a general hospital, or perhaps a convalescent home; but even there he is not graduating for a useful life. If he is merely weakly, there are large numbers of dispensaries or out-patient departments which he can attend, while living at home, and such medical supervision may suffice to give him a satisfactory introduction to adult life.

But many of the cases of the type of which I speak are of an intermediate group, for whom the latter routine is insufficient, and who, if subjected to it, inevitably sink in the physical scale, and for whom the prospect of life is unutterably dreary—if life itself is retained. For these, then, who need, and who are capable of usefully responding to, special environmental opportunity at this critical period, what possibility presents itself? Just as in the case of tuberculous infection medical care is incomplete without restoration to safe life in the sanatorium and colony, so in these cases medical effort is frustrated without supervision and direction during the years of puberty and adolescence. The "Trade School for Cardiacs" in America deals with such "occupational" or "follow-up" therapy. The children with whom we have dealt here are potential or early "cardiacs," and, from the com[illegible] of their neuro-muscular symptoms, edu[illegible] ments is imp[illegible] with, [illegible]ice, nor have any parasites been found in his blood. A period of over three months has now elapsed.

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Of the 40 cases under treatment during the past fourteen months, 6 have died. Three patients have been discharged to their homes and are now following their usual occupations. Three patients formerly wet and dirty in habits have ceased to be so. Two of the cases formerly confined to bed have regained their strength to a considerable degree and are able to be up and about.

We are of opinion that this form of treatment is worthy of an extended trial, as, in our experience, benefit seems to be obtained in almost every case. In 296 cases Gertsmann

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF MEDICINE.

Sir THOMAS J. HORDER, Bt., M.D., F.R.C.P., President.

DISCUSSION ON THE ETIOLOGY AND TREATMENT OF HEART DISEASE IN EARLY LIFE;

WITH SPECIAL REFERENCE TO THE PREVENTION OF CHRONIC CARDIAC INSUFFICIENCY.

OPENING PAPER

BY

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THE honour of opening this discussion, of which I am very sensible, carries with it no small obligation, for there is no doubt that our subject—that of heart disease in early life—constitutes one of the major problems concerning the nation's health.

Directly we begin to think of this subject as a national question we find ourselves thinking in terms of one disease and one disease only, that of acute rheumatism—that great, essentially British, infective disease. Other diseases there are which will affect the hearts of children, and, of course, they are not ruled out of our discussion; but for practical purposes the problem of heart disease in early life is commensurate with the problem of rheumatic infection. It is to this subject that I shall confine my remarks, and for the purpose of our discussion I have somewhat painfully dissected out and labelled some of the various difficulties which keep us back from a more successful control of the disease.

PROGRESS MADE.

Before passing to these difficulties I think it might be of interest to express a personal opinion upon the progress made in the fight against this disease. The chief change in the last fifty years seems to be a reduction in the frequency of the severer *manifestations* of the disease. Taking all types, mild and severe alike, I suppose the frequency has declined a little; *this is merely an impression*, but the following *considerations seem to prove the* gradual reduction in the number of the severer *types*.

(a) Hyperpyrexia.—In 1882, to judge by the fifteenth volume of the *Transactions* of the Clinical Society, physicians would seem to have met with twenty, thirty, or even more cases in their own experience.* I doubt if anyone here has seen half a dozen. At Guy's Hospital, in the ten years 1900-1910 there was one case in 1,053 instances of "rheumatic fever." At St. Mary's Hospital in the last fifteen years I can recall two instances. The most dread of all rheumatic symptoms seems to be disappearing.

(b) Rheumatic Admissions.—The number of cases of rheumatism severe enough to require admission to hospital is also declining. Taking quinquennial periods from 1869 to 1914, the St. Bartholomew's Hospital reports show that the number of rheumatic cases per 100 medical in-patients has dropped from roughly 10 to 5. Instead of something over 200 cases a year, there are now something over 100.

Pericarditis.—The proportion of rheumatic in-suffer from acute pericarditis perhaps gives accurate idea of what is happening. The [illegible]e shows the percentage worked out in quin-[illegible]ods (post-war figures are not yet available):

* [illegible]ears 1873-77 at the Middlesex Hospital out of 778 cases of [illegible]e were 53 instances of hyperpyrexia (loc. cit., p. 263).

Professor Raymond Pearl discusses at length the statistics concerning the influence of alcohol consumption on the duration of life. He shows that most of the statistics produced to prove the relation between the consumption of alcohol and the duration of life are riddled with fallacies. His conclusion is that the moderate use of alcohol produces no demonstrable effect on the mean duration of life, but that this is diminished by excessive drinking. As he points out, this is exactly the conclusion most unprejudiced observers have arrived at by the exercise of common sense. As an instance of the care needed in interpreting statistics, Professor Pearl gives a curve (p. 265) which shows that the death rate in the United States for the last fifty years has varied inversely as the consumption of alcohol per head. As the author says, "This diagram is rather striking, and at a first quite uncritical appraisement might seem to be filled with significance of a sort likely to be discomforting to a prohibitionist." He goes on to point out that the chart has probably no significance whatever.

This brief sketch of the book is sufficient to show how large an amount of interesting scientific information it contains.

The action of alcohol on man is, of course, a subject which those who desire to avoid controversy leave alone; presumably controversy has no special terrors for the authors of this volume, and they will probably enjoy the storm which it appears to be raising. Unfortunately controversy and in consequence public attention will probably concentrate on the least important passages in the book, for Professor Starling has a neat turn of phrase and a pleasant sense of humour. We have already seen one review which concentrated its attack on the statement that teetotal dinners were apt to be dreary affairs!

The chapter which deals with the influence of alcohol on the community certainly invites controversy, for in this connexion many social and economic factors have to be considered in addition to the pharmacological action of alcohol, and on these other problems the author naturally does not claim to speak with the same authority as he does on matters appertaining to physiology. Professor Starling's general conclusions are that alcohol is a pleasant thing, that it is often a useful thing, and that there is no reason to abolish it because it is abused by certain members of the community.

We are not prepared to agree with the author in all cases with regard to the relative emphasis he has laid on the various points that have to be considered in judging the action of alcohol on the community. Our chief criticism is that he hardly lays sufficient stress on the fact that alcohol is a habit-forming drug. Regarding this he writes:

"Every action which is sufficiently often repeated tends to become a habit, and in habitually intemperate drinkers there is thus a craving for alcohol, i.e., an overbearing desire to take another dose as soon as the effects of the last begin to pass off. But this craving or habit is not as marked as in the case of other drugs" (p. 151).

It is quite true that the habit formed for morphine, for cocaine, and even perhaps for nicotine, is much stronger than that formed for alcohol, but with these exceptions alcohol may establish a stronger habit than almost any other drug; moreover, we would question the truth of the assertion that the formation of an alcohol habit is confined to habitually intemperate drinkers. This is rather an important point, for some writers have argued that drunkards are simply a class of persons with abnormally low self-control, and that alcohol does a service to the community by hastening their elimination. This view cannot be considered to be finally proved, and it seems much safer to assume that a normal individual risks the formation of an alcohol habit if he regularly exceeds a certain very moderate amount of alcohol for any prolonged period.

As regards the economic aspects of the problem, Professor Starling says:

"In a recent paper by Professor Collis it is pointed out that in

This is an example of an individual judgement likely to be hotly contested. The statistics given seem to suggest that the average adult male spends n alcoholic drinks than he does on his food, and ma think that this represents a wholly disproportionate e ture on a single luxury. The chief disadvantage o excursions into controversial social problems is tha may divert attention from the remainder of the book, is less controversial and of greater importance.

The book should be read by all those interested i perance reform; they will do well to note the ha exaggerations of some of their supporters have don cause, for the authors of the book under review have spend so much space in disproving such statement much more of the book is occupied with the defe alcohol than would otherwise have been the case.

To-day any work on alcohol is bound, as has alread said, to arouse controversy. A few years ago only th perance party were actively vocal, and as long as a confined himself to abuse of alcohol he was fairly su quiet life; but now the friends of alcohol are ban active trade defence organizations, and hence any sta regarding alcohol is sure to be assailed by one or both The authors, however, may console themselves wi thought of Swift, who concluded a controversial pa by expressing the hope that his arguments were so e reasonable as to command the assent of both sides. if that is not to be hoped for, my next wish should b both might think me in the wrong; which I would stand as an ample justification of myself and a sure to believe that I have proceeded at least with impa and perhaps with truth."

KALA-AZAR.

NAPIER and MUIR in their book on *Kala-azar*[2] stat the peculiar local conditions which determine the e city of the disease can only be ascertained by the of accurate statistics collected by those on the sp rests with practitioners in the endemic areas to clear up the difficulties. The book is written wi intention of assisting practitioners in performin task, by indicating the means of arriving at a su gnosis and the questions to which investigation more especially be directed. The disease is stated to both in town and country, but chiefly in small c rural communities. It is often found in old-estal villages surrounded by trees and decaying vegetable but not in new villages. It is a site, house, and infection. The exact mode of infection has not at p been discovered, but the possible means of infecti transmission from patient to patient, directly or t the agency of excretions or secretions, or transm by the agency of a blood-sucking insect directly fro to man, or through an alternative host (bats, lizar infection directly to man from an insect in whic microbe is the natural flagellate. Spread of the in is conceivably by the excretions, from the skin sur by the peripheral blood through the agency of a sucking insect. There is at present no proof that a of these is the route used, but the most probable are considered to be by the peripheral blood or fro intestinal tract. In hospital, cases of kala-aza usually treated in the general wards, but no case fection from the wards is known, although few ho are entirely free from the bed-bug. Of the blood-s insects the bed-bug is the most suspect, although th against it is by no means proved.

The authors give a graphic description of the sym of the disease, but state that a diagnosis on clinical g only is seldom if ever justifiable. The less ela bedside laboratory methods of diagnosis includ

ceivable movement except "twitch"? They should learn that the early signs of chorea are exaggerated fidgetiness, inattention, stupidity, naughtiness, and emotionalism.

3. *Bacteriological Cause.*

The uncertainty which it is still the fashion to express on this matter hampers our clear conception of the disease. Has not the time arrived when we can agree that the infecting organism is an alimentary streptococcus? For my own part I regard this as well proven. I do not here intend to detail the evidence which has been brought forward by Poynton and Paine and many of their successors. In my own experience I have seen the streptococcus isolated by clinical bacteriologists who had been taught that it was impossible to find it; and I have been associated with experimental work and have noted its baffling alterations in virulence. One fact weighs enormously with me—that of obtaining the organism from the cerebro-spinal fluid in an occasional case of chorea. What can we think in such a case but that there is a causal connexion?

That the streptococcus cannot be separated from certain types of alimentary streptococci is not, to my mind, against this view; on clinical grounds nothing is more likely than that the rheumatic agent is a constant inhabitant of the alimentary tract. I feel that, after all the years that have elapsed, we might now agree that in the theory of the causation of rheumatism by an alimentary streptococcus we have a complicated key which fits a complicated lock.

4. *Salicylate Therapy.*

Our treatment of rheumatism must suffer if we cannot decide what action salicylate has upon the disease. This is another long-standing controversy: does salicylate act by diminishing the activity of the rheumatic infection? I see no escape from the conclusion that it does. To deny any bactericidal action to this drug in rheumatism is to be left without any explanation of its curative action in acute rheumatic arthritis. I suggest that the explanation of the action of salicylate in rheumatism is as follows.[2] In this infection we have three sets of tissue changes set up. First, we have focal interstitial inflammatory lesions, the direct result of the infecting organism. These are the chief changes seen in acute arthritis, acute tonsillitis, and in acute pericarditis where it exists without much myocardial damage. These are well controlled by salicylate, and we may say that where the patient's symptoms are due to this type of lesion the clinical result of salicylate therapy is satisfactory. But, secondly, we have toxic parenchymatous changes often affecting the "noble tissues" of the heart muscle and brain. No bactericidal drug could here do more than prevent further damage by putting an end to the infection. Therefore, where the patient's symptoms are due to such changes as these, salicylate acts at a disadvantage, although it still does some good. In this category come myocarditis and chorea. The large effusions sometimes left in joints when the pain and fever have disappeared, rheumatic anaemia, and nodules are (clinically) in a somewhat similar position. All these are results of an infection and will persist although the infective activity has ceased. Lastly, there are the changes induced by healing processes, which, of course, salicylate cannot touch.

With such an explanation as this we feel that we can use salicylate with freedom. The effective dose in children is from 60 to 120 grains a day, and in practice it is most important that the daily dose should be divided up into many small doses, rather than given in a few large ones. It must be remembered that it is the patients with much cardiac dilatation who are apt to vomit with salicylate; however carefully it may be given, about 30 per cent. of such cases tolerate it badly.[3]

I come now to two clinical difficulties which have a very real bearing on the prevention of chronic cardiac insufficiency, but I deal with them now as they are connected with the infection itself. I hope to receive much help from our discussion on these two questions.

5. *Source of Recrudescences and Relapses.*

The first of these concerns the origin of the renewals of activity on the part of the infection. I suppose we should all agree that early attacks may often be traced to tonsillar infections, and I think where only early attacks are considered the removal of the tonsils may do permanent good. But it is now generally recognized that where there have been repeated attacks tonsillectomy often fails to prevent further trouble. Whence come these later attacks? Are they from the alimentary tract, the mouth, or the bowel, or do they originate from foci left encapsuled in the tissues of the body? In some cases it would seem that they are not really fresh attacks but recrudescences of an infection which has never truly been quiescent. I confess that this whole subject, important though it is, is full of mystery to me.

6. *Test of "Cure."*

Another very difficult clinical point concerns our appreciation of the time when rheumatic activity can be said to be at an end. I think it most difficult to be sure of this. Personally, I attempt to judge by three tests: first, the loss of the toxic appearance of the patient; second, gain of weight; and third, the temperature. Of the three I lay most stress on the child's appearance. The temperature chart is not an easy guide. A really "flat" chart, I think, may safely be regarded as meaning an absence of infective activity, but one showing irregularities I regard as uncertain; while any regular swinging of the temperature, whether it swings above the normal or (as so often in chorea) keeps entirely below the normal line, I regard as meaning some remaining rheumatic activity. With the greatest care, however, I find it hard to judge between an infection really quiescent and one which is smouldering on in a low state of activity.

PROBLEM OF HEART DISEASE IN RHEUMATIC SUBJECTS.

I come now to speak of the causation and treatment of heart disease in patients who are already infected with rheumatism. Heart disease in rheumatism is largely a matter of the severity of the infection and the age of the child. It is a well recognized rule—although chorea will sometimes furnish exceptions to it—that we do not find acute rheumatism of the "adult" type (in which the heart tends to be spared though the infection be severe), under the age of 10 or 12 years. Below this age, and often above it, rheumatism is essentially an infection of the heart.

I leave for the moment cases of the type which goes on to chronic cardiac crippling, and speak here only of the commoner type, in which the heart, although showing signs of damage, seems to recover its functioning power satisfactorily. In such cases the heart has nearly always been damaged before the child comes under treatment, and, in my experience, if the heart has escaped, it will remain free from damage in most instances once the child is admitted to hospital. Therefore, so far as these cases are concerned, our principles of treatment consist chiefly of (1) early diagnosis and (2) efficient treatment for the infection.

1. *Early Diagnosis.*—I would like here to emphasize the fact that although often the severe symptoms of rheumatism develop with a rush, yet they have nearly always been preceded by mild symptoms which have been neglected or misinterpreted. It is during this stage of invasion that we want to get their child under antirheumatic treatment.

2. *Efficient Treatment.*—Our aim here must be to subdue the activity of the infection by salicylate while sparing the heart as much as possible by resting the patient. These two measures are the best preventives of cardiac rheumatism. I do not know of anything else that can be done to prevent the heart's being involved, or to put an end to carditis should it exist, with the exception of the use of counter-irritants to the precordium in cases of acute pericarditis. In the cases I am here considering these measures are usually successful.

PROBLEM OF CARDIAC CRIPPLING IN RHEUMATIC HEART DISEASE.

The last problem I have to consider is that of the chronic heart invalid: the type of case which has great enlargement of the heart, with mitral disease and often aortic

Professor Raymond Pearl discusses at length the statistics concerning the influence of alcohol consumption on the duration of life. He shows that most of the statistics produced to prove the relation between the consumption of alcohol and the duration of life are riddled with fallacies. His conclusion is that the moderate use of alcohol produces no demonstrable effect on the mean duration of life, but that this is diminished by excessive drinking. As he points out, this is exactly the conclusion most unprejudiced observers have arrived at by the exercise of common sense. As an instance of the care needed in interpreting statistics, Professor Pearl gives a curve (p. 265) which shows that the death rate in the United States for the last fifty years has varied inversely as the consumption of alcohol per head. As the author says, "This diagram is rather striking, and at a first quite uncritical appraisement might seem to be filled with significance of a sort likely to be discomforting to a prohibitionist." He goes on to point out that the chart has probably no significance whatever.

This brief sketch of the book is sufficient to show how large an amount of interesting scientific information it contains.

The action of alcohol on man is, of course, a subject which those who desire to avoid controversy leave alone; presumably controversy has no special terrors for the authors of this volume, and they will probably enjoy the storm which it appears to be raising. Unfortunately controversy and in consequence public attention will probably concentrate on the least important passages in the book, for Professor Starling has a neat turn of phrase and a pleasant sense of humour. We have already seen one review which concentrated its attack on the statement that teetotal dinners were apt to be dreary affairs!

The chapter which deals with the influence of alcohol on the community certainly invites controversy, for in this connexion many social and economic factors have to be considered in addition to the pharmacological action of alcohol, and on these other problems the author naturally does not claim to speak with the same authority as he does on matters appertaining to physiology. Professor Starling's general conclusions are that alcohol is a pleasant thing, that it is often a useful thing, and that there is no reason to abolish it because it is abused by certain members of the community.

We are not prepared to agree with the author in all cases with regard to the relative emphasis he has laid on the various points that have to be considered in judging the action of alcohol on the community. Our chief criticism is that he hardly lays sufficient stress on the fact that alcohol is a habit-forming drug. Regarding this he writes:

"Every action which is sufficiently often repeated tends to become a habit, and in habitually intemperate drinkers there is thus a craving for alcohol, i.e., an overbearing desire to take another dose as soon as the effects of the last begin to pass off. But this craving or habit is not as marked as in the case of other drugs" (p. 151).

It is quite true that the habit formed for morphine, for cocaine, and even perhaps for nicotine, is much stronger than that formed for alcohol, but with these exceptions alcohol may establish a stronger habit than almost any other drug; moreover, we would question the truth of the assertion that the formation of an alcohol habit is confined to habitually intemperate drinkers. This is rather an important point, for some writers have argued that drunkards are simply a class of persons with abnormally low self-control, and that alcohol does a service to the community by hastening their elimination. This view cannot be considered to be finally proved, and it seems much safer to assume that a normal individual risks the formation of an alcohol habit if he regularly exceeds a certain very moderate amount of alcohol for any prolonged period.

As regards the economic aspects of the problem, Professor Starling says:

"In a recent paper by Professor Collis it is pointed out that in the United Kingdom the expenditure on food per head comes to sixteen guineas, and on alcoholic drinks to eight guineas. In itself this amount spent by the whole country on alcohol does not seem disproportionate, if we consider that half of the total sum spent in alcohol reverts to the State and is used for carrying on the business of the nation. Moreover, alcoholic drinks supply the most widespread and easily obtainable means of increasing the pleasure of life and of diminishing the frets and worries of daily existence."

This is an example of an individual judgement that is likely to be hotly contested. The statistics given would seem to suggest that the average adult male spends more on alcoholic drinks than he does on his food, and many will think that this represents a wholly disproportionate expenditure on a single luxury. The chief disadvantage of these excursions into controversial social problems is that they may divert attention from the remainder of the book, which is less controversial and of greater importance.

The book should be read by all those interested in temperance reform; they will do well to note the harm the exaggerations of some of their supporters have done their cause, for the authors of the book under review have had to spend so much space in disproving such statements that much more of the book is occupied with the defence of alcohol than would otherwise have been the case.

To-day any work on alcohol is bound, as has already been said, to arouse controversy. A few years ago only the temperance party were actively vocal, and as long as a writer confined himself to abuse of alcohol he was fairly sure of a quiet life; but now the friends of alcohol are banded in active trade defence organizations, and hence any statement regarding alcohol is sure to be assailed by one or both sides. The authors, however, may console themselves with the thought of Swift, who concluded a controversial pamphlet by expressing the hope that his arguments were so entirely reasonable as to command the assent of both sides. "But if that is not to be hoped for, my next wish should be that both might think me in the wrong; which I would understand as an ample justification of myself and a sure ground to believe that I have proceeded at least with impartiality and perhaps with truth."

KALA-AZAR.

NAPIER and MUIR in their book on *Kala-azar*[2] state that the peculiar local conditions which determine the endemicity of the disease can only be ascertained by the study of accurate statistics collected by those on the spot. It rests with practitioners in the endemic areas to help to clear up the difficulties. The book is written with the intention of assisting practitioners in performing this task, by indicating the means of arriving at a sure diagnosis and the questions to which investigation should more especially be directed. The disease is stated to occur both in town and country, but chiefly in small compact rural communities. It is often found in old-established villages surrounded by trees and decaying vegetable matter, but not in new villages. It is a site, house, and family infection. The exact mode of infection has not at present been discovered, but the possible means of infection are transmission from patient to patient, directly or through the agency of excretions or secretions, or transmission by the agency of a blood-sucking insect directly from man to man, or through an alternative host (bats, lizards), or infection directly to man from an insect in which the microbe is the natural flagellate. Spread of the infection is conceivably by the excretions, from the skin surface or by the peripheral blood through the agency of a blood-sucking insect. There is at present no proof that any one of these is the route used, but the most probable routes are considered to be by the peripheral blood or from the intestinal tract. In hospital, cases of kala-azar are usually treated in the general wards, but no case of infection from the wards is known, although few hospitals are entirely free from the bed-bug. Of the blood-sucking insects the bed-bug is the most suspect, although the case against it is by no means proved.

The authors give a graphic description of the symptoms of the disease, but state that a diagnosis on clinical grounds only is seldom if ever justifiable. The less elaborate bedside laboratory methods of diagnosis include the aldehyde test, the blood count and examination of blood films, splenic puncture, and blood culture. The aldehyde

[2] *Kala-azar: A Handbook for Students and Practitioners.* By L. Everard Napier, M.R.C.S., L.R.C.P.Lond., and Ernest Muir, M.D., F.R.C.S.Ed. London and Bombay: Humphrey Milford, Oxford University Press. 1923. (Demy 8vo, pp. vi + 150; 9 plates, 5 charts. 8s. 6d. net.)

medical supervision of these children. It would seem to me to be work admirably adapted to the inclinations and capacity of some of the religious sisterhoods of this country, and I am hoping to hear how the experiment has gone at St. Mary's, Broadstairs.

I think that it is along these lines that we could make the quickest advance and arrange for the treatment of these cases without much longer delay.

CONCLUSIONS.

I have now sketched out to you the problems of the great rheumatic disease as they appear to me at this time, and I have done my best to point out more particularly those factors which seem to me to be preventing us from coping more successfully with this disease of our country. I conclude by specifying the most urgent and important of the problems awaiting solution:

1. What is the underlying connexion between rheumatism and poverty? This I believe to be by far the most important question not yet certainly solved.
2. What is the origin of the repeated relapses and reinfections in the rheumatic state, and how can they be prevented?
3. How can we be enabled to give long courses of treatment to our many heart cripples in the hope of prolonging their lives?

It will be seen that these problems concern alike public health workers, clinical physicians, and that never failing friend of our profession—the charitable public.

REFERENCES.

[1] BRITISH MEDICAL JOURNAL, 1923, i, p. 920. [2] Miller, R.: The Scope of Salicylate in the Treatment of Acute Rheumatism, *Clin. Journ.*, June 4th, 1913. [3] Miller, R.: The "Specific" Use of Salicylate in Acute Rheumatism, *Quart. Journ. Med.*, 1912-13, vi, S. 19.

DISCUSSION.

Dr. G. A. ALLAN (Glasgow) said that Dr. Miller had taken a wide survey of the subject and had outlined various avenues of attack against this most important branch of the problem of heart disease, and Dr. Allan was glad to find himself in general agreement with the attitude he had adopted. The object that was before the meeting was the prevention of that type of cardiac insufficiency which had its origin in the early years of life, and their attention was thus naturally directed in the first place to a consideration of acute rheumatism and its allies. The opener of the discussion had pictured for them the progress that had been made during the past fifty years in dealing with rheumatism and its cardiac effects, but it was a progress which, as he said, left rheumatism still one of the great serious infections of this country. The speaker wished to emphasize the magnitude of the problem that still confronted them. The returns of the Registrar-General were not sufficiently detailed to give accurate figures, but he found that in 1921, 53,710 deaths, or 11.7 per cent. of deaths at all ages and from all causes in England and Wales, were due to heart disease, and this did not include disease of the blood vessels. Tuberculosis and cancer, on account of which so much money was annually expended, appeared on the returns with about 10,000 less to their account. Many factors accounted for these stupendous figures, and not all of them were before them that morning, but they knew that rheumatism was one of the most potent single factors, and accounted for about one-half to one-third of the deaths due to heart disease in the wards of a general hospital. American figures were in close agreement with these, and in that country 11 per cent. of the total deaths were noted as being due to heart disease.

They could visualize the problem in another way by making use of the results of the medical inspection of school children. In Dr. Allan's own city of Glasgow, with a population of 1,111,428, the education authority was responsible for 198,304 children, and of those subjected to routine examination last year 0.6 per cent. had organic heart disease of the acquired variety, and 1.1 per cent. had functional heart disorder. In *The Health of the School Child*, which was the 1921 report of the Chief Medical Officer of the Board of Education, Sir George Newman stated that in the routine examination of school children in England and Wales about 0.7 per cent. were found to have organic heart disease, and 0.8 per cent. had functional heart trouble, while in London, at the age of 12, 3 per cent. of the boys and 4 per cent. of the girls had "heart defects"—a term that probably included the functional cases. In other words, taking the smaller percentages, there must be in Great Britain between 45,000 and 50,000 children of school age who had organic heart disease, many of whom were destined to become cardiac cripples before middle life. An interesting point emerged from some figures supplied to Dr. Allan by Dr. Bruce, one of the school medical officers in Glasgow. In the 5- and 6-year groups of school children, 0.5 per cent. had organic heart disease; in the 13- and 14-year group 1 per cent. had heart disease. The percentage had doubled during the compulsory school period.

Dr. Allan declared that Dr. Miller had rightly put in the forefront of his paper the consideration of rheumatism as rheumatism. The control or prevention of acute rheumatism and its allies was the basic problem. Next there had to be considered the treatment of the child who had had rheumatism, chorea, or repeated tonsillitis, but who as yet had no cardiac lesion—the potential cardiac case. Lastly, there was the case of the child who had some cardiac lesion, but who was not yet in the category of chronic cardiac insufficiency. Any child beyond that stage did not at present come before them for consideration.

If possible, some agreement about the infecting agent was wanted—but an organism did not necessarily have to be seen before it could be fought. If they knew where it was entrenched they might be able to deal with it. What was the relation of tonsillitis to rheumatism? Was it simply in certain types one of the rheumatic manifestations, or was the tonsil the port of entry or the home of the organism? What was the relation of scarlet fever to heart disease? Did scarlet fever produce endocarditis, or did the rheumatic organism simply gain entrance through the diseased tonsil in that disease, and so produce arthritis and endocarditis? If some of these questions could be definitely settled it would obviate the necessity for some of the discussion regarding enucleation of tonsils in rheumatism. The subject of chorea could not be slipped in casually with rheumatism; it demanded separate and special consideration. Further, they did not know the conditions that predisposed to the rheumatic invasion. Dr. Miller called for an inquiry into the connexion between rheumatism and poverty. That was important, but it would not necessarily give all the information they wanted as to the predisposing factors. The whole question of predisposing factors should be the subject of systematic inquiry. Apart from all these questions to be solved they could, even at present, do something by education. In a letter from the author of the figures he had quoted there occurred the remark, "Parents do not realize that it is possible for children to have rheumatism." Parents could be made alive to certain aspects of the subject that might ensure earlier medical attention. Medical students should be made to realize the essential difference between rheumatism in the child and in the adult, and they and medical practitioners should be made to recognize that pharmacopoeial doses of salicylates, three times a day until fever disappeared, was frequently only playing with a serious disease.

The second class that should receive special mention was the child who had suffered from rheumatism, chorea, or repeated tonsillitis, but in whom the heart was not yet affected. The end-results that were met with in hospital or in private practice were not commonly the result of a single attack of rheumatism. Cases of pancarditis with a first attack did not as a rule live long. Could anything be done to prevent subsequent heart involvement, to prevent, that was, the recrudescence or reinfection? Dr. Allan referred to some work that had been done in this connexion under the auspices of the Association for the Prevention and Relief of Heart Disease of New York. A small series of 65 cases of potential heart disease had been followed and cared for over an average period of four and a half years; 24 had had rheumatic fever or growing pains,

expect information relating to dairy and agricultural processes, but from the public health point of view such information has great practical importance, and this able book would have been of even greater value had it drawn more attention to the wholesome activities of bacteria of use in dairy work, agriculture, and industrial processes. With these additions it would have better deserved its title of a textbook of bacteriology for students of public health.

FINGER-PRINTS.

DACTYLOGRAPHY, or the science of finger-prints, upon which Dr. HENRY FAULDS has recently published a manual,[5] is becoming yearly more important in the identification of dead bodies and in personal recognition for many civil purposes, such as registration of aliens, passports, and the identification of infants in orphanages, in addition to its use in criminal investigations. In the U.S. Army it is in general use, under the supervision of a large staff of trained experts.

The system is of little utility unless two conditions are complied with—namely, that the principle adopted in taking the impressions shall be sound and that the impressions when taken shall be indexed or catalogued in a manner to be readily available for comparison. In both of these particulars Dr. Faulds, who must be considered a pioneer in the subject of dactylography, early detected the essential requirements, and urged that deductions from single finger-prints were fallacious and that the ten fingers of the person examined should be imprinted, and recorded in their proper order. The importance of a satisfactory system of cataloguing the finger-prints of, for instance, 500,000 soldiers is obvious, and here again Dr. Faulds was perhaps the first to elaborate a practical method of classification. His plan however, was not at the time (1886) considered at Scotland Yard because the system itself had not then been adopted and legalized.

Dr. Faulds gives many interesting details of the history of finger-prints in ancient and modern times. In 1881 Bertillon published an account of his anthropometric system of identification; in 1894 a Government committee here recommended a system combining finger-prints with Bertillon's method, and the suggestion was adopted in India three years later; in 1901 the ten-finger method was adopted in England; in 1914 Locard of Lyons drew attention to the permanent location of the pores of the skin as giving proof of personal identity. A description and classification of finger-prints is given and details as to the precautions necessary in taking impressions and the fallacies to be guarded against in finger-print research. The book is furnished with a good index and glossary and many illustrations, and contains a chapter of practical exercises to be worked out by the reader. From the portrait at the beginning of the book and from the book itself one judges that the author, who is 80 years old, is as keenly interested in his subject to-day as he was fifty years ago. It is possible that the successful application of the science of finger-prints to the needs of society explains the admiration that Dr. Faulds evidently feels for the law; he says, "it is sublime function of law and its officers to aid men to keep on the straight and narrow line, whilst ethics, inspired by religion, gives them steam to go forward to their higher destiny." We hope, however, that some of us are able to walk straight towards our ideals without the aid of a policeman.

CYANOSIS.

Cyanosis[6] is the second volume in the new series of "Medicine Monographs," which come to us from Baltimore. The value of this form of publication is constantly receiving wider recognition and, in this case, we are indebted to American initiative for the promise of a new library of authoritative books designed to take up the discussion of recent progress in the study of special diseases and of subjects closely related to disease processes.

The authors of the monograph under review are C. LUNDSGAARD and D. D. VAN SLYKE, names familiar to all who have had occasion to follow the work on blood gases, and the reasonable outcome of such a collaboration is a book of real scientific interest and of considerable clinical value. The thesis of the authors may be admirably presented in their own words: "Cyanosis appears to be chiefly dependent on the absolute concentration of reduced haemoglobin in the blood, rather than on the ratio of reduced to oxygenated. About 5 grams of reduced haemoglobin per 100 c.cm. of blood appear necessary to cause cyanosis. . . . An anaemic with less than 5 grams of haemoglobin per 100 c.cm. of blood cannot usually become cyanotic." It follows that the cause of cyanosis, apart from imperfect circulation leading to capillary stagnation, is largely a matter of deficient oxygenation in the lungs. This may arise from imperfect oxygenation of the whole blood, such as results from the reduced oxygen tension at high altitudes, from oedema of the lungs and from lobar pneumonia. On the other hand the fault may lie in a failure to oxygenate a part of the blood at all by reason of its being side-tracked from ventilation. Rapid shallow breathing leads to a cyanosis of this type, and the same condition may be found in bronchopneumonia and in congenital heart disease with patent foramen ovale. The distinction is fundamental and of particular clinical importance. It follows immediately from the definition of cyanosis given above that only in the case of deficient oxygenation of the whole blood can improvement be expected by giving oxygen. Many clinicians will find here an explanation of their puzzling experiences in the use of oxygen in pneumonia.

Secondary factors modifying the amount of oxygen unsaturation necessary to give a blue colour and the shade of colour produced receive adequate discussion. The chief of these are, naturally, the thickness of the epidermis, pigmentation, and local variations in the skin vascularity. The main clinical conditions in which cyanosis is a symptom are considered in connexion with the causative and modifying factors present.

An excellent bibliography completes this attractive monograph, the "get up" of which is beyond criticism and prepares one for the rather stiff price of 2.25 dollars. We suspect that the difference in price to American and to other purchasers more than covers the additional cost of postage and, if this be correct, it would seem to be an unfortunate distinction. Had the book originated from a country with a depreciated currency this form of taxation would have been less irritating.

A LUGANDA TEXTBOOK OF MIDWIFERY.

IN noticing the publication of *Amagezi Agokuzalisa*[7] the reviewer is in the embarrassing position of having to state frankly at the outset that he is totally incapable of understanding a single word of it. In the interests of journalism it is seldom that such candour is admissible! For the 99.9̇ per cent. of our readers who are probably in the same quandary as ourselves in regard to this little volume let it be stated that an English preface reveals it as an elementary textbook of midwifery in the Luganda language, for the use of the native students in the Uganda Protectorate. The native population there is dwindling, largely owing to the ravages of venereal disease, the appalling mortality of childbirth, and the equally appalling number of stillbirths amongst the syphilitic mothers. The authors state that 66 per cent. of the adult female population have, or have had, syphilis. The mortality in the first year of infant life is 330 per 1,000, as compared with a rate of something like 80 per 1,000 in England.

In the face of these terrible facts the efforts of the authors and their colleagues in the Christian missions, as well as those of the Government, are gallant and worthy

[5] *A Manual of Practical Dactylography: A Work for the Use of Students of the Finger-print Method of Identification.* By Dr. Henry Faulds, F.R.Anthrop.I., etc. London: The "Police Review" Publishing Company, Ltd. 1923. (Demy 8vo, pp. 68; illustrated. Stiff paper cover, 2s.; cloth, 3s.)

[6] *Cyanosis.* By C. Lundsgaard and D. D. Van Slyke. Volume II. Medicine Monographs. Baltimore, U.S.A.: Williams and Wilkins Co. 1923. (Med. 8vo, pp. 80; 20 figures. U.S., Canada, Mexico, and Cuba, 2 dollars; other countries, 2.25 dollars.)

[7] *Amagezi Agokuzalisa* (Manual of Midwifery in Luganda). By Albert R. Cook, C.M.G., O.B.E., M.D., Senior Physician, C.M.S. Mengo Hospital, Kampala; and Katharine Cook, M.B.E., Superintendent, Maternity Training School, Namirembe; Certified Midwife; late Nurse, Guy's Hospital, London. London: The Sheldon Press. 1923. (Post 8vo, pp. xii—223; illustrated. 2s. 6d. net.)

the tonsils as a preventive measure as soon after-
birth as possible. Then there would be no more
rheumatism in children. With regard to secondary
infection by way of the tonsils, in a child who had already
had rheumatism and possibly had a damaged heart they
knew that reinfection did not take place by this path,
because enucleation of the tonsils did not prevent further
attacks of rheumatism. On the other hand, septic tonsils
must be adequately dealt with in the rheumatic as in the
non-rheumatic child, just as carious teeth, rhinorrhoea,
otorrhoea, and other foci of sepsis must be attended to on
general principles. The more Dr. Emanuel saw of rheu-
matism in children, the more he saw that it resembled
tuberculosis. In chronic tuberculosis, repeated reinfec-
tion took place from existing foci within the body, and so
he believed it was with rheumatism—a second, third, and
fourth attack of rheumatism in a child meant repeated re-
infection from an existing focus in the muscles, joints,
heart, or alimentary tract.

Given a case of subacute or acute rheumatism, had they
any specific means of preventing a carditis? They had no
specific antirheumatic serum, no specific vaccine. They were
not serious in thinking that the heat of a fomentation, or
the cold of an ice-bag, or the pain of a blister, or the terror
inspired by leeches would prevent rheumatic infection of the
heart. These therapeutic measures might have their use if
only to give occupation to the nurse in attendance, but they
could have no power in preventing infection of the heart.

What view were they to take to-day of the much vaunted
drug sodium salicylate, introduced by Kolbe in 1876? It
had been in use for forty-seven years—had it prevented
endocarditis? They constantly came across diametrically
opposite views. He read only a few weeks ago in the
JOURNAL of the Association the serious recommendation to
give sodium salicylate, 40 to 60 grains daily, for seven to ten
days every month throughout adolescent life to prevent
further reinfection, presumably in a child who had shown
some manifestation of rheumatism. In contradistinction
to that view, in the *Proceedings* of the Finnish Medical
Society, Ehrstrom and Wahlberg pointed out that sodium
salicylate could not be a specific remedy in spite of having
steadily maintained that reputation for nearly half a cen-
tury. Those authors compared, from their own hospital
records, the incidence of rheumatic endocarditis in the
thirty-four years preceding its introduction in 1876 with its
incidence in the forty-four years following its introduction.
They found that there was no evidence of diminution in the
number of cases of rheumatic endocarditis in the post-
salicylic as compared with the pre-salicylic period. That was
strong evidence that sodium salicylate was not a specific
drug against rheumatism. Nevertheless, no one would deny
that it was an extremely useful drug in the treatment of
acute rheumatism, for it diminished both pyrexia and pain
in a truly remarkable manner. Even in that, however, it was
not a specific drug, for it reduced pain and pyrexia in other
non-rheumatic infections. Unfortunately for the young
rheumatic victim, the absence of pain in muscles and joints
and even the absence of pyrexia as well did not mean the
absence of cardiac infection. On the other hand, the
presence of pain in muscles or joints and of pyrexia was
strong presumptive evidence of cardiac infection.

While he did not wish to minimize the value of
sodium salicylate in the treatment of a case of rheumatism
with pain and pyrexia, he wished to point out that its very
power of being able to relieve these symptoms carried with
it a very real danger, for its use masked two of the impor-
tant symptoms that should make them suspect rheumatic
carditis. One of his colleagues had said to him before he
left Birmingham: "I hope at Portsmouth you are going
to denounce sodium salicylate as a cause of heart disease in
young people." He would not go so far, but he did agree
that sodium salicylate had its dangers, and in this wise:
They saw a child in the hospital out-patient department with
growing pains. They sent the child home and told the
parent to keep it in bed for a month and they prescribed
sodium salicylate. In a day or two the pains had gone, and
the mother, regarding the child as cured, allowed it to get
up. Had they sent the same child home to bed with a
[illegible] aspirin [illegible] the pains might
have lasted longer, but the child possibly would have been
kept in bed for the full month. The employment of sodium
salicylate in rheumatism was comparable to the use of opium
in a case of obscure abdominal pain. They would cure the
pain, but mask a symptom that might be of the utmost
importance. They had no specific against rheumatic infec-
tion of the heart and they must recognize the fact.

There could be little difference of opinion that this
country was badly in need of some form of further provision
for the prevention and treatment of heart disease in young
people. Dr. Emanuel was no advocate, however, for copying
New York. He did not want a society for the prevention
of heart disease, nor convalescent homes and schools for
cardiacs, nor special cardiac clinics, nor occupation bureaux
for cardiacs. They did not want to focus attention on the
heart; their aim must be the treatment and prevention of
rheumatism. The crying necessity in this country was for
hospitals auxiliary to existing general hospitals, where
children with rheumatic manifestations might lie until all
infection had ceased and where they could then remain
until the damaged heart had been trained to respond to
effort to its utmost capacity. To these auxiliary hospitals
there would also be sent young people with well marked
evidence of heart disease, but in whom there was no active
infection. Having no active infection, they would not be
sent in with the object of rest in bed, but to have their
hearts trained to respond to effort. It would have to be
possible to keep patients in these auxiliary hospitals for
a period of months, not weeks. It was essential that cases
should be readily transferable from general to auxiliary
hospital and back again without cumbersome machinery.

In the formation of these auxiliary hospitals two objects
had to be kept in the foreground. (1) The education of the
medical practitioner of the future—the medical student of
to-day. Cases of rheumatism and heart disease in young
people must not be drained away from the medical schools
or else the medical student would go out into practice
ignorant of this crippling disease, and he would be power-
less to co-operate in the prevention of a disease
of which he would know nothing. That was no imaginary
bogy, for it was exactly what was happening to-day with
regard to pulmonary tuberculosis. (2) In regard to research,
if they were to prevent heart disease they must prevent
rheumatism, and to do this they must know a great deal
more about the micro-organism of rheumatism, its site of
entry into the system, whether repeated attacks of rheuma-
tism meant fresh infections from without or repeated auto-
infections from muscles, joints, heart, or alimentary tract.
Lastly, they must know more of the relation between
rheumatic endocarditis and so-called infective or malignant
endocarditis. Investigations of this nature required clinical
observations, plenty of cases, all stages of the disease from
mild growing pains to fatal cases of infective endocarditis,
bacteriological, pathological, biochemical investigations,
x-ray and electrocardiograph examinations. The facilities
and staff required for these investigations were already
available at the general hospitals. It was therefore impera-
tive, even if these auxiliary hospitals were paid for by the
municipality, that they should be in the closest association
with the general hospitals, where the facilities and staff
required for research were already available, and where the
medical practitioners of the future were being trained.

Dr. CAREY F. COOMBS (Bristol) differed from Dr. Emanuel
as to the efficacy of salicylates in reducing the severity of
cardiac rheumatism. A scrutiny of the notes taken at St.
Mary's Hospital in cases under the late Sir William
Broadbent showed that in the presalicylate period the
cardiac lesions were more often severe and fatal than at
the present time. Examination of the mortality records of
Bristol showed that the incidence of fatal cardiac rheu-
matism was decreasing, but that the curve was falling less
steeply than that of the general death rate. In that city,
with a population of about 400,000, approximately eighty
deaths occurred each year from rheumatic heart disease, and
to this must be added the fact that in each case death was
preceded by a period of crippledom averaging as much as
ten years. It was the prevention of this mass of misery to
which the Association was being invited, by Dr. Allan's

SUPPLEMENT

TO THE

BRITISH MEDICAL JOURNAL.

LONDON, SATURDAY, OCTOBER 20TH, 1923.

CONTENTS.

The Insurance Crisis: the Main Issue (see next page).

THE INSURANCE CAPITATION FEE.

FURTHER CORRESPONDENCE WITH THE MINISTRY OF HEALTH.

IE following further correspondence has passed between the Ministry of Health and the British Medical sociation. The letter of the Chief Secretary of the Ministry is printed on this page, and the Insurance Acts ommittee's reply on the next.

The letter containing the Minister's offer was published in the SUPPLEMENT of October 6th (p. 149). The surance Acts Committee's reply to the Minister's offer was published in the SUPPLEMENT of the following eek (October 13th, p. 161). The position thus brought about is being considered at the annual conference representatives of Local Medical and Panel Committees which is being held in London as we go to press, ursday, October 18th.

Ministry of Health, Whitehall, S.W.1.

SIR,

The Minister of Health has given most careful conderation to your letter of the 8th instant indicating the ews of the Insurance Acts Committee on the offer to insurce practitioners made in my letter of the 3rd instant.

The Minister does not propose to return a detailed answer your letter. He does not, of course, accept the statents and arguments in that letter as accurate or sound, t he thinks the main issue will only be obscured by proging paper controversy. Lest there be any ambiguity to the position, he desires me to state quite clearly that e offer made in my letter of the 3rd instant represented considered decision given by him in a matter in regard which the responsibility rests on him as a Minister of e Crown. Before arriving at that decision he naturally ighed to the best of his power the claim and the repreitations made on behalf of the profession and the views the Approved Societies. But the decision is his decision, rived at on the merits of the case. He maintains the w that the alternative offers made represent a settlement r alike to the profession and to the insured population. e most earnestly hopes that on a fuller consideration the ofession may see their way to accept one of the alternaes, knowing as he does that they realize the undesirability prolonged controversy on a matter of this kind.

He would wish me to say something only on two points in your letter, the question of rural practitioners and the question of arbitration.

As regards rural practitioners, he is very sensible of the peculiar difficulties of their position and is very desirous of finding a remedy. The matter is now receiving his serious consideration, but, as already stated, he does not think that it can or should interfere with a settlement of the general capitation fee, the administrative objection to differential capitation fees being overwhelming.

As regards the question of arbitration, the Minister cannot forget that the basis of remuneration was exhaustively considered by an arbitration tribunal some three years ago, and he has accepted their award as one of the data on which the Government's offer has been determined. Any further arbitration would lead to undignified disputes between the doctors and the Approved Societies, which are to be deprecated in the interests of successful working of the panel system, and the Minister himself has in fact regarded his position as that of an arbitrator with the added responsibility of his ministerial duty.

I am, Sir, your obedient servant,

(Signed) W. ARTHUR ROBINSON.

October 15th, 1923.

was confronted continually with two questions: (1) How long to keep the patients; and (2) how much rest to give them.

(1) With regard to the length of time required to prevent recrudescence of active symptoms, the experiment already referred to by Dr. G. A. Allan, where 65 cases of "potential cardiacs" were observed for average periods of four and a half years, led to the conclusion, amongst others, that no less than three years must elapse since the last recrudescence before a child could be regarded as reasonably safe from further relapse.[1] These children were presumably, however, treated while living in their homes, and it might be hoped that the influence of fresh air might be found to cut short such an extreme figure. Nevertheless, it seemed that they needed to take a longer view of the time element required to effect a cure in these cases, if they were to attempt to get better results than those which were at present obtained. So far, among 44 cases treated at Broadstairs, it had been possible to trace 19 children through periods of eighteen months; these cases remained at the seaside for periods varying from six weeks to twelve months, and were able to be re-examined after living normal active lives in London, attending the ordinary schools, for at least seven months. The results, if so small a number might be taken as any test, suggested that the children were subject to relapse in proportion to the shortness of their stay in the country; the longer they had stayed the less they seemed to have tended to relapse, and this to some extent independently of whether heart disease had originally been present or not. Thus, of 8 cases of "potential cardiac disease," in which the children had had true rheumatic symptoms—for example, rheumatic pains and chorea—without having had any cardiac involvement, and were kept for only short periods of from six to twelve weeks, because they had no symptoms or signs—of these 8 cases 5 had relapsed, 2 of them having acquired active carditis; whereas of 11 cases, who were kept from four to twelve months because they had signs of heart disease on their arrival at the seaside, only 2 had relapsed, and these were both with them for periods not exceeding five months. The remaining 9 had held their own. It seemed, then, to be a proposition worth examining that a great deal of time and money at present spent in the treatment of chronic heart disease would be saved if every child who ever had symptoms of the rheumatic state were sent into the country for periods of, say, six to eight months before being re-exposed to the environment in which they originally contracted the disease. Such a scheme incidentally offered the best chance of curing chorea.

(2) With regard to the amount of rest required by the children, everyone would deprecate any kind of routine rest; no one would wish, for example, to keep a child in bed merely because it had once had rheumatism or because it had a damaged heart. But there were a large number of cases which fell within the category defined by Sir James Mackenzie when he said, "So long as there is positive evidence of mischief, for example, a persistent increase of rate, a changing murmur, or a diastolic murmur which has arisen during the illness, the patient should be kept at rest, and this should be enjoined until the rate is quite normal, even although six months may elapse before that result is brought about."[2] And when one had excluded the rapid rate of the heart beat due to merely mechanical causes—for instance, extensive adherent pericardium—and the excitable pulse of certain neurotic children, there remained a number of cases in which the increased rate seemed solely due to the rheumatic poison, and in which a long period of complete rest, extending for as long as four months, had resulted in the assumption by the heart of a deliberate and quiet rhythm, which had been maintained on the patients being allowed gradually to get up, and had been found still to have been maintained on re-examination of the heart after seven months' active and normal life in London.

Dr. Raven did not agree that physical signs of the heart gave no indication of persisting infection. Abnormal signs alone were no indication, but where the abnormal signs were changing, even in a favourable direction, then it was fair to assume that changes were taking place in the cardiac tissues, and that the stage of infective activity and tissue response to it had not been finally closed. Thus also, with time, systolic murmurs would disappear in some cases, and the area of cardiac dullness would diminish. But the sign most liable to change was the extremely common diastolic apical bruit described by Dr. Cheadle as the earliest sign of mitral stenosis.[3] That bruit appeared to be capable of observation and management of the greatest importance in the prevention of mitral stenosis; it was also very commonly associated with a persistently rapid heart beat. First occurring, as described by Dr. Cheadle, as a reduplicated second sound heard in the apex, it changed as disease progressed to a position in mid-diastole, and later still took on a prolonged pre-systolic character. Eventually, if untreated, this would tend to become the rumbling pre-systolic murmur of true mitral stenosis, but if treated by rest in an earlier stage it might be found in time to retrace these steps, first becoming mid-diastolic and then occurring as the apical reduplicated second sound. Finally, it might altogether disappear and remain absent on the patient's being allowed gradually to get up, and in four cases it had been found to be still in abeyance on re-examination of the heart after at least seven months' active life at home. In the light of this favourable sequence of events it seemed fair to suppose that the bruit was caused by disease of the mitral valve, and that the important thing was to allow the cusps of the valve, by sufficient rest, to return as far as might be possible towards their normal state, with a minimum of vascularization and cicatrix.

In the etiology of the disease it was of interest to inquire whether there might not be in the environment causing the original infection or recurrence a factor of infectiousness. The idea was not a new one; Newsholme[4] referred to acute rheumatism as an infectious disease having an epidemic prevalence with irregular periodicity, and recently in America figures had been brought forward in support of this possibility.[5] Dr. Raven was much struck with the disastrous effect of the introduction to his ward of a case of hitherto unrecognized and advanced heart disease; that boy had also an acute tonsillitis on admission, and was by mistake not isolated for about thirty-six hours. A nurse shortly after developed tonsillitis, and for some time afterwards they were troubled with recurring attacks of pyrexia in the children, only some of whom had tonsillitis, but in three of whom serious relapses occurred in the shape of recrudescence of the signs of mitral and pericardial disease, after they had made steady progress for many months or weeks.

REFERENCES.

[1] W. St. Lawrence: *Journ. Amer Med. Assoc.*, December 16th, 1922. [2] Sir J. Mackenzie: *Principles of Diagnosis and Treatment in Heart Affection*, 1918, p. 190. [3] Cheadle: *Lectures of Practice of Medicine*, 1900, p. 305. [4] Newsholme: Milroy Lectures, 1895. [5] W. St. Lawrence: *Journ. Amer. Med. Assoc.*, April 1st, 1922.

Dr. F. G. LAYTON (Walsall) asked for a definition of the term "rheumatism," and for the evidence on which growing pains were regarded as a manifestation of rheumatic infection. When patients were ordered by a physician in the out-patient department of a hospital to go home to bed for a month, the general practitioner should always be written to and asked to supervise treatment and the administration of salicylate.

Dr. C. O. HAWTHORNE (London) agreed with Dr. Layton that to provide the term "rheumatism" with a satisfactory scientific definition was a task not easily accomplished. Yet surely no one doubted that clinical states to which such a name could be reasonably applied existed, and that for the most part these states could be recognized. In particular, these rheumatic manifestations in children were specially liable to be complicated with cardiac disease, and the main purpose of the discussion was to explore any method by which such a complication could be avoided. Institutions and organizations directed to the care of children after the mischief had been done were all quite admirable in their way, but no great gain could be expected unless prevention could be secured. He

the real point at issue comes from all and has been put very explicitly by Mr. W. A. Appleton, General Secretary of the General Federation of Trade Unions, in an article in *Reynolds's Newspaper* of October 14th. After explaining that anything extra that insurance practitioners get over and above the 7s. 3d. would come out of money which the approved societies regard as theirs, he goes on to say:

"The reform I want to suggest is that the administrators of the Approved Societies should have a larger share in determining what fees are to be paid and what services are to be rendered. . . . The opinion is growing that direct relationship between the societies and the local medical profession would result in a much cheaper and a much more efficient service. We have instances already of societies on their private side making arrangements with the practitioner at a cost which is very much below the statutory allowance of 9s. 6d., and we think the Ministry ought give us the power to do on the Approved Societies' side what is possible to do on the private side."

ANNUAL REPRESENTATIVE MEETING, JULY 20TH TO 24TH, 1923.

SYNOPSIS OF PROCEEDINGS.*

(*Concluded from page 155.*)

(NOTE.—*Members are requested to preserve this for reference.*)

APPENDIX I.

PITAL POLICY OF THE BRITISH MEDICAL ASSOCIATION,

roved by the Annual Representative Meeting, 1923.

I.—INTRODUCTION.

requirements of the voluntary hospitals as affected nt-day conditions of finance, and the consequential made by many of the hospitals for payment from for hospital services, have been carefully considered sociation.

merous contributory schemes for the provision of nefit for certain sections of the community submitted sociation for its approval, have been subjected to n.

ut this document the term "medical treatment" y and all of those services which can be and are a registered medical practitioner—e.g., examina- r clinical or laboratory, advice, consultation, and ion of remedies whether medical, physical or

untary hospitals have grown up upon a general between subscribers, the board of management bers of the honorary medical staff that both rvices were placed gratuitously at the disposal bers of the community unable to pay for adequate nent. This understanding for gratuitous service d reciprocal, and the general tendency now exist- xaction of payment, however small, from the rily modifies the original understanding and alters the basis of the relationship between the l staffs and the subscribers.

ation recognizes a dual policy as regards the als: (*a*) that the purely charitable side should herein the whole cost of the maintenance of is met by the gratuitous contributions re- pital and on whose behalf the services of the staffs are given gratuitously; (*b*) that other not indigent may be received for treatment itals when they cannot pay for or cannot eatment elsewhere and that for them pay- eived by the hospital either from the patients their behalf from the authority or body the hospital, and that on account of their hod of remuneration of the honorary medical nged.

4. In view of the tendency of the State through local and central authorities to require services of the voluntary hospitals it should be provided that in any arrangements for such services the State should pay the full cost to the hospital for such services so that no portion thereof shall be charged to the charitable funds of the hospital, and that the payment so made shall include an amount for the remuneration of the honorary medical staff of the hospital. It is neither just nor expedient for the community to throw upon one section thereof the onus of undertaking, gratuitously, professional work of a responsible character. Services rendered to the State should be remunerated by the State, not only on the grounds of justice to those concerned, but also on the grounds of public advantage. Such work could only be requested gratuitously, either as an act of charity or as a demand on the services of the citizen. Charity can only be requested on behalf of those who are themselves unable to pay, and the State does not come within this category. Further, there can be no just claim by the State on the gratuitous services of a particular class of citizens which can be rendered only by that particular section, and are not and cannot be demanded from the general body of citizens.

5. This report aims at the consolidation of the known policy of the Association with only such modifications as are necessitated by recent developments. Many of the details of policy arising out of the present state of affairs have already been dealt with by the Representative Body. In the following paragraphs such of these decisions or resolutions as are now material are set out with such other recommendations as appear necessary to make a complete statement of the policy of the Association.

II.—THE VOLUNTARY HOSPITAL.

6. The Association records its belief that the voluntary method of administration of the voluntary hospitals of the country is to the advantage of the public, medical science, and the medical profession, and that it should be maintained.

7. The Association maintains that the essence of the voluntary hospital system is the independent and voluntary management, and that this is not necessarily related to the conditions of service of the medical staff.

III.—SOURCES FROM WHICH FUNDS ARE RECEIVED BY VOLUNTARY HOSPITALS.

8. Funds may be received by hospital authorities from two sources: (*a*) gratuitous contributions (that is, contributions from whatever source to which no such conditions are attached as would involve the obligations of service on the part of the hospital but are charitable contributions to be expended at the discretion of those to whom the management of the hospital is entrusted); and (*b*) contributions for services rendered or to be rendered (that is, contributions made either by patients themselves or on their behalf, for hospital benefit).

9. It is undesirable that the voluntary hospitals should be subsidized by the local rating authorities except in so far as *pro rata* payment is made for the maintenance and medical treatment of patients for whom these authorities are responsible.

10. Gratuitous contributions to hospitals by employers of labour or by employees should not be treated as the payment of premiums for insurance against the cost of maintenance and medical treatment for sickness or accident, nor as entitling the contributors to claim hospital treatment either for themselves or for persons nominated by them, but as charitable contributions to be expended at the discretion of those to whom the management of the hospital is entrusted.

11. Every patient of a voluntary hospital who is able should make a contribution towards the cost of maintenance and medical treatment, unless the contributory method of subscription is adopted as essential in industrial areas.

12. Greatly extended support for voluntary hospitals should be sought from employers and insurance companies, seeing that they benefit largely both directly and indirectly by the services of the voluntary hospitals.

IV.—CONTRIBUTORY SCHEMES.

(A Contributory Scheme in this document means a Scheme to which contributions are made for which there is to be a stated or implied return.)

13. It is undesirable that the Association should approve specific contributory schemes for the provision of hospital benefit as such. To do so would imply that the Association had considered and provided against all the possibilities that may arise out of any scheme approved, such as financial stability, sufficiency of hospital accommodation for the area involved, and a number of other and related conditions which can only be determined during the actual working of several of these schemes for an extended period. But it is desirable that certain principles should be approved by the Association as applicable to any contributory scheme.

* of proceedings see BRITISH MEDICAL JOURNAL 23 (pages 33-73), and August 4th, 1923 (pages 77-82).

Dr. Routh (Southsea) thought that there was too much fear in these meetings in looking at cases from the view of the expert or "specialist" rather than from that of the general practitioner. He was quite in agreement with the last speaker as regards the difficulty in tracing the cause of heart lesions in the young. In general practice acute rheumatism was a rare disease, though no doubt many cases of very mild rheumatic trouble were met with—so mild that they were not recognized as a streptococcal infection. In many cases tonsillitis was the only symptom, the parents being very averse from having their children's tonsils removed. He had at present under his care a child who suffered from repeated mild attacks of tonsillitis with slight pyrexia, each attack being accompanied by a transient mitral murmur which entirely disappeared with rest in bed and local treatment to the tonsils. There was a strong family history of rheumatism and the tonsils should certainly be removed. What struck one in private practice was the marvellous recuperative power of a child's heart and the way in which a heart apparently severely damaged might become perfectly normal in after years. As medical attendant at Uppingham School he met with boys who were sent to school as unable to play any games, but with carefully graduated exercise in a few years no heart trouble was discernible, and they could play football with perfect safety, and no bad after-effects were discovered. He thought that in many cases too much attention was paid to the condition of the heart and that children would do better if allowed to lead a more active life, careful watch, of course, being kept on them.

Dr. Wittington (Hove) agreed with Dr. Attlee that properly regulated exercises were greatly to be preferred to depriving schoolboys of their games. When at Oxford thirty years ago he was told to give up rowing, but had he known as much then as he did now he would have preferred to have risked damaging his heart than to have given up rowing.

Dr. Reginald Miller, in reply, said he thought that Dr. Attlee's cases were not poisoned or infected hearts and should be treated on a nervous rather than on a cardiac basis. Swimming was not a satisfactory exercise for patients with functional cardiac disorders. He was glad there was general agreement as to necessity of rest, but too prolonged bed might be a drawback. Agreement also appeared to be general as to the value of salicylate treatment. It was satisfactory that the meeting felt the time had come for some investigation to take place, and it was the rheumatic side of the problem, and more especially its prevention, that must be stressed.

SECTION OF LARYNGOLOGY AND OTOLOGY.

E. B. Waggett, D.S.O., M.B., B.Ch., President.

DISCUSSION ON SPASM OF THE LARYNX.

OPENING PAPER

BY

Sir St. Clair Thomson, M.D.,
London.

It is well for the opener of a discussion to begin by studying, and then keeping his mind well fixed on, what a committee would call "the terms of reference." When I received the honour of an invitation to inaugurate the debate of this morning my first step was to turn to what I hope I may without conceit, call a well known English textbook. The first thing that struck me was that you can learn a good deal by reading your own writings! The second thing I had to find, by doing so, a confirmation of the observation of Mr. Lloyd George in his recent speech at Oxford on July 22nd, when he remarked that "The fact is, in doing nothing, you discover how much more there is to be done."

Definition: "*Larynx*" or "*Glottis*."—Well, in StClair Thomson's book on *Diseases of the Nose and Throat** I looked in vain, in the index and in the text, for "Spasm of the larynx." I found "Spasm" all right—but no spasm of "the larynx." I think that textbook is right; for I looked up "Larynx" in *Stedman's Medical Dictionary* (1921 edition) and there read that the larynx is the organ of voice production, and that "the walls of this organ are formed by nine cartilages connected by fibrous membranes, and the vocal cords, enveloped in folds of mucous membrane." All these structures do not share in the "spasm" we are studying, so I think the author of this textbook was nearer to exactitude when he referred to the matter in the index under the rubrics of "Glottis" and of "Spasm of the glottis." The larynx as a whole is not thrown into a spasm: it is the canal or thoroughfare of the voice-box which is closed spasmodically. It might be still nearer to correct definition if we called it "Spasm of the walls of the glottis."

Definition of "Spasm."—To be sure that we would all be agreed about the term "spasm," I turned to the same medical dictionary (Stedman's) and found the term defined as "an involuntary, convulsive, muscular contraction: convulsion, cramp." Another dictionary does not limit our conception to a very rigid or prolonged contraction, for it defines "spasm" as "a sudden but transitory contraction of a passage, canal or orifice."[1]

Causes of Spasm of the Glottis.

The causes of glottic spasm may be:

(1) Local irritation.
(2) Irritation of the motor nerves.
(3) Central nerve lesions.
(4) Hysterical or functional disorder.

I. In the majority of everyday cases spasm of the glottis is a reflex phenomenon concerned with increased or diminished sensation in the pharynx or larynx. We will begin by systematizing these sensory causes.

Neuroses of Sensation in Glottic Spasm.

A. *Anaesthesia.*—There is much individual variety as to the degree of sensitiveness of the pharynx and larynx. It may be diminished (1) peripherally, by old age and anaemia, or by drugs (cocaine, orthoform, menthol, morphine, bromide, chloroform, and other anaesthetics), or by general affections like influenza, typhus, cholera, and pneumonia. It may be dulled (2) by affections of nerve trunks, as in the peripheral neuritis of diphtheria, or in cases where the superior laryngeal nerve (or its centre) shares, as often happens with motor paralysis of laryngeal muscles. Sensation may be reduced (3) by central affections such as the bulbar lesions of locomotor ataxy, general paralysis, glosso-labio-laryngeal paralysis, syringomyelia, multiple sclerosis, as well as haemorrhage, tumours, and gummata of the medulla. It occurs in a slight degree in hysteria and in epilepsy just before the seizure. These various causes lead to spasm by interfering with the sensation which watches over the glottis, to guard it from the ingress of foreign bodies or other irritants. We all know the sensation of a "crumb going the wrong way."

B. *Hyperaesthesia.*—But excessive or perverted sensation, by sending an exaggerated warning to the medulla, can also produce spasm. Amongst the causes of hyperaesthesia are many abnormal conditions of the general nervous system—anaemia, hysteria, neurasthenia, fatigue (physical, vocal, or mental), dyspepsia, excess of alcohol. Oversensitiveness is often present with acute or chronic laryngitis or pachydermia, and is also frequent at the menopause, in hypochondriacs, and in those who dread tubercle, syphilis, or cancer. Reflex causes of this hyperaesthesia may be traced occasionally to the various tonsils, the nose, ears, teeth, or the thyroid gland. It is, perhaps, most commonly met with as a very early indication of pulmonary tuberculosis. Many such cases go to the laryngologist, who is apt to overlook them. Tubercle in the larynx, by itself, seldom causes cough and spasm, any more than intrinsic cancer. It is quite usual to see a case where, during a year or more, a malignant growth has been steadily invading a whole vocal cord, without once having caused cough or spasm. Other frequent causes of hyperaesthesia—and hence

* London: Cassell and Co., second edition, 1916.

I.—Medical Staffs of Voluntary Hospitals.

l opportunity should be given to private practitioners ess the necessary qualifications and experience to par- in the work of voluntary hospitals, and for that

age limit or tenure of office of members of the honorary taffs of voluntary hospitals should, where necessary, be d as to allow more and younger practitioners to obtain e hospital experience.

atly increased facilities should be provided for the ent of clinical and chief clinical assistants to the various its of the larger hospitals.

n the number of patients of voluntary hospitals in- e medical staff of all grades should be increased.

considering the eligibility of a practitioner for one of ointments, the points which would afford indications to e regard should be given are one or more of the :

Special academic or post-graduate study, if combined ome evidence of actual practice of the specialty;

Tenure of hospital and other appointments affording l opportunities for acquiring experience; and

Local professional recognition of competence in a con- ive or expert capacity.

XII.—Formation of Staff Funds.

en the board of management of a voluntary hospital to a financial arrangement with a public authority, an of labour, approved society, insurance company, or contributory scheme or otherwise for the reception its, such arrangement should be taken to cover the aintenance and medical treatment, and a percentage ch receipts should be passed into a fund which is at sal of the honorary medical staff of that hospital.

it in the event of decisions being taken which would patients (other than paying patients referred to in Sections IX (a) and IX (b)) paying, in part or in e hospital maintenance fees, either individually or contributory method, or with the addition of rate- ate-aid, or by a combination of two or more of these a percentage of all such payments should be passed ind which can be allocated in any manner which the medical staff may determine (A.R.M., 1921, Min. 236).

nnual Representative Meeting, 1923, on consideration osal by the Council that foregoing paragraph 33 should led to read as follows :

derived from gratuitous contributions, existing assets, it funds, and the like, are not liable to assessment for taff fund purposes, but all payments made for hospital other than payments made by private patients referred tions IX (a) and IX (b)] are in fact payments towards ervices of the hospital whether medical or ancillary, and a percentage of such payments should be passed into a ch is at the disposal of the honorary medical staff of ital. Small payments of individual patients not recover- n third parties may be assessed in a nominal percentage token recognition of the policy enunciated,

he following resolution :

the further consideration of the policy proposed in h 33 of the Hospital Report be postponed until the nual Representative Meeting.

(A.R.M., 1923, Min. 74.)

e honorary medical staffs may find the following sug- valuable in connexion with the disposal of the moneys pecial fund, and accordingly the Association suggests spital staffs concerned that one or more of the follow- ods of distribution of any moneys in the special fund found suitable :

the members of the honorary medical staffs for their onal disposal;

the assistance of members of the medical staff in con- ith research work;

the purchase of instruments, books, etc., for the use medical staff, or for lending to other members of the n,

the initiation or development of post-graduate teaching stitution;

institution of a local medical benevolent fund, admin- y the members of the honorary medical staff, for dealing essitous cases, e.g., widows and children of former s);

nts to any recognized medical benevolent fund or insti- or

herwise as the medical staff may decide.

cases where members of the staffs of voluntary hos- tend tariff patients at stated hours under arrangement, uld receive adequate payment upon a time basis.

III.—Recognition of Local Advisory Medical Committee.

every hospital area (e.g., the area of a voluntary committee), the Association, through its local organization, should form and maintain a representative local advisory medical committee which should be recognized by the authorities concerned, and from which representation should be given upon the voluntary hospitals committee.

XIV.—Representation on Boards of Management.

(a) *Medical Representation.*

37. The association of officially recognized representatives of the local medical profession in the promotion and general management of hospitals and other medical charities is desirable in the interests of those institutions as well as of the profession, and that for the appointment of such representatives use should be made of the machinery afforded by a Division of the British Medical Association.

(b) *Lay Representation.*

38. Where representation of benefactors, subscribers, or contributors to the funds of a voluntary hospital is given on the board of management or governors of the hospital, representation should be distributed so as to secure the representation of each interest in the hospital and so that no single interest should be in a majority. Contributions given with an implicit or explicit obligation of hospital service shall not rank for representation with other benefactions.

XV.—Contributory Schemes and Additional Services.

39. No contributory scheme for hospital benefit should be considered satisfactory unless there are arrangements for an adequate home nursing and ambulance service, and for dental, laboratory, and *x*-ray facilities.

XVI.—Cottage Hospitals.

40. As far as possible, every patient in a cottage hospital should have the right to be attended by his usual medical attendant.

41. The previous provisions contained in this Report are also applicable to cottage hospitals.

XVII.—Admission of Cases in Receipt of Maternity Benefit.

42. As it is necessary for the training in midwifery of medical students and pupil midwives that there should be an adequate supply of clinical material available for that purpose, no parturient woman should be refused treatment in the obstetric department of a voluntary hospital or similar institution on the ground that she is eligible for a maternity benefit.

43. All women receiving treatment through the obstetric department of a voluntary hospital, or similar institution, who are entitled to a maternity benefit, should be required to pay such sum to the hospital or institution as shall be determined upon by the governing body.

44. From each sum an amount, to be agreed upon between the governing body and medical staff, should be placed to a special fund, which shall belong to the medical staff.

APPENDIX II.

THE BRITISH MEDICAL ASSOCIATION AND THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

Report of Conference, held 1922-23, of Representatives of the British Medical Association and of the Society of Medical Officers of Health, on the Policy of the Association and the Society as to Public Health Medical Services.

As approved by Annual Representative Meeting, 1923.

I. The Conference has reviewed the obligations and powers imposed and conferred upon Local Authorities by Acts of Parliament in regard to Health Administration and the relative position of medical officers of health and general practitioners in schemes of health services. These obligations and powers include :

(*a*) Medical survey or inspection.

(*b*) Treatment.

II. Local Authorities must give effect to their legal obligations. The extent to which they exercise their powers is in the discretion of the Local Authority subject to the prior approval of the appropriate Central Government Department.

The Conference is of opinion that benefit would be likely to result from a closer co-operation of the local medical profession with the Local Authorities' schemes of medical survey or inspection and treatment.

system showed no central lesion. On asking him, he reported that he had been attending several cases of whooping-cough, and I told him that his alarming symptoms were due to an irregular form of pertussis, that he would get quite well, and that I defied him to choke! This assurance, with some doses of bromide, and some chloroform at hand for inhalation, soon comforted him, and I was glad to have my diagnosis confirmed by Dr. Wilfred Harris and Dr. Buttar. For some fourteen days he willingly remained in bed as he found that the slightest exertion or a breath of cold air brought on an attack, although none was so severe as the first. Bacteriological examination of the slight sputum disclosed the pneumococcus but no Borget bacillus. The attacks gradually diminished, but continued for a month to six weeks.

Glottic Spasm and Drug-taking.—Attacks of functional glottic spasm may deceive the medical attendant, and the unjustified gravity with which he views the case generally adds to the severity of the attacks and the difficulty of curing them.

A young married lady, whose adenoids I had removed as a child and whom I knew as having a very bad family history of mental disease, developed, in the unwholesome atmosphere of life at Monte Carlo, attacks of glottic spasm. Under some trifling mental or physical stimulus (a discussion on "winning numbers"—save the mark!—or the inhalation of some extra cigarette smoke) she would spring from her chair, perhaps announce that "the chokes were coming," seize hold of a piece of furniture, or rush to the window for air, and then pass through the acts of what I have described as the "Phenomena of glottic spasm," watched by a devoted husband and an anxious maid. She was told that she might require a tracheotomy at any moment, and travelled to England with a cannula in her "vanity bag"! I found out that the husband, who had lived in the East, and had contracted malaria, not only was accustomed to give himself occasional doses of morphine, but, with that curious perversion of the drug-taker, so well described by Robert Hichens in his novel *Felix*, was gradually habituating his wife to the same vice. A little authoritative talk to both of them, and a sequestration of the tracheotomy tube, soon effected a cure. More than fifteen years have passed: the patient still moves in my horizon, but she has had no more "chokes."

Epilepsy: Hydrocephalus.—Whether the epileptic cry and the cry of hydrocephalus should be classed as examples of laryngo-spasm is, I think, very doubtful. They are certainly produced by involuntary, convulsive, and muscular action, and may be sudden and violent, so that they meet the terms of the definition of spasm I gave in our introduction. They are also produced in the larynx. But all this they do not differ from laughter, or screams of pain, or similar joyous or grievous sounds which we do not admit to the catalogue of glottic spasm.

Laryngeal epilepsy has perhaps received a disproportionate amount of attention, as it was first so fully studied by the great Charcot.

Stammering.—Severe stammering is sometimes accompanied by sudden explosive enunciation, but it can hardly come into our list. It is on an exaggerated expiration that the sound is made.

Adductor Spasm or Abductor Paresis.

"When is glottic spasm not a spasm?" is a question which is far from being as trivial a matter as this way of putting it might suggest. When the vocal cords come together, either suddenly and temporarily, or gradually and more lastingly, we may be dealing with the resultant of one of two exactly opposite and opposing actions. This glottic closure may be a spasm caused by overaction of the muscles which close the glottis. A typical manifestation is that known to all of us when we "swallow the wrong way," or when some fumes directly irritate our endolarynx. But this closure may also be due to paralysis of the muscles which open the glottis—the powerful crico-arytenoidei postici. We remember that they are continuously acting all our life long, maintaining the thoroughfare of the larynx in that moderate degree of dilatation which we call "the position of quiet respiration," and which is midway between the position of complete adduction or approximation (that is, the position of phonation) and that of complete abduction (that is, the position of deep inspiration). When the "abductor tonus" disappears—as it does when the abductor muscles fail (that is, in "complete abductor" or "recurrent paralysis") or when they cease for ever (namely, in death) —the vocal cords approach each other and fall into the position we all know as "the cadaveric position."

Now this "cadaveric position" of paralysis is seen in the laryngeal mirror to form very much the same picture as does tonic spasm of the cords. Both these opposite actions—manifesting themselves by an identical picture—are also subject to the addition of occasional spasm. The "recurrent paralysis" is seldom complete; some reduced glottic space is nearly always present and some mobility is still left in the adductor muscles, and hence spasm of a dangerous and not infrequently fatal form, is apt to be superadded. So with the primarily "spasmodic" condition: it, in the mirror, forms exactly the same picture —the cords are seen to remain near the cadaveric position, making no wide excursions outwards to the site of quiet respiration or beyond it to that of deep breathing. They may, in some cases, adduct normally and the voice is then preserved; in other cases their approximation is ineffective and we have functional aphonia; and in either we may get added spasm; but, however alarming it may look, it is not fatal, although in this the practitioner is often deceived. He is deceived because he is unprepared or untrained to distinguish between the two conditions—the paralytic and the spasmodic. Even experts are deceived. In our Section of Laryngology of the Royal Society of Medicine I have seen several cases shown as double abductor paralysis, and confirmed by some members. To others, with more clinical acumen, they were at once recognizable as cases of spasm, and this diagnosis was confirmed by the progress of the case.

I have known of cases of women with dysphonic voices for years, in whom no one had ever succeeded in seeing the cords separate widely. Yet it only required the employment of one or other well known remedy to secure this. One is, with the laryngeal mirror in position, to urge the patient to utter an uninterrupted and long-drawn "E." If this is continued until she is absolutely "breathless," the cords will be seen to fly wide apart as, with a loud pant, she refills her empty chest. If this fails, one may succeed in seeing the same result by tickling her pharynx with the mirror, by blowing in some irritant vapour or powder, or by suggestion in various ways. I have known all these fail, and the diagnosis only settled, objectively, by placing the patient under a general anaesthetic.

Of course the narrowed glottis of this latter group is caused by adductor contraction, and any superadded spasm (that is, complete closure) is free from danger; for it only requires a certain degree of asphyxia to stimulate the intact cords to fly apart. In the former group the narrowing of the glottis is caused by true organic paralysis of the glottis-opening muscles; any addition to the permanently and irrevocably reduced ration of respiration may produce an asphyxia which may be fatal.

Semon's Law.—We remember that in true organic paralysis of intrinsic muscles of the larynx it is the opening, or abductor, muscles which are the first to go (Semon's law), while the adductors survive a long time. We are taught that in functional disease the reverse occurs: it is the glottis-closers which are the first to go and the openers which remain acting. This conclusion is illustrated by the well known condition of functional or hysterical aphonia, and it is generally the rule. But I have often wondered if this rule, so far as it refers to functional cases, is constant. For, to return to my query "When is glottic spasm not a spasm?" I assure you that it is not an indifferent and merely academical question. Our treatment of a case of intermittent stenosis of the glottis should be very different according to the conclusion we arrive at—if we reach one. Thus a paretic condition requires tonic, stimulating, irritative treatment; while a spasmodic condition demands the opposite line of relief—namely, the administration of sedatives and anaesthetics. The one condition may even be caused by a drug which relieves the other!

The "Spasm" of General Anaesthesia.—What is the *contracted glottis* and occasional clonic or tonic closure of *general anaesthesia* due to? Is it spasm and tonic action of the adductor muscles, or is it a paresis of the abductor (postici) muscles, or a temporary abrogation of that abductor tonus which is constant through physiological life? Anyhow, the lesion is a central one, due to the

(g) Medical Superintendents of Institutions, and in suitable cases Chief Assistant M.Os., should, in addition to their salaries, be supplied with a house.

(h) There shall be no differentiation of salary on account of sex.

(i) All exceptional work not recognized as normal duties shall be the subject of additional remuneration.

(j) If marriage be deemed by the local authority a disqualification for a medical appointment, the same shall be specifically stated when the vacancy is advertised.

(k) In placing existing officers in accordance with these salaries, years of service and merit should receive recognition.

(l) All Medical Officers of local authorities should be subject to similar security of tenure as is provided for a Medical Officer of Health under the Public Health (Officers) Act, 1921. But where the appointing authority limits the appointment to a term not exceeding one year, and not renewable, this provision shall not apply.

[So far as (f), (g), and (e) above are concerned, two months' notice of these points was not given before the Annual Representative Meeting, 1923. Thus they are not yet "policy of the Association," but will be acted upon as far as possible. To regularize the position, notice will be given of them for the Annual Representative Meeting, 1924.]

Association Notices.

BRANCH AND DIVISION MEETINGS TO BE HELD.

BIRMINGHAM BRANCH: COVENTRY DIVISION.—The following programme has been arranged for the session 1923-24:

November 6th.—Discussion on "Headache," to be opened by Dr. Heald (Chairman).

December 4th.—Paper by Dr. K. D. Wilkinson on "The Use of the Sphygmomanometer."

February 5th, 1924.—Paper by Mr. Seymour Barling, F.R.C.S.

March 4th.—Paper by Dr. James Neal (Secretary of the Medical Defence Union)

April 1st.—Paper by Dr. Laurence Ball.

June.—Annual Meeting.

Members are invited to show cases or specimens at any of the meetings.

METROPOLITAN COUNTIES BRANCH: LAMBETH DIVISION.—A meeting will be held at Lambeth Carlton Club, 376, Coldharbour Lane, S.W.9, on Tuesday, October 23rd, at 4 p.m., to discuss the Hospital Saving Association scheme, as it affects general practitioners. Mr. Bishop Harman will address the meeting.

METROPOLITAN COUNTIES BRANCH: MARYLEBONE DIVISION.—A general meeting of the profession, to which non-members, especially panel practitioners, are cordially invited, will be held at 8 p.m. on Friday, October 26th, at 11, Chandos Street, Cavendish Square. Discussions on "The Proposed Terms of Service of the Panel Practitioner" and "The Future of the Panel and the Hospitals" will be opened by the Chairman, Mr. H. S. Souttar, C.B.E., F.R.C.S., a member of the Insurance Acts Committee of the Association. It is hoped that a large attendance will be assured to enable the views of all to be obtained.

METROPOLITAN COUNTIES BRANCH: NORTH MIDDLESEX DIVISION.—A general meeting of the North Middlesex Division will be held on Sunday, October 21st, at 3.30 p.m., in the Fairfax Hall, Portland Gardens, Harringay. Agenda: (1) Minutes; (2) the Insurance Capitation Fee; (3) any other business.

METROPOLITAN COUNTIES BRANCH: SOUTH MIDDLESEX DIVISION.—The first meeting of the new session will be held on Tuesday, October 23rd, at 8.15 p.m. After the discussion of general business Mr. R. P. Rowlands, M.S., F.R.C.S., surgeon to Guy's Hospital, will read a paper entitled "Gastric Ulcer: Some Points in its Diagnosis and Treatment." Subsequent meetings will be held on November 27th, when discussions on death certification and on the recent outbreak of small-pox will be opened respectively by Dr P. W. L. Camps and Dr. T. Ruddock-West, on January 22nd, when discussions on shingles and on the treatment of diabetes by insulin will be opened by Dr. G. S. Ewen and Dr. H. M. Cooper; on February 26th, when Mr. Harold Mant, M.S., F.R.C.S., will read a paper: on March 25th, when Dr. Alfred Cox, Medical Secretary, will give an address; on the afternoon of April 29th, when a paper will be read by Dr. G. F. Buchan, M.O.H. for Willesden: and on May 6th, when the annual meeting for election of officers, etc., will be held. All the meetings will take place at St. John's Hospital, Twickenham. It is further proposed to arrange for a popular lecture to be given during the session; the subject and date will be notified in due course.

NORTH LANCASHIRE AND SOUTH WESTMORLAND BRANCH.—An ordinary meeting of the Branch will be held on Wednesday, October 31st, at the Royal Infirmary, Lancaster, at 3 p.m. Branch Council meeting will be held ten minutes before the ordinary meeting to elect new members.

NORTH WALES BRANCH: NORTH CARNARVON AND ANGLESEY DIVISION.—A clinical meeting of the Division will be held at the Metropole Hotel, Colwyn Bay, on Wednesday, October 24th, at 3.15 p.m. The following agenda has been prepared by the Colwyn Bay Medical Society: (1) Dr. Nuttall: "X Rays in the Diagnosis of Gastric Ulcers" (lantern slides). (2) Dr. Leeming: "Some Cases of Gastric Duodenostomy." (3) Dr. Lord: "Practical Notes on the Use of Insulin." (4) Dr. Wilks: "The Treatment of Acute Pneumonia."

SOUTH MIDLAND BRANCH: BUCKINGHAMSHIRE DIVISION.—The following meetings have been arranged for the coming session: November 14th: At the Royal Bucks Hospital, Aylesbury. Address by Dr. W. Gilliatt, on "Eclampsia." *February 6th, 1924: At the Royal Bucks Hospital, Aylesbury. Address by Mr. A. E. Webb-Johnson, C.B.E., D.S.O., F.R.C.S. Subject will be announced later. *April 11th, 1924: At the Hospital, High Wycombe, clinical meeting. June 27th, 1924: At the Crown Hotel, Aylesbury. Annual General Meeting of the Division. (*Members are asked to bring interesting cases to these meetings.)

SURREY BRANCH: CROYDON DIVISION.—The first meeting of the new session will be held at the Croydon General Hospital on Tuesday, October 23rd, at 8.30 p.m. Agenda: (1) Minutes; (2) correspondence; (3) any other business; (4) address by Mr. James Berry, F.R.C.S., on "Some Incidents of Surgical Practice." The Executive Committee has again arranged monthly meetings during the winter session, and hopes that members will make a special effort to attend as many of these meetings as possible. A programme of events will shortly be sent to each member of the Division.

SURREY BRANCH: GUILDFORD DIVISION.—A general meeting of the Division will be held on Thursday, November 1st, at 4.15 p.m., at the Royal Surrey County Hospital, Guildford. The business will include confirmation of the minutes of the last meeting; reception of the report of the Representative to the Annual Representative Meeting, Portsmouth; and consideration of the draft model rules of organization, with a view to their adoption. Drs. Butler, Lankester, and Sheaf will demonstrate cases illustrating x-ray diagnosis and treatment.

YORKSHIRE BRANCH: WAKEFIELD, PONTEFRACT, AND CASTLEFORD DIVISION.—The following syllabus of lectures has been arranged by the Wakefield Division of the British Medical Association for the ensuing winter. It has been decided that the lectures shall be thrown open to all medical practitioners of the district, whether members of the Association or not. The lectures are of an informal character, and each will be followed by an open discussion. The meetings will be held in the Bull Restaurant, Westgate, Wakefield, at 8 p.m. Each lecture is preceded by a supper (charge 2s. 6d.), and the meetings provide opportunities for social intercourse amongst the medical practitioners of the district. The dates of the lectures and names of lecturers are as follows:

November 15th.—Alimentary Disorders of Infancy, Dr. C. W. Vining, Leeds.

December 13th.—Notes on the Diagnosis and Treatment of Venereal Diseases. Dr. A. W. Frew, Assistant M.O.H. and V.D. Specialist, West Riding County Council.

January, 17th, 1924.—Some Clinical Aspects of Epidemic Encephalitis (Encephalitis Lethargica). Dr F. W. Eurich, Bradford.

February 14th.—Religion and Medicine, Canon McLeod, Vicar of Wakefield.

March 15th.—Treatment of Diabetes, Dr. Maxwell Telling and Dr. MacAdam, Leeds.

April 17th.—Treatment of Haemorrhoids, Mr. J. W. Thomson, Surgeon to Clayton Hospital, Wakefield.

Meetings of Branches and Divisions.

BIRMINGHAM BRANCH NUNEATON AND TAMWORTH DIVISION.

A MEETING of the Nuneaton and Tamworth Division was held at the Tamworth General Hospital on October 4th. Dr. Lowson, the Representative of the Division, gave his report on the Annual Representative Meeting at Portsmouth. Dr. PRACY read an excellent paper on surgical affections of the fingers. The paper was illustrated by four cases. A discussion followed, in which most of the members present took part.

CEYLON BRANCH.

ACCORDING to the annual report of the council of the Ceylon Branch of the British Medical Association, seventeen meetings were held during 1922, with an average attendance of seventeen; nine papers were read and many important matters concerning the Association and medical ethics were considered. For the nine papers that were read the council was indebted to the following members: Dr. E. Garvin Mack, Dr. S. C. Paul, Dr. K. R. Perera, Mr. L. J. B. Turner, Dr. L. F. Hirst, Dr. R. L. Spittel, Dr. S. Ramanathan, Dr. F. Gremer, and Dr. A. N. Coomarasamy. Clinical cases and pathological specimens were shown by Dr. E. Garvin Mack, Dr. F. Gremer, Dr. S. C. Paul, and Dr. E. C. Spaar. Eighteen members were elected during the year, and after deducting arrears, deaths, and resignations the total membership of the Branch was 205. The *Journal* of the Branch completed the nineteenth year of its existence, three parts being issued during the year. The annual dinner was held at the Grand Oriental Hotel on August 26th, when a company of over a hundred was present. In the unavoidable absence of His Excellency the Governor, the Bishop of Colombo proposed the toast of the British Medical Association.

The inaugural meeting of the Branch for the present year was held on January 24th, in the Colonial Medical Library, with Dr. I. David in the chair. Dr. A. Nell was unanimously elected president-elect for 1924. The president delivered his inaugural address on endocrinology, and a vote of thanks to him was carried unanimously. A meeting of the Branch was held on February 14th, with Dr. A. Nell, president-elect, in the chair, when Dr. Lucian de Zilwa read a paper on chronic nephritis in a cat, and showed microscopical specimens; the paper was discussed by Dr. W. L. de Silva, Dr. I. David, and Dr. A. Nell. A meeting of the Branch was held on March 14th, with Dr. I. David, president, in the chair, when Dr. Lionel de Silva read a paper on diabetes mellitus in Ceylon, with an analysis of 60 selected cases. A meeting of the Branch was held on May 16th, with Dr. I. David, president, in the chair, when Dr. L. Nicholls read a paper on

means of sprays of 4 per cent. cocaine. I have substituted for this eucaine with adrenaline. The local irritation probably acts only in the presence of such hyperexcitability of the cerebral centres as exists in the subjects of tabes dorsalis, the centres being probably those in the medulla. The laryngeal spasm producing the ictus laryngis, or so-called "laryngeal vertigo," has some points of interest. The patient feels a tickling in the throat, proceeds to give a slight cough, and finds himself on the ground. This has generally been attributed to a sudden congestion of the nervous centres produced by the pressure resulting from the expiratory effort accompanying the cough. My view is that the preliminary to the cough is an inspiration, and if this is accompanied by a closure of the glottis expansion of the thorax occurs without the entrance of air. The organs in the thorax expand and draw in blood. This causes some degree of drain on the cerebral circulation, which under certain conditions leads to a momentary anaemia of the brain and a sudden syncope, during which the patient loses consciousness and falls to the ground. Close questioning of the patients has convinced me that this is the actual course of events; I therefore prefer the term "laryngeal syncope" to that of "laryngeal vertigo." Why does this not occur much more frequently? In persons with normal arteries these adapt themselves to the change in pressure, but if there is loss of elasticity from arterio-sclerosis the adaptation is slow or incomplete, and syncope occurs. Those of my patients who have experienced this stroke have mostly been the subjects of gout and arterio-sclerosis. I believe, however, that in one case the main factor was instability of the vasomotor system, with neurasthenia due to overwork.

Sir StClair Thomson's inclusion of the glosso-pharyngeal nerve among those influencing the larynx is of interest in view of its share in the innervation of the tonsils and the lingual tonsil. The superior laryngeal also sends small branches to the lingual tonsil, and I look upon this region as almost a "motor point" for the larynx. I have frequently restored the voice in functional or simulated aphonia by applying faradism to the region of the lingual tonsil.

W. H. KELSON, M.D., F.R.C.S.,

Surgeon, Throat Hospital, Golden Square.

It is impossible and unnecessary for me to deal with many of the points so ably raised and dealt with by the previous speakers this morning, but I will just touch on a few. I would, however, submit, in the first place, that the term "spasm of the larynx" is a little unfortunate, though in common use; for the larynx consists mainly of a partially ossified cartilaginous box or skeleton. If, however, we shift our position and speak of spasm of the glottis, we must remember that there is a false glottis between the ventricular bands as well as the true one between the true cords, and that this at times becomes spasmodically closed.

The compensatory mechanism by which one group of muscles gives kindly help to another when for some reason this latter is more or less put out of action is shown very well in the larynx, the false cords coming to the assistance of the true.

Possibly the term "spasmodic closure of the laryngeal airway," though cumbrous, might be correct.

The words "adductor" and "abductor" are so very similar both vocally and in print, that mistakes are apt to occur, and so I shall to-day, for clearness' sake, in my remarks, substitute the word "constrictor" for "adductor."

Although there may conceivably be spasm of the abductors alone, and it is often difficult to say whether there be spasm of a certain group of muscles or paresis or paralysis of its opponents, yet in either case the result will not be to reduce the airway, with the alarming symptoms one gets in constrictor spasm. The term "spasm of the larynx" as commonly used refers to this only: obviously a much slighter spasm of the constrictors will produce dangerous symptoms if the abductors be paralysed. The muscles which close the airway in the larynx are stronger than those which open it, therefore the tendency of any nerve irritation, whether direct or reflex, is to cause closure, and the *excitability* of the reflex mechanism being much more marked in children, attacks are more easily produced in them, especially at night when the higher controlling cerebro-cortical centres are in abeyance. We are all familiar with the spasm coming on in the inflamed larynx of false croup, and that set up by the introduction of the tip of the finger into the post-nasal space of a lightly anaesthetized child; any condition keeping up irritation in the larynx predisposes to spasm. In a child with papillomata under my care any excitement brings on an attack. Of underlying morbid conditions tending to spasm, rickets appears to be the commonest: the plausible suggestion has been made that the laryngeal attacks are analogous to asthma—the spasm attacking the larynx instead of the bronchioles. The examination of the larynx of a restless infant is by no means easy, and we find mistakes being made by most astute observers; for example, the so-called "congenital laryngeal stridor" of infants was described as due to spasm till shown to be produced by other causes. I happened to be working under Dr. Lack when he and Dr. Sutherland were investigating this affection, and had the advantage of seeing many of the cases; these showed clearly that the stridor was due to a collapsing of the too soft epiglottis and aryepiglottic folds, owing to developmental deficiency, which as time went on gradually disappeared.

In older children one meets with laryngismus stridulus, the phenomena of which have also been attributed to laryngeal spasm, but which has been more correctly described by Rehn as a spastic symptom-complex, and he says that, examination of the larynx being out of the question *during an attack*, the diagnosis as to spasm of the glottis is only speculative. Two remarkable cases of what appeared to be spasm of the glottis were reported in the British Medical Journal in 1898. Two children, apparently healthy, died within a few days of each other, the *post-mortem* examinations revealing rickets only. In both cases the faces became suddenly blue and the bodies rigid, but no sound was uttered. It is not stated whether a foreign body was sought for. I once lost a patient, a child on whom tracheotomy had been performed ten days before. A nurse removed the outer tube, and the patient became blue and stiff, and died before it could be replaced. The *post-mortem* examination revealed congestion of the larynx only.

A rather interesting question arises as to whether simple spasm of the glottis—that is to say, when uncomplicated by other obstruction, such as blood clot or swelling—is ever directly fatal; personally I have never seen it. Passing on to laryngeal spasm in older persons we come to a wide range of affections, in many of which the central nervous system takes an obvious part; but the only one on which I shall touch for a moment is the hysterical form, and in this spasm and bad muscular balancing and inco-ordination seem to run riot. In the British Medical Journal (1871) a striking case is recorded of loud stridor, both expiratory and inspiratory, in a woman of 24, who had previously presented various hysterical phenomena. On laryngoscopical examination the glottis was seen to be partially closed during inspiration by irregular muscular action. On putting the patient under chloroform the noise ceased, but returned with the return to consciousness. After the administration of a few doses of chloral the stridor ceased, but was replaced by aphonia.

One case of this kind I shall always remember. Some years ago a girl, who emitted a very loud, unpleasant, high-pitched stridor both with expiration and inspiration, was shown at the Medical Society of London. The attacks were continuous but came on at any time and without any apparent exciting cause. The late Sir Stephen Mackenzie diagnosed the case as hysterical, and, undertaking to cure her, took her into the London Hospital. The treatment consisted of galvanism, which I as his house-physician had to apply to the throat whenever the noise started, day or night. This was done, and she left apparently cured after six weeks in hospital.

NATIONAL INSURANCE.

THE MINISTER'S OFFER.

MASS MEETING OF LONDON INSURANCE PRACTITIONERS.

A MASS meeting of London insurance practitioners was held on Sunday afternoon, October 14th, at the Holborn Stadium. The meeting, which was organized by the London Panel Committee, was very largely attended. The vote taken after the proceedings had gone on for three hours showed that less than 700 were present at that time, but during the earlier part of the meeting the number must have been greater. The curious construction of the hall, with a boxing ring occupying the central space, and deep galleries above, made it difficult to estimate how many were present. The boxing ring and other sporting fixtures, while inconvenient and not quite decorous, were useful in furnishing the speakers with metaphors. The audience was as nearly unanimous as so great a gathering can be expected to be, but an absolutely wrong impression would be derived from a London morning newspaper next day, which stated that the one speaker who expressed a contrary opinion was "howled down." Actually this speaker, Dr. Salter, M.P., although subjected to occasional interruption, was allowed to speak for a full half-hour, during which he covered all his points, and on sitting down received a generous cheer, evidently in appreciation of his courage. Only on his rising later to put a question was there any disturbance.

Dr. H. J. CARDALE was in the chair, and was supported on the platform by Dr. W. Coode Adams, Dr. G. C. Anderson, Dr. E. A. Gregg, and Dr. A. Welply. At a late stage of the meeting Dr. Brackenbury, who had addressed a meeting in the country earlier in the afternoon, arrived, and received a hearty welcome.

The resolution moved by the CHAIRMAN, and eventually carried by an overwhelming majority, was as follows:

> That this meeting of practitioners on the medical list for London is of opinion that the remuneration offered by the Ministry of Health is inadequate and urges the Panel Committee to assist the Insurance Acts Committee in every way possible to obtain an increased offer, and pledges itself to support loyally the Panel Committee in this direction.

The speaker took it for granted that all those present had studied the well argued and reasonable case set out in the document (M.1) published in the SUPPLEMENT, October 6th. The negotiations on this occasion had been entirely different from what they had been in the past. Previously the negotiations had taken place with the Minister of Health without the intervention of any other party. On this occasion there had been an obligation on the part of the Ministry to consult with the approved societies. But for the attitude adopted by the societies the offer to the profession would have been much larger. But the fight upon which the profession was embarking was not for a sixpence more or less: it was for a principle. Insurance practitioners had always refused to be dictated to by the approved societies, and if the profession gave way now on this issue it would mean not only a lowered capitation fee, but the permanent domination of those societies. He pleaded for unanimous support for those in charge of the negotiations. If the conference on the following Thursday decided not to accept the offer of the Minister—and he had no doubt that it would so decide—the next step would be for insurance practitioners to send in their resignations from the list. Those resignations must be in the hands of the secretary of the Panel Committee well before the end of the month, and would only be used if they totalled to at least two-thirds of the number on the panel. If the resig-

Dr. W. COODE ADAMS seconded the resolution. If 8s. was corrected to pre-war values it came to about 5s. 8d., allowing for certain deductions which had to be made, remuneration now offered represented no more than 4s. would have represented before the war. In fact, they w be back again at the old club rates. On the other hand, approved societies, when the Act was brought in, allowed 3s. 5d. per member for expenses; when the me capitation fee was raised to 11s. the societies' quota expenses was raised to 4s. 10d., and it was not red when, later, the doctors' capitation fee was brought d to a lower figure. He reminded the gathering of the tion in Germany; the German doctors, in the face pressure similar to that which was now being exercised their British colleagues, took the extreme step of a w drawal of service, and this was effective within six day bringing the Government to its senses. He described polite resolution as a velvet scabbard; it remained for practitioners to withdraw the blade.

Dr. G. C. ANDERSON said that in the preparation of d ment M.1 the Insurance Acts Committee had had the able assistance of an expert on the financial side another expert on the statistical side. The former them that there was sufficient money in the National He Insurance Fund to pay a capitation fee of at least 10s. without interfering in any way with the additional ben which the approved societies had been giving to members, and without calling upon the insured person, employer, or the State (except in so far as it contrib its two-ninths) for any additional contribution. eminent statistician who also assisted in the preparatio the document, and had done the same in 1920, stated the cost of living now as compared with 1920 represent drop only of 4 per cent., so that the claim for a 10s. capitation fee was a fair and just one. The acceptanc a fee of 8s. 6d. would mean a drop of 25 per cent. b pre-war level in the standard of living. This question, ever, was not merely one of money. The fight in its es was the same as in 1911. The Minister was being pushe the approved societies, who were staking out the clai be the paymasters of the profession. Information reached the office that the Panel Committees at chester, Birmingham, Liverpool, Newcastle, and many o large centres, as well as in the rural districts, were so with the Insurance Acts Committee. (Applause.) He h that the constituents of the Committees would all show same determination. He believed that vigorous a would lead to an amended offer, and if it was amende all in the proper direction it would mean the defeat of effort of the approved societies. (Applause.) Once a the societies to secure control of the system, and he one would be among the first to fight for the aboli of National Health Insurance. The approved soci appeared to be satisfied with the cheapest possible ser The profession had a higher ideal; it believed itself t making a collective contribution towards the social dev ment of this country, and it wanted so to raise the stan of the service that the insured person would get the service that could be given, and this must involve adeq remuneration for the doctors. "If you don't support Insurance Acts Committee this time you will never hav opportunity to do it again." (Loud applause.)

Dr. A. WELPLY said that his organization (the Me Practitioners' Union) would have demanded a fe 10s. 6d., but although it had seriously criticized the I ance Acts Committee in the past, to-day it was fu admiration for the fine battle the Committee was mal and offered the Committee its whole-hearted sup (Applause.)

At this stage questions were invited, and a few asked. They had reference principally to the possi of newly qualified men being used by the Governme fill the vacancies caused by resignations from the p

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On the previous day there had been a sudden attack of abdominal colic, intermittent in type, accompanied by screaming, which some hours later was followed by the passing of a small amount of blood per rectum. The colic continued, and later much blood was passed. The colic ceased and the child became quiet, but as the haemorrhage continued the parents became alarmed and during the night called in their doctor. The infant was now very quiet, and as it was still losing blood he plugged the rectum. He saw the child again later, when it looked very ill; the haemorrhage had stopped, but it had been vomiting at intervals during the early morning. When we saw the child about 9.30 a.m. the eyes were sunken, the face blanched, and it took notice of neither parents nor strangers. The screaming had long since stopped, and it was abnormally quiet. Abdominal and rectal examination revealed a large tumour in the left flank. Intussusception was diagnosed and immediate operation advised.

The operation was carried out through the usual incision. A large intussusception was found extending into the pelvic colon, which was easily reducible as far as the splenic flexure. Reduction then was very difficult, and after a further two inches or so had been dealt with became impossible. On making further attempts to effect reduction the bowel wall commenced to split. I decided to resect the whole remaining mass and perform a lateral anastomosis. This resection included the last six inches of ileum, the caecum, ascending colon, and about half the transverse colon. On examining the specimen afterwards the intussusception was seen to be a double one; the last one and a half inches of ileum had projected through the ileo-caecal valve, and the remainder of the intussusception was made up of caecum and colon, with the ileo-caecal valve and this projection as its apex. The terminal portion of ileum, the caecum, and part of the ascending colon were gangrenous. This child made an uneventful recovery, left hospital fourteen days after operation, and is now perfectly well.

The case is most instructive on account of its rapid progress; careful inquiry elicited the fact that the condition had barely lasted twenty-four hours from onset to operation.

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Liverpool.

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It would be interesting to know what amount of fluid has been drawn from the pleura on the left side, as lately I have had under treatment a man, aged 36, who helped his father, a farmer, and called me in at the end of May owing to cough and breathlessness. He had been ailing since January or February with a cold and cough. He put it down to the cold and wet weather, and worked more or less all the time.

When I saw him his expression was anxious, and he was suffering from shallow breathing and slight cough. The temperature was normal, and the pulse 76, small and regular. I found the heart beating under the right nipple and dullness all over the left thoracic cavity. He was tapped, and one and a half pints drawn off. As the needle got blocked no more was taken then. Four days afterwards, in the cottage hospital, he was again tapped, and six pints measured drawn off.

After the operation he acknowledged he felt a bit better; no doubt he did. To have seven and a half pints of serum in the left thoracic cavity and to be able to get about and do any work seems impossible. At the present time he is gently getting about and helping with the milking. His complexion is much improved, and he eats and sleeps well. The heart has gone back to the left side; breath sounds are feeble; cavity tympanitic and voice sounds heard everywhere.

Is my case a unique one in the quantity of fluid evacuated? The prognosis in such a case is interesting; at present all is going well, and with the Buxton atmosphere we hope for the best.

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Reviews.

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In writing *The Action of Alcohol on Man*[1] the aim of Professor E. H. Starling has been to give an impartial account of the effects of alcohol on man in language intelligible to the general public. In the main portion of the book Professor Starling describes the pharmacological actions of alcohol; he then discusses the influence of alcohol on the community, and finally sums up his conclusions in a chapter of sixteen pages. The last third of the book consists of three appendices; in the first Dr. Robert Hutchison describes the use of alcohol as a medicine, in the second Sir Frederick W. Mott gives an account of the relation between alcohol and insanity, and in the third Professor Raymond Pearl of Johns Hopkins University, Baltimore, analyses the statistical evidence as to the influence of alcohol on the duration of life.

The account given by Professor Starling of the pharmacological actions of alcohol is a lucid and impartial exposition of a highly complex problem. He describes the action of alcohol on each system of the body in turn, and begins each chapter with a clear and concise account of the physiology of the system described. The main facts regarding the action of alcohol are set forth, and the author not only states the chief experimental results obtained but also points out what these results really prove concerning the influence of alcohol in ordinary life.

The writing of an approximately accurate account of the simplest physiological subject without assuming any physiological knowledge on the part of the reader is, of course, a very difficult task, but the author has done more than this for he has given an extremely accurate account of a complex pharmacological problem every point in which has been obscured by controversy.

The main conclusions regarding the actions of alcohol are roughly as follows: Alcohol is a food which is absorbed exceptionally rapidly and easily, but its use by the body is hampered by certain important limitations. As regards the drug-like effects of alcohol,

"apart from the results of chronic overindulgence in strong alcoholic fluids, the only action which is significant is its action on the central nervous system. . . . The action of alcohol from beginning to end is essentially depressant. . . . In the first place we can say that it is unsuitable for the highest mental efforts, or during the performance of prolonged muscular feats."

It is held, on the other hand, that in the less strenuous moments of life the mild narcotic action of alcohol may be of considerable service in conducing to repose and assisting digestion by promoting tranquillity. The immoderate use of alcohol is, of course, condemned, and immoderate use is defined as that which diminishes a man's efficiency and powers of performing his normal avocations. The limits of moderation are set at a regular ration of about a glass of wine or beer for lunch, and half a bottle of light wine or three ounces of whisky in the evening. It is considered probable that these amounts can be doubled on occasions without harm, but that the increased quantity will probably diminish a man's efficiency the next day. This account of the pharmacological actions of alcohol is quite unprejudiced and gives a perfectly fair selection of all the main work done on the subject; the chief conclusions would, we believe, be subscribed to by the great majority of those who have studied the question.

The appendix by Sir Frederick W. Mott on alcohol and mental disorders is interesting as he incidentally reveals many errors in asylum statistics; he concludes that "alcohol plays a relatively unimportant part in the production of certified insanity," but points out that all the evidence indicates that a mental deficient is made drunk by extremely small quantities of alcohol, and hence most mental deficients who have access to alcohol get the reputation of drunkards although they may consume very little.

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sphere, but from time to time and year by year in of new regulations.

the resolution was put to the meeting,

G. LLOYD, who had spoken earlier in favour of negotiation if this was still possible, asked for an from the chair that if the resolution were carried itioners sent in their resignations, every possible ld still be made to settle the matter by nego-

AIRMAN assured the questioner that everything possible in this direction would be done.

TER rose to ask a question, and was greeted with cries of "Vote!" He desired to know whether, for this resolution, a practitioner was committing the sending in of his resignation.

AIRMAN: I consider he would be doing so.

olution, expressing the opinion that the remunera- ed was inadequate, urging the Panel Committee he Insurance Acts Committee in every way possible an increased offer, and pledging loyal support to l Committee in this direction, was then put and There were five dissentients, and it was stated practitioners present numbered 650.

MEETING OF BUCKINGHAMSHIRE PRACTITIONERS.

ADDRESS BY THE MEDICAL SECRETARY.

ical Secretary, Dr. Alfred Cox, attended on Friday, 12th, a meeting called by the Buckinghamshire of the British Medical Association of all the prac- in the county and on the county panel. Dr. T. F. Chesham, Chairman of the Division, was in the d there were present over fifty practitioners, a gly good number in view of the very bad weather.

ox, addressing himself to the present situation in Health Insurance, said he had always been in favour nce against sickness, because it was the only alterna- e old club system on the one hand and a State Medical n the other, and he did not know which he disliked . The community in 1911 made up its mind that there rge section of the public who ought to make medical for themselves and that the State and the employer ssist them. They all knew with what mixed feelings cal profession contemplated the new insurance system, r the new conditions had been accepted the British Association threw itself whole-heartedly into the task g the service one which would be satisfactory to the nd to which no self-respecting practitioner need be to belong. The Association had never given the countenance to any suggestion that because the con- f service were not entirely satisfactory to the doctors, something less than their best ought to be given to ients. It never would, because to do so would be en- reign to all the traditions of the medical profession. e had been a constant stream of complaints against and the system, partly fostered by the less responsible f the press, partly by those members of the old friendly who had never got over their defeat in 1911, when trol of medical benefit was taken out their hands, tly contributed to by careless and unworthy members own profession. The Association, early this year, took by the horns and called a representative conference ose concerned in the administration of medical benefit d them to state plainly what complaints they had about ice. Frank discussion took place, in which it was clear faults were not all on one side, and as a result a joint ee was formed which had been sitting at intervals he sittings of this committee coincided with negotiations Ministry of Health as to the conditions of service for ar, and as a result certain suggestions had been made, that committee, some by the Insurance Acts Committee, the Ministry, and some by the Approved Societies' tive Council, which, taken together, would, Dr. Cox , considerably improve the service. He believed that oint of substance to which attention had been drawn n dealt with. At any rate the desire of the Insurance mmittee had been to offer to the insured person the st general practitioner service that could be devised, addition the Committee had strongly urged that an should be made to extend the system by giving to the insured person some of those specialist services which were at present outside the ambit of the system. The Association therefore could hold up its head in any controversy which now took place with the firm conviction that it had done its best not only for the profession but for the public, and particularly for the insured persons. He would like to see the approved societies taking an equally sound line as regards the grievances of that very inarticulate person, the insured person, concerning the administration of sickness and maternity benefits. Having completed the negotiations about the terms of service the doctors naturally asked: "What are we going to be paid for this work?" and had been staggered to find that the result of all their efforts had been the offer of a decreased capitation fee. He had expected that the offer would be something clearly commensurate with the present value of the 11s., which had been offered in 1920 by the Minister of Health and confirmed by the arbitrators. The Minister of Health, it was true, had by ingenious calculations tried to show that the present value of that 11s. was round about 8s. 6d. He (Dr. Cox) acknowledged that he was not very good at figures, but, in spite of all his endeavours, aided by many friends of a mathematical turn of mind, he had not yet been able to see how 8s. 6d. at the end of 1923 represented 11s. in 1920.

The Insurance Acts Committee (Dr. Cox continued) was recommending the Panel Conference to decline the offer of the Minister and ask for arbitration. If the Minister offered *arbitration on the line of 1920* the profession would, he believed, accept it, and would, of course, be bound by the results. He said "on the lines of 1920" because at that time arbitration was between the Insurance Acts Committee (representing insurance practitioners) and the Ministry of Health. It was just possible that if arbitration were granted the approved societies would claim to come in as a party on the ground that it was out of "their money" that the doctors would be paid. Such an offer he believed the profession would definitely refuse, for it was becoming increasingly clear that the present fight was not so much about the capitation fee as about whether the approved societies were really to have the practical control of medical benefit. Parliament took the control of medical benefit out of the hands of the approved societies and put it into those of the Insurance Committees in 1911; but if the approved societies were to be able to control the amount taken out of the National Health Insurance Fund to pay for medical benefit they had to all intents and purposes succeeded in obtaining the control of medical benefit, and the sooner the pretence of this being a national system was given up the better. He for one would rather see the insurance system abandoned altogether than have the approved societies established in the position of paymasters of the doctors. He had no quarrel with the approved societies as the distributors of sickness and maternity benefits. No doubt the distribution of these benefits could have been done more cheaply, and possibly more efficiently, without the societies, but the medical profession did not ask that the question should be reopened unless the societies insisted upon it. If the societies, however, persisted in their claim that they controlled the National Health Insurance Fund, and had a right to settle what the remuneration for medical benefit was to be, he could promise them that the war would be carried into the enemy's camp. The Medical Secretary said he believed the Conference of Panel Committees would almost unanimously endorse the recommendations of the Insurance Acts Committee, and it would then remain to be seen whether the Minister was prepared to make an improved offer. But one item in that improved offer—to his mind far more important than the question of money, important as that was—must be a clear statement by the Minister or by the Government as a whole that the amount to be paid for medical benefit out of the National Health Insurance Fund was a matter not for the approved societies but for some body which represented all the individuals who subscribe to that fund—namely, every citizen. That body must be the Government, or the Minister of Health representing the Government, and it must not be open to any time-serving and vote-regarding politician now or in the future to confess that whether he was able to offer a fee sufficient to pay for a good national medical service or not was a matter to be determined not by himself but by a heterogeneous collection of people whose claim even to represent insured persons was pretty thin, but who had absolutely no claim to represent the other subscribing persons—namely, the employer and the citizens of this country. He urged the practitioners in Buckinghamshire to stand by the Insurance Acts Committee and to have this matter settled once and for all.

A very interesting discussion took place. Many questions were asked, and the meeting unanimously agreed to support the Insurance Acts Committee. The meeting closed with a vote of thanks to the Medical Secretary, carried by acclamation.

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vigorous action and was supported by its constituents the fight was as good as won. (Applause.) And if they did not fight to-day they had not a ghost of a chance of fighting three or four years hence. It was not so much a question of sixpence or a shilling, but of whether approved societies were going to be their masters and control medical benefit. If no approved societies had been jogging the elbow of the Minister the offer would have been a much better one. He pointed out the responsibility upon the members of getting in the resignations of their constituents.

Dr. Brackenbury said that London's action was one of the few determining factors in the whole business. If London did its duty, very few places in the country would fail to do theirs. Between the dates of the Conference and October 31st they had to collect the resignations of two-thirds of the practitioners on the London panel to take effect on December 31st. If this action were not taken, and the stand they were taking should have to be evacuated, it would mean not only the present unjust reduction, but further unjust reductions in the future, and the whole service would be lowered and deteriorated. They would have to sit down for ever under the weight of approved society control or predominance, and the position would never be recovered in any time that he could foresee. He added his appeal to that of the Chairman that every member of the Committee should make it his personal business to see that the purpose upon which they were set was achieved. (Applause.)

Dr. W. Coode Adams said that he was perfectly satisfied that unless a trial of strength with the Government came at some time or other the pressure would go on, and the remuneration gradually go down. That had been the experience in Germany, where there was the same pressure, the same diminution in the capitation grant, until the medical men had to take strong action which, he understood, was successful within seven days in bringing the Government to its senses. He pointed out that even if the Government was successful in finding a sufficient number of men to fill their places, the immediate problem would arise as to where these men were to live and to have their surgeries. The case was not merely one of supplying men, though that would be formidable enough, but supplying locations for such men in every area.

Dr. J. E. Stratton said that one very strong point, which did not seem to have been used as an argument, was that when the fee of 11s. was granted three years ago it was granted on condition that certain work should be done—records, for example, were introduced; and yet these obligations were not being withdrawn now that it was suggested that they should be paid practically the pre-war sum.

Dr. R. S. Pearson, Dr. E. A. Gregg, and others spoke to similar effect, and one member mentioned that on putting the matter to his patients he had found them without exception entirely against the proposed reduction.

It was also agreed unanimously that any agreement with the Minister of Health on the question of the capitation fee should be subject to agreement being arrived at with regard to the special circumstances of the rural practitioners, and further that authority should be given to the Insurance Acts Committee to continue negotiations in any direction that the circumstances might require.

Correspondence.

The Need for a United Front.

Sir,—I am a colliery surgeon of several years' experience, and the present time, when it seems possible, if not probable, that the medical profession will be forced into active defence of its position in relation to the insurance system, appears to me opportune to ask the colliery surgeons throughout the country to recognize the necessity of acting together with the rest of the profession in refusing any form of contract attendance to insured persons if resignation from the panel be decided upon. They are not only financially better placed for doing so than the ordinary practitioner, but they have unrivalled means of placing the true facts before the people in the districts in which they practise. They are accustomed to deal with an organized body of workmen, possessing in every district a representative committee, which approaches the doctor (or any other person or body) on their behalf if any matter for discussion involving their interests arises. In the event of the profession deciding to refuse service under the Insurance Acts the men's committee would ask to see the doctor, who would then have an excellent opportunity to put the matter clearly before the men from the doctors' point of view. He would not improbably be asked later to explain the matter to a local mass meeting of the men, and this would afford another excellent opportunity for bringing the facts to the knowledge of the local public. There is the other point, that in any event the contract in respect of the family club of the colliery surgeon would continue for at least six months, and the circumstance that he would be seen busily going about attending the families as usual would emphasize the fact that it was only as a panel surgeon that he refused service at the terms offered. If all colliery surgeons adopted the same course I do not think the fear that this six months' notice would be given and another doctor engaged is likely to be justified. It would be difficult, of course, for a few to stand out if there were many who did not. That is why I should like all colliery surgeons to consider these arguments and act in unison with one another and with the profession generally.

Owing to the security by contract of his family practice, the colliery surgeon is in a better position financially to bear a strike than the ordinary practitioner, and as a means of propaganda he is the most favourably placed class of practitioner; but, if this were not so, and even if his risk were greater than that of his fellows (which it is not), that would not excuse him, I think, for suggesting that the sacrifices should be made by others and that he should ride comfortably on their backs.—I am, etc.,

Thrybergh, Rotherham. G. H. Sedgwick.

Rural Practitioners' Remuneration.

Sir,—As one who has had an active part in the controversy that is at present raging in regard to what may or may not be considered to be a sufficient contract fee for medical men for their services under the National Insurance Acts, I have been impressed with the fact that a flat rate for the whole country cannot ever be equitable or just to those practising in rural areas.

It has been well pointed out by the Insurance Acts Committee of the British Medical Association that the Minister of Health seems to be trying to see at how low a fee he can command the services of a sufficient number of reasonably contented medical men to work under the Act, rather than to study how far the service can be made of real utility to the nation more especially from the point of view of preventive medicine.

The fee at present offered may be too much or too little for a satisfactory service in urban areas; but in any case it is totally inadequate when applied to rural conditions. It is as important to secure that the services of well qualified and able medical men shall be at the disposal of the workers in rural areas, who produce the country's food, as at that of the urban dwellers, who consume it. It is of course of the utmost importance from the point of view of the public health that those who handle food in rural areas for dispatch to the towns should be healthy and hardy. No system of public health can be successful without the full, hearty, and contented co-operation of the general practitioners with the medical officers of health.

At the Conference of Rural Practitioners in London in July last I proposed and pleaded for a differential capitation fee for urban and rural practitioners. I was told that it was not administratively possible; I did not agree; and I am not now convinced. In regard to my own area I can safely say that a consultation between the County Insurance Committee and the Panel Committee could settle in a few minutes which practitioners were rural and which urban. It might not be so easy in some areas, but to begin with it might be assumed that the areas administered by a rural district council are rural and those administered otherwise are urban.

I will furnish one simple example of the danger of an unhealthy rural population coming into contact with agricultural produce. It may not be generally known to town dwellers that it is frequently the habit of agricultural labourers who milk cows to lubricate their hands with their own spittle before applying them to the udder of the cow. The horrible possibilities of tuberculous men expectorating in this manner into the food of town children

test is that from which most valuable information can be gathered and is the easiest to perform. If this reaction is strongly positive no further confirmation is required. A drop of 30 per cent. formaldehyde is added to 1 c.cm. of serum; in a well established case of kala-azar the serum will immediately set like white of egg, and the reaction is considered as absolutely diagnostic of the disease. The blood count is regarded by some as characteristic; there is marked leucopenia and a great reduction in the proportion of white to red cells. The parasite is present in the peripheral blood and by careful examination of blood films can be detected in nearly 100 per cent. of the cases. Blood culture on blood-agar gives equally good results. The authors furnish complete directions for carrying out these various diagnostic tests. The specific treatment of the disease consists in the intravenous injection of the sodium salt of tartaric acid, and cure may be anticipated in 95 per cent. of the cases, provided that the disease is not too advanced and that none of the more serious complications have developed. With regard to the duration of treatment a general rule is suggested, that if the temperature becomes normal in two weeks the treatment should be continued for two months; if in three weeks, for three months; if in four weeks for four months.

GONORRHOEA: BACTERIOLOGY AND TREATMENT.

THE book on *Gonorrhoea*[3] by DAVID THOMSON is the outcome of seven years' work by the author on the bacteriology of this disease. The author states that it was originally his intention to publish a series of papers dealing with the subject but that so much data accumulated that it became necessary to bring the information together in a book. In order to complete the work and to render it of greater value to the practitioner, the collaboration of various clinical workers was invited and chapters added on the abortive treatment of gonorrhoea and the clinical manifestations and modern treatment of the disease. The result is a very complete work on the subject, certainly the most complete that has yet appeared from a British author.

Perhaps the most remarkable feature in the book is the wide range of its references to foreign literature. In all some 2,000 of these appear, so that the work should be of the greatest value to anyone in search of the literature of any aspect of gonorrhoea. It is, however, in the main a treatise on the bacteriology of the disease and two-thirds of the book deal with laboratory methods. Few bacteriologists are more competent to deal with this subject than Dr. David Thomson, and his chapters on the cultivation of the gonococcus, its toxins, and the secondary organisms that are commonly associated with it, are excellent.

In a later chapter the author deals very fully with the question of immunization by means of vaccine therapy. He is strongly in favour of the use of specific vaccines in attaining this object, and although he is prepared to admit that the injection of foreign or non-specific proteins, such as typhoid bacilli, may bring about improvement, he considers that still greater benefit would have been obtained by the use of a vaccine that was specific. The same shock will be produced in the latter case if only a sufficient dose is given and specific antisubstances will have been formed. The fact that good results have been obtained by the use of the injections of typhoid bacilli may, he considers, be explained on the supposition that the chemical composition of typhoid germs resembles that of gonococci, both organisms being Gram-negative and easily soluble in weak alkali. The antisubstances formed against the one are, therefore, likely to act to a great extent as antibodies against the other.

In another chapter a full account is given of the author's work on detoxicated vaccines and replies are furnished to the criticisms usually levelled against this class of vaccine. More particularly is an answer given to the objection that a non-toxic substance which produces no reaction when injected is unlikely to produce antisubstances. In his opinion the toxic substances removed from gonococci by his process of detoxication are simple nitrogenous protein products that are of relatively little value in immunity. He states that these toxic products do not act antigenically when used in the complement fixation test, and that they are not to be compared with true exotoxins such as the toxins of diphtheria and tetanus bacilli. These true toxins, unlike the simple products removed in the process of detoxication, are precipitated by alcohol, and are highly complex protein substances resembling more those found in snake venom. However, in his later researches the author has avoided the use of strong chemicals and has prepared detoxicated vaccines with weaker alkalis. A short chapter on vaccine treatment in gonorrhoea has been contributed by Dr. Kenneth Maclachlan and chapters on infection, incubation, and abortive treatment by Mr. Claude Mills.

Part VI, on the clinical manifestations in the practical modern treatment of gonorrhoea, has been written by Dr. David Lees, lecturer and director of the Venereal Diseases Clinic, Edinburgh. These chapters are eminently practical and will render the book of greater value to those looking at gonorrhoea from the point of the clinician rather than of the bacteriologist. The illustrations, including some coloured plates, are excellent, and both author and publishers are to be congratulated on the way in which the book has been turned out.

[3] *Gonorrhoea.* By David Thomson, O.B.E., M.B., Ch.B.Edin., D.P.H.Camb., with contributions by David Lees, D.S.O., M.D., F.R.C.S.E., Claude H. Mills, M.R.C.S.Eng., L.R.C.P.Lond., Robert Thomson, M.B., Ch.B.Edin., Kenneth Maclachlan, M.B., Ch.B.Edin. Oxford Medical Publications. London: H. Frowde, and Hodder and Stoughton. 1923. (Double cr. 8vo, pp. xiv + 519; 19 plates, 22 figures. £2 2s. net.)

A TEXTBOOK OF BACTERIOLOGY.

THE fifth edition of the *Textbook of Bacteriology*,[4] originally written by HISS and ZINSSER and published in 1910, although following the early plan fairly closely is a larger volume than its predecessors and contains also a section dealing with pathogenic protozoa, written by Dr. FREDERICK RUSSELL. The book has been almost completely rewritten, the aim of the authors being to correlate bacteriological knowledge with the branches of medicine and prophylaxis to which it is most directly applicable. Being designed to supply the needs of both students and practitioners of public health as well as medicine, the book includes clinical and epidemiological data not usually found in textbooks of bacteriology; there is a section also dealing with infection and immunity. How well the authors have succeeded in keeping their textbook up to date may be exemplified by the fact that six pages are devoted to the so-called "bacteriophage" phenomenon of Twort and d'Herelle, and the recent work of Bordet and Ciuca is critically reviewed. The observations of Kruse and others, suggesting that the common cold is due to a filtrable virus, are also mentioned.

This book will be of more value to graduates working for higher degrees in medicine and for diplomas in public health than to the ordinary medical student. The needs of the latter are catered for by many excellent books of smaller dimensions and a more moderate price, and since the science of microbiology is advancing so rapidly it is not wise to recommend the medical student to purchase a volume which he will probably not find time to read during his student days. To those working for the D.P.H., on the other hand, the book will be very useful because of its broad and generous scope and because it deals with the origin and spread of epidemics. Previous editions have been very popular with D.P.H. students, and the fifth edition deserves the same regard.

It cannot be maintained, however, that the customary method of supplying to advanced students information about unicellular plants and animals is satisfactory from the scientific point of view. The activities of bacteria are being studied by medical, sanitary, agricultural, and industrial bacteriologists, and authorities in each of these departments write learned treatises on the organisms which happen to be of interest in their particular province and neglect those with which they have no immediate concern. It might be said, of course, that those readers for whom the present volume has been written would not

[4] *A Textbook of Bacteriology.* By Hans Zinsser, M.D., with a section on Pathogenic Protozoa by F. F. Russell, M.D. Fifth edition. New York and London: D. Appleton and Co. 1922. (Demy 8vo, pp. xiv + 1195; 164 figures. 35s. net.)

British Medical Journal.

SATURDAY, OCTOBER 20TH, 1923.

THE PREVENTION OF HEART DISEASE.

IE Section of Medicine at the Annual Meeting of the ·itish Medical Association addressed itself to one of e major medical problems of this country when it ɔk up the discussion on the control of heart disease early life. The report of the discussion will be ınd in this issue (p. 702), and the consensus of inion points to a progress in the past so slow as to rest attention and to warrant special inquiry into the st steps to be adopted to combat the disease. The bject for discussion was by definition limited to the ology and treatment of heart disease in early life, d was therefore mainly directed to the rheumatic ild. It is at first sight difficult to understand why little has been done to combat the ravages of eumatism in childhood when its later effects are so ·ll known. Whether it be that the introduction of e stethoscope, as Sir James Mackenzie has sug-sted, or the more careful search into the morbid atomy, or the greater attention that has been voted to the intrinsic cardiac mechanism, has de-cted at different times the minds of those interested cardiac problems from preventive measures, it is e to speculate. Rheumatism has been assumed to one of the diseases associated with our country d climate, and rheumatic heart disease has been cepted as a natural corollary. Several influences e fortunately at work to terminate this attitude of ssive acceptance of conditions which may prove, large measure at least, to be remediable. The ·neral Medical Council is preaching that the impor-ıce of prevention should be impressed on the ·dical student; the Ministry of Health pleads "for new attitude toward heart disease which shall be ological and prophylactic in spirit"; the example of ·w York, with its elaborate scheme for the preven-ın and relief of heart disease, has aroused thought; e very excellence of the work that has been done in ·spect of the diagnosis of cardiac disease and the ·hythmias has awakened workers to the fact that ·evention must be sought along other lines. What-er be the determining factor there can be no doubt an awakened interest in the study of heart disease ·ni the preventive aspect, and the Section of ·dicine has asked the Council of the Association appoint a special committee to inquire into the ·ps that may best be taken to combat the grave ·nace to the country arising from this cause.

In that type of heart disease which has its origin early life, and of which, therefore, rheumatic infec-n in some form is the most frequent cause, real ·evention must deal with the prophylaxis of that ·ection *per se*. Certain points raised in the discus-ın call for a full investigation. Among them are ɔ predominating incidence of rheumatism among the orer classes, the advantage of prolonged residence fresh air and sunshine during convalescence in tigating against the tendency to relapse, the habitat the organism, and the relation of tonsillitis to the ease. Again, the close relationship between chorea d rheumatism is generally recognized. Dr. Fordyce, an article on the care of the choreic child blished this week (p. 700), has included in one group for administrative purposes excessive fidgetiness, habit spasm, and Sydenham's chorea, but this suggestion should not be allowed to obscure the more important issue and the clear connexion that exists between rheumatic chorea and heart disease. The conditions which predispose to rheumatic chorea are not necessarily the same as those which produce articular rheumatism, and the etiological factors would have to be investigated along parallel but not necessarily identical lines. Prone to relapse, and when recurring specially liable to be followed by cardiac involvement, it is one of the serious and intractable disabilities of childhood.

Difference of opinion exists as to the criteria which should be used to determine the cessation of the active period of the rheumatic infection in the child. This is a matter which ought to be settled, as it is very important in its relation to heart involvement and possibly also to the question of reinfection or recrudescence. Some have argued that the milder nature of the joint pains in the child as compared with the adult, and their speedy disappearance under the action of salicylates, are really factors which endanger the child's heart, because the child, being free from pain, may be allowed up sooner than the adult, whose more severe pains keep him in bed for a longer period; the more frequent involvement of the heart in the child than in the adult may thus, it is thought, be explained. Rheumatic fever is not in essence a simple joint infection, and it is doubtful if these arguments go to the root of the matter. The presence of blood vessels in the valves of the child's heart and their disappearance during early adult life, as has been demonstrated by Gross in his work on the *Blood Supply to the Heart*, affords a readier explanation. From figures reported in the discussion and from others that we quoted in a previous article (June 2nd, p. 942) it would certainly appear that the liability to relapse is definitely lessened by prolonged after-care or convalescence in the country under suitable conditions.

This raises the question of the provision of convalescent hospitals or cardiac homes where convalescent rheumatic children, with or without heart lesions, can be kept for periods of months. There are a very few in this country, but the experience at Broadstairs, though based on too few cases to justify a definite conclusion, seems to point to the fact that a residence of months rather than a period measured in weeks should be aimed at. It would appear that the much higher incidence of heart disease in rheumatic children of the hospital class as compared with children of the well-to-do is due to defective opportunities for prolonged convalescence. Thus while at Eton about 1 per cent. of the boys give a history of rheumatic infection, organic heart disease is practically unknown. The hospitals cannot supply the lengthy treatment required, nor are they the ideal places for recovery in the later stages. A similar remark applies to the ordinary convalescent homes, even those which admit such cases at all; nor are the majority of those which do prepared to keep the child convalescing from uncomplicated articular rheumatism for a sufficiently long period to be of practical value. Not a little attention was paid to this aspect of the subject at Portsmouth. Dr. Miller advocates special heart homes as the ideal. The reports from the few that have been opened in this country are encouraging. The convalescent care of cardiac and potential cardiac cases has been a special feature of the New York scheme, and there are now available about 400 beds

of all possible respect. Antivenereal treatment on a national scale has been applied during the last three years, and since 1919 the authors have been training midwives at a maternity training school in connexion with the Church Missionary Society's hospital at Namirembe, Uganda. Last year the Government of Uganda established a Central Midwives Board and a diploma in midwifery for the Protectorate. It is for these pupil midwives that this book is intended—to be supplemented, of course, by much oral and practical training. To judge from the chapter headings and illustrations it follows the accepted lines of the simpler textbooks in this country. It has been drawn up by the authors in faith and hope, and in the same spirit we congratulate them upon it and wish for it a very fruitful career. The excellence of its format is highly creditable to the Society, which has thus added one more to the large series of educational works in African languages with which it has enriched literature.

NOTES ON BOOKS.

THE eighth volume of *Medical Science: Abstracts and Reviews*, published for the Medical Research Council by the Oxford University Press, was completed in the issue for September, and an index is published in the first (October) number of the ninth volume. A feature of the periodical is that each number contains one or more reviews on some particular subject and that these reviews are accompanied by bibliographies. One of the reviews in the first issue of the ninth volume is by Dr. F. M. R. Walshe; in it is summarized the work of Magnus and his collaborators on the pharmacology of the nervous system, with special reference to postural and other reflex reactions. Through the work of Sherrington and Magnus it is now possible to form a fairly precise estimate of the origin and nature of many of the motor disturbances in hemiplegia and paraplegia, whereas we are still completely in the dark as to the meaning of the various components of the so-called "corpus striatum syndromes." The pharmacology of the nervous system must be resurveyed in the light of recent advances. Dr. Walshe's review consists of a brief discussion of papers recently published by Magnus and his school; they are the first applications of the physiological investigations carried out at Utrecht during the past ten years. They give an earnest of further advance in the knowledge of various disorders of function in the nervous system built upon the same foundation.

Dr. HENRI MALLIÉ's little book on paratyphoid and Gaertner infections[8] is divided into four parts. The first consists of an historical and bacteriological account of paratyphoid bacilli, though here and throughout the book we miss any reference to *B. paratyphosus* C; the second part is devoted to etiology, morbid anatomy, and pathology; the third part deals with the symptoms and complications of paratyphoid fevers, the typhoid and gastro-enteric forms being discussed successively; and the fourth part is concerned with diagnosis and treatment. Useful statistics are given relating to paratyphoid carriers (p. 38), the incidence and mortality of paratyphoid fevers A and B (pp. 118–122), and the frequency of various complications, especially intestinal haemorrhage (p. 85). Special interest attaches to the prophylactic and curative administration of vaccine by the mouth in the form of Lumière's entero-vaccine, which has been successfully employed in France. The book contains a clear exposition of the subject, being written, as Professor Carles says in the preface, by a practitioner for practitioners, for whom, owing to the prevalence of paratyphoid fevers in France since the war, such a work will be specially useful.

The fourth edition of the *Handbook of Tuberculosis Schemes*[9] is similar to the previous edition on which we commented last year. For those who have not had the good fortune to encounter this book we may say that its general purpose is to supply information relating to the measures which are in use throughout Great Britain and Ireland for the control of tuberculosis. Summarized under county and county borough headings are preliminary data on the area, population, and industries of the district concerned, together with the death rate from all causes, and from pulmonary and non-pulmonary tuberculosis in the year 1922. Then follow details of the tuberculosis dispensaries, sanatoriums, hospitals, farm colonies, and open-air schools, and of the medical staff and care committee operating under the scheme. Admirable alike in arrangement and completeness, it should be found invaluable for all those engaged in the treatment of tuberculosis. We congratulate the National Association on this fresh product of its activity.

[8] *Les infections paratyphoïdes et gaertneriennes: Etude clinique et thérapeutique.* By Dr Henri Mallié. With a preface by Dr. Jacques Carles. Paris: A. Maloine et Fils. 1923. (Imp. 16mo, pp. 195. Fr. 8 net.)

[9] *Handbook of Tuberculosis Schemes for Great Britain and Ireland.* Edited by the National Association for the Prevention of Tuberculosis. Fourth edition. London: George Pulman and Sons, Ltd. 1923. (Med. 8vo, pp. vii + 293); 10 figures. 10s. 6d., post free.)

PREPARATIONS AND APPLIANCES.

Emetine Periodide.

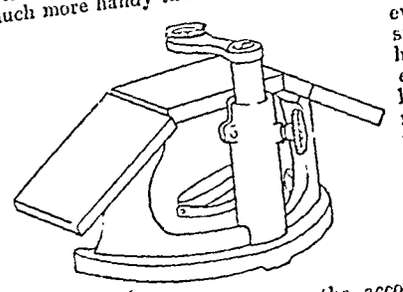
EMETINE PERIODIDE ($C_{29}H_{40}N_2O_4.6I$) is a preparation introduced by the firm of W. Martindale as a substitute for emetine bismuth iodide. This latter drug was prepared to enable emetine to be given by mouth in amoebic dysentery without producing vomiting. It was believed that it was insoluble in weak acids and would pass through the stomach without dissolving, but would be split and brought into solution in the alkaline contents of the intestine. Unfortunately emetine bismuth iodide slowly dissolves in 0.2 per cent. hydrochloric acid, and hence may exert an emetic action unless further protected by a salol capsule. The disadvantage of the latter procedure is that salol capsules are liable to escape solution in the gut and to be excreted unchanged. The preparation emetine periodide contains 38.7 per cent. emetine base. Its production appears to be a distinct advance on "emetine bismuth iodide," as it is almost completely insoluble in weak acids but is dissolved and split up by weak alkalis. Its chemical properties have been described by W. H. Martindale,[1] and as a result of extensive clinical tests on refractory cases of amoebic dysentery Dr. J. G. Willmore[2] concluded that it was "by far the most effective and at the same time the least toxic of all the emetine preparations which I have tried."

Scillaren.

Many vegetable drugs of established utility have not hitherto been brought under exact pharmaceutic control. Among these there are few of greater interest than squill. The potency of the active constituent and its minute and varying proportion have been causes of an uncertainty of action which militated against its adoption as long as only galenical products of the drug were available. A glucoside from squill is now being manufactured by the Sandoz Chemical Company which is claimed to be a product of definite identity. The article is sold under the name of "Scillaren Sandoz," and is supplied in the form of a solution and tablets for internal administration and also in ampoules for intramuscular or intravenous injection. Samples submitted to our analyst are reported by him to contain proportions of the glucoside which are too minute for a chemical estimate to be made of its individual quality, but his examination has enabled him to observe that the active principle has been so well purified as to admit of standardization of the preparations. It will be a cause of satisfaction to know that preparations of squill of standard activity are obtainable.

A Dissecting Microscope.

Messrs. R. and J. Beck (68, Cornhill, E.C.3) have recently introduced a new form of microscope for dissecting, which is much more handy than the old-fashioned wooden apparatus. Its main advantage, however, is in the absolute stability of the two hand-rests—a point of essential importance lacking in the apparatus commonly in use which follows the design of ordinary microscopes as regards the base and stage. In the Crescent Dissecting Microscope, the general character of



which can be gathered from the accompanying drawing, the main casting is very wide and supports the hand-rests, so that there is no tendency to tip the instrument. The apparatus is provided with a large glass stage, and can be used with a single lens or, if required, the tube of a single or binocular microscope is readily inserted.

[1] W. H. Martindale, *Trans. Roy. Soc. Trop. Med. and Hyg.*, xvii, 1923, p. 27.

[2] J. G. Willmore, Ibid., p. 13.

ble, and the temptation perhaps grows, to be aiacal without buying or selling an advowson, those who have been touched by the spirit will sell their scientific birthright. Indeed, our own usion is almost as optimistic as Professor ing's characterization of his own times.

ALL THE APPROVED SOCIETIES RULE THE PROFESSION?

curt letter of the Minister of Health published e SUPPLEMENT this week, which, at first sight at rate, seems to be a refusal of parley, compels us turn to the consideration of the general position e insurance medical service with regard to national h and to other branches of professional work. issue, as we have shown, and will show again , concerns not only those members of the profes- who are on the panel of insurance practitioners everyone who practises medicine in any of its ches in Great Britain. The axe is laid to the root e tree.

the leading article published last week (p. 669) ition was drawn to the wide extent and the great ibilities of the service, and to the persistent efforts have been made on behalf of the profession by the rance Acts Committee to improve it by suggesting ccepting new arrangements to meet every legiti- criticism and by trying to cultivate a spirit of idly co-operation with all classes of officers and inistrators who are concerned in its working. We red the dangers, both to the national health and to whole medical profession, of a rate of remunera- which would narrow the outlook and stunt the loping usefulness of the service, and would iate and dishearten large numbers of practitioners n whose inclusion within it the real value of the ice to the community depends. We appealed to Minister of Health to take this wider view and nake some further proposals which would secure full help of a contented profession.

is a matter for extreme regret that the Minister failed to use his opportunity. The Insurance Committee, confident in the strength of argu- ts and facts there has been no real attempt to ute, recommended that the matter in its economic ects should be submitted to arbitration as in 1920. has been refused—if we understand aright the ing paragraph in the Minister's unsatisfactory letter October 15th. The result of any such arbitration ld have been loyally accepted this time, as last , by insurance practitioners, but this possible iway to a peaceful solution seems to have been ed.

he course of events since the Minister made his r of October 3rd (SUPPLEMENT, October 6th) has, ever, made it evident that the purely economic stion, important as it is, has become of lesser nent, and that the plain and clear issue now is ther the approved societies shall be allowed to trol a national service, to dictate to Ministers, and nslave the profession. In accepting this issue the fession will be fighting not only its own battle but of the community at large. The question which profession and the Government alike have to face whether the public health and national aspects of insurance system are to be sacrificed to the inter- and power and selfish advantage of a mere section, approved society officials, whose object, very little guised, is to buy the medical profession outright at lowest figure, and who, as the Insurance Acts Committee's reply to the Minister says, "it is only too plain, are concerned much more with the building up of surpluses than with the building up of a satisfactory National Health Insurance scheme which shall be preventive as well as curative."

The position and powers of approved societies in the insurance scheme were set out in general terms in our leading article last week. Through the efforts of the profession and by the deliberate judgement of Parliament they were excluded as such from the administration of medical benefit, but they are entrusted with great powers in respect to cash payments during incapacitating sickness and disablement, and with regard to certain "additional benefits." Ever since the first valuation the more successful societies, by unforeseen and doubtful interpretations of certain sections of the Acts and by uniting to establish a quasi-charitable society to do for them what they are unable legally to do for themselves, have attempted to exploit and control the services of hospital staffs and of consultants and specialists. Insidiously but constantly efforts are being made to extend and intensify this control. By the intricacies of insurance finance and by the technical crediting to them as a matter of book-keeping of sums of money contributed jointly by employed persons, employers, and taxpayers, approved societies are now claiming that they have a deciding voice as to the terms and conditions of service of insurance practitioners, and are explicitly denying the right of the Minister of Health to apply any portion of the National Health Insurance Fund to remuneration for these services beyond what they are themselves pleased to consider proper. It is to be hoped that there are some wiser officials of approved societies who view these developments at least with disquietude; but recent speeches and letters and statements by presumably responsible leaders of approved society opinion make it clear that their aim is to become the dominating factor in the insurance scheme and more and more completely the masters of the doctors. Approved societies have their proper place in the scheme, but it is not the place they are attempting to usurp.

This, therefore, is a matter affecting not only insurance practitioners, or merely such consulting physicians and surgeons, pathologists, and radiographers as may be rendering service in connexion with the additional benefits provided by some societies: the honour and interests of the whole profession are deeply involved in it. It is clear that all the efforts of the Insurance Acts Committee, prolonged and sincere as they have been, towards conciliation and the cultivation of a friendly spirit, have had not the slightest effect upon approved society leaders. Indeed an ostentatious lack of appreciation of these efforts, repudiation of previously accepted conclusions, misrepresentations of medical opinion, and a very regrettable disregard of truth, have increasingly become characteristic of their attitude. Boasts of the impotence of the profession and of what the societies will be able to do in the direction of a cheap medical service when they have established their power have become louder and more confident.

It is an imperative necessity for the profession to put an end to this.

The issue has now become at once more critical and more simple. Freedom from friendly society control was perhaps the most "cardinal" of the 1911-12 points. This freedom is now once more seriously jeopardized. The profession must now decide once and for all whether it will submit to approved society domination or whether it will take

The following is the reply of the Insurance Acts Committee to the Minister's letter of October 15th printed above:

British Medical Association,
Medical Department,
429, Strand, W.C.2.

Sir,

I beg to acknowledge receipt of your letter of the 15th October. The Committee understands:

(1) That the Minister is unable to accept the suggestion that arbitration offers a method of arriving at a peaceful arrangement.

(2) That he is unwilling to allow any further negotiations until he has been convinced by some other method that it is impossible for him to obtain a satisfactory service under his present offer.

The Committee would have preferred the method either of arbitration or of negotiation, but has no option but to accept the responsibility he now imposes on it.

The Committee's position is—

(1) That on the purely economic question, on which it is still prepared to negotiate, the remuneration the Minister suggests is insufficient, and that there has so far been no real answer to the facts and conclusions set out in the Committee's first Memorandum (M.1) and the accompanying statement by Professor Bowley.

(2) That no national medical service based on an insurance system can be satisfactory unless it attracts all types of general practitioners in sufficient numbers and so supplies the industrial population, whether in town or country, with that choice of doctor and satisfactory service which obtains among other classes of the population.

(3) That while willing to serve the community to the best of its ability and to make any satisfactory arrangement to this end with the representatives of the community, the profession is not prepared to accept the position of being under the dominance or control of a particular section.

(4) That arrangements consistent with these principles can be agreed to by the Committee and would not, in its opinion, involve any further contribution from the taxpayer or any diminution of the benefits to which insured persons are entitled.

I am, Sir, your obedient servant,

Alfred Cox,
Medical Secretary.

October 15th, 1923.

THE INSURANCE CRISIS: THE MAIN ISSUE.

What practitioners should clearly understand is that the present conflict is not mainly upon the inadequacy of the capitation fee offered, but upon the old question, fought successfully in 1911 and 1912, of whether the profession shall be free from Friendly Society control. A discussion of the present situation will be found in a leading article at page 725 of the "Journal." Other reports, notes, and correspondence relating to the insurance crisis appear in later pages of this "Supplement." We hope to publish next week a full report of the Panel Conference which is being held in London as we go to press.

British Medical Association.

CURRENT NOTES.

The Council Dinner.

In an annotation on page 673 of the Journal of October 13th reference was made to the second annual Council dinner, which is to be held at the Hotel Victoria, Northumberland Avenue, at 7 for 7.30 p.m. on October 24th. Members of the Association are reminded that they should make early application for tickets, particularly if they are bringing guests, who may be ladies or gentlemen. The list of guests who have accepted the Council's invitation is a distinguished one. It includes the Minister of Health, the President of the Royal College of Physicians of London, the President of the Royal College of Surgeons of England, the President of the Royal Society of Medicine, Lord Justice Atkin, Sir George Newman, Sir Arthur Robinson, the Registrar-General, the heads of the Medical Departments of the Services and the Medical Adviser to the India Office, the President of the Society of Medical Officers of Health, the President of the Association of County Medical Officers of Health, the President of the Medical Women's Federation, the Vice-President of the Royal College of Veterinary Surgeons, the President of the British Dental Association, the Registrar of the General Medical Council, Sir Philip Magnus, Sir Henry Craik, and the following medical members of Parliament: Sir S. Russell-Wells, Sir John Collie, Major L. G. S. Molloy, and Dr. Thomas Watts.

The chief guest of the evening will be Sir Dawson Williams on the occasion of his completion of twenty-five years as Editor of the British Medical Journal, and many old contributors have announced their intention of being present. Applications for the remaining tickets should be made at once to Mr. L. Ferris-Scott, Financial Secretary, 429, Strand, W.C.2. The price is 10s. 6d., exclusive of wine.

Correspondence regarding the Insurance Crisis.

The Medical Secretary desires to thank many correspondents who have written giving either their own ideas or what they have gathered as to the views of the profession in their areas. He finds the information most useful and cheering, but hopes that those to whom he does not send a personal reply will understand that the pressure of work just now renders it impossible to make individual replies to all.

Labour Party and the Capitation Fee.

The lay press during this week has been commenting on a report issued by the General Council of the Trades Union Congress and the Labour Party National Executive on medical benefit. It is very interesting to note that this important political body agrees that, if the services are improved in accordance with the arrangements already made between the Insurance Acts Committee and the Ministry, the service "would be such as to justify a capitation fee to the doctors of substantially the present amount without ruling out of present consideration any claim by the medical profession for something beyond this, and we have satisfied ourselves . . . that the National Health Insurance Fund in the aggregate contains sufficient money to meet the cost without lowering or endangering the revision of the other benefits (whether normal or additional) to which insured persons are entitled." This is a complete vindication of the British Medical Association's claim, and it now remains for the Labour Members of Parliament to translate into action the opinion thus expressed by the two important bodies of which they are members.

War put into commission a type of
ed two stretcher cases, a doctor, and a
bomy cabin where emergency operations
l, for which apparatus and equipment
the British designs there was no provision
nce of operations, but chief attention
table seating accommodation. In the
eroplane two stretchers were run in on
nose of the machine, and there was pro-
g eight patients on deck chairs arranged
wall of the fuselage. There was provision
and food-box, sanitary conveniences, and
ttle and sterilizer. The machine was well
both running, and the engine note not dis-
here were three of these machines at present
nd the number was being increased; another
building, to take two stretchers, and to be
able for going out to the scene of a crash in
ntry as Mesopotamia. In future these air
would have their own medical personnel, and
and pilots would be told off for them. In
would be possible to form aerial convoys for
en the front and the base hospital, and the
ould suggest itself particularly for the bringing
of abdominal and head casualties.

THE QUAKER ABROAD.

, one of the Virgin Islands, derives its name from
wn-coloured turtle doves that make their home on
ky hillsides; on it, from 1741 to 1786, there were
peace-loving colonists in the shape of settlers belong-
the Society of Friends. Mr. C. F. Jenkins, a well
n Philadelphia Friend, has made it a labour of love to
e all available material bearing on these ancient
hies, and the result is a very interesting little book.[1]
the medical historian Tortola has the lure that here
at least on the islet Little Jost Van Dykes, reckoned
a part of the larger island) was born in 1744 Dr. John
akley Lettsom, who became later known to fame as the
stinguished London physician and founder of the Medical
ociety of London. He was "dressed plainly and simply
fter the manner of Friends of the day, and was formally
eceived by the King on more than one occasion, without
the required court dress or sword. . . . His many activities
gave him little time for Quaker activities, yet he always
regarded himself as a member. 'I was born a Quaker,' he
tells a correspondent, 'and what is still more strange
I was born so within the Tropics.' Eleven years before
his death he said, 'I am no bigot, even thinking as
well of other religions and sects as I do of that in
which I was born and now remain—as I believe, the
only Quaker in the world a *West Indian*.'" He is said
to have been one of the seventh pair of boy twins born to
his mother, of which number he and his brother Edward
were the sole survivors. Sent home as a boy of six, he
only once revisited the island (in 1767), to take over his
father's estate, and one of his first acts was to free all the
slaves he had inherited. His youngest son, Pickering
Lettsom, was named after John Pickering, the Quaker
governor of Tortola. Pickering was eventually super-
seded during the war with Spain because, with other
Friends, he would not "engage an enemy or use offensive
weapons." The younger Lettsom settled on the island and
practised his profession as a lawyer there. Dr. Lettsom is
buried in Bunhill Fields Friends' Burying Ground, with
George Fox and Edward Burrough. Another medical
Tortolian was Dr. William Thornton, a son of one of the
active early members of the Tortola meeting. He was sent
to England for education, became a druggist's clerk at
Ulverston, and studied medicine, like Lettsom (whose
friend and warm admirer he became), at Edinburgh. After
completing his studies he returned to Tortola, and suc-
ceeded to an ample fortune; later he went to Philadelphia,
where he was fired with a desire to repatriate personally
the free blacks of the North, as well as the seventy slaves
who had come to him by inheritance at Tortola. One or
more ill fated expeditions had already sailed with this
object from England to Sierra Leone, and Dr. Lettsom
dissuaded him from the venture, so Thornton remained in
New England furthering his repatriation plans from Phila-
delphia. Here he married, and, having considerable—
although entirely untrained—skill as an architect, pro-
duced, in a competition, the winning plan of a new building
for the Philadelphia Library which Franklin had founded
some years before. This building still stands, though used
for other purposes. After a time he returned to Tortola,
and practised for a considerable period as a physician.
In 1792, while still there, an advertisement by Thomas
Jefferson, Secretary of State, for plans for the President's
house and for the Capitol drew Thornton again to Phila-
delphia to submit his designs. Although he was late and
the competition closed, none of the fourteen plans sub-
mitted had proved satisfactory. President Washington,
on seeing and admiring Thornton's drawings, got the
Commissioners to accept them, and the Capitol building,
"probably the best known and most imposing structure
in America," was erected substantially from his design.
Thornton became the friend of Washington, was made
one of the three commissioners for building the city, and
in 1802 was appointed first Commissioner of Patents, which
post he held till his death in 1828. He was organizer of
this important branch of Governmental work, and "other
beautiful buildings in Washington still stand to testify to
his taste and untaught architectural genius."

THE LAY PRESS AND SCIENTIFIC RESEARCH.

POPULAR interest in scientific research has increased of
recent years, but there has been too little understanding
of the true aims of medical and scientific research. Well
meaning individuals have thus been led to offer prizes for
results in certain researches as if they were competitions
of the type at present prevalent in this country, in which
thousands of persons make wild guesses and one wins
several thousand pounds. This misunderstanding has been
fostered by a regrettable tendency in some quarters to
create newspaper "stunts" when scientific researches
have been published by their authors, often not so much
as final achievements but as signposts to fellow workers.
It is refreshing, therefore, to find in the October number
of that old-established "family" magazine, the *Sunday at
Home*, an article dealing with the aims of scientific
research in a manner that is picturesque and interesting,
and at the same time accurate and discerning. The
author, Mr. Harry Cooper, tells the proud story of the
men who have given their lives in the pursuit of know-
ledge and the service of mankind. On his roll of fame
are the names of Arthur William Bacot and H. T.
Ricketts, who died of typhus. Jesse W. Lazear, who died
of yellow fever, MacTier Pirrie, who died of kala-azar—
all diseases contracted in the course of research work.
The martyrs of the *x* rays of whom Mr. Cooper tells
include Arthur Henry Blacker, C. R. C. Lyster, Ironside
Bruce, Clarence Dally, Mihran Kassabian, and other
workers still alive though mutilated. Nor does the author
forget the heroes of earlier ages—Giordano Bruno,
Galileo, Lavoisier, Roger Bacon, Tycho Brahe, Lebon.
He proclaims, however, that the strain of chivalry has
not died out. "Some of the men to-day who are peering
into microscopes or examining the images on fluorescent

[1] *Tortola: A Quaker Experiment of Long Ago in the Tropics.* By Charles F. Jenkins of Philadelphia. London: Friends' Book Shop. 1923 (Demy 8vo, 160: 8 plates. 5s., post free.)

14. In any schemes for providing hospital benefit by voluntary hospitals, it is undesirable that the hospitals concerned should undertake any insurance risk, i.e., undertake to provide hospital benefit, when required, in return for a periodic payment by an individual or a group of individuals; so that where schemes are set up to provide payment for hospital benefit for specified individuals or groups of individuals, such schemes should be organized not by the hospital, but by some independent body.

15. The acceptance by voluntary hospitals of an insurance risk under any scheme for the provision of hospital benefits would (a) prejudice the primary consideration in the admission of a patient to hospital, namely, the suitability of the case for admission on medical grounds; and (b) in the event of the actuarial estimates upon which the scale of premiums and benefits are based proving faulty, render the hospitals liable to meet outlays for which there was no financial provision, and consequently endanger the purely charitable funds of the hospitals.

16. In any contributory scheme the presence, limitations, or absence of a contractual obligation for the provision of hospital and additional benefits should be plainly stated to the contributors. Failure to provide such statement is likely to reflect upon the good faith of the hospitals and of the promoters of the scheme.

V.—SUITABILITY OF PATIENTS FOR HOSPITAL TREATMENT.

17. The primary consideration in the admission of a patient to hospital should be the suitability of the case on medical grounds.

18. Some means of investigation into the circumstances of the applicants for relief, by means of an almoner or other agent, should be employed in all medical charities.

VI.—CATEGORIES OF PATIENTS FOR IN-PATIENT TREATMENT.

19. Patients admitted to voluntary hospitals should be classed under the following groups: "Free" (Indigent), "Tariff," and "Private":

(a) *Free (Indigent) Patients.* Those certified by the almoner or other officer of the hospital as unable to contribute in any way towards their maintenance and treatment;

(b) *Tariff Patients.* Those paying, or for whom is paid, in part or in whole, the tariff cost of maintenance and treatment; this group includes all those for whom any payment has been made by (i) public authorities; (ii) approved societies, employers of labour, insurance companies, or other bodies; or (iii) under any contributory scheme; and

(c) *Private Patients.* Those who pay for special accommodation and who arrange for medical treatment fees independently of the hospital.

(NOTE.—*The Council has been instructed by the A.R.M., 1923 (Min. 83), to consider a suggestion that foregoing paras. (a) and (b) be amended.*)

VII.—FREE (INDIGENT) IN-PATIENTS.

20. Those certified by the almoner or other officer of the hospital as unable to contribute in any way towards their maintenance and medical treatment; and for whom hospital benefit is provided by the gratuitous contributions placed at the discretion of the hospital managers and by the gratuitous services of the honorary medical staffs.

21. Cases of obvious destitution or cases already in receipt of poor law relief should, after they have been seen once in the casualty or out-patient department, be referred to the poor law relieving officer, unless they should be retained by the hospital for treatment. But in case of patients referred by poor law medical officers to hospital for consultation or treatment, payment should be required from the poor law guardians both for advice, treatment, and maintenance.

VIII.—TARIFF IN-PATIENTS.

22. When the board of management of a voluntary hospital enters into a financial arrangement with an employer of labour, a public authority, approved society, insurance company or any other body, or under a contributory scheme for the reception of patients, such arrangements should be taken to cover the full cost of maintenance and medical treatment, and should provide as follows:

(a) Payments made for Tariff In-Patients should be for work done based upon a tariff of fees agreed upon from time to time between the contracting parties; such tariff of fees making full allowance for provision of hospital accommodation, maintenance, and payment of medical staff.

(b) The accounts of the hospitals should be kept so as to show the cost of this hospital benefit.

(c) Inability to pay for adequate treatment as a private patient whether in the hospital or outside, should be the consideration for the admission of all tariff patients for hospital treatment.

(d) All persons, whether insured under the National Health Insurance Acts or not, whose income from all sources does not exceed the limit of a specified scale, should be eligible for hospital benefit on tariff rates. The hospital should reserve its right to challenge admissions.

(The following maximum scale is suggested, subject to economic and local variations and to periodic revision:

CLASS 1.—*Limit of Income* £200.
(a) Single persons over 16 years of age.
(b) Widow or widower without children under 16 years of age.

CLASS 2.—*Limit of Income* £250.
(a) Married couples without children under 16 years of age.
(b) Persons with one dependant under 16 years of age.

CLASS 3.—*Limit of Income* £300.
(a) Married couples with a child or children under 16 years of age.
(b) Persons with more than one dependant under 16 years of age.)

(e) For those persons whose income places them beyond the agreed specified scale for tariff patients, arrangements may be made to receive them as private patients, for the conditions governing which see Sections IX (a) and IX (b) below.

(f) The ordinary hospital routine of admission, transference, and discharge of patients should not be modified for tariff patients, nor should any preferential treatment be given to them.

(g) No tariff patient should be admitted without the recommendation of the attending practitioner, except in the case of emergency.

IX (a).—PRIVATE PATIENTS IN NURSING HOMES ATTACHED TO HOSPITALS.

23. Where it is desirable that special accommodation in the nature of a nursing home should be provided in connexion with voluntary hospitals for the reception of private patients, there should be provided as follows:

(a) Private patients should be admitted to such special accommodation only on the recommendation of a private practitioner, except in cases of emergency. In the latter circumstances the patient's own medical attendant should be informed.

(b) It shall be open to a private patient to select any registered medical practitioner as his attendant.

(c) The scale of charges for the private patient for maintenance shall be such as fully to cover every cost to the hospital.

(d) No fixed rate of payment for professional services rendered to such patients should be established; the fees so payable to remain, as at present, a matter of arrangement between patient, family physician and consultant.

IX (b).—PRIVATE IN-PATIENTS IN HOSPITALS.

24. Where private patients are admitted under special arrangements into the public wards of a voluntary hospital:

(a) Private patients should be admitted to such wards only on the recommendation of a private practitioner except in cases of emergency.

(b) The scale of charges for the private patient for maintenance shall be such as fully to cover every cost to the hospital.

(c) No fixed rate of payment for professional services rendered to such patients should be established; the fees so payable to remain, as at present, a matter of arrangement between patient and the member of the staff of the hospital.

(d) The accounts of the hospital should be kept so as to show the cost of this hospital benefit.

(e) The ordinary hospital routine of admission, transference and discharge of patients should not be modified for these private patients, nor should any preferential treatment be given to them.

X.—OUT-PATIENTS.

25. The primary object of the Out-Patient Department should be for consultation.

26. Only such treatment should be given as cannot consistently with the best interests of the patients be properly undertaken by a general practitioner of ordinary profession competence and skill.

27. All cases not suitable for hospital treatment should be referred in general terms to a medical practitioner, to a public medical service, an approved provident dispensary, or to relieving officer under the poor law.

28. Where arrangements for consultations or specialist services for tariff patients are made under some contributory scheme or otherwise, such arrangements should provide that these services shall be given so far as is possible and consistent with the best interests of the patients by the private practitioner at his consulting rooms or at the patient's own home and not at the out-patient department of the voluntary hospital.

29. Private patients should not be seen or treated at the out-patient department of a voluntary hospital except where no other arrangement is practicable, or in case of emergency, and in such cases preceding paragraph 23 (c) and (d) should govern arrangements.

30. In cases where consultations or treatment are given at an out-patient department, the ordinary hospital routine should not be modified, nor should any preferential treatment be given to tariff or private patients.

the value of improved sanitation is admitted, its limitations, regarded as a preventive agency, are clearly brought out. The safety of properly conducted vaccination is made manifest. A note on the working of the Vaccination Acts is included, and a hitherto unpublished incident of Sir H. M. Stanley's last expedition to Central Africa, which has a considerable evidential value, is related. This address is of especial value at the present time, when a simple but effective statement is required of the solid basis of fact on which the case for vaccination rests; the fanciful assertions of the antivaccination propaganda can be combated decisively with its aid. The Research Defence Society has again merited the gratitude of the medical profession generally for a timely and valuable publication which should be widely circulated. Its simplicity of language and clearness of argument enable it to be understood and appreciated by the average layman, whom it should interest and convince. The medical practitioner will also find in it some valuable weapons against the opposition of the antivaccination partisans. Its brevity and excellent paragraphing will enable him to assimilate rapidly the considerable amount of evidence which is comprised in it. We are glad to be able to add that its author has consented to revise the British Medical Association's pamphlet *Small-pox and Vaccination*, which has been for some time out of print.

INTERNATIONAL CLINIC OF PLASTIC SURGERY.

A GAP in the practice and teaching of plastic surgery is to be filled by the establishment of an international clinic in association with St. Andrew's Hospital, Dollis Hill, London, N. A portion of the existing building will be used until funds are available to build another wing to the hospital devoted entirely to the reception of cases requiring plastic operations. The clinic vindicates the word "international" in its title by the constitution of its staff, which consists of Mr. H. D. Gillies and Mr. T. Pomfret Kilner (Great Britain) Dr. J. Eastman Sheehan and Dr. Ferris N. Smith (America), and Professor Lemaitre (France). This, it is hoped, will ensure that a knowledge of the best methods of foreign specialists will be made generally available to British and foreign surgeons, for whom post-graduate courses will be arranged. It is estimated that a sum of about £25,000 in all will be required. Donations, made payable to "The International Clinic of Plastic Surgery," will be received by the London Joint City and Midland Bank, 69, Pall Mall, London, S.W.1. Accommodation will be provided for both paying and free patients; the latter will be charged only the cost of their maintenance while in hospital.

A FURTHER announcement regarding the Council Dinner of the British Medical Association, on Wednesday next, October 24th, appears in the SUPPLEMENT at page 174. Members of the Association wishing to attend should apply at once for tickets (price 10s. 6d. each, exclusive of wine) to the Financial Secretary, 429, Strand, W.C.2.

THE Honorary Fellowship of the American College of Surgeons is to be conferred upon Sir William Wheeler, President of the Royal College of Surgeons in Ireland, at the convocation ceremony in Chicago on October 26th. Sir William Wheeler left for America last week, having accepted an invitation of the Regents of the American College of Surgeons to deliver the Fellowship Address on this occasion.

OWING to the great pressure on our space, due to the insurance crisis, the Epitome of Current Medical Literature is held over this week.

CARDIAC CLINICS.

THE discussion on the etiology and treatment of heart disease in early life in the Section of Medicine at Portsmouth is published at page 702, and the situation is reviewed in a leading article on page 723.

The Association for the Prevention and Relief of Heart Disease in New York, which seeks to promote the establishment of cardiac clinics, has recently forwarded us a copy of a statement of what it regards as the minimum requirements for cardiac clinics. Every cardiac clinic, it is considered, should have more or less direct connexion with a ward service, should work in co-operation with agencies providing convalescent and country care, and with social service work in the district from which it draws its patients. Further, it is thought advisable that a clinic should co-operate with schools, day nurseries, and the like in its district, and furnish reports on the diagnosis and treatment of the children coming under its care. The hospital wards would be available for the initial study of each case and for the treatment of those patients unable or too ill to receive proper care at home; the cardiac clinic would also treat patients after they left the wards. The following is the text of the statement on the minimum requirements:

MINIMUM REQUIREMENTS FOR CARDIAC CLINICS (NEW YORK).

I. *Medical Organization.*

Chief of Clinic: The chief of clinic must be a physician of sufficient experience with patients having heart disease to meet the approval of the Executive Committee of the Association.

Staff: There must be at least one physician for every fifty active patients enrolled in the clinic.

Ward Facilities: There must be at least an affiliation with a ward service where cardiac cases may be admitted.

II. *Social Service.*

There shall be at least one social service worker connected with the clinic.

III. *Space Equipment and Facilities.*

1. There shall be at least one waiting-room and separate rooms or cubicles for the examination of men and women patients in adult clinics.

2. There shall be an examining table in each room, at least one pair of scales, and a sphygmomanometer in the clinic.

IV. *Records.*

Records of patients, history, physical examination, treatment, and follow-up notes, including social service activities, must be kept in a manner meeting the approval of the Association. These must be filed in such a way as to be easy of access.

V. *Admission and Distribution of Patients.*

Only patients having potential or organic heart disease shall be enrolled. No patient shall be carried on the active list of a clinic who has not reported in six months.

VI. *Standards for Physical Examination.*

A. Each patient should have a complete physical examination on admission and receive such examination as is necessary on subsequent visits.

B. All doubtful or unusual cases should be seen by the chief of clinic or consulting physician.

VII. *Standard for Treatment.*

A. *Relation to Public School System.*—The clinic should co-operate with the schools, social agencies, and day nurseries, etc., by the diagnosis and treatment of referred cases. It is desirable that cases should be referred only from a specified district mutually agreed upon, and that, so far as possible, cases should be referred by appointment in such numbers and at such hours as may be of greatest mutual benefit.

B. *Convalescent or Country Care.*—Close co-operation should be maintained with the agencies providing convalescent and country care.

C. *Consultation Facilities.*—There should be facilities for consultation in all required specialties.

D. *Amount of Medicine.*—The amount of medicine dispensed should be sufficient to obviate the return of patients for medicine only.

For purposes of classification patients attending the clinics are divided into three main groups:

1. Organic heart disease.
2. Patients with abnormal signs or symptoms, not believed to be due to organic disease.
3. Potential disease—patients without circulatory disease but who are kept under observation because of the presence or history of an etiological factor.

For the complete diagnosis of organic cases, the disease has to be classified under four different titles, according to

III. The Conference is in general agreement with the view of the Consultative Council on Medical and Allied Services as stated in that part of paragraph 6 of its interim report, which recited :

"Preventive and curative medicine cannot be separated on any sound principle, and in any scheme of medical services must be brought together in close co-ordination. They must likewise be brought within the sphere of the general practitioner, whose duties should embrace the work of communal as well as individual medicine."

IV. The Conference is therefore prepared to advise Local Authorities :

(1) That where private general practitioners place their opinions before local authorities on any proposed scheme of medical survey or inspection and treatment, their representations should have due consideration by the Local Authority in order that it may be ascertained how far it is practicable or desirable to give effect to their view.

(2) That those engaged in general practice must either be prepared to accept responsibility for the treatment of such of their private patients as are discovered by medical survey or otherwise by the Local Authority to be in need of treatment, or they should agree that treatment be undertaken by the Local Authority without regarding such medical provision as an encroachment on their practice. To this end persons found to be in need of treatment should, in the first instance, be referred to their private medical practitioner, or if they have no regular medical attendant they should be advised to consult a private medical practitioner.

(3) Private practitioners should assist Local Authorities by intimating their willingness or otherwise to undertake the treatment of patients discovered in the manner stated to be in need of treatment.

V. That practitioners, and by arrangement medical students, should have access to centres and clinics established by Local Authorities, in order that they may gain such experience as the centres and clinics afford.

VI. That private medical practitioners should be able to refer to clinics and centres for advice and treatment patients who would thus be most appropriately provided for.

VII. That payments or charges, if any, made in respect of medical treatment should be either voluntary or of such a character as will not deter persons from seeking advice and obtaining early treatment.

VIII. Centres and clinics should be established and administered for the benefit of—

(a) Those who are unable, for some reason, to obtain treatment from a private doctor, and

(b) Those who, as a result of supervisory medical work undertaken by the Local Authority, are discovered to be ailing, and for whose ailments treatment would not be sought unless it were provided by the Local Authority.

Such treatment at centres and clinics should be such as can actually given therein, and should not include any treatment that makes domiciliary attendance advisable or involves a stay of more than forty-eight hours at any clinic where beds are provided.

X. The Conference is of opinion that in the interests of harmonious working and the acquirement of clinical experience the possibility should always be considered of clinical work being done for the Public Health Authority being carried out through the agency of private practitioners where conditions are suitable.

X. For the purpose of a better understanding, the Conference desires to state further :

(1) That private general practitioners or consultants accepting offices under local authorities must realize that the duties of these offices require to be fulfilled strictly in accordance with the conditions of the appointments and in priority of all other engagements.

(2) That health policy is settled by Local Health Authorities, not only on medical grounds but after due regard has been given to the closely related questions of administration and finance, local conditions, and other relevant considerations.

(3) That the medical officer of health should so far possible secure the co-operation of the local medical profession in the discharge of his duties.

(4) That the final decision on health policy must always be with the Local and Central Authorities.

(5) That it is the duty of the medical officer of health to ensure that effect is given to the decisions of those authorities.

SCALE OF MINIMUM COMMENCING SALARIES FOR WHOLE-TIME PUBLIC HEALTH MEDICAL OFFICERS.

As approved by Annual Representative Meeting, 1923.

		*Minimum Commencing Salaries per annum.
RESIDENT MEDICAL OFFICERS ... ... DEFINITION.—These are Medical Officers employed in Hospitals, Sanatoria, or other Institutions without responsibility for the work of other Medical Officers. NOTE.—Where the appointing authority limits the appointment to a term not exceeding one year and not renewable, this salary shall not apply.		£350 plus emoluments
MEDICAL OFFICERS EMPLOYED IN DEPARTMENTS. DEFINITION.—These are Medical Officers without responsibility for the work of other Medical Officers but who shall have had at least three years' experience in the practice of their profession subsequent to obtaining a registrable qualification.	Working directly under a Senior Medical Officer.	£600
SENIOR MEDICAL OFFICERS IN CHARGE OF DEPARTMENTS—for example, Port Sanitation, School Medical Departments, Tuberculosis Departments, Mental Deficiency Departments, Maternity and Child Welfare Departments, Venereal Disease Departments, or any other similar department or combination of departments, and Medical Superintendents of Hospitals, Sanatoria, or other Institutions. DEFINITION.—These are Medical Officers who are in charge of departments and are directly responsible to the Medical Officer of Health or otherwise.	Without Assistants With 1 Assistant 2 3 4 5-6 and for every completed two or less	£700 £900 £950 £1,000 £1,050 £1,100 an additional £50
DEPUTY, OR CHIEF ASSISTANT, MEDICAL OFFICERS (Hospitals, Sanatoria, or other Institutions and Departments).		A salary equal to 60 per cent. of the salary of the Medical Superintendent or Senior M.O. in charge, but not less than the salary of a M.O. employed in a department.
DEPUTY OR ASSISTANT MEDICAL OFFICERS OF HEALTH. DEFINITION.—A Deputy or Assistant Medical Officer of Health is a medical officer duly appointed as deputy or assistant medical officer of health by the local authority to assist the Medical Officer of Health in the general administration of the health department and the carrying out of the various Acts, by-laws, orders, rules, regulations, etc., required to be or usually administered by the Medical Officer of Health; the title deputy or assistant medical officer of health to be limited to medical officers carrying out these general duties.		A salary equal to 60 per cent. of the salary of the M.O.H., but not less than the salary of next grade of medical officer in the department.
MEDICAL OFFICERS OF HEALTH ...	Population. Under 35,000 " 50,000 " 75,000 " 100,000 " 150,000 " 200,000 " 300,000 " 400,000 " 500,000 " 600,000 Over 600,000	£800 £900 £1,000 £1,100 £1,200 £1,300 £1,400 £1,500 £1,600 £1,700 £1,800

NOTES.

(a) These salaries are net, any expenses necessitated by the duties being provided in addition.

(b) Population means population at the latest Annual Report of the Registrar-General.

(c) No existing officer should be prejudicially affected by the operation of the scale.

*(d) ANNUAL INCREMENTS should be at the rate of 5 per cent. per annum, rising to 40 per cent. above the minimum basic rates.

*(e) BONUS.—The current Civil Service cost of living bonus should be applied to the foregoing scales.

(f) The salaries of Medical Superintendents of Poor Law Hospitals should be as for Senior Medical Officers in charge of departments as set out above.

ersonnel is not less but rather more profession than in any other (partly number of deaths of doctors from certain that the addition to the cannot be very rapid. But the w, Petrograd, and other places are studying and qualifying, and the lth is endeavouring to obtain the ors and teachers from other coun- ity, and more especially in their Above all, the great successes e State medical service in dealing uation compel one to acknowledge oblems to be faced in Russia are yet the medical service has shown em. We may therefore anticipate e numbers of children to be dealt rvice will bring order into this it has brought the epidemics under ks are now being undertaken—the ely diseased from the normal—and ed we may be sure that the capacity ich has marked the whole Russian attention of the Commissariat of tivity parallel with those of England

Scotland.

SURGERY IN EDINBURGH.

MSON, C.M.G., has retired from the rgery in Edinburgh University and e session that is now beginning. in the appointment of a successor, n place regarding the conditions occupant of the chair may be funds are available to appoint a this subject at a salary of £2,000 debarred from outside practice. however, been expressed in some a departure from the existing essorship would be desirable at the iversity authorities may decide not he money available for this purpose, hair on the part-time basis upon since its institution in 1831.

ION LECTURES IN EDINBURGH.

centenary of the Morison Lectures Physicians at Edinburgh, the first livered by Dr. Alexander Morison 3. The first of the three lectures vas delivered on Monday, October the Royal College of Physicians, khall-Morison. Sir Robert Philip, of Physicians, occupied the chair, e lecturer, mentioned that he was under of the lectureship; Dr. Alex- early years of the nineteenth cen- lf to the study of mental diseases, ian to the Bethlem Hospital and led for the care of the insane. He n Edinburgh in 1823, he died in College the house and lands of to found this lectureship. A course iseases had been delivered annually 6 the subject had been broadened, ht include neurology as well. Dr. lecture was devoted to an histori- ss of neurology during the hundred irst Morison lecturer had been Dr. 3 written a valuable memoir upon enth-century professor of medicine essay on the vital and involuntary been a most important contribution to the early knowledge of neurology, and his doctrines of sympathetic action had successfully replaced the animistic doctrines of Stahl and the theories of von Haller as to organic action. The advances in embryology made by von Baer, von Kölliker, and others, had had a very important influence in elucidating the development, and thus indirectly the functions, of the nervous system. Bichat, at the end of the eighteenth century had taught that the voluntary and sympathetic systems were completely independent, an advance in its time but now shown to be untenable in its entirety. The theories of Gall and Spurzheim had at least the advantage of drawing attention to the question of localization of function in definite parts of the nervous system. The first great step in differentiation of function of different parts was the discovery by Charles Bell in 1811 that the anterior spinal roots were motor and the partial discovery of the functions of the posterior roots, which was followed eleven years later by the complete demonstration of their functions by Magendie. To Gaskell physiology owed the greater part of the knowledge regarding the paths of voluntary and involuntary impulses respectively through the spinal cord, though the rami communicantes had been discovered by Haller. It was a curious point that the decussation of the motor tracts in the medulla which had been well known to the ancients and described by Aretaeus in the first century had been forgotten and had to be rediscovered in the nineteenth century. The discovery of reflex action by Marshall Hall in 1832 was a most important advance. The name of Flourens was still associated with the localization of the breathing centre (1837), to which he gave the name *nœud vital*; successive steps in further localization had been made by Schiff, Fritsch, Hitzig, Ferrier, and others. In clinical neurology one of the earliest names to be remembered was that of Tod, who described the connexion of the symptoms with the pathological changes in locomotor ataxia, as this disease was later named by Duchenne. The name of Charcot was specially connected with the discovery and description of disseminated sclerosis and with the elucidation of various functional conditions. Finally, the brilliant results which had been attained towards the latter part of the century by neurological surgery were bound up with the name of Horsley more than any other.

Ireland.

NEW WATER SCHEME FOR BELFAST.

On October 10th Lord Carson cut the first sod of the new water scheme for Belfast. In dry summers the amount has not been sufficient, and the hours of supply have been very seriously limited. The new scheme has been in contemplation for years, but was delayed by natural difficulties and by the war; it will take some seven years to complete, and will cost about a million sterling. An artificial lake will be formed in the Silent Valley in the Mourne Mountains, by constructing a huge dam across its mouth. When the undertaking is completed a supply of some thirty million gallons a day of the purest water will be available.

ROYAL MEDICAL BENEVOLENT FUND SOCIETY OF IRELAND.

The eighty-first annual report of the Royal Medical Benevolent Fund Society of Ireland states that, despite the many general and local difficulties they have had to meet, the honorary secretaries and treasurers in practically all the counties of Ireland have maintained their support and in many cases actually sent in an increased subscription; most thanks are due to those gentlemen who have not only subscribed liberally themselves but have given up their time to further the interests of the Society, and so to help their colleagues who have met with misfortune, and the widows and orphans of those who have passed away.

the bacteriology of aerated waters, which was discussed by Dr. Lucian de Zilwa, Dr. A. Nell, and the president. Dr. Lucian de Zilwa showed cases of (1) pseudo-hypertrophic paralysis; (2) hysterical stocking anaesthesia; and read notes on (1) a case of uterine fibroids, and (2) a case of advanced ectopic gestation. The cases were discussed by Dr. H. M. Perics. Lastly, a meeting of the Branch was held on June 13th, with Dr. M. Rustomjee, vice-president, in the chair, when the honorary secretary read a paper by Dr. E. Garvin Mack on acute diabetes mellitus, which was discussed by Dr. W. Lionel de Silva. The honorary secretary also read a paper by Dr. S. Ramanathan on the relationship of herpes zoster to chicken-pox, which was discussed by Dr. W. Lionel de Silva.

Yorkshire Branch: Barnsley Division.

A meeting of the Barnsley Division was held at the Queen's Hotel, Barnsley, on the evening of October 11th, when the terms of panel service for 1924 were fully discussed. It was unanimously resolved:

That this Division strongly supports the Insurance Acts Committee in any action which it may think fit to take.

Dr. T. E. Francis read a paper on the "Present Position of Vaccination," and an interesting discussion followed in which many of the members present took part.

Surrey Branch: Guildford Division.

The first meeting of the winter session was held on October 4th at the Royal Surrey County Hospital, Guildford, when Sir Henry Gauvain delivered a most instructive and interesting address on "The Conservative Treatment of Tuberculous Disease of the Hip and Spine" before an audience of thirty members and four guests. The address was illustrated by a large number of lantern slides which showed the lecturer's methods of treatment and the results obtained therefrom. Sir Henry Gauvain showed various forms of non-inflammable celluloid splints used for ambulatory cases and drew attention to the benefit derived from treatment by direct sunlight, and to the value of the Convalescent Hospital at Hayling Island, where convalescent cases were treated by sea bathing, spraying with sea water, and graduated exercise in the open air. He insisted upon the necessity of having a reliable test in deciding when it was safe to allow a convalescent case of tuberculous disease of the hip to discard splints and take active exercise. In his opinion the only test that was of any value was the "referred reflex" of the rectus abdominis muscles; if this was absent it was safe to regard the disease as quiescent and to allow the patient to take active exercise. Statistics of the Alton Hospital showed the average stay in hospital was from eighteen months to two years, and that deaths from all causes were between 2 and 3 per cent., while of the cases discharged 95 per cent. were quiescent. In the discussion which followed Drs. Thorne Thorne, Hope Walker, Lyndon, Weaver, and Dundon took part.

After the meeting a very successful Division dinner was held at the Angel Hotel, Guildford, when 29 members entertained the following guests: The Bishop of Guildford, the Mayor of Guildford, Sir Henry Buckingham (M.P. for the Guildford Parliamentary Division), Sir Henry Gauvain, and the Chairman and Honorary Treasurer of the Royal Surrey County Hospital, Mr. Ferdinand Smallpeice and General Sir Edmond Elles, G.C.I.E. The Division took the opportunity of thanking the Board of Management of the Royal Surrey County Hospital for allowing the Division meetings to be held in the board room of the hospital. The Ulster Cup, which was won by Dr. Jobson (a member of the Division) at the competition at the Annual Meeting, Portsmouth, with a score of under bogie, was placed on the table and by the kindness of Dr. Jobson was "christened" by the company. During the evening songs were contributed by Drs. Fleming and Jenner.

MEDICAL ORGANIZATION IN SOUTH AFRICA.

Our contemporary the *South African Medical Record*, a journal devoted to the interests of the medical profession in South Africa, in its issue for September 8th, 1923, published the following leading article, which we venture to reproduce *in extenso*:

A Step in the Direction of Unity.

Those who follow the proceedings of the British Medical Association in England, and we hope there are some, especially at the present time, when reports are coming to hand of the Portsmouth Annual Meeting, presided over by a confrère who is a South African by birth and education, can hardly fail to be struck with the extraordinarily high level of organization which the Association has attained, especially in that part of its work which deals with the legitimate material interests of the medical profession.

The point to which we desire to specially direct the attention of our readers is the proved fallacy of the contention which has been made so much of in connexion with the question of establishing a S.A.M.A., or M.A.S.A., in this country, namely, that the constitutional provision forbidding the Association to become a Trades Union stands in the way of its playing a due part in defending encroachments upon the reasonable rights of its members, a contention upon which the whole case for a new Association was, at the beginning at least, made to rest. Far from this being the case, we have conclusive proof, almost every time that any of us read the *British Medical Journal*, that the position is exactly the reverse, that the attainment of what may be called Trades Union ends is not only a regular aspect of the activities of the Association in Great Britain and Australia, but that those ends are attained in an extraordinarily effective way. We have the story repeated almost week after week of the Association taking up some case, it may be an attempt on the part of a local authority to obtain the services of a medical officer at an unfairly low rate, one of sweating on the part of a Colliery Benefit Society, one of underpayment or interference with the medical status on the part of a public department or what not, with the invariable result that, sometimes after a struggle and sometimes almost at once, the other party to the dispute has to "climb down," and the Association gains for its members what they desire or something very near it. So marked is this success in the negotiations conducted by the Association that, as most of our readers know, Mr. Sidney Webb, probably the highest authority on Trades Unions and Labour questions in the British Islands, some time ago admitted, almost tearfully, that the British Medical Association, although not a Trades Union, is far more successful in gaining what may be called "Trades Union ends" than any Trades Union in the country"—a weighty utterance indeed, and all the more weighty because it is strictly true. Now, why is it true? We think the Association attains "Trades Union ends" exactly because it is not a Trades Union, because it commands respect from its members and from the Government, the local authorities and the public, for several reasons. One is that it can approach a question without the mutual hostility and distrust which seem to be the invariable concomitants of any conference between employers and Trades Unions. Another is that, exactly because it is not a Trades Union, it never acts unless it knows it is on firm ground, and never asks more than it considers fair after a survey of both sides of the question. A third is that, unlike Trades Unions, it is a body devoting its attention not only to securing for its members a fair reward for their work, but to bringing it about that that work shall be constantly improving in efficiency. This latter aspect, that of balancing efficient service against reasonable remuneration, is what no Trades Union ever pays any attention to. Trades Unions strive earnestly for better remuneration and easier conditions of labour, but, not only do they severely eschew any attempt to make labour more efficient, but they go further and do all in their power to suppress any individual efforts to increase its efficiency. All people concerned know that a Medical Association keeps in view the giving the *quid* of efficient service for the *quo* of fair remuneration, and they respect it accordingly. And a fourth reason is that a Medical Association, at least a wisely conducted one, relies on moral influence rather than compulsion to bring its own members into line. This last reason we regard of the very highest importance. Medical men are so constituted, and it is well that they are so constituted, considering the nature of their professional work, that there is nothing they hate more than compulsion of any kind, nothing to which they answer more willingly than an expression of corporate opinion which has not force behind it. To use an equine metaphor, "The more you jag their mouths, the more they kick."

Now, our object at present is to commend this moral to our readers at the present juncture, when the fate of organized medical action in this country is trembling in the balance, and when we fear we are face to face with paralysing disunion. We are certain that, with the men who think and whose opinions count in the ranks of the present B.M.A. Branches in South Africa, the most important factor in the persistent opposition of many to the new M.A.S.A. or S.A.M.A. movement is the fear, for which they have much excuse, that the substitution of either of these for the B.M.A. will mean medical Trades Unionism and with it a certain declension in the standard of professional ethics. Cannot some leaders in the new departure make it public that they are willing to abandon—not merely keep out of sight for the time being—the Trades Union argument, and that they are prepared to take their stand merely on the "National" one, which, after all, is far stronger and which secured them far more votes at the Referendum just over. By so doing, they might lose a little support on the East Rand, but we are convinced very little elsewhere, and they would secure in the B.M.A. Referendum a considerable turnover of votes which otherwise will go in the opposite direction. We make this appeal purely in the interests of unity, and quite apart from the merits of one side or the other.

Correspondence.

MINS AND CHLOROPHYLL.

ıdd a few words to the valuable informa-
ı a note under the above heading in your
13th (p. 684)?

ge of Kut we had over a thousand cases
ed scurvy and several thousands in an
all the cases except one were in Indians
ere quite different from those of British
resh vegetables ran out early, and the
ns we cultivated provided but a scanty
itals. All the troops, however, were en-
s the herbs and all greenstuffs that grew
lain outside the town and near the trenches.
ist we had with us had previously collected
growing toxic plants; these were on view
room.

; we knew little or nothing of vitamins.
nent etiological point brought out in these
was that the disease arose from an absence
ole food. Green herbs gathered from the
arvellous effect in keeping down the inci-
sease. As soon as wild herbs and shrubs
ıg up at the end of February, 1916, in
ity to be collected, cooked, and eaten,
l, and it did so when there was a
cy of all the proximate principles in the
en were on a semi-starvation diet. In the
mitary Report of the Defence of Kut I

green herbs was most conspicuously demon-
spected that in the last period of the siege we
thousands of cases—one had apprehensions of
hat took place among the Russians during the
defence of Port Arthur. To one's surprise the
although the men were on a bare subsistence
me and, during the last six weeks, on a starva-
ey were rapidly losing weight; the only change
was the addition of from two to three ounces
m of green herbs, collected as stated, to the
e nature of the anti-scorbutic principle contained
stuffs I am not prepared to express an opinion,
; contained in all greenstuffs and herbs."

ne data given in the report referred to,
Chick and Miss Margaret Hume did some
work on scurvy and beri-beri and dis-
erminating grain and pulse contain anti-
ins after the grain has sprouted; advan-
of this fact in the later stages of the
mpaign to use germinating grain as part
ations to prevent scurvy.—I am, etc.,

P. HEHIR,
ron, Oct. 13th. Major-General I.M.S. (ret.).

NSULIN AND DIURESIS.

nexion with Professor Macleod's statement
Society of Medicine, that insulin does not
the diuresis of diabetes mellitus even when
and hyperglycaemia disappear, it may be
ecord some points about a diabetic who has
observation for nearly four years.

which was of moderate severity, the patient
no diuresis when the urine contained a
and the blood sugar was averaging 0.15 to
When he passed much sugar at certain
blood sugar rose to 0.3 per cent. he had a
sis of 2,000 to 3,000 c.cm. in the twenty-
frequency both by day and night. On the
ien on strict diet and aglycosuric with a
nal blood sugar, he had marked diuresis by
at night (3,000 to 5,000 c.cm.). Unfortu-
d intake was not measured, but was not
some diabetics, who drink a great deal from
er becoming aglycosuric. When he started
l heavy glycosuria, blood sugar of 0.3 to
nd diuresis both by day and night. During
ys, when the blood sugar was being reduced
to 0.12 to 0.22 per cent., the diuresis was abolished. But it returned very copiously later when he was treated by Graham's method, and had a blood sugar rarely above 0.13 per cent. Since he has increased his carbohydrates again and his fasting blood sugar has risen to 0.17 per cent., the diuresis has again disappeared, but is liable to occur about two to four hours after his morning dose of insulin.

From this case it would appear that the same aglycosuric diuresis can be found with and without insulin and is associated with a low blood sugar content, perhaps lower than the diabetic organism requires. It is noticeable that this patient feels better when the diuresis is absent and the blood sugar slightly high. This raises the question whether the diuresis can be regarded as an indication that this patient is not living at his optimum with a low normal blood sugar.

Pituitrin stopped the diuresis in this case, but failed in another similar one; a moderate amount of alcohol diminished it. Changes in the sodium chloride intake and in the relative proportions of carbohydrate, protein, or fat of the diet had no effect. The explanation of this diuresis is very difficult, but I would suggest that it lies in vasomotor influences rather than in the usual laws of kidney permeability which govern glycosuric diuresis.

Most of the above sugar estimations were made in the Biochemical Laboratory, King's College Hospital, and I am indebted to Dr. G. A. Harrison for permission to quote them.—I am, etc.,

Highgate, Oct. 12th. R. D. LAWRENCE, M.D.

BETEL CHEWING AND CANCER.

SIR,—With reference to the letters of Mr. R. L. Spittel and Dr. J. Campbell (BRITISH MEDICAL JOURNAL, October 13th, p. 680), may I be permitted to add some facts relative to the frequency of buccal cancer—apparently due to betel chewing—in Travancore, a native State in the extreme South of India? Mr. A. Fells, now of Bristol, published in the BRITISH MEDICAL JOURNAL (June 6th, 1908) notes on 377 cases of epithelial cancer seen in two years at Neyoor Hospital, the head station of the Medical Mission of the London Missionary Society; 91.5 per cent. of these cases were in the region of the buccal cavity. He also gave an analysis of 209 operations for buccal cancer.

Mr. W. C. Bentall, now of Southport, in the BRITISH MEDICAL JOURNAL (November 7th, 1908) gave an analysis of 1,700 cases of cancer in South India. The incidence of buccal cancer (including that of lips, tongue, and jaws) showed the remarkable percentage of 70.6 of the whole series. He also gave an analysis of 190 cases operated on at Neyoor Hospital.

I have records of 222 cases of buccal cancer, upon which I operated during a period of about seven years, while I was in charge of the same hospital. I have careful notes as to age incidence, site, etc., which I was prevented from publishing by war conditions, but which I shall be glad to furnish to Dr. Leitch.

As has been said by Mr. Spittel, the quid so largely used by Indians consists of areca nut, betel leaf, slaked lime, and tobacco leaf. In Travancore, where so many cases of buccal cancer have been seen and operated upon, the universal custom is to use a tobacco leaf which has been steeped in a thick black syrup prepared from crude sugar. The leaves so treated are spread on mats by the roadside, and soon become a sticky mass—an excellent culture ground for various organisms, I should imagine. I am inclined to agree with Dr. J. Campbell that probably in addition to irritation some infection is necessary for cancer production. In the chewing of such infected tobacco both are provided.

I was surprised to find that among the Brahmin community, who lived in the same parts and who chewed freely, few, if any, cases of buccal cancer were observed; and I was inclined to deduce from this that, as they were strictly vegetarian in their diet, such a diet might have some inhibiting action on cancer growth, as has been repeatedly suggested.

I should like to know whether the quid chewed by the high caste Indian people differs in any material degree from

the numbers required to meet the situation; moreover, the Government would be faced with the problem of providing residential and surgery accommodation in each area for the men it introduced. One speaker from the body of the hall criticized the Insurance Acts Committee for not putting "a strong face" to the Ministry of Health!

Dr. A. Salter, M.P., said that he supported the resolution, though he was bound to make some observations which he feared would be unpopular, and possibly would meet with no agreement in any part of that audience. The first consideration before a policy of resignation was accepted was whether the terms offered were so destructive to self-respect, or the conditions imposed were of such a character, that there was no option but to strike even though certain defeat stared them in the face. He did not believe that the conditions at the present moment were such as called for a strike—that is to say, the conditions were not intolerable. Then could a strike or the threat of a strike be justified by the probability of success? It had been said that all the cards were in the hands of the profession; he believed, on the contrary, that all the cards were in the hands of their opponents. It might be taken as an axiom that no strike had ever been successfully fought on a falling market. The case of the German doctors had been quoted, but they fought on a rising market. Here the market had been falling for the last two years. Under such circumstances even to threaten a strike was a technical and strategic error. He agreed with everything stated in M.1; he did not think 9s. 6d. enough; the profession ought to have more, and at some future time it might get more, but he was sure that no more was obtainable at the present moment. Again, no strike had been successful in this country or anywhere else which had not a fairly good proportion of public opinion behind it. This, again, was axiomatic in industrial struggles. But he doubted whether public opinion would support the profession; the press was almost unanimously against it. (Cries of dissent.) In Parliament, while the profession would have the support of certain individuals in the Liberal and Labour parties, it would have no support from any effective section, and the Government supporters would be solidly behind the Minister. It had been stated that there were three factors concerned: the Ministry, the approved societies, and the profession; but there was a fourth, the Treasury, which was out to cut down expenses to the last. He differed from the view that unless they fought and won now they would be delivered over into the hands of the approved societies. What he did believe was that if they fought and were defeated they would be delivered over into those hands. The approved societies were spoiling for a fight on this issue. They wanted nothing better than a doctors' strike. Some of the leaders of approved societies had not repressed their exultation at the prospect. They anticipated that the Government in that event would hand over 7s. 3d. a head to them, and the club system would practically be reintroduced.

Dr. E. A. Gregg did not agree with Dr. Salter's forecast. There was no organized opinion in the party in power at the present time which was against the doctors. In many cases the member of Parliament held his seat owing to the activity of political bodies in his constituency of which a local doctor was the chairman or a prominent member. Again, the Ministry was not anxious to place into the hands of approved societies this great instrument for the uplifting of the public health. The Minister, in his reply, had mentioned the case of civil servants, but he omitted to state the many respects in which the position of civil servants differed from that of the doctor; the civil servant had sick pay, payment during the long annual vacation, and a pension on retirement, and he did not have any of the professional expenses to which the doctor was subject. The only point of validity in the Minister's reply was his comparison of insurance remuneration with the remuneration which doctors received from private and from other contract practice; he did not mention the fact that in many of these cases the charitable motive entered, a motive which should not be the basis of a State service. The speaker reminded the audience that a very serious factor in the situation was that if the insurance capitation fee were reduced many other fees would fall with it. At the moment the profession stood at the cross roads. London was more or less suspect in the country, and he pleaded with those present that it must never be said afterwards that this fight was lost—in London.

Dr. Brackenbury, who was received with applause, said that he had come straight from addressing at Hatfield the largest meeting of medical practitioners ever held in Hertfordshire. There he had been asked, "What is London going to do?" He told them that he believed London was going to stand firm. (Applause.) Coming down to what he call the stark realities of the situation, he said that it was not a question of reopening negotiations now and sending in resignations as a last resort. The thing to be done was to secure a sufficient number of resignations, and upon that basis negotiations would be reopened and there would be a new opportunity of arriving at a decision which some would consider satisfactory and others doubtless still unsatisfactory. He denied that there was any such parallelism with an ordinary industrial dispute as Dr. Salter appeared to suppose. If practitioners resigned from the insurance service it did not mean that they ceased work. They were prepared to treat the insured persons on the lines of private practice at ordinary fees, which were customarily lowered in the case of the poor, and forgone altogether in the case of the absolutely necessitous. To say that resignation from the insurance panel corresponded to a strike in which the men engaged in some industry ceased to work was a perversion of the situation. All that was meant by the present attitude of the doctors was that they refused to accept certain conditions which were imposed upon them; they knew that they must suffer thereby and lose income, but they would rather face that than accept anything which they considered dishonouring to the profession. (Applause.) In the face of that question of professional honour, the economic question took a second place, and was one which he would not argue on that occasion. Whether they received sixpence more or less, whether they received it for three years or five, was a very important matter to them collectively, but it became relatively unimportant beside the question of self-respect and the maintenance of professional freedom. (Applause.) He different entirely from Dr. Salter when the latter said that the self-respect of the profession was not in question in this struggle. Nobody could accept the conditions which they were now asked to accept without loss of self-respect and the damage of honourable traditions. If the profession submitted now, it was to the approved societies that it would submit. If it fought unsuccessfully, he agreed with Dr. Salter that it would be handed over to the societies. The only solution was a successful fight. (Applause.) They were in the hands of the approved societies now. The societies had actually said to the Minister that he had no right to give a penny of this money to the doctors or anybody else without their permission. Was Dr. Salter, as a true democrat, going to tolerate such usurpation by any section? It was a position intolerable, not merely to the profession, but to the general body of citizens. The societies had said, in effect, "We will permit the Minister to offer you eight shillings. You really ought not to have it; you ought to have only 7s. 3d., but by a majority of one on our Council we have decided that we will permit the Minister to offer you 8s. on this occasion. Only, remember, after that is given our grasp will be tightened, and if eventually you get 7s. 3d. you may consider yourselves lucky." He believed (again contrary to what Dr. Salter had said) that there was an increasing volume of both public and press opinion behind the case put forward by the profession. In this connexion he would refer Dr. Salter to an admirable article in the most intellectual organ of the Labour party—the *New Statesman* of October 13th. At the moment the societies were banking on the failure of the profession, and the Minister, who had been unduly impressed by the societies, was waiting to see. If these terms were accepted the position of those who spoke for the profession as a fighting force or negotiating power was gone. The grasp of these new masters would be tightened upon them, not only in the

PELLAGRA.

ery interested in reading Drs. Hutchison paper in your issue of October 13th, as in w a boy, aged about 12, suffering from this s the son of a vagrant harvester, and had de England.—I am, etc.,

ct. 16th. CHAS. FARRANT.

Obituary.

M RICE EDWARDS, K.C.B., K.C.I.E.,

ector-General, Indian Medical Service.

et to announce the death of Major-General wards, K.C.B., K.C.I.E., who vacated the or-general, Indian Medical Service, last leath, which occurred in London on October pneumonia.

Edwards, who was born on May 17th, 1862, the late Canon Howell Powell Edwards, of outhshire. He was educated at Magdalen Oxford, at Clifton College, and at the l. He took the diploma of M.R.C.S. in ited M.B.Durh., with honours, in the same ting as house-physician and house-surgeon Hospital, he entered the Indian Medical eon on April 1st, 1886. Having spent his on military duty, he took civil employment e he acted as civil surgeon of Nadiya, till appointed personal surgeon to the Com- Lord Roberts. That post he held for four ord Roberts left India Edwards joined the nent. When Lord Roberts went out to take South Africa, at the end of 1899, Edwards ointed to his personal staff, and served uth African war in 1899-1900, taking part Cape Colony, the Orange River Colony, and ncluding actions at Johannesburg, Diamond ast, was mentioned in dispatches, in the of April 2nd, 1901, and received the Queen's clasps, and the C.M.G. On his return to pointed residency surgeon in Kashmir; nine became chief medical officer of the North- Province. He was promoted to the adminis- colonel on May 25th, 1914, and on April 1st, irgeon-general of Bengal, his title of rank to major-general, like all other surgeons- 3. On January 8th, 1918, he was appointed of the Indian Medical Service, and after ist for the usual five years came home on o recently as July 8th last.

he C.M.G., for the South African war, on 1900, the C.B. on June 22nd, 1914, a Good on April 1st, 1915, on February 18th, 1917, ed honorary physician to the King; in 1919 nonorary fellowship of the Edinburgh College s gazetted K.C.I.E. on June 4th, 1921, and ie left India on January 1st last. While he was also a member of the Council of a. He married twice—first, in 1896, the late W. H. Darley, of Leap Castle, King's d in 1911; and secondly, in 1919, the widow ut.-Colonel Robert Bird, C.I.E., I.M.S. A ce was held at the Savoy Chapel on

eneral Sir William Edwards had a trying ecessor, Sir Pardey Lukis, was a man of ts, and would in any circumstances have d to follow. But Edwards had to face kind Lukis never knew. Within a few appointment as director-general the famous in constitutional reforms by Mr. Montagu, of State for India, and Lord Chelmsford, General, was published. The object in view in large measure government and adminis- a into the hands of Indians, by establishing ite and a Legislative Assembly for all India, slatures in all provinces, and eventually vesting complete popular control in local bodies. Among the subjects to be transferred at the earliest possible date were medicine and public health, and it was, of course, at once obvious that the position of the Indian Medical Service and the prospects of its officers would be very seriously affected. Edwards, of course, loyally accepted the decision of the British and Indian Governments and devoted his best energies to making the transition work smoothly while safeguarding the interests of the officers of his own Service. He was able to state at the dinner of the Indian Medical Service in London last June that the Secretary of State in Council had made regulations reserving for officers of the Indian Medical Service a total of 305 civil posts, thus providing civil employment for 388 I.M.S. officers, including leave and study reserve. Of these posts, 65 were to be under the Government of India and 240 under local governments. Of the latter the posts of surgeon-general, inspector-general of civil hospitals, and director of first-class provincial bacteriological and Pasteur institutes were to be filled by the nomination of the Government of India. These regulations, though they imply a serious curtailment of the opportunities open to I.M.S. officers in the future, imply also that the Government intends to maintain the service, though with a smaller cadre. They are, however, provisional and are to be without prejudice to the final orders to be passed by the Secretary of State in Council when he has received and considered the report of the Royal Commission which is about to go to India under the chairmanship of Lord Lee of Fareham, to inquire into the public services, including officers of the Indian Medical Service in civil employment. Sir William Edwards protested at this dinner that the regulations did not go far enough in reserving appointments, and that those of professors, of alienists, as clinical examiners, and to jails and to public health offices should be made by the Government of India from an all-India service. We imagine that Edwards was in certain other respects disappointed by the Secretary of State's decision, but he had the satisfaction of knowing that during his term of office as director-general he had not failed again and again courageously to represent to the Government of India the views he strongly held as to what was best for the cause of science and of medical education and India, and for the teeming millions of the peninsula who know and care little for forms of government.

Edwards, a tall, spare man, possessed great personal charm; he had many friends throughout all the services in India and had he been spared would have continued to serve that country as a representative of the Government of India on the Permanent Committee of the International Bureau of Public Health.

M. T. SADLER, M.D.,

Late of Barnsley.

THE death is announced of Dr. Michael Thomas Sadler, who practised in Barnsley and its neighbourhood for forty-four years. He was born in 1834, and after receiving his preliminary education at Wesley College, Sheffield, became a student of St. Bartholomew's Hospital, and studied also in the University of Edinburgh. He graduated B.A.Lond. in 1853, took the M.B. degree (with honours) in 1857, and the M.D. in 1861. He was consulting physician to the Beckett Hospital, Barnsley, and medical officer of health for the borough and the surrounding district.

Dr. Sadler was a man of wide culture and public spirit; assiduous, within the limits of his leisure, in foreign travel; and a careful student of French and Italian literature. At one time he knew by heart *Paradise Lost*, the first part of *Faust*, and Dante's *Inferno*, and used to repeat long passages to himself during his country drives. After his retirement, he gave much of his leisure to the work of the Charity Organization Society. His father, who bore the same name and was also a doctor in Barnsley, was author of *The Bible: The People's Charter*, and his great-uncle was Michael Thomas Sadler of Leeds, M.P. for Newark, social reformer and political economist. Partly of Huguenot descent, Dr. Sadler traced his lineage from Sir Ralph Sadleir (1507-87) and another of his forebears,

INSURANCE COMMITTEES AND MEDICAL BENEFIT.

Sir W. Glyn-Jones's Address.

We have been favoured with a summary of the presidential address to be delivered to-day (Friday, October 19th) by Sir William Glyn-Jones to the annual meeting of the National Association of Insurance Committees. The President's remarks have an important bearing upon the present fight by the medical profession for freedom from Friendly Society control.

Sir William Glyn-Jones will invite the delegates to consider how far after twelve years' working the promises of the Insurance Act have materialized, and particularly whether Insurance Committees are performing the functions allotted to them by Parliament and whether the duties at present performed by those committees justify their continuance. In so far as the Insurance Acts provide direct personal and individual benefits such as medical treatment, maternity benefit, and sick pay, he maintains that the contracts have been in the main fulfilled. Insured patients are better served and the doctors better paid than they were, and, though neither should be fully satisfied, the improvement in service and pay as compared with the situation prior to 1911 would in itself justify the Insurance Act. But whilst Insurance Committees have played a great part in the work accomplished, Sir William Glyn-Jones argues that they have not been given the responsibilities nor exercised the powers those matters which Parliament in the Insurance Act gave to Insurance Committees the to them. The Act gave to Insurance Committees the stration of medical benefit and of all additional benefits nature of medical benefit. They had to make arrangements with the doctors, and bargain with the Approved Societies as to the amount to be paid in respect of medical benefit. All these negotiations have, however, been conducted by the Ministry. Insurance Committees and Societies were told what the arrangements made were and had to abide by them. Sir W. Glyn-Jones admits that collective national bargaining in these cases was inevitable, but the fact remains that the powers Parliament entrusted to committees were not and never have been performed by them. They did useful work in connexion with sanatorium benefit whilst it lasted, but since May, 1921, the administration of this benefit had not been a duty of Insurance Committees. The scheme for the administration of the benefits for deposit contributors was a temporary one, to last until January, 1915, a date now extended to December, 1924. No one is satisfied with this part of the scheme. Whilst certain additional benefits of the nature of medical benefit have been provided for a portion of the insured persons, these benefits have been administered by Approved Societies notwithstanding that the Act imposed the duty upon Insurance Committees. No additional benefits have been administered by Insurance Committees.

The President next emphasizes the fact that the Government in promoting the National Insurance Bill of 1911 urged in its favour not only its insurance features and the provision made for the treatment of disease, but emphasized the provisions in the bill for reducing sickness and disablement by removing their preventable causes. Great promises were held out of the improvement in the health of the community which would result if Parliament and the country accepted the bill. The executive of the Association of Insurance Committees has expressed the opinion that whatever might be said about the working of this scheme in the direction of insurance and treatment, the other promises have not been fulfilled. Sir W. Glyn-Jones supports his contention by extracts from the speeches in Parliament during the passage of the bill by Mr. Lloyd George and Lord Haldane. While imputing neither motive nor intention, he asserts that Insurance Committees could be in no worse position had it been the deliberate policy to blanket them, and by regulation to deprive them of all the power and responsibility given them by the statute, and to leave them with such a modicum of routine duties as to justify their being put to a peaceful and painless end. Making every allowance for the war and its aftermath, and the setback thus given to the work of Insurance Committees, he considers that it is reasonable, five years after the armistice, to ask the Government if and when Insurance Committees are to perform the duties for which they were created. The present position of Insurance Committees is, he holds, one in which they cannot with self-respect continue; and he asks in conclusion: "Does the Government think the work outlined for us should be abandoned or that we are not the bodies to perform it? In either case let us and the country know. We cannot with self-respect continue to be parties to a sham fight against the evils which we were enrolled with such a flourish of trumpets and beating of drum to combat."

The outgoing Executive Committee directed attention to this aspect of the work of Insurance Committees, and the President asks the conference to give a mandate to the newly appointed executive to force the issue.

RANGE OF SERVICE.

The following communication, dated October 16th, 1923, has been received from the Ministry of Health:

A conference, presided over by Sir Arthur Robinson, the First Secretary to the Ministry of Health, accompanied by other officials of the Ministry, took place to-day (Tuesday) between representatives of the Consultative Councils of Approved Societies and representatives of the Insurance Acts Committee of the British Medical Association. The conference met to discuss certain outstanding questions relating to the scope and character of the service to be provided by insurance practitioners. The question of the remuneration of insurance practitioners was not discussed.

Sir Arthur Robinson reported to the conference that some misunderstanding existed in regard to a statement attributed to Dr. Brackenbury, the chairman of the Insurance Acts Committee, and said to have been made by him at a conference of Local Medical and Panel Committees, held on June 7th, to the effect that the Insurance Acts Committee could not agree to the claim that every practitioner should do for his insured patients all the things which he was accustomed to do for his private patients. In order to remove any misapprehensions in this matter, Sir Arthur Robinson quoted the exact words used by Dr. Brackenbury, which were as follows:

"Everything which was, properly speaking, of a general practitioner kind should be within the service, and everything which was properly of a specialist kind, whether performed by a man who did that thing only, or by a general practitioner who had made himself specially skilled in that thing, should be outside the service. This division had been attempted by the Insurance Acts Committee in the form of two schedules, one showing the services included in the contract, the other the services not included. What a general practitioner did as a general practitioner was inside, what a general practitioner did as a specialist was outside. The claim that every practitioner should do for his insured patients all the things which he was accustomed to do for his private patients was not one to which they could agree for one moment. In so far as a general practitioner was in any degree a specialist, his specialist services were outside the contract, and he should have a right to charge for them."

LONDON PANEL COMMITTEE.

Special Meeting.

A special meeting of the London Panel Committee was held on October 11th to consider a report of the Finance and General Purposes Subcommittee on matters relating to the Annual Conference of Local Medical and Panel Committees, which is being held as we go to press. Dr. H. J. Cardale presided over a very large attendance.

It was agreed unanimously to instruct the representatives of the Committee at the Conference to move, as an instruction to the Insurance Acts Committee, that steps should be taken to ensure that no inequity as between practitioners should arise in the matter of payment in respect of those insured persons changing their doctor during any quarter. On the question of the procedure of Medical Service Subcommittees, a former resolution of the Panel Committee was re-emphasized, expressing the view that provision should be made in the regulation whereby a term might be placed upon the period during which an Insurance Committee should notify persons complained against of the receipt of such complaints. Dr. Brackenbury said that this was one of the matters which was still at a loose end. In the present regulations there was a time limit of six weeks during which the insured person had to make this complaint; it had been pointed out to the Ministry that this was not quite the same thing as giving notice to the practitioner concerned that some complaint had been made against him. The Ministry's final words on this regulation had not yet been received.

It was also agreed unanimously to support the Insurance Acts Committee in its refusal to accept the obligation that a practitioner should stamp certificates with his name and address.

The Capitation Fee.

The Subcommittee reported that in its view the Minister had not adequately answered the case presented to him by the Insurance Acts Committee; many relevant facts contained in the Committee's statement (M.1) had been ignored or evaded. The Subcommittee recommended:

That the offers of the Minister of Health of a capitation fee of 8s. for five years or 8s. 6d. for three years be definitely rejected.

This was immediately carried unanimously and with applause.

The Chairman said that the rejection of these terms meant a fight, in which and the preparations for which a special responsibility would fall upon the London Panel Committee. He was convinced that if the London Panel Committee took

Medical News.

THE annual dinner of the past and present students of the Manchester School will be held at the Grand Hotel, Aytoun Street, on Thursday, November 8th, at 7.30 p.m. Tickets, price 15s. 6d., may be obtained from the honorary secretary, Dinner Committee, Medical School.

THE annual dinner of the London branch of the Association of Alumni of the University of Bristol will take place at Pagani's Restaurant on Friday, November 9th, at 7.30 p.m. The price of the dinner is 8s. 6d., exclusive of wine. Further particulars can be obtained from Dr. E. Casson, Holloway Sanatorium, Virginia Water, Surrey.

THE first of the Chadwick public lectures for this session will be given at the house of the Medical Society of London (11, Chandos Street, Cavendish Square, W.) on Monday, October 29th, at 5.15 p.m., by Dr. C. Killick Millard, who will speak on the disposal of the dead. A course of three lectures at 8 p.m. on Fridays in November, beginning on November 9th, will be given by Major Harry Barnes, V.P.R.I.B.A., on hygiene and architecture. In December Dr. A. K. Chalmers (M.O.H. Glasgow) will give two lectures in London on housing standards, the first at the Goldsmiths' College Lecture Hall, New Cross, on Monday, December 3rd, at 8 p.m., and the second on Wednesday, December 5th, at 5.30 p.m. at the Kensington Town Hall.

THE Cremation Society of England has arranged a conference of cremation authorities to be held by invitation of the Lord Mayor of Liverpool at the Town Hall, Liverpool, at 3 o'clock, on Thursday, October 25th. The chair will be occupied by Mr. H. T. Herring, O.B.E., M.B. Among the subjects for discussion are cremation propaganda; the question of forming a federation of cremation authorities; and the issue of certificates during lifetime for subsequent cremation at death.

THE Chelsea Hospital for Women has received from its senior surgeon, Mr. Arthur E. Giles, a donation of £100 towards the fund required for building its nurses' home. When completed, forty-five more beds will be available for patients.

AT a special penal meeting of the Central Midwives Board for England and Wales held on October 11th, with Sir Francis Champneys in the chair, two midwives against whom charges were heard were struck off the roll. The business dealt with by the Standing Committee included approval as lecturers of Drs. Elizabeth L. Ashby, Howard English, and Robert Park. Approval as teacher was granted to one midwife, and subject to conditions to four others. The next meeting of the Board is to be held on November 15th.

FOR attempting to obtain 30s. from a Liverpool medical practitioner by false pretences, Charles Ferguson, alias Merilees, aged 75, of no fixed abode, was sentenced by the Liverpool stipendiary, on October 5th, to three months' imprisonment in the second division. Dr. W. M. Scott of Liverpool said that the prisoner came to him in the first instance with the story that he was a medical man who was in straitened circumstances, and he had given him money to the amount of £3. On September 21st the prisoner said he could obtain for witness a F.R.C.S. diploma, for which the sum of 5 guineas would have to be paid. He added that 200 honorary diplomas were being distributed, and he had been offered one which he could dispose of to witness. The prisoner said that he wanted only 30s. that night to send away as registration fee. Dr. Scott informed the police, who thereupon arrested the man.

THE Paris, Lyons, and Mediterranean Railway Company announces that from November 4th next a through express will run daily between Calais and Vintimille in connexion with the 11 o'clock service from London (Victoria). The Office Français du Tourisme (56, Haymarket, London, S.W.1) is prepared to advise intending visitors to the Riviera as to trains and generally on the choice of a resort.

THE Institute of Physics, acting in co-operation with the National Physical Laboratory, has established a *Journal of Scientific Instruments*. Its purpose is to describe methods of measurement and the construction and use of instruments used in all branches of scientific and technical work. It will be published on the 15th of each month. The annual subscription, which may be sent to the Institute of Physics, 10, Essex Street, London, W.C.2, is 30s. The scope of the new periodical may be judged by some of the contents of the October number, the first to appear. Among the papers it contains is one on the measurement of true height by aneroid; another is on two new methods of measuring the internal diameters of transparent tubes; and in a third Mr. C. V. Boys, F.R.S., describes a general purpose recording drum.

PASSAGES in the annual report of the Ministry of Health for 1922–23, dealing with the Food and Drugs Act, have been published, together with abstracts of reports of public analysts for 1922, in a pamphlet (H.M. Stationery Office) which can be obtained through any bookseller, price 1s. 6d.

THE October number of *The World's Children*, a quarterly journal of child care and protection "considered from an international viewpoint," contains articles by the Right Hon. Edward Wood, M.P., President of the Board of Education, Sir Robert Baden-Powell, Major Leonard Darwin, and others. The price of the journal is 1s. net, and it is published at 30, Mortimer Street, W.1.

THE annual report of the National Council for the Unmarried Mother and her Child shows that this organization has had a year of useful and successful work. The Bastardy Bill, which it promoted, passed through both Houses of Parliament, and considerable progress was made with its Legitimacy Bill. The number of individual cases considered was 610; the policy of the Council is not to give doles in these cases but to assist the unmarried mother in meeting her difficulties and in supporting herself and her child. The address of the Council is Carnegie House, 117, Piccadilly, London, W.1.

DR. C. A. T. RUMPEL, director of the Barmbeck Hospital, Hamburg, who gave his name to the Rumpel-Leede sign in scarlet fever, died recently at the age of 62.

Letters, Notes, and Answers.

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediacera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"E. H. W." would be grateful for any information with regard to the treatment of cataract by the use of colour therapy.

"E." asks how a patient with a colotomy wound can give himself an enema and attend to himself subsequently without help. He finds that the enema ensures comfort and freedom from discharge for twenty-four hours, but that the help of a nurse is required every morning. He is thus prevented from going from home.

ASTHMA IN CHILDHOOD.

"J. G. B." asks for advice in the treatment of a girl, aged 5, with some evidence of an asthmatic family history, who suffers every five or six days from an acute dyspnoeic attack with rapid, shallow breathing, sucking in of the chest wall, and signs in the chest which to the ordinary observer appear like acute bronchitis. The onset of these attacks is rapid, and the symptoms and signs clear up as quickly as they come on.

*** The recurrent attacks of what appears to be asthma in a child with an asthmatic family history strongly suggest hypersensitiveness to some foreign protein, such as cat, dog, horse dandruff, or some article of food. Systematic testing by skin reactions would be the best way of determining the agent responsible for the attacks and so its elimination. Reference might be made for guidance in this respect to recent works on asthma, or to the discussion on this subject in the BRITISH MEDICAL JOURNAL, 1921, ii, 235 et seq. Short of this, careful scrutiny of the surroundings and experimental elimination of possible asthma-exciting articles of diet might throw light on the causation.

MANCHESTER: ST. MARY'S HOSPITALS.—House-Surgeon at the Whitworth Park Hospital. Salary at the rate of £50 per annum.

METROPOLITAN HOSPITAL, *Kingsland Road, E.8.*—Two Senior House-Physicians, Senior House-Surgeon, Junior House-Physician, and three Junior House-Surgeons (male). Salary £100 per annum.

PLAISTOW FEVER HOSPITAL, Samson Street, E.13.—Senior Assistant Medical Officer. Salary £300 per annum and bonus.

READING: ROYAL BERKSHIRE [illegible], Assistant Surgical Registrar, Clinical As[illegible] Department, and Clinical Assistant in th[illegible]

ROYAL NATIONAL ORTHOPAEDIC HOSPITAL, Great Portland Street, W.1.—Three Clinical Assistants. Honorarium £105 per annum.

ST. HELENS COUNTY BOROUGH.—Two Assistant Medical Officers: (1) Tuberculosis (male), salary £450 per annum, and (2) *Maternity and Child Welfare* (male or female), salary £600 per annum.

ST. HELENS: PROVIDENCE FREE HOSPITAL.—Medical Officer (male). Salary £250 per annum and £100 allowance for board, etc.

ST. PETER'S HOSPITAL, *Henrietta Street, W.C.2.*—Assistant Surgeon.

SHEFFIELD: ROYAL INFIRMARY.—Ophthalmic House-Surgeon. Salary £100 per annum.

SUDAN GOVERNMENT, MEDICAL DEPARTMENT.—Medical Inspector. Salary £E720 a year, rising to £E1,200.

SUNDERLAND: ROYAL INFIRMARY.—Two House-Surgeons (male). Salary £140 per annum.

THE PRINCE OF WALES GENERAL HOSPITAL, Tottenham.—Honorary Assistant Surgeon to the Ear, Nose, and Throat Department.

WINDSOR: KING EDWARD VII HOSPITAL.—Honorary Assistant Anaesthetist.

YORK: COUNTY HOSPITAL.—Resident Medical Officer. Salary £150 a year.

CERTIFYING FACTORY SURGEONS.—The following vacant appointments are announced: Coggeshall (Essex), Redditch (Worcestershire), Wainfleet (Lincolnshire), Middlesbrough (North Riding, Yorks.), Littleport (Cambs.), Ellesmere Port (Cheshire).

This list of vacancies is compiled from our advertisement columns, where full particulars will be found. To ensure notice in this column advertisements must be received not later than the first post on Tuesday morning.

APPOINTMENTS.

BYRNE, Austin W., M.B., Ch.B., D.P.H. (Captain R.A.M.C., retired), Assistant Medical Officer of Health for Bolton, Lancashire.

CUFF, Cyril H., M.B., B.S.Durh., F.R.C.S.E., Honorary Surgeon, Tynemouth Victoria Jubilee Infirmary, North Shields.

SMITH, N. Ross, M.B., Ch.M.Sydney, F.R.C.S.Eng., Senior House-Surgeon to the Royal National Orthopaedic Hospital, London.

SPARROW, Geoffrey, F.R.C.S., Medical Referee under the Workmen's Compensation Act for County Court Circuits Nos. 42 and 50 and to be attached more particularly to the Dorking, Redhill, East Grinstead, Horsham, Midhurst, and Petworth County Courts, in place of E. I. Bostock, M.R.C.S., L.S.A., resigned.

STAMFORD, R. Basil, F.R.C.S., Medical Referee under the Workmen's Compensation Act for County Court Circuit No. 20 and to be attached more particularly to the Ashby-de-la-Zouch and Loughborough County Courts, in place of J. B. Pike, M.R.C.S., L.R.C.P., resigned.

CERTIFYING FACTORY SURGEONS.—H. S. Gaskell, M.B., Ch.B.Edin., for the Stowmarket District, co. Suffolk; W. Anderson, M.B., for the Polesworth District, co. Warwick.

DIARY OF SOCIETIES AND LECTURES.

ROYAL SOCIETY OF MEDICINE.—On Thursday, at 5 p.m. (in the Barnes Hall), *Professor Sir Edward Sharpey Schafer* will deliver the first Victor Horsley Memorial Lecture on the Relations between Surgery and Physiology. *Section of Odontology:* Mon., 8 p.m., Presidential Address by Mr. Douglas Gabell. Communications by Mr. E. B. Dowsett and Mr. H. C. Malleson. *Section of Medicine (at St. Mary's Hospital, Paddington):* Tues., 5.15 p.m., Introductory Address by the President, Dr. Robert Hutchison. 5.30 p.m., Papers:—Prof [illegible] Dr. E. C. B. Calvert: Cases of Obesity in [illegible] with some Investigations into their Carbohyd[illegible] Wilson: Exophthalmic Goitre. Demonstration (time permitting):—Dr. A. C. Alport: A New Method of Blood-letting. Selected cases of interest will also be demonstrated. *Section of Comparative Medicine:* Wed., 5 p.m., Introductory Address by the President, Sir Clifford Allbutt. Paper:—Mr. Frederick Hobday: Cryptorchidism in Animals and Man (with illustrations and specimens). A discussion will follow, to be opened by Mr. W. McAdam Eccles. *Section of Urology:* Thurs., 8.30 p.m., Presidential Address by Dr. Langdon Brown: The Influence of Endocrines on the Work of the Kidney. A discussion will follow. *Section of Study of Disease in Children:* Fri., 5 p.m. (Cases at 4.30 p.m.). Cases:—Mr. J. P. Lockhart-Mummery: Hemi-hypertrophy, traced from 5 years of age up to the age of 20. Other cases will be shown. *Section of Epidemiology and State Medicine:* Fri., 8 p.m., Paper:—Dr. W. Perceval Yetts: Pestilence and Leechcraft in Ancient China (illustrated with lantern slides).

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, W.1.—Mon., 8.30 p.m., Clinical Evening. Exhibition of cases and radiograms.

ST. JOHN'S HOSPITAL, Leicester Square, W.C.2.—Tues., 5 p.m., Dr. J. H. Sequeira: Tuberculosis of the Skin. Thurs., 5 p.m., Dr. W. K. Sibley: Special Methods of Treatment.

POST-GRADUATE COURSES AND LECTURES.

BRISTOL UNIVERSITY.—Wed., at Swindon, Mr. H. Chitty, F.R.C.S.: Infantile Paralysis, Etiology, Stages, and Prevention of Deformities. Fri., at Boscombe, Dr. Walter Swayne: Toxaemia of Pregnancy.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.1.—Thurs., 4 p.m., Lecture by Mr. Higgins: The Treatment of Otorrhoea.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.—Mon., *Children's Hospital*, Dr. Hubert Armstrong: Clinical. Tues., Southern Hospital, Dr. Johnson: Disseminated Sclerosis. Wed., Northern Hospital, Dr. Bigland: Neurological Cases, with special reference to Neurosyphilis. Thurs., Stanley Hospital, Miss Ivens: Some Causes of *Pelvic Infection*. Fri., *Royal Infirmary*, Dr. Hay: Digitalis.

MANCHESTER ROYAL INFIRMARY.—Tues., 4.15 p.m., Lecture by Dr. C. H. Melland: Some Functional Nervous Conditions. Fri., 4.15 p.m., Lecture by Dr. F. Craven Moore: The Modern Conception and Investigation of Dyspepsia.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen Square, Bloomsbury, W.C.1.—Mon., 12 noon, Course of Lectures and Demonstrations on Neuro-pathology—Dr. Greenfield: Cerebro-spinal Fluid Pathology; 2 p.m., Dr. Hinds Howell: Out-patient Clinic; 3.30 p.m., Dr. Kinnier Wilson: Disorders of Emotional Expression. Tues., 2 p.m., Dr. Grainger Stewart: Out-patient Clinic; 3.30 p.m., Dr. Adie: Muscular Atrophies. Thurs., 2 p.m., Dr. K. Wilson: Out-patient Clinic; 3.30 p.m., Dr. Gordon Holmes: *Cerebral Tumours*. Fri., 2 p.m., Dr. Holmes: Out-patient Clinic; 3.30 p.m., Mr. Sidney Scott: Labyrinthine Disorders. Operations: Tues. and Fri., 9 a.m.

WEST LONDON POST-GRADUATE COLLEGE, Ham[illegible] Mr. Simmonds: Applied Anatomy. Tues[illegible] Cases. Wed., 11 a.m., Mr. Simson: [illegible] Thurs., 2 p.m., Mr. MacDonald: Gen[illegible] 12 noon, Mr. Endean: *Venereal Diseases* [illegible] Medical Diseases of Children. Daily 10 a.m. to 6 p.m., Saturdays 10 a.m. to 1 p.m., In- and Out-patients, Operations, Special Departments.

British Medical Association.

OFFICES AND LIBRARY, 429, STRAND, LONDON, W.C.2.

Reference and Lending Library.

THE READING ROOM, in which books of reference, periodicals, and standard works can be consulted, is open to members from 10 a.m. to 6.30 p.m., Saturdays 10 to 2.

LENDING LIBRARY: Members are entitled to borrow books, including current medical works; they will be forwarded if desired, on application to the Librarian, accompanied by 1s. for each volume for postage and packing.

Departments.

[illegible]RTISEMENTS (Financial Secretary and Business [illegible]: Articulate, Westrand, London).
[illegible]grams: Mediseera, Westrand, London).

EDITOR, *British Medical Journal* (Telegrams: Aitiology, Westrand, London).

Telephone number for all departments: Gerrard 2630 (*3 lines*).

SCOTTISH MEDICAL SECRETARY: 6, Rutland Square, Edinburgh. (Telegrams: Associate, Edinburgh. Tel.: 4361 Central.)

IRISH MEDICAL SECRETARY: 16, South Frederick Street, Dublin. (Telegrams: Bacillus, Dublin. Tel.: 4737 Dublin.)

Diary of the Association.

OCTOBER.

20 Sat. Brighton Division: Division Supper, Royal Albion Hotel, *Brighton, 8 p.m.*

21 Sun. North Middlesex Division: Fairfax Hall, Portland Gardens, Harringay, 3.30 p.m.

23 Tues. London: Central Ethical Standing Subcommittee, 2.30 p.m.
Croydon Division: Croydon General Hospital, 8.30. Address by Mr. J. Berry, F.R.C.S., on Some Incidents of Surgical Practice.
South Middlesex Division: St. John's Hospital, Twickenham, 8.15 p.m. Paper by Mr. R. P. Rowlands, M.S., F.R.C.S., on Gastric Ulcer.

24 Wed. London: **Council**, 10 a.m.
Council Dinner, Hotel Victoria, Northumberland Avenue, W.C., 7 for 7.30 p.m.
North Carnarvon and Anglesey Division: Clinical Meeting, Metropole Hotel, 3.45 p.m.

26 Fri. Marylebone Division: 11, Chandos Street, Cavendish Square, 8 p.m. Discussion on Proposed Terms of Service of the Panel Practitioner, etc.

31 Wed. North Lancashire and South Westmorland Branch: Royal Infirmary, Lancaster, 3 p.m. Branch Council Meeting 10 minutes earlier.

NOVEMBER.

1 Thurs. Guildford Division, Royal Surrey County Hospital, Guildford, 4.15 p.m.

6 Tues. Coventry Division: Discussion on Headache, to be opened by Dr. Heald.

7 Wed. London: Propaganda Subcommittee, 2.30 p.m.

8 Thurs. North Suffolk Division, Lowestoft: Address by Dr. G. C. Anderson, Deputy Medical Secretary, on "The Advantages of Membership of the British Medical Association—a Reply to Grousers."

15 Thurs. Wakefield, Pontefract, and Castleford Division: Bull Restaurant, Westgate, Wakefield, 8 p.m., preceded by a supper.

BIRTHS, MARRIAGES, AND DEATHS.

The charge for inserting announcements of Births, Marriages, and Deaths is 9s., which sum should be forwarded with the notice not later than the first post on Tuesday morning, in order to ensure insertion in the current issue.

BIRTHS.

HARKER.—On October 6th, at 18, Queen's Road, Southport, to Dr. and Mrs. Thomas H. Harker, a son.

JEX-BLAKE.—On September 13th, at Kyuna, Nairobi, Kenya Colony, to Lady Muriel and Dr. A. J. Jex-Blake, a daughter.

MARRIAGE.

MACDONNELL—QUIGLEY.—At Dublin, on October 10th, by Rev. Fr. John P. White, P.P. (uncle of the bride), assisted by the Very Rev. Canon Casey, P.P., and Very Rev. Canon Pettit, P.P., John Joseph MacDonnell, M.B., M.R.C.S., D.P.H., to Julia, eldest daughter of Mr. and Mrs. T. Quigley.

DEATHS.

CALDECOTT.—On October 14th, *Charles Caldecott*, M.B., B.S.Lond., beloved husband of Sophia Caldecott, and Medical Superintendent of the Royal Earlswood Institution, Redhill, Surrey, aged 62.

POWERS.—On October 7th, at Ludlow, York Road, Southend-on-Sea, Richard Henry Powers, M.R.C.S., L.R.C.P., aged 55 years.

[illegible] by the British Medical Association, Their Office, No. 429, Strand, in the Parish of St. Martin-in-the-Fields, in the County of London.

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for the cardiac cripples from that city. Some of these are in special cardiac homes such as Dr. Miller advocates; others are in convalescent homes where special beds are reserved for cases recommended by the Heart Association. The need for such special heart homes would have to be placed before the charitable public, and to meet with satisfactory response it would need to be pressed with a weighty consensus of medical opinion. This would be one of the advantages of concerted action such as has been suggested.

Between the hospitals and the patients' homes there would always remain a gap, and this might be efficiently bridged by following up the children who leave hospital and who do not get institutional care by securing their attendance at special cardiac clinics, so that the earliest indications of relapse might be recognized and the lives of the patients guided along physiological channels. There has been sent to us by the Committee of Cardiac Clinics of the New York Association notes on its scheme of cardiac clinics, a synopsis of which we print in another column (p. 729). We do not suggest that it is necessary to follow the same lines, but the scheme is of interest as an indication of the thoroughness with which the matter is being taken up across the Atlantic.

It is not our province to prejudge the attitude that the Council of the Association will adopt to the request for the appointment of a special committee, but there can be no doubt about the importance of the issue. The figures supplied by the medical officers of the Board of Education are a sufficient indication of its magnitude. It would appear to be a case where united action is indicated. The Medical Research Council is already dealing with one aspect of the subject; school medical officers have to take cognizance of its presence, and in some instances have had to arrange for the education of affected children in other than ordinary schools; isolated attempts have been made in different parts of the country to provide institutional treatment of a special kind, but to an extent that only touches the fringe of the problem. How much has been done in the past to inculcate into the minds of the students of medicine the natural history of the disease in such a way as to open their eyes to the possibility of preventive measures it is difficult to say. Much more must be done in this direction if medical students are to enter the profession imbued with that appreciation of the significance of the preventive aspect of medicine which the General Medical Council desires. In many parts of the country the lay public are ignorant of the possibility of rheumatism as an affection of childhood or of its relation to heart disease. When one hears that in a school like Eton, to which we have already referred, about 1 per cent. of the boys give a history of rheumatism and that heart disease is rare, while in some schools under the education authority about 1 per cent. have rheumatic heart disease, the prevention of heart disease becomes a problem well worthy of attack by all the weapons at our disposal.

THE HARVEIAN ORATION.

It has always been a tradition of Linacre's college to honour and cultivate classical learning, and in Professor Starling's audience on St. Luke's Day some must have recalled Tully's noble panegyric,* and in recalling the great Roman's words must have applied them not to the *doctrina* Tully had in mind, but to the wider *doctrina* of which Professor Starling's discourse was the fruit: the *doctrina*—we had almost written the gospel—which inspired him to say, "I feel that I have had the good fortune to see the sun rise on a darkened world, and that the life of my contemporaries has coincided not with a renaissance but with a new birth of man's powers over his environment and his destinies unparalleled in the whole history of mankind."

This *doctrina* can only be possessed by one to whom Harvey's injunction to "search out the secrets of Nature by way of experiment" is an absolute rule of life, not merely a stimulant of rhetoric.

Many do lip service to the cause of "research" whose lives and actions are far more hostile to the real searching out of Nature's secrets than any of the traditionalists who fought against Harvey, for many of these did have a passion for truth, and erred from deficient plasticity of intelligence rather than from a false or base choice of object. Those who now clamour for the direction of research to "practical" objects have none of the excuses to be urged in behalf of the anticirculationists, not even that of loyalty to the teaching of a great master. "For the full and untrammelled exploitation of the advantages of the experimental method it is essential that mere material advance shall not be the target of our ambition." These are Professor Starling's words. The story of progressive comprehension of the manner of functioning of the heart in health and disease, the account of the correlation between all organic systems and of its material basis, two chapters of the book of life many pages of which have been inscribed by Professor Starling himself, are worthy comments upon the text.

The sermon is on an old text; it has been preached by the words or exemplified in the lives of all the men the Orator named—Boyle, Mayow, Hales, Cavendish, Lavoisier, Bernard, Pasteur. All studied out the secrets of Nature, not over-curiously considering whether the precise secrets which fascinated them held or did not hold the clue of some practically important mystery. In these days, when great wealth and power are often in the hands of well intentioned but ignorant men, the scientific worker is subjected to a temptation not so severe as confronted his spiritual ancestors in the Middle Ages, but severe enough. No student of Nature's secrets now runs the risk of being burnt alive. But he must often choose between hopeless poverty and obscurity on the one hand and spiritual slavery on the other. It may often be quite good business to sell one's soul; it is obviously better to sell it than to lose it like Peter the Politician in Mr. Belloc's story. The statistical probability that the most disinterested student of Nature will become a Lavoisier or a Pasteur is extremely small, and the chance that his wife and family will enjoy as many of the material advantages of life as the dependants of a fairly prosperous grocer is not much larger. The director of the X.Y.Z. Institute for Research into Diseases of the Great Omentum may be a prosperous and happy member of society. He has lost nothing but a very small chance of becoming one of the *servi servorum* commemorated in a Harveian Oration.

Simony is, after all, not purely an ecclesiastical offence. Simon Magus, when he saw "that through laying on of the Apostles' hands the Holy Ghost was given," offered them money, saying, "Give me also this power." Peter rebuked him, saying, "Thou hast neither part nor lot in this matter." It is

* Nam ceterae neque temporum sunt neque aetatum omnium neque locorum; at haec studia adulescentiam acuunt, senectutem oblectant, secundas res ornant, adversis perfugium ac solacium praebent, delectant domi, non impediunt foris, pernoctant nobiscum, peregrinantur, rusticantur.

Printed and published by the British Medical Association, London.

Victor Horsley Memorial Lecture

ON

THE RELATIONS OF SURGERY AND PHYSIOLOGY.

Delivered on October 25th, 1923,

BY

Sir EDWARD SHARPEY SCHAFER, F.R.S.,
Professor of Physiology in the University of Edinburgh.

I feel it a peculiar honour to have been asked to give the first Victor Horsley Memorial Lecture. I had the less hesitation in acceding to the request that I should do so because I am not only his oldest surviving scientific friend, but also his first fellow worker. It is nearly half a century ago that he made his appearance as an eager, intelligent student in the old Physiological Laboratory at University College. Sharpey had but recently retired from the teaching of physiology, although his personal influence was still felt. His place had been taken by Burdon-Sanderson, whose dominant idea was to make the work of the subject as experimental as possible; and anyone who has known Victor Horsley will readily understand with what keen interest this idea would inspire him. There can indeed be no doubt it was this training in experimental physiology which determined Horsley's future career, both as a physiologist and as a scientific surgeon. And it is this double career which may appropriately be chosen as an example of the mutually beneficial influence of surgery and physiology.

I had almost been tempted by our long and intimate friendship, which began so auspiciously at University College in 1875 and lasted until the day of his death in Mesopotamia in 1916, to dwell, on this the first opportunity of commemorating his career, upon the personal traits which were so striking a feature of Horsley's character—his enthusiasm, his love of truth and hatred of hypocrisy, his energetic striving for everything he judged to be right and inflexible antagonism to everything he thought wrong. But has not all that been done far better than I or anyone else could hope to do it, in the history which Mr. Stephen Paget has set forth in that inimitable style which characterizes all his writings? It is fortunate that the life of Victor Horsley was entrusted to such a biographer; nor was the biographer less fortunate in having such a subject! How splendidly he has taken advantage of his opportunity we all of us know.

I have chosen "The Relations of Surgery and Physiology" as the text upon which to base the remarks I have to make to-day. It is my object to show that these subjects are mutually dependent; that Physiology must call in the aid of Surgery to solve many of its most intricate problems, and that Surgery cannot make any real advance unless it proceeds hand in hand with Physiology.

It was not Horsley himself who established this principle, but he happened upon the time when it was beginning to be evident. Only a few years before, it might have been admitted that there was a certain amount of interdependence between Medicine and Physiology, but no one would have thought of connecting Surgery with anything but Anatomy. That experiments on animals were necessary in order to elucidate the functions of the body had indeed been conceded. It was recognized from Harvey onwards—yes, and even long before Harvey—that no true advance could be made in physiology without such experiments. The operations involved in them have somewhat unfortunately received the designation of "vivisection," and this title has caused many who are ignorant of their nature to regard them as of an entirely different character from surgical operations in the human subject—although they are conducted in exactly the same manner as in man, with the same precautions to prevent unnecessary pain, and with every effort to avoid unsatisfactory complications which might result from wound-infection and the like. But many of the older surgeons refused to believe that an operation on the lower animals could be utilized to obtain information which would be useful to them in the formance of similar operations in man, nor should surprised to hear that there are some who still hol view. It is fortunate for the world that Victor H was not one of these.

As I have remarked, he happened upon a time whe importance of animal experimentation as a guide to su was beginning to be recognized. There were two direc in which this tendency was particularly apparent. O these involved the investigation of the functions o brain: the other those of what we now term endo organs—the uses of which were then for the most part pletely obscure. And it was just these two subjects attracted the attention of the physiologically trainec hitherto unknown young surgeon whose work was to so much light upon these dark places of the orga places which hardly anyone had hitherto venture approach. It is on this account that I propose to deal with these particular aspects of the question of the rela of Surgery and Physiology. I will begin with the su of the functions of the brain and its related subject, cr surgery.

The Functions of the Brain and Cranial Surger

Not very long before the entry of Victor Horsle University College as a medical student, a young S physician named David Ferrier published an elab series of researches on the results of electric stimulati the cerebral cortex in animals. Some of these were firmatory of experiments performed on the dog and c Fritsch and Hitzig, although the method of stimulatio ployed by Ferrier was a vast improvement on that use the German observers. But what rendered Ferrier's re really important was the fact that he extended researches to the brains of monkeys, which are ent different in the conformation of the cerebral cortex the brains of the dog and cat, but present a remar resemblance to the brain of the highest member of order Primates, man. It is scarcely necessary to say the brilliant experiments of Ferrier aroused univ interest. I shall myself never forget the impression upon me by one such experiment which Ferrier show Burdon-Sanderson and the rest of us who were workin his laboratory. The confident way in which he could dict what would be the movement resulting from touc this or that portion of the cortex with the electrodes calculated to arouse our wonder and admiration; and demonstration always provokes the same feelings in audience of students when the experiment is repeated b them. It was these experiments—supplemented as have since been by those of Horsley and Beevor on the of the orang, and by the yet more recent and acc results obtained by Sherrington and Grünbaum upon chimpanzee and gorilla—which have enabled the surge locate the seat of an injury and tumour in the human b and to remove the tumour or to deal with the sourc injury with advantage to the patient.

In all researches in experimental physiology, there two chief methods employed to elucidate the functio an organ. One is the artificial stimulation of the o causing it to pass into a condition of activity, the of such activity being duly noted. The other is production of an injury in the organ, or its com removal, the effect, if any, which results from such i or removal being observed. With regard to the func of the brain, this last aspect of the subject had b means been neglected by antecedent workers, but discre results had been obtained. Indeed, up to the time of w I am speaking—that is, the epoch of Fritsch and Hi and of Ferrier—physiologists were disposed to agree Flourens that the whole cortex acted as one undiv organ and that the several parts of the body are no dividually represented in it; in other words, that is no such thing as localization of functions in the cereb One acute clinical observer, Hughlings Jackson, had, true, pointed out that the phenomena of traumatic epi seem undoubtedly to indicate the existence of some of localization in the cortex: since the "march" o movements which result from the excitation producin epileptic fit is different according to the seat of in

this opportunity of making its freedom sure. If this is ever to be done it must be done now. There should be no doubt about the decision, and it must be shown by immediate action. The only course now open is for the profession to show that no service can be secured under the Acts, whatever the exact terms, until the professional position has been re-established. This means that every insurance practitioner should at once send to the secretary of his Panel Committee his resignation from the service, to take effect on January 1st next. If the resignations are so secured by October 30th it will be possible for the Insurance Acts Committee to resume negotiations with confidence, and it may be taken as certain that, the freedom and honour of the profession once secured, there is not likely to be serious difficulty in reconciling the interests of the profession with those of the insured population and of the whole community, which must, of course, be paramount.

The public may be assured—and we believe it is fully assured—that whatever the course of the conflict precipitated by the Ministry of Health may be, members of the medical profession in their individual capacity will not cease to render service to individual patients, whether insured persons or otherwise.

THE WESTMINSTER HOSPITAL.

The Westminster Hospital, which is one of the landmarks of London, is about to be rejuvenated. The hospital grew out of a small infirmary established in 1719. The present site was acquired from the Treasury in 1830, and the building erected upon it by voluntary subscriptions was opened in 1834. The cost of the work now in progress is estimated to be £70,000, of which amount £20,000 has been promised; an appeal is being launched this week for the remaining £50,000. The object is to reorganize the wards, supply modern accessories, provide a home for the nurses, and generally to bring the services up to date. No appeal for such purposes has been made by this hospital within the last fifty years. Before the war a proposal was made to remove the hospital to Clapham; apart, however, from the objection of breaking old associations the comparative cost proved to be the decisive factor. It was found that to construct a new hospital would mean a vastly larger expenditure of money under present conditions than could be obtained by the sale of the site at Westminster. Consequently a few months ago it was decided to carry out the alterations indicated and the hospital was closed last July. It is hoped, however, that it may be reopened in March. Meanwhile out-patients are being treated in Caxton Street, where the medical school of the hospital is situated. Mr. W. G. Spencer, senior surgeon to the hospital, has written for the hospital magazine a history of the hospital and its medical school. Reference to the medical school in the minutes of two centuries does not actually occur until 1834, when allusion is made to a private purchase of a site in Dean Street (now Great Smith Street) at a cost of between £2,000 and £3,000. This school was maintained for a period without formal recognition by the governors. There are accounts later on of undertakings more or less officially backed, but not until 1885, when the existing premises in Caxton Street were opened, does the operation of the school play a prominent part in the life of the hospital. The records of successive members of the medical staff include the names of five who in turn held the position of President of the College of Surgeons. Amongst the early physicians were Benjamin Hoadley, who gave the Goulstonian lectures in 1737, was Harveian Orator in 1742, and was physician to the King's household and to the Prince of Wales; Sir Richard Jebb, physician from 1751 to 1762, who was Harveian Orator in 1774, attended George III, and left behind him many stories of his eccentricities; and Hamilton Roe, another Harveian Orator, who had much to do with the founding of the medical school. The beginnings of the nursing staff were humble. Mrs. Jane Allen, the first matron appointed, at Christmas in 1719, to take charge of the small house in Petty France in which the first infirmary was conducted, was paid £6 per annum, and had the assistance of one nurse at £5 14s. and a maidservant at £4. In addition an old woman visited out-patients, and there was an indoor messenger youth. The number of in-patients varied from eight to twelve, and there were about as many out-patients. The first mention of the employment of a night nurse occurs in 1733. The hospital is now one of the institutions of London, drawing many patients from the poor district between the Abbey and Vauxhall Bridge, and from a still wider field. Its medical school has educated many men who are now practising in all parts of the British Empire. During last year the number of in-patients was, in round numbers, 2,500.

THE AIR AMBULANCE IN WAR.

In his presidential address to the War Section of the Royal Society of Medicine on October 8th, Air Commodore D. Munro discussed the possible uses of the aeroplane in the medical services in future warfare. The history of the air ambulance, he said, began necessarily with improvisations, by which he meant the temporary use of an ordinary service aeroplane to carry sick and wounded, either with no special arrangements at all or only primitive ones, or with a special kind of stretcher adapted to the machine, or a special adaptation of the machine to take the ordinary stretcher. During the retreat of the Serbian Army in 1915 the French made some arrangements for air convoy of wounded. At the end of 1920 the French in the Levant organized an air ambulance in which eighty cases were carried to hospital during a period of four months. For this purpose the machine guns were removed from aeroplanes and the patients strapped in their place. In May, 1923, during an epidemic of dysentery among the British forces in Kurdistan, 198 cases were conveyed by air to Baghdad. The distance was 100 miles as the machine flies, and was much longer by mountain track, which would have had to be taken had the aeroplanes not been available. The operation was difficult owing to bad weather and the lack of suitable landing places, but it was carried out quite successfully in 98 flights; the time occupied in the evacuation was 128 hours 45 minutes. Unfortunately the only aeroplane specially designed for this work had to make a forced landing and was put out of action, so that the task was completed by improvised machines. The special kind of stretcher used with the service aeroplane was of a naval pattern, adapted to aeroplane purposes by the use of an extra lining. It consisted of bamboo sticks in canvas, with a head cushion, a blanket cloak, and a head and face mask. The squadrons in Egypt and Iraq were now supplied with these stretchers for use in emergencies. They were strapped on to the fuselage, and the machine-gun fitting was used for fixing in position. If necessary two patients could be carried in the one machine. The adaptation of the aeroplane itself to accommodate the ordinary stretcher was carried out during the Somaliland expedition of 1919-20, when a machine, known among the troops as the "blood-wagon," was altered so as to take one stretcher and an attendant. The French in Syria and in Morocco had a regular service of such adapted machines, and it was reported to the French Colonial Congress of Public Health in 1922 that in the former country 105 casualties and in the latter country 168 had up to then been conveyed in this manner without mishap. In 1921 the

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The facility with which he used either hand contributed not a little to the dexterity of his operations, and he never, in any circumstances, lost the sang-froid which is essential to the surgeon.

THE FUNCTIONS OF THE THYROID GLAND.

Although by the work which Horsley had done upon the brains of monkeys and apes he had become one of the most skilful and scientific operators upon that part of human anatomy, he was much too all-round a man to confine himself to a single object, and we must next follow his career in another subject—that, namely, dealing with the functions of the thyroid gland, to which he brought equally keen enthusiasm for physiological investigation and skill in surgical procedure. Like that upon the functions of the brain, this also has an interesting preliminary history.

The year before Victor Horsley was born, Moritz Schiff of Geneva, one of the most active physiologists of the middle of the last century, had published the results of observations he had made upon animals, the thyroids of which he had extirpated. But at that time neither physiologists nor medical men were prepared to take much interest in the thyroid, nor indeed in any of the so-called ductless glands, which now under another name occupy so prominent position both in physiology and in clinical medicine. Schiff's work, therefore, which was not without interest and importance, passed unnoticed, and the matter was allowed to rest for many years. But just about the time that Horsley was starting his surgical career, the subject of the thyroid and its functions had come into prominence on account of the fact that it was becoming the practice amongst surgeons in Switzerland—in which country tumours of the thyroid are common—to remove such tumours entirely when they were inconveniently large. In such cases of complete removal very serious symptoms resulted—symptoms which closely resembled those which had been described some ten years previously by Sir William Gull as a cretinoid condition of adult life, and were later shown by Ord to be associated with absence or atrophy of the thyroid: Ord applied the term "myxoedema" to the syndrome. The symptoms resulting from thyroid removal were recognized by the Swiss surgeons J. and A. Reverdin as resembling those of myxoedema, and they gave to them the name *operative myxoedema*. Th. Kocher, who described them at about the same time, spoke of the syndrome as *cachexia strumipriva* or *thyrcopriva*, the name by which it is now generally known, although the term "operative myxoedema" best describes its cause and symptoms. These observations of the Swiss surgeons were published in 1883, and led immediately to a great revival of interest in the thyroid both amongst physicians and clinicians. Schiff himself repeated and extended his old experiments, and many other physiologists took up the subject, interest in which is indeed by no means exhausted even at the present day.

How Victor Horsley came to start experiments upon the thyroid is narrated by Paget:

"On November 23rd, 1883, at a meeting of the Clinical Society of London, there was a discussion over a case of myxoedema shown by Dr. Drewitt; and Felix Semon called attention to Kocher's observations and said positively that cretinism, myxoedema, and cachexia strumipriva were closely allied conditions, having in common either absence or more probably complete degeneration of the thyroid gland: and that they could hardly be attributed to any other cause. On December 14th the Clinical Society appointed a Committee to investigate the whole subject. Ord was Chairman, Hadden was Honorary Secretary, and Horsley was a member of the Committee.

"It was of necessity that the investigation should include an experimental study of the healthy gland in healthy animals . . . and recognizing 'the hitherto undreamt of importance of the thyroid gland,' they asked Horsley to study it by the experimental method. They needed a physiologist and a surgeon, and they had them in him."

Horsley started this investigation in my laboratory at University College, working at first with Rickman Godlee, who was also a member of the Committee. They made several experiments together upon monkeys: we had a room specially prepared and warmed for keeping those animals. But very soon the work was transferred to the Wandsworth Road, Horsley being now professor superintendent of the Brown Institution there, and he found it inconvenient to carry on work in both places. So he continued the investigation alone, and dealt with the results in the lectures which he was expected to give annually at the University of London, the first of these being published in the *British Medical Journal* in January, 1885, and the next in the *Lancet* in 1886. It is somewhat singular that, with the exception of two short notes communicated to the Royal Society, he never took the trouble to send the results of these experiments upon the thyroid to any scientific periodical, although they were mentioned in his annual reports to the Committee of the Brown Institution, and ultimately appeared in the report of the Committee on Myxoedema, published in 1888.

The reason for this silence on the part of an investigator like Horsley, who never in any other subject had the least hesitation in giving his results to the world whenever they were sufficiently definite, was, I imagine, a certain indefiniteness and variability in the effects obtained from the removal of the gland. For some animals were simply rendered apathetic, with slow movements, a low body temperature, and a general deficiency in vitality; others showed acute nervous symptoms, with muscular tremors, which might pass into fits of greater or less violence, and terminate in death. Horsley himself seems to have thought that these were stages of the same condition. But we now know that the two kinds of symptoms were due to entirely different causes, as in the one case the thyroid alone had been removed, and in the other the removal had included the parathyroids. Unfortunately, at the date of these experiments, the parathyroids, although they had been seen and described some years earlier, had not been recognized as organs having an entirely different function from the thyroid. It was only some years later (1891) that Ernest Gley, the eminent professor of physiology in the Collège de France, discovered this function, and showed that the symptoms of nerve excitation are entirely due to the removal of the parathyroids, and are not seen when these, or some of them, are left intact in removing the thyroid. On the other hand, removal of the thyroid alone without the parathyroids produces all the symptoms of cretinism and cachexia strumipriva.

The fact that when dealing with young animals the parathyroids (unless looked for, and they were at that time unknown) are more likely to be removed along with the thyroid (as age advances, some of them move further away from the thyroid) accounts for the circumstance that Horsley found most of his young animals died in a few days with violent nervous symptoms. In consequence of this he missed the very important point that the thyroid exerts a remarkable influence on growth and nutrition, including the nutrition of nerve cells; which is indeed now established as one of its principal functions. But we cannot blame him for missing this point, since our knowledge of the thyro-parathyroid apparatus was not sufficiently advanced at the time.

THE PITUITARY BODY.

There is another important endocrine organ to which Horsley devoted a good deal of attention—namely, the pituitary body. He was, I believe, the first to endeavour to determine the effect of removal of this organ, for about 1886 he made one or two attempts to reach and destroy it through the pharynx and base of the skull. The conclusion he arrived at was that it is an organ which is not essential to life. Many years later he repeated these experiments and apparently saw no reason to alter his opinion, although in the meantime a number of other investigators who adopted other means of reaching the gland had come to an opposite conclusion. There is now no doubt that in most adult animals at least the loss of the pituitary body or even of its anterior lobe alone is incompatible with life, and had Horsley proceeded to attack the gland by the same (lateral) route as has been employed by most other investigators, a route in which every step of the operation is visible, and perfect asepsis can be ensured, he would, I am sure, have obtained the same results. His original method offers many difficulties from the liability to haemorrhage and sepsis, and from the impossibility of seeing what one is removing when working at the bottom of a deep and narrow hole.

Horsley was inclined to regard the results obtained by

screens or experimenting with incubators and agglutination baths, and afterwards reading modest papers before scientific societies, belong to the same breed as those in all generations who have subdued kingdoms, and wrought righteousness, and obtained promises, and stopped the mouths of lions, and quenched the violence of fire. They, too, have been content to die, many of them, not having received the promises, but having seen them afar off." A magazine article written in this sympathetic tone may act as a valuable corrective to the misunderstandings that arise from the somewhat hysterical accounts of medical researches that are published from time to time in other lay journals.

TENDENCIES OF PHYSIOLOGICAL SCIENCE.

Professor A. V. Hill, F.R.S., the newly appointed Jodrell professor of physiology at University College, London, delivered a lecture on October 16th on the present tendencies and future compass of physiological science. He said that physiology in Great Britain, though not in some other countries, was in the faculty of science as well as in the faculty of medicine, and to this he attributed much of its present high standing. It was not true that physiology was the handmaid of medicine any more than that physics was the handmaid of chemistry. Physiology, fundamentally the study of how the living creature worked, had its own needs and problems and methods; at the same time it was true that the utility of its results was largely in the field of medicine, to the needs of which no physiologist could be indifferent. The present tendencies of physiology were in some directions obvious. The unparalleled advances of biochemistry in recent years left no doubt as to one such tendency. Biochemistry was now passing beyond the study of the structure of matter that had been alive to the study of occurrences in the living cell. It would play a great part in the solution of such problems as the chemical nature of insulin, and perhaps its synthesis, the mechanism of immunity, and the elucidation of the accessory food factors. Differing from biochemistry only in technique and not in purpose was the development and adaptation of purely physical methods, including the design of instruments, of which he instanced the latest form of Einthoven galvanometer as representing the highest effort of the creative imagination. Along this road the effect of x rays on living cells, the mechanism by which work was produced by the expenditure of chemical energy in the muscle, and the further study of the action of physical factors such as light, heat, and touch on the sense organs, awaited the investigator. The cautious application of the experimental method must continue to make for progress. The analysis of the living nervous system, the pancreatic, endocrine, cardiac, and other functions, all required experiments on animals. Now that the discovery of insulin had appeared as the result of animal experiment it seemed unlikely that there would be any immediate interference with experimental freedom, but in a few years' time, when insulin had become accepted as part of the medical armoury, the public might not remember the means by which it was elicited, and some apparently innocent legislation might be hurried through which would make further advance impossible. But it was strange how often a physiological truth, discovered in an animal, needed to be amplified by working it out on man. Man had proved to be the best subject in studying, for example, respiration and the carriage of gases by the blood. Moreover, experiment on man had the advantage that it led directly to what was required in medicine. Until the truth discovered in animals had been applied to man it had not, so to speak, attained its majority. It was necessary to build up a sound body of trained opinion versed in study on man, which would prove of great service, not only in medicine, but in many directions in social and industrial life. The physiology of the future would take more advantage of zoology. This might not enter into the sphere of medical science, but it was physiology none the less. Zoology, of which physiologists had often been ignorant, had to offer in its greater elasticity of technique a new armoury of weapons, and perhaps its study might help to correct the tendency of some physiologists to forget the existence of the animal as a single organized whole. Histology, hitherto associated with physiology, might with advantage be surrendered to anatomy, to which it logically and properly belonged. The new physiologist was apt to be too busy with other things to bestow sufficient care upon histology, while the new anatomist, unlike his forerunner, had more interest in the investigation of the living body than in the dissection of the dead, and one of his natural methods of attack would be the microscopical study of the web structure of living tissue. Physiology was nothing less than the study of the mechanism of life in any form and by every means which science or the arts had to offer. Team work would have to be undertaken and organized investigations planned, but the opportunity must remain for that free and unfettered originality which the older and less businesslike methods so richly evoked. More than ever freedom would be needed, the liberty to investigate things because they were interesting, because inquiry into them was an adventure of the human spirit, because they seemed to lead to a solution of those fundamental problems which man in his intellectual impudence believed to be soluble. Professor E. H. Starling, who presided at the lecture, referred to his successor in the Jodrell professorship as the most distinguished physiologist of the new generation in this country. When he himself was considering whether he should apply for the Foulerton professorship of the Royal Society and resign his post at the mother school of English physiology, he felt much disinclined to give up the direction of the institute, and then he remembered that if he did they could get Hill! For many years physiology did not represent a separate discipline at all; only comparatively recently had it been separated from anatomy. It had derived great illumination from the labours of chemists and physicists, and chemists themselves had come into its fold, but the special feature of the present occasion was that physiology could welcome as its "convert" a man who began as mathematician and physicist.

SMALL-POX AND VACCINATION.

The publication by the Research Defence Society in the October number of its journal, *The Fight against Disease*, of an address given by Dr. John C. McVail to members of Parliament last July on small-pox and vaccination, provides an interesting statement which will be very helpful to any who are concerned with the education of the general public in this important matter. The value of the prevention of small-pox is illustrated particularly by the register of Kilmarnock in Ayrshire, which includes the causes of all deaths there between the years 1728 and 1764, during which period there occurred nine epidemics of small-pox; the inevitability of infection and the high death rate before the age of Jenner are apparent. The prevention of the disease by vaccination is set out and supported by evidence drawn from the conditions in Germany before and during the last war; furthermore, the importance of revaccination is clearly indicated in a table of incidence rates in four cities which are well known as centres of antivaccination activities, and also in another table of incidence of the disease in Glasgow during the epidemic of 1900-1. The impossibility of prevention without vaccination is succinctly demonstrated, and, although

to one of the slips, and thus it can be held
tremely thin and equable sections are cut with
any plane that may be desired. These sections
with a drop of water and treated with acetic
suited for the investigation of the muscular
had not been dried."*

of such cells in plain muscle had been
in a paper published in the *Philosophical*
though Koelliker had produced abundant
contrary. And every student can now
ate them. But in those days it was not so
fact that Lister undertook a difficult in-
succeeded so admirably in obtaining a
placed him at once in the first rank of
stologists.†

e observations were not in themselves purely
eir importance is entirely so, and had this
be it is doubtful if Lister would have spent
ad trouble over them. It is interesting to
h investigations were inspired by the work
ho was the predominant histologist of his
training and early work were physiological.
n intimate friend of Sharpey, and it was
y that Lister made his acquaintance. In-
y, perhaps, be allowed to mention that it
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the constant and kindly encouragement of
and Lister.

ely physiological bias of Lister's mind was
eneed—(1) by his work on absorption from
d on the flow of chyle in the lacteals, and
rches on the vascular changes accompany-
n. The first of these researches were made
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Their chief object was to ascertain whether
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conclusion he came to was that no such
s—a conclusion which has never been modi-
experiments on inflammation were made,
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young surgeon in Edinburgh; a place he
bey's recommendation in 1853, with the in-
ling a month there: but he became Syme's
ter his son-in-law, and the month extended

ne conscious of the ignorance of surgeons
arlier stages of inflammation, he set to work
hese on physiological lines. For this pur-
se chiefly of the frog's web, but employed
atory evidence the vessels in the bat's wing
had learned the study of under one of his
hed teachers in University College, also a
ainded surgeon, Wharton Jones, the dis-
amoeboid movement of leucocytes. As his
y remarks, Lister's work on inflammation
reader by the beauty and simplicity of the
cribed, the originality of the thoughts and
f the reasoning. . . . The paper was well
e and on the Continent, and its conclusions
ely an exception stood the test of time."‡

year Lister published, also in the *Philo-*
ctions, results of experiments of a purely
ture—namely, "An inquiry regarding the
vous system which regulate the contraction
and on the "Cutaneous pigmentary system
Both of these contained new and important
t is, however, not unnatural that his pre-
which has revolutionized Surgery, should
ved his earlier physiological observations, a
er himself recognized and regretted. I am
own mind that he was not prouder of his
searches than of his contributions to surgery.
ortant contribution to Physiology was when
y occupied with surgical work and teaching.

rd Lister, by Sir Rickman Godlee. 1917.
ers on this subject were published in the *Quarterly*
ypical Science for 1855 the fuller investigation in
the Royal Society of Edinburgh for 1857.
e of causation of the vascular changes which Lister
scribe was not explained until many years later, the
furnished by the experiments of Dr. Ninian Bruce.
er. Physiol., vol. vi, p. 353, 1913.)

It was upon a subject which must always possess a peculiar interest for the surgeon—the cause of blood coagulation. I know of no better or more precise piece of work than this. All kinds of theories were extant on this subject: there are a good many still. Dr. Benjamin Richardson, having found that the addition of ammonia to blood would prevent its coagulation, thought that this furnished sufficient evidence to support the idea that the reason why blood coagulates when drawn is that exposure to air allows the escape of ammonia. And although the researches of Alexander Schmidt had shown, what modern investigations have confirmed, that coagulation is the result of a chemical reaction between substances dissolved in the blood, the reason why this reaction does not occur in the living vessels was completely obscure; the theory which was most favoured being that of Brücke, which explained the phenomenon by supposing that the living wall of the vessel exercises a restraining influence upon the blood in contact with it—which is evidently not an explanation at all. Lister devised a simple experiment which at once upset both theories, and indicated the real cause of blood coagulation—namely, the contact of blood with foreign matter or with injured or dead tissues. He showed that blood can be kept fluid in a segment of a large vessel exposed freely to the air, and could even be poured from one such segment to another so as to allow free escape of any ammonia which might be (but isn't!) present: moreover, while passing through the air the blood would, of course, be removed from contact with the wall of the living blood-vessel. Nevertheless, such blood remained fluid unless the inner coat of the vessel were injured or unless the blood were allowed to come in contact even within the vessel with a foreign body. Lister showed that it is the presence of the injured tissue or foreign body that determines the chemical reactions which produce the coagulum, and not the presence of the living tissues which prevents such reaction. This fundamental fact was settled for all time by the simple experiment of the so-called "living test tubes" devised by him. The account of this and many other experiments on the subject is to be found in the *Proceedings of the Royal Society* for 1863. It formed the subject of the Croonian Lecture for that year.

Lister on the Need of Experiment for the Advancement of Medicine and Surgery.

By this time Lister was in the full swing of surgical practice in Edinburgh, and was giving lectures on the Principles and Practice of Surgery in the extramural school. The principles he taught were physiological, both normal and as applied to disease. And he recognized that Surgery if it is to be considered a science at all must be founded upon and can only make progress by the aid of experiments.

His great discovery was so founded. His experiments were made with test tubes, with animals, with patients. But he would never venture to perform a serious experiment upon man without having ascertained by animal experimentation that it was likely to prove successful and was therefore justifiable. On the subject of vivisection his trumpet gives no uncertain sound. When requested by no less a personage than Queen Victoria to make some public declaration against vivisection he replies as follows to her private secretary:

"I should deeply regret that I cannot see my way to complying with this request, were I not persuaded that my doing so would not promote the real good of the community, which I know to be Her Majesty's only object in the matter. And I feel bound to endeavour to express shortly the reasons for my opinion.

"With this object I can hardly do better than begin by saying that I have myself often performed experiments upon the lower animals, and that, if I have been privileged in my professional career to do anything for the good of my fellow men, more is to be attributed to these experiments than to any other work in which I have engaged. When they were performed without chloroform, as has not unfrequently been the case, they have been done at a very great sacrifice of my own feelings; but the greatness of the object in view has appeared to me to over-ride such considerations. . . . It is sometimes said that, although such experiments may be needful and right for the purposes of discovery, they are not justifiable for the demonstration of truths already ascertained. It would, I believe, be very wrong to draw any such line of distinction. To take a single instance: to debar the student of medicine from having his eyes opened to the truth of the circulation by seeing the blood coursing through the vessels

its (1) etiology (nine titles given); (2) structure (twenty-nine titles given); (3) pathological physiology (twelve titles given); (4) functional capacity (four titles given). Thus a diagnosis might read: (1) rheumatic inactive; (2) mitral stenosis; (3) auricular fibrillation; (4) Class 3, much impaired activity; or (1) syphilitic, active; (2) aneurysm of aorta; (3) normal sinus rhythm; (4) Class 4, confined to bed.

The address of the Association for the Prevention and Relief of Heart Disease is 370, 7th Avenue, New York. The chairman of the Committee on Cardiac Clinics is Dr. William St. Lawrence.

PUBLIC HEALTH IN SOVIET RUSSIA.

BY

L. HADEN GUEST, *M.C.*, M.R.C.S.

(Continued from p. 679.)

II.—THE CONDITIONS OF CHILD LIFE.

THE original intention of the Communist party in Russia was to apply a full programme of Communism in all departments of life. This, of course, included the children, about whom the Communists agree with Plato that they are the business of the State and not of the individual. Translated into action this meant the setting up of a large number of "children's homes" all over Russia, where the children were to live a communal life and be provided by the State with all the requirements of life. In practice the plan has not worked out so well as intended—the cumbrous organism of Russian bureaucracy could not adapt itself to new conditions—and the children in 1920, 1921, and 1922 lacked not only clothing and materials necessary for education, such as books, pencils, and paper, but, most important of all, they lacked food. In September, 1922, there were not less than 300,000 children on the verge of death from starvation. Foreign relief, Government activity, and the revival of free trade inside the country averted the worst of the evil, but the suffering of many children, in and out of the children's homes, was excessive. Many died, and a very large number were permanently injured. A good authority informed me that "all the children of the revolution"—that is, all children who were either very young in 1917 or have been born since that date—"are neurasthenic—interesting, but neurasthenic." But apart from this neurasthenia the effects of deficient feeding, of rickets, and of intestinal disorders caused by bad food, have left the mark of permanent injury on a great number of children. This injury may be compensated for by later developments, but it cannot be entirely obliterated.

Among the effects of this lower standard of life in 1922 must be counted the almost universal occurrence of scabies, *tinea tonsurans*, and *eczema*. There are also a very large number of cases of favus, and eye diseases are widely spread. Pediculosis is not to be mentioned, because it was practically universal in child and adult, as the typhus statistics showed.

The situation has had to be met by applying medical knowledge in a State-directed campaign which is already producing marked results. To begin with, certain difficulties and certain practical impossibilities have had to be recognized. In the first place, while I was not explicitly so informed, the principle of the communal children's home has apparently been abandoned, for it is stated that the number of children in such homes is now only 120,000, or less than half the child population of Moscow, and these children are spread all over Russia.

It was the original intention of the Government that all children attending schools, whether in a children's home or living with their parents, should be provided with clothing and food at the expense of the State. This plan has had to be given up, and neither clothing nor food is ordinarily so supplied.

There is the further difficulty of staffing a sufficient number of schools with teachers. Russia was extremely deficient in all trained personnel before the war—the Czarist Government being quite definitely opposed to the education of the masses—and the events of the revolution and civil war since then have made systematic training very difficult. The difficulty is complicated by the Government's policy of secular education, as a number of teachers refuse to teach unless they are allowed to give religious instruction, and in the villages the peasants, who are very superstitious, refuse to pay for education unless they are allowed to have a priest to teach their children. This conflict is not settled or likely to be settled for some time, and it will certainly have injurious effects upon education.

The actual lack of personnel and the further lack of institutions make it impossible for the Government at present to deal with the many abandoned children, orphans and others, who have collected around all the large towns in Russia during the period of war, civil war, revolution, and famine. The very large mass movements of population which have occurred have inevitably led to the formation of this strange and sinister class of wild human beings. It is estimated that there are four or five thousand of these children in Moscow itself. They live in the woods around the town, and employ themselves in selling, in begging, and in sheer vagrancy. At night they flock into the large railway stations to sleep. Numbers of quite young girls are to be seen in the streets, selling scent and other trifles, and they stay there very late at night. Some of them are becoming prostitutes at a very early age. All of these abandoned children are growing up without control and without schooling, and they will be a very serious problem indeed in the future.

The number of tuberculous and syphilitic children in Russia is unfortunately very considerable, but these are now being separated from normal children and dealt with in special institutions. Leprosy is also common in Russia, and children affected with leprosy or the children of lepers are now separated from the others. A mere enumeration of these problems shows the tremendous problems Russia has to tackle, but, although her technical equipment of personnel and of institutions is less than normal, a great measure of success is being attained. The Russian medical service is, of course, a very good one, and it has worked extraordinarily well, but it is certainly to be hoped that it will now get assistance from other countries in work which, after all, affects other countries materially, especially those which come directly into contact with the Russian frontiers.

The measures mentioned up to the present are mainly negative in character, but it required great courage to take negative measures in a country so enthusiastic for its own Marxist ideology. But practical constructive steps have been taken as well. At present a considerable number of children are receiving food from relief agencies of one kind and another. Meals paid for by money which comes from the Pope are at present nourishing 6,000; it is not a very large meal, but one containing sugar, milk, and fat, and a very large number of all town children are provided for in summer in the country by a State-organized system of camps or colonies. The children live in the sunny climate almost completely exposed to the air, the clothing of both boys and girls being usually only a small pair of drawers. In the climate of Russia this is sufficient clothing in summer.

For the treatment of skin diseases the Commissariat of Health is now proposing to set up *x*-ray installations in the Crimea, at Moscow, and at Kharkov for the Ukraine.

It is quite obvious under the conditions just indicated that school medical inspections such as are carried out in Great Britain are, if not impossible, at least very difficult. But there is a medical service engaged in the work. There are about forty school doctors in Moscow, of which the school population is about 300,000, and there are special school doctors in other large towns. In the villages the doctors responsible for the medical care of the district have been instructed also to inspect the children in the schools. Gradually, therefore, as the preliminary classification and segregation of well and diseased children is carried out, it will be possible to proceed to the treatment and care of the ordinary ailments of school life, such as are dealt with in England and Germany. Under existing conditions, however, it is not practicable for the methods used in England and Germany to be carried out in Russia for a considerable number of years to come. For one thing, a large increase in the number of doctors will be required, and as the

surgeon and the physiologist could easily be multi-ed, but I hope that those I have put before you may ffer and have some influence in promoting that close ercourse between surgery and physiology which is ential for the progress of both branches of science.

Listerian Methods in Surgery.

I have often wondered what difference it would have de to my own life if Joseph Lister had been elected to chair of surgery in University College in 1866, in-ad of John Marshall. It is easily the worst mistake that Council of the College ever made. The echo of the ction was remaining when I joined the College in the ter of 1866 as a very young student. I came to know rshall very well. He was a good friend to me and I had reat respect and liking for him. But he was the most nspiring teacher that I ever sat under. His systematic tures were desperately dull, and being given late in afternoon with a monotonous, musical utterance, most his audience were soon fast asleep: I was one of the epers! Nor was his clinical teaching any better. His erating was slow and the reverse of brilliant. Whether ever fully embraced Listerian methods—at the time I ned they were unknown outside Glasgow—I do not cer-nly know, but I much doubt if he did. He was not a ysiologist although he published a textbook of physiology, gely founded on his notes of Sharpey's lectures: I do t think it went through more than one edition. Lister's grapher speaks of Marshall as scientific and a good cher, but these are terms which I cannot endorse. had a charming personality, and as he was already the staff of the hospital he obtained the chair in ference to Lister, who had been many years away m the institution and was unknown both personally d through his work to most of the staff. John rshall became a Fellow of the Royal Society and Presi-nt of the Royal College of Surgeons. There is an ad-rable bust of him at Lincoln's Inn Fields. But Lister's me will be famous when Marshall's is forgotten.

It has always been a source of regret to me—as it must to all alumni of University College—that Lister's work s not carried out at his old school. But the fates lained otherwise, and to Glasgow and Edinburgh must conceded the credit of nursing the new surgery into orous existence. I believe it would have made a great ference in the rapidity of the spread of the new doc-nes if they had emanated from London. and Lister, no ubt, thought so himself, as his subsequent migration to ndon showed. The atmosphere of University College—if of the hospital—was distinctly scientific, and at any rate ongst his scientific colleagues he would have received encouragement. It was in 1866 that he applied for the pointment—less than a year after he had started his periments on antiseptics in Glasgow. According to rsley it was sixteen years (1882) before it was in eral use in hospital surgical practice in London. The nge occurred when Horsley was a student and long after own time. And if I have wondered what a difference would have meant to me, a mere physiologist, to have a surgical training under Lister, how much greater uld have been the difference to Victor Horsley if he come under the direct influence of this great scientific geon He would have been Lister's house-surgeon instead Marshall's, and how enormously he would have bene-d by the close relationship with Lister, and how keenly would have followed and assisted in his experiments, se who best know both men can appreciate!

It is easy to speculate on the "might have beens." Suffi-nt to know that as soon as he came into his own Horsley s foremost in his adoption of Listerian methods, and it s in consequence of this that that particular combina-of surgery with physiology which I chose as my t illustration of the mutual benefits they confer on one ther was effected. If Lister had come to University lege in 1866 I should have learned his methods from master himself, but I should have missed the oppor-nity of being associated with so delightful a colleague he whose memory we are assembled to-day to com-morate, and whose loss not only to physiology and sur-y, but to the whole world, will be felt for many a year.

An Address
on
CHRONIC INTESTINAL STASIS AND CANCER.*

by

Sir W. ARBUTHNOT LANE, Br., M.S., F.R.C.S.,
Consulting Surgeon to Guy's Hospital.

At present surgery and medicine appear to be one horrible mêlée of attempts to understand and treat end-results, little or no endeavour being made to obviate the development of these conditions. In surgery operations increasing in severity replace less extensive procedures; whereas in such a condition as ulcer of the stomach, while no attempt is made to remove the factors which produce it together with many necessarily associated results, the possibility of the recurrence of the ulcer is only eliminated by the removal of the entire organ. The safety with which such operations can be performed, and the ease with which a surgeon can acquire sufficient skill to effect them at comparatively little risk, tend to increase the number and severity of these operations. Everyone worships the god "technique," to the complete elimination of the importance of dealing with the causation, and therefore the prevention, of disease which should be our real object in life.

The profession is only just beginning to realize the enormous part played by the defective functioning of the gastro-intestinal tract, the consequent fouling of the food supply, and the poisoning and deterioration of the tissues by septic material absorbed from the intestine.

Diet of Civilized and Uncivilized.

That we pay dearly for the luxury we enjoy in our food and habits of life is shown clearly by the fact that civilization brings in its train a very large number of diseased conditions which do not exist in those leading the simple life of the native. That these conditions are all due to acquired defects in the functioning of the gastro-intestinal tract is, in my opinion, undoubted, since they occur at once in the native when he is placed in a civilized community; and it can be shown that these diseases bear a direct proportion to the degree of civilization enjoyed.

Roughly the difference between the civilized and the uncivilized is a matter of diet. While the latter eat much food that is uncooked or only imperfectly cooked and which contains a large proportion of indigestible matter, the former eliminate from their meals all but the digestible. By this means the bulk of the food and its stimulating action on the intestinal wall are diminished as much as possible and the material stagnates and becomes poisonous. As evidence of these statements I will quote an extract from a lecture by a great observer, Colonel McCarrison. He spent nine years in the Himalayas, during which time he had a large practice, performing more than 400 capital operations each year. During that time he never saw one case of asthenic dyspepsia, of gastric or duodenal ulcer, of appendicitis, of mucous colitis, or of cancer. I would call your attention to this sequence, all evidence of chronic intestinal stasis, since I am certain that cancer is the last stage in the sequence, and that it never attacks a healthy organ. The diet of these people is very simple. They live chiefly on corn ground between stones. This is made into a cake which is imperfectly roasted over a charcoal fire. They very rarely eat meat. Mr. F. L. Hoffman the eminent American statistician writes me as follows: "Your views regarding dietary or nutritional causation (of cancer) coincide with my own based upon extensive research among native races. I recently returned from a trip to South America, where I lived for seven

* Delivered before the Guy's Hospital Physical Society, October 12th.

Dividends and interest show an increase of £67 odd this year. The donations include the legacy of £2,000 left by the late Mr. Musgrave of Belfast, which has been invested, and £200 from the Carmichael Fund, also a donation of £10 from Dr. C. Holmes Denham, who has been elected as a life member. The revenue from all sources for the year, including the donations, is £3,549. The actual subscriptions show a decrease of £53 odd, being £540 as compared with £593 last year. The greater part of this decrease represents subscriptions from the various Dublin hospital students not received in time for audit. There is also a further amount of £277 income tax refund still outstanding.

Work of the Irish Benevolent Fund.

The Committee draws special attention to the amount of grants disbursed during the year—namely, £1,695 as compared with £1,215 last year, an increase of almost £500. The Osborne account shows a debit balance of £207, which has been advanced from the General Fund. The Committee thanks the British Medical Association for receiving subscriptions for this Fund amounting to £25 13s. 6d. The Central Committee places the following facts before its non-subscribing colleagues:

That the Society is a purely Irish one, administered by Irish medical men for the benefit of the widows and orphans of Irish medical men who have practised in the country. That the Central Committee in allotting grants rely upon the recommendation of the various honorary secretaries and subscribing colleagues who have local knowledge of each case, and the amount of relief given entirely depends upon the needs of the applicant and the available funds. That help given to those in distress is given promptly and is as much as the resources of the Society permit. That the number of non-subscribers receiving benefits amounts to 40 as compared with 41 subscribers. That the Central Committee have this year given £500 more than last year in grants on account of the great distress due to higher cost of living, that the bank balance at the moment is only £888 12s. 1d., and that even to continue the work next year £1,200 must be raised or the relief must stop.

The Central Committee appeal most earnestly to their non-subscribing colleagues throughout Ireland to consider the claims that this charity has upon them and to help by an annual subscription, however small. Seventy-five per cent. of the medical profession, in spite of appeals, does not subscribe, and so leaves the charity dependent upon the generosity of their colleagues, past and present. There are over 3,000 practitioners in Ireland, and 10s. from each would place this Society on a sound financial basis, and would so enlarge the grants allotted that relief to the distressed would be possible.

The report shows that the medical practitioners in Belfast and Dublin have, apart from their advantage in numbers, been the most liberal subscribers to the fund. The medical practitioners in the cities of Cork and Limerick have also done very well. Wexford has done the best of the counties; this county, in the matter of public subscriptions for medical objects, is indeed an example to all the boroughs and counties in Ireland. The grants from the fund are almost entirely made to the widows and orphans of the medical men who served in the Irish Poor Law medical services. This fact should, in many cases, be more generally appreciated by Poor Law doctors than is the case.

Presentation to a Dispensary Doctor.

On October 3rd, at Bannfield, Coleraine, Dr. J. T. Creery, medical officer of the Coleraine dispensary district, and medical officer of health for the urban district, was presented by his numerous friends with a new motor car, fitted with every convenience, as a recognition of his lifelong services to the community, and their gratitude for his unwearying labours and high professional skill, ever available for both rich and poor. Dr. H. S. Morrison, D.L., M.P., bore testimony on behalf of the medical profession to the high esteem in which Dr. Creery was held in their ranks, and to the gladness with which they joined in doing honour to one who had done so much for others. Dr. Creery has been medical officer in Coleraine for over forty years

England and Wales.

Health Propaganda in Yorkshire.

In connexion with the health propaganda that was carried on throughout the country during "National Health Week," from October 7th to 13th, a joint committee was appointed by the County Council and the Insurance Committee of the West Riding of Yorkshire. This, under the direction of the medical officer of health, Dr. J. R. Kaye, was very successful in bringing together in prominent association the curative and preventive sides of medicine. Addresses were delivered to school children by 142 medical practitioners in the West Riding, and where it was impossible for a medical practitioner to give an address it was delivered by the head master of the school. Outline notes for such an address were printed and circularized to those concerned, and "health cards" were distributed to the school children at the conclusion of the addresses, one being a scholar's "health creed" and the other an acrostic on the Health Week motto, "Self-help in health." Over 214,000 of these cards were distributed. Nearly 2,000 circular letters were also sent out to all clergy and ministers of religion in the West Riding, asking that in the course of the sermon to be preached on the Sunday of the week some reference should be made to the subject of health.

Annual Medical Service in Liverpool.

The Bishop of Manchester, Dr. W. Temple, preached the sermon at the annual medical service at St. Luke's Church, Liverpool, on October 14th, before a large congregation. The Lord Mayor and Lady Mayoress attended in state, and the vice-chancellor of the University, Dr. Adami, and many medical men of the city and neighbouring districts in academic robes, were present. The service was conducted by the vicar of St. Luke's, and the lesson was read by the archdeacon. The sermon was based on the meaning of life and the mystery of evil. Four strata might be distinguished, he said—matter, life, mind, and spirit—and these were all correlated. Each stratum required the one above it to reveal and develop its own possibilities, while each of the higher strata needed the lower ones to enable it to exist at all. Evil was merely evil until it had been made the occasion for the moral victory that triumphed over it, and then it became an element in good. The meaning of life was the continual progressive victory of the higher over the lower elements. The healing of men's bodies and the healing of men's souls could not be separated. More and more were we learning how interdependent they were. In devoting itself to the healing art the medical profession was an example to most of those who served in other ways. Through self-forgetfulness and self-dedication the conflict with evil in all its forms rendered man a partaker of the divine nature and co-operator in the activity of God. The offertory was made on behalf of the Royal Medical Benevolent Fund, and amounted to £51 4s. 4d. The honorary treasurer, Dr. J. Ernest Nevins, 32, Princes Avenue, Liverpool, would gratefully acknowledge any further donations from those who were unable to be present at the service.

A new sterilization law was passed by the last session of the legislature of the State of Oregon, U.S.A., setting up a State board of eugenics, comprising the State board of health and the superintendents of the two State hospitals for mental disease, the State institution for the feeble-minded, and the State penitentiary. The superintendents of these institutions are required to report to the board quarterly the cases of all persons who are feeble-minded, insane, epileptic, habitual criminals, moral degenerates, and sexual perverts who are likely to become a menace to society. If, in the opinion of the board, the condition of the person is unlikely to improve and procreation would produce children with inherited insane, epileptic, criminal, or degenerate tendencies, the board shall specify the type of sterilization to be performed; the person may select his own surgeon, subject to the approval of the board.

bowel also causes an inflammation of the appendix, which is frequently anchored and obstructed by acquired adhesions of the mucous membrane of the colon, producing colitis in its various degrees and forms. The appendix is often so secured as to control the ileal effluents and to increase the stagnation of the material in the small intestine.

Its Toxaemic Results.

Besides these mechanical results of stasis, the sequence of which is quite obvious, we have those which are consequent on the fouling by organisms of the dammed-up contents of the small intestine of the duodenum, and even of the stomach, with the extension of the infection along the hepatic and pancreatic ducts which produces gall stones and cancer. The mode of extension of the infection in these is as apparent as the mechanical changes.

The next series of changes we have to consider are those which come about by the absorption from the infected contents of the gastro-intestinal tract of more toxins, etc., than the liver is able to deal with. These noxious substances getting into the circulation are carried to every organ and tissue in the body and produce disastrous results in proportion to the degree of the toxicity of the blood.

The degenerative changes in the thyroid, adrenal, and other ductless glands, the heart and blood vessels, the nervous system, the eyes and ears, the kidneys, liver, pancreas, uterus, ovaries, testes, prostate, breast, fat, skin, hair lymphatic tissue of the naso-pharynx, and the gums and teeth—these two last being the most frequent and conspicuous of all—I have frequently described in detail, and I have shown how liable certain of these degenerated organs, such as the breast, uterus, ovary, and pancreas, are to be infected with cancer.

Among the nervous symptoms may be mentioned intense headache, neuritis, neuralgia, sleeplessness, misery, complete mental and physical prostration, melancholia, epilepsy, disseminated sclerosis, delusions, and dementia praecox.

Besides these changes, which are the direct result of the supply of toxic blood to the tissues, we have a number of infections which occur because of the inability of the degenerated tissue to withstand their inroad. These infections are all of such a nature as to be unable to obtain a foothold in a normal healthy subject.

Cancer never Affects a Healthy Organ.

Perhaps the most conspicuous at the present moment is cancer. In every case in which I have had an opportunity of verifying it I have found that the cancer patient was suffering from chronic intestinal stasis and that the infection by cancer was an indirect consequence of this condition.

If this assumption is correct it is obvious that to prevent the development of cancer it is necessary to obviate these changes which result in the gastro-intestinal tract from the diet and habits of civilization. That an enormous amount of benefit and a corresponding freedom from cancer has been obtained by the use of paraffin is in my opinion undoubted. I started to employ paraffin when I recognized the mechanics of chronic intestinal stasis, and have used it in every case since, as it would have been impossible and unnecessary to operate on all patients suffering from this disability. Its usefulness is also confirmed by the extraordinary manner in which it has spread over the whole world. I doubt whether any other material or drug has ever given anything like the same comfort and security from disease that it has. By its use the irritation and harm which result from the action of a purgative are avoided, while it acts on the principle of the flushing tank, rendering the motion soft and ensuring two or three free actions a day.

The other diseases that affect the subjects of chronic intestinal stasis are rheumatoid arthritis, Still's disease, tubercle, Raynaud's disease, many splenic affections, ulcerative colitis, many skin diseases, diabetes, ulcerative endocarditis, gout, etc.

Prevention of Stasis.

Our chief interest at the present time is to prevent the development of chronic intestinal stasis and so to obviate the development of the several conditions which are due directly or indirectly to its presence, of which latter group cancer interests the public particularly because of its frightful mortality and the physical and mental anguish so frequently associated with it.

How is this to be done? It can only be effected by a complete revolution in our diet and in our habits of life. We must assimilate them to those of the natives, among whom the entire stasis sequence is unknown. How this can be done with as little sacrifice of the pleasures of the table must be investigated by dietetic experts, to whom the problem should not present insuperable difficulties. It must necessarily be a compromise, but the more thoroughly we approach the conditions of primitive life the more successful shall we be in avoiding the incidence of a very great number of diseases.

Roughly, it would seem that the diet should consist as much as possible of vegetable matter, that it should be consumed largely in a raw state, to avoid damage to vitamins, that coarse indigestible material be retained in order to increase the bulk of the intestinal contents and their stimulating action on the reflexes, that food which if kept becomes offensive and poisonous should be eliminated as much as possible, and that the consistence of the faeces be diminished, and the frequency of their evacuation increased.

Simple Operative Treatment.

So much for the prevention of stasis. As to the treatment of the existing condition apart from medical treatment by a Curtis belt, paraffin of high viscosity, kaolin, and abdominal exercises, all operative measures on any portion of the gastro-intestinal tract should be started by an examination of the last kink, and by the careful freeing of this bowel from its acquired attachment to the iliac fossa. This requires to be done thoroughly, and when the mesentery has been restored to its normal length and the bowel to its normal freedom any raw surfaces of mesentery must be *accurately covered by peritoneum* to obviate any recurrence.

Perhaps of all operations in surgery this procedure alone is followed by the most wonderful effect. The whole condition of the patient is transformed and he is rapidly restored to vigorous health. After all this is not surprising, since it is because of this obstruction that all the other changes in the gastro-intestinal tract, whether mechanical or tonic, ensue.

To my surprise I have on very many occasions secured the same advantage by this simple operation that I have previously obtained by colectomy at a considerably greater risk. Because of the remarkable results which can be obtained by this procedure I am anxious that its value should become recognized.

Having dealt with the last kink the colon should be examined to make sure that no secondary constriction has developed, and particularly in the region of the splenic flexure. Any acquired band found controlling the lumen of the bowel should be divided carefully, avoiding leaving any raw surfaces deprived of peritoneum. An inflamed or controlling appendix in an ileal kink should be looked for, and dealt with if present.

I do not propose to discuss the surgery of ulcer of the duodenum and stomach, but I would like to state that the duodenal distension, pyloric spasm, and gastric dilatation disappear very rapidly after this simple procedure. I hesitate to say what I believe to be the case of its effect upon duodenal and gastric ulcers till I have been able to confirm my views by a much larger experience, but I am convinced that the employment of the common-sense measures I adopt will reduce very materially the frequency and severity of operations on the upper portion of the gastro-intestinal tract, and will free the sufferer from a large number of the consequences which ensue directly and indirectly from chronic intestinal stasis and from the auto-intoxication which results from it.

that so commonly used by the patients we operated on, and who were for the most part not strict vegetarians.

It is practically impossible in the case of a village population, such as one has to deal with in India, to frame anything like accurate statistics. The majority of the patients are not seen again after they leave hospital, but quite a number were seen three to five years after operation, still in good health.

I am glad to record that I saw two cases upon which Mr. Fells had operated for cancer of the lower jaw, the one nineteen, the other eleven years previously. Both were quite free from disease. I also saw a case of total excision of the tongue for cancer, done by the same surgeon eighteen years previously, with no sign of recurrence of disease.—I am, etc.,

Selhurst, S.E.25, Oct. 15th. JAMES DAVIDSON.

SIR,—Similar experience in Travancore to that of Mr. R. L. Spittel in Colombo leads me to corroborate entirely his description and conclusions. The habits of Travancoreans in the matter of betel chewing evidently agree very closely with those of the people of Ceylon, the usual quid consisting primarily of a betel leaf smeared with lime with in most cases some country dried tobacco and a fragment or two of areca nut. The use of the lime-smeared leaf begins commonly in youth, the tobacco being often, I fancy, a little later addition, the habit becoming eventually one almost impossible to be broken, even when its dire local effects begin to be noticed.

Having recently left India after twenty-one years' charge of the Salvation Army hospitals in Travancore I cannot now refer to actual records and statistics, but at the Catherine Booth Hospital of 72 beds in Nagercoil we practically always had a case or two in, and I have sometimes operated on three or four in a week, after having to turn away others as too far advanced even to render justifiable a merely palliative removal to get rid of a foul, painful mass rendering food-taking difficult and life almost insupportable.

As Mr. Spittel says, the almost invariable beginning is leucoplakia of the cheek opposite the molars and pre-molars, and I think more frequently on the left side, which I have noticed to be the more favoured side in practice for the keeping of the quid; the actual growth commences usually at or behind the centre of the leucoplakial patch, so that one may find this appearance reaching practically to the angle of the mouth or further, perhaps an inch in front of the epitheliomatous lump. I should say that the common age at which patients presented themselves was in the late forties and the fifties, but I have seen it in a woman as young as 35, and I think once a little younger. Once formed, the growth tends to spread centrifugally, generally reaching the lower sulcus and then the gum and alveolar process before the upper, and spreading forwards, I think, more rapidly than backwards. After a time it burrows towards the skin surface, finally going on to involve the skin.

The glands are not noticeably involved very early, the first palpable being discrete and mobile, and perhaps due rather to the septic state of the mouth with the frequently coexistent pyorrhoea and tartar, than to commencing secondary epitheliomatous involvement (which, however, surely follows), the first gland notable to palpation being generally situated under the edge of the jaw, beneath the first molar tooth. At a later stage gland involvement below the mastoid process appears and this sign has come to mean to me the absolute bar to any attempt at removal, appearing particularly to go with deep involvement of the pterygoid region, rendering even an apparently clear margin out of the question.

Recurrence generally occurs far back or else along the line of healing on the buccal surface. In cases where, the jaw having been affected, the cheek growth, half-jaw and glands beneath have all been removed *en masse*, further glandular involvement is not usual, but in one or two cases where the extremely local character of the cheek growth and the absence of any palpable glands have led me to leave the neck alone, I have seen very rapid involvement of the neck glands, far surpassing in rapidity and amount the usual course with a primary growth *in situ*, as if, perhaps, the combined influence of the cancer cells absorbed before or liberated at the time of operation and the absorption of inflammatory products from the healing mouth wound produced a far greater effect than either would have done separately.

In cases where the primary growth seems local and removable I have come to favour strongly the method that I see Mr. H. J. Paterson suggested in general at the Section of Surgery at the Annual Meeting, and has practised in particular on a series of cases of cancer of the tongue—namely, to remove the primary growth first and the glands some weeks later, after they have had time to "intercept any cancer cells left behind in the wound, acting indeed as Nature's wound scavengers" (September 29th, p. 557).

I do not think that Dr. John Campbell's theory of infection "by a hand contaminated by soil" is at all borne out by the probabilities of the class of cases we are considering, in which event cases should be far more numerous both in gross and in proportion amongst those who labour on the land; I should say that, if anything, more cases, both numerically and certainly proportionally, would be found among the non-agriculturists, who, having more leisure and money, in many cases chew the more. Cases, for instance, are quite common amongst the Brahmins, who neither sow nor reap in the agricultural sense.

In conclusion I may say that while cases of this form of cancer are common amongst chewers of betel, there is in Travancore, and I suppose in Ceylon, a minority of people who do not chew: I have never seen a case of the kind in a non-chewer.—I am, etc.,

London, N.19, Oct. 15th. PERCY E. TURNER, M.D., B.S.

THE TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

SIR,—I am greatly indebted to Dr. Watts (October 13th, p. 680) for supplying additional facts concerning M. Spahlinger and his method of treatment; but the point is, why has not M. Spahlinger placed his discoveries before the medical and scientific world?

Dr. Watts states that there is no secrecy about the preparation of the serums and vaccines, yet this statement is at variance with the report of the Chief Medical Officer to the Ministry of Health. This report affirms that the technique adopted in the preparation of the serums and vaccines remains undisclosed, and goes on to say that an offer was unofficially made to M. Spahlinger for a medical committee to investigate his method of treatment, but he was unable to accept this offer in spite of the fact that he would not be required to divulge his technique of preparation.

Why did not M. Spahlinger accept this offer, especially as he had 400 cases already treated?

I do not think the medical profession is prejudiced against him just because he is not a medical man. It is because he fails to disclose his technique, and if his treatment is all that he claims for it then it is his duty to suffering humanity to place that technique before the profession. Moreover, if his financial situation is such that he cannot proceed with the preparation of his serums and vaccines why has he refused offers of several hundred thousand pounds, just to reserve to himself the exclusive rights of this method of treatment?

I think the Ministry of Health acted very fairly towards M. Spahlinger, and it does not redound to his credit that he did not avail himself of the opportunity then placed before him of demonstrating the efficacy of his method of treatment, or on the other hand of supplying the information necessary for the proper preparation of the vaccine by bacteriologists more favourably situated than himself. Could he not be induced to publish his technique? It would not detract one iota from his reputation, for in all probability his name would always be associated with this method of treatment, and should the results be successful so much the more would he be esteemed.—I am, etc.,

GEORGE W. CHEATER, M.B., D.P.H.

Whipps Cross, E.17, Oct. 15th.

e set out to deal adequately with the question of cod-liver therapy in rickets much would have to be said. I will ntent myself with mentioning such facts as bear directly the vitamin question. Since the work of Hess and Unger negro children, and that of Mellanby on dogs, further d conclusive evidence has been gathered to prove that cod-er oil is a prophylactic against rickets. Its influence in s respect is indeed most remarkable. It was the confirmed lief of many physicians, especially of the French school, d this long before the experimental era which we are nsidering, that cod-liver oil could also cure the disease, d at the moment I think almost everybody believes that curative power is considerable. The question arises, wever, as to what is the active agent in the oil. ellanby's evidence seemed to show that it might be vita-n A, though he himself did not dogmatize on this point. rtain it is that if the curative factor be not vitamin A distribution in fats and other materials is closely similar that of the said vitamin, and when the latter is con-ntrated by fractionation of cod-liver oil the antirachitic ctor is found in the same fraction (Zucker, Johnson, and rnett). Nevertheless, as you are to hear, it is now likely at the two are not identical. It will be convenient, there-re, if for the moment I speak simply of fat-soluble tamins.

In the years 1920-21 several observers, too numerous quote, reported failures to obtain definite experimental kets in animals as the result of simple deprivation the vitamin or vitamins associated with fats. They did tain, however, osteoporosis of the bones, indicating that the absence of such vitamin or vitamins the body cannot al normally with its mineral supply. There was nothing rprising in the failure to produce true rickets under these nditions. As Mellanby pointed out long ago (having to cognize the circumstance as a factor in his own experi-ents), typical rickets, showing the classical changes in the alfying cartilages, is essentially a disease of growth. If e animal does not grow the typical histological changes e not developed. Now the vitamin A, because of some fluence exerted in the body much more general than any ect upon ossification, is essential to growth: hence a mewhat remarkable impasse for the experimentalist. ere are suggestions that a fat-soluble vitamin prevents kets, but when the point is tested in what should be the arest type of experiment—that is, one in which the diet made wholly free from any such factor—the circumstance t mentioned intrudes. There is no growth, and there-re no rickets. It would seem as if either the presence absence of a vitamin prevents rickets! This is not e paradox it seems. In the first place it is, as you ll admit, quite an artificial though clinically convenient stom to treat a disease like rickets as an entity. If, how-er, we do this and give the disease a name, clinicians are rhaps justified in insisting that certain accepted criteria, ipirically chosen, must all be present when we claim to ve established the disease experimentally. Now in order at faulty diets should establish typical rickets in this sense is necessary that there should be a certain quantitative lance among the factors concerned. No one has recog-zed this more clearly than Mellanby. It is, indeed, a int upon which he more than any other has insisted, ough it is emphasized by much recent work. But since are considering vitamins and their general influence on e body the significant thing is that in the absence of some ch factor the mineral metabolism as well as other aspects metabolism is abnormal. This is seen in the diminished position of calcium in the bones even when the classical ture of rickets is absent. It is noteworthy, moreover, at bone changes due exclusively to the absence from the d of vitamin-containing fats may after all, in certain imals, upon diets suitably balanced, assume the typical pearances of rickets.

The pioneer work of Mellanby upon dogs was followed good deal later by that of Korenchevsky upon rats. This thor found that, providing the deficiency were ade sufficiently severe—for instance, when the mothers well as the offspring were deprived of the specific ctor—the young developed a condition in all respects milar to rickets. I wish I could devote more time to Korenchevsky's interesting work, which should be studied by all who wish to appraise properly the available evidence concerning the point at issue. Goldblatt has extended the work and has shown that in the case of young rats which, by suitable feeding of the mother, are made to start life with an abnormally small store of the fat-soluble organic factor, grading the amount of that factor in their diet results in a corresponding grading in the amount of calcium deposited in the bones.

I have already pointed out that Mellanby has never asserted that the antirachitic factor present in certain fats is identical with the vitamin A, but only that its distribution is similar. In 1922 the results of some observations were published by McCollum and his colleagues which go to show that the vitamin necessary for the maintenance of growth and the prevention of keratomalacia is distinct from that which controls the proper deposition of calcium. The former is vitamin A; the latter, though it certainly comes under the only available definition of a vitamin, being a food constituent potent in minute amounts, we may with Edwards Park call the antirachitic "X." The proof of this distinction was obtained by oxidizing cod-liver oil by means of a current of air. This, as I myself showed a few years ago, results in the destruction of vitamin A. The American authors found, however, that after such treatment the oil, though it always fails to support growth, is still potent as a prophylactic against rickets. The antirachitic substance is less easily oxidizable than the growth vitamin. When we learn further how to destroy the former while leaving the latter intact no one will need to face the experimental difficulties earlier discussed.

Whatever may prove to be the actual nature of the mechanism whereby an organic factor in food promotes the deposition of lime salts in the body—for in some sense the specific substance under discussion most certainly exerts such an influence—it is clear that for proper calcification there must be in the food a sufficiency of lime itself. Moreover, since in the bones lime is present as phosphate, there must also be for proper bone formation a sufficient supply of phosphoric acid. A great deal of experimental work, old and new, has been done to elucidate the effect of reducing the supply of these constituents to below the minimum, or below the optimum. An actual deficiency of the kind can scarcely occur in practice however. The results do not concern us except in so far as variations in these inorganic constituents elucidate the influence of the vitamin factor. Interesting work, however, has been done by the school of McCollum which has such a bearing. It has been shown, for instance, that rickets occurs on a diet which is adequate in respect of lime, but, while deficient in phosphoric acid, is also deficient in the antirachitic vitamin. Further, a diet adequate in respect of phosphoric acid, but deficient in lime and the organic factor, will produce rickets. This work has also established in an interesting way the necessity, for the prevention of rickets, of a proper proportion between the calcium and the phosphorus in the food. What is of chief importance to the present discussion, however, is the evidence brought forward that a sufficiency of the vitamin is able, within limits, to correct a deficiency of calcium or of phosphates in the diet or a faulty balance of these two. If the deficiency in the inorganic constituents is large the amount of the organic factor required to ensure normal growth of the bones is found to be much in excess of that needed when calcium and phosphorus are supplied at the optimum. In the latter case a supply even of butter (which has but a low content of the antirachitic factor) will prevent symptoms; while in the former case cod-liver oil may prove necessary. Goldblatt, indeed, has found that with an adequate (though less than optimal) calcium supply butter in reasonable amount will secure normal calcification of the bones as fully as an optional quantity of cod-liver oil.

If anyone will survey and fairly appraise the literature of the last three years dealing with rickets as induced experimentally in animals, I do not think he can fail to admit that it strengthens Mellanby's original claim

who lived in Dovedale, was a fishing friend of Izaak Walton. He leaves five children. His eldest son is Sir Michael Sadler, Master of University College, Oxford, and his second, Dr. F. J. Sadler of Barnsley.

The death is announced at Marley, Garmouth, Morayshire, of Dr. William Geddie, who was for forty-four years a well known medical practitioner at Accrington, Lancashire. He received his medical education at the University of Aberdeen, and graduated M.B., C.M. in 1874 and M.D. in 1886. After a brief period in Rossendale he went to Accrington, where he speedily established an extensive general practice. Devoted to his profession, Dr. Geddie was recognized as a most able practitioner, and the greatest confidence was reposed in him. He held many public appointments, and for more than twenty-five years was police surgeon for the borough. He was a member of the honorary medical staff of the Victoria Hospital, Accrington, from its foundation in 1896, and on his retirement from the active staff he was appointed consulting surgeon. During the war he acted as medical officer to Baxenden Red Cross Hospital. He was an old member of the British Medical Association. Dr. Geddie was twice married, and is survived by his widow and by four sons, two of whom are members of the medical profession.

Dr. John Lyell Smirthwaite-Black, who died at Burnley on September 20th, was a native of Fife, and received his medical education at the University of Edinburgh, where he graduated M.B., C.M. in 1881. His father, the late Dr. Black, was a medical practitioner in Burnley, who died in 1886, and the name of Smirthwaite was assumed by Dr. Smirthwaite-Black when he married the widow of the late Dr. Smirthwaite in 1889. He was a member of the Burnley Borough Council for over fourteen years from 1889, but otherwise took little part in public life. He had a cultivated taste in literature, and was devoted to his hobby of rose-growing. He is survived by his widow.

Dr. Harold Mowat, radiologist to the Government of the Federated Malay States, died at Kuala Lumpur, the capital of those States, on August 21st, aged 40. He was educated at Manchester and Edinburgh Universities, and graduated in the latter as M.B. and Ch.B. in 1905, and as M.D. in 1907. After acting as house-surgeon of the Royal Surrey County Hospital at Guildford he took up radiology as a specialty, and had filled the posts of clinical assistant in the *x*-ray and electricity departments at Charing Cross Hospital, medical officer in charge of the same departments at the Metropolitan Hospital, and radiologist of the Royal Chest Hospital in City Road, London, and of the Hampstead and North-West London Hospital. He took a temporary commission in the R.A.M.C. on November 2nd, 1914, and served as radiologist in No. 17 General Hospital and in No. 12 Indian General Hospital, and also served for some time as surgeon in the Royal Navy. He had only recently taken up his late post.

The Services.

TERRITORIAL DECORATIONS.

The Territorial Decoration has been conferred upon the following officers of the R.A.M.C. (T.A.) under the terms of the Royal Warrant dated October 13th, 1920: Colonel P. B. Giles, C.B., F.R.C.S., V.D. (ret.); Lieut.-Colonel F. Darlow, Major H. Henry, *M.C.*, and Major J. E. N. Ryan.

DEATHS IN THE SERVICES.

Surgeon Colonel William Thomas Martin, Army Medical Staff (ret.), died at Bournemouth on September 15th, aged 81. He was educated at Queen's College, Galway, where he graduated B.A., gaining the gold medal, in 1859, and M.D. in 1862, both being degrees of the late Queen's University; he took also the L.R.C.S.I. in the latter year. In 1882 he graduated M.A. of the Royal University of Ireland, which had taken the place of the Queen's, and in 1920 received the degrees of M.A. and M.D., *ad eundem*, from Belfast University. He entered the army as assistant surgeon in 1863, and served under the old regimental system in the 45th Foot, now the Notts and Derby Regiment, or Sherwood Foresters. He attained the rank of surgeon colonel on June 6th, 1893, and retired on September 2nd, 1896. He served in the Abyssinian war of 1867–68, when he was present at the capture of Magdala, was mentioned in dispatches in the *London Gazette* of June 30th, 1868, and received the medal; and in the Burmese war from 1885 to 1887, receiving the Indian Frontier medal with a clasp. In 1876–77 he was surgeon to the Governor of Madras, and afterwards, in 1880–82, was on the staff of the Royal Victoria Hospital and Army Medical School, Netley.

Universities and Colleges.

UNIVERSITY OF OXFORD.

Degree Days.—The remaining degree days in the present term are: Thursday, November 1st, Saturday, November 17th, Thursday, November 29th, and Saturday, December 15th.

UNIVERSITY OF CAMBRIDGE.

At a congregation held on October 13th the following medical degrees were conferred:

M.D.—W. F. R. Castle, H. A. Williams.
M.B., B.Ch.—W. G. Woolrich.
M.B.—A. B. Bratton, E. C. Curwen.
B.Ch.—F. E. Higgins, S. Orchard.

UNIVERSITY OF GLASGOW.

The following degrees were conferred on October 15th:

M.D.—*J. N. Cruickshank, *D. M'Alpine (*in absentiâ*), †J. M'C. Lang, †Alexandrena M. Maclennan, †C. L. Sutherland, †W. Telfer, K. Falconer, A. Fraser, H. J. Macbride.

M.B., Ch.B.—*B. G. Ives, *D. L. Pow, *A. S. Henderson, †A. Meiklejohn, †Janet M'L. Stewart, †A. M. Girvan, †M. Cohen, †J. M. Henderson, †J. M'K. Fleming, †P. Shannon, †Monica M. Bateman, †J. Gibb, †T. W. Hill, †A. M'Lellan, J. H. Adam, J. R. B. Alexander, S. M. Allan, C. P. Allan, Isabella D. Anderson, M. C. Bain, Margaret A. Barr, O. F. Barr, H. Baxter, J. B. Bell, J. S. Bizzett, J. D. Black, R. Black, C. C. Blair, H. W. Bowyer, Marion C. Boyd, W. Brown (Ardrossan), W. Brown (Glasgow), W. M. Brown, A. Browning, T. W. Buchan, I. M. Burdon, A. B. Burns, J. B. Bushe, Isabella E. Campbell, P. A. Carrie, Evelyn L. Caskey, D. L. Charters, Isobel M. Chisholm, G. Cochrane, S. R. Costley, W. Craig, G. M. Currie, Lucie Leon van Dam, A. F. Davidson, Elsie B. Dickinson, J. L. [illegible] J. Fleming, Anne M. Forrest, J. C. [illegible] Ibraith, E. J. M. Gallagher, J. E. Geddes, [illegible] S. Gilbert, J. D. Glaister, A. D. Gowans, Mary J. L. Gracie, G. F. Graham, J. W. Graham, Christina Grant, R. Haddock, A. Hamilton, J. Hamilton, W. H. Hay, D. Henderson, J. Henderson, N. P. Henderson, E. Holmes, W. A. Horne, Jennie C. Hunter, T. M. Hunter, Sara Jacobs, R. J. Jarvie, D. P. K. Jockel, M. Joels, J. M'Q. Johnston, J. S. Kamester, W. Kelm, J. A. Kerr, M. Laidlaw, J. Laurie, Agnes A. Lawson, J. C. Lindsay, Flora Livingstone (Mrs. R. N. MacDonald), A. Logan, M.A., A. Logan, Daisy B. M'Bride, Alexandra M. MacCormick, Agnes M'Creadie, H. M'Crorie, A. W. M'Culloch, Eileen M. M. Macdonald, Isobel C. Macdonald, S. R. M'Dougall, A. M'Glashan, Cecilia M'Guiness, D. G. S. Mackay, Mary L. M'Kay, T. S. M'Kean, Euphemia D. Mackenzie, J. C. H. M'Kenzie, P. L. M'Kinlay, W. W. Mackinlay, J. M'Laren, Margaret B. M'Lellan, A. M. Macleod, Catherine M. Macleod, M. Macleod, N. MacLeod, N. C. Macleod, Grace M'Lintock, Margaret J. M'Pherson, May Marshall, Margaret M. U. Martin, R. D. Martin, E. E. Miller, D. M. Mitchell, J. J. Mitchell, Marjorie H. Mitchell, G. Montgomery, A. Morrick, Leah Morris, J. G. Munro, M. Murchison, T. J. Murray, R. Naftalin, Gertrude M. Neale, T. C. H. Neil, J. Ordansky, M. Orr, G. A. Pollock, T. G. Rankine, L. Reid, Margaret G. Reid, Annabella Rennie, J. Rennie, S. Revels, Kathleen M. Riddle, H. Rinn, D. Robertson, W. M. Robertson, Florence M. Robinson, Alice Rosenblatt, A. W. Ross, A. Russell, Georgina Russell, J. M. Sclater, A. C. Scott, S. C. Scouller, N. S. Setton, W. C. Sharp, H. J. Sheppard, A. Sheridan, J. S. I. Skottowe, C. C. I. Slorach, R. McD. Smellie, Elizabeth C. Smith, M.A., Mary S. Smith, Olive M. Somerville, S. M. Steel, Enid G. Stevenson, L. Stevenson, Mary Y. M'A. Stevenson, W. L. Stewart, Margaret E. Stobo, A. J. Struthers, G. Struthers, Nora Surtees, A. Sutherland, W. D. Sutherland, W. S. Syme, Annie V. Taylor, W. M. P. Taylor, T. Tennent, D. F. S. Thomson, J. Masterton Thomson, J. Meason Thomson, M. L. M. Thomson, Ann W. Turnbull, A. R. Waddell, J. Walker, R. Walker, H. C. Wallace, J. A. Waterman, J. N. Watson, W. H. Watson, W. T. Westwood, J. Wilkie, Anne C. Wilson, H. E. C. Wilson, W. B. Wilson, J. Wingate, Margaret E. Wylie, J. S. Young, Jean L. Young.

John Stirling Young, M.A., B.Sc., M.B., Ch.B., who graduated on April 21st, 1923, gains the Brunton Memorial Prize of £10, awarded to the most distinguished graduate in medicine of the year.

* With honours. † With commendation.

UNIVERSITY OF ST. ANDREWS.

During the ceremonies connected with the installation of Mr Rudyard Kipling as Lord Rector of St. Andrews University last week the honorary degree of LL.D. was conferred upon Sir John Bland-Sutton, President of the Royal College of Surgeons of England, and consulting surgeon to the Middlesex Hospital.

At the graduation ceremony held on October 5th the Vice Chancellor, Principal Irvine, inducted Professor Adam Patrick to the Chair of Medicine, and Professor John Read to the Chair of Chemistry. The following medical degrees were conferred:

M.B., Ch.B.—M. K. Afridi, C. R. Baxter, T. F. Black, N. T. B[illegible] W. F. Dorward, E. Douglas, A. A. Finnigan, J. R. Graham, L. [illegible] Johnston, J. A. G. Keddie, G. D. Laing, J. P. Laird, V[illegible] F. M'Lagan, J. R. Murray, N. Nelson, P. C. Robertso[illegible] J. O. Stephen, G. J. Sturrock.

THE REGULATING AND REFLEX PROCESS.*

BY

P. T. HERRING, M.D.,

PROFESSOR OF PHYSIOLOGY, ST. ANDREWS UNIVERSITY, AND PHYSIOLOGIST TO THE ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH.

PART IV.—NERVE CENTRES: THEIR CONSTITUTION AND SIGNIFICANCE.

THE term "nerve centre" is applied to a collection of nerve cells in the central nervous system which are associated together in the performance of some particular function. The term is a very elastic one and is used to denote a number of different conceptions. Its very elasticity makes its use convenient, but the term lacks precision and is apt to obscure the conditions which really exist. The nerve cell is only a part of the neurone, and its axis cylinder, its more important element in conducting the nerve impulse, may extend to great distances from the cell body. The term ascribes to the cell body of the neurone an importance which the facts do not warrant.

A collection of nerve cells—the cytons or cell bodies of the neurones, which give origin to an efferent nerve—is known anatomically as the nucleus of the nerve. It may also be termed an efferent nerve centre, and the neurones of which it is composed carry nerve impulses from the central nervous system to the rest of the body. The anatomical nucleus of the afferent nerve presents an important difference. It also lies in the central nervous system, but its cytons do not give origin to the peripheral afferent neurones, and are always separated from the latter by synapses. The cells of origin of the afferent neurones are found in the ganglia of the posterior nerve roots of the spinal cord and in the corresponding cranial ganglia. The impulses they receive at the periphery are carried into synapses before they reach the neurones of the afferent centre, and are therefore liable to all those influences which the synapse is capable of exercising.

The efferent neurones not only innervate certain structures in the periphery but also exert some kind of nutritive influence over them. If they supply voluntary muscle, that muscle fails to develop properly if the efferent neurone does not also develop, and injury to the neurone or centre leads to secondary changes in the muscle of a retrogressive nature The afferent centre, on the other hand, is separated from the peripheral afferent neurone by an irreciprocal synapse, and is therefore unable to exercise any control over the peripheral neurone. Injury to the afferent centre may leave the peripheral neurone intact and able to maintain the nutritive functions it possesses by its axon reflexes.

Anatomically, therefore, there may be an afferent or receiving centre and an efferent or distributing centre in a reflex arc. But the reflex does not necessarily require either of them, the axon reflex being an example. In other cases there may be no afferent centre. There is evidence that in a deep tendon reflex, such as the knee-jerk, the afferent nerve impulse is conveyed directly to the peripheral efferent neurone, and there is only one synapse in the reflex arc. In the majority of reflex arcs more than two neurones are concerned, and consequently there is more than one synapse in the chain. An example of a nerve centre in which there are many neurones concerned is furnished by the cerebellum. The cerebellum is essentially an afferent centre which receives nerve impulses from proprioceptors in the body. The nerve impulses have passed through at least one synapse before reaching the cerebellum, a fact of very great importance, because opportunity is thereby afforded for the spread of the impulse to other pathways, with the resulting production of pain and other phenomena. The afferent centre in the cerebellum is in turn able to excite efferent neurones, the cells of Purkinje, which distribute the impulses to efferent neurones in other parts of the nervous system. The reflex through the cerebellar arc is therefore an example of one in which there are a number of neurones and synapses concerned. Reflexes through the cerebrum appear to be carried over even more complex arcs, and the possibilities of spread of the nerve impulse, and of its inhibition or diversion into other pathways, is correspondingly greater.

CONSTITUTION OF NERVE CENTRES.

Physiologists employ the term "nerve centre" to denote collections of nerve cells in the central nervous system which are associated with the co-ordination of some definite physiological function. The anatomical units of which they are constituted are not always definitely located, and in some cases the centres are assumed to be present in certain positions although their very existence may be hypothetical. The heat-regulating centre is said to exist in the corpus striatum, and to control the nervous processes which regulate the production and loss of heat by the body. The centre is supposed to be directly influenced by the temperature of the blood in the blood vessels in its vicinity. If such action does occur it is unlikely that the body of the nerve cell in the centre is the site of stimulation by the change of temperature. It is possible that there are in it special receptors which are stimulated by changes in temperature, but far more likely that the synapses are the parts affected. To say that the centre is controlled by the temperature of the blood circulating through it is no explanation of where and how the action takes place. Variations in the resistances of the synapses in the centre as the result of changes in temperature afford a working explanation.

The same ambiguity attaches itself to other centres which are supposed to be the sites of a direct action by outside agencies. The respiratory centre is in some way influenced by the concentration of the hydrogen ion in its vicinity. The part stimulated by the hydrogen ion may be, as implied by Haldane, special receptors in the dendrons of cells in the centre, but it appears to us to be more likely that the hydrogen ion affects the resistance of the synapses in such a way that the afferent impulses are differently distributed and thus lead to alterations in the nerve impulses which leave the centre along the efferent neurones. The respiratory centre is generally considered to possess the power of automatism and to be the site of rhythmical discharges of nerve impulses. This automatism, if ever present, disappears during the condition of apnoea induced by the artificial diminution of the hydrogen ion concentration of the blood. It is never stated in what part of the respiratory centre the power of automatism resides. When one attempts to analyse the respiratory centre many difficulties are met with. The centre has been roughly located by physiological experiments in an area in the medulla oblongata in the neighbourhood of the afferent nucleus of the vagus nerve. Afferent nerve impulses are carried to it by the pulmonary branches of the vagus and give rise to the Hering-Breuer reflex. Afferent nerve impulses are also carried to it from numerous other sources, but whether they all go to the afferent nucleus of the vagus or to other neurones on the efferent side is unknown. The position, too, of the special receptors, if such exist, is not known. The synapses on the afferent side of the centre must be capable of alternation between excitation and inhibition, and of varying degrees of resistance to the passage of nerve impulses.

Provision is made for reciprocal innervation. The afferent impulses, whether from the pulmonary fibres of the vagus or from the afferent fibres of the nerves supplying the muscles of respiration, must inhibit certain neurones and excite others so as to bring about a proper co-ordination of the efferent nerve impulses to the muscles of inspiration and expiration respectively. The terminal efferent neurones leave the central nervous system at various levels according to the muscles they supply, and their cells of origin are found at considerable distances from the actual centre. The centre is also similarly controlled by nerve

* The expense of this research was in part met by a contribution from the Medical Research Council.

INCOME TAX.

A Groom-Gardener.

"H. M. C.'s" groom does odd jobs about the place and works on a ten acre holding, in addition to doing work in connexion with the practice. The inspector of taxes wants to know what proportion of his wages is paid for the latter.

*** The inspector is within his rights in claiming to restrict the deduction made for purposes of the Schedule D return to the proper proportion. In the absence of any definite criterion, the proportion might be reckoned by reference to the time spent by the groom on work for the practice, as compared with his other work. Something might reasonably be added to that estimate on the ground that his work as groom was his primary job, and that the other work was done to fill up his time.

Hospital Residents.

"L. D." holds a resident hospital appointment, which was advertised as of the value of £125 per annum *plus* board, rooms, attendance, and laundry. In fact he receives the salary *plus* an allowance of £6 10s. a month for board and 3s. a week for laundry, and is charged by the hospital with an account for board and lodging. Is he liable to assessment in respect of anything beyond the £125 per annum?

*** The leading case on the subject is Tennant *v.* Smith, in which the House of Lords laid down the rule that income tax does not extend to anything which is not received in money or in a form capable of being turned into money. This rule draws a clear but not very equitable distinction between, for instance, a salary to an outdoor employee, which is entirely assessable to tax, and a smaller sum paid in regard of the fact that the recipient has certain advantages (not capable of being turned into money) such as free board or residence. "L. D.'s" position is somewhat peculiar and it is not easy to say into which category his allowances fall. There appears to be no judicial decision covering the point, which is whether the crediting of his account with the allowances, coupled with the condition that that account is liable to the charge for board, etc., amounts to a payment in money. There are two weaknesses in his contention—first, that he is entitled to draw out at least the unexpended portion for private purposes, and secondly, that equity is against him: the real worth of his emoluments is represented by the total, and the ordinary salaried employee pays on that basis.

The Car of a Retiring Practitioner.

"J. F." has recently given up practice and expects to lose, say, £250 when he disposes of the car which he formerly used for professional purposes.

*** "J. F." cannot claim any allowance in respect of the loss; the only sum that can be allowed is the expense of replacement, and the car is not being replaced; further, as "J. F." is not now in practice, he is not paying tax on professional income and there is no assessment from which a deduction could be made. This case illustrates the unfairness of refusing professional earners permission to deal with the expense of maintaining their cars by a deduction for annual depreciation; where replacement cost is the basis of the allowance there must always be an ultimate loss to the taxpayer. The Royal Commission on the Income Tax recommended that a change should be made, but it is a long time in coming.

LETTERS, NOTES, ETC.

HOMES FOR MENTAL CASES.

DR. A. C. GEMMELL (Brighton) writes: In the BRITISH MEDICAL JOURNAL, August 4th (p. 214), you deal with the question of certifiable but uncertified lunatics in nursing homes. I am clear that a lunatic cannot legally be kept for profit in a nursing home except under certificate; I am also clear that such a patient can legally be kept without certificate in the house of his parents, where there is no question of payment; but I am in doubt about the intermediate cases. For instance, can a lunatic not under certificate be received into furnished rooms, the son of the lunatic paying for the lunatic's board and lodging and also for the services of a nurse provided by himself? If this is legally possible, what is the distinction in principle between the boarding house and the nursing home? If this is illegal, it places a heavy burden on the boarding-house keeper of deciding whether the lodger be certifiable or not.

*** The question of a lunatic treated in the circumstances mentioned in this query is covered by Section 315 (1) of the Lunacy Act, 1890. It reads as follows:

> "Every person who, except under the provisions of this Act, receives or detains a lunatic, or alleged lunatic, in an institution for lunatics, or for payments takes charge of, receives to board or lodge, or detains a lunatic or alleged lunatic in an unlicensed house, shall be guilty of a misdemeanour, and in the latter case shall also be liable to a penalty not exceeding fifty pounds."

This section makes it clear that it would be illegal for a lunatic not under certificate to be received into furnished rooms, the relatives paying for the lunatic's board and lodging, and also for the services of a nurse. There is no distinction in principle between the boarding house and the nursing home. "Receiving to board or lodge" in the above section must be read as distinct from "taking charge." The opinion has been given by the law officers that if a lunatic is received to board or lodge in the house of one person, and another takes charge of him, both are subject to penalty. It is thus the person who takes charge of, who receives or detains, a lunatic contrary to the provisions of the Lunacy Act, who is liable to prosecution, rather than the practitioner who visits the patient. It is certainly difficult for a boarding-house keeper to decide as to the certifiability of a lodger, but in the event of a prosecution the court would no doubt need to be convinced that she could reasonably have been expected to know that the patient was insane. As it is quite possible that neither the relations, nurse, nor landlady would be aware of any breach of the law, a good deal of responsibility would seem to devolve upon the practitioner in attendance to advise as to the legality of the position.

DANGEROUS EXHAUST GASES.

THE engineering department of the Automobile Association points out that as the winter is coming on many owner-drivers will be carrying out carburettor and ignition adjustments in their motor-houses with closed doors. A word of warning, therefore, is directed against the danger of running an engine stationary for any length of time within closed premises. To form the gas required, petrol is mixed with approximately seventeen or eighteen times its weight of air, and, provided combustion is complete, the mixture is burnt to carbonic acid gas and water vapour. These ideal conditions, however, seldom obtain, with the result that the exhaust gases contain a certain amount of carbon monoxide. It frequently happens that a super-rich mixture is employed at closed throttle positions for purposes of easy starting or to obtain good "idling" of the engine. When running stationary, therefore, in the garage, carbon monoxide is likely to be present in the exhaust gases, and it is desirable to have proper ventilation either by keeping the doors open or by fixing an extension on to the end of the exhaust pipe carrying it through an aperture in the door or building.

THE LONDON SCHOOL OF DERMATOLOGY.

IN the paragraph describing the institution of a London School of Dermatology, published last week (p. 673), the name of Dr. James H. Stowers was inadvertently printed as Dr. J. H. Stiles. The error was unfortunate, because we understand that Dr. Stowers has been largely instrumental in carrying through the negotiations which led up to the present satisfactory position. In recognition of his services he was entertained to a complimentary dinner by his colleagues at the Trocadero last week, with Sir Malcolm Morris in the chair.

MEDICAL GOLF.

THE autumn meeting of the Medical Golfing Society was held at Rye Golf Club on October 13th and 14th. The society wishes particularly to record its appreciation of the hospitality and great kindness shown it by the officials and members of Rye. Two fine scratch scores were recorded by Mr. Gillies (74) and Mr. Kolesar (76). The results of the competitions were as follows:

Canny-Ryall Challenge Cup.—H. P. Aubrey: 85 – 10 = 75. H. D. Gillies: 74 + 3 = 77. H. Wolseley Lewis: 85 – 7 = 78. T. P. Kolesar: 76 + 3 = 79.

Scratch v. Bogey (under Handicap).—Sir K. Goadby: 2 down. H. Wolseley Lewis: 4 down.

Foursomes v. Bogey (under Handicap).—H. A. Richards and W. Gilliatt; W. L. Lamplaugh and H. D. Gillies.

The seventh bi-annual meeting of the Shropshire Medical Golf Association was held on the Wrekin course by the kind permission of the committee. The results were as follows:

Medical Challenge Bowl.—Mr. S. Bradford: 86–13=73. Dr. G. Lawrence: 84–8=76. Dr. W. H. Smith: 96–20=76. Twenty-six entries.

Foursomes v. Bogey.—Drs. J. Wheatley and T. R. Elliott, 4 down; Dr. Clarke and Mr. Edmond, 5 down.

Dr. G. Wedd of Wellington was unanimously elected captain and Dr. Elliott honorary secretary for the ensuing year. A very hearty vote of thanks was proposed to Dr. J. Wheatley, the retiring captain, which was received with acclamation. The next meeting was fixed for the end of May, 1924, on the Church Stretton links.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 38, 39, 42, and 43 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 40 and 41.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 187.

and can be more or less influenced by nerve impulses from higher levels, especially by those which are concerned in emotional states.

Other centres, or pathways, are formed by education, and this is particularly the case in those reflexes which take place through the cerebral cortex. Such reflexes are "conditioned," and are therefore liable to various alterations and especially to inhibition.

Functional centres or pathways may be formed in abnormal states. Fixed ideas probably result from the establishment of certain pathways in the cortex of the cerebrum. In asthma afferent nerve impulses resulting from certain stimuli produce a reflex contraction of the bronchial muscle and a narrowing of the bronchioles. The reflex may become a "conditioned" one, and be induced by any afferent impulse resulting from a stimulus which has been associated with its occurrence. The pathways in time are so "grooved" that the reflex takes place very readily, and is excited by any afferent nerve impulse which has previously been associated with the asthma.

The phenomenon of pain, and especially of visceral pain, may be influenced in the same way. The frequent carriage of nerve impulses from the heart along the pain paths results in a lessened resistance of the synapses along the pathways taken. The occurrence of pain is facilitated, and a condition of status anginosus may be set up in which afferent impulses from other sources may spread into the same paths and produce pain. An attack of angina may be induced in this condition by a carious tooth or other source of pain.

In the production of visceral pain the afferent impulses from the organ affected spread into the pain paths in the lower level of the central nervous system, but the sensation of pain is located in some part of the body wall which is supplied with afferent nerves the impulses in which are capable of exciting a more or less localized sensation. In the areas supplied by these nerves various phenomena occur. Hyperaesthesia is sometimes met with, and the margins of the hyperaesthetic area are constantly varying in position. The hyperaesthesia is probably due to a decreased resistance of the synapses leading to the pain pathways, so that nerve impulses which would not ordinarily cause pain now do so because they pass more readily into the pain pathways.

The fluctuation in the extent of the area affected may be due to variations in resistance of the synapses in the pathways of the afferent neurones coming from the borders of the area, and be ascribable to the phenomenon of fluctuation or variation in the actual units employed in carrying the nerve impulses.

But other changes than sensory are usually found. Increased tone, or the actual contraction of muscle, often occurs in the body wall. The rigidity of muscle, especially well seen in the abdominal wall as the result of irritation of an abdominal viscus, is a reflex phenomenon, and is subject to the same variations as that affecting the sensory changes. A temporary centre is created in the central nervous system, and afferent impulses from the irritated viscus make use of certain pathways with the production of a number of end-results. If the afferent impulses are sufficiently numerous, or if there is any condition present which decreases the resistance of the synapses, the impulses may spread and occasion not only pain, hyperaesthesia, and contraction of muscle in a definite area, but vomiting, cardiac, vasomotor, and other reflexes.

Sensation and reflex action are closely bound up together. Even visceral reflexes may be productive of sensation. Alterations in the heart beat, palpitation, respiratory disturbances, vaso-constriction, and vaso-dilatation give rise to subjective phenomena. Irritability, exhaustion, and depression are of common occurrence in ill health. The fatigue of a synapse renders that synapse more resistant to the passage of a nerve impulse, and fatigue of the afferent pathways should be a negation. But fatigue and the sensations met with in ill health are positive sensations and not mere negations. They are, as a rule, general and not localized to any particular part. Their cause is unknown, but must be sought for in some alteration in the afferent nerve impulses affecting the conscious state.

REPORT OF THREE AUTOPSIES FOLLOWING CARBON TETRACHLORIDE TREATMENT.

BY

J. F. DOCHERTY, B.A., M.B.TORONTO,

DIRECTOR OF ANKYLOSTOMIASIS CAMPAIGNS IN CEYLON;

AND

LUCIUS NICHOLLS, B.A., M.D.CANTAB.,

DIRECTOR OF THE BACTERIOLOGICAL AND PASTEUR INSTITUTES, CEYLON.

WITH the object of confirming the report that carbon tetrachloride may produce pathological lesions of the liver,* a number of condemned prisoners were treated with small doses of the drug. *Post-mortem* examinations were made on three of the prisoners. In two cases the intestines were removed in three sections after double ligatures had been applied; the sections were opened and washed separately to determine the number of free and attached parasites in each.

Each prisoner received 4 c.cm. of carbon tetrachloride, followed in two hours by 2 oz. of saturated Epsom salt solution. No food was allowed previous to treatment except in the case of No. 8925, who by mistake received his ordinary breakfast at 6 a.m., and was treated at 10 instead of 8 in order to permit the passage of the food into the intestines. One and a half hours after the administration of the salts they were allowed tiffin.

Prisoner 8925 received 4 c.cm. carbon tetrachloride at 10 a.m. on February 21st, the salts at noon, and had tiffin at 1.30 p.m. The number of worms counted in the first twenty-four hours was: hookworms 101 (male 33, female 65), ascaris 1, oxyuris over 1,000. In the second and third periods of twenty-four hours no worms were found. The man was executed on February 24th. In the contents of the large intestine two oxyuris and two trichuris were found, and attached to its walls nine trichuris and twelve oxyuris. In the lower two-thirds of the small intestine three ascaris were found in the contents and one ascaris and one trichuris attached. Two ascaris were attached to the duodenum and upper third of the small intestine. Prisoner 8337 received 4 c.cm. carbon tetrachloride at 8 a.m., the salts at 10 a.m., and had tiffin at 11.30. During the first twenty-four hours one hookworm (female) was found and one oxyuris. In the second and third periods of twenty-four hours no worms were found; he was executed on February 24th at 8 a.m. In the contents of the large intestine eight hookworms (six male and two female) were found and two trichuris. Three other trichuris were attached to the walls. In the contents of the lower two-thirds of the small intestine one ascaris was found, and two trichuris attached to the wall; no worms were found in the duodenum and upper third of the small intestine. Another prisoner 8992, received 4 c.cm. of carbon tetrachloride, but in his case the worms were not counted, nor were the intestines examined. None of the patients made any complaint.

Sections of the organs were stained with osmic acid according to the method of Marchi. Sections also were stained by haemotoxin and eosin.

No. 8925.—The liver showed fatty degeneration, many of the cells containing fat globules; the largest of the globules measured about 10 microns. The kidney cells contained a few globules of fat. The spleen was greatly enlarged and showed pigment and fibrotic changes due to numerous attacks of malaria.

No. 8937.—The liver showed slight fatty degeneration, the kidney no recognizable changes.

No. 8992 showed no changes in liver or kidney.

Conclusions.

1. A dose of 4 c.cm. of carbon tetrachloride given as in the above cases may produce fatty degeneration of the liver.

2. Although numerous fat globules may appear in the liver cells apparently as a result of the administration of carbon tetrachloride, the changes in the liver are of a temporary nature and do not appear to contraindicate the use of the drug, because many patients have been treated with much larger doses and have not complained of any discomfort other than very slight giddiness, nor have symptoms or signs of ill health arisen in them. Further, many hundreds of school children have received doses of carbon tetrachloride, and in no case has any sign of ill health occurred subsequent to treatment.

3. In case No. 8925 the changes in the liver were so marked that we would have expected signs of marked ill health during life, but these were absent; consequently it appears that much fat (presumably derived from fatty degeneration) may appear in the liver and yet be a matter of small importance as concerns the health of the patient.

* Docherty, J. F., and Burgess, E.: Action of Carbon Tetrachloride on the Liver, BRITISH MEDICAL JOURNAL, [illegible]

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decrease of mortality in towns and counties, although the schemes came into operation much later in the counties.

The following table (III) seems to point in the same direction, for although the principal and the earliest activities have been in the county boroughs, the decrease of mortality in these has only been slightly greater than in the rural districts. It is quite likely, however, that with equal efforts at teaching more effect can be produced in rural than in urban districts, owing to greater possibilities of carrying out the advice given.

TABLE III.—*Comparison of Infant Mortality for 1911–13 with 1920–21 in County Boroughs and Urban and Rural Districts.*

	County Boroughs.			Other Urban Districts.			Rural Districts.		
	N.	M.	S.	N.	M.	S.	N.	M.	S.
1911–13	132	125	93	124	100	86	112	84	74
1920–21	101	82	67	94	70	59	87	63	52
Decrease per cent.	23.5	35.0	32.0	24.0	30.0	31.0	22.3	25.0	30.0
	27.0			27.5			25.3		

N. = North. M. = Midland. S. = South.

The decrease of mortality in the four quarters of the year is of considerable interest.

TABLE IV.—*Fall of Infant Mortality in Quarters of the Year.*

	Period.		Percentage Decrease.	Percentage Decrease of 1921–22 on 1911–15.
	1911–15.	1916–20.		
First quarter	119.3	116.7	2.2	17.4
Second quarter	91.0	81.0	7.7	17.5
Third quarter	120.1	75.5	37.1	42.5
Fourth quarter . ..	104.3	90.3	13.4	25.2

The Registrar-General points out that the decrease in the previous ten years was much more evenly distributed throughout the year, and this was so for the years 1921 and 1922.

Tables III and IV both point to warmth as being favourable to infant life and cold adverse, and they seem to show greater possibilities of diminishing mortality under favourable climatic conditions. In comparing the rural districts of the South with those of the North one must, however, remember that many of the so-called rural districts in the North are really semi-urban—being either mining or industrial. The excess of the mortality in the winter months compared with the summer months is much more marked if diarrhoea is excluded or during the years of slight prevalence of diarrhoea.

TABLE V.—*Decline of Infant Mortality under Different Causes of Death.*

Diseases.	1891 to 1900.	1901 to 1910.	1911 to 1915.	1916 to 1920.	1920 to 1921.	Percentage Difference between 1920–21 and 1891–1900.
Common infectious Diseases	10.03	8.09	7.42	5.03	3.91	61.0
Tuberculosis ...	7.85	5.17	3.03	2.00	1.50	80.4
Diarrhoea and enteritis	25.17	22.47	19.24	9.34	10.83	56.7
Bronchitis and pneumonia	13.06	12.63	9.60	9.50	8.04	33.4
Rickets	0.55	0.57	0.39	0.33		
Overlying	2.05	1.75	1.40	0.93	0.59	70.7
Convulsions	13.25*	11.14	8.81	6.79		

* Including teething.

All the great causes of death (Table V) except those closely associated with birth and ante-natal conditions have shown a remarkably steady and progressive decrease. The decrease of the years 1920-21 as compared with the period 1891-1900 is shown as a percentage and is very str
These causes of death are essentially those that one
expect to be influenced by better feeding and general

A consideration of the conditions of living in the
ties with a low infantile mortality and of the occup
with a low mortality should throw some light upo
essential causes of infant mortality. The lowest inf
mortality rates are found in the rural districts of the
of England and on the west coast of Ireland. Perha
points I wish to bring forward are best illustrated b
rates in the province of Connaught. The death ra
the counties of Connaught for 1920 were: Galwa
Leitrim 41, Mayo 49, Roscommon 48, Sligo 57.

From my slight knowledge of this country I should
the conditions to be absence of industrialism, a
moist, sunny climate, very bad housing conditions,
time spent in the open air, no over-clothing, crude
sanitation, comparative poverty, breast-feeding
universal, food of mothers simple and fresh, education
both general and special.

Similar rates obtain throughout the whole count
the upper and middle classes. In 1911, a year of ver
infantile mortality, the following were the death ra
legitimate children (the professions are those o
fathers): Artists 27, merchants 30, medical practit
39, naval officers 41, solicitors 41, army officers 44,
men 48.

Here the conditions are almost the reverse of the
counties—a very large proportion of the families livi
the large towns, comparative affluence, artificial f
more common, and good general education and intelli

It looks as if low mortalities are quite possible,
one hand, with ignorance and poverty under good
ditions of sun and weather and more primitive li
particularly natural feeding—and, on the other
even under town conditions where there is intelli
care, and purchasable amenities. Poverty is pr
rather a safeguard than otherwise in an ill-educated
lation, as it tends to decrease the amount of artificial
ing of the infants and drunkenness of parents—two
causes of infant mortality.

ANALYSIS OF REPLIES FROM MEDICAL OFFICERS OF HE
AS TO CAUSES OF THE DECREASE OF MORTALITY.

Analysing the replies from the medical officers of
of forty-four towns, I find that twenty-five give
visiting and child welfare, or better midwifery se
as the chief cause. Two give better education, four re
birth rates, five improved sanitation and social cond
two dried milk, and six are indefinite or refrain
making any statement.

Analysis of replies from forty counties shows
twenty-three give child welfare work as the chief
one ante-natal work, five general education, two imp
standard of living, three improved sanitation, three
traffic replaced by motor traffic, three cleaner milk
the equable climate of late years, and one gives no rea

The principal causes may now with advantage b
sidered separately.

General Education.

This has probably acted in two ways—(1) by imp
the general intelligence and receptivity, and (2)
creasing the sense of responsibility and the value of l

There can be no doubt that there has been a
development of the sense of responsibility of parents f
health and lives of their children, and this appears
to be one of the great causes of the decline of infan
tality. It was the common attitude of the mass
people thirty years ago that the health of the ch
was the concern of the parents only. This idea has
tically disappeared, and it is almost universally reco
that the health of the children is also the concern
State, and that the parents cannot be allowed to neg
It is often said that we have undermined the respon
of parents by our social work, both education and
health. If this is examined it must be recognized
is not the responsibility that has been lessened, b
irresponsible power of parents over their children.

But such a complete localization as we now know to exist was unsuspected, and it was largely on this account that so much interest was aroused by the excitation experiments of Ferrier.

But if excitation of a particular area of the cerebral cortex provokes certain movements, it does not follow that we are to regard that area as representing a nerve centre for governing or producing those movements unless removal of the area is followed by paralysis of the movements. We may leave out of present consideration whether the so-called centre is automatic—that is, works spontaneously—or whether it only represents the point of arrival of sensory impulses and the point of departure of the corresponding impulses to motor centres in the lower part of the central nervous system—that is, whether it is a reflex centre. For this question, which was warmly debated at one time, may now be considered to be definitely settled in favour of the second hypothesis. In either case the final result of excitation and of ablation will be in the first case production of definite movements, in the second the inability to perform them.

At the period I am speaking of, many of the facts had been established, but the explanation was a matter of controversy. There were, moreover, still certain parts of the hemisphere which Ferrier had not explored, or which in his hands had yielded negative replies. And the results of the extirpations which he had performed in conjunction with his colleague Gerald Yeo, then professor of physiology in King's College, were not altogether satisfactory, nor did they agree in certain particulars with the work of others, especially that of Herman Munk of Berlin, who was working on much the same lines both in the dog and monkey.

This, then, was a problem still needing elucidation, and when in 1883 I succeeded Burdon-Sanderson in the Chair of Physiology at University College it was one of the first investigations at which I resolved to work, especially with the view of determining more exactly the results of removal of definite areas of the cortex. Now Ferrier and Yeo's work—I am referring only to their earlier work, the later was accomplished under different conditions—had been done by pre-Listerian methods, and I felt convinced that this might be the source of some of the discrepancies exhibited, as compared with the results of Munk and others. My own surgical training was unfortunately also pre-Listerian owing to the slow progress which was made in London in the adoption of Lister's methods, and the active opposition with which they were met by many of the leading London surgeons. I therefore recognized the necessity of securing as a collaborator a young and skilful surgeon thoroughly imbued with Listerian ideas and enthusiastically interested in physiology. You may easily understand that I had no difficulty in making my selection, for Victor Horsley fulfilled all these conditions, and we were already on terms of personal intimacy. Gleefully did he accept the proposition that we should carry out this work together, and many were the hours which we devoted to it. In every case the first part of an experiment consisted in exploring by induction currents, after the manner of Ferrier, the particular area we desired to investigate, and the second part in removing the explored area, re-covering the brain and sewing up the wound. In these operations we made use of every Listerian practice, including to our woeful discomfort the recently introduced carbolic spray—a source of endless objurgations!

To these operations Horsley brought a remarkable amount of surgical skill. Our quadrumanous patients were kept under the best possible conditions, and in most cases made speedy recoveries. It is not saying too much if I add that Horsley obtained from these experiments a surgical experience of a unique kind. This experience he was presently—in his capacity of surgeon to the great hospital in Queen Square—to apply to the alleviation of human suffering in a domain which even the boldest surgeons had not ventured seriously to attack.

There is no better illustration of the mutual benefit which results when Surgery and Physiology go hand in hand than the history of our early efforts in this field of investigation. The benefit to Horsley I have pointed out. And for myself, I acknowledge with gratitude the debt I owe to my colleague for the opportunity I was afforded of learning the application of Listerian surgery to animal experimentation, a lesson the benefit of which I am more than ever conscious of after nearly forty years' experience, much as things have changed both in Physiology and in Surgery since that far-off, but never-to-be-forgotten time.

Our partnership was a fruitful one. We were able to extend Ferrier's observations in the monkey's brain to parts which he had not explored, although in this particular he had not left much for future investigation. But the young worker may take it from me who have grown old and experienced in scientific investigation, that if he wishes to discover new things he will do well to repeat with the aid of modern contrivances any experiment which has been long accepted as affording the last and most incontrovertible word on the subject. Almost certainly he will find some point which has been overlooked by the original investigator, and needless to say by those who have merely aimed at getting the same results. And almost certainly the exception will prove—that is, will test—the rule, and he may easily find that which has been looked upon from time immemorial as scientific gospel is badly in need of re-editing. In my experience nothing is so fertile in discovery as going carefully with one's eyes open, and with the aid of new methods, along a well worn track. I say with one's eyes open, for if one shuts them to everything that is not exactly what one expects to see many a discovery will be overlooked.

It is not my purpose to give an account of our work on the brain—work which, begun together, was eventually by force of circumstances carried on independently or in conjunction with other workers. One word, however, I would say about a trait in my colleague which, although in no way unfavourable to his character, rendered the actual conduct of our joint investigation somewhat laborious. He was too energetic. He would think nothing of performing several operations at a sitting, and acquired so much skill at them that they occupied a relatively small amount of time. But the operation was one thing, the study of the symptoms quite another. Now it takes a long time to make a thorough investigation of symptoms in the human subject—although in this case the subject himself can give much assistance. But when it comes to making the same kind of investigation in animals, and especially in monkeys, which are often wild, and the attention of which it is always difficult to fix, an unconscionable amount of time has to be devoted every day to each case. It so happened that just about this time Horsley was leading an extremely busy life. He was surgical registrar at University College Hospital—a position involving a huge amount of clerical work—and later assistant surgeon there; professor superintendent of the Brown Animal Sanatory Institution; assistant professor of pathology in University College; had a considerable if not very remunerative private practice; and, last but not least, was engaged to be married. The result of all this was that most of the observations on the operated animals had to be made by his colleague, and when there were several to be examined the amount of time that these occupied every day rendered the duty severe. All the clinical notes thus taken day by day had to be collated, and eventually boiled down—a process which involved many prolonged conjoint sessions. Upon the results of this collaboration I need not dwell. Are they not written in the chronicles of the Royal Society? And are they not decently buried in the *Philosophical Transactions?* May they rest there in peace!

The experience which Horsley had gained in these experiments—commenced in the laboratory at University College and continued at the Brown Institution—was invaluable to him in dealing with cranial surgery in man, and when the position of surgeon to the Hospital for Nervous Diseases in Queen Square fell vacant Horsley received the appointment. He lost no time in applying the knowledge he had acquired in the laboratory to the operating theatre in the hospital. Paget gives an interesting and humorous account of the first operation he performed there for a cranial tumour (p. 120). It was upon a Scotchman, was in every way successful, and was witnessed by a distinguished company, which included Hughlings Jackson and Ferrier. It was, of course, followed by many others, and these were often attended by eminent foreign surgeons, for Horsley's reputation as a cranial surgeon soon became widespread.

to 1900. Wages so estimated in 1902 were almost three times as much as in 1840, more than twice as much as in 1860, and 50 per cent. more than in 1880. During this period there was no reduction in infantile mortality.

From 1900 to 1913 there was a slight decrease of the purchasing power of the wages accompanied by a very large decrease in the infantile mortality.

During the war there were very many disturbing factors. The years 1920, 1921, and 1922 had the three lowest mortalities on record—namely, 80, 82, and 77 respectively. In the year 1922 there was widespread unemployment and the purchasing power of employed persons was practically the same as in 1914. In 1920 the purchasing power was also about the same as in 1914. In 1921 the purchasing power of the wages was slightly in excess of 1914, but there was much unemployment due to the coal strike. In these three years, therefore, we have the three lowest mortalities on record with no increase in the purchasing power of the wages received, and much unemployment.

Improvement of General Sanitation.

This does not appear to have had any marked influence upon infant mortality. The period from 1880 to 1900 was one of marked activity in the improvement of drainage, housing, scavenging, street cleansing,, and water supplies, but although effect was produced on the general death rate there was no effect whatever on the infant mortality rate. Again, the period 1914 to the present time has been marked by an almost complete cessation of expenditure on sanitary schemes, a marked deterioration of housing, and, I think, a lessened efficiency generally of sanitary administration, yet during this period there has been a very marked diminution of infant mortality. Under this heading I do not include improvement of the condition of houses due to better conduct of the tenants. This is an extremely important matter, but it must be considered as one of the effects of education.

It is probable that Dr. Brend is correct in his contention that pollution of the atmosphere, particularly by smoke, is one of the great reasons for the excess of infant mortality in our large towns, but as there has been very little improvement in this respect it is consequently improbable that any considerable decrease in mortality can be explained in this way.

The removal of slum areas must, where conducted on a sufficiently large scale, be an important factor in the decrease of infant mortality, but the houses so dealt with are in most towns a very small proportion indeed of the total houses, and the proportion of children to adults in the worst slums is often very small compared with that in the ordinary working-class houses. It is probably for these reasons that the removal of slums has had little effect on the infant mortality rate of the country.

Clean Milk and Dried Milk.

The two must be grouped together as acting in the same way. It is doubtful whether there has been any sufficient improvement of the cleanliness of milk apart from that of the great distributing companies, which practically leave rural districts alone, to produce any considerable effect. Nor is the use of dried milk, although perhaps efficacious where used, sufficiently general to be a large factor in the decrease of mortality. The decrease of mortality in rural districts is certainly not due to an improved milk supply. The limitation of the improvement, since 1911, mostly to the third quarter of the year does, however, suggest that there has been a great reduction of infection through milk. Lessened contamination of milk in the homes must be looked upon as principally a result of education.

Lessened Horse Traffic and Tarred Roads.

The diminution of flies and dust consequent on these causes are probably contributory factors. We are rapidly forgetting the dreadful condition of our roads in summers previous to the use of tar. At a time of the year when house windows should have been wide open they were kept closed for fear of admitting clouds of dust, and the extreme dustiness of the roads must often have kept infants

Ante-natal Causes.

In the face of the statistics showing the ve decrease of mortality under one month and the complete absence of decrease under one week, it c contended that ante-natal work has produced muc on infant mortality so far. It is true that during few years there has been a decrease, and this m promise of better things in the future. In pa systematic treatment of venereal disease in e mothers and the general prevention of venereal should contribute to the reduction of mortality early age.

Climatic Conditions.

The influence of climate on infant mortality is of great interest, and might well be the subject o research. I think it is obvious that climatic cannot be the main cause of the decrease since th ning of the century, as it has been so prolonged steady; but considering the great influence of temp as shown by the death rate in the four quarters rates in the South and North, one would hesitat declaring that the recent mild winters have not contributory factor. The years 1920, 1921, and 19 years of very low infantile mortality. Reference Registrar-General's reports shows that in London temperature of the winter months for 1920-21 about 2½° above normal, but that in 1922 the nor only very slightly exceeded.

The effect of a hot summer in causing big epid infantile diarrhoea and almost determining the rat year is one of the best known facts relating t mortality. It is therefore of great interest t hot dry summer of 1921 was not accompanied considerable prevalence. A minute comparison years 1911 and 1921 would be of great intere being the last year with a really high death r diarrhoea.

A comparison of these two years as regards air ture, earth temperature, and rainfall shows: (1) Greenwich records that the air temperature of 1911 that of 1921 in May by 4.4°, June 2.7°, July 5.5° 8.9°, September 1.7°, October −5.2°; by the S records that there was marked equality of air tem in the two years, 1911 temperatures being in e August by 5.1° and less by 7.3° in October. (2) A able equality of earth temperature at a depth of recorded at Kew (Greenwich four-foot temperature available for 1911), the 1921 temperature being sl excess. (3) The rainfall for the six months May to 1911, was 11.74 inches, as compared with 8.95 i 1921. The rainfall in various months of the two y —May, 1.57 and 1.57; June, 2.67 and 0.35; July, 0.98; August, 1.86 and 2.99; September, 2.15 a October, 3.16 and 1.69. The four-foot earth ther rose to 56° in June, 1921, and remained ab temperature into the middle of October. There is in these records to explain the remarkable diffe the diarrhoea mortality in the two years—name 36; 1921, 13.8; and there can be little doubt tha years ago the climatic conditions of 1921 wo produced a very high prevalence of diarrhoea. been suggested that the extraordinary freedom fantile diarrhoea in 1921, considering the hea summer, was due to a comparative absence of this I have no evidence. On the whole, I think evidence is that the decrease in recent years has due largely to climatic conditions, and that t decrease of diarrhoea and the comparatively sma the hot summer of 1921 are strong evidence of effect of recent child welfare work.

I have not been able to consider the question o tion, as the trade figures for 1921 are not yet pul

The number of occupied women at the 1911 ce about 16 per cent. greater than at the 1901 ce the number of occupied married women showed a of 19 per cent., so that the decrease of infant mor not associated with a decrease in the number of women.

those who operated by the lateral method as due to interference with the brain, but this could not be so, for exactly the same operation can be performed for exposure of the pituitary, but if it is left untouched no adverse symptoms follow. Moreover, one of my assistants, Mr. Norman Dott, himself a skilful surgeon, has recently devised a method of destroying the gland completely in the cat, by a process of electrolysis, without any exposure or any injury to the brain. The sella turcica is reached by passing a fine trochar conveying a carefully guarded needle along the outer margin of the orbit, and through the sphenoidal fissure. This needle conveys the necessary current and the whole operation occupies only a minute or two. By careful adjustment of the position of the electrolysis needle it is possible to destroy either the anterior or posterior portion of the pituitary. If the anterior part is destroyed, the animal will inevitably die within two or three days, a result precisely similar to that obtained by Paulesco, Harvey Cushing, and others, when operating on adult dogs by the lateral method.*

Although Horsley had occasion to perform on the human subject a certain number of operations for removal of tumours of the pituitary, his physiological experience in connexion with this organ had not the same influence in determining the corresponding surgical proceedings in man as had the experiments upon the brain. This was partly owing to the fact that tumours of the pituitary are rare, and that the methods for getting at the pituitary in the human subject are different from those employed for animals. Moreover, such tumours are often very slow-growing, and are not attended with immediate risk of life; whereas complete removal of the gland is dangerous if not fatal. And with regard to tumours of the thyroid, they can often be successfully treated without operation, and only occasionally pass from the hands of the physician into those of the surgeon. But I have, I hope, said enough about the physiological and surgical work of Horsley to illustrate the subject of this address, the close relationship that should exist between Physiology and Surgery. Horsley himself laid particular stress upon this. Mr. Paget tells us that when in January, 1911, the first Lannelongue prize—which is to be awarded once in five years to the surgeon who in the previous ten years shall have done most for the advancement of surgery—was presented to him:

"He spoke a few words of thanks . . . and said that his own country, which had long been under the influence of John Hunter, had later come under the influence of Claude Bernard, who had joined together physiology and surgery. That is what I have striven to realize. Unfortunately if surgical science advances with fair rapidity, its practice progresses slowly. That is because we are held in bondage by tradition from which we have difficulty in freeing ourselves."

Clearly he meant by this the supposed dependence of surgery on anatomy, when he himself so clearly saw that it is physiology which it must in future depend upon, or only so far on anatomy as mechanical considerations may render necessary.

William Sharpey.

I am now going to give you an illustration of the advantage of the association of Physiology and Surgery from the career of the most eminent surgeon of our generation, Joseph Lister. Lister was essentially and fundamentally a physiologist. He was easily the most distinguished pupil of William Sharpey, and William Sharpey was unrivalled as a teacher of physiology. This is the more strange, since Sharpey himself did little or no original work in the subject. Nevertheless, no one gave more encouragement to his pupils to conduct physiological inquiries or more sympathy in their researches than he. The failure on his own part to carry out physiological investigations was due to his training. This was wholly anatomical. When he went to study in Germany it was Rudolphi's dissecting room he frequented, not Johannes Müller's lecture room and laboratory. Had he attached himself to the last named, he would have consorted with all the great German physiological workers of the middle of the last century—Helmholtz, du Bois-Reymond, Ludwig, Brücke: or had he gone to Magendie in Paris instead of to the anatomical and surgical schools there, he would have consorted with Claude Bernard, would have become the outstanding physiological investigator in Great Britain, and would have occupied the place in London which Bernard occupied in Paris. But the tendency of the Edinburgh School in his day was wholly in the direction of anatomy, doubtless owing to the fact that the anatomical chair in Edinburgh has always been occupied by a succession of pure anatomists; whereas, although there existed a chair of physiology even prior to that of anatomy (rightly known as the "Institutes of Medicine"), it was never held by a physiologist until the appointment of Rutherford in 1884, of whom I am myself the unworthy successor. Fortunately we have illustrious examples to the contrary now, but the anatomy of those days exercised an influence upon its devotees which was not favourable to active research and least of all to experimental work. It must further be remembered that Sharpey was actually a lecturer on pure anatomy in Edinburgh when he was invited to occupy the chair of general anatomy and physiology at University College. Up to that time he had not taught physiology, nor had he received any training in it, although he had interested himself in certain physiological problems, especially those connected with the growth of bone and the action of cilia. It was too late for him to undergo a fresh course of training, and he was busy with his new duties. He had, therefore, to get up his physiology as best he could. The Council of University College would have done well if it had given him a free year to study physiology in France or Germany, but in those days there seemed to be no idea that anything of the kind was necessary: the governing bodies of universities rarely do the right thing in these matters! So Sharpey had to be content to teach a subject in which he was only self-trained. The more credit to him that he became so successful. For it is certainly due to his teaching, both directly and through his pupils, that the physiology of the latter part of the nineteenth century became preponderatingly an English science. I trust we still remain in the forefront, but we must admit that other nationalities have during the last five and twenty years made notable advances and are able to challenge any predominance we may have had.

Lister: Physiologist and Surgeon.

If I have been led away by the reverence I have for his memory to speak at greater length of Sharpey than I had intended, I have justification for doing so because of his intimate connexion with Lister.

Lister, long before he was a surgeon, was an experimental physiologist, and he continued to be one throughout his whole career. He had had no opportunity of being trained in experimental work, but he was a born experimentalist and trained himself. Whether he would have done better to have worked with Claude Bernard in Paris or with Carl Ludwig in Leipzig must be a matter of opinion, but his self-training had at any rate the advantage of developing his originality. His first scientific investigations were made with the aid of the microscope—an instrument with which he had, through his father, the discoverer of the achromatic lens, been familiar from his earliest days. He was amongst the first to demonstrate the existence of a dilatator pupillae in the iris and to show that, like the sphincter pupillae, which was already known, the dilatator is composed of plain muscle cells. Many later observers, less skilful or less accurate than Lister, have denied the existence of this muscle, but his work has been vindicated and confirmed by the most modern methods of physiology and histology. He also published observations on the arrectores pilorum which confirmed those of Koelliker, and are especially remarkable because he used a new and now universally employed method—that of microscopic sections—for the investigation. Doubtless the student of the present day, familiar with paraffin-soaked tissues and mechanical microtomes, would despise the rough mode of preparation used by Lister, and thus described by him:

"A portion of shaved scalp being placed between two thin slips of deal, a piece of string is tied round them so as to exercise a slight degree of compression; the preparation is now laid aside for about twenty-four hours, when it is found to have dried to an almost horny condition. It then adheres firmly by

* The details of this method will be published in the next number of the *Quarterly Journal of Experimental Physiology*.

Dr. J. W. Miller (C.M.O. Radnorshire) said that in comparing the infantile mortality in the City of Hereford with that in the agricultural county of Radnor, he had been struck by the smaller percentage of breast-fed children in the latter area. The figures were for Radnorshire 66 per cent. in 1922 and 62 per cent. in 1921, while in Hereford city in 1919 and 1920 it was over 80 per cent. The fact that the infant mortality was lower in Radnorshire was, he thought, accounted for by the fact that children in rural districts obtained more fresh air and sunshine. He considered the welfare centres were a valuable factor in hygienic education, but the visiting of the homes by health visitors was the most important element in improvement.

Dr. G. H. Pearce (M.O.H. Batley) placed the causes of the reduced mortality among infants in the following order: improved education of mothers by health visitors in their homes, which had led to an increase in breast-feeding; the healthy rivalry established among mothers by attendance at welfare centres; the increased use of dried milk; the influence of maternity homes.

Dr. W. A. Bullough (C.M.O. Essex) said that hereditary causes had probably an unfavourable influence on infantile mortality, since careless and ignorant mothers had often the largest families with a proportionate death rate. The mother herself constituted the environment of the infant, and everything in this connexion depended on her character and knowledge. The mother's knowledge depended on the general education provided by the national system and on the special education provided by the health visitor and the district midwives. He looked to the district nurse midwife, especially in rural areas, as the most potent factor in the advancement of public health knowledge, not only with respect to infant welfare but also tuberculosis and venereal diseases. He believed the chief factor in the recent fall in mortality rates was the reduction in the bacterial content of the infant's food, whether this was brought about by breast-feeding, certified milk, or dried milk.

Professor F. E. Wynne (M.O.H. Sheffield) said he had been unable to satisfy himself that any of the processes carried out in elementary schools under the name of education had any influence on the conduct or manners of the children subjected to them. As to special education in hygiene, however admirable the syllabus prepared by the Board of Education might be in theory, it was generally crowded out of the curriculum, and if not was taught in a perfunctory manner which could produce nothing but a sense of boredom in the child. He believed the educational work done in welfare centres and in the homes of the people had some real practical value, but that the reduction in mortality was largely a response to the reduced birth rate and a generally higher standard of living.

Dr. Wheatley, in replying, maintained the value of education and deprecated attacks on the present system. The system was admittedly imperfect, but far better than the absence of any system at all. It was the work done in the elementary schools that enabled the scholars to take advantage of the special instruction that might be given to them in later years.

THE VALUE OF WATERCRESS AS A FOOD:

Suggestions for its Extended Use.

BY

HAROLD SCURFIELD, M.D.Edin., D.P.H.Camb.

In these days, when the need for economy interferes with bricks and mortar sanitation, the food question looms more important than ever. I believe if I had to pick out one factor more important than any other in the prevention of tuberculosis I should plump for food.

There is perhaps a danger that people may get sick of the talk about vitamins before they have adopted the principles in their daily dietary. For practical purposes the indications are simple: more of the protective foods—that is, milk, green vegetables, and fruit.

The results obtained by Dr. Cramer and his colleagu seem to me very important, as being the first clear sugg tion of the mode of action of the vitamins A and Further, it seems highly probable, as Dr. Cramer sugge that a considerable section of the population, especially towns, is existing, like the rats in a laboratory, on vitamin-poor diet. For example, I think it is highly proba that the assumption which has been commonly made, t because we do not actually have beri-beri in this country suffer no ill effects from a deficiency of vitamin B in dietaries, is an ill founded one. We know that our br and breakfast cereals lose their vitamin B owing to mod methods. Eggs are somewhat expensive. The effects o vitamin-rich diet on rats, obtained by the addition of c liver oil and marmite to their food, are very remarkal Similar results will probably be obtained by securing vitamin-rich diet for human beings. Cod-liver oil is be used more and more, and I feel sure that Dr. Cram work will lead to a greater appreciation of the need for m attention being given to the way in which vitamins A B act together in promoting, not only growth, but nutrit at all ages. We cannot go back to old methods of prepar cereals, but we can easily compensate for the loss of vita B by a more extended use of yeast extract as an art of food.

The principal object of this paper, however, is to br forward another protective food which we might use m more extensively—namely, watercress.

I am told that watercress probably contains all th vitamins. It has only been tested for its content of vita C, but I understand the Medical Research Council is do some work on it now. As a green food it has stood the of thousands of years. It belongs to the same order cabbage—namely, cruciferae, an order pre-eminent for a scorbutic qualities. Tradition has given it a reputatior the treatment of all kinds of diseases—for example, monary disorders, gout, and rheumatism,[2] anaemia,[3] diseases, including eczema, constipation, and ulcers of mouth.[4] The Greeks and Pliny thought it good for mind, and others say it stimulates the appetite. Lor says that it contains both iron and iodine. Watercress i has a time-honoured and widespread reputation as a hea promoting food. The risk of enteric fever from watere grown in polluted water has been mentioned from tim time, but I know of no evidence such as there is with res to shellfish. The larvae of insects are also said to b source of trouble sometimes. Thorough washing, and sibly a preliminary soaking for a few minutes in wate which salt has been added, would guard against the la risk, if it is a real one. As regards the former, there sh be no difficulty in arranging for inspection of the beds the rivers pollution authorities.

Obviously, if there is to be an extended use, we ough be in a position to say that the cress comes from sou which are above suspicion. The industry is quite impor enough already to justify proper precautions, and the l growers would, I am sure, welcome inspection. I h lately visited several large watercress beds, and much struck with the great care taken. A short descrip of the beds worked by Mrs. James of Covent Garden Ma may be of interest.

The winter cress is known as brown cress, and is mark from September till the end of May. There are a 15 acres of beds at Hurstbourne Priors, Hants, on low-l land alongside of a river flowing from a sparsely popul chalk country. The beds average about 70 yards lon 16 wide, are lined with concrete banks, have a gr bottom, and are fed by natural springs or artesian w The warmth of the well or spring water encourages gro The water must be constantly on the move. The propri have their own well-boring plant, and provide trucks lines for running up the cress from distant beds. All is washed in a special shed. It is pulled by men equi with waders, bunched, trimmed, packed in baskets, and up to market by motor or train and sold within twenty hours of packing. The workers get better pay than workers, and an expert "buncher" can earn five shi in six hours. The best of the roots and stems trimme are put back in the beds to form new plants.

of the living web of the frog's foot, would be undoubtedly a mistake: for no amount of verbal teaching could do for him what a glance through the microscope at that sight at once effects."

And after explaining at considerable length the relatively painless nature of physiological experiments as compared with the cruelties which are inflicted every day for the sake of improving the quality or appearance of food, or even in sports such as fishing, shooting, and fox-hunting, he points out that the sportsman is not commonly regarded as cruel because the inflicting of suffering on the hunted animal is not his main object (which is indeed merely the gratification of himself and his friends), and continues:

"But surely those who regard this amusement as justifiable are strangely inconsistent if they brand with the epithet cruel the man who performs an experiment upon an animal at great sacrifice to his own feelings and with every care to render the pain as slight as is compatible with the high object in view."

And in his evidence before the Royal Commission (on November 1st, 1875) he begins by stating that his first experiments upon animals had been made when he was altogether unknown as a person of any sort of reputation whatever: and "When I first took in hand to teach others I felt that there were some points on which I desired more information than I could get satisfactorily from any book, and my first experiments were performed with the object of preparing myself for teaching, while I was not a person of recognized scientific attainments."

With regard to his early experiments upon blood he remarked that they "had the effect of giving me a kind of pathological information, without which I believe I could not by any possibility have made my way in the subject of antiseptics; and that subject, I believe, is becoming recognized as one of considerable practical importance. I have often felt that without the basis which I derived from experiments on the lower animals, I should never have been able to thread my way through the very perplexing and apparently contradictory facts which I met with in the first instance." Also that throughout his whole career after that time he had found experimentation on living animals necessary, and that through the medium of that experimentation originally commenced with other aims he was gradually led "to the development of that method of treatment which is now known as the antiseptic system." Further, with regard to his work on catgut ligatures he definitely states that if he had not made experiments in the first instance on animals he would have had to perform them on man; there was no other alternative.

Lister and Pasteur.

Great as was his work in surgery, Lister never ceased to be a physiologist; to the end of his days he was deeply interested in all forms of experimental work. He was scientific to the core. As we have seen, he insisted that experimental work was the basis of all his researches in antiseptics. His experiments in this as in other directions are characterized by meticulous accuracy, a character which is essential for all scientific investigations. First the facts were ascertained by observation and experiment; then marshalled and collated with observations made by others; the deductions checked by yet other experiments; nothing was left to mere supposition. In this way he arrived at his great generalization which at once transformed surgery from a mere art which might be practised by any ignorant person into a real science which could only be properly advanced by those who adopt the experimental method. Given an adequate knowledge of anatomy—a science which is essential to the physician as well as to the surgeon—the basis of training in both the branches of what is popularly known as the "healing art" must be physiology. Lister would never have arrived at the position he occupies in the history of surgery if he had not been first a physiologist. Doubtless he was fortunate in his opportunity. He came at the right time, just when Pasteur was engaged in the brilliant researches which indicated the essentially parasitic nature of disease. How eagerly Lister seized hold of that opportunity we read in his biography, and his own tribute to the aid he obtained from the researches of Pasteur is unstinted; nevertheless, he had begun his experiments before he had heard of Pasteur's. I do not know any surgical contemporary of his who could have taken advantage of the opportunity thus offered; at any rate it is certain none of them did so. They all had anatomy at their fingers' ends, but this was the only science which it was then expected they should know, and it did not lead their surgery far along the path of progress.

Physiology the Basis of Surgery.

It is an old tradition that Anatomy is the exclusive basis of Surgery, but I am happy to think it is every day becoming more of a tradition and less of a practice. Many modern surgeons both in this and in other countries are physiologists as well as surgeons: Physiology has given scientific support to their Surgery, and has been in turn materially assisted by it. It would be invidious for me to mention the names of living individuals, and in an assembly like this it is not necessary: they are known to most of you. Their researches are becoming every day more numerous. They admit that Surgery is based upon experiment, in other words, upon Physiology, and that there is no possibility of its advancing in any other way. Like every other science, surgery without experiment must stand still, and no surgeon has any right to experiment upon the human subject if the lower animals are available for the purpose. That those who are learning operative surgery are debarred by Act of Parliament from practising on animals, although permitted to make any experiments they think fit upon human patients, is an incredible piece of folly, and ours is the only country in the world in which so heinous a measure could have been passed into law; the only nation where misplaced sentiment is allowed to displace reasoning, and where the necessities of humanity are subordinated to those of the brute creation. I wonder, does the public fully understand that by the present law no student is permitted to perform any operation upon an animal with the object of enabling him to do the same operation upon man, and to acquire the necessary skill to do it without danger to his patients. Which of you, I may ask, would like to be a first patient to be operated on, even for so simple an operation as the extraction of the crystalline lens? Yet the skill of the operator *must* be acquired by experience, and therefore men, women, and children must take the place of dogs, cats, and rabbits! Truly we are a nation of Pecksniffs! As Sir Rickman Godlee pertinently remarks, the strangest anomaly, as it must appear to our less sanctimonious brethren in the rest of the civilized world, is that our law, while it forbids the granting of a special licence to a distinguished doctor to experiment on a chloroformed frog in his own study in pursuit of science, allows anyone who can afford it to hunt a stag to death, or set two greyhounds to course a hare, and wager money on the result.

While it is the case that the progress of surgery must depend upon physiology, it is equally true that the progress of physiology depends upon surgery. Without an adequate knowledge of surgery many experiments which are necessary for the advancement of physiology could not be attempted. I have already given you instances of this. But I will call to mind the experiments on depancreatized animals which are at present in progress—experiments which are filling not only the pages of the medical and physiological journals but even the columns of the daily press. It is not everybody who is endowed, as Lord Lister and Sir Victor Horsley were, with the requisite knowledge and skill in both subjects to work single-handed. At the present time team work, suitably directed, is all the vogue; and this is largely why our knowledge regarding insulin has made such rapid advances within so short a time. Surely such a combination of physicians, surgeons, physiologists, biochemists, pathologists has never before been assembled to conduct any investigation as those who have been working in Toronto. In every physiological investigation on animals one of the team at any rate should be a surgeon, and I can conceive of no more advantageous training for a young surgeon than that which he will obtain by taking part in such an investigation.

Examples of the mutual value of co-operation between

living room, were unnecessary and wasteful; and it is still a common practice whenever a case of either of these diseases is reported to "examine the drains," and when they are found pervious to the smoke test, as they so frequently are, to insist on a more or less costly reconstruction. From the point of view of the doctor also, when the source of infection of a case of diphtheria was obscure, it was hard to be deprived of the old fetish of drainage, always so convincing to the patient and his friends, provided they were tenants, but equally a matter of extreme scepticism on the part of the owner of the property.

To justify our attitude, once it was realized that the actual micro-organisms responsible for these diseases could hardly ever, if at all, be conveyed by air polluted by the drains, we had to fall back on the theory that the inhalation of such air "lowered the resistance" of the patient, and was thus indirectly responsible not only for diphtheria but for many other infections, especially of the throat. It is this theory which is now challenged, and inasmuch as the reconstruction of drains costs a great deal of money, it is, I think, our duty carefully to examine the theory, to ascertain how drain air lowers resistance—if it does—and, in fact, whether we are justified on these grounds in demanding a considerable expenditure by owners of property. I must at this stage make it clear that I refer only to drains which are not gas-tight as proved by the smoke test. Drains which are so faulty as to permit pollution of the soil by liquid sewage, with all its putrescible organic matter and high bacterial content, are on an entirely different footing, and it would not, I think, be difficult to prove that such contamination of the soil might well be, and often is, a factor in the production of disease.

With regard to atmospheric pollution, however, recent hygienic doctrine is very subversive of once general opinions. Rosenau[1] says of it:

"Sewer gas, once a hygienic bugaboo, is now not seriously regarded by sanitarians. People naturally cling to the idea that anything that smells bad must be detrimental to health; sanitarians know, however, that our sense of smell is a very poor sanitary guide. Sewer gas is nothing more or less than air containing the volatile products of organic decay coming from sewers and drains. Some of these gases are more or less poisonous, but not in the great dilution ordinarily found in sewer air. As a matter of fact the air of sewers is ordinarily freer of dust and bacteria than the corresponding outside air, although it may be a little higher in carbon dioxide—10 to 30 volumes per 10,000. It is absurd to regard sewer gas as the cause of diphtheria, typhoid fever, scarlet fever, and other communicable diseases."

I think the logical way of approaching the question is to consider first the antecedent probability of such air actually causing the alleged lowered resistance, or as it is often called in rather vague language, "lowered vitality of the tissues," and then to examine any available evidence as to its actual effect on human or other animals. The supposed effect must evidently depend on the presence of micro-organisms or of chemical substances of a more or less poisonous nature.

This has been the subject of so much research that it is only possible to refer briefly to a few of the results obtained. Taking first the chemistry of the subject, we may dismiss the slight excess of carbon dioxide as negligible from the physiological or pathological point of view. Sulphuretted hydrogen is, of course, a lethal gas when in sufficient concentration. It has been the cause of many fatal accidents to men working in connexion with sewers, and was even described by Sir Benjamin Richardson as "the true disease-producing agent in sewer air."

This gas is not, however, a normal constituent of sewer air, mainly on account of its great solubility in water, and it is only in exceptional circumstances, where sewage is stagnant and decomposing, that it is evolved in sufficient quantities to become poisonous. Drs. Haldane and Hurtley found that the smell of sewer air was not due to H_2S, but to traces of volatile aromatic bodies—indol, skatol, and the mercaptans. It must be admitted, I think, that the presence even in extreme dilution of such very unpleasant bodies in the air of a house might cause loss of appetite and even a more or less psychic nausea and sickness. But in my experience such odours are always the subject of early complaint and are remedied before any actual illness arises.

When we consider the bacteriology of the question we find again a mass of research work all of which tends to acquit sewer air of its supposed pathogenic properties. Most of the experiments carried out by such authorities as Miquel in Paris, Haldane, Carnelly, and Delépine in England, Winslow and others in America, show that the bacterial count of sewer air is generally less than that of the outside air in the immediate neighbourhood, in spite of the enormous bacterial content of sewage. There is one important difference in this respect between sewer air and drain air, the latter being more liable to give a high bacterial count. This is because bacteria held in suspension in liquid sewage can only escape into the air as the result of splashing, which occurs much more frequently in drains than sewers. This effect of splashing, however, has been shown to be strictly localized and very temporary, the bacteria very soon returning to the liquid under the action of gravity. Both Delépine and Winslow came to the conclusion that most of the bacteria in sewer air were derived not from the sewage but from the outside air.

Both chemical and bacterioscopic results, therefore, indicate that the probability of air contaminated by sewers or drains causing disease, or even predisposing to it, is very low indeed.

We have next to consider what is known of the actual effects of the inhalation of such air on the living organism. Apart from experiment there is first of all the well known fact that men working continually in sewers are at least as healthy as any other section of the community, and that there is among them no excessive incidence of the diseases popularly associated with "sewer gas." That this is not due merely to an acquired tolerance to potential poisons is shown by the fact that occasional workers in concentrated sewer air, such as the numerous experts who have carried out the researches I have quoted, have experienced no ill effects from their exposure to sewer air.

When we come to experimental investigation the results are very similar. In 1896 Dr. Alessi published the results of his experiments in "Putrid gases as predisposing causes of typhoid infection."[2] He exposed rats, previously inoculated with attenuated strains of *B. typhosus* and *B. coli*, to the concentrated effluvia from an untrapped water-closet—a very different thing from sewer air or drain air—and found that under these conditions the susceptibility of the animals was enormously greater than that of the controls, 80 per cent. dying after inoculation, as compared with 3 per cent. of the controls. This experiment has, of course, no bearing on the effect of sewer air or drain air, as this is not what the animals were in fact breathing.

On the other hand, Professor Delépine found no difference in the health of animals kept in a room in which the air was entirely derived from a Manchester sewer and in those kept in a room in which the air was drawn from an adjoining garden.

Winslow and Greenberg in America exposed guinea-pigs to strong odours and gases from decomposing faeces, and found a retardation of growth during the first week, after which the animals returned to the normal in health and rate of growth.

The last test which can be applied is the degree of association between the actual incidence of diseases of the type under discussion and defects in drainage arrangements.

In Leeds a very careful investigation on these lines was made during the years 1899 to 1901. It was found that the percentages of drain defects in 5,342 houses where typhoid or diphtheria had occurred, and in 2,275 houses in which no disease had occurred, were respectively 27.94, 27.83, and 27.30—a virtual equality.

In Gloucester a similar inquiry showed that house-to-house inspection gave a percentage of 23.4 of drain defects, while in houses attacked by infectious diseases the percentage was only 11.5.

In St. Helens the house-to-house percentage was 21.4 with defects, in houses where typhoid had occurred 19.5, and where diphtheria had occurred 10.1.

The evidence on the whole of this question is summarized in the admirable Report of the Departmental Committee on Intercepting Traps in House Drains, from which part of the material for this paper has been obtained. Dr.

months among native Indians and mixed bloods. During the entire period not a single case of cancer was brought to my attention, although everywhere I inquired, although every doctor was asked the question, and although I personally came in contact with more than two thousand natives. The diet is very simple and the habits of the people are very regular."

Dr. F P. Fouché (British Medical Journal, June 30th, 1923) writes: "For six and a half years I was district surgeon in the Orange Free State. . . . During the whole of that period I never saw a single case of gastric or duodenal ulcer, colitis, appendicitis, or cancer in any form in a native, although these diseases were frequently seen amongst the white or European population."

Dr. Bernard Hollander, writing in the British Medical Journal, July 7th, 1923, says: "Thirty years ago I was interested in the causation of cancer when my friend, the late Sir Henry Morton Stanley, the African explorer, drew my attention to the fact he had observed, that the native races in the regions through which he had travelled were free from it. . . . only in coast towns, where natives mingled with Europeans, did cancer occur, and then only . . . one case in about ten or twelve years." Dr. Dyce Sharp (British Medical Journal, July 14th, 1923) fully confirms these statements as regards Northern Nigeria and Abyssinia.

I could furnish much more evidence showing that the freedom from any of the stasis sequence is due chiefly to diet, and to a lesser degree to the habits of these races. Place these people in a civilized community, as in the case of the American negro, and the diseases they suffer from are precisely those of the white man among whom they live and whose diet and habits they imitate.

Diet and Cancer.

I think I have proved that the primitive races, while living in their normal conditions and surroundings, are free from certain diseases of the gastro-intestinal tract and from cancer, all of which exist widely in civilization and are apparently becoming more and more frequent. This is so obvious in the case of cancer that much attention has been drawn to this particular stage of the stasis sequence and an enormous amount of money and time has been spent in endeavouring to find the origin of cancer. The chief cause of the failure of these efforts is the fact that cancer is not recognized as a part of a mechanical sequence and as never affecting a healthy organ, but is regarded as a primary condition. The cancerous cell will only grow in a suitable soil, and that soil is provided by the prolonged action of toxins in the tissues.

Chronic Intestinal Stasis.

I will now proceed to the description of the condition I called chronic intestinal stasis, and will endeavour to show how it runs parallel with civilization, producing misery and disease in a progressive and disastrous manner.

Many years ago, while walking over a bridge in Paris with my old friend Moynihan, he said to me, "You have completed your work on the treatment of fractures: why do you not turn your attention to the abdomen?" That remark sank into my brain and I went up to Leeds and saw the magnificent work he was doing in the school on which Mayo-Robson had shed so much lustre.

On my return to London I applied to the gastro-intestinal tract the same mechanical principles that I had formulated from the study of the changes which ensue in the bodies of labourers which I had employed in the treatment of fractures. They are the following:

1. Pressure produces changes in the structure and form of the bones and in the form and function of existing joints, while it determines the formation of new joints.
2. Strain produces change in the form of bones, and in the form of existing joints and also produces new joints.
3. When, apart from the exercise of pressure or strain, it is important, from the altered mechanical relationship of the individual to his surroundings, that a mechanism should be modified or an entirely new one developed, such a change takes place.

Its Mechanical Effects.

These laws show that we have a definite mechanical relationship to our surroundings, and that any variation in that relationship is followed by corresponding changes in our mechanism. In other words, this is the basis of evolution. Realizing the fact that civilization, because of the variation from the diet and habits of primitive man, meant constipation or the delay in the passage of material through the gastro-intestinal tract, I argued with myself as to what changes would develop in the viscera and in their attachment in order to obviate as far as possible the ill effects which must otherwise ensue from the stagnation of the contents of this tract. In the case of the large intestine to oppose the elongation and distension of the bowel it would be advantageous to strengthen the layers of peritoneum which secure the gut to the abdominal wall.

It is the habit in civilization to regard a single formed motion a day as the normal, so that the individual is habitually constipated for at least twenty-four hours, and the products of the food consumed during that period are accumulated in the large intestine, and in the first instance in its termination. Therefore strain is experienced first upon the outer layer of the mesentery which fixes the iliac colon to the floor of the fossa, and this strain is greatest about the junction of the iliac and pelvic segments of the colon. Corresponding exactly to this strain there is developed upon the outer surface of the mesentery, extending from its base, streaks or bands of peritoneum, fibrous in appearance. These spread gradually along its outer aspect and as they grow they contract and shorten this portion of the mesentery, so limiting the range of movement of the portion of intestine which it secures. Later this new growth of tissue, or the crystallization of lines of force, extends to the outer wall of the large bowel and gradually encroaches on its circumference. Not only does it pin the intestine immovably in the fossa, but by its progressive attachment to the bowel wall it rotates it upon its long axis and reduces its lumen very materially, and consequently obstructs the passage of faecal matter through it. The contents of this portion of the intestine are usually firm and often hard in consistency, so that it is easy to realize how difficult it may be for the faecal mass to negotiate this obstruction, even when it exists only in a moderate degree. Any interference with the free functioning of this portion of the bowel is a serious obstacle to efficient drainage, and the more marked the obstruction the greater the delay of material in the entire gastro-intestinal tract proximal to it.

To this particular obstruction I gave the name of the "first and last kink"—the *first* because it is the earliest to form, and the *last* because it is the lowest in the gastro-intestinal tract.

> I cannot exaggerate its importance, as I believe its capacity for harm is tremendous and far-reaching and that it is responsible for all the changes which are due directly and indirectly to chronic intestinal stasis. It spells the failure of civilization and is a veritable Pandora's box.

Consequent on the stagnation of material in the large bowel similar bands develop along the mesentery, securing the convexity of the loaded colon. These are most marked in certain situations, as at the splenic flexure, and again at the end of the ileum, where it is called the ileal kink. The secondary accumulation of material in the small intestine angulates the duodeno-jejunal junction, causing first dilatation of the duodenum and later ulceration of its first portion, spasm of the pylorus, dilatation of the stomach and its ulceration along the seat of strain—namely, the lesser curvature. This ulceration of the stomach tends readily to become cancerous.

The same tendency to the development of cancer occurs in the large bowel where angulated and obstructed, by acquired bands or by spasmodic action of the sphincter ani or of Mayo's circular band of muscle, in direct proportion to the degree of obstruction and to the increase in consistence of the faeces. The stagnation of the contents of the large

and presumed that no one would suggest that drain air had any connexion with the spread of scarlet fever or other infectious diseases.

Dr. JOHNSON SMYTH (Bournemouth) believed that many cases of chronic illness or debility were maintained by the inhalation of sewer gas, and that this was demonstrated by the improvement that followed removal to healthier conditions.

Dr. WYNNE, in reply, especially thanked Dr. Wynter Blyth for contributing to that Section the results of his original and most valuable recent research work. He thought those results largely confirmed his own conclusions. He had already emphasized the distinction between defects which only permitted the escape of air or other gases and gross defects which permitted the escape of liquid putrescible matter. The objection to privy middens did not depend only on their foul emanations, though these were much more serious than drain air and quite capable of producing loss of appetite and sickness. They were always breeding places for flies, and in one case he had been able to trace an outbreak of typhoid fever to the emptying of infected faeces from a privy midden on to an unpaved yard, whence the infected material was carried into the adjoining houses either as mud or dust. He realized that to deprive the family doctor of the time-honoured theory of bad drainage as a cause of unaccountable disease might be a serious blow to him, but he did not think it was good either for the public or the profession that they should continue to promulgate doctrines that they knew to be false, while it was essential that every effort should be made to trace disease to its true source.

CARBON MONOXIDE A PREDISPOSING CAUSE OF PULMONARY TUBERCULOSIS.

BY

E. B. HAZLETON, M.D., M.CH.

ABOUT twenty years ago I was consulted by a male patient, aged 38, who suffered from morning headache, anorexia, some shortness of breath on exertion, and lassitude. Remedies such as preparations of iron, arsenic, digitalis, failed to effect much improvement, and, some years after I first saw him, he contracted pulmonary tuberculosis. On visiting him for the first time in his bedroom I detected a distinct odour of coal gas. He had occupied the room for a period of ten years, and the conditions had been about the same during that time. I came to the conclusion that the first illness was due to the nightly inhalation of small quantities of coal gas.

From the observation of a large number of similar cases I was led to conclude that the inhalation of coal gas, even in very small quantities, continued for a considerable period, may be a predisposing cause of tuberculosis.

Placed in order of quantity the constituents of coal gas are:

Hydrogen,
Marsh gas (methane),
Carbon monoxide,
Olefiant gas (ethylene),
Acetylene,
Nitrogen,
Carbon and sulphur dioxide,
Hydrogen and ammonium sulphide,
Carbon disulphide.

Out of this list I only propose to consider the action of carbon monoxide.

A sample of air was taken from a bedroom in which there was a slight escape of gas. An empty oxygen cylinder, having the valve widely open, was left in the room over night, and early in the morning a foot pump was placed on a level with a sleeper's head and the air of the room pumped into the cylinder to a pressure of 100lb. per square inch, and the valve closed.

Mr. Wiggington, lecturer in the Department of Fuel Technology, Sheffield University, very kindly undertook the analysis of the contained air. As a result of the analysis we may conclude that where we are enabled to detect the presence of coal gas in a room by the sense of smell, the amount of carbon monoxide present will be about 0.02 per cent., and that in quite a large number of cases 0.01 per cent. is present.

The blood of an average man is capable of absorbing 600 c.cm. of either oxygen or carbon monoxide, when it is said to be saturated. If both gases are present in the inhaled air the haemoglobin of the blood will combine with the carbon monoxide in preference to the oxygen—the ratio being 200 of the former to 1 of oxygen.

FIG. 1.—A type of gas bracket frequently fitted in bedrooms.

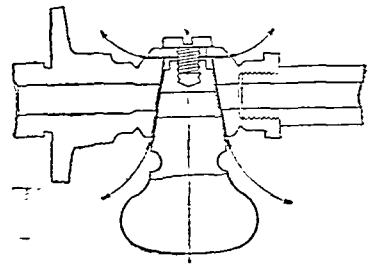

FIG. 2.—Showing a condition which nearly always results after some months' use. The retaining screw at the top of the tap becomes loosened and the tap sags downwards, permitting the gas to escape, as shown by the arrows.

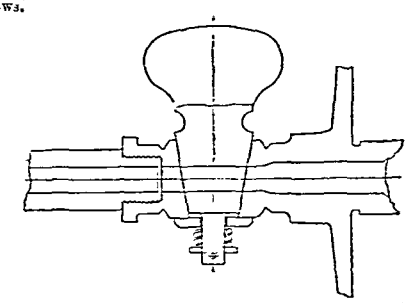

FIG. 3.—Showing a simple remedy. By direct experiment it is found that the spring is unnecessary, as, if the tap be placed as shown, the force of gravity will be sufficient to keep the sides in close apposition and thus prevent all escape of gas.

The ordinary rate of breathing when a man is at rest is 7 litres of air per minute, of which 5 litres reach the blood, so that if the air of a room contains the very small quantity of 0.01 per cent. of carbon monoxide, then 0.5 c.cm. of this gas will reach the blood per minute; and assuming that all this is absorbed, in one hour the blood will absorb 30 c.cm. and become 5 per cent. saturated, and in eight hours will become 40 per cent. saturated.

Le Neve Foster and Haldane have, however, found in their investigations of mine air that only three-sevenths of the carbon monoxide which reaches the blood is actually fixed by the haemogoblin; hence in eight hours the amount of saturation would be rather over 17 per cent., and this amount of saturation is quite sufficient to produce the symptoms of morning headache, shortness of breath, anorexia, lassitude, and, after some months, anaemia. We can readily understand that, in consequence, there may be a distinct inhibition of phagocytosis and a lowering of the resisting power of the mucous membrane and epithelial lining of the bronchi to the invasion of tubercle bacilli.

DISCUSSION.

Dr. WYNNE (Sheffield) said the object of Dr. Hazleton's paper was very interesting in connexion with the previous discussion. There could be no question as to the harmfulness of coal gas even in very high dilution, especially in

Cameron Prize Lectures

ON

THE PRESENT POSITION OF THE VITAMIN PROBLEM.

Delivered in the University of Edinburgh, June 27th and 28th, 1923,

BY

F. GOWLAND HOPKINS, D.Sc., F.R.S.,
PROFESSOR OF BIOCHEMISTRY IN THE UNIVERSITY OF CAMBRIDGE.

Lecture II.—RICKETS AS A DEFICIENCY DISEASE.

In this lecture I propose to consider the evidence obtained in the course of recent experimental studies, which shows that a specific dietetic deficiency plays an important part in the causation of rickets. There seems no doubt that a vitamin is involved in this deficiency or I should not now be dealing with the matter. The evidence for this claim doubtless needs closer scrutiny than was necessary in the case of certain nutritional failures dealt with in the previous lecture. For this very reason, however, I have chosen rickets as the subject of my second discourse. It is well to avoid the danger of suggesting that in such studies experimental results are always easily obtained or interpreted, especially when the reproduction of a particular disease as defined by clinicians is in question. I do not think you will deny, however, that in its final outcome the experimental study of rickets has fully justified its pursuit. Another reason for my choice of subject to-day is the desire to pay a public tribute to the work of a friend whose successful efforts to throw light upon the etiology of rickets have, I feel, lacked proper appreciation in certain quarters.

The history of the recent experimental studies of rickets and of the conflict of opinion to which they have led is in itself interesting and instructive. Honest opinions held in good faith have sharply differed. Yet the ascertained facts are now grouping themselves in such a way that both sides in the conflict may come together with flags still flying. Each side has been right, but neither side (because of the tendency to take too narrow a view) has been quite right. I would like, perhaps, just to add that I think this qualification applies especially to the side which is not my own.

There have been many views concerning the origin of rickets, but of these three only need be in your minds. One has looked upon various defects in hygiene as responsible for the disease, but from these defects faulty diet has been, on this view, expressly excluded. A second view has attached, on the other hand, a special importance to diet. It is this view, of course, in its most modern form, which involves the conception of a specific food deficiency, that I am here to support. The third view has postulated infection as a factor in the causation.

In 1908 Dr. L. Findlay published the results of experiments upon dogs which, together with his experience as a clinician, led him to conclude, alike on experimental and clinical grounds, that confinement, with consequent lack of exercise, is the main factor in causing the disease. In 1919 appeared as one of the reports of the Medical Research Council the results of an important study carried out in Glasgow by Miss M. Ferguson. This work was inspired by Professor Noël Paton, and was published with an introduction by Dr. Findlay, who had himself carried out, several years previously, a similar investigation. Miss Ferguson's study involved a careful comparison of the economic conditions in rachitic and non-rachitic families respectively. It dealt with hundreds of families of which the food budgets and housing conditions were studied with great care. The general conclusion arrived at was that inadequate air and exercise were the most potent factors in inducing the occurrence of rickets. It was held proven that diet played no essential part in the etiology of the disease. Upon these experiments and observations, supported by some others made more recently, are based the views of what is sometimes called the Glasgow school.

In direct conflict with these views were the results of Edward Mellanby's experiments, of which a preliminary account appeared about a year after Miss Ferguson's report, though they had then been long in progress. I feel it incumbent upon me to insist strongly upon the importance of the work of my friend and former pupil, because in certain quarters at least it was received with somewhat carping criticism, still not frankly withdrawn. Moreover, not all among the more recent experimentalists, whose work took origin from Mellanby's, and has in effect confirmed it, have given him sufficient credit as a pioneer. The earlier and chief part of Mellanby's work was done at Cambridge, with support from the Medical Research Council. Although I had no hand in it, I can testify to the care with which it was done and to the patient enterprise it involved. Mellanby was blamed at the outset for making public claims before his experimental results had been fully published; but I think we should all sympathize with the dilemma of young investigators to whom priority is important but who yet suffer from a praiseworthy desire to polish their work before publishing it. There was plenty of evidence behind Mellanby's first statements. The Medical Research Council was also blamed at this time because in the first edition of the monograph, for which the Council is responsible, dealing with accessory food factors, a claim, supposed to be premature, was advanced for the importance of a dietetic deficiency in the causation of rickets. I do not think, however, that there will be anything to withdraw on the appearance of the second edition of the monograph—which is imminent—though there are many facts, derived from various lines of study, to supplement what was said in the first edition.

Mellanby's main observations were made upon puppies, and one minor criticism of his method was that in comparative experiments he did not generally use individuals from the same litter. This may appear a small point, but it is one of some interest to which I should like to devote a moment. It is known in the case of several metabolic anomalies — alkaptonuria, for example — that they are inherited on Mendelian lines. I have recently seen at Cambridge an illustration of such inheritance in the case of an anomaly which was not apparent till the metabolism was experimentally studied. I will not be more precise in my reference as the observation is not mine and is not yet published. But suppose among dogs there exists a sharp variation in susceptibility to rickets (and this would seem to be the only justification for insisting upon the use of puppies from one litter), then if by chance either relative immunity from or hypersensitivity to rickets were a recessive Mendelian character, which from what I know seems by no means impossible, segregation might have occurred in the very litter chosen for experiment. This might entirely upset experimental comparisons. Two puppies from one litter may, of course, be more alike than any two not so related. They may, on the other hand, in respect of a particular character, show exceptionally sharp contrasts. For studies in metabolism I would choose, whenever possible, dogs of the same breed and age, but I would rather select from an average population than from the same litter. This, however, is a digression.

Mellanby, as I have said, has worked on a large scale, and must by now have employed in experiments nearly 500 dogs. His general plan of work was on the following lines. Having established a standard diet which could be relied upon to produce rickets in puppies—an end that could be attained without much difficulty—he replaced one constituent of this diet by other material and observed the effect in respect of the development of rickets. In particular he exchanged one form of fat for another, and found that, while one fat might have little or no preventive power, another might prove strongly prophylactic. He found, further, that the fats most potent in this respect were those which on other evidence were known to contain the highest proportion of vitamin A. As I can testify, Mellanby arrived at this result without bias of any kind. It was originally unexpected by himself. I ought to mention that for the diagnosis of rickets he employed, apart from the general appearance of the animal, x-ray photography, histological examination, and also estimations of calcium in the bones.

Mellanby found that cod-liver oil was particularly potent in the prevention and cure of the experimental rickets. If

Reports of Societies.

?ERIMENTS WITH "DIAPLYTE" TUBERCLE ANTIGEN.

ETING of the Section of Pathology of the Royal Society edicine was held on October 16th, with Dr. J. C. G. SGHAM in the chair, when Dr. E. H. KETTLE gave a unication on experiments with defatted (diaplyte) cle antigen.

Kettle said that on analysing Professor Dreyer's ial paper it seemed that the claim that the new antigen efficacious in the treatment of tuberculosis rested ly upon the treatment of four guinea-pigs which had infected with a strain of tubercle bacilli of low nce. The evidence that the course of the disease was rably influenced by the treatment was (1) the increase ight of the animals, (2) the diminution in size or disrance of palpable lesions, and (3) the fibrosis and ing of lesions in such animals as died. Dr. Kettle's riments showed that these changes could occur naturally inea-pigs infected with tuberculosis without any treat- at all; further, that the most intense sclerosis and ing of tuberculous lesions in one part of the body t be associated with the rapid progress of the disease here. Dr. Kettle's attempts at treatment of guinea- had been carried out with an antigen (No. 58) given m June by Captain S. R. Douglas, F.R.S., who had elf received it from Professor Dreyer. Recently ain Douglas had reached the conclusion that this par- ar batch of antigen was unsatisfactory and that no reliance could be placed on the results obtained there- Dr. Kettle said that the results of his own experi- s were in any case ambiguous; some of the animals ed healing of lesions, but this was associated with active ess of the disease elsewhere. The general conclusions ed at by him were that in view of the nature of the is to be seen in his control animals, which were demon- ed, the efficacy of the antigen in the treatment of tuber- is in guinea-pigs had not been established; and that ew of the natural healing which tended to occur in animals, comparable with the changes familiar in an pathology, much sharper reactions must be obtained e the value of any antigen could be considered to be nstrated experimentally.

Pollen Antigen Prepared by Dreyer's Method.

. J. FREEMAN read a paper on pollen antigen prepared reyer's method. He said that it seemed interesting y whether Dreyer's technique for the defatting of rial vaccines preparatory to constructing an antigen them would prove a useful method for the defatting ass pollen before extracting an antigen from it. The est lay in the fact that the strength of the grass pollen gen could be very accurately determined by suitable riments on the skin of sensitive (hay fever) subjects. years the process of defatting the pollen before extrac- had been carried out regularly, and it had only essen- differed from the full Dreyer technique in that there been no initial fixing with formalin. This was, of se, the one point in which Dreyer's technique had red from the previous work of Captain Stewart Douglas. grams of pollen were extracted by Dreyer's method, two other specimens of 5 grams were extracted as con- one of them in exactly the same way as the Dreyer od without the formalin, the other in the more usual ser of the laboratory. The preparations were tested on mber of patients and on a number of different occa- . The extract made according to Dreyer's method ed itself to be from 200 to 1,000 times weaker than the extracts. This would suggest that either the antigen extracted in the formalin, or else that the formalin bined with and spoilt the antigen. If anything com- ble happened in connexion with the tubercle bacilli it ed that the Dreyer defatted vaccine was very much ter than the bacillary emulsion, which, in Dr. Freeman's ion, might very well be consistent with its being more tive.

Etiology of Malignant Disease and the Leukaemic Phenomena.

Dr. JAMES YOUNG read a paper entitled "Further observations on the etiology of malignant disease and the leukaemic phenomena," illustrated with microphotographic slides. He stated that in cancerous tissue there were rounded or oval yeast-like bodies which could be seen to germinate when the tissue was incubated. While adapted to the living tissue they were ill adapted to the test tube and became rapidly changed into elements suited to the new environment. In this way a cocco-bacillary flora was obtained, which was easily stabilized on the laboratory medium. During its germination the yeast-like body became pale and in the "plasm" minute granules appeared which subsequently enlarged into the familiar flora. Thin threads and filaments frequently appeared as an intermediate phase. Dr. Young had long believed that the organism locked up in the cancerous tissue had the characters of a fungus. He described a fungus which he had obtained from seven cancerous tumours. This was stable on a dry medium, possessing branching hyphae and conidia, but in a fluid medium was extremely unstable and rapidly broke down into cocco-bacillary elements. During the process yeast-like "plasm" and filamentous phases were common, and in every detail the morphological picture found in the incubating cancerous tissue was reproduced. Injection of the bacillary phase of the organism obtained from mouse cancer produced in mice a diffuse and progressive neoplastic lesion (pseudo-leukaemia or lymphosarcoma) in which the organism appeared not in the form of the bacilli injected but as yeast-like elements. By incubating the affected tissues these rapidly became transformed into cocco-bacillary elements and the morphological process was again similar to that in incubating cancerous tissue. Dr. Young pointed out that the investigations of Hort, Löhnis and Smith, Mellon, Almquist, Reid and Orr, de Negri, and others had proved beyond doubt the varying morphology possessed by familiar laboratory bacteria, which were to be looked upon as stabilized phases of organisms that in other conditions of growth possessed "plasm" and blastomycete characters. He showed that the organism used for his experimental injection was a lactose fermenter, belonging to the *B. coli* group. From the chronic lymphosarcomatous lesions, on the other hand, in the majority of cases a non-lactose fermenter belonging to the Salmonella group was obtained. The original organism produced a slowly progressive neoplastic lesion, but the latter organism produced an acute rapidly fatal lesion, although in its gross anatomy this might resemble the other. The sequence of the experiment implied clearly that the non-lactose fermenter was a secondary invader or that it was a mutant. If the latter were true it meant that cancer and the leukaemic phenomena were linked up with the typhoidal infections. In this connexion it was striking to note that the typhoidal lesion was essentially proliferative and might possess true malignant properties (Mallory) and that the possibility of the leukaemic phenomena being related to the typhoidal infections had already been mooted (Ewing). Dr. Young gave reasons for his belief that in the healthy animal the only cells that could, after infection, proliferate in a tumour-like fashion were the primitive cells. This finding had a striking analogy in the parasitic tumours of plants. It explained the leukaemic phenomena and at the same time the difficulty of producing cancer by artificial infection. It had long been recognized that a lengthy preparation of the mature cell was necessary for cancer to occur, and Dr. Young described experiments supporting his view that chronic irritation (tar, soot, heat, x rays, etc.) operated by throwing the mature cell back to the primitive state, when alone infection would produce cancer. In each of four experiments, comprising in all 152 mice, the animals were divided into two batches. One lot was vaccinated with the organism of the research, the other was kept as controls. All the animals were painted with tar twice weekly. The results were that after seven months in 76 controls there were 25 tumours, whereas in 76 vaccinated animals there were only 5. These experiments supported the view that tar cancer was due to infection of damaged cells by an organism which was a common denizen of the laboratory cage.

that deficiency in an organic dietary factor closely associated with (but not necessarily identical with) the vitamin A plays an important part in the causation of rickets.

The further evidence which I would now like you especially to consider comes from the study not of animals but of children. Before dealing with this truly conclusive evidence I must, however, make brief reference to the remarkable studies which have demonstrated that radiant energy directly influences the processes of calcification in the body.

It is remarkable how long information with regard to the effect of light upon rickets has been in the literature without receiving general notice. As far back as 1890 Palm called attention to the fact that sunlight is very potent in preventing or curing the disease. Later, in 1912, Raczynsky showed that sunlight has a remarkable effect in promoting mineralization of the tissues generally. In 1919 Huldschinsky showed that precisely the same result can be got by the use of the radiations from a mercury-vapour quartz lamp, and demonstrated the actual healing of rachitic lesions in children under the influence of these radiations. Hess of New York has with his co-workers confirmed and extended these observations. They have, moreover, been extended to experiments on animals. McCollum and his colleagues have shown that in the case of rats the antirachitic effect of light is similar to that of cod-liver oil in correcting dietetic deficiencies. If, for instance, the diet lacks vitamin "X" exposure to sunlight, or to the mercury lamp radiations, will prevent the occurrence of rickets. On the other hand, as Hess, and later, Goldblatt and Soames, have shown, if the diet is satisfactory, and contains a sufficiency of the vitamin, rickets never develops, even when the animals are kept in the dark. It would seem, indeed, as though certain radiations and the influence of vitamin may each act vicariously for the other in regulating the mineral metabolism of the body. This is a truly remarkable relation. When we understand it we shall possibly know much more than we know now about the functions of vitamins. Now since a proper supply of sunlight is certainly a factor in hygiene, and a vitamin is no less a factor in diet, I think I was right in suggesting earlier in this lecture that the facts as now known should form a basis for an honourable peace between the two opposing schools of thought then mentioned.

In extending, however, the study of radiation from rickets to the more fundamental phenomenon of growth itself, Miss Margaret Hume has discovered facts which show that light may, after all, not act vicariously for the vitamin nor (as has been suggested) bring about a photosynthesis of that factor in the body. Rather does it render more mobile the residual stores of the vitamin already in the tissues. When the vitamin is absent from the food exposure to suitable radiations will maintain growth for a period, but not, it should be noted, indefinitely. Miss Hume concludes from her work that (in relation with growth at least) light can neither create nor be substituted for the vitamin; it appears to act as an economizer or activator of the stores so that a deficiency in the supply is less readily felt. When, however, the stores are exhausted the animal fails.

The briefest reference only can be made to another and most fascinating aspect of this subject. In quite another connexion it had been shown by Kestner that exposure to air previously irradiated may have the same effect upon an animal as direct exposure to the radiation itself. Acting upon a hint from Professor Hans Meyer, Miss Hume determined to test whether this would prove to be the case in connexion with her own studies. She found that as a matter of fact rats fed upon a diet deficient in vitamin A, when kept in glass jars containing air which had been exposed to the mercury-vapour quartz lamp for ten minutes every second day, showed definite prolongation of normal growth when compared with control animals not so treated. Miss Hume's work was mainly done in Vienna as part of the enterprise to which I would now direct your special attention.

Most of you will doubtless realize that I allude to the studies carried out in Professor Pirquet's clinic by Drs. Chick, Dalyell, and Mackey, Miss Henderson Smith and Miss Hume. These five women workers went to Vienna under the combined auspices of the Medical Research Council and the Lister Institute. They submitted themselves to three years' exile in order that studies might be made where material was abundant and conditions ideal. The conditions were indeed ideal, and all who read the Medical Research Council's report which deals with the enterprise will admit that the final results were proportionally clear and unequivocal. The intention underlying the enterprise was to study the effect upon the prevention and cure of rickets in children of diets poor or rich respectively in those fats which contain vitamins. The organization of Pirquet's clinic was such as to convert this comparison into an experiment perfectly controlled. It was an experiment wholly justified because the control diet, relatively deficient in the vitamin, was one which all the infants would have received but for the arrival of the British workers. It was a diet, too, of which the details had been carefully worked out by Professor Pirquet himself, than whom there is no higher authority on such matters. Before the observations under review were made he fully believed in its efficiency, the belief being based in the main upon its adequacy in respect of calories. The experiment gained greatly in accuracy because advantage was taken of the remarkable organization for the quantitative feeding of children which Professor Pirquet has established, and because all factors of faulty hygiene could be completely eliminated. The accommodation available permitted observations to be made upon sixty infants at any one time. The methods used for diagnosis must, I think, satisfy the most critical. Fortunately the work of the latest year was done with full knowledge of what had been discovered elsewhere concerning the influence of sunlight and irradiation. This factor was therefore controlled and separately studied. I cannot, unhappily, stop to put the details of the results before you. It seems enough to quote from the statement with which Professor Pirquet has prefaced the Medical Research Council's report.

"When Dr. Chick and her colleagues on behalf of the Medical Research Council and the Lister Institute began their work in my Klinik in 1919," he writes, "I had little expectation that it would lead to results of much practical value. At that time I was of the opinion that a vitamin deficiency in our ordinary diet was a very exceptional occurrence, as, for example, in case of infantile scurvy (Möller-Barlow disease). With regard to the etiology of rickets I held the view that it was an infectious disease, widely prevalent in this part of Europe, producing severe symptoms only in case of those children who possessed special susceptibility as the result of an inherited tendency, of a faulty diet, or of defective general hygiene. I imagined rickets to be a disease comparable to some extent with tuberculosis."

Professor Pirquet was indeed a critic not easily convinced, but later in his preface he states:

"The crucial experiment was thus successfully made. The British workers succeeded with the accuracy of a laboratory experiment, in a city where rickets is extremely prevalent, in maintaining a large number of artificially-fed babies free from the disease, and further, in the same wards, were invariably successful in healing children admitted with rickets already developed.

"With this the chain of evidence appears to me to be complete that animal experiments upon rickets are applicable to man, that rickets is a disease of nutrition, and that deficiency of fat-soluble vitamins in diet is an essential cause of the disease."

Thus is Edward Mellanby's pioneer work confirmed and his conclusions justified.

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Treatment of Glaucoma.

Mr. H. Taylor read a paper on the operative treatment of glaucoma. He first showed several cases of corneo-scleral trephining for chronic glaucoma. In one case iridectomy had been done on the right eye and the left eye had been trephined. In the right eye the iris was included in the wound, but the tension was still *plus*. There was a bleb in the left eye, but no rise of tension. In his opinion iridectomy was only successful when a piece of iris was prolapsed in the wound (iris inclusion) which might act as a drain. He divided chronic glaucoma into two classes: (1) when a small amount of drainage only was necessary to re-establish equilibrum; and (2) where a considerable amount of drainage only would suffice. In the first class iris inclusion might be all that was required; in the second class sufficient drainage could only be procured by trephining. The bleb over the trephine hole was undoubtedly objectionable, but it was doubtful if it could be avoided. If the case trephined was in the first class no bleb would form, but in the second it probably would. Therefore the bleb was not due to the operation, but to the amount of fluid which must drain away. He had been unable to decide before operation in which category a case could be placed. Iridectomy, even if the iris was included, might not function in the first class and most certainly would not in the second class. Therefore, from all points of view he considered that sclero-corneal trephining should always be practised. Further, he was firmly of opinion that if chronic glaucoma was once diagnosed no time should be wasted on palliative treatment, but an operation should be performed as soon as possible. *Lieut.-Colonel* Herbert, *Dr.* Bryant, *and Dr.* Daldy *took* part in the subsequent discussion.

Dr. Galt showed microscopical slides of *Aspergillus niger*, ringworm in hairs, normal pancreas, pancreas from an advanced case of diabetes in an adult and also in a child aged 9. Mr. A. J. Hutchison gave details with reference to the slide of *Aspergillus niger*.

SURGERY OF THE LARGE BOWEL.

The annual meeting of the London Association of the Medical Women's Federation was held on October 8th at the Elizabeth Garrett Anderson Hospital, when Dr. Louisa Martindale, the retiring president, vacated the chair to her successor, Miss M. M. Chadburn.

Miss Chadburn first discussed briefly some of the points raised by Sir Humphry Rolleston in his recent address at the London School of Medicine for Women, and then proceeded to give an address on the surgery of the large bowel. She surveyed the diseases of the large bowel which had fallen to her care during the years 1905-22, excluding pressure effects on the bowel from outside, cases of adhesions and their sequelæ, diseases of the appendix, haemorrhoids, fissures, fistulae, and complete perineal tears. It had been found difficult to trace cases, but it was encouraging to find a few cases of carcinoma of the rectum, sigmoid, colon, and caecum living as long as eight to fourteen years after radical excision. In regard to the incidence of disease in the large bowel, the great preponderance of malignant disease was noteworthy; of the malignant cases the large proportion of cases were inoperable when first seen, and the advanced stage of those that were operable, and the rarity of the discovery of malignant disease of the large bowel at an early stage, were striking points. Of 181 consecutive cases 121 were carcinomata, of which 62 were operable when first seen. Miss Chadburn did not believe that any more radical operation than the abdomino-perineal excision would be discovered for rectal carcinoma. She considered that it was now possible to say that operations on the large bowel were as radical as was physically possible. Advance must be sought either in obtaining cases earlier for treatment, in some treatment other than operative, or in prevention. Earlier diagnosis seemed the most hopeful means of improving results, but unfortunately the onset was insidious. Miss Chadburn concluded that operations for carcinoma in the large bowel were borne well, especially in early cases; those cases that died from operation in her series were almost without exception very advanced cases. A large proportion of them had more than the affected bowel removed: for example, in three cases she had to remove the uterus and part of the vagina, in one the left ovary and tube and an adherent portion of small intestine, in order to remove a rectal growth, and in another case the left kidney and ureter because of the involvement of the ureter in a growth of the sigmoid colon. As regards technique, she performed lateral anastomosis of the bowel or an end-to-side anastomosis as being safer, easier, and less likely to contract than an end-to-end anastomosis. For rectal carcinoma an abdomino-perineal excision, if possible, was her operation of election, with or without colostomy. Where the vessels of the sigmoid loop and the position of the growth allowed, she brought the sigmoid to the anus, leaving the sphincter after incising it to secure drainage of the bowel. These patients had a very fair and in some cases a very good control. A perineal excision, though not the operation of election, could be a very free one if approached by the vaginal route. Miss Chadburn did not think there was ever any advantage in taking away a portion of the sacrum; as good a clearance of glands could be obtained without doing so, but not nearly so good a clearance as by the abdomino-perineal route, where the inferior mesenteric artery and the glands on it were removed at the highest possible point.

Reviews.

PSYCHOLOGICAL TYPES.

Professor C. G. Jung has written an important work entitled *Psychological Types, or the Psychology of Individuation*,[1] which he describes as the fruit of nearly twenty years' work in the domain of practical psychology. Psychiatrists who gained inspiration from his earlier work on dementia praecox may perhaps regret that the author did not confine his attention to those clinical studies which promised so much, but the trend of his investigations into delusional states, and his own natural bent, have led him, perhaps inevitably, to apply his empirically gained knowledge to the problems of life as a whole. Some readers may feel that his outlook is philosophical rather than scientific; but whether this be so or not, his knowledge of human nature has not been evolved from the depths of an armchair, after the manner of some philosophers, but is based upon an intimate knowledge of the inner mental life of all sorts and conditions of men. This experience of human nature, together with a wide knowledge of human aspirations as expressed in ancient and modern literature, have enabled him to produce a highly original work which will be read with advantage by those who interest themselves in the problems of life and personality.

Though we are all aware of the fact of individuality, we should find it difficult to define the differences between one individual and another. The academic psychologist has left the matter severely alone, and it is to the dramatist, novelist, or biographer to whom we turn for convincing pictures of the various human types. Excellent character studies of abnormal persons have been presented by medical psychologists; but the most comprehensive attempt at a psychological classification of personality types is undoubtedly that evolved by Jung in the book before us. He has found that humanity can be divided into two contrasting types, which he terms *introverted* and *extraverted* respectively. The destinies of the extravert are conditioned more by external objects, and the introvert more by his inner self—by his subject. The interest flows outward in the one case, inward in the other. To quote from the author:

"If a man so thinks, feels and acts, in a word so lives, as to correspond directly with objective conditions and their claims, whether in a good sense or ill, he is extraverted," but in the introvert, "the subject is and remains the centre of event

[1] *Psychological Types, or the Psychology of Individuation.* By C. G. Jung. Translated by H. Godwin Baynes, M.B., B.Ch.Cantab. London: Kegan Paul, Trench, Trübner and Co. 1923. (Demy 8vo, pp. xxiii+6[illegible] 25s. net.)

impulses from the higher levels. The incoming nerve impulse may cause inhibition of expiration and excitation of inspiration or the reverse. In the case of some afferent impulses their action may be directed solely to the production of inspiration or expiration. The application of cold to the skin brings about inspiration, while stimulation of the mucous membrane of the larynx excites a violent expiration with the other movements associated with coughing.

The passage of the nerve impulses through the centre may be varied in a number of ways. They may be directed into the efferent inspiratory and expiratory neurones alternately for different periods of time. If alternating rapidly the movements of respiration are quick. If alternating slowly the respirations are slow. The depth of the respirations probably depends upon the number of neurones concerned as well as upon the rhythm. It is possible that we have constant variations going on in the neurones affected during quiet respiration, first one set and then another coming into action, fluctuation taking place just as it has been shown to occur in the capillary circulation. When the stimulus to respiration is powerful the impulses spread very widely over the efferent neurones, but alternate between inspiration and expiration. The number of neurones concerned in respiration is very variable. Even in quiet respiration the neurones affected are spread over a wide area, but in dyspnoea practically all parts of the lower level of the central nervous system are concerned on the efferent side. The nerve impulses seem, however, to come from the centre in the medulla oblongata and to be distributed from it to the efferent neurones.

If automatism is claimed for the centre it is difficult to see where this property is to be located. It cannot be in the efferent neurones, for the centre of the phrenic nerve shows no sign of it when isolated. If in the afferent nucleus of the vagus nerve, it is difficult to see how respiration is made to alternate between inspiration and expiration and is at the same time subject to control by other incoming nerve impulses. It is much simpler to regard the neurones as *having the same property as other neurones elsewhere*, and as responding only to nerve impulses coming to them from other neurones. The centre is affected in disease. Its activity is increased in febrile conditions, and Haldane has shown that fatigue of the centre results in rapid shallow breathing. It is unlikely that fatigue or the toxins of disease act primarily upon the cell bodies of the neurones; they are far more likely to bring about their results by action upon the synapses on the nerve pathways in the centre. In the rapid shallow breathing of fatigue the blood may be imperfectly aerated, yet the stimulus of the hydrogen ion content is ineffective and does not bring about a sufficient depth of respiratory movement to ventilate the lungs. The special receptor, if it exists, might be the site of the fatigue, but fatigue of the centre may be caused by breathing against a resistance, and in such case there is nothing to fatigue the special receptors. The evidence seems clearly to be in favour of a synapse fatigue.

More is probably known about the respiratory centre than about any of the others, but our knowledge of it is far from satisfactory. The vasomotor centre is another of the vital centres which presents similar problems. Unlike the respiratory centre it is unaffected by voluntary influence but is subject to changes by the nerve impulses underlying emotional states. It is also supposed to be directly influenced by conditions of the blood. Here again such influence is better explained by changes in resistance of the synapses than by the postulation of special receptors in the centre.

Drugs are often stated to exert their influence by direct action upon certain centres. Apomorphine is said to stimulate the vomiting centre. If it does have a direct action upon the centre the site of its action is most probably upon the synapses and not upon the neurones or special receptors.

If we are to regard the neurone as a conducting mechanism and not as an automatic generator of nerve impulses, the nerve centre may be looked upon as a network of nerve pathways which are so arranged as to conduct the nerve impulses in definite channels for the sake of obtaining a co-ordinated end-result. Certain pathways are, as it were, canalized in the centre, and incoming nerve impulses are directed and distributed to the efferent neurones. The controlling influence in the nerve centre is not the nerve cell but the synapses. We prefer to define the nerve centre as a collection of nerve pathways or neurones which are so arranged that nerve impulses coming into them are co-ordinated and distributed to bring about a definite end-result. The co-ordination and distribution effected in the centre depend upon changes in the synapses. The synapse is the all-important factor in the centre, and is the probable site of the action of fatigue and of other extraneous influences.

Formation of Pathways or Centres.

Some pathways or centres are preformed in the embryo. Their anatomical arrangement is such that afferent impulses coming into them bring about a definite end-result which is not the product of education. The vital reflexes of the body are examples. Most of these, such as the respiratory, cardiac, and vasomotor reflexes, remain during the whole of life. The sucking reflex of the newly born child is an example of one in which the centre is preformed but does not persist. Other centres are educated, and we have seen that the process of education consists largely in the cultivation of the synapses so that nerve impulses pass readily over some and not over others.

An interesting and important development of the postural reflexes takes place after birth in the child, and the pathways of the nerve impulses concerned are slowly educated. The attitude of the child, or its postural position *in utero*, is one of flexion. In the newly born child the muscles which produce flexion at a joint are more developed than are the opposing muscles. After birth an erect posture, or one of extension, is gradually assumed, and a long time elapses before the extensor muscles attain the relatively greater strength which characterizes them in the adult. With the development of new reflex paths the extensor muscles gradually assume a predominance. Failure to develop the new postural reflexes is a matter of considerable clinical importance, and, according to Blundell Bankart, is the real cause of the deformities which so commonly appear in the lower extremities and spine. Talipes, lateral curvature, and other deformities are explainable by the failure of the nervous system to lay down the particular pathways or centres which are requisite for the proper development of the muscles.

The response of the plantar reflex in the child differs from that in later life, and the explanation is probably to be found in the difference in development of the nerve pathways for the flexor and extensor muscles at the ankle-joint.

In the case of all reflexes which are in constant action there must be some provision against fatigue. This is probably effected by there being a sufficient number of pathways in the centre to allow of fluctuation. We may assume that the units in action are constantly changing within certain limits. When all are called into action simultaneously greater effects are produced and fatigue is more readily caused. An increase in the number of pathways concerned in a reflex may lead to greater spread in the central nervous system, but it is probable that some other factor is necessary such as the increased frequency of the impulses carried. The increased frequency may be the main factor in overcoming the resistance of other synapses and so causing spread beyond the usual channels. We know that the impulses do spread widely under certain conditions, and the spreading may be the result of a massive action of afferent impulses, or of a lessened resistance of the synapses as is induced by the action of strychnine.

Reflex pathways or centres which are preformed and persistent are concerned in the production of the unconditioned reflex. Such reflexes take place with a considerable degree of certainty although they are not altogether independent,

rectum; his object is to obviate the effect of gravity in the loop passing up to the splenic angle, and so to get rid of the symptoms rather than deal with the ptosis.

The various forms of suspension operations, so popular of late, he condemns as unsound in principle. The mesenteries, he holds, are not suspensory ligaments, and it is no use hitching them up and expecting the stitches to withstand the movements of the bowel and support the continual drag of the loaded colon, where the intra-abdominal pressure is reduced. The discussion of intestinal stasis and chronic constipation occupies a good deal of space; of the latter, two types, obstructive and atonic, are recognized. Contributory factors are diet, sedentary habits, the mechanical disadvantage of the colon in the erect attitude, and weakness of the abdominal wall. As to the pathology of stasis, the views of the mechanical school, headed by Sir Arbuthnot Lane, and of the opposite camp, under Professor Adami, are fully discussed; the conclusions reached are that the mechanical view is in itself no longer tenable, and that the condition is more probably due to some neuro-muscular inco-ordination of the colon wall—the view supported by Sir Arthur Keith.

All the surgical lesions of the colon and rectum are taken seriatim and dealt with in separate chapters. They are discussed with due attention to detail, cases are quoted to illustrate special points, and each section bears the mark of practical experience. The literature about diverticulitis, for instance, which has grown so rapidly in recent years, has been thoroughly sifted. In the treatment of this condition the author advises colostomy followed by excision later, after there has been plenty of time for the inflammation to subside. In the course of the discussion of malignant disease of the rectum and colon some encouraging results are recorded. For the years 1915-1921 the author's operative mortality for perineal excision of the rectum in 109 cases was a shade over 8 per cent.; of 36 patients operated on in 1915-1917, 17 were alive and well five years after the operation (47 per cent.). The abdomino-perineal operation, although theoretically ideal, has a high operative mortality, varying from 25 per cent. to 40 per cent. It is a pity that reliable statistics as regards recurrence after this operation have not been included in the text to round off the comparison between the two operations.

Many of the finer points of operative technique are discussed, especially the various methods of colon anastomosis, and their relation to the blood supply. This book should enjoy a wide popularity among all interested in the practice of surgery, for its contents are as valuable to the practitioner in the country as they are to the surgeon in a city.

GASTRO-ENTEROPTOSIS.

DR. COFFEY almost apologizes for publishing his monograph on *Gastro-enteroptosis*.[3] Most of his friends advised him against appearing in print, but a chance meeting with Sir Berkeley Moynihan and the encouragement received from him made Dr. Coffey change his mind, and the book has appeared with an appreciatory note by Sir Berkeley, who is described by the author as "maintaining an attitude of benevolent and dignified tolerance." The author's purpose has been to assemble all the important facts on this subject and to co-ordinate them into a clinical syndrome in the hope that it may form a basis for future investigation. The book should therefore command the attention and respect of all surgeons interested in abdominal surgery, whatever their own views may be, for the problem attacked is brimful of debatable matter, has given rise to highly conflicting opinions, and has been the cause of much harmful surgery. The author quotes and discusses the work of many surgeons, not only that of American, but that of Sir Arbuthnot Lane, Walton, Waugh, and Wilkie in this country, and of the Scandinavian surgeon Rovsing.

Detailed descriptions of the relations of the abdominal viscera are given and discussed from many points of view. For instance, there are chapters on the structure of the abdominal wall, the shape of the abdominal cavity and its suspensory ligaments, intra-abdominal and intra-visceral pressure, the comparative anatomy and physiology of the intestinal tract, and defects in pre-natal peritoneal development. Constipation and intestinal stasis are fully discussed. The author considers that peritoneal bands may be either congenital or inflammatory, and that the bands due to the "crystallization of the lines of force," described by Lane, develop for the purpose of holding up bowel not normally fixed. Ptosis, he holds, may be congenital or acquired. The congenital variety, which he classifies into general ptosis, right-sided ptosis, and mid-line ptosis, is attributed to deficient pre-natal fusion between the peritoneal coverings of the colon of the posterior parietal peritoneum. The chain of events culminating in ptosis, he considers, are as follows: in adolescence the unfixed colon begins to slide through the psoas outlet, dragging on the viscera and causing indigestion. This in turn induces loss of flesh, diminishes muscular tone and intra-abdominal pressure. Gas accumulates and the intestines dilate. Nutrition is further impaired, fat is reduced and the viscera sink lower. Secondary changes now occur. The lumbar spine becomes relatively straight, thus further reducing the efficiency of the kidney shelf, and the upper dorsal spine acquires a compensatory kyphosis, leading to narrowing of the upper abdomen. Acquired ptosis occurs in the mid-line and involves one or more organs; the relations of these organs to the normal fixed points are changed chiefly at the hepatic and splenic flexures, so that kinking and obstruction are apt to take place at these points. This type is further subdivided into virginal and maternal. Dr. Coffey says that probably 75 per cent. of patients who thus suffer can be made fairly comfortable by medical means—namely, rest with forced feeding for the deposition of fat, postural treatment, exercises, bandaging, and regulation of the bowels without cathartics. Of the remainder 15 per cent. can be made comfortable by a physician of special experience; the remaining 10 per cent. will require surgical treatment.

For generalized congenital ptosis the author performs a so-called hammock operation, whereby the whole colon is anchored to the parietal peritoneum. In extreme cases he plicates the abdominal wall. For right-sided ptosis he recommends removal of the appendix and fixation of the right kidney if necessary with plication of the colon and shortening of the meso-caecum, fastening it to the lateral peritoneum. He also quotes Waugh's operation, whereby the lateral parietal peritoneum is incised and stitched to the anterior longitudinal band, the colon resting in the bed thus prepared for it.

For acquired mid-line ptosis he recommends Rovsing's so-called operation of gastro-coloptosis. Duodenal arterio-mesenteric ileus, he considers, is due to the drag on the superior mesenteric artery by the weight of that portion of the intestine which it supplies. He quotes Wilkie's work on the subject and recommends duodeno-jejunostomy. For the surgical treatment of chronic intestinal stasis he suggests an alternative to complete colectomy. Dr. Coffey performs an ileostomy, in which a loop of ileum, which may subsequently be closed, is brought to the surface. Through this fistula the colon is irrigated. If the disease persists then there is no need to remove the colon, but if the symptoms are relieved the sigmoid colon is divided, the proximal end is brought to the surface, and the terminal ileum is diverted into the pelvic colon, thus leaving the patient with two fistulae. He considers this preferable to colectomy.

The author concludes by stating that there is no part of his surgical work which has been more satisfactory than that pertaining to the treatment of ptosis.

MEDICINE IN INDIA.

SIR PATRICK HEHIR, in his book *The Medical Profession in India*,[4] states that Western medicine in India is at present going through a critical stage, likely seriously to affect its

[3] *Gastro-enteroptosis.* By Robert C. Coffey, M.D., F.A.C.S. Surgical Monographs. Under the editorial supervision of Dean Lewis, A.B., M.D., Eugene H. Pool, A.B., M.D., and Arthur W. Elkins, A.B., M.D. New York and London: D. Appleton and Co. 1923. (Sup. roy. 8vo, pp. xx—205; 265 figures. Issued in sets of five volumes only, price £5 5s. the set).

[4] *The Medical Profession in India.* By Major-General Sir Patrick Hehir, K.C.I.E., C.B., C.M.G., I.M.S. London: H. Frowde, and Hodder and Stoughton. (Demy 8vo, pp. 133. 7s. 6d. net.)

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF PUBLIC HEALTH.

A. Mearns Fraser, M.D., D.P.H., President.

DISCUSSION ON FACTORS CONTRIBUTING TO THE RECENT DECREASE IN INFANTILE MORTALITY:

Are such Factors likely to be Permanent or Temporary?

OPENING PAPER

BY

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County Medical Officer of Health, Shropshire.

In introducing this discussion I must apologize for the incompleteness of my paper, but I hope this will be remedied by subsequent contributions to the discussion. The subject is a large and complicated one and worthy of very careful research. It seems to me that the best plan is to set down the indisputable facts that appear to be relevant and afterwards to state various deductions and opinions. These facts may be well known to most of you, but nevertheless it is necessary to state them.

For most of my facts I am indebted to the excellent reports of the Registrar-General, for which Dr. Stevenson is presumably still responsible, although his name no longer appears in the reports. I am also greatly indebted to the medical officers of health of the large towns and counties, who have very kindly supplied me with facts and opinions relating to the decrease of mortality in their areas, and to Dr. A. D. Symons, one of my assistant medical officers.

The statistics here given relate not only to the fall in the infantile mortality in the country as a whole and in relation to areas, quarters of the year, and causes of death, but also to the smallness of this mortality under certain conditions. These latter figures throw considerable light upon the probable causes of the fall.

Table I.—*England and Wales: Birth Rates, Death Rates, and Infant Mortality Rates.*

Years.	Birth Rate.	Death Rate.	Infant Mortality.	Increase or Decrease.	
1841-1850	32.6	21.6	153		
1851-1860	34.1	21.2	154 ...	+ 0 6	
1861-1870	35 2	21 3	151 ...	0.0	Education Act, 1870.
1871-1880	35.4	2[illegible].3	149 ...	− 3.2	Public Health Act, 1875.
1881-1885	33.5	18.7	130 ...	− 6 7	
1886-1890	31.4	18.5	145 ...	+ 4.1	
1891-1895	30.5	18.5	151 ...	+ 3.9	Housing of the Working Classes Act, 1890.
1896-1900	29.3	17.6	156 ...	+ 3 2	
1901-1905	28 2	16.0	138 ...	−11.5	Midwives Act, 1902.
1906-1910	25.3	14.4	117 ...	−15.2	Education Act, 1907; Notification of Births Act, 1907; Children Act, 1908.
1911-1915	23.6	13 8	110 ...	− 5.9	National Insurance Act and Tuberculosis Order, 1911; Notification of Births (Extension) Act, 1915.
1916-1920	20.1	13.7	90 ...	−18.1	V.D. Regulations, 1916; Maternity and Child Welfare Act, 1918.
1921 ...	22.4	12.1	83 } 80	−11.0	
1922 ...	20.6	12.9	77 }		

It is apparent that there was no fall whatever in the infantile mortality between the years 1841 and 1900, and that since then the fall has been large and continuous. The fall in the birth rate commenced twenty years before the fall in the infant death rate and during this period it fell 17 per cent.

The fall in the general death rate had been almost continuous, although comparatively small in amount (19 per cent.), for the sixty years previous to the fall in infantile mortality. If the period of 1840 to 1920 be divided into two periods of forty years, the first period shows a reduction of the general death rate of 6 per cent. and the second of 30 per cent. The second period practically begins with the passing of the 1875 Act. We have, then, a fall both in birth rate and death rate up to 1900 without any fall in the infant death rate. We must either accept that the fall in the birth rate and the conditions causing the fall in the death rate—presumably improved sanitary conditions—had no effect on infantile mortality, or that whatever effect they might have had was neutralized by some other adverse circumstances. As I shall point out later on, I think adverse circumstances did exist and were a condition of increased material prosperity without a corresponding improvement in education and conduct—a condition, in my opinion, particularly adverse to infant life.

The next important point arising out of this table is that the fall commenced long before the passing of the Notification of Births Act, the Maternity and Child Welfare Act, the Education (Administrative Provisions) Act, the Children Act, and the Midwives Act, and before any considerable direct efforts to reduce infant mortality. The fall did not commence until twenty-five years after the Public Health Act, 1875, with its sanitary service, so that this Act alone appears to have had little influence. The Education Act, 1870, would hardly be likely to produce any considerable influence upon infant mortality for about a generation, or, say, thirty years, taking into consideration the gradual development of the work and the fact that it could only become operative as the school children became parents. This would bring us to 1900. As many of the facts to be set out seem to show that the decrease of infantile mortality is due to a general raising of the intelligence of parents, it is of interest to see that the commencement of the decline of mortality corresponds fairly well in point of time with the improvement of the general education of the people.

The following table has been compiled from the replies received from the medical officers of health of the towns and counties.

Table II.—*Fall in Infant Mortality in Certain Towns and Counties grouped according to Date of Commencement of Infant Welfare Work.*

Group and Date when Health Visiting Commenced.	Decrease in Five-year Periods stated as a Percentage of Period immediately preceding.					
	1896 to 1900.	1901 to 1905.	1906 to 1910.	1911 to 1915.	1916 to 1920.	1921 to 1922.
I. Between 1900 and 1905 (13 towns)	+4.4	−13.9	−14.2	−6.8	−16.9	−12.6
II. Between 1906 and 1910 (9 towns)	0.0	−13.3	−16.0	−6.3	−13.6	−12.7
III. Between 1912 and 1913 (6 towns)	−1.8	−15.0	−19.0	−6.1	−12.9	−17.0
IV. Between 1914 and 1916 (22 counties)		−12.7	−10.3	−9.5	−15.8	−11.25
V. Between 1917 and 1920 (10 counties)		−15.2	−17.9	−8.9	−14.1	−12.7

In Groups I and II the health visiting was not complete for considerable periods averaging 7 to 14 years.
In Group III the health visiting was complete in periods averaging from 3 to 7 years.
In Group IV the health visiting was complete in 2 to 3 years afterwards.
In Group V the health visiting was complete in 2 years afterwards.

The grouping of these towns and counties is probably not by any means satisfactory, as the commencement of health visiting may mean very different things in different localities. The health visiting may rapidly develop into a satisfactory scheme or it may drag on as a very ineffective service for many years. Still, broadly speaking, the groups of towns and counties do represent those that commenced child welfare work early and those that commenced at later periods.

Examination of the table does not show any influence of this early or late commencement of child welfare activities, nor does it reveal any material difference in the

British Medical Journal.

SATURDAY, OCTOBER 27TH, 1923.

THE INSURANCE CRISIS.

In the Supplement this week we publish a full account of the Panel Conference, containing a verbatim report of the statement which the Chairman of the Insurance Acts Committee made to the representatives. This statement was ordered to be sent to every insurance practitioner, and when it is read it should make the main issues clear and provide a view of the situation which may well be put to members of Parliament and others who are interested. This is very necessary, for many of the articles and statements in the lay press during the last fortnight—even some attributed to doctors themselves—appear to indicate a considerable degree of inaccuracy and confusion of thought.

As Dr. Brackenbury showed in his forcible and lucid address, there are at the least three important points that it seems necessary to emphasize. The first of these is that the present action by the profession is being taken not against what is sometimes spoken of as the "panel system" as such, but in order to avert the danger of a debasement of that system. The provision of medical attendance and treatment by means of a national health insurance system has been declared by both the Conference of Local Medical and Panel Committees and the Representative Body of the British Medical Association to deserve the united support of the profession for its continuance and improvement. No important body of practitioners, however, would consent to become or remain members of a service the terms and conditions of which militated against good professional work being done or tended to bring about a less satisfactory standard of attendance among the industrial population than among those of other classes. Almost continuously since 1913, in spite of the very adverse influences of war and unemployment, practical experience has led to a steady improvement of medical benefit under the system which began to operate in that year. Further important improvements have been suggested or agreed to by the Panel Committees and the Insurance Acts Committee, to become operative at the beginning of next year. The effect of these improvements would be nullified by any such drastic reduction of remuneration as that proposed by the Minister of Health under the pressure of the Approved Societies. It would be nullified, too, by any such additional obligations as those societies are still urging the Ministry to impose upon insurance practitioners, restricting their liberty to undertake legitimate private work, allowing complaints to be made against them by society agents even contrary to the wishes of the patients themselves, and making requirements with regard to medical certificates such as are unheard of in any other comparable sphere. Neither the huckstering spirit nor the low ideals of the societies are tolerable to a profession which has wider notions as to what a national health service ought to be and a greater regard for the well-being of the wage-earners as patients. The medical profession will continue to fight strenuously for the maintenance of a health insurance service worthy alike of the nation and of itself.

In the next place the present action of the profession is not against the Friendly Societies as such in their own sphere, but against their usurpation of a place in the system which is not properly, and was never intended to be, theirs. As dispensers of cash payments in incapacitating sickness or disablement, of maternity benefit, and of some additional benefits, they serve a very useful purpose, and their work may be of great value to the community. There are ways in which they can be of much help both to patients and to doctors. Their diversity is not necessarily a drawback; but the large numbers of societies and branches, the complexity of their administration, the complicated organization of some of them, and the very small membership of others, are certainly disadvantageous. It is probable that the establishment of suitably constituted committees, comparable to Medical Service Subcommittees, to which complaints as to their administration of sickness and other benefits might be referred for investigation and public comment, would result in the restriction of irregularities and negligences; and it is certain that their power of veto over the use of national funds and their extending administration of such additional benefits as are obviously if not legally "of the nature of medical benefit," ought to cease if either the national Treasury or the medical profession is to maintain independence. But the Friendly Societies in their own place and the profession in its own place are alike integral parts of the insurance service, and there is no fundamental reason why they should not co-operate for the national good.

The third point to make clear is that the protest of the profession against a drastic reduction of the insurance capitation fee is not a demand for any further contribution from the taxpayer. The claim is that the remuneration of insurance practitioners, ascertained on its merits, should be a first charge on the National Health Insurance Fund, and that this Fund is, and is likely to continue to be, in a position to bear it. This claim as to the substantial stability of the Fund, in the aggregate, is established by the report of experts after full investigation; it has not been controverted by the Ministry; and it is allowed by some of the most astute officials of the Approved Societies themselves. Payments out of the Fund are, according to the statutory provision, supplemented to the extent of two-ninths from Government grants; but the same proportionate supplement out of the taxpayer's pocket has to be made whatever be the purpose to which the payments are directed. Any reduction of the capitation fee, therefore, does not advantage the taxpayer at all.

These three negative points should be borne in mind. The medical profession no doubt realizes them, but it seems needful to impress them on the public and on Parliament. The more clearly they are understood the more valuable will be the increasing support already being given to the profession by the press and public opinion. But the profession must rise, and we believe has already risen, to the heights of its own opportunity. It has an active and efficient organization and experienced and able leaders, who have not hesitated to give a strong lead. Never were its members so united in their aims and their determination. The Minister of Health has left only the one way open for professional action. It behoves every insurance practitioner who has not already sent in his resignation from the service to do so without fail and at once. Such a demonstration of professional feeling and professional power will be in itself

recent years a parent could neglect or be cruel to his child to any extent if he only avoided death, with the resultant coroner's inquest.

This increased responsibility has no doubt been brought about by various causes. The Education Act of 1870 must have been the initial cause, but it has been increased very largely in recent years by a variety of social work, particularly under the child welfare schemes, the medical inspection of school children, and the Children Act. The war has probably also been a powerful educative factor.

The decrease of alcoholic intemperance which undoubtedly has taken place in recent years has probably contributed considerably to the fall in infantile mortality. This decrease, however, must be considered as one of the conditions brought about by general education. The greatly decreased number of convictions for drunkenness and the diminished consumption of alcohol may be taken as proofs of a decrease of this form of intemperance, and its effect upon infantile mortality is shown in one direction by the decrease in deaths from overlaying (from 2.05 in 1891-1900 to 0.60 in 1920-21).

It seems extremely probable that the major part of the fall in infantile mortality prior to 1911 was due to a general raising of intelligence and responsibility. Before 1911 special measures directed towards infant welfare could have had no appreciable influence, and for reasons given elsewhere the fall cannot be attributed largely to improvement of general sanitation, improved material conditions, or lessened birth rate. To what extent the fall since 1911 has been due to general education and to what extent to special education, it is difficult to say. It is something like the problem of the soil and the seed in the causation of infectious disease; without the preparation by general education the special teaching later on would probably have borne little fruit.

The low mortalities in the professional classes must, I think, be attributed to education and a higher standard of conduct rather than to material advantages, although the latter no doubt have contributed to the result.

Special Education in Everything Appertaining to Health.

Under this heading is included, first and by far the most important, the influence and teaching under the maternity and child welfare schemes, but it also includes the educational influence of medical inspection of school children, the tuberculosis scheme, the establishment of district nurses and trained midwives, and other educational influences.

Most of us must, I think, have come to the conclusion from a close knowledge of the facts that a considerable proportion of the fall in the last four or five years at least has been due to the various activities under the maternity and child welfare schemes, but it is most difficult to prove this by statistics. The decrease of 11.5 per cent. in 1901-5 and of 15.2 per cent. in 1906-10 must have been due principally to general conditions antecedent to child welfare, although even in these years the pioneer work of some of the towns may have had a general educational influence throughout the whole country in altering our ideas of the value of infant life.

The decrease in the period 1911-15 was slower, being only 5.9 per cent. It included, however, the very abnormal year of 1911 and the first seventeen months of the war. This period was followed by a decrease of 18.1 per cent. in the next five years and a further decrease of 11 per cent. for the two years 1921 and 1922. This very large fall of about 30 per cent. in seven years, following upon a fall of about 40 per cent. in the previous fifteen years, seems to point to some special cause operating during the later period. It was the period of greatest child welfare activity. Previous to it the schemes were limited to considerable centres of population and even in large towns they were very incompletely developed. The war was a large disturbing element, with its greatly decreased birth rate, increase of female employment, shortage of milk, and probably increase of natural feeding in consequence. Those who attribute the low infant mortality in the last three years of the war to low birth rates are faced with a rise of 25 per cent. in the birth rate and a fall of 15 per cent. in the infant mortality in 1920, 1921, and 1922, although it may be argued that the bad effects of a high birth rate are only felt after its continuance for a considerable period.

It must, however, be admitted that there are facts which are against the assumption that infant welfare work is the chief determining factor in the decrease. These facts have been discussed in connexion with Tables II and III. The great decrease of mortality in rural districts (almost equal to that of the towns), notwithstanding that the child welfare schemes are by no means so complete and comprehensive and were brought into operation much later, may be partly due to the educational work of district nursing, which has undergone great development. It is probable, too, that with an equal amount of education greater effects can be produced in rural districts, owing to the better opportunities of carrying out directions regarding fresh air and sunlight. The same reason may perhaps explain the much greater decrease in the South and Midlands compared with the North of England (Table III), although the North, having had a much higher initial rate, presented a greater scope for reduction. Probably the amount of time spent out in the open air rather than in a hot stagnant nook in the kitchen is a most important factor in influencing not only the general health of the infant but also in reducing a disease like summer diarrhoea, which is perhaps too much regarded solely from the point of view of food infection.

The fact that the decrease of infant mortality since 1911 has been mostly confined to the third quarter of the year, while that prior to 1911 was fairly evenly distributed throughout the year, appears to indicate new causes for the later period. I think the nature of the fall, particularly the fall in infantile diarrhoea, fits in very well with the supposition that the new causes at work are the child welfare activities.

Fall in Birth Rate.

This has been discussed and reasons have been given for thinking that it is only a minor contributing factor.

Improved Standard of Living.

The evidence goes, I think, to show that improvement in wages without improvement in education and standards of conduct, results on the whole in more drunkenness, a greater carelessness, lessened natural feeding of infants, and a consequent increase in infantile mortality. Certainly the low mortality of 1921 and 1922 corresponded with much unemployment and low wages, judged by purchasing power.

Dr. Findlay, in his report on the causes of infant mortality to the Medical Research Committee, says:

> "The unlikelihood of the wage element being a factor of any moment is supported by the fact that in times of famine and industrial trouble the infantile death rate usually falls. For example, during the year 1912 the number of people involved in disputes causing stoppage of work and the aggregate duration of working days lost was the highest on record, and yet, with the exception of 1916, the infantile mortality was the lowest ever recorded in most of the chief towns of Scotland and England."

The Registrar-General, in his report for the year 1911, says:

> "The mortality of miners' infants is disproportionately high, especially in view of the fairly high wages earned by these men. They are certainly much better paid, and consequently in a better position to provide for the welfare of their infants, than the unskilled and casual labourers of the towns who form the bulk of Class 5, while their wives are as a rule not compelled to assist in earning the family living, yet at each of the five age periods the mortality of their infants is higher than that of Class 5 with the single exception of the second, 1-3 months, where it is only a trifle lower."

Miners had the highest infantile mortality for the year 1911, of eight classes into which the Registrar-General divides the occupations. Miners, we know, are exceptional people, their housing is exceptional, and their wages have on the whole been higher than those of the working classes generally. The conditions under which they live vary greatly in different parts of the country, but speaking generally there is not a dense aggregation of houses on area. I think this must be accepted as an instance of wages being ahead of education and ideals.

Wages, estimated by their purchasing power, underwent a very marked and almost continuous increase from 1840

ic streptococcus. After the second inoculation two nained well without any evidence of scarlet fever, one sore throat accompanied by a rise of tempera- e occurred without any rash, and one developed sore throat but had no fever or rash. The other lunteer of this series was inoculated with an un- ered culture of the haemolytic streptococcus on thirteenth day after inoculation with the filtered lture; forty-eight hours later typical scarlet fever veloped. A consideration of this evidence makes seem likely that the two cases of experimental rlet fever reported were caused by the haemolytic eptococcus or by some unrecognized organism sely associated with it in culture.

Thus, evidence is steadily accumulating from differ- t parts of the world in favour of the view that a rticular type of haemolytic streptococcus may be e causal agent in scarlet fever, but we cannot end tter than by quoting the praiseworthy caution con- ined in the sentence with which the last article ferred to concludes: "These experiments do not stify the conclusion that all cases of scarlet fever e caused by the haemolytic streptococcus described."

INTESTINAL STASIS AND CANCER.

OTH in the professional and the public eye the iology of cancer now fills a larger place than even in cent years, and avenues of various kinds have been rveyed and explored—for example, in his *Diseases the Rectum and Colon*, reviewed elsewhere in this sue, Mr. Lockhart-Mummery suggests "that our isgusting habit of burying our dead has much to do ith its prevalence," and Sir Frederick Treves has orrelated the increased use of tinned meat with the se in cancer incidence. The freedom of primitive ces from this scourge has often been asserted and ccasionally challenged; but assuming that aborigines, ee from contact with the vices and virtues of the rest the world, are little subject to malignant disease, he relation between civilization and cancer must be xplained by some supposition other than that the ecluded state of the natives of an almost unknown ountry is responsible for ignorance of their diseases. t has been thought that syphilization, which so often ccompanies so-called civilization, may play an im- ortant part, and that cancer is thus a disease of ivilization; it might indeed be argued that syphilis xerts a more widespread influence in the causation of arcinoma than is generally recognized at present—amely, that its disposing influence is by no means onfined to the oral and lingual surfaces. Sir Arbuthnot Lane has for years insisted on the importance of intes- inal stasis in the causation of a large number of norbid conditions; his far-reaching thesis has aroused nuch criticism, and it is perhaps not untrue that a superficial familiarity with his views, and especially he heroic remedy of colectomy, have led to some want of respect. It may, however, be noted that Dr. J. G. Adami, who in 1914 (BRITISH MEDICAL JOURNAL, 1914, , 177) submitted the conception of intestinal stasis and toxaemia to considered criticism, contributed a somewhat repentant chapter to Sir Arbuthnot Lane's symposium on *The Operative Treatment of Intestinal Stasis* (Oxford Medical Publications, fourth edition) in 1918. Indeed, it may well be that in future years Sir Arbuthnot Lane will be recognized as a prophet who spent many years crying in the wilderness before his ideas were worked out for final acceptance.

The external surface of the body is mainly a defensive covering, whereas the linings of the alimentary and respiratory tracts provide for the entrance into the body of material essential to life, and incidentally are liable to bacterial invasion and the absorption of poisons; that disease elsewhere in the body may have an intestinal origin is of course beyond dispute. As chronic irritation and inflammation are recognized antecedents of cancer, this sequence of events must be included among the diseases thus induced in the alimentary canal—for example, chronic ulceration followed by gastric carcinoma. The influence exerted by intestinal infection and toxaemia on the body generally is a large problem and deserves serious consideration. It is almost too obvious to remark that health and growth largely depend on the absorption of normal food products from the alimentary tract, and that therefore a pathological change in the gastro-intestinal functions cannot fail to be reflected in disorder of the habit of growth and functions of the body. On page 745 Sir Arbuthnot Lane reiterates his belief in the harmful influence of constipation, which he ascribes to the diet of civilization, and proceeds to the conclusion that cancer is the last stage in the sequence of its evil effects. Thus degenerative and cystic changes in the mamma, regarded as due to toxins absorbed from the intestines, are commonly associated with and may precede carcinoma of the breast.

While the exact cause of malignant disease is not yet revealed there is much evidence, both clinical and experimental, that chronic irritation induced by various agents such as soot, tar, arsenic, parasites (*Bilharzia*, *Spiroptera neoplastica*), *x* rays, and paraffin may be followed by carcinoma. These irritants act locally in a somewhat intensive manner, and considerable time elapses before carcinoma develops *in situ*; it might, therefore, be thought to strain analogy to argue that poisons absorbed from the gastro-intestinal tract, which would necessarily be much diluted, can so modify the habit of cellular growth that malignant disease would result. There is as yet no convincing proof of this sequence, and it must be further admitted that clinical evidence so far as it goes does not confirm Sir Arbuthnot Lane's contention that the cancerous patient is always the subject of chronic intestinal stasis. Indeed, it would be pressing the argument rather too far to suggest that intestinal stasis is a necessary antecedent to all forms of malignant growth —for example, those in early life. But because there are obvious difficulties in the way of accepting such a proposition it would be equally unwise to neglect its potential bearings.

For this and for reasons of health there can be no doubt that Sir Arbuthnot Lane's emphasis on the prevention of chronic constipation by ordinary dietetic care and if necessary by paraffin, massage, and a suitable belt, is eminently sound. When prevention has failed and operative interference becomes necessary he now advocates a much less drastic procedure than in the past, and has found that by thoroughly freeing the junction of the iliac and pelvic colon, where "the last kink" occurs, a cure is effected, and thus the considerable risks and drawbacks of colectomy are obviated.

A SPECIAL congregation of the University of Manchester will be held on November 10th, when the Earl of Crawford, K.T., will be installed as chancellor and honorary degrees will be conferred on a number of distinguished persons, including Dr. J. G. Adami, F.R.S., vice-chancellor of the University of Liverpool, Sir Arthur Keith, F.R.S., conservator of the museum of the Royal College of Surgeons of England, and Sir J. G. Frazer, F.R.S., author of *The Golden Bough*.

Summary of Conclusions.

My conclusions are that the fall of the infant mortality rate has been due chiefly to education. The earlier part of the fall was probably principally due to the operation of the Education Act of 1870, raising the intelligence of the people and gradually increasing the sense of responsibility of parents. The latter part of the fall was probably brought about by improvement of general education and by the special educational influence of the child welfare schemes, aided by the educational work of the tuberculosis and medical inspection schemes, the establishment of district nurses, etc., and other similar work.

How much of the later fall should be attributed to special and how much to general education it is impossible to say. There are probably many minor contributory factors—such as diminishing birth rate, cleaner milk, better medical, nursing, and midwifery services, diminished horse traffic, tarred roads, and improvement of sanitation.

In attributing such a large influence to education I do not wish to belittle such important matters as pollution of air with smoke, overcrowding, and bad housing; but I believe that these are only very specially potent when combined with ignorance and carelessness, and it is the combination of these conditions that has caused the very high rates of our industrial towns of the North. Every sanitary worker knows that the evil effects of a house grossly insanitary in construction and situation may be enormously reduced by scrupulous attention to all the details of good house management.

It is in education and creation of a sense of responsibility, and not in the material conditions, that so much improvement has taken place. Everything, I think, points to the improvement being permanent and progressive. The decrease since 1901, taken in five-year periods, has been large and uninterrupted. It has affected every type of district and every part of the country. Not only so, but the fall has been equally continuous in all the big groups of disease except those due to conditions before birth. If any considerable proportion of the fall could be attributed to climatic conditions, such as mild winters, or to periodicity of infectious disease, we might have real setbacks, but I consider the evidence is strongly against this. We shall, no doubt, have slight setbacks owing to conditions favourable to diarrhoea, and possibly to severe outbreaks of measles, whooping-cough, and influenza; but apart from these, in my opinion, the improvement will be progressive as long as education keeps ahead of material advancement. A sudden and very marked increase of prosperity without time for a corresponding advance in education and conduct is the only condition that would, in my opinion, produce any considerable increase in our infant mortality. This, however, is extremely improbable.

DISCUSSION.

Dr. Herbert Peck (M.O.H. Chesterfield R.D.C.) said that while he agreed with Dr. Wheatley on most points he thought the latter had underestimated the effect on infant mortality of the general improvement in sanitary conditions, especially the progressive elimination of privy middens and their conversion to the water-carriage system. He also believed the introduction of summer time had a beneficial effect on the general death rate, and especially the infant mortality rate, since it secured an additional hour of daylight if not of actual sunlight during a considerable portion of the year.

Dr. H. B. Brackenbury (London) considered that since it was known that a low infantile mortality might be found in selected localities or among selected classes in which the conditions varied in many respects, it was desirable to secure a record of the *variations* in infant mortality in such special classes or groups of circumstances. Such an investigation might throw valuable light on the question as to which factors were of the most practical importance in reducing the death rate. It seemed to be established that a dirty atmosphere had a considerable effect in increasing infantile mortality, but it was also evident that education was very powerful as an influence in this sphere. The general education begun in 1870 produced its effects, as would be expected, about thirty years later, and th effects had been continuous. Special education in perso and domestic hygiene had begun between 1901 and 19 and we should see whether this produced a similar eff in the years immediately to come. The educational w of child welfare centres should, on the other hand, prod an immediate rather than a remote effect, and it w doubtful whether such an effect could be shown statistical The beneficial effect of these centres—especially if c ducted as educational and not as treatment centres—co bined with home visiting on the comfort and well-bei of many homes and children could not be doubted, but was nevertheless permissible to be sceptical as to th permanent effect on infant mortality.

Dr. D. C. Kirkhope (M.O.H. Tottenham) agreed th education had had a powerful influence on the decrea of infant mortality, especially the education of mothers i their homes by the health visitor. In the poorest locality i Tottenham the introduction of a voluntary child welfar scheme had been followed by an immediate and marked r duction in the heavy infant mortality, and as the work ex tended the fall in the rate increased. The instruction give at the centres was also of great importance and the atten dance there of mothers with their babies tended to creat a friendly rivalry in connexion with the progress of th children which could not fail to have a marked effect.

Dr. Clark Trotter (M.O.H. Islington) contended that the value of the education given in the course of home visitation had been underestimated by some of the previous speakers. Unless the welfare centre were most intimately associated with home visiting it did not reach the right cases. Good wages did not necessarily imply the most judicious expenditure of the money. In one town the infant mortality had been almost halved during a year of severe trade depression. The children of those out of work and their mothers had been fed by voluntary agencies and the staff of health visitors increased. He did not agree that the decrease in mortality could be mainly due to the Education Act of 1870. The real education of the adult, he considered, was acquired after his school life. The publicity given to health matters in the press and the vast improvement in the conditions of the working classes generally were, in his opinion, the most important factors. A man out of work now was looked after in many ways and his children did not suffer as they did prior to 1870.

Dr. H. Scurfield (late M.O.H. Sheffield) found himself largely in agreement with Dr. Wheatley, but was inclined to attribute more importance to the factor of a safer milk supply in the form of dried milk. He quoted the late Dr. Ewart as having shown that a probable factor in the increased infant mortality in the last decade of the nineteenth century was increased contamination of the milk supply owing to the removal of the consumer further and further from the producer, and that the improvement in the mortality rate coincided with the extended use of dried milk. It had to be remembered that the use of dried milk affected not only the purity of the milk as distributed but limited the probabilities of pollution in homes with unsatisfactory means of storage. In making a comparison with the conditions in Connaught, Dr. Wheatley had omitted to mention freedom from venereal disease and the abuse of alcohol by mothers, both of which factors were stressed in the Irish Carnegie report. Again, one had to remember that the ideals of family life in Ireland had not been destroyed by the industrial revolution and the agricultural revolution which occurred in England in the reign of George III. It was probable that in such circumstances a religion which held up high ideals of motherhood had never lost its effect. The teaching of domestic hygiene in schools was generally regarded as important, but unfortunately it was expensive owing to the need for providing special centres. It was accordingly the first thing to go when the cry for economy in educational matters became insistent. With regard to the future he anticipated a reduction in neo-natal mortality when the new midwifery was established.

Surgeons' Hall, and the picture now in the possession of the Royal College of Physicians appears to be a replica. It was to the acumen of Dr. Innes Smith, who is a collector of medical portraits, that the discovery of the replica was due; he saw it in a dealer's shop, recognized the subject, and acquired it. It is an important addition to the fine gallery in the possession of the College.

PHLEBOTOMY IN THE MONASTERIES.

At the meeting of the Section of the History of Medicine of the Royal Society of Medicine held on October 17th, Dom Louis Gougaud, O.S.B., made an interesting communication on phlebotomy in the monasteries. In mediaeval times blood-letting was very common throughout the monastic houses, and nuns as well as monks were periodically bled. The frequency of this practice may have been due to the sedentary and unhealthy mode of life in the cells and cloisters, and to the need for an effective prophylactic against the temptations of the flesh. In some religious houses it was done monthly, except when a feast intervened; in others the monks were bled every six or seven weeks; in others three, four, or five times a year, according to the rule of the Order. In particular the Canons Regular had fixed days for phlebotomy. Often the procedure was laid down with much precision with regard to place and time of day, the prayers and ritual to be observed, the person who should perform the operation, and even the costume to be worn by the patient. Bandages of special material were occasionally prescribed, and directions given for a preliminary warming of the arm. Detailed instructions governed the patient's diet and regimen during the period of rest after phlebotomy, and his relief from the full rigour of monastic discipline. The mediaeval chronicles examined by Dom Louis Gougaud indicate that this relaxation from discipline after blood-letting often succeeded in loosening the patient's tongue and sometimes led to unwonted confidences. Both the *Consuetudo* of St. Augustine's, Canterbury, and that of the Augustinian Priory at Barnwell, near Cambridge, throw much light on phlebotomy as performed in English religious houses in the Middle Ages. The records of the practice go back to the seventh century; the Venerable Bede (A.D. 674-735) left a treatise on blood-letting. By the tenth century periodical bleeding was definitely accepted as a monastic custom, and it prevailed for several hundreds of years afterwards. In the discussion of the paper Sir D'Arcy Power observed that the dietetic indulgences which followed monastic blood-letting may have had the effect of causing an early need for further phlebotomy. He suggested also that the "unlucky days" must have been very convenient to the operator as an excuse for suppuration or other mishaps following the operation. Dr. Singer concurred in this, remarking that no two monastic calendars agreed as to the "unlucky days," so that a misadventure could almost always be ascribed to supernatural influences. At the close of the meeting Mr. C. J. S. Thompson showed an interesting exhibit of blood-letting instruments and cupping appliances, which he had brought from the Wellcome Historical Medical Museum.

PUBLIC HEALTH IN RUSSIA.

We publish this week the third and concluding instalment of an article on public health in Russia by Dr. Haden Guest, who has recently visited that country. The article is undoubtedly tendencious, but this does not to any material extent diminish its interest. The interest lies in the picture drawn, with obvious sincerity, of the courage and resource with which the Russian people are themselves endeavouring to get the country into order, and of the kindly expert guidance given by the Russian medical profession. It had to face both epidemic and endemic disease of a kind and of an extent sufficient to appal the stoutest heart; very many of its members have given their lives in the attempt to prevent or remedy the consequences of famine and the ravages of disease. So far as epidemic disease is concerned considerable success has been attained with the assistance of the Epidemic Commission of the League of Nations and the American Relief Association. The picture Dr. Haden Guest draws, while it contains many dark shadows, is encouraging, and its truth is corroborated in its main outlines by the experience of Professor Piip, formerly Esthonian Foreign Minister, recently transmitted by the Riga correspondent of the *Times*. In his opinion the nineteenth-century theories which actuated the leaders of the revolution, theories which have long been obsolete in most other countries, are now obsolescent in Russia, where the people themselves are realizing that discipline is necessary to the comfort of the individual and the prosperity of a nation; he instances the greater attention now paid to street scavenging, but he admits that Russia has not yet become tranquil and happy, and says that "judged by our standards life is hard, notwithstanding that the requirements of the people have been reduced to a minimum." The new bourgeoisie and the new intelligentsia "have emerged from the struggle for existence hardened, and above all practical, people." This view is confirmed by what Dr. Haden Guest has to tell us about the schemes for improving the conditions of child life and the preliminary steps which have been taken to deal with tuberculosis in schools. In sending the manuscript of his article he was good enough to accompany it by a number of photographs, but it was not thought that reproductions of them would be of interest to our readers, for a clinic in Russia is so like a clinic in Great Britain that they are only to be distinguished by the language of the notices. There is a great deal of human nature in man, and when we come down to fundamental things, such as the medical treatment of the ailing and sick, it is very much the same nature in Russia and in Great Britain.

THE STORAGE AND SUPPLY OF OXYGEN.

The Oxygen Research Committee, appointed in January, 1919, has presented a report[1] on the work done down to the early part of this year. During the war investigations were begun under the War Office, the Aircraft Production Department, and other Government departments; in the summer of 1918 a special committee was set up to co-ordinate the work of the various departments as part of the general arrangements for dealing with the production and distribution of oxygen in this country. After the armistice there was a general feeling that the researches should be continued, and consequently an Oxygen Research Committee was appointed under the chairmanship of Professor J. F. Thorpe, D.Sc., F.R.S. It contained representatives of the War Office and of the Air Ministry, and a number of experienced workers in physiology and physics. The fundamental problem was to endeavour to furnish, especially for aeronautical, medical, and other scientific purposes, a more ready means than then existing for the utilization of the oxygen. The war committee had investigated the production of satisfactory light cylinders for compressed oxygen, but the question was of wider scope, since other gases had to be considered at the same time; it was therefore handed over to a Gas Cylinders Research Committee appointed in 1918, and in 1921 it recommended and specified lighter cylinders for commercial use. The Oxygen Research Committee, however, retained its interest in the problem in view of the fact that there is still urgent need, for use in hospitals and for other special purposes, of cylinders even lighter than those recommended

[1] Published under the authority of H.M. Stationery Office, 1923. Price 8s. 6d.

The points which impress a visitor are the great care taken to get pure water, and a cress free from weeds, and to secure a fine growth by constant weeding, the use of artificial manure and the restocking of the beds with vigorous young growth.

At Mitcham Mrs. James grows green cress, which is marketed from April to September. Here there are about ten acres of beds, fed with water from the Wandle, a river which rises in the chalk hills. The green cress is cut when about six to seven inches above the water, so needs little subsequent trimming. The beds have to be constantly trimmed to prevent flowering and too coarse stems. The growth looked delightfully green, clean, and fresh, and one had no hesitation in chewing it on the spot. The beds here have a loamy bottom, but as the cress is not pulled this is no disadvantage from a cleanliness point of view. Amongst other cress beds which I visited were those at Croxley Hall Farm, Rickmansworth. Here there are about twenty acres of beds, fed with water from natural springs and artesian wells in the chalk. Mr. Sansom, the proprietor, grows brown cress in the winter and green in the summer, and supplies the North of England as far as Newcastle-on-Tyne. He has sent supplies to Scotland, but prefers to send to places where he can have the cress on sale within twenty-four hours of cutting.

From an agricultural point of view there is undoubtedly much land worth a nominal rent only which, if converted into cress beds, would be worth £15 to £20 an acre. All the beds which I have visited appear to be fed by rivers, springs, or wells from the chalk. I imagine limestone districts would be equally suitable. I think the encouragement of watercress growing is a matter worthy of consideration by our Ministry of Agriculture. I think also that the demand would increase if the public could be assured that the beds were inspected by some responsible authority. I need hardly point out that the inspection of watercress beds is not a difficult matter like the inspection of dairy farms. It is really only a side-show of rivers pollution inspection.

From a public health point of view watercress is a cheap green vegetable which, like lettuce, is eaten unspoiled by cooking, but which, unlike lettuce, is available all the year round. Its more extended use may therefore be an appreciable help in remedying dietary errors caused by urbanization.

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DISCUSSION.

Dr. E. LEWYS-LLOYD (M.O.H. Merionethshire) recalled several instances showing the value attached to watercress by tradition in Wales and elsewhere.

Dr. R. D. SMEDLEY (M.O.H. West Sussex) said that watercress had lost favour in recent years, but had formerly been a much esteemed delicacy. It was still so regarded in parts of France, where it was grown and consumed on a very large scale. He considered it was of great importance to encourage the consumption of green uncooked vegetables, and agreed that watercress supplied a most valuable element in diet.

Dr. WHEATLEY (C.M.O. Shropshire) hoped that careful biological experiments would be made to determine the special value of watercress as opposed to ordinary green vegetables. General conclusions as to its value, whether past or present, were not sufficient in view of the possible risk of infection through eating watercress from polluted waters. This danger had been reported very fully by the late Sir Shirley Murphy, who had been able to trace quite definitely several cases of typhoid fever to infection from this source. On the other hand, if watercress could be produced in sufficient quantity and at a sufficiently cheap rate to provide a real supply of green food, and if it could be efficiently protected from infection, it would prove to be of real value. He thought Dr. Scurfield was to be congratulated on bringing the matter forward.

Dr. SCURFIELD, replying on the discussion, thanked the members of the Section for the interest they had shown in the subject. He considered increased use of raw green vegetables to be a matter of real importance, and when he said inspection would be an easy matter he referred to regular cultivated beds, and not to odd sources of supply. His experience was that most people, including children, liked watercress. He mentioned the traditional properties of watercress, not because he believed in them all, but because of their historical interest. It was also his experience that much more watercress was eaten in France than in this country. Dr. Scurfield also read a letter addressed to the President of the Section (Dr. Mearns Fraser) describing how watercress could be profitably grown during the autumn and winter in an ordinary garden frame.

DISCUSSION ON THE EFFECT ON HEALTH OF SEWER AIR AND DRAIN AIR.

OPENING PAPER

BY

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THERE is a tendency in sanitary practice, as in other forms of procedure, to become, as it were, crystallized, so that it fails to respond at once to changes in theory. A certain inertia is no doubt an advantage, as it gives time for the confirmation of truth and the elimination of fads.

It is, of course, always the duty of the sanitarian to ensure that his practice is, as far as possible, in accord with modern theory, but the strictest scrutiny is more particularly necessary in these days when public health estimates, both national and local, have had to be cut to the quick. It is also most important that we should exercise the same care in making demands on property owners that we do in administering the public funds at our disposal, since every pound unnecessarily spent lessens the purchasing power of the nation, and so contributes to poverty and unemployment—the main causes of public ill health.

In view of the appalling sanitary conditions which had been allowed to develop prior to the passing of the Public Health Act of 1875 it was natural and right that the attention of our predecessors should be largely concentrated on the abatement of nuisances generally, and especially the efficient removal of excreta from dwellings by properly constructed sewers. This was in accord with the principle that all life is destroyed by the accumulation of its own products, which applies to communities just as it does to individuals. The improvement in public health resulting from these measures very soon became apparent, but the work then inaugurated is even now far from complete.

As long as there are slums, unpaved yards, privy middens, and open ashpits left in our towns, I believe that it remains the first duty of the sanitary authority to proceed with their elimination, and that the energies of medical officers in particular should not be entirely diverted to the more fashionable pastime of dealing with the individual and prolonging the lives very often of the least desirable elements in society.

While the principles of the Public Health Act were thus absolutely sound, and its effects of inestimable benefit, it was not unnatural in those days of imperfectly understood etiology of disease—when, for instance, Murchison's pythogenic theory of typhoid fever was still an article of faith—that defective drains and sewers came to be regarded as one of the principal factors, if not actually the principal factor, in the causation of epidemic and infectious diseases.

Typhoid fever and diphtheria in especial were attributed to faulty drainage, and this association still lingers in many minds. Modern views of the etiology of these diseases make it certain that the causation of either of them by the escape of drain or sewer air into the dwelling house is a remote improbability, if, indeed, it is even a possibility.

Nevertheless it seemed intolerable at one time to abandon the idea that faulty drains had an important influence on the incidence of these diseases, to admit that all our elaborate precautions against the reflux of air and gases from the sewer to the drain, or from the drain to the

were caused by incomplete convalescence from ailments in childhood, and there was a great need for an increased number of inexpensive convalescent homes. The annual dinner of the society was held in the evening, when the Minister of Health proposed the toast of the society, which, he said, was founded on a small scale in 1875, but now numbered over 1,800 members. The introduction of modern sanitary measures was due in large part to the advocacy of medical officers of health, and they had had a great share in the clearing of the slums. Looking to the future he expressed the hope that they would assist him in a campaign he proposed to institute for the construction of new arterial roads. People followed roads if they afforded ready means of transport, and he hoped that factories would be established on these roads, so that the workers might live in healthy surroundings. Dr. Naylor Barlow, in his reply, criticized the recent action of the General Medical Council in revising the curriculum for the diploma in public health, with the result that future candidates would have to spend two years on the special course after they had taken a registrable medical diploma. In proposing the health of the guests Dr. F. E. Fremantle, M.P., succeeded in the difficult task of mentioning, with a graceful adjective, all the principal guests. In the course of his remarks Dr. Fremantle spoke of Lord Riddell as the doyen of journalists, an epithet which seemed a little to nettle Lord Riddell, who, in his reply, appeared to question its correctness. However, he told several good stories, and promised to make another collection for next year. Sir Squire Sprigge, who also replied to the toast of the guests, spoke of the growing complexity of medicine and the difficulties it created for the editor of a medical journal—difficulties which, he said, would be insuperable but for the assistance readily given by members of the profession having knowledge of special subjects. Among other guests present were the President of the Royal College of Physicians (Sir Humphry Rolleston), Sir George Newman, Sir Arthur Robinson, K.C.B., Sir William Hamer, Lady Murphy, Dr. Wallace Henry (Chairman of Representative Meetings, British Medical Association), Dr. Alfred Cox, Medical Secretary, and Sir Dawson Williams, Editor of the BRITISH MEDICAL JOURNAL. The toast of the President was given by Sir Benjamin Johnson, High Sheriff of Lancashire, and suitably acknowledged by Dr. Naylor Barlow.

TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

ACCORDING to what appears to be an authoritative communication, published in the *Times* of October 17th, a meeting was held recently in London at the invitation of Baron Henri de Rothschild, who is a member of the medical profession, to consider what steps should be taken to provide a fund to prevent the closure of M. Spahlinger's laboratory at Carouge, near Geneva. Such particulars of M. Spahlinger's methods and of the production of his vaccines and serums as were available were given in two articles published in the BRITISH MEDICAL JOURNAL of May 12th (p. 830) and June 2nd (p. 938). Dr. Leonard Williams recently reported (September 22nd, p. 519) a series of cases of tuberculosis he had observed under treatment by the Spahlinger method. It is stated that the meeting decided shortly to issue to members of the medical profession a pamphlet giving a history of M. Spahlinger's work accompanied by medical evidence and clinical details. Eventually it is proposed to make an appeal for subscriptions to meet the expenses already incurred by M. Spahlinger and to enable him to continue his work. It is reported that on October 15th the Lancashire Insurance Committee set aside a sum of £1,000 for the supply of these serums and vaccines.

FIRM ATTITUDE OF PANEL PRACTITIONERS.

WE are informed as we go to press that the interim returns from a considerable number of Panel Committees have been received, and that an analysis of them shows that the resignations tendered in these areas in response to the advice of the Insurance Acts Committee exceed the 66.6 per cent. required by the Committee. The Committee determined that it would not direct any resignations to be sent in unless two-thirds of the medical practitioners on the panel decided to resign. From information in the possession of the Committee it is confidently anticipated that the required percentage will be considerably exceeded before October 31st, the last day on which resignations can be sent in, as two months' notice must be given. In some districts 100 per cent. of the medical practitioners have already sent in their resignations to the secretaries of their Panel Committees.

TREATMENT OF SLEEPING SICKNESS BY BAYER 205.

THE *Cape Times* of September 19th contains an interesting "authorized" statement as to the results of the investigations which Professor Kleine and Dr. Fischer have just concluded in Rhodesia on the action of Bayer 205 in trypanosomal diseases. A previous note on their work was published in the BRITISH MEDICAL JOURNAL, January, 1923, page 35. About 230 patients in various stages of sleeping sickness were treated. Patients whose central nervous system was unaffected were, it is stated, cured after four injections (subcutaneous or intravenous) of 1 gram each. After the first or second injection the fever abated and the swelling of the glands began to go down. The efficiency of the treatment was so marked that natives came to seek it in large numbers. In cases where the brain was affected or paralysis had set in a longer course of treatment was required, but details as to the ultimate effects of such treatment have not been published. The action of Bayer 205 on ngana, a trypanosomal disease of cattle, was not so satisfactory, and its value in this disease is uncertain. It is promised that full details of the researches shall be published later.

WE publish this week a review of a book on gastro-enteroptosis on the principle that a good book should not suffer on account of the indiscretion of the publishers, but we regard the action of Messrs. D. Appleton and Co. of New York, in respect of the five monographs of which Dr. Coffey's is one, as indiscreet. The monographs deal with such unrelated subjects as traumatic shock, the reconstructive surgery of the upper extremity, gastro-enteroptosis, the transplantation of tissues, the surgery of the spleen, and physiotherapy. The publishers, however, decline to sell each monograph separately, and ask the sum of £6 5s. for the five volumes, which are issued in set only. This is a most undesirable innovation, and we learn that at a meeting of the Library Committee of the Royal Society of Medicine, held on October 23rd, it was decided that the Honorary Librarian should write to the publishers to say that the purchase of the monographs would be considered when the restriction had been withdrawn. The Committee regarded the plan as a bad precedent which should not be allowed to pass.

WE may remind our readers that the Semon lecture will be delivered at the Royal Society of Medicine (1, Wimpole Street, W.) on Thursday next, November 1st, at 5 p.m., by Dr. A. Logan Turner, lecturer on diseases of the throat and ear in the University of Edinburgh. His lecture will be a plea for adequate training and close co-operative action for the advancement of laryngology and otology. Students of the University of London and others interested in the subject are invited to attend.

Haldane is there quoted as giving his opinion that the theory of sewer-air infection was based on worthless evidence, that as a general rule illness was put down to sewer air if the cause was unknown, and that he was even very suspicious of the theory that sewer air, apart from its smell, can be a predisposing cause of disease.

These are not new facts. They have been known and admitted for years, yet we seem to lack courage to act on them. We retain by-laws which require the provision of intercepting traps often at a considerable cost; we insist on systems of sewer ventilation which often create far more nuisance than the imaginary ones they are designed to prevent; and if we succeed in getting smoke, under a pressure to which drain air is never subjected, to make its way through some minute flaw, we call upon the owners of the property to relay drains at a cost which may be almost ruinous in these difficult and harassing days.

It took a generation to educate the public into a horror of insanitary conditions, and it is perhaps natural that there should be some reluctance to teaching anything that might weaken that dread, perhaps also a little timidity in opposing tradition and orthodoxy. But now that experience has shown us which are the really useful and economic lines of sanitary reform, I think it is essentially our duty to point these out and insist on their being put into operation, while rigidly preventing unnecessary expenditure on what we now know to be merely the bogies of an outworn creed.

References.

[1] Rosenau: *Preventive Medicine and Hygiene*, 1921. [2] *Journal of the Royal Sanitary Institute*, vol. xvi.

DISCUSSION.

(The chair was taken by Dr. Lockhart Stephens.)

Dr. Mearns Fraser (M.O.H. Portsmouth) said he thought it would be difficult to draw the line as to when a drain became so defective as to be dangerous, and he was personally inclined to continue on the safe side. From the practical point of view he found that defects or alleged defects in drains were very often reported by private medical practitioners, and if they took the line of refusing to act on such information it might involve them in controversies with the general practitioner. He did not quite appreciate the distinction drawn by Dr. Wynne between soil pollution and air pollution. It was often believed that food poisoning might be caused by contamination of foodstuffs by drain air. He emphasized the fact that defective and untrapped drains might serve as rat-runs and in this way become a danger and a nuisance. He felt it was probable that the danger of inhaling sewer or drain air was exaggerated, but that, on the other hand, it might be dangerous to assert its positive harmlessness.

Mr. Wynter Blyth, D.Sc., F.I.C., in a very interesting communication, criticized much of the experimental work which had been done in connexion with the bacteriology of sewer air, which, he said, had in many cases been carried out by people who were quite vague as to the chemico-physical problems with which they were confronted. Sewage, he said, was a variable mixture of inorganic salts and organic compounds both in solution and suspension, and a large part of the suspended matter was in the colloidal state. House sewage tended on agitation to form froth and bubbles. The gases composing the air of sewers and drains did not differ materially from ordinary air except for variable quantities of the gases of decomposition whose concentration would be more or less proportional to the state of ventilation. Apart from the physiological or psychological effects of inhaling evil-smelling gases one would accordingly expect no ill results from such inhalation provided the air were free from micro-organisms. The main point therefore appeared to be to inquire to what extent and under what conditions organisms could be carried from sewage to sewer air, and how long they could remain in suspension in the air and retain their vitality. There was no doubt that organisms could be thrown into the air, not only by splashing but by the bursting of [illegible] down of foam. Horrocks, in his experiments published in the *Journal of the Royal Sanitary Institute* (No. XXVIII), had obtained a positive result in a plate exposed, in one case 9 ft. and in another 11½ ft., above the surface of the sewage, but unfortunately published no data as to the draught in his experimental pipes, the conditions under which the organisms were ejected, or the condition in which they were when so ejected. With a view to determining some of these factors he had himself recently conducted certain experiments which showed that the pressure inside a bubble was maintained by the surface tension of the liquid—the higher that tension the greater the pressure per unit area of the surface of the bubble. In accordance with this law he had obtained a positive result with plates exposed at 9 inches above ordinary tap-water containing *B. typhosus*, but the result was negative at one foot above the surface. In another experiment under identical conditions, but with soap solution instead of water, growths were obtained at 4 inches, but not at 6 inches. Further experiments had been made to determine the distribution of organisms in frothing solutions of gelatin and soap. The results were not so far conclusive, but he felt justified in saying that there was evidence of some concentration or organisms in the froth—that was to say, the organisms were not driven out from the air-liquid interface. It was proved that the thinnest bubble—that is, one with a film of about 0.0017 μ in thickness—could carry a micro-organism with a diameter some 17,000 times greater than this. When a bubble breaks there is no "explosion," but the film, as it were, "flaps back" at a rate of seventy-two miles per hour, and it is this force which ejects the comparatively enormous organism. Absorption of liquid by the organism is one of the factors in determining its convection by light currents of air, and such absorption is minimized if the organism has been in contact with grease, which is one example of the complexity of the problem. However, it was found by experiments with *B. prodigiosus* that the maximum time taken to fall through 100 cm. when discharged from a bubble of soap solution was one minute, and when discharged from a bubble of gelatin solution forty-five seconds. By applying Stokes's law the radius of the particle of liquid containing the organism is found to be in the first case 11.7μ, and in the second case 15.8μ. The volume of the globule of water and organism to that of the naked organism is therefore about 1,000 to 1. Nevertheless these particles are small enough to be carried considerable distances by low velocity currents of air, as much as 6 ft. in a draught of only 30 ft. per minute.

Dr. Scurfield (late M.O.H. Sheffield) mentioned a personal experience of residence for a considerable time in a house in which eventually smells called attention to the drainage, which was found to be profoundly defective. He could not say that any of the occupants had experienced any ill results in regard to their health. At the same time he thought it would be dangerous to ignore serious defects, as if a drain were pervious an accumulation of sewage in the foundations might be the first indication of a blocked drain. He had advised health committees for twenty years that diphtheria could not be caused by drain air, but that inhalation of such air might lower the general health and therefore the resistance to infection. He asked, If drain air was innocuous why were the effluvia from privy middens dangerous? He hoped that further research would be carried out by Dr. Wynter Blyth on the very interesting lines of his paper, as before any alterations in by-laws could be adopted it would be necessary to convince the architects of the Ministry of Health.

Dr. G. H. Pearce (M.O.H. Batley) was of opinion that all defects in drains should certainly be made good and no second-rate work permitted, but the findings of the Departmental Committee on intercepting traps had greatly modified their ideas as to the effects of sewer air. He found that typhoid fever was mostly spread by flies and the consumption of shellfish, and diphtheria by carriers,

PUBLIC HEALTH IN SOVIET RUSSIA.

BY

L. HADEN GUEST, M.C., M.R.C.S.

(Concluded from p. 731.)

I.—A TUBERCULOSIS CLINIC FOR SCHOOL CHILDREN.

scow is divided into seven districts, and the largest of se, the Zamoskvorechie district, in which there are ry textile factories, food factories, and engineering blishments, has been chosen as the site of an anti-erculosis children's clinic.

he buildings are efficient and suitable, and the child ulation dealt with is between 50,000 and 60,000 in ber; 150 children pass through the out-patient depart-nt daily, and 200 children are cared for in the sanatorium or solarium. The children are kept in open air (under shelter) continuously, and the institu-n on this side corresponds with our English open-air ools except that special clothing is provided. The hing is designed to be sufficient for warmth but also e enough and exiguous enough to allow free circulation air round the body and free exposure of arms and legs to sun. The children, whom I saw on an overcast and ly day, were warm, comfortable, and even healthy-ing apart from the obvious signs of tuberculous trouble. h week the children are examined by a medical board ive doctors at which students attend, as the institution sed for teaching as well as curative purposes.

n important aspect of the work is the close association ch is maintained between the factories and workshops he district and the clinic. A committee of twenty repre-tatives of the factory workers meets regularly at the ic to keep in touch with the doctors and the medical side he work; and in the factories these representatives, with er factory workers, unite to form what one may call tory Hygiene Committees, whose duty it is to bring to notice of the doctors any conditions of work which ct health adversely. The system works well, and has effect of bringing a realization of working conditions ore the medical staff on the one hand, and a realization the influences of these on the health of the individual ore the workers. The co-operation is valuable, and ght well be imitated in this country. The Central rkers' Committee has at its disposal three women in-ry officers, who discharge the duties of health visitors l care committee workers.

nother feature of the work is the promotion of travel-; hygiene exhibitions, as well as an exhibition of ienic interest in the clinic itself. The travelling ibitions go to the works and help to make the workers lize the conditions affecting their health.

hese steps are taken not only as a matter of general ienic education, but to help toward early diagnosis. methods of diagnosis are: (1) by ordinary medical mination, for which specialists in tuberculosis are ilable: (2) laboratory tests; (3) x-ray examination; (4) the Pirquet test. The aim of the diagnosis is to ure early and efficient treatment in institutions suited the case—day sanatoriums, resident sanatoriums, forest ools, etc.

he method of examination of each case is as follows: child is weighed and measured, including measure of ing height and chest measurement. The temperature aken, and estimation made of the haemoglobin in the od and a Pirquet test made. Urine and sputum are mined if necessary, but not always. About 95 per cent. the children examined give a positive Pirquet reaction.

valuable part of the work of this clinic has been the lying of the social conditions of the district of Moscow which it is situated. Most elaborate investigations have n made and charts and diagrams prepared to illustrate h separate point. The frank revelation of bad conditions n one sense discouraging, but in another it gives one ater confidence in the administration of the Communists, t involves a definite facing of very unpleasant facts, and institution is, of course, under Communist control.

The statistics as to the feeding of the child population and other matters are as follows:

Food.		
Good—two principal meals daily	2	per cent.
Medium—a meal sometimes missed ...	31	,,
Bad	65.6	,,
Famine	1.4	,,
Occupation.		
Manual workers	73.6	per cent.
State employees in offices	24.5	,,
Indefinite	1.9	,,
Housing.		
Legal cubic space allowed per person (adults and children)	6½	cubic arshins*
Actual space	3½	,,
Families per room (5 in family).		
In 1 room	52	per cent.
In 2 rooms...	31.3	,,
In 3 rooms...	14.7	,,
In 4 rooms...	1.4	,,

*An arshin is 1.5 metres.

As regards utensils from which to eat their food, only 53.2 per cent. of children used separate plates. Over 50 per cent. of the children have no foot covering. There is a lack of conveniences for washing, 23.5 per cent. of the population having no soap. In regard to education, 83 per cent. can read and write; 14.4 per cent. are illiterate; 2.6 per cent. have attended secondary schools.

There is no attempt in these figures to convey a very roseate view of the situation, and when it is remembered that the figures do not take cognizance of the vagrant child population it is clear that the situation is not good.

The antituberculosis clinic I visited is the only one in Moscow specially set aside for children's work, but there are ten other clinics in Moscow at which both adults and children are attended. There is also near the centre of the town, at No. 12 Solanka Boulevard, the old orphan asylum, which is being used as a maternity and child welfare clinic and which has a very excellent modern installation for the sterilization and distribution of milk. There is also being equipped—the rooms I saw were freshly prepared for the work—a new research institute where all children's diseases will be studied. Attached to this institute is a good museum where "permitted" and "not permitted" foods are shown in different groups—the models being so good that it is impossible to detect their unreality except by touch and smell. In this museum also is a complete series of models of children's stools, ranging from normal, through normal *plus* milk curd, to the most extreme examples of acute enteritis. These models are also excellent.

The pictures are also very good indeed and convey the simple lessons of the hygiene of maternity and childhood with a force which needs no letterpress to explain it. The pictures have been made by well known Russian artists and are much more vivid than those usually seen and used for such purposes. Among them are four pictures, in oils, by M. Archipoff, which contrast the care bestowed on pregnant animals and the lack of care given to pregnant women. These pictures are scenes from peasant life—M. Archipoff is by origin a peasant. One of them shows the careful feeding of a pregnant horse and another a pregnant cow. Another shows a beautiful gold and green Russian landscape and a pregnant woman working hard at the harvest. There is no doubt about the propaganda intention, nor about the effect of this picture, but it is also one of the most beautiful modern pictures I have seen. Its vivid green and gold is a thing of delight. Then, too, there is a peasant interior, a picture of women, one pregnant, working at some vigorous task of cleansing in the house—the light of the fire, the vivid red, and the mystery of smoke make it as wonderful almost as a Rembrandt. The pictures are realistic to a detail, but they are as beautiful and as aesthetically satisfying as all great works are.

In Russia, in all kinds of places, one sees the pictures of Karl Marx, and it is significant that in this exhibition his picture is balanced in a place of equal honour with that of Charles Darwin. And in the galleries are pictures of Koch, of Behring, of Lister, of Jenner, and of other great benefactors of the race, while the motto which runs

view of the high percentage of CO in modern gas. He thought it was not generally realized how common this form of pollution of air was, and Dr. Hazleton's suggestion for its remedy was as valuable as it was simple. He thought it not unlikely that conditions commonly attributed to sewer gas were due to this cause.

Dr. Scurfield agreed that Dr. Hazleton had called attention to a matter of very great importance in connexion with the public health. The danger of leakages of gas was increased by the fact that many persons were very insensitive to its smell, and so might remain unaware of quite poisonous amounts in the air they breathed.

Several other speakers thanked Dr. Hazleton for calling attention to a matter of such practical importance, and hoped that his method of prevention would in time become general.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

ASTHMA DUE TO INSECT POWDER.

Mrs. D., an apparently healthy woman of 24, consulted one of us (J. R. G.) on August 10th, when she was found to be suffering from a severe attack of asthma.

Her history was that on August 7th, at about 6 p.m., she bought a tin of a well known brand of insect powder and sprinkled some of it on her bed, on which a dog had been lying. In about half an hour she noticed that her eyes were watering, sore, and itchy. When in bed that night she had the first stages of an asthmatic attack. She could not "get her breath" and there was a "catch" in breathing. The next day she had little to complain of, but that evening and night she felt worse. The attack was most severe on the following night (August 9th). When seen on August 10th the signs and symptoms were those of severe bronchial asthma. Under appropriate treatment she gradually improved, and at the end of a week was quite comfortable during the day and only slightly "wheezy" at night.

Only once previously had she suffered from asthma. That attack came on about a year before when she was staying in the country on holiday. The previous occupant of her bed had been a lady who had three dogs, and before Mrs. D. arrived the landlady had made free use of insect powder on the bed. The attack developed the first night Mrs. D. spent in the bed, and, after three days of misery, she returned home and was completely well within a week.

The only one of her relatives who suffers from asthma is a maternal aunt who has been a frequent victim from her girlhood. In her case no connexion between attacks and either food or environment has been noticed.

In order to confirm or rebut Mrs. D.'s conviction that the powder was the cause of her attack, her sensitiveness to it was tested by the other recorder (J. W. B.). A few superficial scratches were made on each forearm. The abraded surface on the right arm was rubbed with carbol saline, that on the left with a suspension of the powder in the same solution. Within five minutes there was a marked difference between the two arms. The scratched surface on the right was surrounded by a slightly hyperaemic zone, but that on the left forearm showed as a raised white wheal in the centre of a bright red patch. The reagents were then washed off with salt solution. The condition was kept under observation for a further ten minutes, when the visible and palpable wheal was much more marked and the red zone larger. The subject stated that it was rather itchy. When seen six hours later there was but little difference between the arms, and Mrs. D. said that the swelling had almost completely disappeared within an hour from the commencement of the experiment. In view of the very rapid and marked skin reaction there can be little doubt that Mrs. D. was very sensitive to the powder and that it was the cause of her attack of asthma. No attempt was made to immunize her against the substance as it is one fairly easy to avoid. Since she has only suffered from these two asthmatic attacks it seems probable that her range of sensitiveness is small. She was not tested with any other substance.

The makers of the powder did not reply to my question as to its composition, but it apparently consists, in whole or part, of pyrethrum, and it is probable that this substance was the responsible agent.

The case seems worth recording since, so far as we have been able to discover, no similar case has been noted before.

J. R. Garratt, M.D.,
Kingstown.
Joseph W. Bigger, M.D., F.R.C.P.I.,
Dublin.

SYPHILITIC STRICTURE OF THE SMALL INTESTINE.

The following case of severe generalized syphilis, with syphilitic stricture of the small intestine, causing intestinal obstruction and resulting in death, presents some interesting features worthy of record.

A man, aged 45, was admitted to hospital on December 6th, 1922, complaining of severe gastralgia which began about a week earlier. He had been troubled by frequent attacks of indigestion for twelve years, with occasional vomiting. He had served as a regular soldier in India, where he had slight malaria, and he had been a rather heavy drinker for many years. For the most part, however, his health had been good. During the war he served in Salonica, where he got a fresh infection with malaria in 1917, but was not seriously ill, and the last attack of malaria was in 1921. He had iritis in the left eye in 1915.

On admission he was pale and thin, and the lymphatic glands on both sides of the neck were enlarged and hard. There were no abnormal physical signs in the heart or lungs. The left pupil was "pin-point" and fixed, apparently due to the old iritis. The right pupil was normal in size and reacted slowly to light, and more actively to accommodation. Deep reflexes and sensation were normal. There was slight tenderness over the pylorus, but the abdomen was difficult to palpate, as the recti muscles were rigid. He vomited occasionally, even when on a diet of bread, milk, and pudding. The bowels tended to be constipated. An Ewald test meal, given on December 10th, revealed a total absence of free HCl, and a total acidity of 10—that is, there was a complete achylia gastrica. No Boas-Oppler bacilli were found. On December 15th the Wassermann reaction of the blood was reported positive. X-ray examination showed the stomach to be normal in size and position, and that it emptied itself in five and a half hours. There was no evidence of narrowed pylorus or tumour formation. The patient was put on dilute hydrochloric acid with pepsin, and on mercury and potassium iodide. At the end of December intravenous injections of 0.3 gram novarsenobillon were begun, but after each there was so decided an exacerbation of pain in the stomach that the injections were stopped after the third.

He did not improve, but became sick more frequently, so that at first medicines and then food by the stomach had to be stopped, and bowel feeding was resorted to. He became more emaciated and the sickness continued. Early in February, 1923, he had a twitching of the left eye which lasted for three minutes, and he was dazed for some time afterwards.

The patient was transferred to the surgical department on February 17th, as a last resort. He was then very weak and emaciated, but the appearance of the abdomen was striking. It was well and uniformly filled and firm, in marked contrast to the extreme wasting of the rest of the body. With the object of introducing peptonized milk directly into the small intestine an incision was made in the epigastrium, and a loop of small bowel was picked out. This loop presented a stricture, about 3/4 inch in length and 1/4 inch in external diameter, which was very firm, and avascular. On both sides of this stricture the bowel rapidly expanded to fully an inch external diameter. The fullness of the abdomen was largely due to great infiltration of mesenteric glands and retroperitoneal tissues. An enterostomy was rapidly performed below the stricture, and the patient fed; he was also stimulated with radiant heat, pituitary extract, etc. The temperature, which had fallen to 96°, rose almost to normal, and for a time he retained nutrient injections and salines, and slept well. Three days later, however, he died.

Post mortem, in addition to the retroperitoneal masses, masses were found in the liver and the upper pole of the left kidney, and large firm masses in the mediastinum. Microscopical examination showed these masses to be gummatous. The stricture of the intestine was situated in the jejunum, and, on section, the very narrow lumen was found to be neatly closed by a grape seed which acted as a ball valve, the little projection at one end of the seed entering the stricture and acting as the valve stem or guide. The thick walls of the stricture showed gummatous infiltration.

We are indebted to Drs. E. Currie and M. Davidson, resident medical officers, for the use of notes made upon this case.

W. K. Anderson, M.B., Ch.B.,
Physician,
J. A. C. Macewen, M.B., C.M., F.R.F.P.S.Glas.,
Surgeon,
Eastern District Hospital, Glasgow.

Clinical Laboratories at London Mental Hospitals.

At most of the mental hospitals under the control of the London County Council clinical laboratories exist, but the Mental Hospitals Committee is now proposing that a clinical laboratory shall be established at every one, the equipment of them all to be standardized, and arrangements to be made for the co-ordination of their work with that undertaken at the central pathological laboratory at the Maudsley Hospital. This proposal will entail an estimated expenditure for all the hospitals together of £710 initially, and £350 a year for maintenance. A new position of laboratory assistant is to be created at the mental hospitals, at a rate of pay equivalent to that of a male chief charge nurse. This laboratory assistant, in addition to performing such duties as are required in the laboratory, will take over the duties of mortuary or *post-mortem* attendant, now performed by one of the male nurses.

Post-Graduate Courses in London.

The programme of special courses arranged by the Fellowship of Medicine and Post-Graduate Medical Association covers a wide range of subjects, beginning with a fortnight's course in general medicine and surgery at the Royal Northern Hospital, in conjunction with the Central London Ophthalmic Hospital, North-Eastern Fever Hospital, and the Royal Chest Hospital. Clinical demonstrations in the various departments will be given each day from 10.30 a.m., concluding with a lecture at 4.30 p.m. Also beginning on November 5th and continuing throughout the month there will be a course in gynaecology at the Chelsea Hospital for Women. Lectures will be given by members of the staff each day, preceded by demonstrations in the out-patient department or operations in the theatre. A month's course in psychological medicine has been arranged at the Maudsley Hospital, Denmark Hill, and will consist of lectures and demonstrations on the psychoneuroses, the practical aspect of mental deficiency, the pathology of mental diseases, clinical psychiatry, and crime and insanity. Also at the London Lock Hospital (Dean Street and Harrow Road) a comprehensive course of lectures and clinical demonstrations on venereal diseases will be given from November 5th to 29th. A lecture on some aspect of the subject will be given each day, supplemented by clinical work in the wards and out-patient department. From November 19th to December 15th a practical course in ophthalmology will be given at the Royal Westminster Hospital. In addition to clinical instruction every afternoon from 2 o'clock, a practical fundus class and special demonstrations in medical ophthalmology and methods of examination will be given three times a week at 10 a.m. Beginning on Monday next (October 29th) a two weeks' course in dermatology will be given at the Hospital for Diseases of the Skin, Blackfriars, consisting of clinical instruction every afternoon from 2.30, with special demonstrations on selected cases. Further particulars and copies of the syllabus of any of these courses will be forwarded on application to the Secretary to the Fellowship of Medicine at 1, Wimpole Street, W.1.

The Recent Outbreak of Small-pox in London.

The Public Health Committee of the London County Council submitted to that body on October 23rd a report of the recent outbreak of small-pox in London. There were 18 cases (2 fatal), of which 11 occurred in the County of London and 7 in the extra-metropolitan districts. Attention was first directed to the appearance of small-pox on September 7th by the medical officer of health for a South London borough, who discovered a case in a girl employed as a chambermaid at a hotel in Central London. This girl had waited upon a lady visitor from Spain who had been ill at the hotel from August 13th to 19th, with what was thought, without medical advice, to be influenza, with spots attributed by her to fish poisoning. Four other cases were discovered within twenty-four hours in widely separated districts, and contact with the original case from Spain could be traced in two of these cases. The Spanish visitor herself was traced to an address in an out-county suburb, where she was found to be recovering from a mild attack of small-pox, but she had infected an adult relative, who was suffering from a severe attack, and another relative with whom she had been in contact was also discovered to be suffering from small-pox. It appeared that the lady had left Valencia, where there was an epidemic, on August 4th, and after staying at the hotel in London had left for the suburb where she was discovered, and where her complaint had been diagnosed as chicken-pox. After her removal to hospital 10 further cases occurred, 3 evidently having been infected by the original case, and 4 presumably by one of the infected employees at the hotel. Of the remaining 3 cases, one was a man employed at the laundry which washed the hotel linen, and the other 2 were persons who had afterwards occupied that particular room at the hotel. Among the patients there was only one child, an unvaccinated boy of 12 years. Of the 18 patients, 12, whose ages ranged between 23 and 79 years, had not been vaccinated since infancy, and of these one died; 5 between the ages of 12 and 50 had never been vaccinated, and of these one died, one patient had been vaccinated in the army in 1914 and suffered a mild attack.

Scotland.

Cameron Prize Lectures in Edinburgh.

The recipient of the Cameron Prize for 1923 at the University of Edinburgh, Professor J. J. R. Macleod, M.B., F.R.S., Professor of Physiology in the University of Toronto, delivered the two Cameron Prize Lectures in the anatomy classroom on October 16th and 17th. Principal Sir Alfred Ewing in introducing the lecturer stated that the Cameron Prize was the highest honour the University of Edinburgh had to bestow on work in practical therapeutics, being awarded to anyone who in the preceding five years was considered to have made an important and valuable discovery in that subject. Professor Macleod had played a most distinguished part in the development of treatment of diabetes by insulin—a treatment which, if it could not be said to effect a cure, had at least brought restoration and hope to many sufferers. The discovery had focused the attention of the medical and scientific world upon Professor Macleod's laboratory in Toronto, though the credit was of course shared with co-workers. The discovery of the substance had been made there by Dr. Banting, who, along with Mr. Best, had shown that it could be prepared by using partially degenerated pancreas; and this fundamental discovery had been developed by Professor Macleod and his co-workers, especially by Mr. Best and Professor Collip. Professor Macleod's lecture dealt with the "Nature of Control of the Metabolism of Carbohydrates in the Animal Body." It had been supposed, he said, for many years that carbohydrate metabolism was regulated by an internal secretion of the pancreas to which Sir Edward Sharpey Schafer had actually given the name of "insulin," but it had not been possible to isolate that material until the researches of Dr. Banting and Mr. Best. The method by which insulin could be prepared in adequate quantities from adult ox pancreas was devised mainly by Professor Collip. The use of the preparation had opened up a large field of investigation in metabolism, not only of carbohydrates but of fats and proteins. The address Professor Maclead delivered to the International Congress of Physiology in Edinburgh, in which he reviewed the whole subject, was published in the British Medical Journal of August 4th (p. 165).

Centenary of Mental Teaching in Edinburgh.

The delivery of the hundredth annual course of Morison lectures in Edinburgh was made the occasion of a centenary dinner in the hall of the Royal College of Physicians on October 16th, when Professor George M. Robertson, physician superintendent of the Royal Asylum, Edinburgh, was in the chair and delivered an address.

Professor Robertson's Address.

The historical narrative of the events connected with these lectures given by Dr. Blackhall-Morison in his centenary lectures began most appropriately with an account of the foundation of the Royal Hospital at Morningside, which is in itself a romantic story. It was founded by Dr. Andrew Duncan,

TREATMENT OF PUERPERAL SEPSIS.

A meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine was held on October 4th, with Dr. Cuthbert Lockyer, President, in the chair, when Mr. Gordon Luker read a paper on the treatment of puerperal sepsis by a combination of antistreptococcal serum with intravenous and intramuscular injections of quinine bihydrochloride. This method had been used by him in a series of cases of puerperal septicaemia during the past twelve months with extremely satisfactory results. Thirty-six cases of puerperal septicaemia were admitted to the London Hospital in the year under observation, of which twenty-four had been treated by this method, with only two deaths. Both of the patients who died had suffered from toxaemia of pregnancy and antepartum pyrexia. Previously, the mortality among hospital cases had been about 35 per cent. Up to the present small doses only of quinine had been given, the maximum being 5 grains. The paper was illustrated by charts of all the cases treated.

Dr. Everard Williams showed a specimen of adenomyoma occurring in a bicornuate uterus. The subject from whom the specimen was obtained was a single woman, aged 31, who had absolute amenorrhoea, with severe abdominal pains each month. In each side of the pelvis, situated at the junction of the Fallopian tube with the uterine horn, was a small solid tumour which on section was found to be adenomyoma.

Mr. W. Gilliatt described a condition in which a patient had had a placenta praevia in four successive pregnancies. The patient had been pregnant only four times and the children had all been male; two of them were now alive and well, and two were stillborn. No abnormality of the pelvic organs could be detected during pregnancy, in labour, or in the intervals between the pregnancies. There were only two other cases recorded in the literature in which placenta praevia had occurred more than once in the same patient.

Drs. H. Williamson and G. F. Abercrombie communicated a note on a case of inversion of the uterus caused by a squamous-celled carcinoma of the fundus. The inverted uterus was treated by the application of thirteen needles containing radium bromide so as to irridate the whole of the malignant tissue equally. The uterus was removed by abdominal panhysterectomy, and the patient did well.

CLINICAL MANIFESTATIONS OF CEREBRAL TUMOUR.

The opening meeting of the Royal Medico-Chirurgical Society of Glasgow was held on October 5th, when an address was delivered by Dr. Gordon M. Holmes, entitled "The clinical manifestations of cerebral tumour."

Employing the term "tumour" in its widest sense, Dr. Holmes said that cerebral tumours were much more common than they were generally believed to be. The clinical manifestations, which were often complex, and which might vary from time to time in form and severity, might be considered under two headings: (1) general, due to increased intracranial pressure, on which the diagnosis of the actual presence of a tumour depended; and (2) local, due to the pressure of the tumour on the neighbouring parts, on which the diagnosis of the site of the tumour depended. After referring to the causes of the increase in intracranial pressure, Dr. Holmes considered in detail the cardinal symptoms arising therefrom—namely, headache, vomiting, and optic neuritis or papilloedema. The headache, due to congestion of the vessels, occurred as a rule in the morning and was usually referred to the frontal region—"behind the eyes"—though occasionally, as in cerebellar tumours, the pain was chiefly occipital. The vomiting, which bore no relation to the ingestion of food or to the condition of the stomach, was frequently accompanied or preceded by nausea (contrary to what was usually stated in textbooks) and was almost invariably associated with the morning headache. Optic neuritis, a most valuable positive sign and generally present in cerebellar and mid-brain tumours, was unfortunately often absent in early cases, especially in tumours in the region of the pons and basal ganglia. It was important to distinguish between true papilloedema and such conditions as neuro-retinitis of arterial or renal disease, or pseudo-papillitis. Of the remaining general symptoms, a slow pulse rate was not of great significance; true vertigo, usually a local symptom in tumours of the posterior fossa of the skull, was comparatively rare; mental symptoms, though important, were often misinterpreted and attributed to primary mental disease or general paralysis of the insane. While none of these general symptoms was constant, and none, except, perhaps, papilloedema, was pathognomonic, they were rarely absent altogether, except in such cases as a slow-growing tumour where the intracranial pressure was not increased or the brain had time to adapt itself to the increased pressure, or in cases where there was no interference with the circulation of cerebro-spinal fluid. With regard to the local symptoms of cerebral tumour, which might take the form of either paralytic or irritative phenomena, the important points to note were the slow onset and the progressive and extending development to surrounding areas. Sudden and irregular exacerbation or diminution in the severity of the symptoms, both general and local, were not uncommon and were due to such causes as circulatory disturbances, interference with the flow of cerebro-spinal fluid, inflammation and oedema, haemorrhages, central softening of the tumour, and cyst formation. Very rarely there was a history of an acute or subacute onset—for example, in some of the cases of the infective granulomata—but careful questioning usually elicited slight premonitory symptoms.

Dr. Gordon Holmes then discussed briefly the differential diagnosis, including such conditions as cerebral degenerations, general paralysis of the insane, hydrocephalus, renal disease, and arterio-sclerotic disease. Of the accessory aids to diagnosis, such as radiography, ventrilography, or pneumography, and lumbar puncture, little real help was to be expected, and, in some cases, such information as they did provide was not commensurate with the risk of their employment. A decompression operation, while it relieved acute symptoms, often prevented any further chance of accurate localization, which, after all, was secondary only to the early recognition of its clinical manifestations in the diagnosis and treatment of cerebral tumour.

INSULIN IN ADVANCED DIABETES.

A meeting of the Brighton and Sussex Medico-Chirurgical Society was held on October 4th, 1923, with Dr. Eliot Curwen, President, in the chair, when Dr. R. Sanderson read a paper on the effect of insulin in advanced cases of diabetes. He said that whatever may be the benefits conferred upon the diabetic by insulin, there seemed little doubt that it bade fair to bring many practitioners to a premature grave, so multitudinous, bewildering, and worrying were the problems involved. It was in the hope of minimizing the extent of this fatal toll upon his fellow men that Dr. Sanderson gave his experiences. We were, he said, to a large extent ignorant of the biochemistry of the metabolism of ingested food; we knew more than we did a few years ago, but there were large gaps in our knowledge. We knew that diabetes mellitus was not a disease connected with carbohydrate metabolism only, though this was its most obvious symptom, but that it was concerned also with the defective metabolism both of fats and proteins; it was a disease affecting metabolism generally. Dr. Sanderson then quoted Professor Macleod on the point that the metabolism of carbohydrates did not proceed independently, for in the chain of processes which preceded the final oxidation of glucose some substance was formed which was also intermediary in the metabolism of the other proximate principles of food—namely, fats and proteins. The metabolism of the three proximate principles therefore was closely interwoven so that when anything occurred to interfere with that of one of them some change was likely to occur in the others. The paper was discussed by Dr. Broadbent.

in Lunacy. The general progress of medicine had had great influence on the treatment of mental disease; and the evolution of bacteriology, endocrinology, and new conceptions as to eugenics and careful regulation of life were specially noteworthy in this connexion. The lecturer criticized the theories of the causation of mental disease and emphasized the supreme importance of sound education and care of the human mind in preventing its collapse. At the close of the lecture Dr. Blackhall-Morison presented for the acceptance of the Royal College of Physicians a portrait, painted by Philip Westcott, of his grandfather, Sir Alexander Morison, the founder of the lectureship, at the age of 82. In addition he tendered a *baculum* of office, suitably inscribed, to be used by successive Morison lecturers. The President, on behalf of the College of Physicians, gratefully accepted the gifts.

Royal Medical Society of Edinburgh.

The inaugural address of the 187th session of the Royal Medical Society was delivered on October 19th by Lieut.-General Sir William Leishman, K.C.M.G., F.R.S., Director-General of the Army Medical Service. Dr. T. M. Miller, Senior President of the Society, presided over the meeting, which was held in the Hall of the Society, and was largely attended by students and members of the Edinburgh teaching staff. Sir William Leishman spoke on the conditions and prospects in the Royal Army Medical Corps, and at the outset described in a humorous manner the "Pilgrim's Progress" of a supposed "Lieutenant Christian" through the Army Medical College, the dépôt of the R.A.M.C., his first command, his tour of foreign service, his senior course, and his ultimate advancement to a high position in the service. He pointed out that the policy now in force of withdrawing small garrisons and concentrating troops in larger centres would have a beneficial effect upon the medical service as well as on other departments. A number of small outlying hospitals had already been closed, and in the larger hospitals special subjects could be investigated. Accordingly for whatever branch of professional work an officer had a bent, he would in future have a chance of getting special instruction and special employment in the Army Medical Service. He paid a tribute to the work of the Service in different branches, and adverted to the fact that there had been fewer cases of enteric fever in the great war than the number of deaths from that disease in the South African war. A vote of thanks to the lecturer was proposed by Professor G. Lovell Gulland. On the following evening Sir William Leishman was entertained at dinner by the officers in the various Territorial units of the R.A.M.C. in the district.

Physical Education in Scottish Schools.

The second quinquennial report by Dr. L. D. Cruickshank, Chief Inspector of Physical Training to the Scottish Education Department, states that during the past five years there has been evidence of a growing appreciation of the scope and purpose of physical culture. The appearance of "drill" in school time tables tends to perpetuate in the minds of teachers and pupils a wrong conception of the subject, although the idea that physical education is synonymous with drill is no longer tenable. Dr. Cruickshank considers that the gymnastic lesson, while admittedly limited in scope, is in existing conditions the best means available for securing the maximum benefit to the health, development, and physical efficiency of the child. Dancing in schools has little in common with ballroom dancing, and should cultivate ease and grace of movement and develop control and rhythm. Swimming is commended as a form of exercise developing self-control and confidence. Health instruction, it is held, has not been considered with sufficient seriousness. Little has been attempted beyond supplementary classes dealing with the laws of health; but the aim should be to develop good habits rather than to give systematic theoretical instruction. As regards the debated question of sex instruction, the report holds that the best results are likely to be obtained along the indirect lines of habit formation, for in all health matters habits are better than knowledge. To encourage bookishness and

young. The report refers to the excellent work done by teachers of the Dunfermline College for Physical Train and the training colleges. The total number of schools spected was 1,798, and the criteria by which their effect the pupils was classified were: (1) posture and carriage general; (2) brightness, alertness, and vigour; (3) the ty of exercises taught. The results as regarded primary scho in counties were that 59 per cent. of the children w "good" or "very good," 30 per cent. were "fair," a 10 per cent. were "poor." In most of the large burghs t physical condition of the children was much better; Aberdeen 93 per cent. were "good" or "very good Edinburgh, 77 per cent.; Glasgow, 75 per cent. At Dund however, only 40 per cent. reached this high standard. T intermediate and secondary schools in burghs were a much in advance of similar schools in counties as rega excellence of physical training, and reached a standard attainment in systematic physical exercises that is likely to be greatly improved.

Mr. J. Hogarth Pringle, F.R.C.S.

On the occasion of the termination of his period service as surgeon to the Royal Infirmary of Glasgow, J. Hogarth Pringle, M.B., F.R.C.S., was entertained dinner in St. Enoch Station Hotel, Glasgow, by his form residents, on October 12th. Dr. H. Wright Thoms who had been the first resident, was in the chair, a the dinner was attended by a large gathering of form residents from various parts of England and Scotla In proposing the toast of the guest, the chairman m tioned that Mr. Pringle, who had been placed in charge of wards in 1895 at an unusually early age, served the Royal Infirmary as surgeon for the long per of twenty-eight years.

Central Midwives Board for Scotland.

A special meeting of the Central Midwives Bo for Scotland was held recently for the hearing of pe cases; Dr. James Haig Ferguson was in the chair. one case charges of being guilty of negligence, breac of the rules, and failing to send for medical assista in the case of a patient suffering from excessive haem rhage were found to be proved, and the Board instruc the secretary to remove the name of the person fr the roll, to cancel her certificate, and to prohibit from attending women in childbirth in any ot capacity. The cases of three other women charged w various breaches of the rules were considered. The Bo resolved in each case that the midwife should be sever reprimanded and that a final decision should be postpo pending the receipt of the report from the local supervisi authority on the conduct and methods of her prac during the next three months.

Correspondence.

THE UNIT SYSTEM IN SURGERY.

Sir,—It will be known to some of your readers that have decided at the London Hospital to abolish the u system on the surgical side, or rather to replace it by extended and modified arrangement. As director of surgical unit during the three and a half years of existence, I should like to bring to general notice reasons for this change, together with some observati on my own experiences.

The unit system was introduced in this country in 19 with the idea of improving the teaching of medicine surgery by placing it on a more uniform basis, and advancing research. The fundamental principle was t certain men, who had attained some distinction in t profession, were to be selected, invited to withdraw f private practice, and by the payment of a salary enable devote the whole of their time to teaching and resea The plan was founded on the system prevailing in Continental clinics, and it undoubtedly furnished an exp ment of great interest. The experiment has, howe brought to light certain peculiar features of medical w in this country which to my mind render the system

interest. It looks, one might say, as though all the life-energy were ultimately seeking the subject, thus offering a constant hindrance to any overpowering influence on the part of the object."

In a series of fascinating chapters Jung shows how these two opposed types have influenced religious thought, art, science, and philosophy; he shows also how they have been recognized by thinkers under different names. Heine's enthusiastic mystical Platonic natures, and the practical, ordering Aristotelian natures; Blake's devouring and prolific types; James's tender-minded and tough-minded; Nietzsche's fundamental pair of opposites—the Apollonian and Dionysian; Oswald's classic and romantic types; and Jordan's more impassioned and less impassioned—all these correspond more or less closely to the introvert and extravert. Individuals in each of these groups naturally show considerable differences, and Jung divides the introverted and extraverted types into thinking, feeling, sensation, and intuitive function-types according to which of these functions has the principal share in an individual's orientation to life. This method of descrimination undoubtedly provides a useful scheme in which to include the infinite variations of attitude, and the outline given of the various types is obviously the work of an observer of profound psychological insight.

With these two contrasting types as a basis Jung proceeds to develop his psychological views. His psychology is complex and his exposition of it sometimes a little obscure; it has but few points of contact with the psychology of the textbooks, and the author frankly repudiates the possibility of understanding life or personality from the mechanistic standpoint. There is much in this book inviting comment, but we may perhaps remark more especially upon the complete inability of the introvert and extravert to understand or appreciate one another. James thoroughly appreciated the significance of this "clash of temperaments" in the sphere of philosophy; and in describing the "tender-minded" rationalist and the "tough-minded" empiricist he recognized the prejudices which are mutually cherished by the two types: "They have a low opinion of each other. . . . the tough think of the tender as sentimentalists and soft-heads. The tender feel the tough to be unrefined, callous and brutal. Each type believes the other to be inferior to itself." It is largely Jung's aim to show that "though strife and misunderstandings are, assuredly, constant requisites for the trago-comedy of human life . . . a basis for the adjustment of conflicting views could be found in the recognition of types of attitude, not however of the mere existence of these types, but also of the fact that every man is so imprisoned in his type that he is simply incapable of a complete understanding of another standpoint." It is not only in the high altitudes of philosophic thought that misunderstandings arise, however, but in our daily contacts with our fellows. Jung emphazises this point in simple language in commenting upon Jordan's description of the extraverted man. He points out that the pitiless severity of Jordan's description shows him to be on the side of the introvert, and then in an illuminating passage indicates how such a lack of benevolence arises. This passage we will quote in full, because it reveals what is Jung's basic psychological position:

"It is certainly true that the extravert, if he has nothing to say, may find it necessary for a window to be opened or shut. But who has remarked it? Who is essentially struck by it? Only the man who is trying to give an account of the possible grounds and intentions of such an action, one therefore who reflects, dissects and reconstructs, while for everyone else this little stir is altogether dissolved in the general bustle of life, without offering an invitation to any ulterior deduction. But it is just in this way that the psychology of the extravert reveals itself: it belongs to the occurrences of daily human life, and it signifies nothing more, either above or below. But the man who reflects, sees further and—as far as the actual life is concerned—sees crooked, although his vision is sound enough as regards the unconscious background. He does not see the positive man, but only his *shadow*. And the shadow admits the justice of the criticism, to the prejudice of the conscious positive human being."

Here would seem to be an important truth on which we should do well to ponder. When the extravert opens or shuts the window we judge the man wrongly and fail to understand him if we say, "He always likes to be in the limelight" (unconscious motive); our judgement is more true if we say, "He always does the right thing" (conscious purpose).

Jung's teaching must be understood as a reaction against the present tendency of psychologists to preoccupy themselves with unconscious motives and to ignore the existence of conscious aims. His primary classification of humanity into types, differentiated by the direction of their interest, gives a new orientation to psychology; it deflects the attention from origins to aims, from causes to ends. Jung points out that in daily life we instinctively view a man's action from the purposive standpoint; we are not interested so much in the motives or causes of an action, but rather in what the man intends by it, what are his aims and purposes, what he hopes to achieve by it. He feels that a scientific psychology must take this fact into account and not rely exclusively on the causal standpoint. Professor J. B. Baillie has picturesquely said that in the light of science "man is viewed as the most prominent marionette in the mechanism of nature." This is not Jung's view. For him man is not a mere puppet under the control of forces alien to himself, but a living subject, working out his own destinies according to the limitations of his peculiar type.

H. Devine.

DISEASES OF RECTUM AND COLON.

Mr. Lockhart-Mummery has done well in revising his books on diseases of the rectum and of the colon respectively to combine them into one volume under the title *Diseases of the Rectum and Colon*.[2] An experience of some twenty years has brought the author to the not very surprising conclusion that the study of one part of the large bowel cannot be dissociated from that of the rest. He refers to the change which has come over this branch of surgery and expresses the opinion that disease of the large bowel is becoming more common and is therefore assuming greater importance. The reason is, he thinks, in the main dietetic. The highly elaborate preparation of foodstuffs has had the effect of reducing the indigestible residue to a minimum, with the result that the normal stimulus to peristalsis and digestion is diminished, especially in people of sedentary habits. In the more primitive races, whose food contains a greater proportion of undigestible cellulose, many of these ills do not arise. The author devotes a chapter to the physiology and to the bacteriology of the large intestine, and it is interesting to find here, as well as elsewhere, experimental work quoted in support of his conclusions. In discussing the vexed question of the function of the colon he says that the arguments brought forward to support the view that it is a useless and effete organ are far from convincing. One of the results of complete colectomy is to upset the fluid economy of the body. Patients who have undergone this mutilation have to take more fluid and are liable to suffer from diarrhoea after each meal. In dealing with the question of occlusion of the bowel certain experiments are quoted. The author states dogmatically that accumulation of faeces will occur in any loop, either proximal or distal to an anastomosis, and that an abscess will eventually form. The condition is not compatible with good health unless a fistula is left communicating with the excluded loop. Distension of the colon, he considers, results from fermentative processes in the faeces. The gas liberated is normally absorbed and carried away in the venous stream. Therefore to prevent meteorism either the bowel must be cleared or substances introduced into it to prevent fermentation. Post-operative ileus he holds to be due to microbic infection of the peritoneum. Proper diet and cleansing of the colon are the only means of combating it. Morphine has no specific effect.

Enteroptosis, he considers, is due mainly to weakened abdominal walls, with the consequent venous stasis due to lowered intra-abdominal pressure. For this condition he performs lateral anastomosis between the most dependent part of the transverse colon and the upper end of the

[2] *Diseases of the Rectum and Colon and their Surgical Treatment.* By P. Lockhart-Mummery, F.R.C.S.Eng., M.A., M.B., B.Ch.Cantab. London: Baillière, Tindall and Cox. 1923. (Demy 8vo, pp. x + 872; 215 figures, 5 plates. 25s. net.)

hours, albuminuria is not observed, presumably because the toxins have not had time to be formed in the dying portion of the placenta. Young and Miller published a series of cases of placenta praevia associated with toxaemic symptoms,[2] and a further paper on a consecutive series of forty-nine cases of placenta praevia is in preparation by Dr. Miller, in which he records associated albuminuria in 37 per cent., and eclampsia in three cases. But further records are most desirable, and there must be many practitioners who could supply them.

One other point is perhaps worthy of attention—namely, that haemorrhage due to the separation of a placenta praevia at the sixth or seventh month of pregnancy is probably in reality an "accidental haemorrhage." That is to say, the fact that the placenta happens to be attached to the lower uterine segment is not to be regarded as a necessary factor in its premature detachment at that early stage of pregnancy. Our present classification of antepartum haemorrhage is mainly anatomical and clinical, and will certainly have to be discarded as our knowledge of the pathology of the conditions increases.—I am, etc.,

Edinburgh, Oct. 21st. R. W. Johnstone.

INSULIN AND DIURESIS.

Sir,—Cases apparently similar to that described by Dr. Lawrence (October 20th, p. 733) are not at all uncommon, although his seems to have been an unusually severe example, which had probably a much longer history than four years. Most of my cases exhibiting analogous characteristics have been young people, particularly girls about the age of puberty, or elderly folk past the climacteric. In many instances the glycosuria had been originally discovered by accident, but in some frequency of micturition and polyuria, or in the younger cases nocturnal enuresis, had been the first symptom. Often the older cases gave a history of glycosuria dating back for many years, in one for over twenty, and it would seem that the condition progresses, as a rule, very slowly and probably remains stationary when care is taken with the diet.

When I first differentiated the type clinically I found it difficult to account for the peculiarities exhibited and it was not until I had commenced making complete blood analyses in all cases that an explanation became possible. It was then found that these patients, unlike normal people and ordinary diabetics, increase the volume of fluid in the peripheral circulation as the sugar content of the blood rises after a meal, and that in the more severe examples the fasting blood is often abnormally dilute, although rapid variations are liable to occur. Apart from the effects of such variations on the amount of urine passed, they have an important bearing on treatment, for the true sugar content of the blood is not necessarily indicated by the percentage actually found—it may be considerably higher; hence such patients often excrete sugar in the urine on an apparently normal or subnormal blood sugar. Owing to this peculiarity I originally classified the milder forms as "renal glycosurias," but further experience showed that there were fundamental differences which distinguished them from glycosurias dependent upon excessive permeability of the kidneys for sugar. Eventually I had the opportunity of making a series of blood analyses in several typical cases of acromegaly and as they were all found to exhibit the same abnormalities as the type under consideration it seemed probable this, too, was due to disturbances in the functions of the pituitary. Observations upon animals have since confirmed this conclusion.

Treatment with insulin is not likely to be attempted in the earlier stages, if blood sugar estimations are made, but later when definite hyperglycaemia occurs, and particularly when secondary defects in the control of the pancreas over glycogenolysis develop, it may prove useful, but my experience has been that much larger doses are required than would be expected to prevent hyperglycaemia and glycosuria, diuresis is apt to persist, and relapse rapidly occurs when the injections are discontinued. There are many other points in cases of this type which cannot be dealt with here; those interested will find them fully discussed in another place (*New Views on Diabetes Mellitus*, Oxfo Medical Publications). I may point out, however, that t occurrence of such cases tends to confirm the view I ha long held that diabetes is a symptom complex arising fro a variety of causes, and is not, as is now generally assume invariably a disease due to pathological changes in t pancreas.—I am, etc.,

London, W., Oct. 20th. P. J. Cammidge.

THE USE AND ABUSE OF OBSTETRIC FORCEPS.

Sir,—The chief point in Mr. Comyns Berkeley's pap on the use and abuse of obstetric forceps (October 6t p. 600) is to leave things to Nature as far as possible. B how does Nature intend a child to be born? Certainly n with a woman continually lying on a bed. This is n how our primitive ancestors did it. We can learn som thing about this by reading (or seeing) how negroes do i Dr. Fairbairn said, "The natural position is a squattir one, and I would like to hear if any of you have tried th posture in the hope of increasing the chances of natur expulsion." In the report of the discussion which follow no one is reported to have said that he had tried it, so think it may be of some interest to report that I have.

Years ago, in the country, I had a case lying in bed which the head had not advanced at all for about tv hours. Then the woman said to me, "When I was in Wal the doctor used to get me to squat on the floor." So immediately spread a sheet on the floor, the wom squatted, and the child was born there during the seco pain. I have occasionally persuaded patients to do th with the most excellent results. I am perfectly certa that a great number of forceps cases would be avoid and labours would be shorter if this were made the gener practice, but I know the difficulty of persuading t woman of the present day to do it.—I am, etc.,

Reading, Oct. 20th. Norman H. Jox.

LARGE PLEURAL EFFUSION.

Sir,—The answer to the question in Dr. J. McOsca memorandum on "Large pleural effusion" in your issue October 20th (p. 718) is, that it is not unique. I ha seen several large effusions both serous and purulent. 1917 I was asked to see a case because the medical attenda fancied that he detected something wrong with the le side of the chest. The heart was well over to the rigl and there were present all the signs of a large effusion the left pleural cavity. By oxygen replacement, I wit drew seven and a half pints of serous fluid at o operation.

Wilson Fox[1] quotes the following cases: Lebert[2] wit drew in one operation eleven pints of pus. Hodges[3] wit drew thirteen pints of serum at one operation. Og records a case where eighteen pints were withdrawn in tv operations within forty-eight hours—four pints at the fi and fourteen pints at the second operation. Laca Duthiers[5] gives a case where twenty pints were removed one operation for empyema necessitatis.

The prognosis in these cases of large serous pleu effusion depends very largely on the after-treatment. Ap from some gross underlying condition such as maligna disease, they are always tuberculous, and if the patient treated with the greatest care as a potential consumpti all may go well. But I am convinced that temperatu and weight records and sputum examinations are essenti in addition to long convalescence.

It would be interesting to know what method of aspi tion was employed, and whether the patient experienc any discomfort during the paracentesis. I should imagi that in this case the effusion was actually even greater th the seven and a half pints withdrawn, probably more li nine or ten pints, for usually physical signs and the rad graph show a considerable amount of residual fluid. T patient was fortunate in coming under Dr. McOscar's c when he did, for if these large effusions are left too lo the mediastinum tends to become fixed, the ple

[2] Brustkrankheiten, ii, 833.
[3] Boston Med. and Surg. Journ., 1863.
[4] Practitioner, vol. xii.
[5] Thèse, p. 33.

future. One of the chief causes of the crisis is that the Indian Medical Service has lost its attraction for young graduates of the home medical schools; the rapid Indianization of that service following the Reforms Scheme has led to uncertainty regarding the future and to the filling of the professorial chairs of the medical colleges and college hospitals, and many of the higher civil medical appointments, by Indians not belonging to the service. The provincial legislatures convey the impression that the demise of the I.M.S. would not disturb their peace of mind; one province has declared that it does not want the services of any I.M.S. officers. The disappearance of the Europeans of the I.M.S. would, the author considers, be a calamity to India.

The profession in India, Sir Patrick Hehir says, consists of three groups—the medical services of Government, independent medical practitioners, and those who practise the ancient systems. The population of India is mainly dependent for medical relief on the last two groups. Leaving out the holders of English medical degrees, and the small number of other men employed on special estates, there is in Bengal one medical graduate or qualified practitioner of the assistant surgeon class for every 2,300 persons in Calcutta, and only one for every 181,000 persons outside Calcutta. The same conditions prevail in other parts of India, although to a less pronounced degree. The practitioners of the ancient systems greatly outnumber those who practise Western medicine; many thousands practise these systems, who, whilst they do some good, also do much harm. The talents of these practitioners vary within extreme limits from being illiterate impostors and empirics, to persons versed in the ancient systems and often possessing a smattering of Western medicine. The author believes that the standard of medical education in India will fall in direct ratio to the extent to which European I.M.S. officers are removed from the teaching appointments. He holds the same view regarding the superior posts in the civil departments—the fewer held by European I.M.S. officers, the lower will be the standard of treatment in the civil population. The I.M.S. has done a great deal towards elevating the practice of medicine by Indians during the last seventy years; but to raise standards in a whole country is the work of many generations. The lower type of medical man who fails to get into other branches of the medical services in India is not likely to raise or even to maintain the standard. Sir Patrick Hehir surveys the whole field of medical education and practice in India, and states in detail the changes he considers necessary in the interests of Indians themselves.

WHAT THE INSURANCE SYSTEM MIGHT BE.

In *The Old Doctor*[5] Dr. F. G. Layton has produced a novel with a purpose. With grim accuracy and subtle humour life in the "medical underworld" is portrayed as it existed in pre-war and pre-Insurance Act days, with the everlasting struggle of the conscientious practitioner to improve the seamy side of general practice alike for his patient, his colleagues, and his art.

The story is told with an intimacy of detail which is at times almost startling in its directness. To those old enough to have passed through its earlier period it will vividly recall many memories, while for the younger generation, who knew not such times, it will possess a fascination in that it contains a comparative history of their inheritance. The theme is developed mainly in dialogue, the crispness of which never falters, and centres round the personality of the "Old Doctor"—Luke Denison. The reader learns to realize what a power such men were in maintaining the honour of their calling amidst all the evils for which the old club system and the sixpenny non-visiting doctor were responsible. The ever-ready helping hand to guide the struggling Dr. Dix in his early career through the temptations to fall from the high ideals of his Hippocratic oath, which the existence of such conditions fostered, is well brought out, and the obvious outcome is seen in the welcome given to the Insurance Act by men who hailed it as the deliverance of the honest practitioner from the thraldom of hopeless inability to do the best for his patient, while rescuing the "Back Street" poor of such Black Country towns as Wonstone from the crippling anxiety about fees to meet which there never was, and never would be, any money.

The "Old Doctor" warmly welcomed the Insurance Act. "We shall be able," he exclaimed, "to see people just as often as we please without having to worry about charges," and continued, "Poor people will be able to be ill as long as they like and never a thought of a doctor's bill to frighten them." Beyond and above such present-day practical considerations were his visions of what the insurance system of the future would lead to in the ability to estimate the beginnings of ill health and so provide for the larger issues of preventive medicine.

The author is peculiarly happy in depicting the social aspect of professional life in such a town. Since Ian Maclaren's old Highland Dr. Maclure in *Beside the Bonnie Brier Bush*, there has scarcely been so masterly a portrait of the best type of general practitioner as is portrayed in Luke Denison, and were the book read widely, as it deserves to be, it would do much to dispel the misconceptions, too rife among those who have never stayed beneath a doctor's roof, as to the kind of life the average medical man leads. The realization of such a thing would go far to remove from the official mind much that now hampers the just estimation of the value of services honestly given in a persistent endeavour to push forward the whole science and art of medicine.

The author maintains a never-flagging interest, and has succeeded in making his characters "live." His literary gifts thus enable him to draw a vivid picture of all that led up to the inception and carrying through of the Insurance Act as a measure of relief from the crippling influence of club practice, and deliverance from such men as Drs. Miggs and MacFad, who will rank in fiction with the portraits drawn by Dickens and Thackeray. There can be no better summing up of the book than is provided by the last sentence, in which Luke Denison quotes from the Hippocratic oath: "'Purely and holily I will keep guard over my life and my art . . .' That's the scheme." To all and sundry, professional and lay, this book cannot but appeal, and it may interest readers to know that the author is generously devoting all profits to charity.

[5] *The Old Doctor.* By Frank G. Layton, M.R.C.S., L.R.C.P. Birmingham: Cormish Bros., Ltd. 1923. (Cr. 8vo, pp. 170. 4s. 6d. net.)

NOTES ON BOOKS.

The little book on *Natural Religion*,[6] by Dr. Joseph S. Bolton of Nottingham, is well worth reading. It lays claim to no great erudition and to no great originality. But it is written—was written, for the work is posthumous—by a man greatly in earnest, believing in his thesis, in himself, and in the value of his message. His work is so thoroughly unorthodox that it can only be criticized by a non-theologian. During the war the writer of this notice remembers a medical officer who was asked, somewhat inquisitorially, by a High Church Anglican padre, to what denomination he belonged. He replied that he was a U.C.; next day the cleric returned to the charge saying that none of his Presbyterian brethren could identify the "body." Whereupon the M.O. explained that it stood for "Unattached Christian," and the padre went his way, muttering to himself. Dr. Bolton might quite well have called his book "The Religion of an Unattached Christian," for, while his pages are full of the teaching of the Founder of our Faith, he has no use for prelates, priests, or a paid clergy of any stamp whatsoever: creeds, precedents, symbols are all thrown overboard. Natural religion is defined as the spirit of God in the soul of man, directing and controlling his conduct. "It reveals itself as an appreciation of God, strictly comparable to the appreciation of music or poetry or art." For, as a musician is a man who appreciates and enjoys music, so is "a saint a man who appreciates and enjoys God, and demonstrates God to his fellows." It is a thoughtful book written by a cultured and kindly-hearted man who had evidently great belief in his fellow men and their inherent capacity to attain to yet higher things.

[6] *Natural Religion: The Ultimate Religion of Mankind.* By J. S. Bolton, M.D. London: Kegan Paul, Trench, Trübner, and Co., Ltd. 1923. (Cr. 8vo, pp. viii + 120. 3s. 6d. net.)

The firm, L'Art Ancien S.A., of Lugano, Switzerland, has issued an elaborate illustrated catalogue of early books and manuscripts on medicine and the natural and physical sciences. The prices are stated in Swiss francs. Books will be sent on approval to customers.

istry of Health, but I am very much surprised to learn n Dr. Cheater's letter that he refused to allow repreatives of the Ministry to investigate his treatment. h has never been his practice, for he has welcomed to laboratory accredited medical representatives from the ernments of Australia, New Zealand, Canada, and other seas Dominions, copies of whose reports I have seen studied. Incidentally, I may say that these reports most eulogistic.—I am, etc.,

LEONARD WILLIAMS.

ndon, W., Oct. 20th.

VITAMINS AND CHLOROPHYLL.

m,—In a letter on the above subject Sir Patrick Hehir tober 20th, p. 733) states that Miss Harriette Chick Miss Margaret Hume discovered that germinating n and pulse contain antiscorbutic vitamins after the n has sprouted. It should, however, not be forgotten in 1908 Dr. Axel Holst of Christiania showed that vy was produced in guinea-pigs by a diet of bread and cereals, but not if raw carrot was added: on a diet of pressed dried potato, but not if cabbage pure was ed; and on a diet of dried barley and water, but not if barley was allowed to sprout first.—I am, etc.,

EDMUND CAUTLEY.

ndon, W., Oct. 22nd.

AGNOSIS OF SMALL-POX AND CHICKEN-POX.

m,—At the present time there is a great deal of dision on the diagnosis of small-pox and chicken-pox, and oint of some interest arises—namely, that the presence good vaccination mark may alter one's opinion, the k being evidence, and valuable evidence, of vaccination, therefore protection.

Many years ago I drew attention in the *Medical Press, Circular* to the condition of the scar as found on eral thousands of school children varying in age from 14; in many of the elder children the scars were found difficulty. I am finding the same thing in older people m I have since vaccinated; this modifies my views as viously stated.

he present method of vaccinating avoids cross-cutting does away with the necrosis of superficial areas of the n, and the resulting scar appears to me to last, distinctly, ery much shorter period, and thus important evidence to the success of the vaccination tends to be lost.—m, etc.,

EUSTACE THORP, O.B.E.,
L.R.C.S., D.P.H.

nderland, Oct. 15th.

Universities and Colleges.

UNIVERSITY OF OXFORD.

a congregation held on October 18th the degree of Bachelor of licine (B.M.) was conferred on T. A. Brown.

he following members of the Medical School have been elected cholarships at the undermentioned hospitals:

Scholarship, £80, D. Lurie. University
V. D. B. Read.
ersity Scholarship, V. H. Brink.

ing's College Hospital.—Burney Yeo Scholarship, J. W. de W. G. rnton, J. A. Eyres.

Mary's Hospital.—University Scholarships, £220, R. B. Bourdillon, Mallam.

George's Hospital.—University Scholarship, H. A. Bywor h.

estminster Hospital.—University Scholarship, £80, S. Segal.

UNIVERSITY OF CAMBRIDGE.

e following candidates have been approved in both parts of examinations indicated:

IPLOMA IN HYGIENE.—*A. M. Kamal, M. E. Sebaly.

P.H.—L. S. Ahluwalia, G. A. Back, W. Bird, J. McP. Campbell, *J. R. Chaudhri, *H. L. Cronk, R. Cunningham, Mary A. Grant, A. Ice J. Gray, Susan M. S. Jamieson, H. D. Kelf, J. McW. McDonald, W. C. Mathur, *H. A. C. Munro, C. E. R. Norman, A. C. Paterson, R. N. Raja, A. M. Ramzy, †Gladys H. Randall, A. El-H. Sadek, M. J. Saldanha, A. M. Seerval, Florence G. Sherry, Isobel M. Smith, Katherine C. Spence, B. Suggit, Nora I. Wattie, R. Weaver, A. D. Whitelaw, Catherine B. Wilson.

* Distinguished in the application of Sanitary Science.
† Distinguished in the Principles of Hygiene.
‡ Distinguished in Bacteriology.

UNIVERSITY OF LONDON.

Matriculation Examination.

AT the September matriculation examination 55 candidates were placed in the first division and 324 in the second division; in addition 36 gained the supplementary certificate for Latin. At the matriculation examinations held overseas (June, 1923) at Colombo 3 candidates were placed in the first division and 16 in the second division; 3 passed in the second division at Jaffna, 2 in the second division at Kingston, Jamaica, and 1 in the first division at Barbados.

LONDON HOSPITAL MEDICAL COLLEGE.

The following awards have been made: "Price" University Scholarship in Human Anatomy and Physiology: H. L. Green; Proxime Accessit, V. H. Brink (awarded a second scholarship).

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE annual meeting of Fellows and Members of the Royal College of Surgeons of England will be held at the College, Lincoln's Inn Fields, W.C., on Thursday, November 15th, at 3 p.m.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.

AT the annual meeting of the Royal College of Surgeons of Edinburgh on October 17th Sir Harold J. Stiles was elected President and Sir David Wallace Vice-President, and Mr. Alexander Miles Secretary and Treasurer.

The following 15 successful candidates out of 44 entered having passed the requisite examinations have been admitted Fellows:

S. C. Alagappan, W. M. Ash, F. W. W. Baillie, E. B. Barnes, H. C. Brayshaw, E. C. Clifford, B. T. Cullen, M. D. David, A. Galbraith, L. J. Middleton, D. A. Mitchell, N. A. M. Petersen, H. B. Scott.

CONJOINT BOARD IN SCOTLAND.

THE examinations of the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow have just concluded at Edinburgh.

The following candidates have been approved at the examinations indicated:

FINAL EXAMINATION.—*Medicine*: R. F. Kerr, A. Adefolu, V. P. Thiyagarajah, A. W. H. Noble, P. S. H. Masters, J. Kirkness, J. N. Dey. *Surgery*: A. Raff, V. Vaithialingham. *Midwifery*: A. Raff, Annie H. Sutherland, A. Adefolu, V. P. Thiyagarajah, G. C. Phillips, V. Vaithialingham, S. Thambipillai, C. A. Barrow, J. McAvley, Wilhelmina C. Sorrie, Elizabeth Clark, W. Melrose. *Medical Jurisprudence*: W. T. Baker, T. G. S. Harkness, J. B. Stromier, Irma E. L. Mackenzie, J. Houston, J. K. Hunter, M. M. El-Makawi, J. H. MacAlpine, J. Harkness, N. T. Yusif, D. L. Crawford, B. F. Rome, H. A. Newton.

The following candidates having passed the Final Examination were admitted L.R.C.P.E., L.R.C.S.E., L.R.F.P. and S.G.:

J. W. Ridley, J. Ryan, D. D. S. Outschoorn, J. S. Allan, S. H. Tan, A. H. Stephenson, S. L. Navaratnam, R. G. Melrose, J. R. Whittaker, C. F. Brakenstock, A. H. Williamson, D. S. M. E. Perera, Phyllis M. Walker, A. Ross, C. M. Hands, A. Bury, C. L. S. Ferdinands, A. L. Tinto, A. Gillies, H. Hoffmann, G. A. P. McCorney, W. R. Robertson, J. G. Thomas, R. M. MacKinnon, H. E. Schohman.

The following candidates having passed the requisite examinations have been admitted Diplomates in Public Health:

W. S. Macdonald, Elizabeth N. Thompson, A. R. Lester, J. F. Seale, W. Campbell, H. Nichol, R. G. Shaw, Dorothea L. Baird, P. Hutchison, Katharine J. Guthrie, J. S. McL. Gray, J. L. Halliday, Margaret A. Galbraith, W. McKie, Peggy L. Mitchell, J. G. Gill, K. A. Macrae, F. D. Murchison Beaton, Katrine Dunn, D. T. Richardson, Catherine Hill, Helen Campbell, G. W. Murray, C. M. Smith, and R. Wiggins.

The Services.

DEATHS IN THE SERVICES.

Captain Lionel Baker Jones, Indian Medical Service, was killed by a sniper, while motoring on duty, on the Loralai-Harnai road, Baluchistan, thirteen miles from Harnai, on October 1st. He was born on July 24th, 1895, the son of Dr. Samuel Baker Jones of Brynfield, Reynoldstone, Swansea, and entered Edinburgh University as a medical student in October, 1914. On May 31st, 1915, he enlisted as a private in the Inns of Court O.T.C., and on September 16th, 1915, received a commission as 2nd Lieutenant in the Welsh Regiment (41st Foot) (6th Territorial, Glamorgan, Battalion), being promoted to lieutenant on July 1st, 1917. He was seconded for service in the Royal Air Force on August 7th, 1916, and on May 26th, 1917, was decorated with the Military Cross. After being demobilized on July 31st, 1919, he resumed his medical studies and graduated M.B. and Ch.B. Edinburgh in 1922. On January 20th, 1925, he joined the I.M.S., being appointed direct as captain on account of his four years' war service. He was engaged to be married to Dr. Jean Riddell Purves, who graduated at Edinburgh in July, 1923; she was on her way out to India to be married at the time, and landed at Bombay the day of Baker Jones's death.

a victory, and if wisdom and moderation are shown in the situation that will then arise, the insured population, the national health, and the credit of the profession will benefit alike.

THE BACTERIOLOGY OF MEASLES AND SCARLET FEVER.

The two common infectious diseases, measles and scarlet fever, the etiology of each of which has always been disputed, are now being studied by laboratory workers in Europe and America, employing all the latest refinements of bacteriological technique. These researches have thrown new light on the early stages of these infections; they have led to the formulation of some original and plausible propositions; and, though not accompanied as yet by any decisive discoveries, they have afforded fresh evidence incriminating certain organisms long under suspicion, evidence which time will test and on which experience must judicate.

The researches carried out on measles, for instance, corroborate the view that this disease owes its origin to the invasion of the body by an ultramicroscopic virus. We have received from Professor G. Caronia of Rome a paper on the etiology of measles,[1] in which he announces that the micro-organism he considers responsible for this disease passes through an ultramicroscopic phase in the cycle of its development, but later appears as a small diplococcus when cultivated under special anaerobic conditions on a special medium, the preparation of which has not, so far as we can ascertain, been described. He has obtained cultures of this micro-organism from the blood, bone marrow, cerebro-spinal fluid, and naso-pharyngeal secretions of children in the prodromal and eruptive phases of measles; the blood of such patients showed specific antibodies against the organism recovered in cultures. It is stated that young rabbits inoculated intravenously with large amounts of blood from measles patients developed a clinical picture resembling human measles, and the same organism was recovered from their blood. He inoculated healthy children with inactivated or attenuated cultures and conferred on them immunity to measles; he inoculated three healthy children with large and repeated doses of recent cultures, and induced a typical but attenuated form of measles, the eruption being brief but universal, and accompanied by high fever. In these patients the serological reactions were positive, and the micro-organism could be cultivated from the blood and from the filtrates of the secretions from the nose and throat.

Turning to scarlet fever, we may recall that in 1921 Dr. Mervyn Gordon, in his serological study of haemolytic streptococci, published in this Journal,[2] stated that there are three distinct types of haemolytic strentococci which can be differentiated by agglutina- theme is deci on tests; and that one of them (Gordon's which never falters, chiefly in the tonsils and fauces of "Old Doctor"—Lu ts. This organism, *Streptococcus* realize what a power distinct from the more common honour of their calling club system and the cus *pyogenes*. Bliss[3] had found responsible. The ever-i in 100 per cent. of scarlatinal struggling Dr. Dix in his ck, and noted that immune tions to fall from the hig carlatinal streptococci agglu- which the existence of suc ent. of strains isolated from brought out, and the obvious o scarlatina cocci were not given to the Insurance Act by ared from other strepto- deliverance of the honest practit hopeless inability to do the bes

[1] *The Old Doctor.* By Frank G. Layton, 1920, xxxi, 175; *Journ. Exper.* [illegible] 1923. (Cr. 8vo, pp. 1.

cocci. Tunnicliff[4] also isolated haemolytic streptococci from early cases of scarlet fever; these organisms were apparently peculiar to the disease in that they were specifically opsonized and agglutinated by the serum of a sheep immunized with a haemolytic streptococcus obtained from scarlet fever.

Professor G. Caronia and Dr. M. B. Sindoni[5] have also tackled this problem, and feel themselves justified in going a stage further than previous investigators, for they assert with conviction that this organism bears a causative relation to the disease. Their work on the serological behaviour of this streptococcus confirms that already cited, and they have also conferred passive immunity on infected rabbits by injection of serum from children convalescing from scarlet fever. They claim to have actively immunized children by vaccinating them with killed cultures, such children being afterwards exposed to scarlet fever without contracting the disease. They also inoculated five children who were convalescing from measles, and all of these children developed what is asserted to be an attenuated form of scarlet fever after inoculation with the cultures. Serological tests with these children were positive, and they were further submitted to contact with other patients with scarlet fever, but did not contract the disease.

Such heroic appeal to experiment on human beings (which, it is to be hoped, was not attended with any ill consequences) has an even more startling precedent in the case of Takahashi of Tokyo,[6] who injected five of his own children, aged 3 to 10 years, subcutaneously with 0.0001 c.cm. of the blood of a scarlet fever patient. No general or local reaction ensued, but a certain degree of active immunity was produced, as was shown by the fact that hypodermic injection of 0.15 c.cm. of a scarlatinal patient's blood fifty days after the inoculation, and the smearing of the child's throat with the secretion of the throat and blood of the patient fifteen days after inoculation, failed to cause any disease.

The last and most recent paper on scarlet fever to which we wish to draw attention appears in the *Journal of the American Medical Association*, and is contributed by Drs. George and Gladys Dick.[7] A nurse who was taking care of a patient with scarlet fever contracted the disease in a mild but typical form. Two days before the onset of symptoms she noticed that she had a sore finger, and on the second day of the disease, when the rash was intense, a few drops of pus were obtained from the lesion on the finger. A haemolytic streptococcus and diphtheroid bacillus were recovered by culture of this pus. After careful purification of the streptococcus five volunteers were inoculated by swabbing the tonsils and pharynx with four-day-old cultures of the haemolytic streptococcus, grown on sheep's blood agar slants. Three of these experiments were entirely negative, but in one volunteer the inoculation was followed by a sore throat and fever without a rash, and one developed typical mild scarlet fever. To test the possibility that some ultramicroscopic virus was also concerned in initiating the disease, sterile filtrates from the haemolytic streptococcus culture were inoculated into five volunteers, but they developed no sore throat, fever, or rash. On the eleventh day following inoculation with the filtrate four of the volunteers were inoculated with an unfiltered four-day-old culture of the haemo-

xxi, 801.
, 1921, i, 632.

[4] R. Tunnicliff: *Journ. Amer. Med. Assoc.*, 1920, lxxiv, 1387; *Journ. Infect. Dis.*, 1921, xxix, 91.
[5] G. Caronia and M. B. Sindoni: *Pediatria*, 1923, xxxi, 745.
[6] *Japan Medical World*, Tokyo, 1921, i, No. 2, pp. 1-4; Abstract, British Medical Journal, 1921, ii, p. 249.
[7] G. F. Dick and G. H. Dick: *Journ. Amer. Med. Assoc.*, 1923, lxxxi, No. 14, 1166.

educated at the University of Glasgow, and also at Birmingham and London; he took the L.M.S.S.A.Lond. in 1918 and graduated M.B., Ch.B.Glasgow in 1921. When he qualified he became surgeon lieutenant in the navy, and was eye specialist at the Royal Naval Hospital, Plymouth. After holding the appointment of senior house-surgeon at the Guest Hospital, Dudley, and assistant surgeon to the Sunderland Eye Infirmary, he went into practice at Redditch, where he was appointed honorary surgeon to the Smallwood Hospital.

Mr. HARRY MICHIE of Nottingham died suddenly from cardiac syncope following exertion, while out with a shooting party at Flintham on October 13th, aged 63. He was born at Edgell, Forfarshire, and received his education at the University of Aberdeen, where he graduated M.B., C.M. in 1881. After spending a few months in Nottingham as assistant to Dr. Owen Taylor he returned to Scotland, but came back to Nottingham in 1884, when he started practice on his own account, and his abilities as a surgeon were soon recognized. For thirty-seven years he was surgeon to the Samaritan Hospital for Women, Nottingham, and was an ex-president of the Nottingham Medico-Chirurgical Society.

Medical News.

SIR ARTHUR KEITH, F.R.S., will deliver the William Mitchell Banks Memorial Lecture in the Medical School, University of Liverpool, on Thursday, November 1st, at 4 p.m. The subject is the origin and nature of hernial formations. The lecture is open to members of the medical profession.

THE Edinburgh University Club of London will hold its 200th dinner at the Connaught Rooms on Friday, November 23rd, at 7.30 p.m. The club, founded in 1864, has steadily thrived, and now has nearly 650 members. The president of the club, the Right Hon. the Earl of Balfour, K.G., has promised to take the chair on this important occasion, and there will be a very large attendance of members and their guests.

PROFESSOR STRANDBERG of Copenhagen will deliver a lecture at the Royal Society of Medicine on Monday, December 3rd, at 5.30 p.m., on the results of the treatment of rhino-laryngological tubercle in the Finsen Light Institute at Copenhagen.

WE may remind readers that the first social evening of the Royal Society of Medicine for this session will be held on Tuesday next at 8.30, when the President and Lady Hale-White will hold a reception. At 9 o'clock the Society's gold medal will be presented to Professor Gowland Hopkins, F.R.S., who will give a short address on stimulants of growth. The principal reading room will be closed at 5, but readers will be accommodated in other rooms.

WE are informed that the University of London has accepted a gift of £10,000 from Mr. Geoffrey E. Duveen, to found a chair of otology, and that he also intends to present £15,000 to University College Hospital for the provision of the most complete and modern treatment of the deaf. The gifts are in memory of the donor's father, Mr. Henry J. Duveen, one of the founders of the art firm of Duveen Brothers.

THE annual dinner of the West Riding Association of the Graduates of the University of Edinburgh will be held in the Great Northern Hotel, Leeds, on Friday, November 9th, at 7 p.m. It will be preceded by the annual general meeting at 6.30. Further information may be obtained from the Honorary Secretary, 103, Manningham Lane, Bradford.

THE fortieth annual dinner of the past and present men students of the Leeds School of Medicine will be held at the Queen's Hotel, Leeds, on November 16th, at 7 p.m., when Mr. Carlton Oldfield will preside. Tickets (10s. each) may be obtained from the honorary secretaries, Mr. A. M. Claye and Mr. W. E. Dornan, at the Medical School, Leeds.

A COURSE of four lectures on the treatment of injuries of the long bones produced by accident or disease will be given at Guy's Hospital Medical School (London Bridge) by Mr. E. W. Hey Groves, F.R.C.S., professor of surgery in the University of Bristol, on Thursday, Friday, Monday, and Tuesday, November 8th, 9th, 12th, and 13th. The lectures will be given at 5.30 p.m. each day, and at the first

DR. WILLIAM F. SHANKS, who graduated B.Sc. with spe distinction in physiology in the University of Glasgow 1913, and M.B., Ch.B. in 1915, has been appointed Profes of Physiology at the University of Leeds.

DR. LEONARD HILL, F.R.S., will deliver a lantern lect on climate and the treatment of consumption at the meet of the North-Western Tuberculosis Society to be held at Tuberculosis Department, Joddrell Street, Hardman Stre Deansgate, Manchester, on Thursday, November 1st, at 3 p Medical practitioners are invited to attend.

A SERIES of six clinical demonstrations of types of men disease will be given at the Maudsley Hospital, Denm Hill, S.E., by the Medical Superintendent, Dr. Edw Mapother, on successive Wednesdays, commencing Nove ber 7th, at 2.30 p.m. The series will be illustrated numerous cases from the Maudsley Hospital and the men hospitals of the county. The following is a syllabus of lectures: (1) Congenital and early types, conditions associa with endocrine disorders. (2) Psychoses associated w epilepsy and with syphilis. (3 Psychoses associated w senility, with arterio-sclerosis, and with certain organic eases of the brain. (4) Alcoholic psychoses: dementia praec (5) Delusional states. (6) States of mania and depres-i The fee for the series of six demonstrations is 1 guin payable at the hospital.

THE third general interchange of health officers arran by the Health Section of the League of Nations is at pres taking place in the United States. Representative hea officers from Great Britain, France, Italy, Russia, Pola Spain, Holland, Belgium, Greece, Jugo-Slavia, Germa Switzerland, Norway, Mexico, Brazil, Chili, San Salvad and Canada arrived in America during the first week September and will remain there for three months. At f the delegates were in Washington for some three wee studying the national health organization of the Uni States Public Health Service. At the close of this course study the health officers divided into three groups, wh proceeded to different parts of the United States to study organization of the State and local health departments; la the groups will proceed to various cities and smaller tow to study their health administration. Among the delega Britain is represented by Dr. T. Carnwath, of the Ministry Health, and Dr. Charles Porter, medical officer of health Marylebone; Canada is represented by Dr. M. M. Seymo Deputy Minister of Public Health, Saskatchewan. T delegation is accompanied by Dr. Norman V. Lothian, of Health Section of the League of Nations.

DR. HENRY JACKSON has accepted the invitation to c tinue in office for the third year as mayor of Wandsworth.

THE corner stone of the Elsie Inglis Memorial Hosp for Women and Children at Edinburgh was laid on Octo 19th by Lady Novar, wife of the Secretary for Scotland, w paid a warm tribute to the heroic work in Serbia perform by Dr. Elsie Inglis, founder of the Scottish women's hospit

MR. A. R. ANDERSON, C.B.E., F.R.C.S., late honor surgeon to the Nottingham General Hospital, was ent tained by his medical friends at dinner on October 11 when he was presented with a silver tray and tea service a mark of esteem. Dr. Jacob in making the presentat referred to Mr. Anderson's great devotion to the welfare his hospital patients during a period of forty years.

THE Dental Board of the United Kingdom (44, Hall Street, London, W.1) asks us to state that in consequence the experience of last year notices reminding practitioner the necessity of paying the fee for the retention of th names on the *Dentists Register* will not be issued until beginning of December.

THE first impression of *Medical Axioms, Aphorisms, C Clinical Memoranda*, by Dr. James A. Lindsay, reviewed these columns on March 10th, 1923 (p. 422), having been s out, the publishers, Messrs. H. K. Lewis and Co., L announce the publication of a second issue. The aut has taken the opportunity of adding a few new axioms a aphorisms, and of omitting or amending a few others.

THE programme of the National Milk Conference pasteurization, which, as was recently announced in JOURNAL (September 15th, 1923, p. 485), will be held in Guildhall, London, on November 21st, has now been c pleted by the addition of the names of Professor H. Kenwood, Miss Harriette Chick, and Dr. W. E. Elliot, M. to those who will open discussions on different aspects pasteurization. The conference is being organized by National Clean Milk Association, 3, Bedford Square, W.C.

DRS. G. E. H. ROGER, dean of the Paris Faculty of Medici J. L. Faure, professor of surgery in the same faculty, L Hugouenq, honorary dean of the Lyons Faculty of Medici Maurice de Fleury, member of the Academy of Medicine,

THE UNIT SYSTEM.

Some considerations which have led to the abandonment of the unit system for surgery at the London Hospital are set forth in a letter from Mr. H. S. Souttar published in this issue (p. 783). Mr. Souttar has been director of this unit since it was originally organized in 1920. In his letter he explains that "the fundamental principle was that certain men, who had attained some distinction in their profession, were to be selected, invited to withdraw from private practice, and by the payment of a salary enabled to devote the whole of their time to teaching and research." The aim was admirable, but Mr. Souttar's experiences suggest that the plan does not yield the desired results. He points out at least three defects in the system which seem to warrant further inquiry. He deals first with the effect upon the teacher of being withdrawn entirely from private practice. He fears that it narrows his horizon to viewing both the disease and patient from the standpoint of the hospital ward only. Secondly, he regards the advantage to the student as relatively small, although the main disadvantage which he has himself observed is that when the student goes into practice he cannot have the benefit of the chief of the unit as a consultant for his private patients. Thirdly, Mr. Souttar, during his three years' experience, discovered that a director's opportunities for research were restricted by the absence of suitable cases to furnish material for clinical study, as doctors are apt to send their hospital patients into the wards of those members of the hospital staff they can call into consultation on their other and non-hospital patients. The account Mr. Souttar recently gave of the surgical clinics of Switzerland (British Medical Journal, June 2nd, 1923) shows that he is not blind to the merits of the Continental system nor unready to acknowledge shortcomings in our own. But it is evident that he thinks that the unit system as it has been essayed in this country is not likely to introduce the best features of Continental methods whilst preserving what is good in our own. The adequacy of our present hospital system to perform its threefold function of treatment, education, and research has been for some time the subject of serious discussion. In 1920 the plan was adopted of organizing at selected hospitals "units" with the object of improving at least the education and research sides. The plan was admittedly experimental, and it is not wise to ask too soon for results as though the experiment had been carried to its conclusion. Nevertheless, when the London Hospital finds grounds for modifying the arrangement, and Mr. Souttar describes the system as not generally suitable for our requirements, at least in the province of surgery, it may be time to pause and ask whether inquiry should not now be made into the working of this and other plans that have been introduced in the last few years.

THE HARVEIAN CELEBRATION.

The memory of Harvey, its greatest Fellow, was celebrated, as is customary, at the Royal College of Physicians of London on St. Luke's Day. In the afternoon Professor E. H. Starling, F.R.S., delivered the striking oration published last week, and in the evening the Fellows dined together in the College. At the meeting in the afternoon the Baly medal was presented to Mr. Joseph Barcroft, C.B.E., F.R.S., reader in physiology in the University of Cambridge, and the Bisset Hawkins medal to Dr. T. M. Legge, C.B.E., Medical Inspector of Factories, Home Office. The Baly medal was founded by Dr. F. D. Dyster in 1886, in memory of Dr. William Baly, physician to St. Bartholomew's Hospital, who was killed in a railway accident in 1861. The trust directs that the medal shall be presented every alternate year to the person who has most distinguished himself in the science of physiology, especially during the two years immediately preceding the award, and is not restricted to British subjects. The Bisset Hawkins medal was founded in honour of a Fellow of the College who did valuable pioneer work in respect to medical statistics. It is awarded every third year to a medical practitioner (British subject) whose work in advancing sanitary science or in promoting public health is considered deserving of special recognition. The dinner is held in accordance with Harvey's deed of gift made in June, 1656, just a year before his death. The gift, which consisted of his patrimonial estate at Burmarsh, in Kent, was to be used to promote friendship between the members of the College, and Harvey directed that "once every year there shall be a general Feast kept within the College for all the said Fellows that shall be pleased to come," and that on that day an oration should be delivered exhorting the members of the College "to search and study out the secrets of Nature by way of experiment." This year the toast of the Harveian Orator was given by the senior censor, Dr. Fawcett, and suitably acknowledged by Professor Starling. The College had the pleasure of welcoming Sir Robert Philip, President of the sister College in Edinburgh, and also Sir John Bland-Sutton, President of the Royal College of Surgeons of England; among the other guests were Lord Chelmsford, chairman of the council of University College, the Minister of Health, Lord Justice Atkin, Professor Langley of Cambridge, the heads of the Medical Services of the Navy and the Air Force, Sir Squire Sprigge, and Dr. R. W. Innes Smith of Sheffield, who, as has already been reported, recently presented a portrait of Sir Charles Scarburgh to the College; it was on view in the large library, and excited much interest. It was in the collection at Temple Newsam or Newsome, the famous old house near Leeds which, with its park and farm, was acquired some time ago by the corporation and was formally opened to the public last week. The place once belonged to the Knights Templars. It was afterwards the home of that learn'd and fair and good Mary, Sidney's sister Pembroke's mother. Darnley, the husband of Mary Queen of Scots and father of James VI of Scotland, was born there. Soon after James VI became James I of Great Britain the place passed into the possession of Sir Arthur Ingram, in whose family it remained until the end of the eighteenth century. The house contained many portraits, and those of Strafford, of the mother of Darnley (Countess of Lennox), of Darnley himself, of Mary Queen of Scots, and of their son, remain there. How Scarburgh's portrait came to be in the collection does not seem to be known. When it was sold not so long ago it was described as the portrait of a navigator, probably because some mathematical instruments were on the table beside the sitter. Scarburgh was in fact a mathematician, and lectured at Cambridge on the subject. He was ejected from his fellowship at Cambridge during the Caroline revolution, and entered at Merton College, Oxford, where his friendship with Harvey, which continued until Harvey's death, began. He settled in London in 1648, and two years later was admitted a Fellow of the Royal College of Physicians. Scarburgh's name is also connected with the history of the Royal College of Physicians of Edinburgh. He was physician to Charles II, and also to the Duke of York, afterwards James II; he went with the Duke to Edinburgh, where the party stayed at Holyrood and Englishmen first played golf, being initiated on the Leith links. The story is that Scarburgh's interest was obtained by Pitcairn, Sibbald, and some other physicians in Edinburgh, and that through the Duke of York he obtained from the King the grant of a charter for the Edinburgh College. Scarburgh was anatomical reader to the Barber-Surgeons' Company, which had his portrait painted in 1650; that portrait still hangs in the Barber-

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

193. **Treatment of Whooping-cough.**

W. W. McKIBBEN (*Boston Med. and Surg. Journ.*, September 6th, 1923, p. 339), discussing the vaccine treatment of whooping-cough in private practice from experience gained in an extensive epidemic, considers that the number and severity of the paroxysms can be decreased and the duration of the disease reduced from two or three months to three or four weeks, while the chances of dangerous complications are rendered improbable, only two pulmonary cases having developed in over 1,000 tabulated cases. Essentials for success are freshly prepared vaccines containing four strains of the Bordet-Gengou bacillus and the employment of not too small doses, the initial dose for children being one billion, increasing in two days to two billion, and in another two days to four billion, with a fourth or fifth dose of five or six billion, infants receiving half this dosage. No injurious effects followed even larger doses of eight or ten billion. Parents should be warned not to expect much improvement from the first three injections, since a sudden and decided change for the better may not result until a maximum intensity has been obtained with the vaccine at the fourth or following injections. Reaction rarely follows, and with larger doses of fresh vaccine the paroxysmal stage should be reduced by one or two weeks. The number of cases responding unsatisfactorily diminished by about 7 per cent., with a reduction in complications, sequelae, and mortality to less than 1 per cent., or even *nil* if the vaccine is used on exposure or early in the catarrhal stage. From a study of 350 cases treated by *x* rays it was found that the cough became less and vomiting and convulsions ceased, and this line of treatment should prove of value in association with vaccine therapy. The first exposure, directly the patient came under observation, was followed in forty-eight hours by a second, and after another similar interval by a third and last exposure, but in cases requiring further treatment fourth and fifth exposures were given at seven-day intervals. Further experience is needed, but while not effecting a cure *x*-ray treatment gave considerable relief in the majority of instances.

194. F. SCHOTTEN (*Deut. med. Woch.*, August 31st, 1923, p. 1157) has treated several cases of whooping-cough with quartz lamp-light or "artificial high altitude sunlight." The patients were in various stages of the disease, and only transitory improvement had been effected by such conventional remedies as expectorants and narcotics. Marked improvement was achieved when the upper half of the body was exposed to the artificial light, the first exposure lasting only about five minutes. The second exposure was given after two days, the duration of the exposure being regulated by the reaction of the skin. The back and front of the chest were alternately exposed, and after only three or four exposures definite improvement was demonstrable, the attacks at night becoming much less troublesome.

195. **Intestinal Indigestion in Eczema and Psoriasis.**

F. L. BARNETT (*Amer. Journ. Med. Sci.*, September, 1923, p. 415), from a study of 30 cases of eczema and 30 cases of psoriasis, shows that improvement follows proper regulation of the dietary, whereby the faeces, instead of being soft and formless as in intestinal indigestion, become firmer and composed of units, from a slowing of the intestinal rate with an increased amount of absorption. That such a condition of intestinal indigestion with formless stools, pointing to a too rapid intestinal rate and associated disorder of metabolism from insufficient absorption, is a factor in the production of eczema and psoriasis is shown by the relief resulting when bodily nourishment is improved, and by their return with the recurrence of intestinal indigestion. Food containing about 100 grams of protein, 100 grams of fat, and 200 grams of carbohydrate in two or three meals a day can be obtained by such a dietary as:—Breakfast: 1 egg, 2 slices of toast and butter, 1 cup of coffee. Luncheon: 1 lamb chop, spaghetti and tomato, 1 piece of fruit pie. Dinner: 1 slice of roast beef, 1 potato, spinach, 1 roll and butter, and rice custard. With the unit form of faeces an improved sense of well-being is obtained, since the food thoroughly completes its cycle of digestion and absorption, thereby allowing proper nourishment, and so preventing the occurrence of eczema and psoriasis and other bodily disorders the outcome of malnutrition.

196. **Tuberculosis of the Bronchial Glands.**

K. KLARE and E. DEHOFF (*Zeit. f. Tuberk.*, H. 4, Bd. 38, 1923, p. 260) consider that the spinal auscultation of the whispered voice, d'Espine's sign, is the most reliable physical sign of tuberculosis of the bronchial glands. In most cases in association with the *x*-ray examination and the tuberculin reaction it is sufficient for a certain diagnosis. In healthy children bronchophony (tracheophony) is heard on auscultation of the vertebral column down to the seventh cervical vertebra, at the age of 8 years down to the first dorsal, at 12 to the second dorsal, and at 15 to the third dorsal. Down to these limits, on auscultation, a whispered number is heard, and also at the same time a tracheal note. If swollen glands are present it can be heard down to the seventh dorsal vertebra. (The swollen glands press the trachea posteriorly against the vertebral column and the sound conduction is increased.) The authors have compared the results of examination for d'Espine's sign with the results of *x*-ray examination in numerous cases. In 400 recent cases they found that the result of examination for d'Espine's sign corresponded with the result of *x*-ray examination in 99 per cent. of the cases in children under 10 years; in children over 10 in 95.3 per cent. Marked bronchophony and a marked *x*-ray hilus shadow were relatively rare (32.5 per cent. of the cases), and were found almost exclusively between 5 and 10 years of age. The whispered voice test is of service in the choice of cases suitable for *x*-ray examination, and thus often saves the expense of such examinations in numerous instances.

197. **Chamomile as an Analgesic.**

H. LECLERC (*Bull. Soc. de Thér.*, June 13th, 1923, p. 185) recommends chamomile for neuralgia, and particularly for the headache and backache of influenza. Even if it does not completely suppress the pain it deadens it to a considerable degree—an important consideration in view of the fact that in influenza drugs such as antipyrin and pyramidon tend to reduce diuresis and favour the retention of toxic products in the organism. The sedative effects of chamomile depend on the pharmaceutical form in which it is prescribed. The ordinary tisane, which is prepared by sprinkling a few flowers on the surface of a large quantity of hot water, is absolutely inert. The infusion must be both concentrated and prolonged. A dessertspoonful of flowers should be mixed with 100 c.cm. of boiling water for an hour, and the fluid should then be strained. The draught should be taken before or between meals, but not directly after a meal. Recently in place of the draught, which is extremely bitter, Leclerc has substituted a powder prepared by crushing chamomile flowers and mixing them with a sufficient quantity of sugar. The powder is then made up in cachets in doses of 3 to 5 grams.

198. **Duodenal Intubation.**

MARCEL MOREAU (*Arch. méd. belges*, June, 1923, p. 449) describes the uses of Einhorn's sound, the method of introduction of which, he notes, is very simple. The patient should fast for twelve hours at least. He swallows the olive-shaped metal end of the india-rubber tube like a pill. When it reaches the stomach the patient should lie on his right side in order that the weight of the "olive" should direct the tube towards the pylorus; the patient should then swallow a few mouthfuls of water to excite gastric peristalsis. Usually fifteen to sixty minutes elapse before the tube reaches the duodenum, but this period may be much diminished in hypochlorhydria and proportionately prolonged in hyperchlorhydria. The correct position of the tube may be verified by a skiagram or by the aspiration of typical golden yellow duodenal fluid. Sometimes difficulties arise—the tube may become coiled on itself in the stomach; it may pass too far in the duodenum; or it may be arrested by stenosis, gastroptosis, or pyloric spasm. These difficulties are usually surmounted with ease, and the method is free from danger and causes no discomfort. Duodenal fluid is always mixed with bile and pancreatic juice; its examination will give valuable information regarding the activity of the duodenum, liver, and pancreas. The duodenal fluid is normally golden yellow, clear, and moderately viscid, with no visible solids, and admixture with gastric juice produces transient effervescence; but when the fluid withdrawn by successive aspirations remains too thick and of abnormal colour duodenal or hepatic disease must be considered. The alkalinity of the duodenal fluid varies according to the condition, and whether it is withdrawn when the patient is fasting or at various periods after the ingestion of food. When the gastric

by the Gas Cylinders Committee. Nearly the whole of the present report is concerned with this problem; its first part contains a general description of the vacuum vessel and a discussion of the theory underlying its use for the storage of very cold liquids. A detailed account of the methods of manufacture of vacuum vessels is given in the second part, and in the third and fourth some important aspects of the use of vacuum vessels are discussed. The Oxygen Research Committee had the advantage of starting with a knowledge of the late Sir James Dewar's pioneer researches into the liquefaction of gases; to him was due not only the invention of the double-walled metal vacuum vessel, but also the discovery of the highly adsorbent properties of charcoal and other materials at low temperatures. His application of this to the construction of metal vacuum vessels was the determining factor in rendering possible the use on a large scale of liquid oxygen and liquid air. The Oxygen Research Committee was concerned to make possible the increased use of oxygen in the liquid form, and had first to consider the difficulties of economic production on a commercial scale and those of handling and utilizing the liquefied gases. This was the immediate need, for, except in the most favourable circumstances, the methods then available did not render practicable the use of liquid in place of gaseous oxygen, though the latter method was severely handicapped by the weight of the containers. The Committee, therefore, has been principally concerned with the development and further use of the double-walled metal vacuum vessel to contain liquid oxygen. As has been said, the major part of the report is devoted to this matter, and practical conclusions are drawn for the benefit of manufacturers. The report does not deal with certain other problems the Committee has considered; among these is the development of vaporizer devices for the administration of gaseous oxygen from a liquid supply. Advances have been made and further improvements are constantly being introduced, and about these the Committee intends to issue another report. It is pointed out that a matter which has been and remains one of considerable concern, especially to the medical profession, is the price of oxygen. The Committee is not yet in a position to express an opinion on the possibility of a reduction in the present cost of oxygen, but it is convinced that, for medical purposes especially, it is a matter of vital importance, since the current prices restrict its use for such purposes to quantities much below those in which it could usefully be employed. The purity of the gas is also a matter of great consequence when it is required for administration to patients.

THE GUILD OF ST. LUKE.

The annual service of the Guild of St. Luke, the Evangelist and Physician, was held on Thursday evening, October 18th, St. Luke's Day, in St. Paul's Cathedral. Members of the guild and their friends attended in good numbers; many of the medical practitioners and students who were present wore academic dress, and joined in the solemn procession which took place at the end of the service. The organist and choir of St. Mary Abbott's, Kensington, gave valuable help, and evensong, which was fully choral, included the anthem "Save us, O Lord" by Bairdon. The lessons were read by the warden, the Rev. J. Basil Rust, and the guild honorary secretary, the Rev. H. Kirkland-Whittaker, M.D. One of the four hymns sung during the service, "Thou to Whom the sick and dying," was rendered to the tune "Vevey," specially composed by Dr. Kirkland-Whittaker, this being the third occasion of its use at a guild annual service. The preacher was the Rev. Canon Simpson, D.D., who gave a striking address on the place of the work of the medical profession in the larger purposes of God. He called attention to the sympathy and faithfulness which characterized the friendship of St. Luke for St. Paul, and then proceeded to show how St. Luke had absorbed and recorded the cardinal principle of St. Paul's teaching—namely, reconciliation—the reconciling to God of all things both in heaven and earth, not as being the ambulance work of a disappointed deity, but rather as the final stage of a great universal spiritual process. Thus it was that St. Luke's gospel, with its deep appreciation of the essential characteristics of human nature, and its many parables of an understanding and a healing God, became indeed the gospel of the "Gloria in excelsis," the gospel of the rejoicing spirit of God its Saviour. In all her various manifestations Nature, whether human or physical, displayed both beauty and ugliness, joy and terror, but there was nevertheless nothing uncoverable by the great conception of God the Saviour. Christ had recognized the healing art as being part and parcel of His own work of reconciliation. The offertory, after defraying the cost of the service, was devoted to the mission fund of the guild. In the final procession the banners that were carried, the vestments of the clergy, and the robes of the graduates made up an impressive picture which brought a noble service to a fitting termination.

THE LISTER WARD AT GLASGOW.

Mr. James A. Morris, who is a distinguished Scottish architect, has published "a humble plea for the retention" of this famous ward in the Glasgow Royal Infirmary, written from a layman's point of view. We welcome this well reasoned and clearly stated contribution to a somewhat unfortunate controversy, and would venture to express the hope that Mr. Morris's plea may receive the full consideration it deserves. He gives us good grounds for his contention that this ward may be preserved as Lister knew it, without any prejudice to the present or any future scheme of enlargement or reconstruction, and shows how it might be made part of the gate-house block. All the world is united in admiration of Lister and his work, and may claim to be allowed a voice in deciding the fate of the ward. Glasgow people and their infirmary governors should surely admit this claim, and allow due weight to the sentiments which have so strong a hold on us all. It may well be worth while to preserve the old ward, not only out of affectionate respect for Lister, but also as an object lesson to future generations, from the inspection of which they may judge of the enormous improvements which have taken place, and yet may realize that the palatial modern operation theatre and surgical wards would be of little avail in themselves but for the discoveries which were applied to surgical practice in this shabby old building. Funds are being raised and generous contributions made to restore and preserve the ship in which a great English sailor lived and gloriously died. Must it be said by future annalists that at the time when this proper tribute was being paid to patriotic sentiment, the Scottish people turned a deaf ear to the prayer for the preservation of the building where another great Englishman began that epoch-making work which benefited and still continues to benefit the whole human race?

THE SOCIETY OF MEDICAL OFFICERS OF HEALTH.

The annual meeting of the Society of Medical Officers of Health was held on October 19th at the house of the society in Upper Montague Street, when the President, Dr. Naylor Barlow, M.O.H. Wallasey, delivered an address. In the course of it he observed that, of the new activities of the public health service, that dealing with maternity and child welfare was producing the best results. Under the new conditions many children who survived infancy would be classed as healthy who would previously have been reckoned weaklings. Many of the disabilities of adult life

304. The Strength of Cocaine Solutions for Local Anaesthesia.

A. ABRAHAM (*Deut. med. Woch.*, August 31st, 1923, p. 1156) confirms the observation made by Hirsch in 1920 that a 3 per cent. solution of cocaine is quite as effective in inducing surface anaesthesia as a 10 or 20 per cent. solution, provided potassium sulphate is added to the solution. The author recommends the following prescription:

Cocain. hydrochlor.	3
Suprarenin. hydrochlor. (1 in 1,000)	5
Sol. pot. sulph. (2 per cent.)	25
Sol. acid. carbol. (0.5 per cent.) ... ... ad	100

At the Ear and Nose Department of the University Hospital in Cologne the author has found this prescription not merely give as satisfactory anaesthesia as a 20 per cent. solution of cocaine; there is the additional and great advantage of reduced cost and risk of cocaine poisoning. This weak solution can be relied on even for endolaryngeal operations.

Laryngology and Otology.

305. Diagnosis and Treatment of Septic Sinus Thrombosis.

REGARDING the operation which should be performed on the jugular vein in septic sinus thrombosis, WENDELL C. PHILLIPS (*Journ. Amer. Med. Assoc.*, August 25th, 1923, p. 633) says that opinions still vary. The majority of operators have gradually come to believe that simple ligation of the vein accomplishes every required purpose, and it does not seem to matter even if the vein is ligated in its lower portion. Theoretically, it would seem wise to ligate above the entrance of the facial vein, but practically the lower ligation is fully as effective and is much more easily accomplished. A complete dissection of the vein is still advocated by some operators on the ground that it removes a larger infected area, but statistics prove that ligation is equally effective and successful. The fact that ligation, particularly when made in the lower portion of the vein, can be accomplished quickly and without subjecting the already weakened and exhausted patient to prolonged anaesthesia, counts much in its favour, and Nature seems to care for all the rest, except in occasional cases in which the prolonged temperature is finally relieved by opening up the bulb region freely from the mastoid wound. The lower neck operation can be completed in from ten to twenty minutes. The bulb region is apparently the only area in which real pus is liable to collect as a post-operative lateral sinus complication. If the ligation method is followed, the ligatures should be applied to the vein sufficiently far apart to enable the operator to sever the vein. It has been Phillips's experience that in ligation cases the neck wound heals more promptly and with less deformity than when the vein is resected.

306. Intratracheal Injections of Antitoxin in Laryngeal Diphtheria.

J. GIROU (*Rev. de Lar., d'Otol. et de Rhinol.*, September 15th, 1923, p. 709) states that Renon and Mignot used the tracheal route for injection of antipneumococcal serum in the treatment of influenzal pneumonia and for antistreptococcal serum in pulmonary tuberculosis when the sputum contained streptococci, while Rathery and Bordet in a case of pulmonary gangrene gave an intratracheal injection of antiperfringens, antivibrio, and antistreptococcal serums. Girou now reports three cases of very severe laryngeal diphtheria in children, aged 4 years, 16 months, and 9 years, in whom diphtheria antitoxin was injected through the tracheotomy tube as well as intramuscularly and subcutaneously; all recovered. This method has never been used before in the treatment of diphtheria, although Renon and Mignot treated a case of haemophilia by intratracheal injections of diphtheria antitoxin. The treatment consists in injecting 2 c.cm. hourly for the first day, and if there be an improvement next day 1 c.cm. every two hours. To avoid a violent cough the injection is given very slowly, ten minutes being taken for the injection of 2 c.cm. of warmed serum, which is given with a Luer's syringe through the tracheotomy tube.

307. Tissue Juices in Tonsillectomy.

J. B. GREENE (*Boston Med. and Surg. Journ.*, August 9th, 1923, p. 200) advocates utilizing the thromboplastic action of the tissues in the prevention of haemorrhage in tonsillectomy with an accompanying reduction in possible infection. The application of the tonsil itself to the open vessels of the tonsillar fossa is much more effectual in the control of bleeding than sponging. Should vessels of any importance be met with when the upper third of the tonsil is being dissected out the tonsil is immediately replaced and held firmly *in situ* until haemorrhage has ceased, after which the remainder is removed by slow action of the wire snare. Finally, after complete severance, the tonsil, suggests the author, should be held firmly and accurately in its fossa for two minutes, thus allowing sufficient time to elapse to ensure the closure of all bleeding vessels by a firm clot. By the avoidance of sponging and the use of forceps trauma is considerably lessened, and the action of the tissue juices by controlling haemorrhage assists in minimizing the danger of shock and infection, and in hastening convalescence. The author states that experimental evidence shows that the clotting time of blood is greatly reduced by using varying dilutions of tonsil extract.

308. Haemorrhagic Papilloma of the Nasal Fossae.

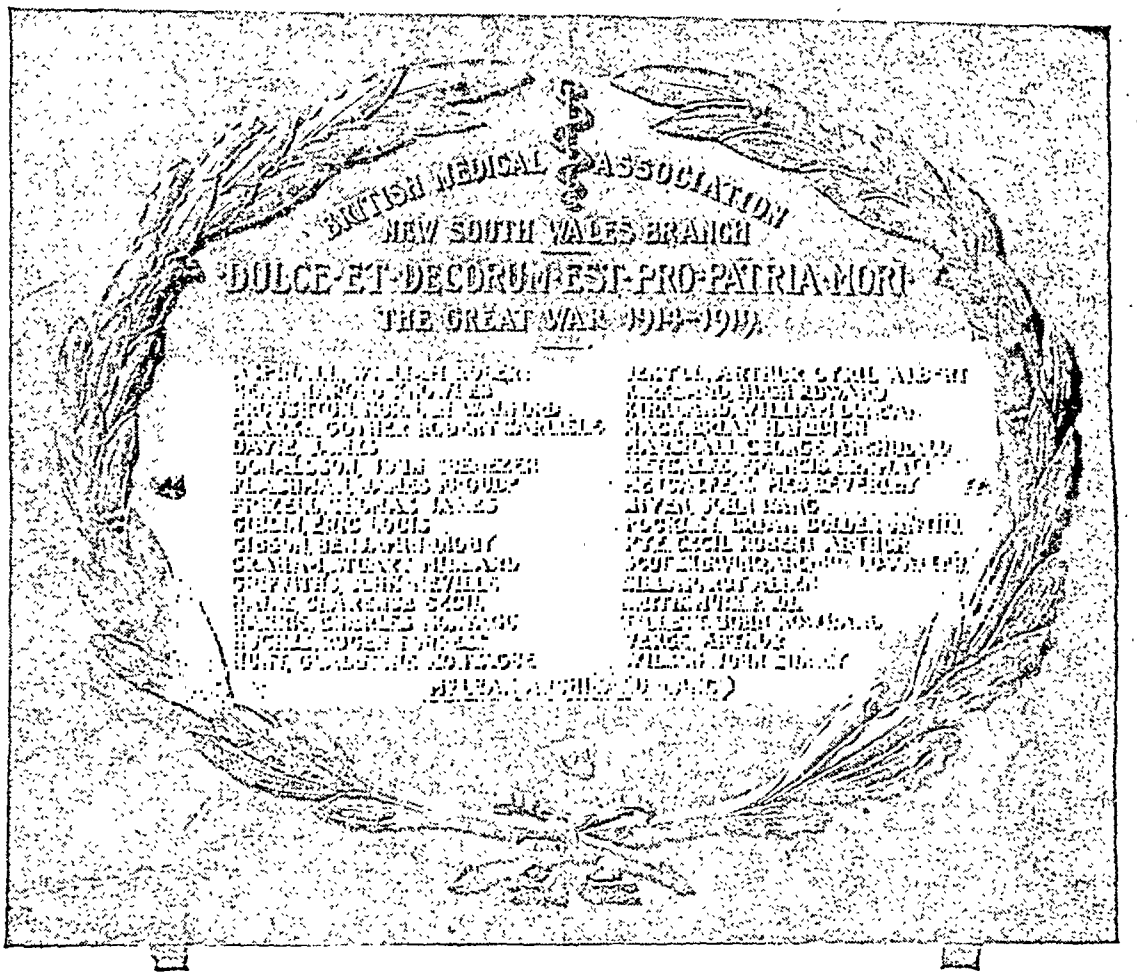
ALOIN and DUPLANT (*Rev. de Lar., d'Otol. et de Rhinol.*, July 31st, 1923, p. 573) remark that amongst the common types of benign tumours of the nose there is an unusual form of papilloma which bleeds very readily and has a peculiar histological structure, though macroscopically it greatly resembles a malignant growth. The authors describe the case of a woman, aged 70, who had a bleeding tumour of the right nostril for more than a year. It had a rough, reddish appearance, bled very freely on the slightest handling, and appeared to be attached in the region of the middle meatus of the nose. It was believed to be malignant, but on removal of the tumour microscopical examination showed it to be benign. The main tumour came from the ethmoidal region and other smaller masses were attached to the inferior turbinal process. The patient returned with recurrences at intervals of four months, ten months, and a year, each time the right nostril being completely filled with polypi. The polypi were thoroughly removed on each occasion, and on the last the antrum was opened from the canine fossa and found to be full of the papillomatous growth, the lining membrane being entirely degenerated. A year later the patient again presented a similar recurrence. Further operation was not advised and radiotherapy was refused. The left side of the nose was not affected at any time. Although the tumour had reappeared five times in four years there were no metastases and the general health was not affected. The papilloma bore no resemblance to nasal polypus, and was easily distinguished from the ordinary papilloma, which is usually attached to the nasal septum just inside the nostril. It was more difficult to distinguish from a malignant tumour. On section, the tumour was seen to have a loose fibrous tissue basis with a covering of cells of which the deeper were fusiform, with their long axes at right angles to the surface and with a protoplasm that was markedly fibrillated. The superficial cells were flattened, and there were great numbers of very thin-walled vessels, accounting for the haemorrhagic tendencies of the tumour.

Obstetrics and Gynaecology.

309. Treatment of Pernicious Vomiting in Pregnancy.

E. LÉVY-SOLAL and LELONG (*Paris méd.*, September 22nd, 1923, p. 217) record a case of pernicious vomiting in pregnancy in a 2-para aged 34, successfully treated by pilocarpine hydrochloride given in doses of 2 cg. in the twenty-four hours, 5 mg. being injected subcutaneously at a time every two or four hours. No psychotherapy was possible owing to the semi-comatose condition of the patient, and treatment by pilocarpine was employed to the exclusion of all other methods, such as administration of glucose, chloral, or the normal serum of a pregnant woman. In a subsequent paper E. LÉVY-SOLAL and J. PARAF (Ibid., p. 218) remark that a neuropathic state was for a long time regarded as the predominant factor in pernicious vomiting, which was attributed either to hysteria pure and simple or to an abnormal excitability of a reflex character similar to that found in renal colic and other nervous affections. Although the neuropathic factor is not negligible, as is shown by the striking effect sometimes obtained by psychotherapy, the existence of certain symptoms excludes the hypothesis of a purely functional condition. The liver undoubtedly plays an important part. Pinard has emphasized the importance of its antitoxic function in the various symptoms of the toxaemia of pregnancy, such as subicterus, haemorrhages, and the urinary syndrome. Moreover, as Widal and his pupils have shown, the liver acts as a barrier to foreign albumin. If this action is deficient the foreign albumin is admitted into the circulation and gives rise to various toxic symptoms. The development of the corpus luteum and the hypertrophy of the cortical layer of the suprarenals in pregnant guinea-pigs and bitches at the early stage of pregnancy probably take place to neutralize the toxins produced by the fertilized ovum, which have penetrated into the system owing to hepatic insufficiency.

Roll of Honour.



MEMORIAL TO MEMBERS OF THE NEW SOUTH WALES BRANCH

WHO DIED IN THE WAR.

ERECTED BY THE MEMBERS OF THE BRANCH.

Some time ago we published an account of the unveiling in Westminster Abbey of the tablet to the memory of those members of the R.A.M.C. who gave their lives in the war, and illustrated the article with a photographic reproduction of the memorial tablet. We have since had occasion to describe the unveiling of several other similar memorials, and it is not too late to reproduce a photograph of the tablet erected by the New South Wales Branch of the British Medical Association to those of its members who died on service. The memorial, a photograph of which is reproduced above, is of bronze mounted on marble, and has been erected in the hall of the British Medical Association building, Sydney; it was unveiled on December 6th, 1921, by Dr. Fourness Barrington, then President of the Branch, who delivered the following eulogium:

Let us remember with all humility and gratitude, before God and man, those brave colleagues of ours in the Medical Profession of New South Wales, who, in serving their Country in the Great Five Years' War of 1914 to 1919, gave their lives for the freedom of the world.

Their names are perpetuated in the Roll of Honour embossed on this beautiful tablet of bronze erected to their memory, for the unveiling and consecration of which we are to-day assembled.

At the call of their King and Country they left all that was dear to them, endured hardship, faced danger, and finally passed out of the sight of man by the path of duty: most of them resplendent with youth, full of vigour, and overflowing with hope and happiness.

We tender them our homage: and offer them our tribute of reverence and of thankfulness for all that their self-sacrifice helped to achieve.

By their loss we are the poorer: in their noble example we are the richer.

Let us keep their example before us in sad but proud remembrance. Let it be a light to inspire and guide us and those that come after us in the service of humanity.

"*Their Glory shall not be blotted out . . . and their name liveth to all generations.*"

God Save Our King!

British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF SURGERY.

Sir Henry M. W. Gray, K.B.E., C.B., C.M.G., F.R.C.S.Edin., President.

DISCUSSION ON ANAESTHETICS FROM THE SURGEON'S POINT OF VIEW.

OPENING PAPERS.

I.—WILFRED TROTTER, M.S., F.R.C.S.,

Surgeon, University College Hospital, London.

The Relations of Anaesthetist and Surgeon.

A surgical operation, like every other product of concerted action, demands for its complete success something more than the mere exercise of the special aptitude and knowledge of those who take part in it. It demands from each actor not only the full exercise of his own craft and an absorbed attention to its peculiar problems, but also a sympathetic awareness of the problems before his fellow actors, and a willingness to regard their difficulties as in some degree his own.

This sympathetic understanding of one another's work is indispensable between the surgeon and the anaesthetist if the full advantages of modern surgery are to be available for the patient. Surgery has now rendered practicable many procedures in which the margin of safety is necessarily of the narrowest, but in which success is to be looked for with reasonable confidence if every possible precaution is taken and every avoidable risk is met. In such circumstances there must be the closest understanding between anaesthetist and surgeon in the choice and modification of methods, and in deciding where one or other can yield a point or must resist any compromise of his requirements. The successful management of anaesthesia in what we may call these frontier provinces of surgery demands so full a knowledge of the actual surgical conditions that one is inclined to suppose that there will be in the future a closer and closer approximation of the training of the anaesthetist to that of the surgeon, and a more and more complete assimilation of the anaesthetist into the surgical team. This consideration is to my mind much reinforced by the fact that so many of the most valuable methods of inducing anaesthesia at the present day—such as the various regional and infiltration methods—are definite surgical procedures in themselves and seem to make it obvious and inevitable that the anaesthetist should take his part in the ensuing operation.

In certain operations such as those on the mouth, the nose, the pharynx, and the upper air passages, the relations of anaesthetist and surgeon have always tended to be rather confused and difficult to regulate. Here again it seems probable that the solution of difficulties will ultimately be found in the anaesthetist joining the definitely surgical group of participants and taking his part with sterile apparatus and hands in the operation itself.

In making these suggestions my object is less advocacy than foresight, and although I think such an evolution of the status of the anaesthetist is on the whole to be desired, I put it forward here merely as a probable development, without in any way wishing to carry conviction that it should be actively sought after.

The Anaesthetic Procedures now Available.

At a time when the prestige of operative technique is so enormously and so deservedly high, it may be not without point to remind ourselves that, however much we may admire and emulate artistic workmanship, this is not and cannot be the *ultimate* aim of the surgeon. Beautiful workmanship is usually his most certain means, but his object is the cure of his patient as safely, as promptly, and with as little disturbance of mind and body as his skill and judgement allow him to do. Surgery, then, as an art is, and must always be, severely and humbly practical, and such artistic beauty as it can possess must come not more from fine craftsmanship than from courage, judgement, patience, and a willing submission to working under difficulty and restraint. Such reflections are not without relevance to the subject of anaesthesia from the surgeon's point of view. In judging the value of a given method he will, of course, insist upon being given a reasonably quiet field for his work, but will ask no more than is adequate for effective workmanship and will be prepared to submit to any restriction, however irksome, or any justifiable modification of his method that can be shown to be on the whole to the patient's advantage.

When we turn to the various means of producing anaesthesia, it is at once clear that in spite of the great progress that has been made of recent years there is no single method capable of general application to all cases. Indeed, one may say that at the present time it is more than ever the fact that in every individual case the choice of an anaesthetic must be made from a large number of possibilities, and that this choice frequently involves very careful consideration.

In going through the list of the various methods I shall limit myself strictly to matters within my own experience, and would be understood as claiming no greater validity for the opinions I shall express than is due to impressions acquired in clinical work. It will be convenient to enumerate the methods I am familiar with and to make on each in turn what comments seem necessary to the purpose of this paper.

We may classify the methods to which I shall refer in the following simple way:

1. *Inhalation Methods.*—Ether; chloroform; nitrous oxide.
2. *Regional Methods.*—Spinal; sacral; nerve trunk anaesthesia.
3. *Local Methods.*—Infiltration.

Inhalation Methods.

Ether is the nearest approach we possess to an anaesthetic of general use, and if one were limited to a single form of anaesthesia the inhalation of ether would undoubtedly have to be chosen. With all the advantages of modern methods in preparing and using the drug, it has many serious drawbacks if we consider it not merely as a means of rendering operations possible but with a broad view of the patient's interests. Ether anaesthesia renders possible the local and limited interference of the surgeon only by profoundly drugging the whole body of the patient and putting him into a state of coma that is uncomfortable and disgusting to enter and even more disgusting to recover from. The stimulating effect of the drug is such as to overdrive the circulatory and respiratory activities of the patient throughout the administration, and thus to add seriously to the exhausting effect of the operation. It is notoriously irritating to the respiratory organs and the stomach, and thus frequently leads to coughing, and usually to vomiting, in the immediately post-operative period. There can be no doubt that the most absolute repose is of great value for at least the first twenty-four hours after all serious operations, and that a liability to cause post-operative vomiting should properly be regarded as a grave disadvantage in any anaesthetic method.

The advantages of ether are: ease of administration, immediate safety, and profundity of anaesthesia. It is seen at its best in operations of moderate length and severity, when it can safely be preceded by narcotic drugs, and in operations where the wound will not cause vomiting to be painful, respiration to be shallow, or coughing ineffective. In very severe and long operations that are apt to be followed by much shock, ether, especially when a large amount is necessary to maintain proper anaesthesia, may undoubtedly be of itself the decisive factor against success.

Chloroform is probably at the present time less used and in less estimation as an anaesthetic than it has ever been. Speaking with all proper diffidence, I do not hesitate to say that in its own proper field—a matter for the most careful consideration—it still has uses for which no effective substitute has been found, and that it remains an indispensable ally to the surgeon.

The numerous disadvantages of chloroform include its immediate danger, the relative lack of depth in the anaesthesia it produces, its not inconsiderable irritant effects on respiratory and gastric mucous membranes, and, above all, its capacity to produce the so-called delayed chloroform poisoning.

Over against these must be set its power to produce in suitable cases a smooth and placid anaesthesia unconfused by the artificial and exhausting floridity of the ether patient,

between the pictures of Marx and Darwin claims science as a weapon in the fight for emancipation by the proletariat. The day of the persecution of scientists has gone.

Russia works slowly but she gets things done. Probably for years to come there will exist conditions in that country which will be disturbing to sanitarians accustomed to the ordered security of English life. But the definite and sustained effort to spread scientific knowledge will produce in that country, which is almost a continent, changes of the greatest world importance. And not least significant of present movements in Russia is the expressed desire for a close and cordial entente with scientists and medical men of all other countries.

England and Wales.

The Welsh National Medical School.

Early this year we reported that the University College of South Wales and Monmouthshire was seeking a new charter, and that the Privy Council had criticized the draft and expressed the view that it would be best to constitute the Welsh National School of Medicine as a separate constituent college of the University of Wales, to be governed, under the University, by a council and senate of its own, as recommended in the report of the Royal Commission on University Education in Wales. It was later pointed out by the Privy Council that the principal objects of any scheme should be to provide an organization which would afford the school the best opportunity of developing successfully into a first-rate centre of medical teaching and research, give it a genuinely national status, and at the same time recognize the special interests of the Cardiff University College in it. The annual report of the Council of the College, presented to the Court of Governors at its last meeting, in referring to the charter, stated that a large and representative committee which had been appointed to consider the objections of the Privy Council hoped to report in due course. Reference was also made in this connexion to the communication received from the Secretary of the Conjoint Board in England, stating that the school was recognized provisionally for the complete curriculum, for one year, from October 21st, 1922, and indicating certain conditions which should be fulfilled if the recognition was to be permanent. Subsequently a communication was received from the Senate of the University of London stating that subject to compliance with similar conditions the Senate would be prepared to recognize the school as an institution from which the University would receive certificates for the complete course of medical education preparatory to the M.B. and B.S. examinations. The conditions, the report continued, related mainly to the provision of additional beds for the medical unit and the appointment of additional teachers. The authorities of the Cardiff Royal Infirmary professed themselves unable, in view of existing financial circumstances, to provide any additional accommodation, but the difficulty has been overcome by a reallocation of the beds in the hospital, which will provide the necessary number for the medical unit. With the approval of the University of Wales, arrangements have been made by which members of the staff of the Cardiff Royal Infirmary will become recognized clinical teachers in the medical school and receive honoraria for their services. A total sum of £500 a year has been provided in the budget for the coming year as a contingent sum for this purpose. An appeal has been made for a sum of £5,000 a year to comply with the conditions attached to the grant of a like amount made by the University Grants Committee. The sum required, it is stated, is practically assured and will be provided mainly by contributions from local authorities from the proceeds of a rate of one-eighth of a penny. To meet the additional expenditure of the school for the past academic year a sum of £2,169 has been transferred by the Appeal Fund to the College; a sum of £18,363 is still required to meet the deficit for the year. The University Council has decided that its grant to the medical school shall be fixed at £14,575 a year for a period of three years. The total income of the school for the last academic year was thus £16,744, but the whole amount has not been expended, and the surplus of £855 has been reserved for the purchase of necessary equipment. The interesting announcement is made that it is proposed to establish a lectureship in orthopaedics in the Welsh National Medical School; it is hoped that for this purpose a contribution may be made by the trustees of the Welsh Hospital Netley Fund, which may be utilized for a purpose having relation to the disabilities of ex-service men. Probably no more suitable destination for the funds in hand could be found than the endowment of the lectureship proposed. A couple of years ago the College made an appeal for a capital sum of a quarter of a million, and we learn from a report of the meeting of the Court of Governors in the *Western Mail* that towards this amount a sum of £80,000 has so far been subscribed.

Liverpool Medical Institution.

At the first meeting of the eighty-fifth session of the Liverpool Medical Institution, held on October 18th, the President, Dr. J. Hill Abram, delivered an inaugural address, taking as his subject "Looking Back." Members and associates were received by the President prior to the delivery of his address. The President limited his retrospect to forty years, dating back to the year he became a medical student. He first touched upon the progress that surgery had made, alluding to the evolution of antiseptic surgery and aseptic methods, pointing out that the great war had brought into prominence the importance of the antiseptic method in wound treatment. He thought that the value of speed in operation, which in the pre-anaesthetic period was considered of great importance, should not be overlooked. He considered that the greatest advance had been made in orthopaedics, and critically observed that the great object of medicine was to prevent resort to surgery. Out of the science of bacteriology born some forty years ago sprang vaccine and antitoxin therapy. As was often the case in the history of medicine, the anticipation connected with new remedies fell short of realization. It was in that class of case where failure was signal that our knowledge was wanting, in other words the elaboration of antibodies was still an unknown factor in such cases, and as an example he cited the failure of vaccine treatment in coryza. On the other hand, he had evidence of the striking effect of vaccine treatment in the early stage of croupous pneumonia. After a tribute to the great service the discovery of x rays by Roentgen had rendered to medicine, he passed on to consider the relation of the endocrinal glands to body metabolism. The efficiency of thyroid treatment in myxoedema was frankly admitted, but the treatment of Addison's disease by adrenaline and tuberculin had been distinctly disappointing. In alluding to the elaboration of clinical methods of investigation of disease by expensive instruments, Dr. Abram drew attention to the obvious fact that such methods could only be carried out in hospitals. There was a tendency for the student to think more of these methods and overlook the cultivation of sight, hearing, and touch in diagnosis. The trained senses after all were those factors on which the majority of practitioners would have to rely in the treatment of disease, especially in districts remote from towns. In conclusion he deprecated the tendency to publish jejune observations disguised as a preliminary note, and urged the importance of cultivating lucidity, a word to which the late Matthew Arnold, in an address delivered in 1882 at the opening of the Royal Infirmary School of Medicine in Liverpool, gave the meaning "the ability to see things as they are." The temptation should be resisted to publish, at the instance of a clamorous press, matters in which research was still necessary and authoritative statements quite out of place. The address was critical throughout, and was much appreciated by the members. Dr. Hope, M.O.H. Liverpool, proposed, and Dr. Henry Harvey seconded, a vote of thanks, which was carried unanimously with acclamation. Afterwards the President entertained the members to refreshments followed by a concert of Elizabethan music, and the audience was delighted by madrigal and song, taken alternately from music of the sixteenth century. Mr. Walter E. Bridson, F.R.C.O., proved himself to be an efficient accompanist of the songs, which were rendered with great taste.

operation with a bad anaesthetist as one of the team. From start to finish—from the time when the intestines balloon out from the abdominal cavity, midst the struggles of the surgeon and his assistants, to the time when every stitch tears through the peritoneum in the upper part of the abdomen, the operation is attended with anguish on the part of the surgeon, and subsequent misery on the part of the patient. The responsibility for success or failure rests with the surgeon; whatever happens, the anaesthetist escapes without blame or blemish.

Nevertheless, the surgeon is often in part to blame. He is in too great a hurry to commence his operation, and his manipulations are often unnecessarily severe. A hand used like a sweeping brush round the neighbourhood of the diaphragm will be reflexly resented by a patient, even when deeply under ether anaesthesia. The patient shouts for help, so to speak, by tightening his recti muscles, by increasing his respirations, and by extruding his intestines from the abdominal cavity. It is a state of affairs which adds considerably to post-operative shock.

During the course of the discussion which is to follow, we will, no doubt, be informed by anaesthetists of the relative merits of ether administered by the rectum, of intratracheal anaesthesia, of prolonged gas and oxygen as recommended by Crile, and we will have a description of the various forms of apparatus used in the practice of these methods.

The keynote of success appears to me to be, in these as in other surgical methods, contained in the one word—judgement. The nature of the operation must be considered, the type and temperament of the patient, and, last but not least, the temperament and habits of the surgeon. Some surgeons operate rapidly, some slowly; some are gentle, others are less considerate to the anaesthetized patient. The methods for the administration of the anaesthetic will vary for each type of surgeon as well as for each type of patient.

There are three points which I would like to make in this discussion, not because they are new, but because I think they do not receive the general recognition which their importance deserves.

1. Every surgeon knows that, apart from prolonged and dangerous operative procedures and apart from chloroform anaesthesia (which I never employ), and from such conditions as the status lymphaticus and unrecognized idiosyncrasies, there are times when a patient collapses and approaches the point of death on the table. The exact cause of the collapse is not always evident, nor is it always the same; on some occasions the anaesthetic is undoubtedly responsible. When the danger signs appear they are often first recognized by the surgeon. If the operation is one of laparotomy, the recti muscles suddenly become unduly relaxed, the excursions of the diaphragm gradually cease, respirations fade away, and very shortly the patient, to all intents and purposes, is momentarily dead. With a hand in the abdominal wound, the pulsations of the aorta can still be felt regular and strong. By this time the anaesthetist is pulling forward the tongue or the jaw, swabbing out the throat and giving hurried orders for a hypodermic injection of strychnine, digitalis, or camphor and oil; the head is lowered, and respiration is stimulated by brisk rubbing of the lips and cheeks. Unless there is rapid recovery no time should be lost. What should be done? Artificial respiration is the obvious answer, but it must not be by Sylvester's method or any of its modifications. In an emergency such as this, artificial respiration carried out by textbook methods is too slow, and with an open abdominal wound is both inconvenient and dangerous. Furthermore, if there is cardiac failure, massage of the heart cannot be carried on through the abdominal wound simultaneously with Sylvester's method of artificial respiration. I would urge the adoption of artificial respiration by the old direct method which was employed exclusively in the early seventies. In 1906 Sir Robert Woods read a paper before the Royal Academy of Medicine in Ireland on this subject, and since then I have had an opportunity of employing the method in at least a dozen desperate cases without a failure. The procedure is simplicity itself. There is no need to intubate the larynx; the mouthpiece of an ether inhaler is generally at hand, and when placed in position on the patient's face makes an admirable funnel through which the surgeon can blow into and inflate the patient's lungs. In the absence of a facepiece, a funnel can be readily extemporized with the closed hand. There is no resistance to overcome, the air easily enters and inflates the lungs, and is expelled automatically, or rather gurgles out with the help of gentle pressure on the chest or the abdomen. The process is repeated every four or five seconds until normal rhythmical respirations are restored.

The direct method of artificial respiration used exclusively in the early seventies was abandoned owing to faulty physiological reasoning. It was thought that, because expired air contained poisonous carbonic acid, it was wrong and dangerous to introduce it into the lungs. Such reasoning had many fallacies. First, as pointed out by Woods, the first rush of air supplied by the donor will be from the trachea and upper air passages, and therefore pure; and, furthermore, the very small quantity of carbonic acid gas in question could not be poisonous, as is shown by the free use of the rubber bag by those who employ ether by the closed method. In fact, the inflation of the lungs with expired air not only stimulates the respiratory centre, but also increases the volume of the pulse. Recently it has been pointed out that an alkali deficiency of the blood during anaesthesia can be corrected by the inhalation of carbon dioxide gas mixed with the inspired air. Sir Robert Woods concludes an admirable paper on the subject by saying that the quantity of tidal air is greater than by any indirect method and, therefore, the stimulation of the mechanism of circulation and respiration, the elimination of the poison, and the oxygenation of the blood are all as great as possible. Secondly, the impurities, if present at all, are negligible. Thirdly, the method can be employed without a moment's loss of time.

2. My second point is in connexion with the so-called ether bronchitis and ether pneumonia following operations; and I will endeavour to show that, in many cases, the anaesthetist has no responsibility whatever for these unpleasant sequelae.

After certain abdominal operations pulmonary complications may arise, whether the anaesthetic is administered by the rectum or by any other method, and often follow the employment of local anaesthetics alone. In the acute upper abdomen the diaphragm becomes rigid by the same mechanism which causes rigidity of the recti muscles. There is a general reflex splinting of the whole area involved; and in consequence the diaphragm cannot descend. This fixity of the diaphragm produces oedema of one or both lungs, and fine pulmonary crepitations can be heard at the base in most cases. These crepitations must not be mistaken for commencing pneumonia with reflex abdominal rigidity and pain.

Wilkie thinks that crepitations at the base of the lung are an additional sign of acute infections of the biliary tract, but they have a far wider significance. If oedema of the lung is produced by the fixed diaphragm before operation, the condition is still more common after high abdominal operations. It must be within the knowledge of all surgeons of experience that high abdominal operations are very frequently followed by severe cough and expectoration for the four or five days after operation, subsiding after relief of intra-abdominal tension by the first satisfactory evacuation of the bowels.

In 1916 I was called to a patient with the signs and symptoms of an acute upper abdomen. On examination of the chest crepitations were heard at the base of the right lung, and the physician in charge was of the opinion that pneumonia was developing, and that the abdominal symptoms were reflex and referred. In the course of a short time the signs of an acute cholecystitis became unmistakable. About this time the late J. B. Murphy drew attention to the high mortality from oedema of the lung after closure of large umbilical hernia, due, he said, to a deficiency in the action of the diaphragm muscle (the piston of respiration) in breathing: and since then I have frequently listened to fine crepitations at the base of the lungs on one or both sides before and after operations for the acute upper abdomen.

elected president of the Royal College of Physicians in 1790, in the hall of which college his portrait by Raeburn is to be seen. As a young man he attended to the poet, Robert Fergusson, when the latter suffered from an attack of acute mania, and was placed in the City Bedlam, a horrible institution, which stood on the site now occupied by the Royal College of Physicians Laboratory. After passing through the attack of mania Fergusson fell into a melancholia and ultimately died of exhaustion, on October 16th, 1774, exactly 149 years ago. Dr. Andrew Duncan was so overcome with the dreadful surroundings in which Fergusson, a man of sensitive feeling, was treated, that he determined to provide a suitable mental hospital for Edinburgh to take the place of the City Bedlam. Years went by, however, and Dr. Andrew Duncan apparently forgot his good intentions. He was a very busy man and Lord Cockburn says of him that he was a member of more societies of every kind and was actually the chairman or president of more societies than any other man in Europe. He is entitled to the credit of having founded three Royal corporations—no mean feat for one man.

An event which happened in the winter of 1786-87 brought back forgotten memories to the mind of Duncan; this was the visit of the poet Robert Burns to Edinburgh, who on arriving in Edinburgh at once set out to find the spot where the poet Fergusson—to whom he was indebted for some of his inspiration—was buried; with an honesty and generosity which were remarkable he erected a tombstone to his memory, on which he records his own gratitude. Andrew Duncan was interested in Burns and subscribed to the Edinburgh edition of his poems, and no doubt this action by Burns made a deep impression upon him, seeing that Fergusson had been his patient. Three years afterwards when he was elected president of the Royal College of Physicians, the first thing he did on the day after his election was to visit the cell in the City Bedlam in which Fergusson had died. He then called a meeting of the Council of the College and proposed that they should consider the question of erecting a mental hospital for Edinburgh. A committee was appointed and a scheme for the erection of such a hospital was launched under the auspices of the Lord Provost in 1792; towards it the College voted a sum of twenty-five guineas. Thus the first action the College took in this matter preceded the reforms instituted by Pinel in Paris by two years, and the scheme itself was publicly announced six days before the proposal to erect a retired habitation or Retreat for the Society of Friends. Owing to the Napoleonic wars the times were troublous and money was scarce, and as the hospital was designed on a fairly large scale it was not opened till 1813.

The College did something more than initiate the steps by which the Royal Hospital at Morningside was founded, for in 1853 it approached the managers of the hospital and requested them to give permission to Dr. David Skae, the then physician superintendent, to lecture on mental disease and to make use of the clinical cases at Morningside. This request was immediately granted, and four days afterwards Dr. Skae delivered his inaugural address. The managers of the Royal Hospital at Morningside, under the the guidance of Dr. Andrew Duncan, entertained the highest ideals of treatment, and they have continued to be an exceedingly enterprising and progressive body. First, they built the old East House and introduced the methods adopted at the Retreat at York, which, though proposed later, had been opened before the East House. They then built the West House for the poorer classes of patients, and lastly, exactly a century after the launching of the original scheme, Craig House was opened, an institution largely due to the inspired vision and foresight of Sir Thomas Clouston. It was, Professor Robertson said, perhaps the most beautiful building in Edinburgh from an architectural point of view, and occupied the most picturesque site in the city. The courage of the members of the Board, who planned such an institution, was striking. At the present day people seemed afraid to launch out into new enterprises, while thirty-five years ago the managers of the Royal Hospital at Morningside incurred a debt of nearly £150,000 to build a mental hospital worthy of the metropolis of Scotland and of the University of Edinburgh. The various institutions now controlled by the managers, if they were to be built at the present time in the same style, would cost nearly half a million pounds. Four years after they had willingly granted permission to the superintendent to deliver lectures on mental disease they gave a sum of £10,000 to the University to endow a chair of psychiatry.

The first special course of lectures on mental disease was delivered by Esquirol of Paris, and within the first three or four years at least three eminent Scotsmen attended Esquirol's lectures. One of these was Andrew Combe, who left money which helped to found the readership in psychology in Edinburgh University; another was Sir Robert Christison, who attended the lectures in 1821 and in the following year incorporated part of the information gained in his lectures on medical jurisprudence. Sir Alexander Morison attended the lectures in 1818 and was so impressed that five years afterwards he made a strong endeavour to get a lectureship or professorship on this subject instituted in Edinburgh. One of his proposals was that the visiting physicians at Morningside should deliver the lectures. The second proposal came from the principal of the University, Dr. Baird, who suggested that the College of Physicians should undertake to provide a lecturer. This request was not so surprising as it now seems, because at that date the duty of providing medical attendance to the patients at Morningside was gratuitously performed by certain Fellows of the College. Professor Alison, in giving evidence before a Royal Commission in 1826, suggested that there should be a professorship. None of these proposals were carried out at that time, although since then they have all come to pass. Having failed in his efforts to get any of his ideas adopted, Sir Alexander Morison delivered a course of lectures in Edinburgh in 1823, and he or his son subsequently lectured annually for the next thirty years. In 1853 he retired, but, as has been pointed out, when his lectures were about to cease the College of Physicians induced the managers at Morningside to allow Dr. Skae to lecture; subsequently, when Dr. Skae died, Dr. Clouston carried on the lectureship, and, as we all know, lectured most brilliantly and successfully.

Sir Thomas Clouston lectured for three or four years in association with Professor Laycock, who took a very keen interest in mental disease and regarded it as the most important special branch of medicine. Professor Laycock was succeeded by Professor Grainger Stewart, another great teacher. He, however, did not take the same interest in this special subject, nor did he possess the same knowledge of it as Laycock. Sir Thomas Clouston was then appointed University lecturer on mental disease. It is interesting to know that this lectureship was the first to be created in Edinburgh University, or perhaps in any Scottish university. There are now over 170 lecturers attached to Edinburgh University alone.

The authorities of Edinburgh University showed that their sympathy and interest in the teaching of this subject was not diminished when negotiations took place for the creation of a chair of psychiatry, and the University has the honour of being the first of the older universities to establish such a chair.

It would appear to be the fact, that the Edinburgh School of Medicine is the only school in the world in which special lectures on this subject have been continuously given for 100 years, and they trace their descent directly from Esquirol. After his retirement and death the lectures in Paris seemed to have lapsed; in London, about the middle of last century, they became somewhat irregular; the Germans did not begin to give special lectures on this subject till a later period. The Edinburgh School of Medicine therefore occupies an important and very honourable position in the history of this subject, and for this we are largely indebted to Sir Alexander Morison.

Morison Lectures in Edinburgh.

The first of the series of Morison lectures for the current session was summarized in these columns last week. The second and third lectures were delivered by Dr. Blackhall-Morison in the hall of the Royal College of Physicians, Edinburgh, on October 16th and 17th. Sir Robert Philip, President of the College, occupied the chair. In the second lecture Dr. Blackhall-Morison referred to psychology as an aspect of biology, commented upon the full growth of the Greek mind, and discussed especially the views of the Scottish philosophers, Brown, Hamilton, and Bain. The lecturer regarded sight and hearing as the master senses of man, and considered language as the result of external influences acting upon an innate aptitude in the human species, which had placed man in a class apart. He discussed the question whether mind is a living organism or merely a neural habit; and came to the conclusion, which was as old as Aristotle, that the mind was an active, living organism, connected with its parent organ, the brain, and possessed of properties of reproduction and metamorphosis as a natural process. He referred to the persistence of the human ego, and the views of transcendentalists like Herbart and Lotze. Experimental psychology was a special development of the study of the mind during the period with which he dealt. Recently there had been a new psychology specially associated with the names of Freud and Jung; this together with psycho-analysis he considered and criticized. In the third lecture he dealt with the mind diseased. He described the old views on psychiatry and the original primitive conditions for dealing with insane patients. He then dealt with the Act of 1774, the private madhouses, and the establishment of Commissioners

patient led to an unsatisfactory induction, and a case that gave trouble during the induction period was apt to be a case which would cause anxiety during the course of the operation. The psychology of the surgeon had also to be borne in mind. It was an advantage to know the man with whom the anaesthetist was working, his methods and his temperament. During the past week he had been attending the meetings of that and other Sections, and until Sir William Wheeler spoke that day he had not heard one word said on the subject of oil-ether colonic etherization. He was convinced that in certain cases that method was of extreme value. Used in high ether percentages, undoubtedly it had given rise to unfortunate effects—primary respiratory failure during the course of anaesthesia, or proctitis of greater or less severity, sometimes with the passage of blood per rectum within the consequent forty-eight hours. These dangers could be avoided almost entirely by the use of the control method in which the strength of ether in the standard solution was 50 per cent., the vehicle being olive oil. The success of the method depended on a rigid adherence to technique. The patient was weighed, as weight was the governing factor in regard to dosage. The dose to be administered by the bowel was one ounce of the standard 50 per cent. solution of ether in olive oil for every twenty pounds body weight of the individual: thus, a ten stone patient received seven ounces of the mixture. On the night preceding operation the bowel was thoroughly washed out, and on the morning of the operation a simple enema was given and the patient left as far as possible at rest. At least an hour before the time fixed for operation, morphine grain 1/6, with atropine grain 1/100, was administered hypodermically; this was omitted in the case of children and of those who were dull, lethargic, or comatose. A few minutes after the hypodermic had been given the ordered quantity of oil-ether mixture was passed slowly and continuously into the colon through a soft rubber catheter connected with a tube and funnel. The catheter should be passed as high as it would travel without force. The injection should be completed in about half an hour. Should the patient be restless or excitable two drachms of paraldehyde might be added to the oil-ether mixture. The catheter was then disconnected from the tube and funnel and left *in situ*. The patient was left at rest, the bed was screened, and the blind pulled down, the nurse in attendance keeping within easy reach, but preferably out of sight. Usually the patient became drowsy rapidly, sometimes muttering in an amiable confusion, and then passed into a light sleep. Half an hour after the injection had been completed the anaesthetist approached as noiselessly as possible, some minims of oil of orange in absolute alcohol (ol. aurantii 25 per cent., alcohol absolute 75 per cent.) were dropped on the pillow to mask the pungency of the ether vapour, and followed by a few drops of ether. The upper sheet was gently drawn up to form a tent and the patient inhaled an ether-laden atmosphere until the onset of stertor. This usually took about four minutes. When stertor was established the patient was lifted on to the trolley and conveyed to the theatre—anaesthesia generally being deepened during transit. He was moved to the table and the operation began. By that time he had settled down to a placid anaesthesia, characterized by an absence of mucous secretion and venous congestion. But it was an anaesthesia which tended to lighten as time went on. In this lay its safety; the method was under control. Sooner or later symptoms supervened calling for more anaesthetic, such as phonation, twitching of the muscles of the face, movement of a limb, or retching movements in cases in which there was any traction in the throat. A few drops of ether applied to the pillow tipped the balance and placidity was restored. When the operation was completed the bowel was washed out, and when that was done 3 oz. of olive oil should be injected into the colon and the case left at rest. By that time he had passed into a state of analgesia which continued for some hours after operation. The class of cases to which the method was applicable comprised the general surgery of the head and neck, growths, innocent and malignant, within and around the buccal cavity, glands in the neck, and, in an especial degree, goitres, plastic operations on the face and neck; throat and nose operations, radical operations on the sinuses, craniotomy, exploration of the brain, cerebral and cerebellar growths, Gasserian ganglion operations, and breast cases.

Mr. Adams A. McConnell (Dublin) observed that Mr. Trotter believed that chloroform was indicated for operations on the brain, mouth, neck, breast, and spine, and he implied that no other anaesthetic was as satisfactory from the surgeon's point of view. Since Boyd introduced his modification of Gwathmey's method of colonic anaesthesia by ether, Mr. McConnell had used his method combined with local infiltration in every case of brain tumour, in removal of the Gasserian ganglion, in diathermy of the mouth, tongue, and pharynx, goitres, amputation of the breast and laminectomy, and he could say emphatically that it was better than any chloroform anaesthetic, no matter by whom administered, and, moreover, it removed much anxiety during and after the operation. They had been using small doses of pure magnesium sulphate subcutaneously as a preliminary to anaesthesia, with strikingly good results.

Mr. Firmin Cuthbert (Gloucester) said that to his mind the greatest importance should be attached to the necessity of co-operation between the surgeon and anaesthetist. Excluding, of course, all those cases of minor surgery, in which local anaesthesia had such a large field of usefulness, there was no doubt that the anaesthetist should be present whenever more major procedures are undertaken with local anaesthesia, whether by infiltration of the local area, or the method of paravertebral injection of nerves was employed, or nerve-blocking was pursued. There was plenty for the anaesthetist to do, even if no general anaesthetic at all was administered, for instance—he always put a great stress upon the necessity of the blood pressure being carefully watched every fifteen minutes. A very valuable alarm could be given in the event of the fall of blood pressure to any degree in the neighbourhood of 90, and other treatment could be applied before evil signs showed themselves. In a general way all his cases received an injection of morphine grain 1/6, with scopolamine, grain 1/100, an hour before the time of operation. In fat, stuffed-up people, or those of a bronchitic type, an addition of atropine grain 1/200 was made. The infiltration of novocain, 1/4 per cent. or 1/2 per cent., according to the case, was then administered—100 c.cm. of this with 10 minims of adrenaline solution 1 in 1,000 could be used without any ill effects; general anaesthesia of a very light nature was given just prior to the patient being taken into the theatre. He maintained that in all prolonged operations the three elements of danger were bleeding, sepsis, and the anaesthetic, and the reduction of these to the minimum constituted the stronghold of success. One argument against this plan was the trouble and time taken in these preparations an hour before the operation. The infiltration itself only took a few minutes, and the interval could be occupied by the surgeon in doing other things (if he did the infiltration himself), and by the time he had prepared himself there was very little time wasted. It was remarkable what a small amount of anaesthesia was required, and by the time the stage of sewing up the wound was arrived at no anaesthetic at all was necessary, and the patient was returned to bed in a comfortable somnolent condition produced by the previous dose of morphine. There were many cases in which general anaesthesia could be dispensed with in the first stages of a prolonged operation, such as the removal of naso-pharyngeal tumours, preceded by obtaining control of the external carotids by slipping a tape under these vessels, so that Crile's clamps could be applied if necessary, and especially as an aberrant origin of these vessels could not be foreseen. The laryngotomy tube could also be easily put in under local anaesthesia, and then the general anaesthetic could be given, the pharynx packed, and a bloodless operation could be proceeded with in comfort to the surgeon and patient. In cases of strangulated hernia in old people a general anaesthetic was best avoided. An old lady of 91, with a strangulated femoral hernia for two days, produced from under the bed a bucketful of vomit; she made a rapid recovery from her operation. If

generally suitable for our requirements, at least in the province of surgery. It is of course quite possible that the difficulties which have arisen are felt with special force at the London Hospital, or are even peculiar to myself. But in any case they are real difficulties, and form a serious criticism of the whole system.

Withdrawal from private practice has necessarily a marked effect upon the mental outlook of the medical man. It narrows his horizon to the wards and laboratories of his hospital, and the difficulties and requirements of work in the outside world must in time be forgotten. The more complete the organization of his work, the more perfect the assistance he receives, the more will he tend to rely upon the mass of information placed before him and the less upon his own observation and interrogation of the patient. The diagnosis of a fracture will tend to become a matter of *x* rays, and a gastric case will only appeal to him as a source of test meals and opacities. Dealing as he does with patients of low mental power he is apt to feel that interrogation would only mislead him, whilst his estimate of the reaction of his patient to treatment will be quite inapplicable to individuals of another mental calibre. And yet he is teaching men who will have to cope with the very difficulties which his own surroundings tend to obliterate.

Again, one is apt to forget that a medical student does not walk the wards of a hospital entirely to learn medicine and surgery. He goes there in order to learn the practice of a profession of which technical knowledge is only a small part. It is his business to learn how to deal with human beings who are ill, and no small part of that business is to discover those from whom he may best obtain assistance when he is out in the world and on his own responsibility. Surely it is an impossible handicap to his teacher to limit him to the treatment of one class and to forbid him to consult with his old pupils.

It might, however, be supposed that in research at least the whole-time man would be safe, and I must say that for myself this was the one great attraction of the unit system. My experience has unfortunately brought disillusionment. Not only have I found my time absorbed in a routine the responsibilities of which it was impossible to devolve, but the very material for clinical study has eluded me. The clinical researcher depends for his material not upon the casual entries of the hospital, but upon cases sent to him from outside practitioners who know his special interests. Here at least I felt secure. The stream had always come; surely with more beds it would continue and expand. Instead of doing so it dwindled and sank to nothing. Apparently practice is too complex a thing for it to be possible for a practitioner to send his private patients to one consultant and his hospital cases to another. At any rate, I found myself with empty beds and no waiting list, appealing to my colleagues for cases to fill my wards. Moreover, a return to private work last year immediately brought a return to the old conditions, and the special cases which are so essential to research and to teaching began again to appear.

The unit system is said to have been borrowed from the Continent, but the position of a professor of surgery in a Continental clinic is entirely different. On the one hand he is the absolute and undisputed head of the whole clinic, including its laboratories, *x*-ray, and electro-therapeutic equipments. On the other hand, not only does he engage in private practice but he is the acknowledged leader of his profession, and all the most important and exceptional surgery of the district naturally passes through his hands. It is easy for him to organize through his assistants clinical demonstrations on the grand scale, and the teaching of surgery can be placed on a systematic basis which we have never achieved. But in most cases the teaching of the Continental student is limited to the lecture theatre; he may never enter the wards, and he rarely sees an operation. The personal touch of ward teaching, the close contact with his teacher which it affords, and its unrivalled opportunities for the direct study of the patient, are altogether lost, and the product of the system is more likely to be a brilliant student than a useful doctor.

In my opinion the teaching of surgery in this country is rather a cause for pride than for dissatisfaction, and no great revolution in its methods is required. But as surgery becomes more and more complex and its demands every day become more exacting, it is only reasonable that the teacher should have at his disposal the organized help of younger men. This has been our aim at the London Hospital, where to each of the five surgical firms a paid assistant has been attached. Each firm consists of a senior and a junior surgeon, and an assistant who is paid £400 a year for services on the basis of scheduled time. His duties will be to assist in the organization of teaching and in research, and only in exceptional circumstances will he be called upon to undertake the ordinary routine of hospital work. In this way we hope to improve our teaching, while preserving its personal basis, and to train up a group of younger men whose outlook extends beyond the horizons of to-day. And we hope to produce a combination of effort from our whole surgical staff such as may worthily maintain the great traditions of our hospital.—I am, etc.,

London, W., Oct. 18th. H. S. Souttar.

SPASM OF THE LARYNX.

Sir,—In the discussion on spasm of the larynx reported in the British Medical Journal of October 20th (p. 712) Sir J. Dundas-Grant is stated to have said, in referring to laryngeal vertigo, "This has generally been attributed to a sudden congestion of the nervous centres produced by the pressure resulting from the expiratory effort accompanying the cough." He then proceeded to state that according to *his* view the symptoms are really due to syncope. This I pointed out so long ago as 1884, and I would refer those interested to the *Transactions* of the Medico-Chirurgical Society of Edinburgh, vol. iii, or my book *Diseases of the Throat, Nose, and Ear* (third edition), pp. 227-28. I quote from the latter:

"The act of coughing consists of a deep inspiration followed by attempted expiration with partially closed glottis. In laryngeal vertigo, however, the closure of the glottis is complete and the whole expiratory effort is felt through the air contained in the lungs by the alveoli, the large blood vessels in the thoracic cavity and the heart itself. As a result syncope—or a tendency to syncope—is produced, and almost at the same moment the spasm of the glottis relaxes and the attack is over."

Although Sir J. Dundas-Grant has suggested a different and I think mistaken mechanism, the result arrived at is the same—syncope. I was therefore not a little surprised at his remarks, as I have had every reason to believe that the explanation of the phenomenon I suggested in 1884 has been generally accepted.—I am, etc.,

Harrogate, Oct. 20th. P. McBride.

ANTE-PARTUM HAEMORRHAGE DUE TO PLACENTA PRAEVIA, ASSOCIATED WITH ALBUMINURIA AND ECLAMPSIA.

Sir,—It is to be hoped that Dr. Lionel W. Bradshaw's memorandum (October 20th, p. 717) on his experience of the above condition will attract widespread attention, both because it is an interesting piece of evidence bearing on the question of the etiology of eclampsia, and also because it admirably exemplifies how observations and records made in the routine course of general practice may help scientific research.

To be appreciated fully, Dr. Bradshaw's note must be read in the light of the views on the etiology of eclampsia propounded in 1914 by my friend and colleague Dr. James Young.[1] Briefly, his view is that the toxins producing albuminuria and eclampsia are formed by massive necrosis of separated portions of the placenta, absorbed into the mother's blood through the unseparated portions. The association of albuminuria and accidental haemorrhage is a commonplace, and the usual interpretation placed upon it is that the haemorrhage and premature separation are due to the toxaemia. Young's view is that this is placing the cart before the horse, and, whether it may ultimately prove to be right or wrong, his view is certainly supported by cases, of which several have been observed in the Edinburgh Royal Maternity Hospital, in which the albuminuria has not developed until after the partial separation of the placenta had manifested itself by haemorrhage. Moreover, where the haemorrhage is followed by labour within a few

[1] *Trans. Edin. Obstet. Soc.*, vol. xxxix; Abstract, British Medical Journal, 1914, vol. i, p. 653.

Technique.

The following technique has been evolved from personal experience of the method:

The patient's head is shaved. If the patient is excitable, timorous, or unlikely to stay quiet during the procedure, he is given rectal anaesthesia by Boyd's modification[4] of Gwathmey's method. We have found this necessary on two occasions only; local anaesthesia is the routine. The table should have a comfortable head-rest rather than a pillow. A point (A) 1¼ inches behind the external auditory meatus and 1¼ inches above Reid's base line is marked on the side to be injected. On the opposite side of the skull a point (B) 1¼ inches behind the external auditory meatus and 2¼ inches above Reid's base line is marked (Keen). The whole depth of the scalp is infiltrated at these two points with 0.5 per cent. novocain solution. A vertical incision two inches long is made with the point A as its middle point; this incision goes down to the bone. The bone is cleared with a periosteal elevator, and a mastoid retractor keeps the edges of the wound apart. The skull is perforated in the middle of the incision by Hudson's drill, or by de Martel's trephine, and a small opening is made in the dura mater. At the point B, on the opposite side of the skull, an incision

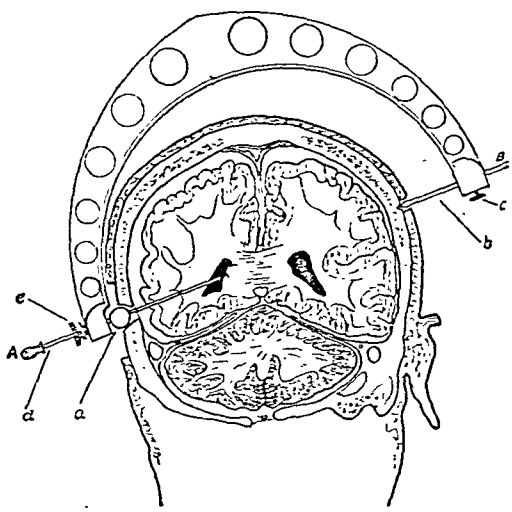


FIG. 3.—Coronal section of head with instrument in position. For description see text.

half an inch long is made down to the bone. Into the hole the ball of the instrument fits (Fig. 3, *a*), through the incision B, the point of the drill (Fig. 3, *b*) is made by a few turns to engage in the outer table of the skull. The screw (Fig. 3, *c*) is now turned, and thus the drill is fixed. The graduated cannula 5 inches long (Fig. 3, *d*) is passed through the A end of the instrument and therefore through the ball; it is advanced until fluid appears or until it has reached a depth of two inches from the dura mater. When cerebro-spinal fluid appears the screw (Fig. 3, *c*) is turned, and so the cannula is locked. The whole apparatus, including the cannula in the brain, is thus rendered rigid, so that no movement on the part of the surgeon or patient can displace the point of the cannula from the ventricle. The head is now held so that the patient looks at the roof. A 2 c.cm. syringe with a three-way tap is fitted to the cannula, 2 c.cm. of fluid are withdrawn very slowly, the blood pressure being taken during the process. The tap is turned, the fluid evacuated from the syringe and air aspirated. Another turn of the tap permits the injection of 2 c.cm. of air into the ventricle, very slowly, the blood pressure being observed constantly. The alternate aspiration of fluid and injection of air is repeated until no more fluid comes; the patient's face is now turned towards the side injected to permit any fluid from the posterior horn to gravitate towards the cannula. When no more fluid comes the syringe is detached from the needle and some air permitted to escape, in order to ensure that the intraventricular pressure is not increased by the expansion of air in the ventricle consequent on its rise in temperature. The cannula is now withdrawn, the apparatus removed and a dressing applied. The maximum amount of fluid withdrawn in my series of cases was 160 c.cm., the average amount was 40 c.cm., and the maximum amount of air injected was 150 c.cm. On no account should an amount of air be injected in excess of the quantity of fluid withdrawn. The blood pressure is the best indication of the intraventricular pressure and the whole process should be carried out without modifying the blood pressure. During aspiration the blood pressure falls, during injection it rises. It is for this reason that a small syringe is used and perhaps a minute is taken to fill it.

When the injection is completed the patient lies with the injected side uppermost, and is taken to the *x*-ray room. The first plate shows that ventricle. The patient then inclines his head towards the side of injection so that air gets through to the anterior horn of the opposite side. He is then told to look straight up at the ceiling and another radiogram which outlines the anterior horns of both ventricles is taken. Rotation of the head is again carried out in order to feed all the air into the opposite ventricle, a photograph of which is then obtained. When air is present in both anterior horns rapid adoption by the patient of the prone posture allows the air to reach both posterior horns, which can be photographed. Sufficient information is usually obtained by radiograms of each lateral ventricle and of the anterior horns. The whole procedure may take nearly an hour, but no haste is permissible during aspiration or injection.

In the earlier cases the instrument depicted was not used, the ventricle being punctured freehand in the usual manner; it was soon found that the movements of the syringe and the necessary manipulations of the patient's head made it extremely difficult to keep the cannula steady in the ventricle, which was sometimes lost after the withdrawal of a small amount of fluid. The instrument* was made for me primarily in order to keep the cannula steady; incidentally it is useful as a guide to the introduction of the cannula, for the latter is directed inevitably towards the point of the drill. Keen, in 1884, described the points on the surface of the skull at which a needle may be introduced and to which

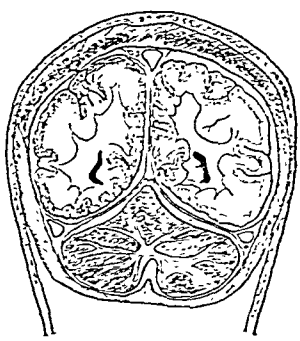


FIG. 4.—Coronal section through posterior horns to show normal relation of tentorium cerebelli. When a large tumour is present below the tentorium the latter becomes dome-shaped.

it should be directed in order to reach various portions of the lateral ventricle.

Difficulties in Technique.

It is essential at the outset to be certain that the piston of the syringe is a perfect fit and that the cannula is as accurately adapted. I have the cannulae specially ground to fit the nozzle of the syringe, otherwise air enters the syringe during withdrawal of fluid or air escapes at the junction during injection and the amount entering the ventricle is unknown. A short rubber junction between the syringe and cannula is used if the ordinary junction is not airtight. The length of the cannula should be 3 in., but when the instrument is used it should be 2 in. longer.

Apart from faults in the syringe and cannulae there are two difficulties. (1) After insertion of the cannula no cerebro-spinal fluid appears; this may be due to distortion of the ventricle or to occlusion of the part of it aimed at. When a large tumour is present in the posterior cranial fossa it sometimes pushes up the tentorium cerebelli and presses on the occipital lobes of the brain so that the posterior horns on one or both sides are reduced to mere slits and their junction with the body of the ventricle may be displaced upwards. In such a case an attempt to puncture the posterior horn or to enter the ventricle opposite the trigonum ventriculi may fail as the cannula may pass below the cavity. If the cannula be directed more upwards than usual on a second attempt the ventricle may be found. If

* The instrument is made by Mr. Edwin Haines, Dublin, the cannula by Messrs. Allen and Hanbury.

thickened, and the lung non-expansile; a chronic effusion then results with a great probability of the subsequent development of a tuberculous empyema, especially after frequent tappings.—I am, etc.,

London, W., Oct. 22nd. F. G. Chandler.

Sir,—The case of pleural effusion described by Dr. McOscar of Buxton recalls to my memory a case which came under my care in 1911, when I was assistant medical officer in the Central London Sick Asylum, Hendon, N.W.

On returning from a holiday in June of 1911, I found a male patient in one of my wards looking rather cyanosed and breathless. He had not complained to either doctor or nurse, during my absence, of any condition requiring treatment. He suffered from phthisis, but was on full diet and did light work about the ward and in the grounds. I found dullness of the left side up to the clavicle. The same day I aspirated him with a Potain's aspirator and drew off 156 ounces of fluid before he began to cough slightly. It was, I recollect, a matter of regret to me that I could not get another 4 ounces.

Some six weeks later I drew off 65 ounces, and early in November, just before I left that institution, I again emptied his chest, on this occasion removing 56 ounces. Owing to changes in the staff and to my absence from London, I heard no more of the case until September, 1914, when I was informed that the man had taken his own discharge, in August, 1914, and was then considered to be practically free from any phthisis—in fact he was understood to have joined the army.

I have not heard of any greater amount being removed from the left pleural cavity.—I am, etc.,

James Oag, M.A., M.B., Ch.B.,
Senior Assistant Surgeon,
October 22nd. Wigan Infirmary.

THE TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

Sir,—I should like to add my testimony to that of Dr. Thomas Watts, M.P., and of others who have at various times written and spoken upon this subject.

Last August, in company with several professional colleagues, all of them particularly interested in tuberculosis, I spent a medical holiday in Switzerland. The first week we attended the admirable course of lectures and the clinical and special demonstrations arranged for the conference by Dr. Rollier at Leysin. We there saw some of the wonderful results obtained in surgical tuberculosis through the agency of heliotherapy combined with a return to natural conditions. It is not, however, with our Leysin experiences that this letter is concerned. From Leysin we went to Montana at the invitation of Sir Henry Lunn. Here we visited several sanatoriums for pulmonary tuberculosis and were informed by Dr. Bernard Hudson, the medical superintendent of the Palace Hotel Sanatorium, of several cases which he had successfully treated with Spahlinger's serum. Dr. Stephani, the proprietor of another sanatorium in Montana, was even more enthusiastic about the beneficial effects of the Spahlinger treatment upon a considerable number of his patients. We had the good fortune to meet M. Spahlinger one evening at the Palace Hotel, and he invited us to Geneva to inspect his laboratories and to see some of the treated patients. Several members of the party availed themselves of the opportunity. We were, one and all, impressed by M. Spahlinger's bacteriological knowledge and by the freshness and originality of his ideas and methods. He told us the broad principles of the preparation of his serums, showed us all over his laboratories, which are as well equipped as any that we had seen, and moreover contain many ingenious devices which all testify to his originality of thought. He has a staff of ten assistants and laboratory attendants, all of whom he pays out of his own pocket. Not only has he refused fees from patients, as Dr. Watts states in his letter, but I am credibly informed that his researches during the past twelve years have swallowed up the whole of his father's, his wife's, and his own fortunes, and that unless substantial financial aid is forthcoming by the end of the present year the whole establishment must close down.

M. Spahlinger showed us his experimental animals (horses, cows, monkeys, rabbits, guinea-pigs, etc.), and among them a cow which he had immunized against tuberculosis, and had subsequently inoculated with living tubercle bacilli, without harming the animal. He took us round Geneva to see several former patients whose history, temperature charts, and x-ray photographs showed that they had been profoundly ill with phthisis, and as a result of his treatment were now cured and carrying on their avocations in various business establishments. Several tuberculosis officers were members of the party and examined the patients, who, they all agreed, were apparently cured of their active phthisis.

The profession is always jealous, and rightly so I think, of the activities (in the domain of medicine) of non-medical individuals, but one can recall several instances where scientific work of the highest order and importance to medicine has been done by non-medical persons. Pasteur, the founder of modern bacteriology and one of the greatest benefactors of mankind, was not a doctor; several of our biochemists are not medical men, and there is at least one radiologist in London who is not a medical man, whose work is as excellent as that of any medical radiologist. The work which M. Spahlinger has accomplished and is still doing may be in the same category.

The problem of consumption and of tuberculosis generally is one of international importance, and in spite of all the advances in prevention and treatment that have been made in recent years it is notorious that there remains an appalling amount of mortality, morbidity, and invalidism, to say nothing of the economic wastage, resulting from the ravages of the tubercle bacillus. Scientific medicine does not recognize national boundaries and frontiers. It seems to me that a problem of this magnitude and international importance should be investigated—and at once—by a small international commission of experts. International financial aid should be given to M. Spahlinger so that he may proceed forthwith, unembarrassed by financial difficulties, with the preparation of his serums and vaccines on an adequate scale for extended trial in various countries. The money that would be required would be small compared with the enormous economic cost of the mortality and invalidism resulting from tuberculosis, to say nothing of the toll of human suffering which it exacts. In the event of M. Spahlinger's claims being substantiated, he will indeed prove to be a benefactor of mankind, and his idealism will be justified.—I am, etc.,

London, W., Oct. 15th. David Nabarro.

Sir,—It is, as Dr. Cheater points out in your issue of October 20th, an honourable tradition in the profession that whosoever discovers a new remedy or improves upon an old one should publish his theory and technique. The tradition has been established in the interests of the public, but if it should happen that the interests of the public are better consulted by a temporary withholding of details, then the tradition should clearly remain unobserved. This attitude was very properly and wisely adopted in the case of insulin, and if it had been adopted in some other cases it might have been better for the credit both of the work and the worker. I am one of those—and they are many—who have strongly advised M. Spahlinger not to allow himself to be beguiled into a premature disclosure of his complete technique. Such disclosure should in our view be delayed until a standard has been established, and this cannot be done until the complete serum and vaccines are again in being and their efficacy demonstrable. To adopt any other policy would in our view be to court disaster. There would be nothing to prevent unscrupulous persons from exploiting worthless nostrums, said to have been made according to the Spahlinger methods—which has indeed even now been done.

My friend Dr. Watts is perfectly right in saying that there is no secrecy. The serum is a horse serum prepared in a particular way and taking four years to make; the vaccine is an ordinary vaccine prepared from the whole bacillus—fatty envelope and all. Spahlinger's work is merely an evolution along well established lines and according to generally accepted principles. But he wisely withholds the details of his technique for the reasons above stated. It would be contrary to the public interest were he to explain them at this juncture.

I know nothing about M. Spahlinger's dealings with the

II.—GEOFFREY JEFFERSON, M.S., F.R.C.S.,
Assistant Surgeon, Salford Royal Hospital; Lecturer in Applied Anatomy, University of Manchester.

No one can deny a careful consideration to any method which will allow increased accuracy in the localization of cerebral tumours. It is claimed that in ventriculography (or "cerebral pneumography" as its inventor, Dr. Dandy of Baltimore, now calls it) we have such a method. Our purpose in this discussion will best be served, perhaps, by examining the question under three headings: First, what is claimed for ventriculography; second, from a consideration of the general physical characters of intracranial tumours what help might we be justified in expecting from it; thirdly, my own experience of the matter.

I.

First, then, what is claimed for ventriculography? By the replacement of intraventricular cerebro-spinal fluid by air and subsequent x ray we are able to obtain the outline, the shape of the lateral ventricles. With good technique the size and contour of the ventricles can be quite clearly seen in the majority of cases, and when a tumour is present changes in ventricular size, shape, and position give valuable information. It is claimed that the

FIG. 1.—Calvarium of a child from a case of cerebellar tumour, showing effects of obstructive hydrocephalus.

vast majority of intracranial tumours (excluding the sellar and suprasellar group, in which help of this kind can rarely be needed) can be correctly localized by these means, aided by the physical signs elicited in the usual way. Dandy states that neurological examination alone fails to localize the tumour correctly in more than 50 per cent. of cases, but admits that this is a debatable point. It is, in truth, so debatable that nothing but mutual recrimination is likely to result from the pursuit of this question. Obviously the percentage of correct localization by purely clinical means will vary in different hands according to the skill of various clinicians. In this connexion the time element is of some importance. A larger proportion of accurate localizations will be made the longer the cases are watched, for a tumour which lies in a silent area as it increases in size often comes to involve eventually important structures and so gives unequivocal localizing signs. But if we are to wait we must remember that late cases of brain tumour are by no means such good surgical risks as the early ones. It is in cases where the precise location of the tumour is doubtful or where (more rarely) its position is frankly not known, that ventriculography would have its greatest utility.

II.

The information obtainable by means of ventriculography depends primarily on our recently acquired knowledge of the secretion of the cerebro-spinal fluid and the pathways which it follows. We know that any obstacle to the flow of the cerebro-spinal fluid from its point of secretion in the choroid plexuses to its absorption through the arachnoid villi into the venous sinuses will result in an obstructive hydrocephalus. As far as concerns tumours we may say that posterior fossa tumours will generally give rise to bilateral ventricular dilatation. Most pathological museums contain specimens which will be found to illustrate this fact. Figure 1, which I show by the courtesy of Professor Shaw Dunn, is from the Pathological Museum of the University of Manchester, and represents the calvarium of a child with the sutures widely open. No record of the case exists save the written inscription, "Cerebellar tumour."

We can, however, in some measure, reconstruct the progress of the case from this specimen and see how the tumour blocked the exit of cerebro-spinal fluid and gave rise to a slowly increasing internal hydrocephalus, great enough to expand and thin the skull-cap and open the sutures. The mechanism of production of this hydrocephalus is usually either by crowding of the cerebellar lobes on to the roof of the fourth ventricle, so interfering with its permeability, or by occluding the foramina of Luschka and of Magendie. Alternatively the tumour may kink or rotate the cerebro-spinal axis or otherwise interfere with the free passage of cerebro-spinal fluid (as in Figure 2, a cerebellar tuberculoma). Speaking generally, when we have a bilateral internal hydrocephalus we have very strong evidence that the tumour is in the posterior fossa and must be sought there. Tumours of the mid-brain

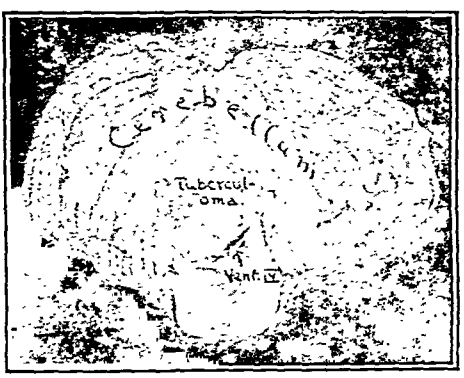


FIG. 2.—Tuberculoma of cerebellum, showing distortion of the fourth ventricle.

and pons will also frequently block or distort the aqueductus sylvii but they do not (save the rare pineal growths) give much difficulty in localization. This obstructive hydrocephalus may give rise to expansion of the floor of the third ventricle, to opening up of the sella turcica or actual erosion of the dorsum sellae, and to minute hernial protrusions through the dura, examples of all of which I have personally seen. Now as regards tumours of the hemispheres. It may be asked what happens to the lateral ventricle when a tumour is situated in a hemisphere. It is obvious that a hydrocephalus will no longer result, rather the reverse. An examination of pathological specimens soon discloses the fact that most hemispheral tumours cause a dislocation and often a deformity of the corresponding lateral ventricle. This is clearly seen in Figures 3 and 4. In the former, one ventricle is seen to be almost obliterated by a large glioma; the other is rather larger than normal, possibly because the tumour has embarrassed the outflow from the opposite ventricle at the foramen of Monro. The ventricular distortion is extreme in this case, but varying grades can be seen in other cases. [Further lantern slides were shown illustrating these points.] When a tumour is present it is the rule for the hemisphere containing it to be larger than its fellow. This increase in size is not due as might be thought purely to the additional mass given by the growth itself, but is due in addition to secondary oedema. This point is a most important one and has not, I think, previously received much attention. It was first brought forcibly to my notice in the case of a man who died rapidly in coma without any operation being performed. At the autopsy, which I performed myself, a small tumour

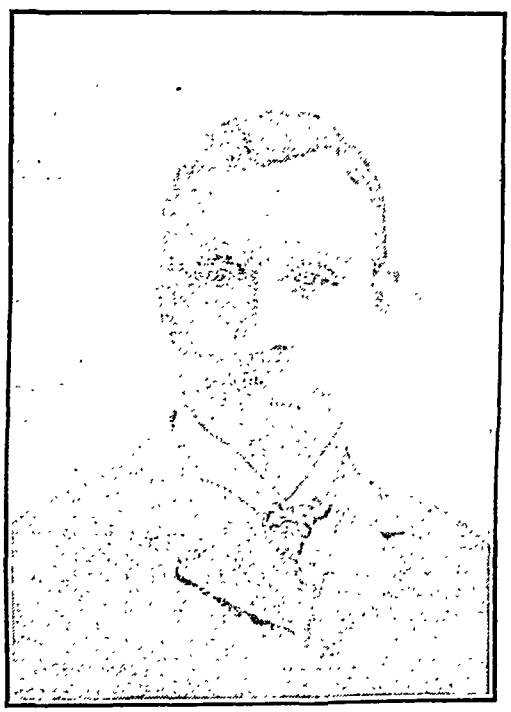
Obituary.

WILLIAM EDWARD ASHLEY CUMMINS, M.D., M.Ch.,

Professor of Medicine, University College, Cork.

With the death of Professor W. Ashley Cummins of Cork on October 18th after a brief illness, a great figure in Irish medical education passes away, and his loss will be mourned, not only in the city and county where his life of service and devotion was spent, but by Cork graduates all over the world. The eldest son of the late Dr. William Jackson Cummins, Ashley Cummins was born at Blackrock, Cork, in February, 1858. He entered Queen's College, now University College, and soon distinguished himself both as a keen sportsman and a successful student. His performances in cycle racing and in the football field brought him to the front rank in College games, and finally he secured his cap in International Rugby football, playing for the Irish team in 1879, 1881, and 1882. He was also a keen yachtsman and his wonderful knowledge of the intricacies of wind and tide in Cork Harbour gained him many victories and made him famous amongst the yacht-racing fraternity of Queenstown.

But with all his success at sport, he was at the same time devoting himself with untiring energy to his work and laying the foundations of the singular clinical acumen and skill which was to distinguish him in his professional career. In 1879 he took the M.D., M.Ch., and L.M. of the Queen's University of Ireland with First Class Honours and the Gold Medal, and he gained the L.A.H.Dublin in the following year; he was the Senior Scholar in Surgery and an Exhibitioner of Queen's College, Cork. After holding a house appointment he started practice in his native city, and his success was assured from the first. With increasing experience his clinical skill rapidly matured and his practice grew to such considerable proportions as to strain his great fund of energy to the utmost. But, while he loved his practice, it was in the teaching of clinical medicine that he found his greatest delight and success. His bedside demonstrations at the Cork Union Hospital were things to be remembered, and they drew an ever-increasing number of students to that institution, which soon received University recognition as a centre for clinical instruction.



Photograph by [*Guy and Co., Ltd., Cork.*

Professor W. E. A. Cummins.

When, in 1897, he became Professor of the Practice of Medicine at University College, Cork, he found the greatest interest of his life in an appointment which gave him full scope for his special bent. It is safe to say that his remarkable powers as a teacher proved the source of inspiration to many a Cork student since distinguished in his profession; and his high character and self-forgetting devotion to duty made him beloved and respected by all.

Though so much occupied by the claims of teaching and practice, he still found time to take a prominent place in the professional life of the city and, indeed, of Ireland. He was at one time President of the Cork Medical and Surgical Society, and was also ex-President of the South of Ireland Branch of the British Medical Association. He was senior surgeon to the County and City of Cork Hospital for Women and Children; senior medical officer Cork District Hospital; consultant physician to the Lying-in Hospital, the Eye, Ear, and Throat Hospital, and the Home for Incurables, Cork; examiner in medicine to the National University of Ireland, and, at one time, examiner in medicine to the Apothecaries' Hall, Ireland. With all this, his interest in College sports never flagged, and his love of Rugby football was a bond that kept him in close touch with the students of all the Faculties of University College, Cork.

He married, in 1884, Miss Jane Hall, daughter of the late Mr. Robert Constable Hall of Rockliffe, co. Cork; and it was in his family life that he revealed the most beautiful and lovable side of his character, a precious memory to those now left to mourn his loss. He leaves a large family of sons and daughters, of whom several, including Dr. Robert C. Cummins, Dr. N. M. Cummins, Dr. Ellice Hearn, and Dr. Grace Cummins, have embraced their father's profession. All his six sons served in the European war, two gaining the Military Cross for gallantry, and two fell in action. His brother is Colonel S. Lyle Cummins, A.M.S.(ret.), David Davies Professor of Tuberculosis in the Welsh National School of Medicine, Cardiff.

The sympathy of all who knew him will go out to his wife and children in their hour of sorrow; but they should take comfort in the thought that the work and example of Ashley Cummins will not soon be forgotten.

Dr. R. H. Powers of Southend-on-Sea died on Sunday, October 7th, after an attack of lobar pneumonia that lasted only three days. Born in 1868, Richard Henry Powers was educated at Cheltenham College and St. Mary's Hospital, and obtained the English Conjoint diploma in 1898. He practised at Brigg till 1910, when he joined Dr. Sellors in partnership at Southend-on-Sea. During the war—unfit for active service—he was unwearying in his attendance at the Glen Auxiliary Hospital and in the care of troops under his medical charge. An overflowing congregation at the funeral service, including detachments of the 28th and 34th British Red Cross and St. John's V.A.D.'s, and a numerous gathering of local medical men and nurses, testified to the esteem in which he was universally held. Dr. Powers's unselfish and unceasing devotion to his work remains an inspiring memory. He leaves a widow, daughter and son.

Dr. Albert Theophilus Duka, D.S.O., late Major R.A.M.C.(T.C.), died at New Milton, Bournemouth, in September, aged 57. He was educated at Cheltenham College; at Cambridge, where he graduated B.A. in 1888 and M.A. in 1892; and at St. George's Hospital. He took the L.S.A. in 1891, and the M.R.C.S. and L.R.C.P.Lond. in 1892. He afterwards went to Australia, and accompanied the Australian forces to South Africa, where he served as medical officer of the Queensland Mounted Infantry, was mentioned in dispatches and gained the D.S.O. at Eland's River; he received also the Queen's Medal with two clasps. In August, 1914, he rejoined the army as a temporary lieutenant in the R.A.M.C., became captain after a year's service, and major on September 26th, 1915; he served in the advance on and retreat from Mons, and later in England, in charge of the clearing hospital at Eastleigh. After the war he served in the Ministry of Pensions department at Southampton till his death. He was a member of the Bournemouth Town Council, and a prominent local Freemason, being a past Worshipful Master of Boscombe Lodge.

We regret to record the death, on October 2nd, of Dr. George Livingstone Mitchell, of Redditch, Worcestershire, from scarlet fever, contracted from a patient he was attending. Dr. Mitchell, who was only 29 years old, was

the posterior fossa revealed nothing but adhesions, which were dissected away; the patient made a good recovery and remains well up to the present.

The method is not without danger, particularly, I think, if large amounts of air are used. I doubt whether it is necessary to inject more than 25 c.cm. of air, and my own inclination is to use small quantities and outline the horns one by one. There are of course fallacies in doing this, and considerable skill is necessary in interpreting the results. At times I have no doubt even the most skilful will fail, but interpretation will be easier if the considerations brought forward as to the physical characters of tumours and of their resulting oedema are kept in mind. Some fatalities after air replacement in the ventricles may perhaps be explained by the tide of cerebro-spinal fluid rising faster than the absorption of the air. There is nothing to show that air injection stops the fluid secretion, and a stage of embarrassment may quickly be reached in some patients. Such cases should be repunctured and fluid and air allowed to escape. If this view be correct small quantities of air should be much less dangerous than large, although it is certain that large quantities have sometimes been used by surgeons without ill result.

In conclusion, we may say that the method is one which shows promise of considerable value, and is, I think, worthy of very serious consideration. But it is more likely to be retarded than helped by indiscriminate enthusiasm. It should only be employed after the most meticulous clinical examination has failed to make quite certain the exact position of the tumour, and in view of the difficulties of interpretation sometimes encountered I should trust neurological signs rather than the x ray when the two are at variance.

DISCUSSION.

Mr. Percy Sargent (London) said that his own experience of a few trials led him to think that the principal difficulty lay in the interpretation of the radiograms. The method was not free from danger and was difficult. But while this was true we had no right to dismiss the matter altogether from amongst the means of diagnosis. He would be sorry to accept the figures that only 50 per cent. of brain tumours were localized by the neurologists. His experience was that the proportion was very much higher. He took the opportunity of mentioning to the Section a method of localization of tumours of the spinal cord by injection of a substance known as lipiodol followed by x-ray photographs. (See Journal, August 4th, p. 174.)

SECTION OF ANAESTHETICS.

William Joseph Essery, C.V.O., M.B., President.

ANAESTHESIA FOR CHILDREN.

BY

HAROLD SINGTON, M.D., M.R.C.S., L.R.C.P.,

Senior Anaesthetist, Hospital for Children, Great Ormond Street.

I should like to preface my remarks by expressing the gratitude I feel to all my colleagues at the Hospital for Sick Children, Great Ormond Street, to whom I owe so much, for the advice and assistance they give so willingly to the anaesthetists. No one realizes more than the surgeon to what an extent successful surgical procedure is dependent on the choice and administration of the anaesthetic, and at Great Ormond Street the happy relationship that exists between the operator and the anaesthetist has always been a large factor in the advance that has been made in our art.

I shall endeavour to deal with such points especially as may be of value to the anaesthetist who does not limit his practice to this specialty only, and have thought it would be best to review the whole procedure of the anaesthetist from the time that an operation is suggested for the child down to the time when he or she regains consciousness, when the anaesthetic has been eliminated by the usual channels, and when all danger from the anaesthetic point of view has ceased: and, while reviewing this procedure, to lay stress on those practical points which the experience of years has shown to be of the utmost value and which I particularly wish to emphasize. This course will naturally lead to:

(*a*) The consideration of the preparation of the patient.
(*b*) The choice of the anaesthetic to be used.
(*c*) A few points on the administration of the "anaesthetic of choice."
(*d*) Some suggestions for making the recovery as free from discomfort as possible.

Preparation of the Child.

Primarily one must lay the greatest stress on the fact that anaesthesia can be induced only by putting into a patient, in one form or another, a drug which at all times is a poison, the toxicity of which has always the latent possibility of doing considerable damage and even of producing a fatal issue. So we must keep in mind that the function of the anaesthetist is not only to render the child unconscious and impervious to pain in such a manner as to allow a surgical procedure to take place without injury to the central nervous system, but that it should be done in such a manner as not to cause undue toxicity to the system. To ensure this we have to take care that the general condition of the child is such that he is in the best possible state to "take" the anaesthetic.

We all know that disease in the child is a thing apart. Pathological stimuli produce modified results as compared with the adult. For example, infection with pneumococci in the adult will produce a lobar pneumonia, whereas in the child the septicaemic aspect is more likely to predominate, with multiple lesions in various organs, joints, peritoneum, etc. In other words, the effects of disease or poison are profoundly modified by the nature of the growing tissues; and the point for us to remember at the moment is true of the stimuli of anaesthetics. The child is a more delicate organism than the adult, and the growing tissues are more susceptible to the profound intoxication of anaesthetics as well as other poisons. So we, as anaesthetists, must take every precaution to prevent the presence of any degree of avoidable toxicity in the child before we attempt to give an anaesthetic—which is itself a poison.

For example, the patient's resistance must not be reduced by the administration of aperients or purgatives—for what could be worse than to introduce a poison into a system already weakened by frequent actions of the bowels, or to add the poisons due to absorption from liquid faeces in the intestines and colon to those which the anaesthetist proposes to administer. Therefore do not continue that ancient fetish of purging your patient before operation. Even in an operation where it is essential that the pelvic colon should be empty, still insist that an aperient should be withheld. A rectal washout is all that will be necessary to enable the surgeon to perform his operation, and I have yet to hear an operator make the complaint that the rectum is full and hinders his manipulations.

The presence of poisons already existing in the child may be further detected by examination of the urine, so that it is of the greatest importance that the urine should be examined completely in every case, no matter how trivial the proposed operation may be. The points which indicate the presence of a poison, and which are to be noted, are the following.

1. *Carboluria.*

This is by no means uncommon. It is, of course, due to absorption of carbolic acid through the skin, and occurs in those cases where carbolic fomentations, or even cold compresses of a weak solution of this antiseptic, have been applied. When absorption has taken place the urine has a most distinctive appearance. When first voided it will probably be greenish in hue. On standing it darkens and eventually may become black, due to oxidation of hydrochinon, a derivative of phenol. When carboluria is present the anaesthetic must be postponed.

2. *Acetonuria.*

This is of such vast importance that I intend to deal with it in detail—its cause, the history of the discovery concerning its intimate relations to anaesthesia, and the means to avoid it. It is such a danger signal that in every case when acetonuria is detected medical treatment

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday; and lengthy documents on Monday.*

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

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1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"S. N. B." asks for references to clinical articles dealing with intravascular streptococcal haemolysis.

TINTED LENSES FOR CATARACT.

"E. E. M." (Bournemouth) writes: By the "colour therapy" of cataract E. H. W. (October 20th, p. 737) may perhaps mean the provision of tinted lenses with a view to the exclusion of ultra-violet light. The comfort often experienced by cataract patients from tinted spectacles has been known to ophthalmic surgeons longer than I can tell, but the scientific basis for the prescription of Fieuzal or Crookes's glass has only been discovered in comparatively recent years. In America Dr. W. S. Burge and Dr. A. S. Neill published in 1915 some remarkable experiments with ultra-violet light, proving that the normal lens is, by virtue of its fluorescence, resistant to its ill effects. Healthy eyes therefore need no protection from ordinary daylight. When, however, a lens is immersed in a dilute solution of a calcium, sodium, or magnesium salt (all three of which are contained in excess by cataractous lenses) or of dextrose the natural fluorescence is reduced and the lens can no longer resist the opacifying effect of ultra-violet light. The conclusion is obvious that besides medical treatment directed to correct the constitution and increase the health of the lens some variety of anti-actinic glass should be worn, at least out of doors, in cases of early cataract.

INCOME TAX.

Deduction for Rent, Rates, etc.

"A. H. L. T." is assessed in respect of a practice in the West End of London, and has been informed by the local inspector of taxes that the deduction in respect of rent, rates, lighting, etc., which has hitherto been on a basis of two-thirds, will be reduced to the basis of one-half.

*** Whether the alteration is justified depends on the exact facts of the case. Where the premises used for the practice are in such localities that exceptional rents have to be paid, an abnormally high proportion is justified—in Harley Street, to take an extreme case. Perhaps the best way of approaching the question is to consider whether the remainder (one-third or one-half, as the case may be) of the rent, rates, etc., fairly represents the value of the private residential portion of the premises. The £4 legal expenses is not allowable if, as we assume, they were incurred in the initial hiring of the garage by "A. H. L. T."

Partnership Receipts.

"D. D."—A took B into partnership as from October 1st, 1922, on a one-third basis, which was increased to one-half as from January 1st, 1923. On October 1st, 1923, A retired and B succeeded to the whole practice. Each partner provided his own means of locomotion at his own expense. How should they divide the tax payable for the year ending April 5th, 1924?

*** A is liable on the basis of one-quarter of the gross average profits less one-half of a year's expenses of his own locomotion—less, of course, the personal allowances applicable thereto; and B is liable on the balance of the gross assessment less *his* personal allowances.

Motor Car Transactions.

"C. F. R." bought a second-hand T. car in 1917 for £150; he sold it in 1923 for £85, buying a new B. car for £340. What allowance is due?

*** The cost of *replacement* is the 1923 cost of a T. car of similar power and condition to the one purchased in 1917 (clearly a difficult matter to estimate), less the £85 received. To allow £340 − £85 would involve allowing an outlay on *improved* equipment. The inspector offers an allowance of £260, which would be right on the assumption that a similar second-hand T. car would cost £260 + £85 = £345—that is, more than twice the 1917 cost. We advise "C. F. R." to accept the offer.

LETTERS, NOTES, ETC.

UNITED HOSPITALS WINTER SPORTS CLUB.

DR. J. DUNCAN LYLE, Maidenhead (Honorary Secretary of the United Hospitals Winter Sports Club), writes: I trust that you will assist me to bring this club to the notice of your readers. The club was founded to encourage winter sports amongst past and present students of all recognized medical schools in the United Kingdom. As the Grand Hotel, Griesalp, Bernese Oberland, was considered a success last season, it has been decided to make this the club hotel for 1923–24. Our President, Lord Dawson, has very kindly consented to give a trophy for a ski race at Griesalp between January 6th and 13th. Particulars can be obtained from the manager of the hotel.

HERPES, VARICELLA, AND "W. G."

DR. B. H. PAIN (Southborough, Kent) writes: I have a patient, a finely built man, aged 76, suffering from herpes zoster and also a mild attack of varicella. The herpes is all down the course of the great sciatic nerve and its branches, there being nine distinct patches of herpes: on the buttock, back of thigh, outside of leg and ankle, and a patch on the dorsum of the foot. He has had much pain down the leg, both before the herpes developed and after. When I first saw him the herpes was present and he had one typical varicella vesicle on the chest; I remarked at the time that if there had been half a dozen more vesicles like that I should call it shingles and chicken-pox. Some sixty or seventy vesicles have since appeared, and are now becoming covered with typical black scabs. Dr. Galbraith, M.O.H. for Tonbridge, saw this case with me, and agrees with the diagnosis. My patient was greatly indignant at the idea of chicken-pox, and said it was a *ridiculous suggestion*, so I was glad to be able to show him this week's JOURNAL, where Dr. C. H. Sedgwick relates a case of chicken-pox following herpes.

Strangely enough, he was very interested in "E. K.'s" query on the same page, asking if Dr. W. G. Grace, the cricketer, had "only one lung," for my patient had played for Gloucestershire (he thinks it was in 1877) with "W. G.", and when he read the query in the BRITISH MEDICAL JOURNAL he said, "I never heard Grace had only one lung. All I know is, he could 'roar like a bull.'" This I can corroborate, for when I saw "W. G." playing at Tonbridge against Kent more than thirty years ago, I remembered his voice could easily be heard all over the ground. In my experience people with "one lung" do not, as a rule, have powerful voices, even when their disease is arrested.

DR. A. LYNN HEARD (Bexley, Kent) writes: For long I could not understand the apparently epidemic occurrence of herpes zoster until Dr. Lefeuvre of Knysna, Cape Colony, called my attention some years ago to the connexion between it and varicella. The following cases have absolutely convinced me of the identity of the two diseases:

1. An only child had chicken-pox and was not isolated. Shortly afterwards her grandfather, living in the house, developed slight herpes in the left subclavicular region.
2. A lady and her daughter were for three months at a small Welsh watering place. The child arrived home with a rash. I saw her next day with well marked chicken-pox; no cases were known to have occurred in the watering-place and they had met but few people. Following up Dr. Lefeuvre's theory I asked the mother if she had had a rash and was told she had had a slight one a few weeks previously. Only by insistence did she let me see her back, as she assured me it was nothing. I found the undoubted remains of a mild herpetic rash under the left scapula.
3. An elderly gentleman developed severe herpes on the trunk on December 19th, 1921, as the result of visiting a friend so suffering. A small grandchild, aged 2, was staying in the house at the time. I foretold that in a fortnight it would develop chicken-pox, which duly came to pass on January 1st, 1922.
4. A lady had herpes of the perineum and pudenda and I said her child would have chicken-pox in a fortnight, which was likewise verified.

It is quite evident that the infection is one and the same—appearing usually as varicella in younger and herpes zoster in older subjects—both varieties being infectious. The fact that herpetic cases usually occur singly in households is no doubt generally due to the other members having had chicken-pox in early life.

A DISCLAIMER.

DR. H. L. WARREN WOODROFFE (Chester) writes: In the issue of the *Chester Observer* dated October 13th there appeared a letter entitled "Appreciation of the Infirmary," in which my name was mentioned. I wish to state that the letter was published without my knowledge or sanction.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 34, 35, and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 36 and 37.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 208.

remember that the best extinguisher is sand. He must not hesitate to puncture that sand-bag which the surgeon is going to use and scatter the sand over the flames! But I hope you will never see this really alarming danger.

Ether is the ideal anaesthetic for the operation for complete removal of tonsils and adenoids. No chloroform should be used. After the child has been deeply anaesthetized by the open method, anaesthesia is easily maintained by means of pumping air, or passing oxygen, through a Woolf's bottle containing ether. This method has reduced the anxiety of the anaesthetist to a minimum. As this is the operation most frequently performed upon children, I must not omit to mention it and most strongly urge the use of this method. Ethanesal seems to cause less salivation than other ethers, and I can recommend it for this particular operation.

The operation for which gas and oxygen is a peculiarly well suited anaesthetic is that for congenital hypertrophic stenosis of the pylorus. This baby is emphatically a starved infant, and his liver must obviously be predisposed to anaesthetic injury. Certain of our early cases died, twenty-four to forty-eight hours after operation, with vomiting and collapse, and, *post mortem*, extensive fatty degeneration of the liver was found. Now the Rammstedt operation lasts only from five to ten minutes, so that the amount of anaesthetic absorbed must be very minute, but such is the delicacy of these starved infants that it was apparently sufficient irretrievably to damage their liver and to determine a fatal result. These operations have been performed with a far greater degree of success when gas and oxygen have been administered. Operations for intussusception also seem to do best under gas and oxygen. In the following tables I have summarized the results of all the operations for these two conditions which have been performed at the Great Ormond Street Hospital during the last four years, 1919 to 1922 inclusive, stating the anaesthetic administered.

Congenital Pyloric Stenosis.

Anaesthetic.	No. of Cases.	Deaths within 24 hours.		Deaths within 48 hours.	
		Cases.	Per cent	Cases.	Per cent.
Chloroform and ether, or ether	35	6	17.1	9	25.7
Gas and oxygen	43	5	11.6	5	11.6
Local	10	2	20.0	4	40.0
Local + ether	3	0	—	1	33.3
Local + gas and oxygen	1	0	—	0	—
Spinal	1	1	100.0	1	100.0

Intussusception.

Anaesthetic.	No. of Cases.	Deaths within 24 hours.		Deaths within 48 hours.	
		Cases.	Per cent.	Cases.	Per cent.
Chloroform and ether, or ether	54	16	29.5	17	31.5
Gas and oxygen	25	5	20.0	5	20.0
Spinal	2	2	100.0	2	100.0
Spinal + ether	1	0	—	0	—
Local	1	0	—	0	—

These tables certainly point to the advantage to be gained by administering gas and oxygen, and I am inclined to consider it the best anaesthetic for these cases. At present one cannot be more didactic on the subject of gas and oxygen, but perhaps at a later date a more definite statement may be made as to the use of this anaesthetic in a wider field.

Ethyl chloride is a particularly useful anaesthetic for dental extractions in children, and I say without hesitation it is always the "anaesthetic of choice" when several teeth have to be dealt with. The only qualification I have to make concerning its use is that, owing to the muscular spasm which it causes, there may be a little difficulty in holding the jaw forward. This difficulty is easily overcome; but it is of the utmost importance that a free airway should be maintained, and any anxiety that the use of ethyl chloride may have caused has been invariably due to an insufficient intake of oxygen. My experience in many thousand administrations without the least anxiety enables me to make this statement with confidence.

The embryonic state of the central nervous system in early life renders it possible for operation to take place without an anaesthetic if the tissue involved is also insensible; and I refer to the practicability of the rapid circumcision in the first two or three weeks of life. But such a procedure is possible only during that short period. The central nervous system develops rapidly in the early months, and, apart from the minor procedure referred to, the practice is to be deprecated.

Administration of the Anaesthetic.

No severe shock or strain to the central nervous system of a child should be lightly undertaken. Our art should ever be gentle and human; our aim with all our patients should be to make their memories of operations and similar awesome procedures as pleasant as possible. Some degree of apprehension unfortunately is a necessary preliminary to operations; and this exists in the child's mind too, often at a surprisingly early age. In the child, happily, it is usually a simple fear of pain, and the feeling is usually allayed by means of tact and that quality which can only be described as "child understanding." We all know what splendid patients children make so long as they approve of us, and so long as they are not asked to suffer discomfort unreasonably. Always explain. Never deceive.

It has been my unfortunate lot to see many children who have suffered severe shocks from the terror due to a rough administration of an anaesthetic, or to an operation performed under "deceptive persuasions" rather than a properly administered anaesthetic. I verily believe that many of those children will have suffered permanent nervous damage, and certainly they will never again trust anyone approximately resembling a doctor. The blessed gift of unconsciousness should never be needlessly withheld from any of our patients. "But," you will say, "there is considerable nervous shock involved in the reception of an anaesthetic." True; but I want to try to make a few suggestions which will enable you, with tact and skill, to reduce that unpleasantness to a minimum. Gentleness and understanding are the most necessary of all the possessions of a children's anaesthetist. A small child, unless frightened, is a most reasonable individual, and will accept and appreciate suitably worded explanations of the funny things that are about to be done to him. He should not have the initial fright, when entering the room or theatre, of seeing the surgeon's instruments exposed on his table. And I must here warn you against acceding to the oft-expressed wish of the fond parents, "Oh, *do* give the anaesthetic to the child in bed, and carry him to the operating room when he is under." It is a most dangerous proceeding, and should be strenuously avoided.

Do not have the child in the room until the surgeon's instruments are ready and all is prepared for the operation to begin. Let the surgeon do the waiting. But do not risk the chance of having the child at that stage of anaesthesia when the surgeon may start, only to find that a delay occurs, and consequently the child has to have more anaesthetic than is absolutely necessary.

When you have helped the child into the required position, coax him, do not force him, under. Explain what you want him to do—namely, to "blow." There are many little ideas which will encourage him; a balloon exhibited, which he may be told can be blown bigger, may persuade him to blow more vigorously. And let him know that by his effort of blowing he will blow the nasty stuff away; for while concentrating on his effort to blow the inspiratory action will pass unnoticed so long as the ether is slowly administered. Put five to ten drops of essence of orange on the facepiece, covered with twelve to sixteen layers of gauze, and tell him it smells of oranges. This essence of orange is made with alcohol, and in half a dozen breaths

juice contains altered blood, but the duodenal fluid is golden yellow, gastric ulcer is indicated; if, however, the gastric juice remains clear, while aspiration of the duodenal fluid yields blood, duodenal ulcer is probable; duodenal cancer causes prolonged bleeding. Einhorn's method may disclose occult blood, when the examination of the faeces is negative or the presence of haemorrhoids renders examination useless. Bacteriological examination of the fluid is important. Normally, and also in hyperchlorhydria, the duodenal fluid is sterile; when the HCl content of the gastric juice is considerably reduced *B. coli*, staphylococci, *Streptococcus faecalis*, *B. proteus*, etc., may be found. In diseases of the biliary passages bacteria may be found in the duodenum, however acid the gastric juice may be. Einhorn's tube may be used for filling the duodenum with barium in suspension in cases of pyloric spasm or obstruction. Einhorn has also treated 315 cases of gastro-duodenal ulcer by passing food directly into the duodenum; the tube remained *in situ* for fifteen to twenty days.

Surgery.

299. Narcosis for Operations on Infants.

P. DREVERMANN (*Muench. med. Woch.*, September 7th, 1923, p. 1153) points out the risks of the usual anaesthetics in infancy, when operations are necessary. He has therefore employed instead hedonal (methyl-propyl-carbinol-urethane) as a narcotic. The drug is given by rectal injection: deep sleep occurs, the respiratory volume is increased, and no bad effects follow. This deep sleep does not cause complete insensibility to pain, as do the usual anaesthetics; but the signs of pain were slight, and the younger the infant the less the signs of pain. The younger children showed signs of pain only for a moment and then slept again. The author has performed many operations during hedonal narcosis. In infants under 3 months, 0.75 to 1 gram of hedonal was given as a rectal injection; in children up to 18 months the dose was 1 to 1.5 gram by rectum. The drug was given in 30 c.cm. of oatmeal water, and it is important that it should be well mixed with this fluid. The rectum should be washed out before the injection is given, and the nates pressed together for ten minutes afterwards, to prevent the injection fluid escaping. The sleep is deepest in an hour and a half. At this time the operation should be performed. The author divides his cases into two groups: (1) the youngest infants under 7 weeks old; (2) older children up to 18 months. In the first group operations (such as those for hernia, laparotomy, etc.) can be carried out in the hedonal sleep, and the risks of anaesthetics are thereby avoided. In the second group the hedonal alone was not sufficient; but if combined with an injection of novocain and adrenaline, as a local anaesthetic, operations could then be carried out. The author performs all operations in the first eighteen months of life without inhalation anaesthetics; he recommends hedonal narcosis for infants (especially very weak infants) in the first few weeks of life; and for older children a combination of hedonal narcosis with local novocain and adrenaline analgesia.

300. Periarterial Sympathectomy.

H. ELVING (*Finska Läkaresallskapets Handlingar*, July–August, 1923, p. 422) has performed this comparatively simple operation in twelve cases. It consists of stripping off a short section of the outer covering of the femoral or brachial artery in such a way that a complete circuit of the adventitia, with its network of sympathetic nerves, is removed. It is not sufficient simply to loosen the adventitia from the artery; the whole of the outer covering of the artery must be removed in order that a complete block may be effected in the sympathetic chain. The rationale of this operation depends on the theory that vasomotor-trophic disturbances in the limbs following an injury may be maintained by centrifugal reflexes, conducted by the periarterial network of the sympathetic nerves. These reflexes are supposed to give rise to angiospasm at the site of the injury. These harmful reflexes may be broken either by periarterial sympathectomy or by excision of nerve endings at the site of injury. It has been assumed that the beneficial effects of periarterial sympathectomy are due to the hyperaemia which follows, the harmful influence of an excessive vaso-constrictor action being overcome. In one of the author's cases there was a neurotrophic ulcer below the external malleolus. Sensation in the neighbourhood of this ulcer was diminished, and the foot was colder than its fellow. Four days after the operation there were definite signs of healing, and this was complete within three weeks. Examination of the capillaries near the toe-nails showed definite evidence of improvement in the circulation, and the limb was warmer than before. The other cases operated on represented a mixed assortment of morbid conditions such as arterio-sclerosis, senile and diabetic gangrene, endarteritis obliterans, and other conditions. The results in many of these cases were disappointing, and it would seem that the sphere of usefulness of this operation is limited. But within strict limits the author thinks the operation may be of value.

301. Late Results of Tuberculosis of the Kidneys.

R. BULL (*Norsk Mag. f. Laegevidenskaben*, May, 1923, p. 449) has traced the 24 cases of renal tuberculosis treated at his hospital in the period 1900–21. Twelve pages are devoted to a tabulation of the data collected, and the rule is stressed that while bilateral renal tuberculosis may exist for years and be punctuated by remissions and apparent cures, it seldom, if ever, terminates in complete recovery. In this class there were two cases of particular interest. One of the patients was a woman who, in spite of bilateral renal tuberculosis and no special treatment, improved rapidly and steadily, and was found to be clinically symptom-free at the last examination, five and a half years after discharge from hospital. In the second case there was no doubt about the disease being bilateral, yet the patient still felt perfectly well four and a half years after discharge. He had to micturate only three or four times during the day and never at night. He could still perform most laborious work without the slightest symptoms being provoked. The urine contained no albumin and only a trace of pus. In spite of such cases the author insists on nephrectomy whenever the disease is unilateral.

302. Post-typhoid Osteitis of the Radius.

MASSABUAU, GUIBAL, and MARICAN (*Bull. Soc. des Sci. Méd. de Montpellier*, June, 1923, p. 369) record the case of a child, aged 9 years, who gave a history of an attack of typhoid fever two years previously. She was now admitted to hospital with a painful swelling of the right wrist. The swelling, which surrounded the lower end of the radius, had only been present for two months, although the wrist had been painful since her convalescence. The swelling was about the size of a walnut, did not show the signs of acute inflammation, and fluctuation could be elicited without causing pain. Movements at the wrist-joint were free and painless, but pronation and supination were somewhat limited. Radiograms showed a marked thickening of the lower end of the radius surrounding a central cavity in the bone. A Widal reaction was negative, likewise a blood culture gave negative results. At the operation a small collection of pus was found under the periosteum of the radius, whilst an irregular cavity was found in the centre of the bone. This was curetted out and the wound healed satisfactorily. Examination and culture of this pus proved negative. The appearance of lesions of the bone of this nature is not uncommon after typhoid fever; they usually take on a simple form such as an "abscess of the bone" rather than a true osteomyelitis. Surgical treatment is always necessary for these cases.

303. The Diagnosis of Carcinomatous Metastases in the Bones.

E. HANHART (*Schweiz. med. Woch.*, June 28th, 1923, p. 619) has investigated the 30 cases of carcinomatous metastases in bones treated in the hospitals of Zürich within only a two-year period. In nearly all these cases the wrong diagnosis had been made by the practitioners sending the patients to hospital, and in 8 cases sciatica had been diagnosed. Spinal syphilis, tabes, a tumour of the cerebrum, meningitis, alcoholic or tuberculous neuritis, coxitis, and arthritis deformans were some of the mistaken diagnoses. The chief reason why these mistakes were made was because the mere possibility of malignant metastases in the bones was not entertained. In as many as eighteen cases the primary tumour was situated in the breast, and the author insists that if there is a history of a tumour of the breast having been removed the practitioner will seldom be wrong if he associates this event with the subsequent development of pain in the bones, bilateral sciatica, deformities, spontaneous fractures, and segmental paralysis. The interval between the development of the primary and the secondary growths may be considerable, and in 3 of the author's cases it was five, nine, and nineteen years respectively. There is no disease which is more painful and distressing, and in several of the author's cases diagnostic mistakes and ill chosen treatment had added to the patients' misery. A combination of the most complicated and technical diagnostic methods may yield less information than a careful clinical examination by a practitioner who remembers that secondary carcinomatous growths in the bones are quite common.

tatistics to-day, I decided that it would be more expedient o leave figures alone and to treat the subject from a linical point of view, and in my remarks I shall endeavour o deal especially with points having a direct bearing on ome of the reports kindly sent to me in private correpondence.

During the past fifteen years so much progress has been nade in the science and art of anaesthesia, especially n the direction of safety, that we may well feel encourged to make further efforts in this matter, and the chance f success must be greatly enhanced by the keen interest vhich the general practitioner is taking in the specialty. t seems reasonable to hope that co-operation amongst nembers of the profession may, before long, result in a eduction of the total number of these fatalities reported nnually by the Registrar-General. For some years this igure has remained almost stationary, although there ias been an enormous increase in the number and severity of operations performed annually, and in spite of the fact hat old age or feebleness is not allowed to stand in the urgeon's way to the same extent as formerly. In fact, the urgical burdens, if I may use the phrase, which patients are nowadays expected to bear are often so heavy that vithout improved anaesthesia the mortality would have risen much higher than is the case. If we try to determine n what direction further improvement is most likely to occur, we are handicapped by the lack of detail in the reports of coroners' inquests, and in the usual statistical tables, but with the help of practical knowledge we may, I think, arrive at many useful conclusions.

We may classify anaesthetic deaths according to the time at which they occur—that is, whether before, during, or after operation.

We have, then, in the first group, fatalities caused by the anaesthetic without the complication of other factors such as shock or haemorrhage. A large majority of these cases are associated with the use of chloroform for inducing anaesthesia, and have practically disappeared in those clinics which have adopted the principle of avoiding this drug entirely during induction, or at any rate during the stage of excitement. It seems only reasonable to expect that before very long all administrators will follow this routine and thus rob chloroform of something like 50 per cent. of its immediate danger. The method of using chloroform at the very commencement, and changing to ether before the onset of struggling, imposes certain responsibilities upon the administrator. In the first place, he must be prepared for the very insidious onset of this second stage, which may be indicated only by a slight alteration in the respiratory rhythm or volume, and may be easily overlooked amidst noisy or distracting surroundings. In the second place, it may require considerable determination on his part to resist the temptation to use a little chloroform in order to overcome troublesome spasm, and this temptation is apt to be increased when there is need to hurry. Induction by chloroform is apt to be followed very quickly by a stage of marked muscular relaxation, during which moving the patient from one table to another may give rise—and often has given rise—to fatal syncope.

In consequence of these difficulties we must regard the practice of inducing with chloroform as too dangerous for routine work. In looking for an alternative method of commencing the induction we are apt to forget that ether alone is not intolerable when administered sufficiently slowly, and that ethyl chloride and nitrous oxide are available not only in closed methods; they can be used with the open mask, ethyl chloride being sprayed on, or nitrous oxide being run underneath it.

Our second group of cases—namely, those occurring during the course of operation—is difficult to analyse, consisting as it does of a veritable fabric of factors and a riddle of responsibilities. Fortunately the co-operation between surgeons and anaesthetists is well established and shows signs of vigorous growth, with the result that the patient's power of resistance is seldom overtaxed nowadays. There must always be some difficulty in determining the proportion of blame due respectively to surgeon and to anaesthetist. Take, for example, an instance where shock develops after prolonged and continuous manipulation of intestine, or traction on the mesentery; it is probably true that if the manipulations had been interrupted by pauses for "rest" shock might have been avoided, but the blame for this should be laid at the door of the anaesthetist, provided he has omitted to warn the surgeon that a rest was indicated. Take, as another example, an instance where too tight packing of the abdomen during operation has led to shock or post-operative distension: the surgeon may argue, with some justification, that such excessive packing was rendered necessary by insufficient relaxation, but the anaesthetist may feel tempted to retort that relaxation could have been procured locally by the injection of novocain more safely than by a further saturation of the patient with the toxic anaesthetic. This question of combining local with general anaesthesia is one which needs investigating and calls for close co-operation between workers; a complete understanding on this point might, on occasion, avert disaster.

When a patient, already moribund from illness or disease, dies during operation, it is misleading to attribute death to anaesthesia; it is due to natural causes or perhaps to surgery.

While it is difficult to fix the blame for accidents arising in the second group of cases, it is wellnigh impossible to do so in connexion with the third category, which comprises deaths resulting from sequelae. It is important that the anaesthetist should be notified of any untoward symptom which could possibly be attributed to his administrations, otherwise he will have lost what might have proved a valuable lesson; nor is it reasonable to expect the surgeon to view these complications from the anaesthetist's standpoint. For example, collapse and severe fall of blood pressure will suggest to the former that his operation was too exhausting, whereas to the latter it will probably indicate that saline ought to have been administered more freely, that more frequent halts should have been called during the operation, or that some form of local analgesia might have been employed in conjunction with the general anaesthetic. Again, in the event of chest trouble developing after operation, the surgeon is apt to blame ether when possibly some other factor, such as tight bandaging or strapping restricting the movements of respiration, has been the real cause.

There are many instances of this type which may occur to you, where the factors concerned are so numerous as to make it hard to say in what direction our technique requires revision. It is when these complications are met with that the surgeon may, with the best of intentions, demand some change of method which will lessen risk in one direction but which may increase it in another. I hope we shall soon see every case of sequela made the subject of consultation between surgeon and anaesthetist.

The prevalence of deaths due to chest complications may be increased by our natural inclination to avoid, at all costs, the tragedy of a death on the table; the method which is the safest during operation may be the most dangerous in the long run. Take, for instance, the case of an elderly patient with bronchitis on whom herniotomy is to be performed; he could probably be brought through safely with closed ether, but he would run a grave risk of an acute exacerbation of his lung condition. It is probably sounder to judge of an anaesthetist's capability by his skill in avoiding post-operative fatalities than by his success at the time of operation.

It is evident, then, that the course of progress is not quite so free from "snags" as it may appear to be at first sight, and that some careful navigation is necessary at the point where we find ourselves to-day. As one of the most difficult "snags" we have to negotiate I may mention education. The post-graduate cannot learn much from occasional lectures, and the student is required to devote only a small amount of practical study to the subject of anaesthetics; this, however, is an advance on the conditions obtaining twenty years ago, when it was not uncommon for a newly qualified man with no previous experience to be called upon to give the anaesthetics for the day in his hospital with no one to guide him but the operating surgeon.

310. Treatment of Febrile Abortions.

DUBROWITSCH (*Zent. für Gyn.*, August 18th, 1923, p. 1327) gives statistics of 445 cases of febrile abortions treated in the maternity clinic at Giessen during the years 1912-23. Of these, 265 cases were actively treated when the temperature was raised, 89 cases were treated absolutely conservatively, and 91 cases had expectant treatment, the uterus being cleared out several days after the fall of the temperature. It was found that the mortality was greatest in the cases that had received active treatment and the morbidity was least in the cases treated expectantly, whereas the morbidity was much the highest in the cases treated purely by conservative methods. The author comes to the following conclusions, derived from his series of cases: (1) Active treatment of febrile abortions is not so satisfactory as the expectant treatment. (2) There seems to be no connexion between the mortality figures and the height of the temperature at the time of delivery. (3) The manner of clearing out the uterus, whether by the finger, blunt curette, or ordinary curette, hardly influences the mortality at all. (4) Abortions which have had to be cleared out are more unfavourable than those that come away without interference. (5) The mortality is highest in criminal abortions. (6) The higher the temperature rises the more likely is morbidity to ensue. (7) The greater the interval between the fall of temperature and the clearing out of the uterus the less the morbidity. (8) Morbidity is least in natural abortions, higher in examined cases and in those operated upon, and highest in criminal abortions.

311. Syphilis of the Corpus Uteri.

ACCORDING to B. PORTIS (*Surg., Gynecol., and Obstet.*, July, 1923, p. 37), syphilis of the body of the uterus is rare, and many of the non-gummatous lesions which have been reported rest on insufficient evidence. Among the tertiary lesions which have been described are (1) syphilitic arteritis, which is associated clinically with increased haemorrhage rather than with modification of the shape or size of the uterus; (2) sclerosis of the myometrium, which may be associated with some hypertrophy; (3) atrophy of both the myometrium and endometrium, so that the uterus becomes very small and hard; (4) gummata which are frequently associated with much hyperplasia and sclerosis. A case is reported by the author in which the *Treponema pallidum* was demonstrated between the muscle bundles of the corpus uteri, and in which affection of the uterus occurred at a comparatively early stage, as shown both by the cellular character of the inflammatory reaction and by the development of typical secondary cutaneous syphilides seven weeks after the onset of the first local symptoms. The patient, who was 38 years old and had had eleven children and no miscarriages, complained of irregular bleeding; the cervix was indurated, thickened, and ulcerated behind. Both broad ligaments were somewhat indurated and contained small irregular palpable masses; a clinical diagnosis of carcinoma cervicis having been made panhysterectomy was done. The treponema was found not only in the body of the uterus but also throughout the cervix, which had probably been the site of the primary lesion, and in a corpus luteum and the surrounding ovarian stroma.

Pathology.

312. Failure of Peptone to Protect against Anaphylactic Shock.

CONSIDERABLE success has been claimed in recent years for the use of peptone in allergic conditions such as urticaria and bronchial asthma. To test its value N. P. LARSEN, A. V. R. HAIGH, H. L. ALEXANDER, and R. PADDOCK (*Journ. of Immunology*, September, 1923, p. 409) performed several experiments on guinea-pigs which had been previously sensitized to egg white. One c.cm. of a 1 in 2 emulsion of egg-white was injected intracardially into a series of 25 guinea-pigs; twelve days later 0.5 c.cm. of a 5 per cent. suspension of peptone in saline was injected in the same manner, followed thirty minutes after by 0.2 c.cm. of the egg-white emulsion. The results showed that the percentage of deaths amongst the animals was higher than that occurring in 16 control animals which had received no protective dose of peptone. In another series five doses of peptone were administered in between the sensitizing and the dechaining doses of egg-white; the results here corresponded to those obtained in the control experiment. They then worked out the effect produced by adding peptone to a bath in which strips of sensitized guinea-pigs' uteri were suspended, and found that not until the concentration of the peptone in the bath reached a figure of about 1 in 500 was the contraction caused by the subsequent addition of egg-white prevented. Following up this work they treated nine patients suffering from bronchial asthma by intravenous injections of peptone; the results obtained did not impress them favourably.

313. Experimental Investigation of the Blood and Bile Channels of the Liver.

H. N. SEGALL (*Surg., Gyn., and Obstet.*, August, 1923, p. 152) describes an investigation he has carried out on the normal and abnormal distribution of the blood and bile channels in the liver. The technique adopted was that described by Gross, which consists in injecting an emulsion of barium sulphate in gelatin and making *x*-ray pictures of the injected vascular tree. A study of 55 livers was made, and it was shown that the intrahepatic branches of the hepatic artery are quite straight in the earlier decades of life, but become more tortuous with advancing age. The subcapsular arterial anastomoses and those in the tissues of the portal vein form the collateral circulation between the right and left branches of the hepatic artery. The course of collateral circulation between a patent and obstructed branch of the hepatic artery is from the collateral vessels into their larger parent vessels, thence to the main branch to the point of obstruction, and finally to the ramifications of the blocked artery. The hepatic veins form three groups. The central group receives a few small radicals from the gall bladder, the venous blood of which is mainly drained by the vena cystica. Arterial blood is absolutely essential to the nutrition of the liver substance. Complete obstruction of either branch of the hepatic artery does not affect the liver substance owing to the abundant anastomoses which afford efficient collateral circulation. Infarcts of the liver follow obliteration of those arteries which terminate without sending branches to the subcapsular anastomoses, and are therefore proper end arteries. It appears that in tracing the effect of ligation at various points along the hepatic artery, the nearer the ligation to the point of bifurcation the greater will be the danger of necrosis. The danger of necrosis in human subjects diminishes in ligation of single branches distal to the bifurcation.

314. The Adrenaline Test in Diseases of the Thyroid Gland.

H. VAQUEZ and C. DIMITRACOFF (*Arch. des Mal. du Coeur, des Vaisseaux et du Sang*, June, 1923, p. 414) refer to the excitant action of adrenaline on the sympathetic system—a hypodermic injection of 1 mg. in "sympathicotonic" cases produces tachycardia, tremors, sensations of cold or heat, emotional outbursts, rise of blood pressure, and sometimes glycosuria. Goetsch (*Baltimore*) has used adrenaline as a test for hyperthyroidism, and has shown that patients suffering from exophthalmic goitre react strongly; he concludes that this hypersensibility is proportional to the degree of hyperthyroidism. Others have confirmed his observations. Bloch states that the test is also positive in pregnancy, diabetes mellitus, and acute rheumatism. The authors state that while radiotherapy gives most satisfactory results in exophthalmic goitre there has hitherto been no satisfactory method of selecting cases, nor of testing the utility or the duration of treatment. Slowing of the pulse is insufficient for the purpose. Numerous records of the appearance of myxoedema have shown that radiotherapy has been carried too far. In nervous instability a negative Goetsch test is important—the treatment may do actual harm. The authors have used this test in 15 cases and describe their technique. They take the pulse and blood pressure (using a sphygmomanometer and the auscultatory method) before and every two or four minutes after the intramuscular adrenaline injection; the readings are charted and any subjective disturbances noted. The test is: (*a*) *Positive* when at least three phenomena are observed—(1) delayed tachycardia (that is, appearing about thirty minutes after injection); (2) rise of systolic blood pressure; (3) definite subjective disturbances—pallor, vertigo, palpitation, etc. (*b*) *Partially positive* when there is only slight rise of blood pressure and tachycardia—alone, or with more or less marked functional disturbance—appears. (*c*) *Negative* when there is no appreciable result. The authors classify their cases in three groups: *Group 1*, those with definite symptoms and positive reaction, indicating treatment; a subsequent test shows progress made and the period at which treatment should cease. *Group 2*, those cured or improved, but possibly showing, after an interval, some abnormal signs. The test indicates the degree of hyperthyroidism present and the need or otherwise for further treatment. *Group 3*, patients diagnosed clinically, but a negative test shows that radiotherapy would be useless or dangerous. Six typical charts are given with full details of each case. The authors conclude that the test is a true biological reaction which proves the existence or non-existence of hyperthyroidism, and is a valuable aid to prognosis.

two fingers being easily inserted into the rectum without causing any discomfort. There had been marked prolapse, and this was only slightly improved. His general condition was poor.

Perhaps the most striking case was one where the man had suffered for fifteen years, and it was with some difficulty that he was persuaded to submit to out-patient treatment as he was determined to have the operation performed. For some years he had been forced to wear a support to prevent prolapse of the rectum whilst walking. The mucous membrane was seen to be very markedly prolapsed and several piles were present, the anterior pile being the size of a walnut and the left lateral the size of a very large Brazil nut. The latter after two injections was completely thrombosed and the anterior after three injections. Prolapse soon disappeared, the anal orifice became normal, the sphincters regained their tone, and no stricture of the canal has developed.

Before subjecting a patient to this treatment he should be as thoroughly examined as if a major operation were to be performed. I would strongly insist on this, as the only death with which I am acquainted occurred in a case of advanced Bright's disease. Too much carbolic should not be injected—2 to 5 minims of the mixture is sufficient to inject into a pile at one time—and not more than three piles should be treated on any one occasion. If large amounts of carbolic are injected carboluria may result. Bright's disease, diabetes, pernicious anaemia, advanced cardiac disease, hemiplegia, and epilepsy are all contra-indications.

The advantages of the method are that it is almost painless—some nervous patients (especially women) complain of pain for some time afterwards, but this is very rarely severe; no anaesthetic is required; and the treatment can be carried through from beginning to end without the patient being incapacitated or his daily routine interfered with.

Since completing this series, I have tried the effect of injecting 30 per cent. sodium salicylate into piles. The results of the few cases (40) thus treated are as good as those treated with carbolic acid, but the pain immediately after injection is more severe and lasts longer.

HAEMOPHTHALMUS IN ASSOCIATION WITH TUBERCULOUS FOCI IN THE CHOROID.

BY

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It may be said that the diagnosis of tuberculous inflammation of the middle coat of the eye, assuredly a secondary infection, is a matter of more or less clinical probability. The family history and the personal history of the patient, together with the finding of a tuberculous lesion elsewhere and the exclusion of *Spirochaeta pallida* infection, form, as a rule, the basis of one's etiological belief. There is also that fallible but often trustworthy factor, clinical instinct. Not infrequently the primary focus remains undiscovered; and such aids as von Pirquet's skin reaction and Calmette's conjunctival reaction have not secured the allegiance of clinicians. A diagnostic help that may have unfavourable consequences in this relation is the hypodermic injection of Koch's old tuberculin. Its value is definite only if it be followed by the occurrence of irritation or an increase of irritation in the affected eye. But one cannot foresee how much irritation may arise, and it has happened that such an aggravation of the inflammation has been provoked that neither patient nor oculist was pleased with the mode of confirming the diagnosis.

Case I.

Miss T., aged 26, had noticed, one week before visiting me, that the left eye was blind. She had lighted a candle in a dark room and, upon turning sideways towards the light, thought it had gone out. She then faced the lighted candle and, by closing each eye in turn, found that the left one was blind. When I examined this eye its pupil was inactive to direct illumination, there was a floating opacity in the vitreous humour, and the disc, which was scarcely recognizable, seemed to be enveloped in a bulky oedema with a streak of haemorrhage on its surface. The floating opacity was situated in the centre of the vitreous and was so delimited as to allow of the red reflex being clearly seen all round it. The blood had been poured out into Cloquet's canal. Towards the nasal side of the disc was seen a patch of choroidal atrophy bordered by a line of dark pigment. The eye was blind. One month later I noted "floating opacities in the vitreous; pale disc indistinctly outlined; periphery of disc slightly prominent; arteries small." After five months the disc had the filled-in appearance, pale colour, and smudged edge of secondary optic atrophy. Immediately adjoining the lower border of the disc and spoiling its regular contour was a flat pale area about one-fourth of the disc's diameter in size. The right eye was normal.

Miss T.'s brother, aged 24, asked me to look at his right eye, which was not as good as the left. Below the right macular region were a sharply outlined, brilliantly white patch (almost as large as the disc) of choroidal atrophy and a tiny ill defined pale nodule alongside it. The visual acuity of this eye was 6/18; the other eye was normal.

Both brother and sister had always enjoyed good health. Miss T. declared herself to be somewhat run down, in consequence, she believed, of her nursing duties during her mother's last illness, which had terminated three months previously from heart failure. Their mother, over 70 at the time of her death, had suffered for years from a bronchial affection, which was said to be of a non-tuberculous nature. A sister of theirs, a child of 13, died of pulmonary tuberculosis.

Case II.

E. B., a robust young woman of 24, noticed, a few days before coming to hospital, that the vision of the right eye had become greatly impaired. With this eye only shadows could be seen. The vitreous contained a large felt-like mass, which effectively obscured all details of the fundus. It was thought that a dimly seen glistening streak might be a tear in the retina. The other eye was normal. A general examination failed to reveal anything amiss. A differential blood count presented the normal picture. Rest, avoidance of stooping, and 5 grains of calcium lactate daily made up the treatment.

Three years later the patient returned to hospital on account of a simple phlyctenular conjunctivitis.

After her last visit she had remained in bed for one year! The vision of the right eye was 6/12, and of the left one 6/12 (partly). Far forwards in the vitreous chambers were seen floating knots and threads. Each fundus exhibited, at the periphery, the albinotic appearance seen after atrophy of the retinal pigment layer. There was in the right eye a patch of choroidal atrophy, and in the left one a raised focus at the junction of the lower and nasal borders of the disc. Engorged vessels were arched over the prominence.

Very often one sees in chronic tuberculous choroiditis foci in different stages of evolution. Some of the foci will have become atrophic patches, others will be recent, showing ill defined edges and raised forms. In the first case some support was given to the diagnosis of tuberculosis by the family history and the examination of the brother's eye. Both patients gave a negative Wassermann reaction. The phlyctenular conjunctivitis of the second case was not, in a pathological sense, out of place. But perhaps it is best to say that the opinion of the nature of the cases is the result of cumulative clinical impressions.

APPENDICITIS AND INTUSSUSCEPTION IN A DOG.

LYMPHATICOSTOMY FOR SEPTIC PERITONITIS.

BY

JOHN D. MALCOLM, F.R.C.S.Edin.

The publication of the following story of the illness, death, and *post-mortem* examination of a puppy may be justified not only as a contribution to comparative medicine, but by the fact that the conditions found raise some interesting general questions.

A terrier, aged 8½ weeks, when seen on November 8th, 1922, was in a state of extreme emaciation with a poor appetite, and hardly any of the liveliness of a puppy. The bowels, which were at first relaxed, later became constipated. Castor oil caused vomiting and loose actions, but did not clear the intestine. There was no abdominal distension nor definite evidence of pain on manipulation. On November 15th and 16th hard masses were felt towards the pelvis. On November 17th an enema induced a discharge of faeces tinged with blood, and death occurred on that day.

Autopsy showed an intussusception involving the last twenty-four inches of the small gut. The peritoneal surfaces at the distal

and allowing the surgeon at any moment to estimate the actual state of affairs, its special suitability for use in the aged, its usefulness in cases where any increased turgescence of the respiratory tract is inadmissible, and its almost absolute safety when given through a laryngotomy or tracheotomy opening.

On account of its immediate dangers chloroform is absolutely inadmissible in infants and children in all circumstances; it should never be used for trivial operations, and what may be called casual anaesthetics; and it should not be used for robust and young or middle-aged adults unless called for by some very special indication.

On account of its liability to produce progressive metabolic disturbance of the delayed poisoning type, chloroform should never be used in young people suffering from acute or chronic infections, in patients suffering from malnutrition or starvation, or in diabetics.

On account of its relatively shallow anaesthesia and the liability of post-operative vomiting, when it occurs, to be persistent, chloroform is not usually admissible in serious abdominal work.

In my own practice chloroform is used in all mouth, jaw, larynx, and pharynx cases, almost invariably in combination with laryngotomy or tracheotomy. I have never seen the least cause for anxiety in a series of many hundreds of cases of this type after the windpipe has been opened, though I have known an unaccustomed anaesthetist to be a good deal disturbed by the periodic respiration with long apnoeic pauses that usually sets in in elderly patients after tracheal breathing has been established. Chloroform is also used for a large number of the brain and spine operations and for the radical operation for breast cancer. This last indication deserves perhaps a word of comment. The exaggerated breathing and excited circulation of ether anaesthesia make it especially ill suited for an operation which strips so large an area of the chest wall and divides so many veins that pierce it; moreover, the same effects of ether, while they add to the shock, disguise its onset. It is because chloroform so precisely avoids all these disadvantages that it seems decidedly to be preferred to ether in this operation.

Nitrous oxide is singular among the anaesthetics of this group in being incapable of producing an anaesthesia comparable in profundity with that of ether or chloroform. In my experience it is only in delicate or enfeebled patients that gas can be relied upon by itself to produce a steady and adequate anaesthesia. It will usually be necessary to supplement it by the local or regional anaesthetization of the part to be operated upon. The efficiency of the method is increased by the use of narcotics. The procedure in outline is, in order: (1) a hypodermic injection of morphine hourly for the three hours preceding the operation; (2) nitrous oxide administration; (3) regional or local anaesthetic injection. Any but the most extensive abdominal operations can usually in suitable cases be done under this anaesthetic régime with complete success. The addition of small amounts of ether vapour to the inhaled gas, as is well known, extends the applicability of the method to many patients in whom it would otherwise be impossible. This addition, however, brings with it the risk of sacrificing the chief advantage of the procedure by inducing post-operative vomiting, so that an effort to avoid it is always made in my practice, even at the cost of some inconvenience to the surgeon.

The Regional Methods.

Spinal anaesthesia in the hands of the expert has no longer the disadvantage of any serious degree of uncertainty. Its usefulness is limited anatomically and physiologically.

Anatomical limitation brings it about that any operation at all prolonged cannot be extended much above the umbilicus; physiological limitations make it necessary to confine the method to patients in whom the circulatory system is in reasonably good condition and capable of reaction. Spinal anaesthesia is not, therefore, an anaesthetic suitable for enfeebled patients or for those with acute and serious abdominal conditions. It is a grave mistake to suppose that it is a possible substitute for inhalation methods when these are thought to be inadmissible on account of cardiac or vascular diseases. Its special usefulness is for operations on the lower limbs, perineum, pelvis, and lower abdomen where shock is greatly to be feared (amputation high in the lower limb); where metabolic complications are to be avoided (diabetic gangrene); and where full abdominal relaxation is essential (large abdominal herniae in fat subjects). It should generally be preceded by narcotic drugs and may often be usefully combined with the use of nitrous oxide. The free use of narcotics seems to do away with the risk of vomiting during the operation, and perhaps to diminish the incidence of headache afterwards.

Sacral anaesthesia has a small but very definite range of usefulness in limited operations on the perineum. For pile operations it gives just the anaesthesia that is needed, together with complete relaxation of the sphincter. It should, of course, be combined with narcotics. In some cases the conformation of the sacrum prevents it being carried out, but this condition can always be determined beforehand.

Nerve trunk anaesthesia is more commonly known as regional anaesthesia. It is given this name here to distinguish it from methods that are regional in a wider sense.

All local anaesthetics do and should contain a regional element, but there are a few cases in which the definite blocking of nerve trunks has shown itself to be a trustworthy and thoroughly practical method. These special cases of nerve blocking are rendered possible by anatomical conditions. Two are in common and satisfactory use—the blocking of the intercostal nerves for operations upon the chest and abdomen, and the blocking of the brachial plexus above the clavicle for operations on the upper limb. Both procedures require a certain expertness, but there can be no doubt that they should be in regular use in suitable cases. The usual combination with narcotics, and possibly with nitrous oxide, should, of course, always be considered.

The Local Method—Infiltration Anaesthesia.

Next to ether anaesthesia this is undoubtedly the method which is capable of the widest application. It is tedious to induce, and in its larger uses demands wide experience and expert knowledge. It may be regarded as having two more or less distinct ranges of usefulness: (1) in conditions where it is obviously indicated by the anatomical situation and nature of the operation, as in all superficial and definitely limited dissections, in radical cure of hernia, especially inguinal and umbilical, and in excisions of the testicle; (2) as a special procedure where other methods are urgently contraindicated it may be applied by the expert to almost any of the operations of surgery, except where diffuse infective conditions have to be dealt with. I personally do not make use of it as a routine for cerebral operations, for thyroid operations, or for extensive dissections of the neck, but it is well established as a method that is applicable to these and many other equally extensive procedures.

I do not propose to say anything about technique, but in all the wider applications of local infiltration the preliminary use of narcotics, the injection of an abundance of solution, and the giving it full time to act, are the principal factors in success.

We have now reviewed the methods which may be regarded at the present time as well established, each in its own special field of usefulness. I have mentioned no method which I have not learnt in my own experience to be, in appropriate circumstances, trustworthy and thoroughly practical. They represent the facilities which the surgeon and the patient are justified in demanding from the expert anaesthetist. I have tried to indicate in a general way the considerations which should guide us in the choice of an anaesthetic in a given case. There are a few rules that must be regarded as absolute, at any rate for the time; but on the whole it must be recognized that we are very far from absolute standardization. I confess that I am not very sympathetic with the ideal of complete standardization in surgical technique. While we have to deal with factors so incorrigibly variable as disease on the one hand, and the human mind and body on the other, concentrated and independent thought will always be necessary for the proper achievement of every surgical act.

II.—Sir WILLIAM I. de C. WHEELER,

President, Royal College of Surgeons in Ireland.

When I was asked to take part in the opening of the discussion on "Anaesthetics from the surgeon's point of view," I was rather at a loss from what angle to view the subject. The task would be easy if the title had been slightly altered, and we were asked to talk about "Anaesthetists from the surgeon's point of view!" I know of no better exercise in self-restraint than the performance of a difficult abdominal

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AMYL NITRITE POISONING.

A FEW weeks ago a retired medical man asked me to see him on account of anginoid pain in the chest coming on at night. The blood pressure was 145 mm., the heart sounds rather moderate, and the abdomen distended with flatulence. About ten that night he had an attack of pain, for which a medical friend gave him a small hypodermic injection of morphine, and left him quite comfortable. The pain returned about 1.30 a.m. Half an hour later his housekeeper telephoned for me. When seen he was in a state of extreme collapse, hardly able to speak, very pale, with a weak pulse of 120. Nine amyl nitrite capsules were lying on his bed, having been inhaled in less than an hour. His blood pressure was only 76 mm. Camphor by hypodermic injection, brandy, and hot bottles more or less revived him. Next day he had a very irritating spasmodic cough with rusty sputum. The respirations were 40, the temperature 96.4°, pulse 108, blood pressure 80 mm. His chest from the third space downwards was full of fine soft crepitations; there was no tubular breathing anywhere. His tongue was dry and brown, as also was his soft palate, which looked as if it had been burnt, and a slough about one inch by three-quarters of an inch came off it on the fifth day. For nine days the sputum was deeply blood stained and frothy; respirations remained at 40, and any movement caused increased dyspnoea. There was also watery diarrhoea. The temperature was constantly subnormal. The blood pressure varied between 80 and 90 mm., even though taking digitalis and nux vomica. After the seventh day the chest began slowly to clear from above downwards, but respirations still remained at 38 to 40 till the twelfth day; after that the breathing became easier, and by the eighteenth day the respiratory rate was 26, and he was able to sit up for an hour. There was no anginoid pain all through, and the blood pressure was still only 90 mm. on the twenty-first day.

The case rather resembled chlorine gas poisoning; apparently the nitrous acid in the amyl nitrite acted as a severe irritant to the lungs. Whether any of the dyspnoea was due to the formation of methaemoglobin in the blood was not investigated. There were no convulsions as described in amyl nitrite poisoning of animals.

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CHOLELITHIASIS WITH SITUS INVERSUS.

THE following case may prove of interest:

Mrs. J., aged 43, was admitted on August 21st to the Manchester Royal Infirmary complaining of pain in the left hypochondrium and under the left breast; the pain was also described as going round to the back and into the left shoulder. The patient was markedly jaundiced, the urine contained bile, and the stools were clay-coloured. The description and distribution of the pain were typically those of an attack of gall-stone colic except for the fact that it was on the left instead of on the right side, and the patient gave a history of having had eight similar attacks during the previous three months, each having been followed by jaundice. On examination, an indefinite tender mass was palpable at the tip of the ninth left costal cartilage. Murphy's sign was absent, and there was no hyperaesthesia. Palpation and percussion of the chest showed the heart to be on the right side, and an x-ray examination confirmed the presence of dextrocardia. In view of this, and the distribution of the pain and tenderness, a condition of complete transposition of viscera was suspected. The patient said that she was, and always had been, right-handed.

On August 27th Mr. A. H. Burgess explored the abdomen through a left upper rectus incision: all the viscera were completely transposed. The gall bladder and common bile duct, which was much dilated, contained several large stones, and cholecystectomy and choledochotomy were performed. The patient made a rapid and uneventful recovery.

It is an interesting point that the patient's eldest son, aged 12 years, is a typical example of Fröhlich's type of infantilism, being about five feet in height, exceedingly fat, mentally slow, and with undeveloped genitalia. In all other respects the family history is quite normal, the two other children being perfectly healthy.

Manchester. E. S. FRISCHMANN, M.B., Ch.B.

PRELIMINARY NOTE ON THE HISTOLOGY OF A MYELOMA.

A TUMOUR from the radius of a child was examined, and the following observations made. We hope to publish details at an early date.

1. The appearance and structure of the numerous giant cells present suggest that they are osteoclasts.
2. In our opinion the giant cells give rise to the spindle cells of the tumour.
3. The fibroblasts appear to be derived at a later stage from the spindle cells.
4. In several of the giant cells we found a stainable body, quite unlike the giant cell nuclei in appearance, which may very probably be responsible for the abnormal activity of the giant cells. There is some evidence in favour of the view that the stainable body is a definite parasite—probably a protozoan—which is not confined to the giant cells.

T. H. BURLEND.
Cardiff. D. J. HARRIES.

Reports of Societies.

COMPARATIVE MEDICINE.

THE first meeting of the new Section of Comparative Medicine of the Royal Society of Medicine was held under happy auspices. A large audience gathered in the Society's rooms on October 24th to celebrate a day which the President, Sir CLIFFORD ALLBUTT, described as a festival rewarding long and patient effort. The acclamation with which his eloquent address was received indicated that those who were present recognized what an important share he has taken in the enlightenment of opinion which has led to the inauguration of this Section.

Inveterate and impregnable barriers of convention, devised by mediaeval perversities, have, he declared, split up medicine into fractions, divorcing medicine from surgery and separating diseases of animals and plants from those of mankind. The folly of many of these divisions is apparent, but their eradication is a difficult operation. One such barrier has been broken down by the co-operation of medical and veterinary scientists, thereby acknowledging the unity of medicine as a biological study.

Medicine has much to gain from the comparative method of study, a method which has proved indispensable to the progress of anatomy, anthropology, and embryology. Pathologists have already made some use of the comparative method of study, and by their researches into the properties of cells and nature of infections have gathered in some knowledge. The comparative method is necessary in medicine in order "to shed cross lights reciprocally from the pathology of one kind of living thing upon another." It will also have a utilitarian purpose, to study the diseases common to man and animals and the manner in which these diseases may be carried by animals to man, to investigate the peculiar natural immunity of certain animals to certain diseases, and the defensive processes of animals and plants.

But, as Sir Clifford Allbutt pointed out in a letter to the *Times* in 1906, the attention of those who would study comparative medicine should be concentrated on the pursuit of larger and more disinterested researches, on "a pathological biology which hereafter shall give us not only a control of several diseases, but an insight into large and fertile principles, foresights and controls over wide fields of nosology, interpretations of the various comings and goings of the manifold kinds of disease in all living things—

One of the last cases under my care was one of the Ministers of the Irish Government, who was wounded in the back by a bullet. The spinal column was hit, and the bullet was deflected so that it came to lie above the right kidney in the region of the diaphragm. After the operation for extraction, fine crepitations could be heard at the base of both lungs; there was expectoration of rusty sputum, the temperature rose, and for a few days the condition of the patient gave rise to anxiety, but with the healing of the wound and gradual relaxation of the muscles the pulmonary complications, as is usual, disappeared.

I would, therefore, suggest that crepitations at the base of the lungs may be a sign in favour of an acute upper abdomen, and not against; that frequently crepitations are heard after high abdominal operations owing to rigidity of the diaphragm and recti muscles; that the tightening of the abdomen after the closure of a large ventral hernia may be followed by fatal pulmonary oedema; and that the condition—often referred to as "chestiness" by the students and house-surgeons—after operations has nothing whatever to do with the anaesthetic.

3. In conclusion, I would like to refer to the great advantage of using a local anaesthetic with or without general anaesthesia. Nearly twenty years ago I learned my first lesson in this method from the late Theodor Kocher, and I have seen your distinguished President adopt the method in numerous cases.

Whatever the operation, the subcutaneous tissues are infiltrated first and the deeper tissues afterwards, before the incision is made, with a 1/2 or 1 per cent. novocain and adrenaline solution, thus blocking off as far as possible the operation area from connexion with the cerebro-spinal centres. Complete relaxation of muscles is obtained, and the anaesthetic solution, finding its way along intermuscular and interfascial paths, renders the various layers to be divided plain and distinct. Bleeding is reduced to a minimum, and in the blanched area nerves and blood vessels stand out in a manner only seen in the dissecting room. I think there is no doubt whatever that the shock of an operation is considerably decreased, and the short time and labour involved in the infiltration of a local anaesthetic is repaid a hundredfold.

For some time abdominal and other major cases were operated upon with local anaesthesia alone, but the strain on the surgeon is greater, and if, in abdominal cases, any drag is put upon the mesentery the patient complains of severe pain in the back, and occasionally unexpected difficulties are encountered and a general anaesthetic becomes necessary. To pass from a local anaesthetic to a general anaesthetic in the middle of an operation for obvious reasons is to be avoided. It is better to commence by a combination of both, unless in those cases which are almost certain to be straightforward and uncomplicated. Local anaesthesia for tracheotomy is ideal, and it is a great advantage to inject 10 minims of 2½ per cent. cocaine solution into the trachea before opening to obtain tranquil tracheotomy, as recommended by StClair Thomson. There is no reflex cough, no danger of aspiration of blood, and no disturbance rendering difficult the introduction of the tube.

A general anaesthetic need never be used in cases of varicocele, bunions, hammer-toes, the straight appendix operation, and so forth. In abdominal operations the parietal peritoneum becomes absolutely lax and insensitive if the overlying subcutaneous tissues and muscles are infiltrated. Provided there is no pulling on the mesentery, there is no pain, but any tension transmitted to the posterior peritoneum produces the pain in the back, seen in all conditions which directly or indirectly involve the posterior parietal peritoneum, such as gall-bladder diseases, posterior gastric ulcer, and abdominal aneurysm.

Time does not permit a reference to the dangers of chloroform, but it is difficult to understand on what method of reasoning it is still administered for the removal of tonsils, having regard to the danger of status lymphaticus, or in prolonged bone operations in children, with the ever-present danger of acidosis, or in cases of the septic abdomen, for in the latter case the extra burden put upon the liver in eliminating the toxins of chloroform may prove fatal.

The preparation of patients for an anaesthetic requires thought. Crile attributes much of his success to the painstaking preparation of cases of hyperthyroidism before thyroidectomy. Suffice it to say that preliminary purgation is unsound; brisk purgation before and sips of water after is a sure way of adding to discomfort and, to some extent, to the dangers of operation. Fluid should be given in unrestricted quantities to within an hour of operation, and as soon after as possible. Stomach cases are no exception to this rule.

Troubles for which anaesthetics are often blamed are conspicuous by their absence if there is a proper preparation before operation, and not too many restrictions for the few days following. The sisters in Mercer's Hospital in charge of the wards have the following written instructions in connexion with the patients under my care:

Preparation before Operation.

1. Twenty grains of bicarbonate of soda every four hours for two or three days if necessary, until urine is alkaline.
2. Large quantities of water by the mouth, or saline by rectum, for the ten or twelve hours preceding operation.
3. In anxious cases, or in children about to undergo bone operations, glucose to be given if possible for two or three days before operation.
4. No enema on morning of operation.
5. No laxatives to cause purging in patients preparing for operations. Simple laxatives, as in non-operative cases, are alone necessary a day or two before.
6. Special instructions to be given in cases of intestinal cancer.

Patients after Operation.

1. Unless restricted from some special reason, such as fracture of bones, etc., the patient may move as much as he likes in bed from the first after operation.
2. The patient may sit up out of bed on the second or third day after ordinary operations, provided they are not drainage cases and there is no fever.
3. The freedom of the room to be given after four days; a bath after seven days, and out for walks or drives not later than the tenth day.

DISCUSSION.

Dr. A. L. Flemming (Bristol) said that he felt a considerable sense of responsibility in taking part in the discussion because it dealt with a very important feature in the progress of the specialty of anaesthetics; and he was relieved to find that Mr. Trotter had laid stress upon the necessity for co-operation between surgeon and anaesthetist, so essential in modern surgery. The idea of antagonism between the two specialties might be due to the fact that the anaesthetic acted as a protective barrier between the patient and surgical assault, but this barrier was by no means impervious, and it was only by adjustment between attack and defence that adequate protection could be assured. Where surgery could be gentle, rapid, and dry, it was wonderful what an efficient defence was provided by ether anaesthesia, but probably this method could not be used too freely without the risk of producing some ill effect, and for that reason it was important to limit, as far as possible, the extent to which the patient was saturated with ether. In that direction local anaesthesia and N_2O might be of real service. Before local anaesthesia, either by itself or as an adjunct to narcosis, could come into more general use it seemed necessary that two conditions should be satisfied: surgeons would have to be convinced of its need, for without their full sanction its employment could not be considered for an instant; and great changes would be called for in the teaching arrangements. At present it was quite difficult to ensure that each student became reasonably familiar with the ordinary signs of anaesthesia, and it seemed to him that if a knowledge of local anaesthesia was to be acquired by him it would be necessary for the educational and examining bodies to reconsider the degree of importance which they intended to attach to this subject.

Dr. Alfred E. Boyd (Dublin) said that one point in which they, as anaesthetists, failed too often was that they did not sufficiently study the psychology of their patient. When a patient presented himself for some simple operative procedure they were apt to regard the case merely as an incident in the day's work, while to the patient it was an event in his life. In many cases the patient dreaded the anaesthetic, with the surrender of personality involved, far more than he did the knife. Lack of sympathy between anaesthetist and

in the blood exceeded this barrier. But the barrier was not kept at a constant level, and the variation in the height of the threshold was one of the ways in which the kidney adapted itself to contingencies. A better word than "threshold" was "sluice," and the raising or lowering of this sluice could apparently be controlled through certain endocrines, and could be made to vary for one urinary constituent without involving another. The matter was not without its difficulties even on this view, and he thought it best merely to state that the pituitary regulated the output of water by some direct effect on the kidney cells, and that at present it was not known exactly how the balance between the water of the blood and the urine was struck.

In recapitulation Dr. Langdon Brown supported Claude Bernard's contention that the object of all the vital mechanisms was to keep the internal environment constant. The nephridia originally were the principal means of maintaining a constant relationship between the internal and external environments. In evolution nephridia were replaced by analogous but probably not homologous tubules which formed the kidney, whose function might be defined as that of keeping the chemical composition of the body constant. Some nephridia were retained and modified to house the hormones which, previously less specialized, now played an important part in maintaining the internal environment. Not only morphologically but physiologically these modified nephridia recalled their origin. The last of them to retain excretory functions, the pituitary, still showed its association with such functions by the profound modification it was able to exert over the threshold of the kidney for water. It was probable that diabetes insipidus was due to the loss of this control, and possible that the overlying nervous structures influenced the matter through the pituitary; they certainly could do so without the intervention of the vasomotor system.

Dr. George Graham raised the question why the action of pituitrin had been misunderstood for so long a time. All the original work on pituitrin showed it to be a diuretic. The misunderstanding arose by reason of the fact that the experiments on animals were carried out under an anaesthetic, in which condition the kidney vessels dilated and fallacious results were obtained. In watching the effect of pituitrin on the output of the urine it had to be remembered that the effect lasted for a limited number of hours, after which it ceased suddenly.

Dr. P. J. Cammidge said that the effect of pituitrin had been worked out by a good many people, but there was one method of investigation not used before to his knowledge which Mr. Howard and he had been employing for a considerable time. They thought that some useful information might be forthcoming by some method of estimating variations in the concentration of the blood, if a method fairly easy to carry out could be arrived at. The method adopted was to take the blood counts. An animal was given an injection of pituitrin, and samples of blood were then taken from the ear at intervals of half an hour and the number of red cells estimated. It was found that there was a steady diminution in the number of such cells following pituitrin injections. The changes in the concentration of the blood which occurred after injections of pituitrin were *interesting phenomena worthy of much further investigation.*

Dr. Langdon Brown, in his reply, recalled how the point of view with regard to diabetes insipidus had changed within recent years, until finally the condition had come to be placed in two categories—namely, renal incapacity and some disturbance of the pituitary and overlying structures, and one or both of these derangements might be responsible for this extraordinary condition which was found so difficult to alleviate until the introduction of pituitrin treatment.

HEMIHYPERTROPHY.

The annual meeting of the Section of Diseases of Children of the Royal Society of Medicine was held on October 26th, with Mr. Anglin Whitelocke, the President, in the chair. A case of hemihypertrophy traced for eighteen and a half years was shown by Mr. P. Lockhart-Mummery. The patient was first exhibited at the Royal Society of Medicine in January, 1906 (reported in Vol. 6 of the Society's *Proceedings*, in the Section of Diseases of Children, p. 153), in collaboration with the late Mr. George Carpenter.

The child was then 2½ years old, and the left side of his body and head was growing faster than the right side. He was originally brought to hospital because he was walking lame. There was apparently nothing else wrong with the child; his mental condition was normal and no abnormalities were detectable in the nervous system. The difference in length of the lower limbs was half an inch. The child was again exhibited before the Society in January, 1908. He was then very lame and there was three and a half inches difference between the length of the legs. X-ray photographs showed the epiphysis to be more advanced on the left side than on the right. The child appeared to be two years older on the left side than on the right, and the left side of the tongue, the left eye and ear were all larger than the right. The child was lost sight of after this until recently, when he was found to be 21 years old, and as there was always considerable speculation as to what happens in these cases he was again brought before the Section. So far as Mr. Lockhart-Mummery was aware this was the only case in which a child suffering from this condition had been traced to adult life. There was now only half an inch difference between the two sides. It was obvious that the small side was now "catching up" with the big side. Except on close observation one could not detect any difference between the two sides of the face or tongue.

Dr. F. J. Poynton showed two cases, one of unilateral and one of bilateral congenital dilatation of the ureters. In the former case the diagnosis was confirmed by a *post-mortem* examination. The diagnosis was made in life by the aid of a cystoscopic examination, and by the *x* rays, after injecting 20 per cent. sodium bromide into the bladder and ureters. In both cases there was a gross infection of the urinary tract. The problem of the causation of the dilatation was discussed, and the majority of those present seemed to favour the presence of a spasm of the urethra. Dr. Dingwall Fordyce suggested the possibility of this spasm being analogous to that of pyloric stenosis. He thought it doubly interesting because the elder of the two children—and the case in which the condition was bilateral—was a girl. Mr. Max Page suggested that if the condition were analogous to pyloric stenosis it might be treated upon the same lines by section of the sphincter.

TREATMENT OF INCONTINENCE OF URINE IN WOMEN.

A meeting of the North of England Obstetrical and Gynaecological Society was held in Manchester on October 19th, with the President, Professor Blair Bell, in the chair, when Dr. D. Dougal (Manchester) read a short paper on the operative treatment of certain cases of incontinence of urine occurring in nulliparous women.

Dr. Dougal said that the degree of urinary control had been expressed by Taylor and Watt as:

(1) *Normal.*

(2) *Fair*—which was normal except on special occasions; for example, distension of the bladder, temporary vesical irritability, or times of mental or physical fatigue.

(3) *Poor*—which allowed the urine to escape on any special abdominal strain, such as might be caused, for example, by coughing and active exercise; such patients were wet most of the time.

(4) *Lost*—when urine continually dribbled from the patient, and very little was retained in the bladder.

Taking the "poor" and "lost" groups only, the figures showed that about 8 per cent. of nulliparous women suffered from a disagreeable amount of urinary incontinence (Taylor and Watt). In this paper Dr. Dougal intended to deal only with those cases of active incontinence of urine which were due to weakness of the sphincter vesicae. He pointed out that the sphincter apparatus of the bladder consisted of three parts:

(1) *Intrinsic sphincter*, which was merely a specialized portion of the middle stratum of the bladder musculature. Its presence was even denied by some authorities.

(2) *Extrinsic or urethral sphincter*, composed of compressor urethrae, forming a complete muscular ring round the upper part of the urethra. All authorities were agreed that this was the most important factor in sphincteric apparatus.

(3) *The supporting fibromuscular tissues lying between the base of bladder and the anterior vaginal wall;* this was made up of paravesical vascular sheaths and their connexions, and was strongly

she had had a general anaesthetic he could not help thinking that she would have been deprived of the extra three years which were granted to her. There seemed to be no doubt that in brain operations a general anaesthetic was best avoided. For these he had used a 2 per cent. solution of novocain with the usual proportion of adrenaline. It enabled him to remove the segment of bone without pain, and avoided the terror of liability of post-operative vomiting. With few exceptions, when local anaesthesia was well administered, the fear of an operation on the part of the patient was diminished rather than increased. With eyes bandaged, and ears plugged with wool, together with absolute silence in the theatre, the patient should not be inconvenienced by more than the ordeal of lying on the table. By far the greater strain fell upon the surgeon himself.

MRS. DICKINSON BERRY (London) urged the advisability of employing, especially in thyroid operations, local anaesthesia along with light ether anaesthesia. In using light ether anaesthesia the stimulating effect was maintained and there was no fall of blood pressure at the end of the operation. In ordinary ether anaesthesia there was a rise of blood pressure during induction, and a rise also when the patient began to come round and was allowed to strain. She deprecated the idea that a general anaesthetic was to be given only if the local anaesthetic proved unsatisfactory. The patient was apt to struggle and they did not obtain a smooth anaesthesia. In the employment of local anaesthesia the patient did not complain of pain, but without it complained of dragging sensations. These dragging sensations could be obviated by the use of light general anaesthesia.

MR. BASIL HALL (Bradford) said that about 70 per cent. of his work was abdominal, and it was from the standpoint of the abdominal surgeon that he spoke. He always looked with great suspicion upon any anaesthetist who was a man with many "gadgets." He did not think it mattered very much, or at all, what percentage of the anaesthetic was administered. What he required was an anaesthetist who studied the patient, and who judged the patient, with no special reference to percentage and other formulae in regard to the anaesthetic substance. He deprecated also the use of mixtures, preferring simplicity. He thought that half the secret of satisfactory anaesthesia lay in a close association of the anaesthetist with the surgeon and an appreciation of both with the difficulties presented to them. He thought there was a tendency to push ether anaesthesia too far. What was wanted, in his judgement, was just enough and no more. Ethanesal was a valuable anaesthetic in so far as it was non-irritant, and produced less sickness than ether. After having tried other various experiences he had come back to the position from which he first started as an operating surgeon, and that was the employment of open ether anaesthesia, possibly, if necessary, preceded by a very small dose of heroin or of morphine, or a few whiffs of chloroform for induction. Local anaesthesia, he thought, he had given up for good.

SIR CRISP ENGLISH (London) spoke of the great importance of a discussion of this kind between anaesthetists and surgeons. He said that eighteen months' experience with ethanesal had convinced him that it was a decidedly better anaesthetic than ordinary ether. In the induction of anaesthesia in children and in nervous patients ethyl chloride was invaluable and prevented the distressing scenes which often blackened the first stage of anaesthesia; and gas and oxygen given by an expert with a proper apparatus was infinitely preferable to other forms of anaesthesia in a very large number of operations.

MR. CHARLES PANNETT (London) was glad to hear emphasized the fact of delayed shock after ether. He himself would not acquit the anaesthetist, employing open ether, for all responsibility for the subsequent lung conditions frequently found. He had tried in St. Mary's Hospital to work a method of prevertebral anaesthesia. Its main disadvantage was the length of time—namely, twenty minutes—required for induction.

MR. TROTTER, in reply, mentioned that morphine given in three small doses was of great value before operation and was also of great value in the use of local anaesthesia. He thought that the technique of local anaesthesia should be acquired by anaesthetists, and the practical work should be done by them, because there was always the possibility that their services would be required during the operation if a general anaesthetic were found to be necessary.

VENTRICULOGRAPHY AS AN AID IN THE LOCALIZATION OF INTRACRANIAL TUMOURS.

I.—ADAMS A. McCONNELL, B.A., M.B., F.R.C.S.I.,

Surgeon, Richmond Hospital, Dublin; Lecturer in Applied Anatomy, Trinity College, Dublin.

THE cerebro-spinal fluid is secreted by the choroidal plexuses in the ventricles of the brain. It is absorbed from the subarachnoid space, chiefly from that part of it which lies in relation to the cerebral cortex. The only communications between the ventricles and the subarachnoid space are the foramina of Magendie and Luschka in the roof of the fourth ventricle. If a tumour be situated below the tentorium cerebelli it tends to press on the mid-brain, pons, and medulla, and so to cause some obstruction to the outflow of cerebro-spinal fluid through the aqueduct of Sylvius and the fourth ventricle (Fig. 1). Such obstruction leads to retention of fluid in the third and lateral ventricles and hence to their dilatation—just as obstruction to the ureter leads to hydronephrosis. If a tumour be situated in a cerebral hemisphere it cannot grow outwards because of the

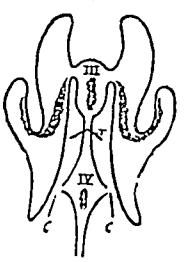

FIG. 1.—T represents tentorium cerebelli. c and c represent the communications between the ventricular system and the subarachnoid space.

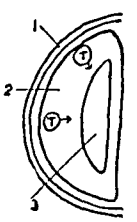

FIG. 2.—1, Skull. 2. Cerebrum in section. 3, Lateral ventricle. T and T represent direction of extension of tumours.

resistance of the calvarium; it grows inwards and sooner or later encroaches on the lateral ventricle so that the latter becomes deformed, distorted, or partially occluded (Fig. 2).

It is clear to anyone who has studied *post-mortem* specimens of intracranial growths that knowledge of the size and shape of the lateral ventricles would be of the greatest assistance in the localization of tumours during life. In July, 1918, Dandy[1] of the Johns Hopkins Hospital showed that it is possible to obtain radiograms of the lateral ventricles in the living subject. Since his paper appeared several cases in which his method has been used have been published in American journals, but with the exception of three cases published by me in April, 1921,[2] no adult cases seem to have been reported in this country. Fraser[3] has employed the method in cases of hydrocephalus in children.

Principle of the Method.

If air be substituted for the fluid contents of one lateral ventricle and a radiogram taken, the air-filled ventricle will be clearly outlined on the radiographic plate in striking contrast to the dense calvarium, just as air in the intestine or pleural cavity is revealed on radiographic examination. When the photograph of one ventricle has been taken the head is slowly turned so as to allow the air to bubble through the interventricular foramina into the opposite ventricle, which is then photographed. If both lateral ventricles are dilated the tumour is probably subtentorial; if one lateral ventricle shows a deformity, that deformity is usually in close relation to the tumour.

Reviews.

SIR THOMAS BROWNE'S SKULL.

In the year 1840, in preparing for an interment in the chancel of the Church of St. Peter Mancroft, Norwich, the coffin containing the remains of Sir Thomas Browne was accidentally opened. As to all that happened in the next few days we are in the dark, but it is known that one of the churchwardens was an antiquary and a collector and that after his death the plate from Sir Thomas's coffin was found in his secret drawer, and that about 1845 or 1847 a skull purporting to be that of Sir Thomas found its way into the museum of the Norfolk and Norwich Hospital, where it remained until it was reinterred in its original resting place last year. While some may think that the hospital of his adopted city was a perfectly fit and proper place for the reverent custody of the cranium of one who so much interested himself in the investigation of ancient burials, and may consider this surrender to sentiment unnecessary, it is a matter for congratulation that the approaching disappearance of the relic should have suggested such an all-embracing study as is recorded in the monograph now under notice. In *Sir Thomas Browne: His Skull, Portraits, and Ancestry*,[1] to quote Sir Arthur Keith's own words "we have exemplified the best kind of scholarship, one which illustrates the right application of laboratory methods to historical enquiry and to anatomical pursuits." In her research Miss Miriam Tildesley, to whose devoted labour the monograph is due, has followed every clue to its end and has applied a clear and logical understanding to the elucidation of obscure problems, with such success that we feel that unless fresh and unsuspected evidence is brought to light the last word has now been said on the subject. But the libraries and lumber rooms of English country houses have been by no means thoroughly searched yet, and it is significant that notwithstanding all that had been spoken and written previously the best portrait of Sir Thomas Browne, which is reproduced as a frontispiece to this memoir, only came to light just in time to be noticed in an appendix. There are a good many engravings which purport to be portraits of Sir Thomas Browne, but few of them are originals and most of them can be traced to two or at most three originals. The evidence of engravings has to be very critically considered before it can be accepted, for the printseller was often a frugal soul who was not inclined to waste plates, but worked up old ones so as to represent new subjects. So did Lombart's equestrian portrait of Oliver Cromwell suffer five changes, to end as a portrait of his victim Charles I. "And thus the whirligig of time brings in his revenges." Not only were portraits often adapted but views of passing events, so that no engraving unless it have a spotless pedigree can be taken as evidence of such a matter as (for instance) naval architecture or any custom supposed contemporary. We regret to have to agree with Miss Tildesley that the high-browed Browne portraits in the Royal College of Physicians of London and the Bodleian Museum, Oxford, cannot represent the man the endocranial cast of whose skull is now described by Professor Elliot Smith, although they may be much idealized copies or copies of copies of more faithful pictures taken from life. We think that Miss Tildesley will convince every candid reader of the genuineness of the skull, which is chiefly remarkable for its low and sloping frontal region, though this is compensated by extra room in its posterior part, to such an extent as to bring it up to average capacity. Its original owner, anticipating Gall and Spurzheim, wrote:

"And, since the dimensions of the head measure the whole body, and the figure thereof gives conjecture of the principal faculties, physiognomy outlives ourselves and ends not in our graves" (Hydriotaphia, Ch. III, last paragraph but one).

Fuller knowledge would no doubt have modified this view, for Miss Tildesley is forced to the conclusion that "Sir Thomas Browne's skull supports the conclusion that the correlation of the superficial head and brain characters with mentality is so low as to provide no basis for any prognosis of value." It is perhaps not surprising that in this particular case the brain space is only average. This "Amplissimus Vir" was endowed with an inquiring but not a truly great mind and with a sense of style and of the beauty of language, which, when he had for the time forgotten Euphues, enabled him to enrich us with sayings that have become household words. Yet he was often obscure. Charles Lamb, who greatly admired him and clearly owed much to him, wrote of "the beautiful obliquities of the *Religio Medici*" and said that Browne and Fulke Greville were two authors he should like to see, because their writings were riddles; "I should like," he said, "to ask them the meaning of what I should suppose no mortal but themselves can fathom." The excellent reproductions in this memoir of probably all the known portraits of Sir Thomas (including one which has hitherto passed for Shakespeare) enable the reader to judge for himself of the extent of their agreement with the contour of the skull. *Both for its artistic and its scientific and genealogical interest this memoir will doubtless be treasured by the few who are so fortunate as to possess it.*

[1] *Sir Thomas Browne: His Skull, Portraits, and Ancestry.* By Miriam L. Tildesley, Research Worker, Royal College of Surgeons' Museum: with an introductory note by Sir Arthur Keith, M.D., F.R.S., and a report on the endocranial cast by Professor G. Elliot Smith, M.D., F.R.S. Reprinted from *Biometrika*, vol. xv, and issued to subscribers only. 1923. (Imp. 8vo, pp. 16; 34 plates, frontispiece, and folding pedigree.)

FASTING AND UNDERNUTRITION.

In his book on *Fasting and Undernutrition*[2] Professor Morgulis has had two definite objectives in view: first, to collect and to classify what is known about inanition; secondly, to consider the facts in their proper biological setting. The basis and starting point in all nutritional studies is the metabolism that obtains during inanition, and accordingly the subject of fasting occupies the main part of this book, chiefly in connexion with acute inanition, which is the most thoroughly investigated type.

Believing that there is at the present time a need for a comprehensive survey of the subject, the author has devoted one of the five parts into which the work is divided to a classified list of the writings of previous observers; this list of references occupies eighty-six pages. The views and experiments of fundamental importance derived from this source are described in detail in the body of the work, and submitted to criticism. Three types of inanition are distinguished: (1) physiological inanition, which is a normal occurrence in nature: it is either a definite phase in the life cycle of the animal as a seasonal event or accompanies the periodic recurrence of sexual activity; (2) pathological inanition, such as that arising from oesophageal stricture; (3) accidental or experimental inanition, including intentional fasting. Under the heading of physiological inanition are discussed hibernation, the metamorphoses of insects, of the Mexican axolotl, and of the larvae of batrachians, and the inanition of the salmon during the breeding season. The subject of hibernation is dealt with systematically under the subheadings of changes in body weight, changes in body temperature, the respiratory exchange, protein metabolism, mineral metabolism, metabolism of energy respiration, the circulation of the blood, thermogenesis and thermoregulation, excretion and secretion, reaction of the muscles, irritability of the nerves, reaction to drugs and toxins, and tissue repair. In addition a chapter is devoted to the histology of the organs.

Experimental inanition is considered under five headings, according as it is acute, partial, chronic, or intermittent. Acute inanition is dealt with in its chemical, physiological, and morphological aspects in the same thorough and systematic manner as in dealing with hibernation. Under partial inanition, by which is meant a condition in which only one of the various substances essential for the organism's subsistence is wanting, the effects of oxygen starvation are described, together with those of dry feeding, mineral starvation, carbohydrate, protein, and fat starvation and vitamin deficiency. In a final chapter the influence

[2] *Fasting and Undernutrition: A Biological and Sociological Study of Inanition.* By Sergius Morgulis, Professor of Biochemistry, University of Nebraska College of Medicine. New York: E. P. Dutton and Company. (Demy 8vo, pp. xiii+407; 15 figures. 5 dollars.)

this does not succeed the anterior horn may be selected for the next trial, in which case the patient lies prone with the head bent over the end of the table; as this is not a comfortable position, the first method described is usually chosen. In cases of cerebral tumour there is usually some indication of the side affected and the opposite side is chosen for the puncture. I have failed to find the ventricle by the method described above in two cases, one of a cerebellar tumour, the other of a growth involving both the middle and posterior cranial fossae. (2) So small a quantity of fluid is obtained that it is impossible to inject enough air to obtain a satisfactory radiogram. This has occurred in five cases. Three were early cases in which the needle slipped from the ventricle, but in these repetition of the puncture some days later gave satisfactory results. In two cases the instrument was used, and the ventricle found readily, but the fluid came away so slowly that the patients got tired of waiting.

Indications for Ventriculography.

If localizing symptoms be absent or if they have proved insufficient to guide the surgeon to the tumour ventriculography is indicated. No case of mine with a definite clinical diagnosis was submitted to ventriculography unless an operation had failed to find the growth.

Results.

I have attempted to perform ventriculography in fourteen cases and have succeeded in obtaining good radiograms in nine.

The following table gives the clinical diagnosis, the data gained by ventriculography, and the ultimate operative or *post-mortem* findings.

Vent iculography Attempted.

Case.	Result of Operation.	Clinical Diagnosis.	Radioscopic Diagnosis.	Ultimate Operative or *Post-mortem* Findings.
1	Successful	Tumour—occipital lobe	Tumour at junction of posterior and descending horns	Operation: tumour at junction of posterior and descending horns.
2	"	None; no localizing signs	Tumour—posterior fossa	*Post mortem:* tumour posterior fossa, cerebellar.
3	"	None; no localizing signs	Tumour—posterior fossa	Operation: cerebello-pontine tumour.
4	"	Tumour—occipital lobe	No tumour	Living two years after; symptoms not changed.
5	"	Tumour—Rolandic area	Tumour involving body lateral ventricle	*Post mortem:* tumour internal capsule.
6	"	Tumour—frontal lobe	Tumour involving anterior horn	*Post mortem:* tumour bulging into anterior horn.
7	"	None; no localizing signs	Tumour occluding anterior horn	Operation: tumour frontal lobe
8	"	None; no localizing signs	Tumour—posterior fossa	*Post mortem:* sarcoma meninges posterior fossa.
9	Unsuccessful; too little air	Pituitary	—	*Post mortem:* pituitary tumour.
10	Unsuccessful; ventricle not found	None; no localizing signs	—	*Post mortem:* very large cerebellar cyst; ventricles displaced upwards.
11	Unsuccessful; ventricle not found	Cerebellar tumour	—	*Post mortem:* dumb-bell tumour in Meckel's cave and posterior fossa.
12	Unsuccessful: too little air	Tumour—Rolandic area	—	Operation: no tumour found.
13	Successful	Hydrocephalus	Communicating hydrocephalus	Operation: communicating hydrocephalus.
14	Unsuccessful tapped superficial cyst	Tumour—occipital lobe	Cyst in temporal lobe	Operation: tumour and cyst in temporo-parietal region.

Cases 2 and 8 died after eight and fourteen hours respectively, and Case 10 died on the operating table.

Of the nine cases in which air was introduced successfully into the ventricle, four had no localizing symptoms; in each of these an accurate localization was obtained by ventriculography. One case had the symptoms of a tumour, but both ventricles were normal in shape and size, the subsequent course of the case has confirmed the radioscopic diagnosis. In the remaining four cases ventriculography gave more accurate information regarding the position of the growth than did the neurological examination, or exploratory craniotomy.

In five cases ventriculography was attempted but was not successful. In two of these the ventricle was not found because it was displaced from its normal position by a tumour. In two the amount of fluid evacuated was so small that sufficient air could not be injected to show in the *x*-ray plate. In one the cannula encountered a cyst 2 cm. deep; the fluid was withdrawn from the cyst and air injected. There was no indication for ventriculography when the extent of the cyst could be determined more accurately without it.

Dangers of Ventriculography.

Two of the cases in which ventriculography was successfully performed died. One sat up in bed suddenly eight hours after the injection and fell back dead. He had a large cerebellar tumour. The other died suddenly fourteen hours afterwards; at the *post-mortem* examination an infiltrating sarcoma of the meninges of the posterior fossa was found.

One case died on the table while the cannula was being passed; the ventricle was not found and hence no air had been injected. The pathological condition found was a huge cyst of the cerebellum, which flattened out the medulla and pons and raised the tentorium cerebelli into the shape of a dome. This pressure from below had displaced the lateral ventricle upwards so that the cannula had slipped below it. No lesion of any kind was found along the track of the cannula in these three fatal cases. It is noteworthy that in all three the medulla was grossly deformed by pressure.

Whether ventriculography has been performed or not no patient with symptoms of cerebellar tumour should be allowed to flex his head suddenly as he instinctively does when rising from the recumbent posture. Sudden flexion of the head is often followed by sudden death. My colleague, Mr. A. K. Henry, is about to publish a paper giving the anatomical and physiological reasons for this fact. It is questionable whether these fatalities can really be attributed to the method, as many cases of cerebellar tumour die suddenly; but they were fatalities.

Discussion of the end-results of these fourteen cases has nothing to do with the question of the value of ventriculography. All the cases came too late for effective treatment. Eleven were blind from advanced papilloedema or optic atrophy resulting from it, one had marked choked disc but was not blind, while two had no choked disc.

It is fair to assume that any manipulation is more dangerous in advanced cases than in those coming for treatment early in the course of the disease.

Conclusions.

Ventriculography in my hands when successfully performed has given definite and accurate information regarding the position of intracranial tumours. Ventriculography must never replace clinical methods, but in certain cases it is indispensable. Ventriculography is not without danger, but no treatment or lack of treatment is without danger in cases of intracranial tumour. Ventriculography is not simple, it is not to be attempted without a sound knowledge of the anatomy and physiology of the central nervous system. It requires much patience and minute attention to details. Above all, it must be performed with what appears extreme slowness.

If a competent neurologist cannot localize an intracranial tumour by clinical means, it is reasonable to put the possibilities—and the risks—of this method before the patient. It is also reasonable to assume that the risks will diminish with increasing experience. The alternative to accurate localization is death.

References.

[1] Dandy, W.: *Ann. Surg.*, July, 1918. [2] McConnell, A. A.: *Dub. Journ. Med. Sc.*, April, 1921. [3] Fraser, J.: *Brit. Journ. Surg.*, 1922. [4] Boyd, A. E.: *Dub. Journ. Med. Sc.*, December, 1922.

pecial praise. The section, however, is rather spoiled by aults in the illustrations—in one or two instances the ictures and the letterpress do not agree; illustrations of eveloping human teeth might be substituted for those taken rom the calf.

We note, too, that the diagram showing the progress of alcification of the teeth makes enamel development begin t the tips of the enamel cusps instead of at the tips of the entine cusps. The dates of eruption of the first molars nd incisors might be put earlier than seven years, and we ay ask the authors how many instances of supplemental anines they have seen. Such an occurrence must be very are, while, contrary to the authors' experience, supplemental bicuspids are not very uncommon. The second portion of the book, dealing with comparative dental anatomy, egins with a short but well thought out note on zoology, mbryology, palaeontology, and evolution, with a chart of fe in geological time which must add greatly to the tudent's interest in the dentitions of the extinct and living reatures he has to study. Condensation has not been llowed to rob the subject of its interest; and were it not or the fact that it is regarded by the student somewhat as ram-stuff for examination we can imagine him spending elightful hours over it. As it is, after reading it over we an see *no connexion between comparative dental anatomy* nd daily practice. Generally the book is clearly written, ut there are faults—"In the coronal position the main erve supply appears to be deflected towards the periphery f the pulp"; either in its context or alone this is somewhat ryptic!

Both for the effort at condensation and for its own value e welcome this book.

THE STORY OF ANZAC.

HE *Official History of Australia in the War of 1914-1918* s to be published in twelve volumes, which will contain ,000 maps and illustrations showing in great detail the round over which the Australians fought. The whole set f volumes will not be ready for another two or three years, nd the volumes are not appearing in numerical order. We eviewed Volume VII on September 8th, 1923 (p. 419). The rst volume was issued some time ago, and as the appearnce of other volumes is likely to be delayed we propose ow to give some account of it.

It is entitled *The Story of Anzac*,[1] and is by Mr. C. E. W. EAN, who has taken full advantage of a splendid opporunity. He has written a book which must live as a classical ccount of the early days of the 1st Australian Division, of heir training in Egypt, and of their participation in the eroic attack on the Turkish defences at Gallipoli. His tyle is clear and vigorous, and the narrative is more than nteresting—it is fascinating. The reader's attention is rmly gripped by the story unfolded of the dangers and comlexities of the situation. Beyond all this there is the efinite feeling that this history will be read and re-read by any generations of Australians.

Mr. Bean is an Australian patriot to his finger-tips, and oreover a clear-sighted one; he knows his countrymen, ith all their virtues and all their faults, as few have known hem. To be mentioned by name in this official story f Anzac will be a source of the greatest pride to the escendants of the officers and men who took part in that onderful feat of arms.

The volume is copiously illustrated with excellent maps nd photographs. From the mass of information at his isposal, Mr. Bean has succeeded in constructing a conected story, and has made clear the position at Anzac. he account of a tragic enterprise such as this, however ride-inspiring, makes sad reading. We cannot follow the ortunes of these daring men amid the feverish landing at nzac Beach, and the subsequent harrowing vicissitudes of he fierce struggle among the scrub and rocks of the peninla, without always having in mind their severe losses, and eir subsequent failure. Mr. Bean rightly lays stress on e constancy of spirit shown by the men under conditions of extreme danger and difficulty, and above all on their unflinching determination to be at all cost worthy of Australia.

Apart from our admiration for the clearness with which he has disentangled the essential facts of a most complicated military situation, we are chiefly concerned here with Mr. Bean's remarks on the medical problems encountered at Anzac. He does not hesitate to criticize the medical arrangements for the reception of the wounded after the landing. On page 233 he states: "Yet on April the 25th and the days following it scenes of appalling suffering were directly due to the inadequacy of the medical arrangements." Again, on page 570, he says:

> "The sufferings of these wounded men were very great. . . . It might naturally have been expected that the worst discomforts would have ended with the journey down the hillsides. On the contrary, the worst began when they left the Beach. Many spoke of it afterwards as a nightmare. Barges crowded with wounded were hauled round in the dark from one transport to another until they found one not already overcrammed. . . . Aboard the improvised hospital carriers conditions existed which may scarcely be described. Many of the wounded had no blankets and no food. In some ships there were no conveniences at all. In the *Lutzow* not even paper was obtainable, and there were only four bedpans for 800 patients."

This is a terrible indictment, and makes very unpleasant and *humiliating reading*. We have been accustomed to consider that our medical arrangements for war had been well considered in advance. This harrowing tale of suffering patiently endured after the display of wonderful bravery must inspire our deepest sympathy, and make us bow our heads with bitter regret. Mr. Bean lays the blame on the General Staff of the Mediterranean Expeditionary Force He stresses the extraordinary manner in which the General Staff kept the Administrative Staff out of its confidence. He states:

> "This separation of the General Staff from the other departments caused one terrible defect in the plans. This defect was that the making of plans for the clearing of the wounded was undertaken by an officer of the General Staff, and the plan originally produced allowed for no more than 3,000 casualties in the whole army." "Whatever disillusionment, suffering and loss was caused by absence of medical arrangements was due to this obsession that the presence of the 'operations' branch was in some way more important than that of the administrative branch."

Two distinct authorities, it is stated, were concerned with the evacuation of the wounded. The chief medical officer of the 1st Australian Division was responsible for clearing the wounded from the hills to the beach; but from high-water mark to the transports and the base the responsibility rested with the Navy and General Headquarters.

High praise is given to the medical authorities who followed the advance, and to those who worked on the beach. The work of the stretcher-bearers excited Mr. Bean's admiration; wherever the infantry went they went. It was an unvarying point of honour with them to respond to every call; this made their work as dangerous as that of the infantry. The failure to deal adequately with the wounded at Anzac apparently only occurred after they left the beach.

When circumstances of this kind become public and a scapegoat is required, the medical services are usually pilloried, and often unjustly. It is well to bear in mind that in modern military operations the most efficient medical service is often severely handicapped in its arrangements. To make adequate provision for the wounded necessarily requires a knowledge of the extent of the military operations to be undertaken, and a fairly accurate estimate of the casualties expected. Even when estimates are given, they may be hopelessly wrong; and grave difficulties may be placed in the path of a medical officer attempting to obtain what he considers adequate transport facilities.

This state of affairs is bound occasionally to recur so long as the Army Medical Service holds a comparatively subordinate position in the Army. Not to be taken into the confidence of the Operations Staff, as happened at Gallipoli, fatally deprives the Medical Administrative Staff of any opportunity of forming a judgement or of taking adequate steps to deal with the coming situation. To be compelled to sit idly by while medical transport arrangements are being made by others, and then to be blamed for their inadequacy, is, for a medical officer, a situation almost too poignant for words.

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[1] *Official History of Australia in the War of 1914-1918.* Vol. I: *The Story of Anzac.* By C. E. W. Bean. Sydney, Australia: Angus and Robertson, Ltd.; London: The British Australasian Book Store. 1921. (Demy 8vo, pp. xxii+669; illustrated 21s. net.)

was found in the upper right parietal field, but the whole right hemisphere, which had been hardened *in situ* before removal, was greatly larger than the left. Figure 4 represents a coronal section through this brain, 1½ inches in front of the tumour. It will be noted that the right hemisphere is very considerably larger than the left although no tumour is present in the section. The amount of secondary oedema present varies from case to case, but it no doubt accounts for the high pressure met with in some cases where the actual growth is small. This is not the occasion to pursue this matter further; from our immediate point of view we see that the tumour, with the oedema, reduces the size of the ventricle and tends to dislocate it towards the opposite side, a process which is somewhat restrained by the pressure of the falx. From this brief general consideration of the physical characters of tumours of the brain one would infer that if we could in life get an estimation of the ventricular size and shape and position we should possess very valuable diagnostic or corroborative evidence.

III.

My personal experience of ventriculography is limited to six cases. On one of these injection was practised twice, both times with a negative result, but without harm to the

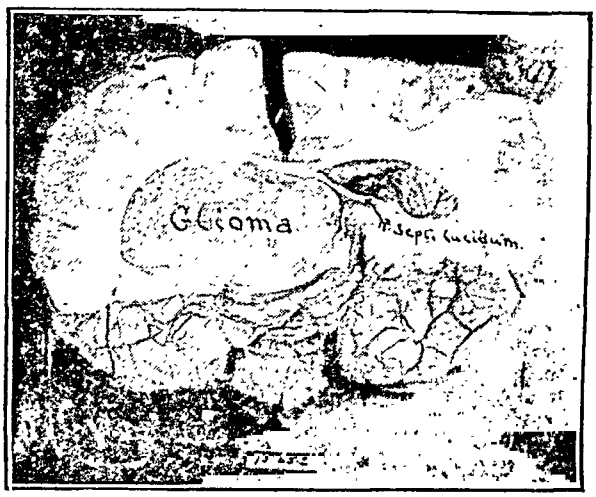

FIG. 3.—Glioma of the left hemisphere, distorting and obliterating the left ventricle. The right ventricle is large and pushed over towards the right.

patient. I have had one death and that was in the case of a hydrocephalic child in an advanced stage of the disease. In this case I replaced 80 c.cm. of cerebro-spinal fluid with 80 c.cm. of air. A good picture was obtained of the dilated ventricle with air in the posterior fossa, proving it to be an example of "communicating hydrocephalus." The child died two days later, but it was already so far progressed in the disease that death at any time, with or without ventriculography, would not have been surprising. I should hesitate to use ventriculography again in a case of hydrocephalus in a child, as it is unnecessary. The case of which I speak was done two years ago. At the present time I think that the required information can be obtained by the use of dyes and suitable punctures. In the other five cases no untoward symptoms occurred. Valuable information of a corroborative nature was gained in two of these cases, in two it was not a help, and in one only was a positive diagnosis obtained by its means. A full account of this case is given below.

CASE.

A young woman, aged 23, was referred from the Manchester Royal Eye Hospital, with papilloedema, and admitted to the Salford Royal Hospital on August 23rd, 1922. The patient had had headache and sickness for the previous two months. There were no previous illnesses of note. The patient was small, fairly bright, a "good witness."

History.—In the middle of June she began with what the family took to be neuralgia at the back of the head and left temporal region, also tinnitus in the left ear. She vomited severely at times. She had had slight malaise previously, but a severe headache came on in the street bringing vomiting in its train, and her companions had difficulty in getting her home. This was the first thing that made her relatives think that there was anything seriously amiss; she improved with two weeks' rest. She went to the Royal Eye Hospital because her eyes troubled her. She was admitted there next day and was an in-patient for seven weeks, during which time she improved. Her sight used to go for two or three minutes and then suddenly improved again. She said that she felt very weak, and she was rather anaemic. She had no headache lately; it was previously mainly occipital, a little pain at back of eyes. She had not vomited lately. There was no nausea. She was dizzy, occasionally, but had never fallen. Her memory was very fair; she was always rather a slow girl, and found brain work more of an effort than it used to be. She was never drowsy, but sleeps well. Her temper was not good, not changed. She never lost consciousness, no twitching. There was no palsy, no tendency to fall in any particular direction.

Examination.—The pupils were normal, 1/4 inch to 1/3 inch equal. The palpebral fissures were normal; there was no squint, no ocular muscle palsies, no nystagmus. She had a slightly exophthalmic appearance, and a rather dusky look about the eyes. The cranial nerves, 1 to 12, were normal on both sides. There was no expressional palsy of face, no diminution of hearing on either side. Bilateral choked discs were present, the disc edge not visible, some striation, no haemorrhages, the vessels' exit not visible. Visual fields: there was concentric contraction which varied on different occasions. In regard to the arms, the grip was normal, equal, and there was very fine tremor (the patient seemed very nervous). The tendon jerks were active on the right, less so on the left. There was no paresis in any muscle group. The patient here stated that she had lately found her right hand go dead on several occasions without apparent cause.

FIG. 4.—Brain cut across 1½ in. in front of a tumour, illustrating the ventricular distortion and the large size of the ipsolateral hemisphere compared with the unaffected one.

She was fortunately seen during one of these spells; no paralysis and no anaesthesia were detected—the condition was purely subjective. Finger-nose and finger-finger tests were well done. Rapid pronation-spination was badly performed on both sides. Bárány's deviation test was normal. Muscle tone in the arm was not decreased; in the legs it was increased. She walked fairly well, the motor power was good, there was no definite ataxia. The knee-jerks were active, clonic on the left but not sustained; there was no patellar clonus. Tonus was increased definitely, but not obviously in one leg rather than the other. Plantar reflex, right and left, was flexor. Oppenheimer's test was negative. The heel-knee test was well performed, but movements were rather abrupt in both legs. In regard to sensation, there was recognition of a brush all over body, normal localization on the hands and arms. In regard to the joint-sense it was normal in the fingers and elbows on both sides. The positional test was normal. The patient now stated that she thought she had had some headache for ten months; it was worse in the morning, vertex and frontal, worse lying down; vomiting did not relieve the headache but occurred (as is usual with increased intracranial tension) when the headache was at its worst. The Wassermann reaction was negative. The urine was normal. After lumbar puncture in the centrifugalized deposit, an odd small lymphocyte was found. With the perimeter both fields were charted, and concentric contraction was more marked on the left than the right, but nothing of outstanding interest was discovered.

Here, then, was a case with definitely increased intracranial pressure, believed to be a cerebral tumour. Localizing signs were absent. The attacks of numbness in the right hand pointed to the left hemisphere, but a careful examination on several occasions and by more than one person failed to reveal any physical signs to substantiate this. It was therefore decided to perform ventriculography and this was accordingly done on October 8th, 1922, 35 c.cm. of cerebro-spinal fluid being removed by ventricular puncture at Keen's point and air replacement carried out by Dandy's technique. X rays revealed a definite internal hydrocephalus. A ventriculogram (antero-posterior view) shows the two ventricles quite symmetrically dilated and rules out the possibility of a hemispheral growth. A subsequent exposure of

THE MOTOR SHOW AT OLYMPIA.

DEVELOPMENTS OF INTEREST TO MEDICAL MEN.

By H. MASSAC BUIST.

There are many developments of special interest to medical men in the seventeenth International Motor Car Exhibition promoted by the Society of Motor Manufacturers and Traders, which was opened under the patronage of the King yesterday (Friday) in the enlarged Olympia buildings, Kensington, London, and will remain available, Sunday excluded, until Saturday night, November 10th. The prices for admission are half a crown on both Fridays and Saturdays and five shillings on all other days. The prices of the exhibits, alike as regards chassis and complete cars, are those which were fixed by the vendors, and which had to be reported to the exhibition organizers on October 15th. No changes, either in the way of increase or decrease, may be made during the period of the exhibition. The object of this rule is to let the inquirer know precisely how one product compares on the market with another under this head.

This is the majority year of the organizing body, whose series of yearly shows, of course, was interrupted by the war. The new hall adds 65,000 square feet of stand space, bringing the total accommodation to 170,000 square feet, exclusive of the large amount of space needed to provide circulating avenues between the stands. Two other exhibition buildings in the kingdom claim to be larger. But when the figures are gone into it is found that the total area of the given establishment is returned, the implication being that that is available for stand space. The regulation forbidding members of the trade to smoke while on duty at their stands has been repealed. This is regrettable, for the building, large as it is, is crowded throughout the whole period it is open to the public, so that every effort should be made to keep the atmosphere pure. Why should those whose business it is to serve the public and who have wares to sell vitiate the atmosphere?

Over 500 Exhibitors.

This, therefore, is the first post-war exhibition of the sort which has been housed in London under one roof. In spite of the vast amount of space, it is not possible to accommodate all who would display. Several such are perforce excluded; and that after the space originally allotted, but since forfeited by firms which have gone into liquidation and are not eligible under the rules to display, has been redistributed. The natural lighting of the new building by day is all that can be desired, and the convenience of the additional entrance actually on the Hammersmith Road will be greatly appreciated by the public. The new building has also made it possible to increase the catering accommodation, an improvement urgently necessary.

The total number of exhibitors is 526. There is a feeling this year that something should be done in respect of the British industry, the facts being that, on the one hand, it is in a very large percentage of cases placing vehicles on the market at less than the actual cost of production; and, on the other, that the number of passenger cars being absorbed by the buying public in this country this year is, according to the latest registration figures, exactly double the maximum attained in the boom period before the war. The explanation of the parlous case of the British industry in general is that the majority of this increased business has gone to the foreigner, notably to the American trade, to which we are paying £5,500,000 a year. Of course, the real cause is that, in the gross, there are far too many firms engaged in making passenger cars; and this is the only car-producing country in the world where the foreigner is able to do an appreciable business. America puts up an effective tariff wall against British cars despite the fact that her home industry is established on a scale producing 3,000,000 vehicles between January and September, 1923, hence the division of the manufacturer's dead charges over each car to sell reduces that item, very heavy in the case of a British manufacturer, to a negligible sum in the case of an American one. All the vehicles the U.S.A. sell in this country represent extra profit as far as that industry is concerned. The Continental exchanges, of course, favour business in French, Italian, and Belgian cars in this country. German cars are not represented in this show, being still ineligible; but they are on our markets notwithstanding.

The Only Really International Show.

Most of the international trade organizations abroad are modelled on the pioneer body which promotes the Olympia exhibition. But they differ in one important detail. Ours is international in name and in practice: theirs are international in name, but not in practice. Thus a British manufacturer may be a member of the *Chambre Syndicale* in France: but he has no voting rights and, when it comes to exhibitions, he can be allotted stand space only when the native industry has been accommodated. No voting rights could be obtained by a British manufacturer belonging to any of the other national motor trade bodies, either on the continent of Europe or in America. By contrast, in this country the foreigner, or his representative, can be a member of the Society of Motor Manufacturers and Traders enjoying equal voting rights with British car builders and vendors, and the right to secure stand space at exhibitions under precisely the same conditions as obtain in the case of a native. Certainly there is abroad nothing in the nature of a spirit of reciprocity in this matter, a point concerning which the public in general appears quite ignorant. What the average citizen should realize is that we are sending money overseas for a number of commodities which we could produce at home. If we do not order from home sources tens of thousands of skilled workers fail to secure work and, therefore, go on the dole; hence there is a double bill to pay, one direct and the other indirect. The buying public should understand the proportions in which cars of different countries of origin are bought each year so that we may devote any increase in the sale of motor cars in this country to getting some of the out-of-works back into our factories. For instance, the capacity for absorbing motor vehicles in this country with a population of 47,000,000 must be in excess of 80,000 machines a year, particularly as the majority of the cars are small, low-priced vehicles. In this connexion the enterprise of the British industry in pioneering this class of four-cylinder car must be borne in mind. America offers us nothing akin.

How Conditions of Use Govern Design.

All this would be more or less beside the point were the British industry charging for its wares sums out of proportion to their value relative to foreign products. But it must be remembered that cars built abroad have to be suitable, primarily, for conditions obtaining in the countries of origin, and that, therefore, in certain respects the average foreign-built car cannot give the most suitable service judged from the point of view of the special road requirements of this country. It is for this reason that many types of British-built cars, designed with a special view to home service, have been found, year after year, to be unsuitable for conditions that obtain in the British market overseas. That is why America is supreme there to-day. In those countries of relatively few and, outside selected routes, of very makeshift roads, the conditions are the same as obtain throughout the greater part of the United States. Cars designed to fulfil them have not many qualities desirable for home service. Further, from the New World there has not yet come anything that is equivalent to our small, relatively light weight, refined, and high efficiency constructions such as are low taxed and economical in fuel consumption. I do not refer merely to the small car as such, which, as has been pointed out frequently in these columns, is, on analysis, commonly a car of cramped accommodation. Some examples of such practice come to us from the Continent. Nevertheless, most of the pioneering has been done in this class, as distinct from the cycle car, which is of no interest to the medical man. America has never tackled this problem for the sufficient reason that the conditions of her highways and byways render it impossible to find a home market for this class of goods.

The first message of this motor show to the medical man with a strictly limited sum to spend on his car concerns the so-called light cars that are small cars, but which will

of the child is essential before an anaesthetic can be administered.

Acetonaemia may be defined as a disturbance of metabolism which is manifested by the excretion in the urine of acetone, aceto-acetic acid, and β-oxybutyric acid. It is undoubtedly more readily produced in children than in adults. Down to the time of Frew's investigations the condition was chiefly recognized in adults in connexion with diabetes, wasting diseases, and starvation. In the adult it was known that acetonaemia was induced by abstinence from, or deprivation of, food, or by elimination, or by carbohydrate starvation. We know now that acetonaemia may be induced in children by very trifling causes, and, in its slighter form, may result from apparently insignificant changes in the dietary. Dr. R. S. Frew examined the urines of all the children in the Hospital for Sick Children, both medical and surgical cases, from the day of their admission over a considerable period of time. None of these had acetonuria on admission (I am excluding the diabetics), but no less than 62 per cent. of them showed the presence of acetone in the urine during the three or four days following admission, and it had no obvious relation to the disease from which the child was suffering; the maximum of the action occurred, on an average, thirty-six hours after they had entered the hospital. The babies under 1 year of age and the older children showed the reaction to a lesser extent than those between 2 and 6 years. But in all cases it cleared up within a week. Frew attributed the temporary acetonuria to the change of diet and a temporary loss of ability to assimilate carbohydrates, but chiefly to the fact that the standard hospital diet contained relatively less carbohydrate than the children had at home. It was further explained by the relative immunity of the infants when they were fed exclusively on milk, both at home and in hospital, and confirmed by the condition being absent in the children from 10 to 12 years of age, when their diet in hospital more nearly approximated to that in their own homes. Frew further found that when a child had glucose added to the dietary from the time of admission the acetonuria did not occur.

It would be well here to describe the clinical aspect of acetonaemia, for it is an especially frequent occurrence in children after anaesthetics have been administered. It also occurs in pneumonia, in cases where large doses of salicylates have been given, in cyclical vomiting, and, of course, in diabetes. Slight cases may occur where there is no symptom, and only detection by a urinary test can elicit its presence. But in its severer form the symptoms are, in order of their frequency, vomiting, increased pulse rate, restlessness merging into excitability and delirium, air-hunger, and sunken eyes; later, acetone can be detected in the breath, black urine is voided, and collapse occurs as a final issue.

Looking back on the years before this condition was recognized one can remember cases that died after anaesthetics with the above sequence of events; and so our deepest gratitude is due to Frew's work, which has enabled us to prevent its occurrence by administering glucose before operation, and by abandoning that custom, now happily relegated to the past, of starving a child before an anaesthetic is to be administered. It also has enabled us to counteract the symptoms when they do occur by increased administration of glucose, by the mouth where this is possible, and in a 5 per cent. solution of glucose in saline per rectum as well.

The striking *post-mortem* feature of the fatal cases of acetonaemia is the change shown in the liver. To the naked eye the cut section of the liver is pale, and the surface is oily. Microscopically there is marked fatty degeneration of the cellular elements.

The functions of the liver cells are still far from accurately known, but it is becoming more clearly recognized that they are of prime importance in relation to body metabolism, and the profound changes met with in acidosis are convincing evidence of this. It would appear that the liver is the great storehouse of the body fuel reserves, and, at the same time, the "quartermaster" controlling their distribution. Certain conditions serve to deplete the storehouse, and the "quartermaster's" functions are sadly disturbed.

As to the practical application of this to our everyday work of administering anaesthetics, one feels that this aspect of children's surgery is not sufficiently recognized, and I am convinced that much discomfort and danger to children can be avoided by attention to it. The fatal cases are usually noted, but the tragedy is that once the severe symptoms have actually arisen, the march of events is apt to be dramatically rapid, and any treatment unavailing. The successful tackling of this danger is dependent on prevention, or, at least, on early recognition. In the old days, before the condition was recognized as acetonaemia and acidosis, the symptoms were said to be due to "delayed chloroform poisoning," and in textbooks to this day the *post-mortem* appearances of the liver will be found under that heading; but we now know that the true cause is carbohydrate starvation, and find that it can occur after the administration of ether as frequently as after chloroform, and even after spinal analgesia.

Preventive Measures.

1. When acetonuria is present the operation must be postponed until treatment has cured the acetonaemia, because this condition is seriously aggravated by an anaesthetic.
2. All cases prior to being anaesthetized should have glucose as a routine measure for at least two days before the operation, and should continue to have the glucose administered as an after-treatment.
3. The patient must not be starved before operation.
4. Aperients or purgatives must not be given before operation.

In all cases before the administration of an anaesthetic a hypodermic injection of atropine sulphate should be given. The dosage, according to age, is:

During the first six months of life	1/400 grain
During the second six months	1/200 „
During the second year	1/150 „
From 2 years of age upwards	1/100 „

A smaller dose than this is inadvisable. The child tolerates atropine well, and it is essential that the narrow airway should be free from secretions. It is most efficacious when administered half an hour before the anaesthetic is started.

Morphine is a dangerous drug for children, and my only advice concerning it is that it should never be used before administering an anaesthetic to a child.

Choice of the Anaesthetic.

So much has been said and written concerning the comparison in value and safety between chloroform and ether that I do not intend to go very deeply into this now. Suffice it to say that, at the Hospital for Sick Children, Great Ormond Street, we have come to the conclusion, without any manner of doubt whatsoever, that for children ether (preceded by a hypodermic injection of atropine) will always be the "anaesthetic of choice." The comparative safety of ether administration over that of chloroform is enormous.

The conditions met with in adults that contraindicate ether, such as brittle arteries or very high blood pressure, are not met with in children. The only condition where chloroform should be given instead of ether is when a cautery—electric or Paquelin—is to be used, and owing to the inflammability of ether that anaesthetic has perforce to be avoided.

A point to be remembered concerning the inflammability of ether vapour is that care must be taken that a naked light of any kind must be excluded from the room, because the vapour seems to permeate to a distance surprisingly remote from the anaesthetist or his table. The anaesthetist must always be alive to this real source of danger. When there is a fire in the grate, as must often happen at "private" operations, the anaesthetist should always take up his position with his belongings as far away from the fire as is possible; and he should never omit to take the precaution, which is absolutely necessary, of hanging a wet towel or sheet in front of the fire so that the ether fumes may not reach it. Should he have that most unpleasant experience of being in an ether fire, it is well to

as far as the accessory maker can render it possible for the car builder to lower his costs. One idea of certain accessory makers, of course, is to get their wares on quantity production schemes, then go to manufacturers on a lesser scale and point out to them that such and such a popular car-builder has placed orders and that, therefore, they will be out of the fashion if they do not have the given accessory. Another aspect is that if the vendor gets a given accessory on quantity production cars, when each renewal is needed the private motorist will buy that accessory—not at the figure at which the car-builder has acquired it, but at a price which will reimburse the accessory maker for the loss he has incurred in supplying the car in the first instance. It is a weird and unhealthy way of business; and I am satisfied from my own investigations that the really sound firms in the accessory industry are standing by and letting anybody's accessory be thrust to the fore, or jettisoned, rather than themselves undertaking to manufacture at a loss. The state of the exchanges greatly complicates this matter. In connexion with steel and other raw materials which the chassis builder needs, the indications are that these will tend rather to rise than to fall.

Facts that make this a Memorable Exhibition.

The outstanding general tendencies this year are, not that there is any appreciable number of new models worthy of attention in what are called the small car classes, but that the smaller middle size chassis, rated anywhere about 14 h.p., is attracting the attention of an increasing number of serious manufacturers, many of whom are listing important fresh contributions under this head, each at moderate prices and designed especially for the owner-driver. There is the new 12/30-h.p. Sunbeam, designed much on the lines of the already well known 14/40-h.p. type—but without front wheel brakes—and which is listed with 4-seat body equipped completely at £570. This is in every sense a Sunbeam product as regards quality. Then there is a new 4-cylinder side valve engined 14-h.p. Bean car with four speeds forward and right-hand control, complete with 4/5-seat body, at £395; and a new 14-h.p. overhead valve 4-cylinder engined three-speed Armstrong-Siddeley car, listed complete as a 4/5-seater of uncommon ample accommodation at £360; the design of the latter is quite unconventional but sound. It is of light weight, the idea being to put on the market a British-built car that will compete with American machines without, however, attempting anything so absolutely futile as to imitate transatlantic methods of construction. The Armstrong-Siddeley is intended to be suitable both for the overseas and for the home markets, and to provide those particular aspects of refinement characteristic of the British car of the higher grade which it is not possible to embody by American methods of construction irrespective of price. This machine works out economically as to prime cost, tax, fuel, lubricant and tyre consumption, the last by reason, especially, of the form of drive and the method of suspension. The long and the short of it is that to-day the medical man can get an all-weather, full scale, middle size car at a price that two years ago he had to pay for a small car of cramped accommodation. Nor is purchase price the only point in that in the interval fuel, lubricant, and tyre costs have fallen amazingly; and carburation efficiency and tyre durability have been increased to an extent which enables middle size car costs under these heads to-day to be quite as economical as light car costs were three years ago. If for this reason only, the exhibition would be memorable in the history of motoring in these islands.

The General Practitioner's Chief Need.

In general there is certainly an increasing desire on the part of the designer to provide more accommodation for the driver and passenger on a motor car. We see this not only in such schemes as have been mentioned already, but also in the Wolseley development of some moderate priced, middle size models wherein the chassis width has been increased and therefore wider bodies have been possible. We have the same effect, too, in the relatively wide new 14-h.p. Armstrong-Siddeley. Another point which is important to the medical man is that there is a tendency not merely to answer the general demand for right-hand control of the brake and gears—the central control is often a nuisance, especially in the season when heavy coats have to be worn—but also to provide, in the case of middle-powered cars, four speeds forward on the Continental principle, instead of three, which has had quite a vogue in this country and which is still very popular in America. Three speeds are adequate to certain constructions provided the engine has flexibility and pronounced acceleration and that the power-weight ratio is favourable. But this is rare. Wolseley this year has furnished four speeds to the 15-h.p., overhead valve, 4-cylinder engined type and many another example of this could be cited, alike in models already familiar and among entirely new types, as witness the 14-h.p. Bean, the new 15/30-h.p 6-cylinder Maudslay, and the new 21-h.p., overhead valve, 6-cylinder engined Lanchester, which last is of interest rather to the specialist than to the general practitioner; as is the new 21-h.p. 6-cylinder four-speed Rover and the new 20/60-h.p. four-speed Sunbeam. For the medical man's service it is essential that a car should have a quick acceleration without straining the engine, which may often be cooler than the precise temperature that represents its most efficient working and the most favourable condition of the lubricant as to viscosity. Most modern engines will "open up well"; but when relatively a short distance has to be run, and comparatively long spells of idleness for the car between stages, so that the engine and gears are generally in a semi-cool condition, it is often possible to assist the mechanism appreciably by having four speeds instead of three. The doctor's problem is much the same as that which has concerned our great passenger-carrying corporations, including the London General Omnibus Company, whose difficulty for years past has been, not how to make vehicles that will travel faster as to maximum speed, but which will be able to accelerate from rest to the normal running speed in minimum time. That is how time is saved between halts. Nobody wants to travel at a mile a minute on his ordinary occasions; but most medical men want to get going from a stand to twenty miles an hour in as few yards as possible. That is where the four-speed gearbox will be of assistance, as is the increasingly general use of a "hot spot" in connexion with the carburation.

Chassis Lubrication Made Easy.

Another point of economy is the welcome spread, especially in regard to middle size and small cars, of grease gun lubrication which was taken up by a few manufacturers last year. Now it is standardized by nearly half the builders of British cars at a popular price. Already it is plain that it will be a universal practice in two or three years. This method ensures the positive entry of the lubricant to the point of the chassis which it is desired to lubricate, and it is made possible to get at those points which have been inaccessible, thereby dirtying the operator, yet, hitherto, failing to achieve the object in view. Overhead valves continue to increase gradually in favour, and it is to be noted that this year those firms employing the system in fresh types are more or less all justified in that they are obtaining greater economy and greater power, which is more than could have been written truthfully about a number of firms that have produced cars with overhead valve engines in past years. The reason appears to have been that it was considered that it would be a selling point despite the fact that the given builders had not gone to the pains, or expense, of acquiring any first-hand knowledge of the why and wherefore of this system of design.

The greatest of all mechanical developments of the year is the wide exploitation of brakes to all four wheels. These are not necessarily required by medical men. Certainly members of the profession must be warned seriously concerning many front wheel brakes furnished to the cheaper classes of cars, again very obviously because it is foreseen that there is to be a vogue for this class of braking. Certain manufacturers are putting such accessories on their cars without themselves having had sufficient experience to appreciate all the problems involved if the system is to be made satisfactory. If it is not, I maintain that it is a positive menace to road users. There are to be seen at Olympia many cars, especially of the cheaper sorts, fitted with four-wheel brakes which will prove dangerous. Unfortunately for our purpose, the law of libel does not allow me to specify them.

(between the "blows") will partly anaesthetize the soft palate. Then slowly drop the ether on, drop by drop, holding the facepiece quite six inches from the face, the end tilted below the chin. Do not hurry the early administration. Always have a small blanket on the chest in such a way that it can be adjusted around the side of the child's head, because the ether vapour is heavier than air, and so will fall below the level of the upper surface of the face, and your endeavour is to try to keep this from escaping below the required level. "Go slow" until you have the child unconscious, then push the anaesthetic further by saturating the gauze with ether and covering up the head with the small blanket that is arranged about his neck. And remember this—always and at all times have a free airway. So long as the jaw is forward and the tongue not back you can hear by the free easy breathing that the airway is good. And so long as the airway is clear the colour must be right.

It must, however, always be borne in mind that the child's air passages are minute compared with those of the adult. On this account there is a smaller margin for error when anything tends to obstruct those air passages. The slightest obstruction to a free airway tends to make the child cyanosed, which means the right heart is being distended, and this cardiac embarrassment is a real danger. So the importance of maintaining a free airway cannot be exaggerated. I would maintain that the sudden death of a child during, or immediately after, open ether administration is generally (if not always) due to the heart strain that has accrued during some part of the operation secondary to an insufficient oxygen intake.

Recovery.

A few points I would mention to render the child's recovery from anaesthesia less unpleasant are the following:

1. A drop of ol. ricini in each eye. The eyelids are so dry and the suffusion of the conjunctiva so evident after lengthy administration of ether, that conjunctival trouble is not unknown, and this will be prevented by the use of ol. ricini. It should only be used after the ether administration has ceased, because otherwise an ethereal oil will be formed which is itself damaging to the conjunctiva.

2. The dryness of the mouth so frequently complained of may be prevented by sponging out the mouth with normal saline immediately the administration has ceased. This is particularly necessary after operations about the mouth—for example, tonsils and adenoids—when it is the coagulated blood on the tongue and palate which, when left, is the source of annoyance to the child, and can be obviated by this means.

3. The highly strung, nervous child will recover from the anaesthetic more quietly, and have a longer sleep after consciousness has returned, when a rectal sedative is given. For a child of 10 years, potassium bromide 20 grains and aspirin 10 grains, in half a pint of normal saline, should be given slowly per rectum before consciousness returns, as soon as the child is put back to bed.

My object has been to draw attention to the above few practical points in the hope that my fellow practitioners may be enabled to help their little patients to take an anaesthetic with safety and with as little unpleasantness as possible.

DISCUSSION.

Dr. A. L. Flemming (Bristol) said that deaths were attributed to ether and to delayed chloroform poisoning which were really due to acetonaemia. With regard to constipation and the use of aperients, certain school children, and more especially anaemic girls of 15 or 16, could have operations obviated or at least delayed until the patient was in a more suitable condition for operation, if, when the colon was loaded, the breath foul, and a diagnosis of doubtful appendicitis made, they were put to bed and purged. In many cases school children were apt to be constipated, and if a purge was not given and the bowel was not emptied before operation they were liable to salivate excessively and to require more anaesthetic than if a purge was given. There should, however, be an interval between the giving of the purge and the anaesthetic. He also asked Dr. Sington whether his cases were anaesthetized by daylight or by lamplight, as there undoubtedly were differences to be noticed in the colour changes under anaesthesia as induced in the presence of different illuminants.

Dr. Wilkins said he failed to understand why Dr. Sington recommended ether for tonsil and adenoid guillotine operations in children, as he personally found gas and oxygen sufficient for a dexterous surgeon, and far better for those unfortunate children who still were operated upon as out-patients.

Dr. C. H. Mott (Burslem) inquired whether cases which developed acetonaemia in hospital cleared up without treatment. He wished to know also whether chloroform was no more dangerous than ether in such cases of acidosis where operation could not be delayed. In his own practice he made use of gas, oxygen, and ether, and he noticed that even with these anaesthetics some cases developed acidosis.

Dr. Henry Featherstone (Birmingham) said he was inclined to believe in an important third factor in the production of acidosis in addition to starvation and drugs—namely, individual idiosyncrasy, which might be an inherited characteristic. He instanced the case of a little girl, aged 4, the apparently healthy daughter of well-to-do parents, whose tonsils and adenoids were quickly removed under a single dose of ethyl chloride. Marked symptoms of acidosis and toxic vomiting appeared within forty-eight hours, and the child died on the third day. In that case the effect of starvation and drugs must have been small, for the patient only omitted her breakfast on the morning of the operation, and milk was given the same evening, while the anaesthetic was quickly eliminated. An elder brother had shown signs of acetonuria a year or two previously. Many thousands of children whose tonsils and adenoids were removed in hospitals were dealt with before a case of this kind was met. He agreed with Dr. Sington that gas-oxygen was the anaesthetic of choice for babies who were to undergo Rammstedt's operation for hypertrophic pyloric stenosis. At the Birmingham Children's Hospital very good results had been obtained, and the last ten cases in the private ward had all recovered. The latter result was no doubt largely due to the early diagnosis and more satisfactory state of nutrition of the infant, but nevertheless the entire series showed a most satisfactory recovery rate. Ethyl chloride was his routine anaesthetic for dental extractions in children, and he anaesthetized about 2,000 such cases in the course of a year. He entirely agreed with Dr. Sington that rapid induction and rapid elimination were the secret of success. Laryngeal stridor or lingual obstruction might lead to some signs of shock and to after-vomiting.

Dr. L. A. Moore (Bristol) asked for details with reference to the administration of gas and oxygen to children, and whether ethyl chloride was advisable as a prelude to ether induction.

Dr. Sington, in reply, said he was glad that the subject of acidosis and constipation had been so freely touched upon. In his opinion poisoning due to liquid faeces was rather different from that due to hard faeces. Toxicity due to liquid faeces was much more serious than that due to hard faeces. Purgation should, therefore, be employed with great care, and if possible some time before the operation was undertaken. The child would stand a better chance if operated upon in a constipated condition than if its colon was full of liquid faeces the result of purgation shortly before. He then answered the questions asked by his critics in detail.

FATALITIES FROM ANAESTHETICS.

BY

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Statistics of deaths under anaesthetics are generally so lacking in essential details as to be of little use for guiding us in our practice. After examining quite a large number of these reports with the intention of reviewing the

Interchangeable Coachwork.

Unquestionably that is the most notable fresh contribution to the problem of coachwork made this year. It is important to observe that these advantages are all obtainable for a lower price than an ordinary covered body. The medical man can have the advantage of using a complete saloon on a chassis which otherwise would be somewhat overloaded with a cabriolet, or coupé, which is bound to become creaky in relatively short time. Moreover, as far as tests have gone, the Weymann bodies have been found capable of withstanding extremely varied climatic conditions such as great heat in the day and cold at night. The warping that occurs in such circumstances is temporary only, for the body recovers its normal form with the subsequent change of temperature. Of course there are other developments of coachwork schemes as standardized on low-priced vehicles. There has not been much improvement as far as open types of bodies with collapsible hoods and temporary side curtaining schemes are concerned; the chief improvements have been in the direction of eliminating rattle and rendering more simple the process of fixing. Observe in this connexion the improvements made in the series of Standard cars. Moreover, interchangeability of component body parts has been achieved, and this firm has devoted a special factory to the building of these bodies. Thus, in the event of a door, or a panel, or window, becoming damaged in an accident, the replacement is as quick, prompt, and economical as possible, in that the given part has merely to be ordered and it will be found that it fits in position exactly. This is made possible by the developed methods of construction and by the materials employed. These bodies are better made as to certain details than transatlantic bodies; certainly, America has not attempted anything so simple and efficient from the point of view of replacement of parts.

Sundry Developments in Detail.

The wheelbase of the Dodge has been increased to 9 ft. 8 in., the body is lower, and the rear springs, which are now of the underslung semi-elliptical type, have been increased from 45 to 55 inches in length. The front ones are also longer as well as wider, being built up of more and of thinner leaves. The brake pedals are larger, the hand-brake and gear levers have been moved forward, giving more leg room and making it easier to get in and out of the body; and a Yale lock has been built into the transmission, rendering it possible to double-lock the car when not in use. The steering wheel has been improved in appearance, all the electrical connexions being inside the column. Louvres have been provided in the sides of the bonnet and the grouping of the instruments on the board is improved. Drum type headlights are employed to harmonize with the new and greatly improved body lines, and a combination of tail lamp and stop signal is mounted on the licence plate bracket on the rear cross member of the frame. This lamp operates automatically, being a valuable "safety first" device. The bodies are now longer and lower, being equipped with deeper seats providing more leg room. The touring car, painted mole grey with nickel radiator, costs £355; the blue sedan with black bonnet, valances, and head, £495; the oriental maroon landaulette with black wings and valances, and nickel radiator, upholstered in antique leather or Bedford cord at option, with English-built body, is listed at £495 also.

Four types of 4-cylinder De Dion-Bouton touring chassis are marketed this year, the 12/24-h.p. being a side valve engined type, the 12/28-h.p. an overhead valve engined type with brakes on all four wheels; the 15/43-h.p. type having overhead valves with four wheel brakes and cantilever rear springs; and the 22/65-h.p. type also has overhead valves and four wheel brakes, together with cantilever rear springs. The first named chassis costs £380, a reduction of £51 7s.; and the complete 3/5-seated all-weather torpedo £540. The 12/28-h.p. model with overhead valves has a wheelbase 4 inches longer, the chassis costing £445, which represents a reduction of £66 7s., from which £20 more can be deducted if front wheel brakes are not desired.

A Contrast in Types.

The Renault range for 1924 includes five chassis; the three smaller have 4-cylinder engines and the two larger 6-cylinder power plant. The smallest in size is the 8.3-h.p. type with 3-seat body, or with two seats and dickey, at £265 complete in each case. The developments in these chassis were dealt with in these columns on the occasion of reviewing the Paris Salon. This firm is one of the three pioneer small car makers of France. A remarkable mechanical development is that some of the practice of the small cars is now applied to the larger and most expensive vehicles also. Of course, the larger types have brakes to all four wheels; only the smallest one is lacking them.

The horizontally opposed, twin water-cooled cylinder engined 9-h.p. Ariel chassis, that was introduced last year, remains unaltered, and in the interval has scored 100 per cent. success in the light car class in the London-Lands End trial. The single shell body standardized has been improved considerably, the rear seat having been widened so that two adults can be accommodated. The retail price of the standard vehicle with 4-seat body is £165 only. What is styled a *de luxe* model—the buyer having the choice of three colour schemes and the standard equipment—embraces all-weather hood, side curtains, hood bag, Dunlop Clipper cord tyres, Lucas five-lamp lighting set, motometer, speedometer, and spring gaiters. It is sold at £180, or, if the Lucas electrical engine starter is provided, for £12 more.

The 10.4-h.p. side valve engined 4-cylinder £11 tax Calcott model is now shown as a 2-seater and dickey type with all-weather curtains for £265 only, a single shell body type being listed at £20 more. In the second named occasional seats are provided behind the two front ones.

Sundry mechanical improvements have been incorporated in the 11-h.p. 4-cylinder side valve engined Hillman chassis, including a dry plate clutch with a neat form of withdrawal gear; also a compensating gear for the brakes. The prices of the 2-seat and 4-seat types have been reduced by, approximately, £90 each, yet the engine running has been improved and the brake application is also praiseworthy. The generously padded upholstery is of real leather and the angles of the seats are well planned. The side panel equipment is now all of metal work finished in dull black, instead of nickel plate, thus reducing the labour of cleaning. The rear side panels can be joined together across the car to form a screen for the back seat. A useful fitting is the provision of a two-way tap in the fuel tank whereby it is possible always to have a reserve of one gallon. The 2-seater is listed at £350 and the 4-seater at £8 more.

The list of new British car types includes a side valve engined 2,121 c.cm. 4-cylinder Arrol-Johnston listed complete at £398; and the Cluley (2,190 c.cm.), Hands (1,870 c.cm.), Meteorite (1,753 c.cm.), and Whitlock (1,753 c.cm.) 6-cylinder cars.

"Comfort" Tyres and Accessories.

As at the Paris show, so on this occasion, a novelty of note is introduced by the enterprise of the tyre industry, notably that of the Dunlop Company in the guise of "giant" section tyres designed to be run at low pressures with safety. The aim is really for the tyre industry to assist the chassis manufacturer in the matter of comfortable suspension; to be quite plain, to hide faults of bad suspension. Hence the wide demand for large section, low pressure tyres on the part of many Continental manufacturers of small cars who have to deal with very bad road conditions and, therefore, have to make their springs much harder than we are accustomed to in this country. It would be an unsafe movement were it not for the fact that the corded system of construction renders the covers very much stronger than before, and that the principle takes into account the stresses of corner work, and so forth, these large section tyres fitting on proportionately very wide rims. Interesting experiments have been carried out in France concerning the effect of these tyres; they have been punctured in racing at a mile a minute without ill consequences. But the majority of Continental expert drivers who have tested them consider that they exercise a certain effect on the steering. Against that the gain in riding comfort is admitted. The Dunlop Company experimented with the type as far back as 1916, when it fitted a 13.9-h.p. Rover car with a set. There are many other exhibits on the stand of this firm, including all the corded sizes; three types of wheels—disc, wire, and steel; and so on. Incidentally, the Society of Motor Manufacturers and Traders has requested

gr. 1/100, morph. sulph. gr. 1/6, atropine sulph. gr. 1/180; "Hyoscine compound B" contains hyoscine hydrobromide gr. 1/100, morph. sulph. gr. 1/4, atropine sulph. gr. 1/150. The injections are given half an hour before the time of operation. The patient is then anaesthetized with gas and oxygen, and the anaesthesia deepened with ethanesal or mixture until the breathing is deep, regular, and slightly stertorous; the colour should always be pink. The facepiece is then removed; a gag placed in the mouth for such cases as enucleation of the tonsils, and the anaesthetic is continued by means of a tube placed in the mouth.

One of the astonishing things about this method is the small amount of mixture necessary to maintain the requisite anaesthesia. Indeed, in a certain proportion of cases hardly any mixture at all is necessary for the rest of the operation—that is to say, after the facepiece has been removed; after that, gas and oxygen alone is sufficient.

In this connexion I must mention that there is one particular type of case where I have been forced to use chloroform alone as my adjuvant. I refer to cases of diathermy. In our throat department Mr. Harmer is treating cases of carcinoma of the tongue, fauces, etc., with the diathermy cautery, and, I gather, with excellent results. Now occasionally in these cases there is a certain amount of sparking, either accidental or intentional, and so one cannot have any ether in the adjuvant bottle lest there should be an explosion, and must use chloroform.

In a large number of cases the best way to continue the anaesthesia is to pass one or two small rubber tubes through the nostrils, and pass the anaesthetic into the post-nasal or endopharyngeal space; I do this by means of a metal stirrup and tubes.

For operations such as submucous resection of the nasal septum, after anaesthesia has been obtained—and here let me say that in nose and throat work as well as in abdominal work I think that it is essential to get the patient "well under" before the operation begins—an artificial airway is placed in position and the anaesthesia continued by what really is an endopharyngeal method. An airway devised by Mr. Clausen, one of our residents at St. Bartholomew's Hospital, is one of the best I have ever seen; the anaesthetic is delivered at the upper opening of the larynx, and the return air is diverted by a tube away from the operator and anaesthetist.

The results that I have obtained so far with endopharyngeal gas-oxygen-ethanesal have been most encouraging, and I hope in the near future to develop the method still further. The endotracheal administration of gas-oxygen-ethanesal is another recent development of the method, and one that appears likely to be very valuable for work not only in the mouth and neck, but also for upper abdominal cases, since relaxation of the abdominal muscles is readily obtained. Sufficient work, however, has not yet been done with this method to warrant me at this early stage to go into details.

DEMONSTRATION.

Dr. Christopher Mayhew (Southsea) showed a new apparatus of his own invention for administering warmed ether vapour, the chief advantages for which were claimed to be its lightness and portability, the whole of the apparatus, weighing only 1 lb., being capable of being taken to pieces and stored in the warming cylinder.

THE TREATMENT OF HAEMORRHOIDS BY INTERSTITIAL INJECTIONS.

BY

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s great interest has recently been aroused in the treat-ent of haemorrhoids by injection of carbolic acid, I wish record my observations and conclusions drawn from a ies of 150 cases treated in the Royal and Western firmaries, Glasgow, during the past year. These patients re kindly sent by the various surgeons of the Royal irmary, and Sir William Macewen permitted me to treat haemorrhoidal cases in his wards in the Western irmary.

'he treatment consisted in the injection into the pile of per cent. carbolic acid in liquid extract of hamamelis. ing the Annual Meeting of the British Medical Asso-ion in Glasgow (1922) the method was demonstrated in Kay's wards in the Glasgow Royal Infirmary by Mr. tar of the London Hospital.

ie cases were not selected; all degrees of piles were ted, from the simple internal piles with no prolapse ose with marked prolapse. The class of patient treated sted chiefly of manual workers engaged in such arduous ations as mining, engineering, and labouring. The of the patients varied from 21 to 70 years. The er of injections needed to effect a cure did not seem pend on the age of the patient or the duration of mplaint. One patient who had been suffering for one required seven treatments, another case of fifteen duration needed only five. The number of piles it varied, and the greater the number of piles the r the number of treatments. The size of the piles l to have some effect; the larger the pile the fewer jections. Bleeding usually stopped after the first on. In only one instance was a second injection ed for this symptom, although "bleeding piles" com-40 per cent. of the cases. Haemorrhage after injec-rough the puncture of the needle is slight, and I ot seen a case where bleeding, due to the treatment, d any of the special forms of arresting the haemorrhage described by Dudley D'A. Wright in the second edition of his pamphlet on this subject. Where inflammation was marked no injections were given until this was subdued; if only slight, injections were given, and although the pain following was more marked than usual it was never severe and the piles quickly underwent thrombosis.

Immediately after injection the piles swelled; the mucous membrane over some of them became blanched; and where external piles were also present the external pile corresponding to the internal one injected also became swollen in many instances. In only four cases did the treatment keep the patient off work, the duration of incapacity being two days, three days, two weeks, and one week. In these cases marked prolapse was present, and although the piles were reduced after injection reduction was not maintained and strangulation occurred. In this class of case I now only inject one pile at a time, and insert a gauze pad into the anus with a large external pad firmly retained in position by a perineal bandage. Strangulation has not occurred in the last fifty cases of this series.

The injections were given at weekly intervals, and the average length of treatment was five weeks. The thrombosis produced extends along the veins until they perforate the coats of the rectum. In no case has embolism, peritonitis, or pyaemia occurred, such as has been described by others.

After the first visit the patients returned with great regularity, submitted themselves with every confidence that they were not going to suffer much pain, and all stated that their rectal and general condition had greatly improved after the first injection, their usual expression being, "they never felt better in their lives." Four of them had been operated on for piles, and stated that they would not now subject themselves to operative measures on account of the pain associated with them and the long time they were incapacitated after the operation. Cycling after the injection is not recommended, although one man (a furnaceman) immediately after his injection cycled four miles to his work and after work cycled the same distance home again. The progress of this case was uneventful. In some cases two to three months after the injections small "tags" were noticed where the piles had been. If these were of any size or caused any discomfort they were removed. One case, although the patient stated that he felt much better after the treatment, was rather disappointing; the piles became thrombosed but the sphincters did not regain their tone,

British Medical Journal.

SATURDAY, NOVEMBER 3RD, 1923.

THE SCHOOL OF HYGIENE.

Dr Andrew Balfour has been appointed director of the School of Hygiene. This is the first step towards the creation of an institution which will, we hope, powerfully influence the development of scientific hygiene and preventive medicine in the British Empire, and beyond.

Dr. Balfour's record is such that our confidence in the success of the new school is strengthened. His own contributions to pure research imply an insight into the problems of the laboratory which qualify him to consider sympathetically the views of those who attach importance to that side of teaching which depends upon the stimulus of example rather than precept; his practical experience of men and things frees him from any specialist bias. We have always urged that a combination of administrative and research experience should be found in the director of a first-rate school of hygiene. We are glad that such considerations have guided the Committee in its choice.

The preliminary organization of the School of Hygiene, towards the building and equipment of which two million dollars were offered by the Rockefeller Foundation, has engaged the attention of a Transitional Executive Committee, under the chairmanship of the Minister of Health, for the past six months. Prior to this a site had been secured in Bloomsbury by a committee appointed for this purpose, and the Government had undertaken to provide at a future date a sum of £25,000 annually for maintenance and staffing. Until the school was completed, when the Parliamentary grant would become available, the Rockefeller Trustees promised an annual grant of £5,000 for the salary and administrative expenses of a director. In our issue of October 6th we remarked upon the prolonged delay in the appointment of a director, and we now have the pleasure of congratulating the Transitional Executive Committee upon having secured a man with imagination, tact, discretion, and a wide experience of men and affairs in many lands; one who not only has a broad outlook on hygiene and a tried capacity for research, but has shown himself an eminently practical sanitarian as medical officer of health of the modern city of Khartoum from 1904 to 1913, and later as a member of the Medical Advisory Committee of the Mediterranean War Area. Dr. Balfour, it may be noted, received the C.M.G. in 1912 and the C.B. in 1918. He is fifty years of age, graduated M.B., C.M. at Edinburgh University in 1894, and, four years later, when he took the M.D., gained the gold medal for a thesis on the toxicity of dyestuffs with special reference to river pollution. In 1900 he received the degree of B.Sc. in Public Health (Edinburgh), having already obtained the D.P.H.Camb. in 1897. His numerous publications include a textbook (jointly with Lewis) on *Public Health and Preventive Medicine* (1902), and *War Against Tropical Disease* (1920).

One of the chief needs at the present time is the application of existing knowledge to local conditions, but this can only be done adequately when men are well trained in the underlying principles. There remains much room for improvement in the ordinary teaching of hygiene and the dissemination of existing knowledge both at home and abroad. The provision of sound training will be one of the great functions of the school. As it is only by considering hygiene in its historical perspective that a true notion can be got of all that has been accomplished by the world at large, and particularly by many pioneers of the work in this country, Dr. Balfour has foreshadowed the creation of a great museum of hygiene, which would not only give a graphic idea of the part played by hygiene in the economic development of the empire, but could indicate the gaps which remain in our knowledge and suggest the lines upon which the most useful practical results might be expected from research.

It is probable that a large proportion of the students in a school situated in London will be men preparing to enter the public health service of this country, and the school must therefore provide a normal course of study furnishing the technical and scientific equipment prescribed as essential by the General Medical Council. It would be wholly wrong if students whose aspirations do not extend beyond these requirements should not find in the school what they need, but it is evidently the purpose of the Executive Committee, as it was the intention of the Rockefeller Foundation, that the new school should be essentially imperial in scope, and should become a centre to which other nations may also bring their problems for practical assistance towards their solution. But it is obvious that the endowment of £25,000 promised by the Government will be inadequate for the proper staffing and maintenance of the teaching appointments and research departments of the new institute, and that the Transitional Executive Committee must so direct its policy as to secure the inclusion under the charter of the new school of the goodwill and endowments of other bodies already engaged in the same work. May it not be that here is the dawn of the coming of a great school of post-graduate medical studies in London?

A really great school is one all of whose professors are enthusiasts for their special subjects, but also broad-minded enough to recognize that no single branch of science is either self-sufficing or all-embracing, and are prepared to work loyally together under the chairmanship of a broad-minded and experienced director.

In a country such as ours, proud of ancient and famous educational establishments, a new college must struggle hard to secure any measure of popular prestige. All Englishmen are tinctured with academic conservatism; it is not only the alumni of Oxford and Cambridge who respect the ancient universities more than those founded in our own time. So the task before Dr. Balfour and his future colleagues is not a light one: they do not inherit the prestige of a long series of illustrious predecessors; they have behind them no tradition—they themselves must create what shall become a tradition. Upon their singleness of purpose everything depends. The best wish we can utter is that when, in the fullness of time, Dr. Balfour comes to give an account of his directorate, he may be able to apply to himself and his coadjutors the words of Henry V, "We few, we happy few, we band of brothers."

end of the inverted bowel were inflamed and adherent, and the peritoneal sac contained a little clear fluid. The peritoneum generally, and that of the greater portion of the inverted intestine, appeared healthy. A tube having the position and relations of the vermiform appendix was thickened and distended and fixed in its whole length (two inches) by old adhesions. It was soft and its cavity communicated with that of the caecum through a narrow opening.

This dog obviously suffered from chronic appendicitis and from an intussusception which proved fatal. The conditions were exactly those which might be found in a child. I had, however, some doubts about the teaching and, on consulting *Quain's Anatomy*, I found the following: "So far as is known, the appendix is peculiar to man and certain of the higher apes, and to the wombat" (*Quain*, ninth edition, vol. ii, p. 614). Mr. Powell, the librarian of the Royal Society of Medicine, kindly looked up the authorities for me and wrote that "all the books and treatises we have state definitely that the appendix is wanting in domestic animals."

No opportunity to dissect another dog has presented itself, but a paper recently published by W. A. Costain of Toronto gives evidence that the dog has an appendix. This paper is most interesting. It records that when a ligature is placed on the appendix and the meso-appendix of a dog septic peritonitis follows and is fatal in about two days (*Surgery, Gynecology, and Obstetrics*, vol. xxxvi, p. 365). But if the thoracic duct is ligatured and drained twenty-four hours after ligaturing the appendix, the poison, instead of being taken into the blood stream, is discharged from the body and recovery takes place. A collateral lymph circulation develops, and the drainage fistula heals spontaneously. Dr. Costain tied and opened the thoracic duct, close to its entry into the vein, in the neck of a 9-year-old child suffering from acute pneumococcal peritonitis. No abdominal operation was performed except the removal by aspiration, for examination, of half a cubic centimetre of pus from the right side of the peritoneal cavity. This pus contained pneumococcus IV. Rapid disappearance of all symptoms proved that septic absorption had ended. The abnormal abdominal conditions gradually subsided, and the patient was discharged, cured, twenty days after the operation.

The extraordinary power of the peritoneum to get rid of infection is one of its most remarkable features. Nevertheless septic peritonitis is common, and when definitely established it is usually fatal. Hence a main object of surgeons during the last forty years has been the prevention of septic peritoneal infection. This has been in great measure effected by averting its causes. But still it occurs, and Dr. Costain's observations prove, as he claims, that "when a fatal absorption is overcome, the peritoneal cavity is capable of looking after such a formidable structure as a necrotic appendix." It would appear, therefore, that lymphaticostomy must be considered an important and hopeful treatment for the prevention and cure of septic peritonitis in suitable circumstances.

A SERIES OF CASES RESEMBLING PARALYTIC ILEUS.

BY

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THE following cases have come under my treatment during the last three years, and I am publishing them not only on account of their interest but also to invite correspondence as to the cause. I can find nothing described in the various systems of surgery which in any way resembles the cases under report.

CASE I.

In July, 1921, at Rawal Pindi Civil Hospital, a well developed young Punjabi, aged 22, came in complaining of abdominal pain and giving a history that his bowels had not been open for ten days. He did not appear to be in the least distressed and except for a distended abdomen was otherwise normal. His tongue was clean, pulse 80, temperature 98°. Pain was of a general character and no special point could be elicited on palpation. Per rectum nothing abnormal was felt.

He was admitted and given an enema with oil, soap, and turpentine. Water only by mouth. Seen the next morning, his general condition was the same. There was no sign of peritonitis. The enema had been passed almost clear. The abdomen remained distended and he complained of rather severe pain. A second enema was given and 1/2 c.cm. pituitrin hypodermically. He passed urine but no flatus, and the wash-out was returned clear. Seen again the following day he was in the same condition. He had not vomited, there was no rigidity, his pulse remained 80, and his temperature normal. He however complained of more severe pain, so I decided to do a laparotomy.

The operation was done that morning under chloroform. On opening the abdomen free blood-stained fluid escaped at once (I suppose in all there were two pints of free fluid), the small intestines, in large distended coils, and purple in colour, evacuated themselves and were immediately surrounded by hot saline towels. The large intestine was seen to be equally distended but not so discoloured. No line of demarcation of strangulation was seen, in fact the large intestine was distended down to the lower sigmoid. A rectal tube was passed well up the lower bowel and at the same time the small intestine was punctured by a large trocar and cannula and the contents as much as possible evacuated. Two ounces of mag. sulph. in ten ounces of water were introduced into the small intestine at the last puncture. Four punctures in all were made, three in the small and one in the large intestine. The intestines were returned fairly easily and the abdomen closed. Pituitrin 1/2 c.cm. was given four-hourly for six doses. The rectal tube was left *in situ*. The patient was kept in Fowler's position, and only sips of hot water given by the mouth. He made an uneventful recovery and left the hospital fourteen days later.

CASE II.

At Rawal Pindi two weeks later, a frail woman, aged about 40, walked into hospital complaining of abdominal pain and giving a history of absolute constipation for fourteen days. As in the last case, except for a distended abdomen there were no signs or symptoms of disease. She was a feeble creature with a small pulse and no physical reserve. She was given an enema as in the previous case, with the same result. The next morning as she was no better I decided to do a laparotomy and the operation was done as in the previous case.

On opening the abdomen there was no free fluid, but the intestines had the same purple appearance and were greatly distended. The same routine was carried out as rapidly as possible and the abdomen closed. In spite of pituitrin, camphor in oil, nux vomica, and enemata, her bowels refused to act and she died three days later. No obstruction was found at the time of operation and at necropsy no signs of inflammation, kinks, or bands.

CASE III.

At Jullundhar in November, 1921, an emergency case of intestinal obstruction was admitted at 5 p.m. The patient was an old, frail, wizened-up man about 60 years of age. He gave a history of absolute constipation for fourteen days, and had a distended abdomen with some abdominal pain. He had come in by road eighteen miles in an ekka and walked from it to the surgery. He was given an enema and a stimulant draught. The enema produced no result.

At 6 p.m. a laparotomy was performed. Free blood-stained fluid escaped from the abdominal cavity. The small intestine was distended, but the most curious feature was that the internal and muscular coats appeared to have given way in places and the peritoneal coat only remained intact and that was distended in large beads about the diameter of a sixpenny piece. The case was so obviously hopeless that a Paul's tube was tied in and the patient returned to the ward. He died the same night. In getting the Paul's tube out the abdomen was opened and again no visible obstruction was found.

CASE IV.

At Delhi in January, 1923, a Pathan boy, aged about 18, was admitted with a history of nine days' constipation and a painful distended abdomen. His tongue was foul, pulse 100, temperature 99°. An enema was given without result, and he was operated on almost immediately afterwards.

At operation the same condition of the intestines was found except that the large intestine was not so distended. The only possible cause of obstruction was a slight mesenteric kink at the hepatic flexure of the large intestine, but was not sufficient to cause more than slight partial obstruction. The gut did not contract down well after evacuation of the contents by the cannula, nor did much material or gas escape by the rectal tube. In spite of all the usual remedies he never passed flatus, and died three days later.

If a complete *post-mortem* examination had been possible on these last three cases some cause might have been found to account for the condition; but what about Case I, who was apparently of the same type? I feel that I cannot be the only civil surgeon in India who has come across this type of case and should be glad to hear the experience of others.

In the first two cases I was assisted by Assistant Surgeon Gopal Dass and Sub-Assistant Surgeon Chand Narain; in the third case by Khan Sahib Mohammed Shariff; and in the last case by Lieut.-Colonel H. Hallilay, I.M.S.

THE INSURANCE CRISIS: EMANCIPATION.

THE Minister of Health has receded from his original position, and has given explicit assurances on certain matters to which the Insurance Acts Committee attaches supreme importance, although complete satisfaction has not been obtained. Representatives of the Insurance Acts Committee saw the Minister on two occasions on October 30th; the first meeting was occupied in preliminary discussions. The declaration of the Minister, published in the SUPPLEMENT this week, makes two things clear. One is that medical benefit is a primary benefit, and that there is no title to additional benefits until this and the other primary benefits—sickness, disablement, and maternity—are satisfied; the other is that the remuneration of practitioners is to be settled on its merits, and agreed by negotiations between the Minister and the profession.

The demand of the profession that an inquiry, by Royal Commission or otherwise, should be impartial and comprehensive, and should embrace the whole field of the insurance scheme, including finance and the administration of Approved Societies as well as medical benefit, has been accepted. The scope of such an inquiry is guaranteed by the undertaking that the medical profession shall be consulted as to the exact terms of reference to the Commission. On the financial side there is also some gain. Alternative proposals are made. The offer of the Minister covering all the points which have been the subject of negotiation will be submitted to the Special Conference of representatives of Local Medical and Panel Committees which has been summoned for November 14th, and it will be for the Conference to take into consideration the specific alternative offers under the head of remuneration. These are, on the one hand, a separate and immediate inquiry into the appropriate capitation fee for 1924; or alternatively a guaranteed fee of 8s. 6d. for five years, instead of three as originally proposed. During this period of five years the wider inquiry of the Royal Commission would be proceeding. Meanwhile, in view of the statutory requirement that two months' notice must be given, the resignations of insurance practitioners were placed in the hands of the clerks of Insurance Committees throughout the country on October 31st. Whether they become operative on January 1st or are withdrawn will depend on the decisions of the Panel Conference.

Throughout the negotiations the Committee has been careful to stress the claims of rural practitioners, and it is satisfactory to find that it has succeeded in inducing the Minister to guarantee the setting aside of a sum of £250,000 for the year 1924 (as against approximately £210,000 in the present year) as an addition to remuneration.

The hands of the Insurance Acts Committee, in conducting the negotiations, have been greatly strengthened by the knowledge of the manner in which resignations have been tendered—the final result being that 94 per cent. of the insurance practitioners of Great Britain have resigned. The whole medical profession will rejoice with the insurance practitioners in the fact that the profession has shown such remarkable unanimity and determination, and that this action has resulted in clarifying the position of every member of the profession, whether an insurance practitioner or not, in regard to State service. It has made it clear and authoritative that in relation to services rendered to the community the profession stands untrammelled by unconstitutional claims or pretensions on the part of any particular section of the community.

THE MEDICAL INSURANCE AGENCY.

A MEETING of the Committee of Management of the Medical Insurance Agency was held at the house of the British Medical Association on Thursday, October 25th, when, in the absence of Dr. G. E. Haslip owing to indisposition, the chair was taken by Dr. H. A. des Voeux. Other members present were Dr. E. Weaver Adams, Lieut.-Colonel R. H. Elliot, Dr. R. A. Gibbons, Dr. R. Langdon-Down, Sir Dawson Williams, Sir Squire Sprigge, and Mr. W. E. Warne. The secretary presented the audited balance sheet for the year 1922, together with the chairman's report thereon. A very interesting detailed schedule showed the great and rapid progress made by the Medical Insurance Agency during the last eight years. The premium income increased from £12,104 in 1915 to £37,936 in 1922, whilst the commissions, etc., earned rose from £1,950 in 1915 to £5,250 in 1922. For the third year in succession policies totalling over £100,000 in sums assured in respect of life and endowment assurance were arranged through the medium of the agency, bringing the total sums assured up to December 31st, 1922, under these heads to over £700,000. Business in fire and accident insurances has increased; the convenience of paying one premium for all household risks under a flat rate is apparently much appreciated. An interim report by the Chairman for the nine months ended September 30th, 1923, stated that the popularity of this comprehensive household contract continued. In spite of a decline in life assurance business experienced by all offices, and in spite of the existence of keen competition, the agency negotiated 62 new life policies during the period. One of the advantages—and not the least—of the Medical Insurance Agency is that members of the profession can obtain from it personal advice as to the particular kind of policy to meet the individual's particular needs. During the Annual Meeting at Portsmouth no fewer than fifty-five interviews took place, and it was found possible to adjust several delicate or peculiar matters to the satisfaction of the applicant. The amount of business in insuring motor cars done by the Agency increased during the year, but bearing in mind the large number of cars now used by members of the profession it is believed that the amount could be considerably increased. Motor car insurance is a specialized business; accidents are more heavy and frequent than in almost any other form of insurance, and members of the profession would be well advised to take advantage of the security offered them to obtain fair and equitable settlements by insuring through an agency so strong and influential as the Medical Insurance Agency. The Committee has for some time felt that the benefits already conferred upon the profession might be increased were it in a position to obtain for the person insuring through it advice on all matters affecting the purchase and use of motor cars. An arrangement has now been made with the firm of Mann, Egerton, and Co., Ltd., to advise members free of charge, either directly or through the medium of the Agency, on any problems, difficulties, disputes, or technical matters relating to motor cars, including motor coachwork and accessories; to give advice as to the suitability of any particular car for any class of work or type of district; to undertake the periodical inspection of members' cars at a moderate fee; to give expert advice as to the mechanical condition of members' cars, and the advisability of repairs, and to prepare specifications and estimates for repairs to mechanism or coachwork, or for the manufacture of special bodies to meet particular requirements, and generally to place their entire resources at the disposal of members, both in London and throughout the country. The firm has been established over twenty-five years; it possesses experience, a staff of experts, and large works at Ipswich, Norwich, and in London (156, New Bond Street, and 14, High Road,

animals and plants—of specific kinships underlying superficial differences, and of disorders of the more complex animals by the light of elementary changes in the simplest animals and in plants, in which the plasticity, I had almost said the pregnancy, of protoplasm shows us in manifold ways its marvellous endowments."

The President referred to the work of Pasteur and John Hunter, both of whom used the comparative method of study with conspicuous success, and closed his remarks by quoting Benjamin Franklin's now proverbial phrase, "Hard work is still the road to prosperity, and there is no other."

Professor HOBDAY read a paper on cryptorchidism in animals, and illustrated his communication with a series of lantern slides, photographs, and drawings of testes retained in the abdomen or inguinal canal of animals.

Mr. MCADAM ECCLES followed with a paper on imperfectly migrated testis in man, and dealt with the etiology, function, morbid anatomy, and treatment of this condition. He dismissed any possible influence of the endocrine glands, which have such a profound effect on the formation of secondary sexual characteristics, for these act everywhere through the blood stream, and presumably would act equally in the one testis which has remained within the abdomen and the other which has migrated to the scrotum. The factor of heredity, so important in animals, appeared to be less common in man, for in answer to his inquiries not more than 2 per cent. gave a history of like condition in grandfather, father, or brothers. It was doubtful if an arrested testis was ever fully developed. Cases were on record in which a man with double abdominal retention of testes had procreated children and most abdominal testes had the power of producing an internal secretion, but perhaps not of the same type as that of a fully developed and fully migrated organ. A testis within the abdomen was liable to all the diseases to which a fully migrated testis was prone—for example, inflammation, cysts, neoplasms, and scrotal hydroceles and herniae might be associated with completely retained testes. In discussing treatment Mr. McAdam Eccles pointed out that inflammation or enlargement of an abdominal testis called for its prompt removal, but simple unilateral or bilateral abdominal retention required no surgical interference. The removal of a pair of abdominal testes would, of course, deprive the body of organs which might provide some internal secretion.

To the subsequent discussion on these two papers Sir JOHN BLAND-SUTTON added his experience of the pathology of this disease and indicated useful fields for further research; a number of veterinary surgeons also contributed to the debate.

THE ENDOCRINES AND THE WORK OF THE KIDNEY.

IN his presidential address to the Section of Urology of the Royal Society of Medicine on October 25th, Dr. W. LANGDON BROWN dealt with the relation of the endocrines to the work of the kidney.

He said that the primitive excretory organs as found in invertebrates were nephridia, typical segmental organs opening internally into the body cavity and externally on to the surface. On Gaskell's theory of the origin of the verterbrates from arthropods, the old alimentary tract, of which the infundibulum represented the mouth, became the central canal of the nervous system. In the crustacea the gills kept up a vigorous current of water from behind forwards so that waste products which were discharged in this situation were speedily carried away from the animal, whereas in the fish, with the current going in the reverse direction, this would have led to contamination of the water supply to the gills. Circumstances brought about an alteration in function, and a new use was found for the gland in this position: it became the pituitary. Comparative morphology pointed to the conclusion that, in the neighbourhood of the gill slits, segmentally arranged structures gave rise to the tonsils, thyroid, parathyroids, and thymus, in positions which might be expected if they were homologous with nephridia. It might be asked why the excretory functions, originally so uniformly distributed in segmental nephridia, had become restricted to such condensed structures as the kidneys. It was doubtful whether the tubules of the vertebrate kidney were strictly homologous with the nephridia of invertebrates, although they were so similar in structure and function. Nephridia arose as invaginations from the exterior, and were therefore epiblastic, and in the lower vertebrates the kidney tubules grew out from the body cavity, and were therefore mesoblastic.

There seemed to be three interesting phases in the evolution of the excretory system: (1) the epiblastic intercellular nephridia of the invertebrates which opened into the body cavity; (2) the mesoblastic intercellular kidney tubules of the lower vertebrates shut off from the body cavity; (3) a return in the higher vertebrates to the process of epiblastic invagination, but not to an intracellular duct nor to a communication with the body cavity. The opinion of biologists at the present time was in favour of this view. It was an extraordinary example of the way in which Nature could change her plans according to circumstances and construct organs *de novo* which resembled the old ones closely enough to have deceived biologists for more than a generation. It showed how plastic the evolutionary process was, and that it was not so dependent upon recapitulation as was thought. He went on to suggest that the influence of the endocrine system on the kidney was, in part at least, an expression of the interest it continued to take, as it were, in functions formerly its own. When nephridia were replaced by the more adaptable mechanism, and some of their outlets were dammed up by the formation of new structures such as the vertebrate alimentary tract and the pleural folds, they had either to vanish altogether or to take on some new function. To a large extent the second course was adopted, and some of them became endocrine glands. The internal secretions might be looked upon as specializations of the old chemiotactic mechanisms, and they revealed their antiquity in the way they clung to the vestigeal structures. Not infrequently when, in the course of evolution, a structure had become useless for its original purpose the endocrine system supplied it with a new tenant. This change of function was illustrated by the adrenal cortex, the thyroid, thymus, pituitary, and pineal glands, all of them, except the last, structures representing modified nephridia, and he doubted whether the pineal was properly an endocrine structure at all. Not only were there vestiges of excretory structures in the endocrine glands, but there were vestiges of excretory methods in the internal secretions, as he proceeded to illustrate. In short, the particular function of the primitive nephridia was to bring the internal working of the organism into harmony with its environment, and this was exactly what the endocrine system continued to do, both through its secretory activity and its close association with the sympathetic nervous system. The kidney was thus set free from the labour of forming an internal secretion, and able to devote itself entirely to excretion, while at the same time its work was influenced by the other internal secretions so as to ensure a harmony between the internal economy and its environment. This was of biological interest, because in the pituitary they had a gland which was definitely excretory in function in invertebrates as high as the crustacea; and it was of clinical interest also as bearing on diabetes insipidus and polyuria in general. He went on to discuss the pathology of diabetes insipidus from this point of view, agreeing with Rabinowitch in regarding diabetes insipidus as being due to the lack of some internal secretion which normally regulated and moderated diuresis by acting upon the cells of the kidney. He looked upon pituitrin as that secretion, and it seemed to him that the situation could be expressed most conveniently by saying that the output of the pituitary regulated the threshold of the kidney for water. This would account for the apparently aberrant instances of a diuretic effect of pituitrin, and would also explain how, while having a selective action on water, it did not hinder the output, for instance, of dyes. The material excreted by the kidney fell into two categories: purely waste products, useless to cellular life, for the excretion of which there was no threshold, and products which might play a useful part in cellular life—sugar, sodium chloride, haemoglobin, and water—in the way of which the kidney did interpose a threshold, so that they only passed into the urine when their level

making the cost of alcohol almost prohibitive. The year 1917 was one of legislative ventures in Denmark. For a very brief interval the total prohibition of spirits was attempted, the law of February 27th forbidding the sale and serving of spirits. This law was revoked on March 23rd of the same year, since when there has been no prohibition in Denmark. But in that month the retail cost of spirits was doubled by taxation, and on December 21st, 1917, the taxation of spirits was further raised so that a bottle of spirits which had cost 70 öre before the war could not be bought for much less than kr. 10. In a paper recently published by Dr. K. H. Krabbe[1] an attempt has been made to investigate the influence of this legislation on the sobriety of the Danish nation. He observes that it is difficult to compile statistics dealing with chronic alcoholism, partly because there are no hard and fast lines within which this condition can be defined, and partly because the personal equation (that is, the opinion of the individual physician) is variable. But there can be no mistake about the diagnosis of acute alcohol poisoning or delirium tremens, which seldom occurs in an abortive form. The actual number of such cases may not be an index to the number of cases of chronic alcoholism in the same community, but a study of the yearly fluctuations in the number of cases of delirium tremens should afford a rough guide to the fluctuations in the incidence of chronic alcoholism. At any rate this is Dr. Krabbe's opinion. His statistics deal with the number of cases of delirium tremens admitted every year to his hospital since 1903. In the period 1903-16 this number ranged from a minimum of 249 in 1915 to a maximum of 447 in 1907, the average for this period being 321 a year. In the period 1913-22 the number of these cases ranged from a minimum of 9 in 1918 to a maximum of 26 in 1921, the average being 15 cases every year. (In 1922 there were only 11 cases.) It will thus be seen that 95 per cent. of the anticipated incidence of delirium tremens had been eliminated. Dr. Krabbe considers there can be little doubt that this decline in the incidence of delirium tremens did not merely coincide with the imposition of heavy taxes on spirits, but was the direct outcome thereof. He raises the question: Would it be possible by total prohibition to eliminate the remaining 5 per cent. of the anticipated cases of delirium tremens? He answers this question in the negative, assuming that this 5 per cent. dreg represents those members of the community who must have their liquor at all costs, and who, if spirits are prohibited by law, obtain it by smuggling or distilling it at home. Failing these alternatives, there is yet the possibility of drinking methylated spirits or ether. The lesson which Dr. Krabbe draws from his figures and from a comparison of conditions in Norway and Denmark is that high taxation of spirits has quite as sobering an effect on a community as prohibition, the circumventing of which has a demoralizing effect, encouraging a contempt for the law of the land.

PREVENTION OF SIMPLE GOITRE.

THAT "simple goitre is the easiest of all known diseases to prevent" is the thesis of a series of twelve papers by Drs. David Marine, C. H. Lenhart, and O. P. Kimball,[2] collected together and edited by Professor G. N. Stewart, director of the H. K. Cushing Laboratory of Experimental Medicine, Western Reserve University, Cleveland. The conclusion is based on more than ten years' work on comparative and experimental medicine, commencing with an investigation into the so-called thyroid carcinoma of brook trout, which was shown to be really hyperplasia or simple goitre. At one time the number of cases of this goitre among members of the salmon family artificially raised became so great that many hatching establishments were abandoned. It was then discovered that the disease could be prevented by the addition of very small quantities of iodine to the water, and this prophylactic method was afterwards employed with great success in children's schools in the region of the Great Lakes, where goitre is extremely prevalent. The amount of iodine necessary to prevent the development of simple goitre is small; two grains of sodium iodide daily for ten days in succession twice a year, in the spring and autumn, was found to be efficient as a routine, and oral administration was found to be more practical and economical than external application or inhalation (by hanging a wide-mouthed bottle of 10 per cent. solution of iodine in the schoolroom). Among 2,190 pupils in the Akron public schools who were thus treated 5 showed thyroid enlargement, while out of 2,305 pupils who did not take the prophylactic 495 have shown thyroid enlargement. Out of 1,182 pupils with thyroid enlargement at the first examination who were then treated, 773 showed diminution of the thyroid, whereas among 1,048 pupils with thyroid enlargement who did not take treatment 145 only showed diminution in the size of the thyroid. The incidence of any untoward symptoms from this treatment among 3,000 girls, many of whom took it for three years, was less than 0.5 per cent., and then was merely a mild iodide rash. The use of iodide in goitre has been thought to be dangerous and to cause exophthalmic goitre; any bad effects observed were, it is suggested, due to excessive doses of iodine. The authors hold that though the ultimate cause of simple goitre is still unknown, the immediate cause is lack of iodine. This view is thought to be supported by the observation that in hyperplasia of the thyroid iodine is always deficient. A certain minimum content of iodine is, they believe, necessary for the maintenance of the normal or colloid state of the gland, the stainable colloid varying inversely with the degree of hyperplasia and directly with the iodine content. Simple hyperplasia is prone to occur at three periods—in foetal life, in adolescence, and during pregnancy; it is approximately two to three times as frequent in girls as in boys; in the majority of boys it is congenital, and can be prevented by giving iodine to the mother during the pregnancy. *Thyroid hyperplasia of congenital origin* is recognizable by the persistence of thyroid tissue in the position of the thyro-glossal stalk; the so-called lingual and infrahyoid thyroids have, it is believed, the same significance. *Holding these views, the authors maintain* that while the prevention of simple goitre in pregnancy and foetal life depends on the directions of individual medical men, the prophylaxis of goitre in adolescents is a suitable matter for public health measures. They are undoubtedly right in saying that prevention of thyroid hyperplasia is of far-reaching importance for countries where it is endemic; it would mean the control of cretinism and possibly of other forms of physical and mental degeneration; it would be reasonable also to expect a diminution of the number of thyroid adenomas, which in their turn give rise to cystic change, and probably are the antecedents of 90 per cent. of malignant thyroid tumours.

MILK-BORNE DYSENTERY.

THE Ministry of Health has published a report[1] by Dr. George C. Hancock and Mr. P. Bruce White, on an outbreak of dysentery at Lynton, Devon, in October and November, 1922. When the outbreak came under notice investigation quickly excluded water supply, sewerage, and excrement disposal from any causal responsibility. As to milk, however, all but 2 of 18 cases received milk from one source, and of 52 households using that milk 9 were affected. The farmer and three employees were ex-soldiers, and it was only about a month after dairying had been

[1] *Ugeskrift for Laeger*, September 20th, 1923.
[2] *Western Reserve Univ. Bull.*, Cleveland, 1923, xxvi, 1-123.

[1] No. 20 of Reports on Public Health and Medical Subjects. H.M. Stationery Office. Price 4d. net.

developed towards each side, where it was closely related in front to the anterior layers of the levator ani and behind to the parametric tissue.

He considered that the sphincters were the most important factors, and in support of this contention he cited the fact that incontinence of urine was not commonly met with in cases of prolapse, even when the anterior wall, and presumably the supporting structures of the bladder, were much weakened and displaced. He described the more important operations for the cure of this condition, and illustrated his descriptions by lantern slides.

The operation which he performed in his most successful cases was as follows:

The perineum was first incised to allow of easier access to the parts. A triangular area of the anterior vaginal wall was removed, exposing the urethra and bladder. A mushroom catheter was then passed into the bladder, and, using this as a guide, two mattress sutures of catgut were inserted into the tissues on each side of the bladder neck (after Kelly). Deep sutures were then inserted through the para-urethral tissues to narrow the canal throughout its length, and the anterior colporrhaphy then completed in two layers. Finally the perineal incision was sutured.

Notes on Two Cases.

Case 1.—An unmarried woman, aged 26 years, had a normal menstrual history. She was a thin, poorly nourished woman, with very little energy and very depressed and miserable. She had suffered from urinary incontinence practically since birth, being troubled during the day, but worse at night. She had tried all sorts of medical treatment. On examination, the external genitals were normal and of virginal type; the vaginal orifice admitted one finger with difficulty, but the upper part of the anterior vaginal wall appeared somewhat lax, although there was no actual prolapse; the uterus was normal in size and acutely anteflexed. After the operation, as above, she required catheterization for a week. Her bed was wet once before she was discharged from hospital. She had been well ever since then—two and a half years ago—and was now a cheerful, healthy-looking young woman.

Case 2.—An unmarried young woman, aged 21 years, had a normal menstrual history. She was rather thin and miserable, and not very bright mentally. She was apparently normal until an acute illness ten years ago, but since then had been incontinent, chiefly at night, but also during the day. For the last six years she had not had a holiday owing to her bed-wetting. On examination, the external genitals were normal; the vaginal orifice was virginal, and again a considerable laxity of the upper part of the anterior vaginal wall was found; the uterus was normal in size and acutely anteflexed. It was now over six months since her operation and she had wetted the bed twice since; but she had been away for a holiday and was much better in every way.

The great majority of these cases of incontinence could be cured, or at any rate much relieved, by operative treatment. There was no doubt that many young single women were allowed to go on suffering from this distressing ailment because no obvious lesion could be made out, and the disability was attributed to neurosis. There was a neurotic element, no doubt, but the real underlying cause would be found to be in a weakness of the sphincter mechanism, which could often be dealt with successfully by surgical methods.

In the discussion which followed, Dr. Miles Phillips said he thought that incontinence of urine was a common feature of partial vaginal prolapse in multiparae. The President expressed surprise at the high figure (8 per cent.) of incontinence in nulliparae. He did not believe that incontinence was due to neurosis. There was not a single structure in the apparatus which could be said to constitute a true sphincter. Dr. W. E. Fothergill said that he had done Pawlik's operation a few times with success. He questioned whether incontinence of urine was common in cases of vaginal prolapse in multiparae. He thought that the operative measures taken were a suggestive treatment. Dr. Leith Murray said that the fact that the incontinence was worse at night pointed to the neurotic element rather than to the dislocation theory.

Cases and Specimens.

Dr. J. H. Willett (Liverpool) showed a specimen of sarcoma of the uterus, which was removed from a nulliparous woman, who had been married for six months; the condition was diagnosed as a cystic adenoma of the ovary with a fibroid in the uterus. At operation the cyst was tapped and blood-stained fluid evacuated; only then did the origin of the tumour become apparent. The specimen consisted of a partly cystic, partly solid mass arising from the fundus of a slightly enlarged uterus, in which was a small fibroid nodule. Sections of both showed the appearance of a mixed-celled sarcoma. Three months after operation the patient looked well and had gained 17 lb., although portions of capsule of growth had been left adherent to intestines. Dr. Donald requested Dr. Willett to report on the case in twelve months' time to inform the society if the patient was without recurrence.

Dr. H. Leith Murray (Liverpool) showed sections of a squamous-celled carcinoma of the cervix from a nullipara, aged 27 years; she had been married for two and a half years. There had been bleeding and discharge for seven months, and loss of weight. The cervix was thickened and ulcerated, and the growth had invaded the broad ligaments and uterosacral ligaments and was quite ineradicable.

Dr. Leith Murray also described a case of colloid carcinoma of the uterus in a 2-para aged 28. She had complained of pain in the bowels for six months; there was no blood-stained discharge, no urinary trouble, and no loss of weight.

On examination, there was a large mass in the abdomen extending nearly up to the umbilicus, and distending the anterior abdominal wall. Above this was a movable mass the size of a fist. On vaginal examination, the cervix was found so greatly enlarged as to fill the vagina up to the ostium vaginae, and to prevent insertion of the finger between it and vaginal walls. The cervix was ulcerated, was continuous with the abdominal mass, and was absolutely fixed. Sections of pieces of cervix showed a typical colloid carcinoma with normal cervical glands scattered throughout, in some places greatly compressed. The diagnosis was malignant disease of the ovaries with colloid cancer of the uterus, and secondary omental deposit. This was confirmed by laparotomy, and a portion of omental growth was removed which showed on section the typical colloid appearance. The patient died six weeks after operation. The origin of the colloid growth was obscure owing to the presence of normal cervical glands in all sections, in spite of so great an enlargement of the cervix.

Dr. J. E. Gemmell (Liverpool) read notes of two cases of fibroid tumours associated with gestation.

Case 1.—A 5-para had a fibroid, undergoing red degeneration, growing from the fundus uteri, which was detected in the early stage of pregnancy, and gave rise to no symptoms or discomfort during gestation; the case ended in normal labour. The fibroid was of such a size that its weight was 4 lb. 3 oz. During the puerperium, pain and pyrexia were marked, the accompanying toxaemia determining operative treatment by hysterectomy. Intermittent pains, commencing twenty-four hours before operation, had resulted in dilatation of cervix and expression of a large part of the growth filling the vagina. The tumour was a typical example of red degeneration, with necrosis.

Case 2.—A 2-para with a history of three months' amenorrhoea and recent slight blood-stained discharge, had a fibroid, the size of a tennis ball, situated posteriorly and filling the pouch of Douglas; double ovarian cysts were also present, and the whole of the pelvic organs were matted in the pelvis, forming a fixed mass. Panhysterectomy and double ovariotomy were performed. The cysts proved to be "cystadenoma."

MODERN METHODS OF ANAESTHESIA.

At the meeting of the Aberdeen Medico-Chirurgical Society on October 25th, the President, Dr. Alexander Ogston, delivered his presidential address on some modern methods of anaesthesia. He first gave a brief survey of the methods of anaesthesia in common use in Aberdeen within his own experience, pointing out that down to about 1917 the method in practically universal use was the administration of chloroform, or in rare cases ether given in a cone-shaped towel. As long ago as the early eighties of last century Dr. Blaikie Smith, however, had devised and used with a certain amount of success a special inhaler of leather and metal with flannel padding for the administration of open ether. About 1917 open ether came into more common use, having been brought to the notice of anaesthetists by Sir Henry Gray after a visit to America. Dr. Ogston then discussed this method, indicating its difficulties, and describing the various methods in use and the types of apparatus, including his own special mask, which prevented the diffusion of the ether vapour. The intratracheal and rectal methods were specially referred to. The use of combined nitrous oxide and oxygen was then discussed, and apparatus shown; modern improvements were indicated and the use of this anaesthetic with the addition of ether or of chloroform and ether described. On the motion of Dr. Thomas Fraser, C.B.E., D.S.O., the President was accorded the thanks of the meeting for his valuable address.

from the competing dairy farms. In addition to giving in tabular form the detailed results of the various examinations, the pamphlet contains some reports giving information of more general interest. The preface by the county medical officer of health emphasizes the value of such competitions in securing greater cleanliness of milk and milk production, and in reassuring the public in this respect. The report of the surprise inspections of the various farms by the inspecting judge includes several details of practical value with reference to the cleanliness and construction of cowsheds, milkrooms, and utensils; notes on the methods of milkers, protection of milk from contamination, cooling procedures, and the important matter of cleansing the cows before the milking operation. Where second visits were possible it was noticed that considerable improvements had followed criticisms made on the occasion of the first inspection, and it was manifest that the competition was inducing a keener interest and an increasing carefulness in more than one direction. The report of the bacteriological examinations (six samples of milk from each competitor, in addition to "surprise samples") contains further evidence that the sterilization of utensils was being more effectively performed in consequence of the educative influence of the competition. The winner of the competition contributes a report, "How I produce clean milk," and an article by the assistant county medical officer of health on the care of milk in the home contains many practical hints which should be widely disseminated, especially during the summer months. The whole pamphlet is particularly interesting, and it deserves consideration by the general public outside the county of Kent. It is to be hoped that such competitions will multiply throughout the country; their practical value is evident, and they are very highly approved by the Ministry of Agriculture. The address of the society is 22, High Street, Maidstone.

RESPIRATORY METABOLISM.

VARIOUS papers have been written on the problem of estimating the energetic requirements of muscular work. Cathcart and Orr (1919) used the Haldane-Douglas method, for which the respiratory quotient has to be calculated for each experiment. Waller attempted to simplify this by determining the respiratory metabolism from a knowledge of the carbon dioxide only. His results were founded on a large number of professional men, dock labourers, and persons occupied in other industries. His method has, however, been adversely criticized by several physiologists. Greenwood and Newbold[1] have recently discussed the whole subject from the statistical point of view, and have shown arithmetically some of the difficulties involved. The data they used were those of Benedict and Cathcart (1913), based on 483 observations on a trained subject, lying, sitting at rest, and working. From the analysis of the data as a whole they found that the mean of the respiratory quotient almost agreed with that adopted by Waller, but that the variability of oxygen use was too large for it to be possible, from knowledge of the output of CO_2, to predict at all accurately the oxygen use. Even when the subject was at rest (lying on a couch) the variation was large, of the order of 8 per cent. of the mean. Similarly, when work experiments were considered, it was found that if four variables—CO_2, work per minute, speed of work performance, and total previous work—were all known, the oxygen use had a variability of nearly 7 per cent. The paper deals also with the estimation of external work when the respiratory metabolism is known, or with the converse problem of estimating the metabolism from a knowledge of the work performed. In estimating work from the CO_2 the coefficient of variation of work was 14 per cent. of its mean, and a knowledge of oxygen use too did not sensibly reduce the variability. Given also knowledge of the speed with which work was performed, the variability was only reduced to 11 per cent. An attempt to improve the prediction of work was made by reducing the range of work—the range in the whole series of experiments being large; but the variability in this was of the same order as in the previous analysis. No better results were obtained in estimating the respiratory metabolism from a knowledge of the external work. The variability of both oxygen use and CO_2 output was of the order of 12 per cent. These results are all based on carefully made experiments on a single individual. It follows that in any practical application of this method, where many individuals are involved, the variation would be still larger and consequently the predictions still less exact. The authors conclude that "when any experimental calibration of different forms of muscular work is based upon the confrontation of small samples of measurements upon different subjects, only the roughest results are attainable."

[1] Greenwood and Newbold: On the estimation of metabolism from determinations of carbon dioxide productions and the estimation of external work from the respiratory metabolism, *Journal of Hygiene*, August, 1923, vol. xxi, No. 4.

THE *London Gazette* of October 26th announces that the King has appointed Sir Humphry Davy Rolleston, K.C.B., to be Physician in Ordinary to His Majesty in the room of Sir James Reid, Bt., G.C.V.O., K.C.B., deceased, and Dr. Edward Farquhar Buzzard to be Physician Extraordinary to His Majesty.

MR. WALTER G. SPENCER'S Bradshaw Lecture before the Royal College of Surgeons of England will be given at the College on Thursday next at 5 p.m. Members of the profession and students interested are invited to attend. The subject of the lecture is melanosis, and Mr. Spencer will deal with melanin, melanoma, and melanotic cancer.

THE Columbia University Press, New York, has just published as a pamphlet the Chandler Lecture delivered before the Columbia University of New York in 1921. Like everything Professor Gowland Hopkins does it is concise, well thought out, and clearly expressed. We have so recently published his Cameron Prize Lectures that we may be excused from giving any detailed review of his Chandler Lecture. After its delivery Professor Hopkins was presented with the Chandler Medal, which is awarded yearly to a distinguished chemist. The pamphlet, which is to be obtained in this country from Mr. Humphrey Milford (1s. 6d. net), is illustrated by a characteristic portrait of Professor Hopkins.

IN referring last week to the portrait of Sir Charles Scarburgh presented to the Royal College of Physicians of London by Dr. Innes Smith of Sheffield, we inadvertently spoke of the Temple Newsome picture as a replica of that at Barbers' Hall. The two are quite distinct, as can easily be seen from the reproduction in Peel Ritchie's *The Early Days of the Royal Colledge of Phisitians, Edinburgh*, to which Dr. Innes Smith has called our attention. The Temple Newsome portrait is of a middle-aged man, and was painted probably when Scarburgh was about 50. The Barber Company's picture shows Scarburgh at the age of about 36 lecturing on a body which Edward Arris is dissecting. Young's *Annals* of the Barber-Surgeons gives the following minute: "Paid to Greenburye for Painting the Picture of Mr. Edward Arris and Doctor Charles Scarborough & Anathomye — £9-10-0." The Temple Newsome portrait is probably by a Dutch artist.

of inanition on growth and its sociological relations are discussed. The book is a storehouse of facts clearly and systematically arranged, and can hardly fail to become a standard work on the subject.

PHYSICAL CHEMISTRY IN INTERNAL MEDICINE.

IN his book on physical chemistry in internal medicine[3] Professor H. SCHADE has made an ambitious attempt to bring into closer relation the assured results of recent physico-chemical research and the practical sphere of pathology and therapy. Considering the mass of such data scattered through the literature of medical science, the time is held to be ripe for the comprehensive experiment of undertaking the definition of the contribution which physical chemistry has to make to practical medicine.

The book is divided into three parts. The first comprises a somewhat cursory statement of the fundamental properties of crystalloidal and of colloidal solutions, particular emphasis being laid on the conditions governing the stability of the latter. As a judicial statement of the physiological potentialities of modern physico-chemical thought this section loses in authority when certain important omissions have to be recorded. One finds, for example, no reference to the Donnan theory of membrane equilibrium, a theory whose application to the problems of the living cell is full of promise. A discussion of the views of Loeb on the colloidal behaviour of proteins might, likewise, have been included with advantage.

The second part is devoted to a systematic study of the progress made in the different fields of medicine under the influence of physico-chemical experiment. The problems of general pathology, infectious diseases, diseases of the blood, of metabolism, of the intestinal tract, the liver, the kidney, the vascular system, connective tissue, the lungs, the muscular system and the nervous system are dealt with in successive chapters. It will be seen that the scope is comprehensive. The author draws largely on the work of Michaelis on hydrogen ion concentration, of v. Korányi on cryoscopy, and of Höber on the physico-chemistry of the cell. A. V. Hill's remarkable interpretation of the physiology of muscle contraction is an unexplained omission.

A description of the technique of the chief physico-chemical methods of value in medical diagnosis and research makes up the third part of this book, which undoubtedly fills a gap in medical literature. Though a discrimination between fact and hypothesis is sometimes lacking, the book will not be found wanting in interest and stimulus to those medical men who are keen to bring the ward into closer touch with the laboratory. Of the fifteen hundred references quoted 95 per cent. are to work published in the author's own tongue!

AFTER-TREATMENT OF WOUNDS AND INJURIES.

THE book on physical therapeutics[4] by Drs. GUILLEMINOT, DAUSSET, and DUREY is the seventh of a series of eight volumes which includes works on the special treatment of the sequelae of wounds and injuries viewed from various standpoints. The volume before us is confined to consideration of the treatment of the sequelae of wounds and of industrial accidents.

Dr. Guilleminot's chapters on electro-diagnosis are clear and informative. The various apparatus appropriate for electro-diagnosis and treatment, including that by x rays, is clearly described. He discusses adequately the quantitative and qualitative changes in the conductivity and excitability of nerves and nerve centres after injury and the best electric methods of treating these disabilities. The descriptions of instruments are clear and sufficiently full, and include those for x-ray therapeusis and also for radium therapeusis. This section is of considerable practical value.

Dr. Durey, in the introduction to the section on kinesitherapy and functional re-education, says that despite the experiences of the war little change has been made in the essential principles; manual is, he considers, to be preferred to mechanical treatment, and above all it is to be borne in mind that the suggestive value of physio-therapeutics is very important. This section is not equal in value to the first. Passive movements are very inadequately described, while the subject of active movements is dismissed in fifteen lines of print. The pages devoted to the after-treatment of lesions of the bones, joints, and nerves are, however, of value.

The third author, Dr. Dausset, adequately presents the current practice in treatment by heat, light, and hot and cold water, and compares the advantages of various French spas.

A TEXTBOOK OF HISTOLOGY.

IN *A Manual of Histology*[5] by Professor V. H. MOTTRAM the main departure from the conventional method of teaching this subject is to be found in the form of illustration adopted. The author considers that pencil diagrams represent to the student the pictures presented by the microscope more satisfactorily than the mixture of photomicrographs, coloured plates, and diagrams which are to be found in most textbooks. The illustrations of this book, which are all reproductions of the author's own drawings, are certainly lucid and well drawn, but it may be doubted if they possess the advantage claimed for them—in the interpretation, for example, of stained preparations. It is to be feared rather that because they are excellent examples of what the student ought to draw himself they will tempt the latter to reproduce in his notebook the diagrams themselves instead of giving a pencil interpretation of the structures revealed by the microscope.

The descriptive matter of the manual is clear and concise, the method of tabulation being much resorted to. Here again, whilst there are obvious advantages to the busy student in this method, there is a danger of short-cutting the education of the deductive powers which should surely be the main purpose of histological instruction. We note a misprint on page 85, where the ratio of red to white corpuscles in the blood is given as 50 to 1!

The book has been written for medical students and its scope is, naturally, that required for the intermediate medical examination. The first and the final chapters are devoted respectively to brief instructions in the handling of the microscope and the technique of staining and mounting sections.

The manual will be welcomed by student and teacher alike, for it will economize the labours of both. We hope that it will not result in a wholesale reproduction in our medical schools of what the author saw by the aid of his microscope.

DENTAL ANATOMY AND PHYSIOLOGY.

IN the preface to their *Textbook of Dental Anatomy and Physiology*[6] Mr. HUMPHREYS and Mr. WELLINGS tell us they have written a small, condensed textbook, which is intended to meet the requirements of dental students preparing for their examinations, and is based on the curricula of the various licensing bodies. This effort at condensation may be responsible for the fact that there is in the book no reference to physiology. We suggest that the process might be carried one step further by omitting all reference to physiology in the title. We should then have a very useful book on dental anatomy. The first half is devoted almost entirely to man and deals with the development of the jaws and teeth, the anatomy of the teeth, the structure and development of the tissues of the teeth, together with a short account of the temporo-mandibular articulation. Condensation has been carried to just the right point, and the chapter on the development of the jaws may be singled out for

[3] *Die Physikalische Chemie in der Inneren Medizin. Die Anwendung und die Bedeutung physikochemischer Forschung in der Pathologie und Therapie.* Von Professor Dr. H. Schade. 3te vermehrte und verbesserte Auflage. Dresden and Leipzig: Theodor Steinkopff. 1923. (Med. 8vo, pp. viii + 605; 120 figures. Paper, 11s. 3d.; bound, 12s. 5d.)

[4] *Traitements Physiothérapeutiques des Séquelles des Blessures et des Accidents du Travail.* By Drs. Guilleminot, Dausset, and Durey. Paris: J. B. Baillière et Fils. 1923. (Imp. 16mo, pp. 265; 62 figures. Fr. 16.)

[5] *A Manual of Histology.* By Professor V. H. Mottram, M.A. London: Methuen and Co., Ltd. 1923. (Demy 8vo, pp. viii + 233; 224 figures. 14s. net.)

[6] *A Textbook of Dental Anatomy and Physiology.* By John Humphreys, M.D.S.Birm., F.S.A., etc., and A. W. Wellings, M.D.S.Birm., L.D.S.Edin. London: Edward Arnold and Co. 1923. (Demy 8vo, pp. viii + 122; 254 figures. 16s. net.)

wired from France, "Floreat Dawsonius Guillelmi." The following note had also been received:

"As a veteran of the staff and a former Assistant Editor and colleague of my old friend, Sir Dawson Williams, from over forty years since, I beg to tender him my hearty good wishes on this auspicious occasion, deeply regretting that age and growing infirmities have completely prevented me from being present. ALBAN DORAN."

Sir JOHN BLAND-SUTTON said that he considered it a privilege to be allowed to propose the toast of his old friend the chief guest. Surely more than forty years of friendship was a sufficient title for him to do so. He made Dawson Williams's acquaintance many years ago, but, of course, as one got older, although one remembered things, they all seemed flat, like the image in a kaleidoscope, and it was a little difficult to put them in the proper perspective. Everything that he remembered about the chief guest, however, stood out in the boldest relief. He knew him first when he (the speaker) was working at the Zoological Gardens, making *post-mortem* researches on animals. Dawson Williams impressed upon him the need for having his cases carefully reported, as the work was new; and later, in his quiet and unobtrusive way, initiated him into the art of dropping the *ego* and using the editorial "we." But slowly Dawson Williams slipped away to gain the hill-tops of journalism, while the speaker had to grovel for a living in the valleys and defiles of the abdomen. (Laughter.) He could not imagine a better Editor for such a journal as the *British Medical Journal*. Look at his record. He was a distinguished graduate of London University; he soon became physician to a hospital; he used to work very hard at the different scientific societies and became familiar and friendly with all the rising physicians and surgeons of his own time, and these had remained his friends. In addition, he was thoroughly *familiar not only with hospital but with private practice.* The *Journal* stood to-day under his management in this important position that it fulfilled its function as the official organ of the Association, and its Editor had been clever enough, while looking after the interests of the rank and file of the profession, to keep the scientific side of the art properly illuminated. He had done that by virtue of the fact that he knew all the rising young men of his day, and he had the knack of getting the right man to do the right thing. The British Medical Association throughout the Empire must be very proud of that fine *Journal*, and full of gratitude to its Editor for the wonderful way in which he had kept it in such a splendid condition both from the scientific and the general and domestic point of view. (Applause.) Editors, like surgeons, varied in ability, in temper, and in judgement, and as he had never before had the task of proposing the health of an editor he would like to refer to his qualifications and his trials. An editor must be a man with a wide knowledge of English literature, a sense of humour, and, above all things, a skill in psychology. In short, he must be full of wit and wisdom—and also of guile! He must be patient and tolerant too. Then he had to think of his Chairman of Council, of the Council itself, and of his contributors and his subscribers. He must have a keen sense of proportion and space: prolixity in an author could only be described as a damnable thing. (Laughter.) There was nothing so troublesome to the editor as the prolix author who resented the blue pencil and used his pen and ink on the revises with the same irreverence as the board-school teacher used chalk on the blackboard. "D. W." had once said to him that his editorial troubles had turned his hair prematurely grey; but that only made him look more learned! He sat very well after twenty-five years of editorial troubles, wearing a knighthood which he well deserved, and, what was more valuable, receiving the good wishes of all those with whom he worked and hosts of friends besides. (Applause.) He asked the company to drink the health of "Our Editor" and to wish him many years of happiness.

The toast was pledged with great heartiness and given musical honours.

Sir DAWSON WILLIAMS said that he found the greatest difficulty in acknowledging at all adequately the kindness he had received or in expressing his very sincere feelings on that occasion. In particular he thanked Sir John Bland-Sutton—who they all hoped would long illustrate the secret of perpetual youth—for the delightful way in which he had proposed his health. There was a very common and, as he thought, an excellent maxim that nothing should be said about the dead unless it was something good. That evening he seemed to have had the privilege—unusual, but not unprecedented—of listening to his own obituary notice. As he had reminded them, the speaker first became acquainted with Sir John Bland-Sutton at the Pathological Society, to which he brought pieces from the bodies of animals in the Zoological Gardens, where he was prosector. The Society was greatly interested, but, rather to his own relief (he was reporting the proceedings), the specimens did not lead to much discussion, the reason being that nobody except Bland-Sutton knew anything about them. (Laughter.) They were in fact assisting at the foundation of a new science or a very distinct department of science—the science of comparative pathology—which in recent days was making very great progress. There was some hope at that time that Bland-Sutton would devote himself entirely to science, but he elected to be a surgeon, preferring to deal with the living rather than the dead. Why he did not become a physician he did not know. The distinction between a physician and a surgeon was given to him the other day by a lady who said, "The physician gives you something to take into you; the surgeon takes something out of you." (Laughter.)

His own connexion with the *British Medical Journal* went back for a considerable number of years beyond the date on which he was appointed Editor. He was associated in the first place with the then Editor, Mr. Ernest Hart, a very distinguished official of the Association, and the quickest witted man he ever knew, who was aware of what the other person was going to say some seconds before that person knew it himself! Hart had been trained as a medical journalist at the *Lancet*, where he was in the succession from Thomas Wakley, a person of extraordinary energy and ability, who began life by sowing wild oats with both hands, his journal following his example, but who eventually settled down and obtained that certificate of respectability which election to Parliament conferred, while the journal which he founded and directed for many years also settled down and became a most respectable and influential organ of public opinion whose centenary they had had the happiness of celebrating within the last month. In his last illness, Ernest Hart, thinking, no doubt, that the speaker was likely to be appointed to succeed him, said, "I am leaving you a nice quiet time!" Well, the first thing that happened was the reconstitution of the Association, which excited acrimonious words and bitter feeling to a degree which it was now difficult to understand. The Association, now approaching its centenary, had begun in a small way, and for a time had not bothered much about its constitution. In 1837, within five years of its establishment, it made its first attempts to set up representative government, but it went on growing until it was thought necessary to get a new constitution, which it did about forty years ago. The aim of the reformers was to establish a system of representative government, but owing to the operations of the Companies Acts or their interpretation by the bench it found itself saddled with a constitution so democratic that there had been nothing like it since the constitution of the Greek states in the great days of Greece. The great days of Greece lasted for about a hundred years, but the Association discovered its mistake in about twenty, and now the Association had a constitution which was a model; it had a Representative Body, like the House of Commons, and it had, what the British constitution as yet had not, an elected Upper House. The second thing which, to use a classic phrase, upset his apple-cart, was the Insurance Act, as a consequence of which the *Journal* was swollen to proportions such as, happily, it had not been necessary to reach since. They were now again in an insurance crisis, but he did not intend to discuss any controversial matter that evening. He would only remind them that, as Sir William Hale-White had said, the profession of medicine was very old: it was well for the public to realize that it began to manage its own affairs some five hundred years before the Christian era, and that it had set up a discipline (in both senses of

NOTES ON BOOKS.

The twenty-second edition of *Gray's Anatomy*[8] does not differ very greatly from the twenty-first, which was published in 1920. This classical work is still edited by Professor Robert Howden, of the University of Durham; the notes on applied anatomy have been revised by Mr. John Clay, surgeon to the Royal Victoria Infirmary, Newcastle-upon-Tyne, and Dr. James D. Lickley, physician to the Children's Hospital, Newcastle-upon-Tyne. Professor Howden acknowledges his indebtedness to Professor Edward Fawcett, of the University of Bristol, who has revised the description of the development of the skull, and to Professor David Burns, of the department of physiology of the University of Durham, who revised the histological part of the book. With the disappearance from the title-page of this edition of the name of Dr. A. J. Jex-Blake (who revised the notes on applied anatomy in the previous edition) apparently the last association between *Gray's Anatomy* and St. George's Hospital has been severed. The first edition was published in 1858, when Henry Gray, then lecturer on anatomy at St. George's Hospital, was aged 31. He published the second edition in 1860, but in 1861, while he was a candidate for the post of assistant surgeon to the hospital, he died of small-pox, at the early age of 34. Between 1863 and 1880 eight successive editions were edited by Mr. Timothy Holmes, of St. George's Hospital, and between 1883 and 1887 five editions were edited by Mr. Pickering Pick, also of St. George's Hospital. Mr. Pickering Pick was assisted in the editing of the next two editions by Dr. Howden, and from 1909—the seventeenth edition—up to the present Professor Howden has been the sole editor. The new edition is only twelve pages larger than the last, but some sixty new illustrations have been added. It is unnecessary to speak of the merits of a work with which all English-speaking medical students and practitioners are very well acquainted, and the volume is as excellently produced as ever.

Potter's *Cyclopaedia of Botanical Drugs and Preparations*,[9] by Messrs. R. C. Wren and E. M. Holmes, gives an account of all the plants used in botanical or herbalist practice. Only those are mentioned for which there is sufficient demand to give them a commercial value, yet about 3,000 are described. The list includes most of the plants mentioned in the *British Pharmacopoeia* and a host of others which have long since disappeared from official medicine. The herbal name, botanical name, and synonyms of each plant are given, together with a synopsis of the therapeutic action attributed to it, a list of its preparations, and a short description of its distinctive characters. In the case of British plants a line illustration is added. The book gives a large amount of quaint information about the marvellous properties of all kinds of plants which do not appear in ordinary pharmacopoeias. For example, we are told that masterwort (*Imperatoria ostruthium*) is a stimulant, antispasmodic, and carminative, and beneficial in cases of asthma, apoplexy, menstrual disorders, flatulence, and dyspepsia. To many of the official remedies unusual properties are attributed; for example, ergot is recommended for leucorrhoea, dysmenorrhoea, amenorrhoea, spermatorrhoea, gonorrhoea, and enlarged prostate, in addition to its ordinary action as a uterine stimulant. The volume is a very curious link with the past, for it may claim to be a legitimate modern descendant of the herbals of the seventeenth century. "Anything green that grew out of the mould was a wonderful herb to our fathers of old."

The nineteenth volume of the *Ophthalmic Year Book*[10] reverts this year to its original form. This invaluable publication was begun, it will be remembered, in 1903; in 1918 it was merged with other publications in the *American Journal of Ophthalmology*, and vols. xv, xvi, xvii, and xviii were issued in quarterly parts and named *Ophthalmic Literature*. The return to its original form will be appreciated by all; the present volume contains the references in current literature down to December, 1922; that part which deals with comparative ophthalmology contains the references to the subject since 1916. We are confident that no ophthalmic surgeon can afford to be without this excellent work of reference.

[8] *Anatomy: Descriptive and Applied.* By Henry Gray, F.R.S., F.R.C.S. Twenty-second edition. Edited by Robert Howden, M.A., M.B., D.Sc. London: Longmans, Green, and Co. 1923. (Roy. 8vo, pp. xlv+1378; 1,255 figures. 42s. net.)

[9] *Potter's Cyclopaedia of Botanical Drugs and Preparations.* By R. C. Wren, F.L.S., with additions by E. M. Holmes, F.L.S. Third edition. London: Potter and Clarke, Ltd. 1923. (Cr. 8vo, pp. xliii + 392; illustrated. 5s. net.)

[10] *The Ophthalmic Year Book.* Vol. xix. Edited by Edward Jackson and William H. Crisp. Chicago: The Ophthalmic Publishing Company. 1923. (Sup. roy. 8vo, pp. viii+393.)

How to Become a Nurse, edited by the late Sir Henry Burdett from 1899 to 1915, and now, in its tenth edition,[11] revised by E. Margaret Fox, R.R.C., still justifies its useful purpose by supplying exact information to would-be nurses. The book consists of a detailed list of general, infectious, and mental hospitals in the United Kingdom, Australasia, Canada, and South Africa, with an index.

The twelfth edition of Delafield and Prudden's *Textbook of Pathology*,[12] revised by Dr. Francis Carter Wood, retains its general characters as regards the arrangement of subject-matter, the additions and alterations being confined to textual details and new illustrations. The volume is divided into three sections, the first dealing with general pathology, including etiology, circulatory changes, degenerations, inflammation, animal and vegetable parasites, infectious diseases and the specific fevers, malformations, tumours, poisons, general and metabolic diseases, and the lesions in certain forms of death from violence; the second part comprises the special pathology of the several organic systems; and the third part deals with *post-mortem* examinations and microscopic technique. The subject-matter, therefore, extends over a wide field, and although the volume is large the descriptions are necessarily concise, as is the case in all books of this nature. In view of this fact and of the importance of students supplementing their textbook knowledge by referring to special treatises the author has greatly amplified the references to the literature, so that these form a considerable portion of the text, and constitute a distinct feature of the book. The references are conveniently placed at the foot of the pages containing the subject-matter to which they refer. The book forms a sound basis for the study of general pathology.

[11] *How to Become a Nurse—The Nursing Profession—How and Where to Train.* Tenth edition; revised by E. Margaret Fox, R.R.C. London: The Scientific Press, Ltd. 1923. (Cr. 8vo, pp. 358. 4s. net.)

[12] *A Textbook of Pathology, with a Final Section on Post-mortem Examinations and the Methods of Preserving and Examining Diseased Tissues.* By Francis Delafield, M.D., LL.D., and T. Mitchell Prudden, M.D., LL.D. Twelfth edition. Revised by Francis Carter Wood, M.D. New York: William Wood and Co. 1922. (Roy. 8vo, pp. 1354; 17 plates, 809 figures. 63s. net.)

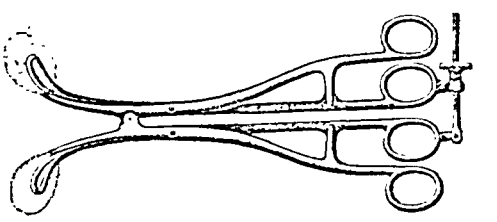
PREPARATIONS AND APPLIANCES.

Novoiodin.

Novoiodin is an iodine compound of hexamine, with the formula $(CH_2)_6N_4I_2$; it contains 60 per cent. of iodine, and on decomposition in presence of water it can liberate formaldehyde. It is an amorphous light brown powder, which is insoluble in the usual solvents, but can easily be made into a suspension with oils or glycerin. Novoiodin was investigated in 1911 by Eugling (*Zentralbl. f. Bakt.*, Bd. 60, s. 397, 1911), who found that it had about ten times the disinfectant activity of iodoform, and that the disinfectant action of the drug depended on the liberation of iodine when brought in contact with tissue fluids or pus. Numerous clinical reports have since appeared describing the action of novoiodin as a disinfectant for wounds, teeth, skin, etc. Novoiodin was used extensively by the Austro-Hungarian Red Cross in the recent war. The reports show that novoiodin is a more efficient disinfectant than iodoform, and it also has the advantage of being cheaper and also odourless. It can be obtained in this country through Messrs. Ronsheim and Moore, 11A, Wormwood Street, London, E.C.2.

Tonsil-bed Compressor.

Mr. G. Gushue-Taylor, M.B., B.S., F.R.C.S.Eng. (Barkingside, Essex), writes: In the Journal of July 1st, 1922 (p. 18), appeared a short description of a haemostatic twin tonsil-bed compressor which I had devised for use after removal of tonsils. Extended use of the instrument at the aural department of the London Hospital, and in my hands at Dr. Barnardo's Homes, has proved it to be very efficient. It had a defect in the curve of its blades which has now been remedied, and the form of the blade in the improved instrument allows the swab to be placed in the long axis of the tonsil-bed and to come into apposition with the whole bare area. It is, as altered, more easy to place the swab in the tonsil-bed, and it remains in position more securely and quite comfortably. In one case in which it was applied the child was able to go to sleep with the compressor applied to the bleeding area. The instrument is made by Messrs. Mayer and Phelps, London.



search, stimulated professional enthusiasm by lectures and prizes, and might with advantage investigate patent medicines and influence some control over them. The *Journal* had passed under the names of the *Provincial Medical and Surgical Journal* (1840), the *Association Medical Journal* (1853), and the *British Medical Journal* (1857). He must not repeat what Sir John Bland-Sutton had said, but it was impossible to suppress the admiration he felt for the present Editor, and for the great work he had done, was doing, and, he hoped, would long continue to do in making and maintaining the high standard of medical journalism in this country. (Applause.)

"The Chairman."

Dr. Wallace Henry proposed the health of the Chairman and praised the wisdom and tact with which for over three years he had conducted the business of the Council. He had sacrificed time and money and health in the interests of the Association, but they all rejoiced to see his health very much restored. (Applause.) He referred especially to his work in bringing about a linkage between the Association and the Society of Medical Officers of Health, and in securing the new building in Bloomsbury which was to be the home of the Association. They all hoped that during his period of office they would see the buildings completed.

The toast was drunk with much heartiness, and Dr. Bolam, in reply, thanked them for the kind thing they had done, even though it was wholly out of order. It had been a great pleasure to him to take part in the work of the Association.

FELLOWSHIP ADDRESS OF THE AMERICAN COLLEGE OF SURGEONS.

At the convocation ceremony of the American College of Surgeons in Chicago, on October 26th, the Honorary Fellowship of the College was conferred upon Sir William de Courcy Wheeler, President of the Royal College of Surgeons in Ireland, and upon Mr. A. E. Webb-Johnson, C.B.E., D.S.O., F.R.C.S., Honorary Surgeon to the Middlesex Hospital and Dean of its medical school. Mr. Webb-Johnson is visiting the United States in response to an invitation to deliver an address at the meeting of the College. The Fellowship address was delivered by Sir William Wheeler.

Sir William Wheeler's Address.

Sir William Wheeler began his address by expressing his thanks and sincere appreciation of the honour that had been done him in electing him an honorary Fellow of the American College of Surgeons, and of the high compliment that had been paid him by the Regents of the College in inviting him to address them on the tenth anniversary of its foundation. He wished to acknowledge, he said, with no feigned gratitude, the spirit of brotherhood which surrounded him on all sides.

The distinguished past-president of the College, Dr. John B. Deaver, who had recently vacated its chair, had justly pointed out that the American College of Surgeons, though national in name, was international in scope, and was carrying on the principles of the profession for the good of humanity. The American College had demonstrated to the world that medicine and surgery, and, indeed, scholarship generally, were independent of nationality and knew no distinction of race or speech. To Irishmen especially, throughout their entire history, America had exercised an attraction as if by some magnetic influence, and its surgical work and literature were as well known in Ireland as they were in America itself. It was the proud privilege of the Irish College of Surgeons, over which he had the honour to preside, to number among its honorary Fellows no fewer than nine of the great American surgeons of the day. The Irish College had been chary in the bestowal of that honour during the one hundred and forty years of its existence, and the simultaneous bestowal of the honorary Fellowship on nine surgeons from the same country had no precedent in the previous history of the College. When, however, it was proposed to enrol the name of the President of the American College, Dr. Cushing, together with the names of Drs. William and Charles Mayo, Dr. Ochsner, Dr. Keen, Dr. Hart, Dr. Finney, Dr. Brewer, and Dr. Crile, not a single dissentient voice was heard, and it was felt that an occasion had arisen when time-honoured precedents ought, for the moment, to be disregarded. It was but natural that they in the surgical profession in Ireland should feel an admiration for the surgeons of America. Many of the greatest of them bore Irish names, and blood was thicker than water. He expressed the hope that the members of the medical profession of the two lands might be joined in brotherhood for ever in the service of mankind.

Naturally, his thoughts at the moment turned much on travel and its influence on the progress of surgery, and in that connexion he was reminded of the words of a great Canadian, Osler: "Let me suggest that the lines of intellectual progress are veering strongly to the West, and I predict that in the twentieth century the young English physicians will find their keenest inspiration in the land of the setting sun." Osler had, as they in Ireland had—to quote the words of his father-in-law, Lord Shaw—"A love for the land where dreams come true; dreams of more secure reward for honest industry; of freedom from the irksome restraints and conventions which have outlived their day; of equality, frankly avowed and sincerely prized." Osler deplored contentment with second-hand knowledge derived from books; he urged scientists to add their own contributions to the general store of knowledge and to gain familiarity with workers abroad. Those who lived in a small island found it difficult to realize and to attach sufficient importance to these matters. It was very difficult, even for an Irishman, to live on an island and not to have an insular outlook; but difficulty was a severe instructor, and they were learning from their difficulties as well as from their mistakes. "Just as soon as you have your second teeth," said the great medical philosopher, "think of a change; get away from the nurse; cut the apron strings of your old teachers; seek new ties in a fresh environment." Osler, Canadian born, with a great wide outlook, deplored intellectual infantilism and that disease known as progeria, in which "as if by the touch of the wand of some malign fairy, the victim skips adolescence, maturity, and manhood, and passes to senility, wrinkled and stunted, a little old man amongst his toys." With the limited vision which was given to those who lived and worked in a small country two other defects were wont to develop as the result of want of travel—namely, swelled head and writers' cramp.

Much of the early history of medicine in Ireland was traditional and legendary, but the people of bygone days were not devoid of literary culture. It was known, on the testimony of Tacitus and Homer, that women studied medicine in ancient times, and the same appeared to be true of Ireland as of Rome and Greece, for in the *Book of Genealogies* of MacFirbis reference was made to a female physician of the name of Eaba. It was further interesting to note that the Royal College of Surgeons in Ireland was the first modern licensing corporation in Great Britain and Ireland to admit women and to appoint them to the highest offices in its gift. There was no lack of references to Irish medicine in past ages. The *Book of Leinster* recorded the tragic fate of Conchobhar MacNessa, King of Ulster, who died in A.D. 37, and related that he was wounded in the head by a missile from the sling of an enemy, and attended by a physician of the name of Fingen. The wound was closed, the sutures used being of gold, as corresponding in colour with the King's hair. Concerning the clinical instinct of Fingen, it was stated that "He could know by the fume which rose from a house the number that were ill in the house and every disease that prevailed in the house." The ancient laws of Ireland, the Brehon laws, which were codified at the request of St. Patrick in A.D. 438, referred to the remuneration and responsibility of medical men. If a person wounded another, the aggressor was obliged not only to pay a fine to the injured man, but also to provide him with maintenance and skilled medical care—a regulation the lapse of which could not but be regretted. The profession of physic passed from father to son in those days, an Irish custom that persisted until comparatively recent times. The ancient Irish doctor was shrewd enough to travel, and representative Irishmen, not only of the medical but of other professions also, remained abroad, and were to be found occupying distinguished positions in the various schools of Europe. Ancient manuscripts proved how admirably Irish physicians kept in touch with the advance of learning in Continental centres. A thirst for knowledge, and a keen observation of the sick under their care, raised medical and surgical science to a high pitch of perfection in the Ireland of bygone days.

Towards the end of the sixteenth century progress came to a standstill. Ireland was torn by strife, and no shelter for learning remained. This decline was intensified by the failure of the Irish to grasp the significance of the revolution in learning that followed the introduction of the printing press. The art of printing was neglected until nearly one hundred years after its adoption by the progressives of other lands. The early printed records of the great European physicians were not imported, and no Irish medical literature existed in print at that time. This period of depression, however, passed,

nevertheless accommodate conveniently those of normal physique. Of such cars we have constructions of British origin and quality second to none, and to-day they are offered at quite amazingly low prices.

A Year of Improved Cars at Lower Prices.

At the very bottom of the list we have the 2-cylinder air-cooled Rover now made available either with two seats and dickey or with "chummy" body, at £139 each only; this is the cheapest all-British car in the exhibition. We have also the 2-cylinder air-cooled Stoneleigh which, as a 2/3-seater, is available at £155; and in the water-cooled 2-cylinder type we have the 7-h.p. Wolseley available with ample leg room, at £199. Passing to the 4-cylinder category we find the 11.9-h.p. Morris-Cowley listed at £225 as a 4-seater; and a machine that is a classic of its kind, the overhead valve 4-cylinder 10-h.p. engined Wolseley, built by Vickers's motor manufacturing works, is available complete as a 2-seater with dickey at £250 only. There is shown for the first time at this exhibition the new 11.9-h.p. overhead valve 4-cylinder engined Standard that was introduced during the summer, and has been developed. The distinctive point of this machine is that, though it is a light car and is economical as to fuel, taxation, tyre wear, and so forth, nevertheless it is not a small car as regards the accommodation available for the occupants. On the contrary, it is on full-size car scale. Therefore, we have here what is truly the first light car, because in this case lightness is not achieved by any curtailment of accommodation. This machine is available with either 2- or 4-seat all-weather body at £235 only in each case.

How Cost has Fallen.

What has been occurring in the matter of prices cannot be better illustrated than by citing what has happened during the last three years. For instance, the 10-h.p. Wolseley was listed two years ago at £475; last year at £385, and it has come down this year to £250. Admittedly, in this case there is a difference in the specification as to the material of the upholstery and certain details like that. But the car remains a complete all-weather 2-seater of exactly the same accommodation; and the chassis is improved in detail. In regard to the 2-cylinder Wolseley, the price two years ago was £295; last year it was £255, and this year it is £199. This machine is a better one to-day than it was two years ago. The 8-h.p. Rover was originally introduced after the war—it has been on the market four years—at £300 when prices were at dizzy heights. Two years ago it had been brought down to £220; last year it was listed at £180, and to-day it is available at £139, and, again, we have to consider that this year it is an improved product. The air-cooled Stoneleigh, produced from the designs of Armstrong-Siddeley's engineers, and built under the direction of that firm, was £225 last year and £185 this year; it is available in an improved form for £155 to-day. The prototype of to-day's 11.9-h.p. Standard model had a smaller engine, a smaller chassis, and was altogether a different proposition, not in any way comparable in merit with the new type; yet two years ago that prototype was deemed extraordinarily cheap when it was introduced at £315, and last year, when certain processes of development had been in operation, it was also held uncommonly cheap at £295; but to-day, in a fully developed form with a much larger engine, larger track, longer wheelbase, and ampler accommodation, it is £235

Enterprise in the Middle Range.

What has been happening in regard to the prices of middle-sized British cars? The same thing. Take the case of the famous 12-h.p. Rover car of 13.9-h.p. Treasury rating. The first cars available after the war cost £725; two years ago the figure was £650; last year it was £550; and to-day the 4/5-seater is £495 in altogether improved form, as instance the standardization of shock-absorbers and the provision of four instead of three speeds forward, together with many other improvements in minor details. This Rover model—proved by medical men years before the war—is now to be listed at its Treasury rating and is styled, therefore, a 14-h.p. (instead of a 12-h.p.) type. Again, take the 14-h.p. overhead valve engined Sunbeam car that was introduced two years ago at £725 and listed last year at £685. The price remains the same to-day as last year; but there is a notable difference in the product. The most obvious of the many improvements included in this type is the provision of special front wheel brake system which this firm, that attained the foremost position in competition last summer by winning the blue ribbon event of the motor racing world, the Grand Prix of the Automobile Club de France, has evolved during many years of first-class, international, long distance road racing. Indeed, it was the first British firm to introduce brakes to all four wheels as standard on its largest 6-cylinder model last year, for the front wheel brakes on the 7-h.p. Austin are of a construction that is not concerned with the particular problems involved in this development. If I could go through the list item by item, it would be found that most cars represent better value for money to-day in that there is more in each machine as listed now than formerly; instance the extraordinary Overland de luxe model, the equipment of which is a catalogue in itself; and which sells for £295. Of course cases could be cited in which prices have been cut in even greater proportions, but I have sought deliberately examples of motor wares for which there is demand, each of which has attained an honourable reputation in its line, and is marketed by firms not forced to jettison their stuff but which are, on the contrary, trying to work at a reasonable commercial profit. That is essential if the motor buyer is to be given service, without which, no matter what price he pays for a car, it is a dear bargain because he cannot get, among other things, spare parts at commercial prices as and when he wants them. Unquestionably a very large proportion of members of the trade and industry is in the position of having goods to jettison, hence prices are being cut right and left. That, however, the individual must judge for himself when he inspects the display. After all, there is a vast difference in the appearance of those machines which are plainly a drug on the market, and those of some pedigree for which there is equally plainly a current demand.

Have Prices and Costs Touched Bottom?

One of the points concerning which the medical man will certainly be curious is this: How am I to know that if I buy a car now I am getting it at about bottom price, at least for this year? A matter which one would not bring before the public in general may be mentioned here in a semi-confidential way to members of the profession that they may judge for themselves. Dealing with cars for which there is a demand, and without indicating definitely whether the given machine is of British or of foreign origin—I shall cite points which happen to concern both categories—of machines that are being actually built now, as distinct from those which were built some time ago and which have to be got rid of somehow, one manufacturer is being supplied with sparking plugs at 4½d. each though they cost shillings to make; and another manufacturer, also of big output, is being supplied with carburettors at half the bare cost of producing the castings. I could cite examples, too, in regard to electrical equipment and other accessories. In fact, one of the notes of the year is that machines are being supplied with quite an extraordinary amount of auxiliary gear: I will instance the elaboration of the instrument board, the provision of clocks, gauges, reflectors, tyres, and so forth. Here we have the key to the riddle. The accessory industry in general is in a parlous state and much stock has to be jettisoned by some firms. The car manufacturer avails himself of that opportunity both to make his vehicle more complete and to pass the benefit, without any profit to himself, direct to the buyer, because he realizes that it is to the advantage of both parties. Therefore much of the reduction in car prices is due to the fact that the accessory industry in general is supplying the manufacturer at losses that certainly represent an average of 10 per cent. It is a mysterious method by which the bankers seem to be content to keep accessory factories going; if they were not liquidating stock in this way, in many cases they would be closed in three weeks. Those that understand the case can judge for themselves whether accessories to be made henceforth can be produced and supplied under such conditions. I am convinced they cannot. We have touched rock bottom.

symptoms and even his change in appearance and yet completely fail to draw the obvious, or almost obvious, conclusion in a diagnosis of his malady. How far his blindness to the nature of his own ailment went was shown by Dr. Mark's reading without illumination a pamphlet on acromegaly which had been sent to him by a friend; yet his brother-in-law, finding the pamphlet on his table and reading it, recognized in a few minutes that it was a description of the malady from which Mark was suffering. He thought he had gout, he imagined hay fever, he even gave the name "my fever" to a curious feeling of malaise he had; he had his eyes examined and wore glasses for astigmatism, he had turbinectomy for nose trouble, he wore a denture for undue separation of his teeth, he had to discard hats and gloves and boots because they grew too small for him; and yet he was blind to his own signs, and he had not the gift to see himself as others saw him. In his own striking words: "For some fifteen or twenty years, each day when I looked into the glass to brush my hair or shave, there was a typical acromegalic literally staring me in the face; yet I never recognized the fact." The old proverb, "Physician, heal thyself," may in the future find another to keep it company—Physician, diagnose thyself.

England and Wales.

St. Thomas's Hospital Medical School.

The annual old students' dinner of St. Thomas's Hospital was held on October 26th at the Princes' Restaurant, with Mr. W. H. Battle, F.R.C.S., consulting surgeon to the hospital, in the chair. The large company present, numbering 215, included Sir Charles Sherrington, President of the Royal Society; Lieut.-General Sir William Leishman, Director-General Army Medical Department; Surgeon Vice-Admiral J. Chambers, Medical Director-General of the Navy; Air Commodore David Munro, Medical Administrator R.A.F.; Sir William Horwood, Commissioner of the Metropolitan Police; Sir Havelock Charles, and Sir Squire Sprigge, together with Sir George Makins, Sir Seymour Sharkey, Sir Hector Mackenzie, and many other members of the consulting and active staffs of the hospital. The toast list was as short as the speakers were concise, and the chairman, in proposing prosperity to St. Thomas's Hospital and Medical School, remarked that long speeches were out of place at a function which was meant to be a social gathering and not an occasion for instruction. He coupled with the toast the names of the Hon. Sir Arthur Stanley, Treasurer of the Hospital, and Sir Cuthbert Wallace, Dean of the Medical School. Sir Arthur Stanley began by assuring his audience that "the hospital is all right," though he hastened to add that it always had been short of money and always would be. Among recent developments, plans had now been got out for adequate club rooms in the college house to be built on the other side of Lambeth Palace Road; for this purpose £7,000 were already in hand. Sir Cuthbert Wallace first responded for the school and then offered a welcome to the guests. He covered a great deal of ground in a short space of time, and in so doing rather turned the edge of his own suggestion that speeches of this kind would be better if they were printed and circulated beforehand and "taken as read." Among the outstanding features of the year was, he said, the new medical curriculum; in this matter the colleges in London had gone further than any other body. In regard to the relations between the University of London and the medical schools of the metropolis, he wondered whether this increasing centralization was altogether an advantage. He recorded with gratitude the gift of £5,000 from the Dunn bequest to establish biochemical laboratories, and another £5,000 to endow them; for the allocation of these sums a special debt was due to the good offices of Sir Walter Fletcher. The number of students was still very large and the recent falling off in entries had been welcomed by those in authority at all the medical schools. Among the honours and distinctions of the year he mentioned, in particular, the knighthood conferred on Sir Hector Mackenzie, and the election of Mr. Basil Hall to the presidency of the British Medical Association for its Annual Meeting at Bradford in 1924. Lastly, in proposing the chairman's health, Sir Cuthbert Wallace said that no eulogy of Mr. Battle was needed in any gathering of St. Thomas's men, for he was known to everyone as a loyal, hard-working, and strenuous son of the hospital. The chairman in a brief acknowledgement asked the company to drink the health of the honorary secretaries of the dinner, Dr. L. B. Maxwell and Mr. R. H. O. B. Robinson.

Income and Expenditure of London Hospitals.

The King Edward's Hospital Fund for London has published its statistical report on the income and expenditure of 113 London hospitals for the year 1922. The hospitals are grouped as follows: 12 general hospitals with medical schools; 10 general hospitals without medical schools, and with an average of over 100 beds in daily occupation; 11 smaller general hospitals; 3 consumption hospitals; 5 hospitals for women; 8 hospitals for children; 5 ophthalmic hospitals; 3 hospitals for epilepsy and paralysis; 8 lying-in hospitals; 14 cottage hospitals; and 34 other hospitals. It is shown that the income of these 113 hospitals (apart from special distributions such as the emergency grants from the King's Fund and the National Relief Fund, and by the Voluntary Hospitals Commission) increased from £1,470,000 in 1913 to £2,401,000 in 1920, and £2,566,000 in 1921; in 1922 it was £2,398,000, a slight decrease. The special distributions which are omitted from these figures included, in 1922, £243,000 from voluntary sources—namely, from the first and second instalments of the proceeds of the Combined Appeal, and it was part of the scheme of this appeal that for an agreed period the co-operating hospitals should suspend all independent appeals. An analysis of the various sources of incomes shows that of the total amount £505,000 came as income from investments, £924,000 as voluntary gifts (subscriptions, donations, etc.), and £769,000 as earnings (from patients, public authorities, and other sources). To the total ordinary income is to be added the extraordinary income, comprising £172,000 from legacies, and £28,000 from other sources, including grants from the King's Fund in reduction of general fund debt. The difficulties of the hospitals, as compared with the conditions before the war, were produced by increase of expenditure and not by decrease of income. It is satisfactory, therefore, that expenditure now shows a substantial decrease. After having risen from £1,192,000 in 1913 to £2,784,000 in 1920, it fell to £2,776,000 in 1921, and to £2,572,000 in 1922. There was, therefore, a net aggregate deficit for the year 1922, among the 113 hospitals included in this report, of £174,000; a further analysis shows that 58 of the hospitals had surpluses for the year amounting to £67,000, and 55 had deficits amounting to £241,000.

A Sunlight Treatment Class in London.

We are informed by the Education Officer of the London County Council that at the suggestion of Sir Henry Gauvain, the London County Council's consulting specialist for tuberculous children, an experiment was conducted at Stowey House open-air school, Clapham Common, during the summer months, to ascertain how far sunlight treatment could be utilized in day open-air schools. Thirty-five boys were selected, with their parents' consent, by the school medical officer. The head master reports that during the first week the lads worked, at their class and manual lessons, in light shirts, short pants, socks and shoes. The second week shirts were discarded, and so on during succeeding weeks, until they wore nothing more than their breeches. Their bodies were browned without signs of redness, a factor essential to correct treatment. The head master reports that, as a result of a few weeks' treatment, the boys appeared more alert, more energetic, and particularly happy under the new conditions. On their return to school after the summer holidays, it was necessary to acclimatize them again, but this time for only one or two days were they compelled to wear shirts whilst at work. The school medical officer reports that the results of the treatment were sufficiently promising to make it highly desirable for the experiment to be continued next summer, and the Education Committee on October 24th decided to do so.

British Dentists' Hospital.

The eleventh annual meeting of the British Dentists' Hospital was held at the Camden Road headquarters on October 27th, with Sir Harry Baldwin, C.V.O., the new

A Word of Warning about Front Wheel Brakes.

Therefore the only thing I can do in the interests of medical men is to advise them to inquire carefully into the history of the fitting of front wheel brakes to any given car. Of the French industry in general it may be recorded to its great honour that it has had five years' experience of front wheel brakes. The majority of the French builders of cars of any quality are standardizing systems which embody, in any case, servo mechanism, chiefly under the Perrot-Hallot patents. M. Henri Perrot was the first to discover some of the other basic principles involved in the safe application of brakes to the front wheels. He is really the father of the whole movement. Italy sends a notable version of front wheel braking in the 6-cylinder 30/40-h.p. Fiat, which is a chassis possessing remarkable qualities for the needs of any who may have occasion for a covered carriage to serve often as an economizer of time over the railway service, and which shall be of strictly reasonable prime cost and a high degree of refinement and efficiency. This system should be studied. A bare chassis is shown with the now well proved hydraulic control which this firm has been one of the first to bring to a practical stage, as a result, incidentally, of its unsurpassed experience in first-class racing events.

A note of the year is that Sunbeam was the only firm to standardize last year a front wheel braking system of genuine engineering merit, wherein the problems involved were faced frankly and solved; this year the British industry is emboldened to bring forward great numbers of variants. Moreover, after several years of experimenting the American industry has devised some standardized front wheel braking systems and has, too, provided more types, such as the Marman, than are marketed in this country. But in general it is important to note that M. Henri Perrot, whose patents are worked under licence in America by such firms as General Motors (who market the Buick, the Oakland and Cadillac 4, 6, and 8-cylinder cars that are now fitted with front wheel brakes), has expressed the opinion in writing in the U.S.A. technical press that the American industry in general is in the same state in regard to four-wheel brakes to-day as was the French industry five years ago. As to our own types, several car builders, including Bentley, Daimler, the 21-h.p. Lanchester, Maudslay, Rover, Sunbeam (14/40-h.p., 16/50-h.p., 20/60-h.p., and 24-h.p. types), and Vauxhall have well thought out schemes standardized on certain models. In the cases of the 30-h.p. 6-cylinder Armstrong-Siddeley and the 14-h.p. Bean, and in regard to the 20/70-h.p. Crossley type, such accessories are supplied as extras at the buyer's option. But in regard to the more powerful 6-cylinder cars made in Britain, it is observable that neither Lanchester with the 30-h.p., Napier with the 40/50-h.p., nor Rolls-Royce with the 40/50-h.p. 6-cylinder chassis furnish brakes to the front wheels. The two former, however, have considerably increased the diameter and area of their brakes on the back wheels. Napier is the only firm concentrating on one large 6-cylinder model only, which is available in a longer wheelbase type, and Rolls-Royce introduces a longer wheelbase on the big 6-cylinder chassis.

New Types and New Car Builders.

As Rolls-Royce introduced a 20-h.p. 6-cylinder overhead valve engined car last year, so Lanchester, hitherto concentrating on a large 6-cylinder, introduces this year a 21-h.p., overhead valve, 6-cylinder, monobloc engined chassis with front wheel brakes, four speeds forward, and the Lanchester suspension and worm drive features. Rover introduces a nominal 21-h.p., 6-cylinder, side valve engined, four-speed, worm-driven car with Perrot-type front wheel brakes; Maudslay enters the car industry with a 15/80-h.p., 6-cylinder, overhead valve engined, four-speed chassis of notable design; and Sunbeam introduces a 16/50-h.p. and a 20/60-h.p. overhead valve engined chassis, both with 6-cylinder engines and brakes to all four wheels on the special Sunbeam principle. The 4-cylinder 14-h.p. Armstrong-Siddeley, 4-cylinder 14-h.p. Bean, 11.9-h.p. Standard, and 12/30-h.p. Sunbeam types make their début at the show. Of course, there are introduced some new makes of cars, those that will be seen for the first time at the enlarged Olympia, including the 10-h.p. Triumph that was brought out last summer, the 10.4-h.p. Windsor, the 12-h.p. Westcar, and the 24/80-h.p. "straight-eight" Beverley-Barnes. The last named is a £28 tax, overhead valve, 3,994 c.cm. engine volume machine with a gearbox giving three speeds forward, spiral bevel-driven back axle, brakes on all four wheels at a chassis price of £750. The builders are Lennaerts and Dolphens of Beverley Works, Willow Avenue, Barnes. But despite the chassis price being moderate, this is too ambitious a vehicle for the average medical man. Therefore, in connexion with the problem of designing front wheel brakes in general I may state that it were impossible at this stage to get a better example of what has been learnt in the five years during which these accessories have been employed in France, where over 20,000 individual private owners have had experience of them, than in the 12-h.p., 4-cylinder, overhead valve engined, four-speed Delage car which is on exhibition at the show. Hispano-Suiza, Peugeot, and Renault have also done notable pioneer work in this connexion. That will give an idea of the basic principles that have to be dealt with. It illustrates admirably the Perrot-Hallot servo mechanism and other patented schemes. Among the Americans who work under some of these patents, it is observable that in the Buick car introduced by General Motors the four-wheel braking system works on the principle of shoes expanding in drums on the rear wheels and contracting bands on the front wheels; while in the Cadillac the process is exactly reversed. Continental and British makers do not favour the use of contracting bands for the reason, among others, that it is not possible to get absolutely even pressure over every fraction of the contact surfaces. General Motors is the largest individual corporation in the world producing cars, and in the case of three of its makes (including the Oakland) it has fitted front wheel brakes this year, after several years of experiment. Against this, on the Chevrolet and Oldsmobile cars, which it also builds, front wheel brakes are not furnished this year.

New Light Weight, Silent, Covered Bodies.

Quite the most notable development in regard to coachwork for the medical man is the Weymann cheap, light weight, silent, durable, patented covered body, which was dealt with at some length when the recent Paris Automobile Salon was reviewed. It was shown by Delage and Talbot-Darracq. The system is illustrated at the Olympia exhibition by those builders, and among other licensees, Daimler, Rover, and Sunbeam, who are standardizing this class of body, which can be made as commodious as the chassis can accommodate, yet the total weight will be not more than that of an open body. The principle embodies aircraft engineering practice as regards the construction of the framing, the jointing, the general use of wood, and so forth. Traditional coachwork practice is reversed completely in that the doors, sides, back, and roof constitute one member entirely independent of the floor and seats, which are a separate unit erected on the chassis. The hinges, the cam action handles, the methods of attachment, the grooves wherein the windows slide up and down, and so forth, are each the subject of a patent, the result being lightness, durability, low cost, and absolute silence. The last is a great factor for saving fatigue in the case of those who have to drive more or less all day long, and often at night. It is possible to speak in this type of covered body without raising the voice any more than one does in a room. I have found that to be a true claim. There is no squeak or rattle. This is a type of body, too, which does not lose its original gloss but, on the contrary, looks as well after long use as at the beginning. Against that, it never has the mirror-like, showroom finish of the average car of to-day, which loses its pristine brightness within, unfortunately, less than three months, never to recover it again. Talbot put one of these closed bodies on a 12-h.p. chassis, and it actually weighed 80 lb. less than the open touring type of car. The fabric used for the panelling is synthetic leather, which can be dusted as well as washed by unskilled labour without injury—an important matter, for if one attempts to dust an ordinary car the varnish surface is cut. From that moment the process of deterioration is exceedingly rapid.

and they reaped a rich reward in the greater influence and power, the gratitude of the community, and the raised position of the profession itself. The surgeon had been considered of late the most successful member of the profession; but he was now being pressed hard by the scientific physician, the metabolist and clinical pathologist, and the radiologist, and this was very deservedly so. Dreyer's researches were opening up new hope in tubercle and some septic affections. Insulin had rendered the treatment of diabetes mellitus exact and successful. Radiology had not been content in making visible the ureter, but had invaded the inner recesses of the brain, and by means of ventriculography had shown the closed foramen of Magendie or the blocked aqueduct of Sylvius. To replace the fluid of a hydrocephalus by air, then by the x rays to demonstrate the obstruction to the circulation of the secretion of the choroid, and finally to remove this obstruction by probe or otherwise, was surely an aim worthy of the keenest intellects and most delicate manipulation of the age. Radiology spread into pure therapeutics and gave promise of relief, perhaps of cure, in one of the most horrible of fatal diseases, cancer of the rectum. Their treatment of wound shock was another example of advance, and the results by the present method by the removal of all bruised and injured tissue gave results far beyond the hopes of pre-war days. All these advances were the results of the communism of science and the internationalization of medicine; and all should learn to study in this broad spirit, and recognize the provincial hospital as a constituent part of a world-wide institution. Mr. Fullerton urged the spirit of research, and pointed out that all could contribute; Edward Jenner in former years and James Mackenzie in recent times did their best work as general practitioners. Note-taking was much more than a preparation for an examination; it was an education in full and accurate observation and in the proper record of the results, and was indispensable both in practice and research. The hospital of the future would be known by its records, from beginning to end of the disease, reliable, serviceable; and such notes all students should be trained to take. The lecturer concluded by referring in happy vein to the long term during which Professor Sinclair was connected with the profession, and to his many years of skilled and arduous work for the hospital. He welcomed Mr. Malcolm to the staff as a worthy colleague and as a gain to its teaching power, and he congratulated Professor Thomson on his recovery from his tedious and trying illness.

Dr. Calwell proposed and Mr. Craig seconded a hearty vote of thanks to the lecturer for his valuable and eloquent address, and this was conveyed to him by the chairman and acknowledged.

PROFESSOR SINCLAIR OF BELFAST.

On the evening of October 23rd, Professor T. Sinclair, C.B., F.R.C.S., was entertained to dinner by his colleagues on the staff of the Royal Victoria Hospital, Belfast, on the occasion of his appointment to the consultant staff, and was presented with an oil painting, "Littlehampton Harbour," by B. W. Leader, R.A. The chairman, Mr. Mitchell, proposed in happy terms the guest's health, and said that, although they would all miss him from the more active and laborious work of the visiting staff, they hoped the separation was otherwise only verbal. Mr. Sinclair replied.

TYPHOID FEVER AND POLLUTED WATER.

A largely attended public meeting was held at Coleraine to consider the alleged action of the urban district council with regard to the serious outbreak of typhoid which has occurred and its supposed causation by impure water. It is stated that some sixteen cases of typhoid fever and a large number of cases of diarrhoea have occurred in the town since the beginning of September. At a meeting of the urban council one of its members said that one could not walk six yards without seeing that the water supply was being contaminated with manure. The following resolution was unanimously passed by the meeting:

> That the water supply for the town of Coleraine having been pronounced by Professor Wilson and Dr. Patrick as unsafe to drink, and a resolution having been unanimously passed at a public meeting of the townspeople held in the Town Hall on Tuesday, September 25th last, calling on the Urban District Council to appoint the best procurable waterworks engineer to examine and report on the whole scheme, and to have his report carried into effect without delay, and this resolution having been sent to the Council for their immediate attention, and having been considered at the meeting of the Council on the 1st inst., but no action taken in making such appointment, we, the inhabitants of Coleraine in public meeting assembled on this 10th day of October, 1923, hereby request the Ministry for Home Affairs to hold a public inquiry into the whole matter at the earliest possible moment.

Correspondence.

THE UNIT SYSTEM IN SURGERY.

SIR,—I have read with the greatest interest Mr. Souttar's review of the reasons which have led the London Hospital to abandon the surgical unit experiment, and venture, since the matter is of the utmost importance to our great teaching schools, to add to it some notes on our experience at the Middlesex Hospital.

Having watched the innovations in the methods of clinical teaching with the greatest interest and anxiety, we, at the Middlesex Hospital, declined, after the fullest consideration, to adopt the professorial unit system, fearing that, in spite of its apparent advantages, it might fail for the very reasons which Mr. Souttar has given. We held, moreover, that the old system could be so varied as to attain all the advantages of the unit system without the drawbacks which have now led the London Hospital to abandon the original whole-time professoriate, and that this development could be effected at a less cost.

We sent a reasoned memorandum to the University Grants Committee, and gave them a definite scheme for which we asked their assistance, and, although this assistance was not forthcoming, we were so confident of the merits of our scheme that we determined to give it a full trial.

Briefly, then, we attached to each surgical, medical, and obstetrical firm a whole-time registrar, whose duties consist in assisting in clinical teaching, carrying out and co-ordinating pathological investigation, following up cases, and, in collaboration with his chief, undertaking definite clinical or pathological research. The opportunity of filling these posts, which carry a salary of £300 a year, and are tenable for three years, appeals to men who have completed resident appointments. These men, while working for higher qualifications, are glad to gain further clinical and pathological experience, together with the opportunity of doing some teaching.

While it is probable that the details can be still further improved, it is quite certain that this plan has increased enormously the value of clinical teaching in the hospital, and of the services rendered to its patients, without in any way restricting the field of practice of the honorary members of the staff. For my part, I can unhesitatingly say that in my own firm I am daily conscious of the increased efficiency that results from the close co-operation of my registrar. The clinical records of my cases are both of more immediate and more permanent value as a result of his supervision. With his help I have been able to carry out more statistical work, and to follow up cases further than I could otherwise have done—one most important aspect of the research work which it is his duty to carry out.

Furthermore, the interest of the students in the cases is fostered by the certainty that they will not miss seeing for themselves the pathological material provided by operation or *post mortem*, demonstrated by a registrar familiar with all other features of the case—an essential preliminary to the final instruction which they receive from the members of the honorary staff. In addition, his presence in the theatre for the collection, and, if necessary, immediate examination of pathological and bacteriological material ensures the full value of such examinations accruing to the patient, to myself, and to the students. He acts as a link between the clinical and the pathological departments.

My colleagues, both on the surgical and on the medical side, are equally impressed with the advance which the creation of the appointments has marked, and we are confident that as we perfect the scheme we shall build up

› Royal Automobile Club to organize comprehensive trials low pressure tyres in 1924.

In the carburetter section interesting exhibits are the ›bson power jet type; and the newest triple diffuser nith. There is also a special Zenith type for Morris cars. her exhibits on the Zenith stand include air stranglers d controls for standard types of carburetters; also a nge of special inlet pipe fittings enabling this system of rburation to be applied to any make of car.

A development in connexion with sparking plugs is a niature Lodge type for use on miniature engines; also r fitting in positions where it is impossible, or difficult, employ an ordinary size plug. This model is known as E. Another Lodge exhibit is the well known priming plug facilitate starting an engine in cold weather. This genious device has been improved in several details.

The Gamage display in the accessory section is a minor hibition in itself. Incidentally, it is interesting for the de range of foot-warmers; and the various types of gloves ıd gauntlets for keeping the hands and wrists warm.

THE NOBEL PRIZES IN MEDICINE.

ıe Nobel prize in medicine for 1923 has been awarded intly to Professor Macleod, F.R.S., and Dr. Banting of ›ronto; that for 1922 jointly to Professor A. V. Hill, .R.S., University College, London, and to Professor Otto eyerhof, of the University of Kiel.

The award to Professor Macleod and Dr. Banting is in cognition of their researches into the action of insulin and s use in the treatment of diabetes. As we have so recently ven a full account of these researches, have published rofessor Macleod's address to the International Congress Physiology in Edinburgh, and as we are about to publish s Cameron Lectures on the nature of control of the etabolism of carbohydrates in the animal body, we may › excused from any statement of the grounds which have ılly justified the award.

Professor Hill's work is perhaps less well known to the rofession. Every member of it will congratulate Professor ill, who has just succeeded Professor Starling as Jodrell rofessor of Physiology at University College, London, on ıis recognition of his work, and will be delighted at the ›nour done to medical science in this country. This is the rst time that the Nobel Prize has been awarded to an nglish physiologist, and thus the reproach is removed that ıe premier school of physiology has been somewhat elected by the awarders of the Nobel Prizes.

'he award of the Prize in Medicine to Professor A. V. ill, who is a physiologist and who does not happen to ossess a medical qualification, is a direct testimony to the elief that the development of medicine depends upon the ›undation provided by its basic sciences. In this respect ıe award is peculiarly significant, for the outstanding ature of Professor Hill's work is that he has applied to ıe problems of physiology the mathematical methods apperıining to the more exact sciences of physics and chemistry. rofessor Hill's early career gave a good indication of his ature career, for in 1907 he was third wrangler at Camridge, and later, in 1909, took a first class in physiology in ıe second part of the Natural Science Tripos. Similarly e first became Lecturer in Physical Chemistry at Cambridge ut afterwards turned to physiology. His great work has een the accurate analysis of the processes which occur uring muscular contractions. This investigation called or the most delicate refinements of experimental technique, nd was carried out in the early stages on the isolated ıuscles of the frog. When medical men recall the weary ours they spent in their youth with the frog's gastronemius and an induction coil, they may possibly feel a ttle surprised that anything of good or importance should ome from such a source, but the development of these esearches has been a brilliant demonstration of the manner ı which important practical results follow any increased nowledge of fundamental principles.

The progress of Professor Hill's researches has been oughly as follows:

He first made exact measurements of heat production esulting from muscular contraction, and demonstrated the relation between the quantity of heat produced and the initial length of the fibres of the contracting muscles.

He also showed that the muscle is a machine which in the first instance has 100 per cent. efficiency, and effects the complete conversion of its potential energy to heat or to mechanical energy. The establishment of the relations between the length of muscle and the extent of heat production provided the basis for the "Law of the heart" enunciated by Professor Starling, which explains how the heart can adapt itself to different conditions, and also explains how the process of compensation in heart disease is effected.

Professor Hill next studied the time relations of heat development during muscular contraction, and found that heat production occurred during two periods; first, during the period covering the contraction itself, and then during the process of recovery. Here his work linked up with that of Fletcher and Hopkins, since it was evident that the first phase of heat production, which occurred anaerobically, was associated with the production of lactic acid, whereas for the second phase oxygen was necessary and lactic acid disappeared, so that the muscle was put back in the same condition in which it had started.

The work of Meyerhof contributed to the further analysis which showed that the glycogen of the muscle was the source of the lactic acid, and that in the recovery process between one-sixth and one-quarter of the lactic acid was oxidized, thus accounting for the heat production, while the rest of the lactic acid was reconverted into glycogen, which, on further excitation, could be broken down again to give rise to energy and lactic acid.

Professor Hill in a recent lecture declared that the final experiments in any physiological problem should always be on man, and he has followed this practice in his own researches. In studying the respiration exchanges of man during exercise he found that the process of consumption of oxygen by the muscles in man was identical with that in the isolated muscle of the frog. The presence of oxygen is not necessary for the muscular contraction itself, but since oxygen is essential for the recovery, muscular capacity will soon fail unless abundant oxygen is available for oxidizing a portion of the lactic acid and furnishing energy for replacing the muscle in a condition in which it can contract again. Thus during extreme efforts the body can work at a pace far in excess of its oxygen supply, and, as Hill has put it, the muscle goes into debt for its oxygen during violent exertion; the extent to which this debt can be incurred depends upon the amount of lactic acid which can accumulate without affecting the muscular contraction, and this quantity, strange to relate, is almost identical in the muscle of frog and man. Thus when running a 100 yards race the whole effort practically is made on credit, whereas in a cross-country race the rate at which the competitor can travel is limited by the power of the body, as regards circulation and respiration, to supply the muscle with sufficient oxygen for its current needs.

Professor Hill's researches have thus made possible a much deeper insight into the whole process of muscular activity, whether it be of heart or of skeletal muscles, and have enabled us to form a much clearer conception of the complex intracellular processes which are involved in every vital activity. These conclusions have thrown a flood of light on the conditions regulating violent muscular activity in athletics, and they form a new basis for the study of muscular fatigue. Obviously this new knowledge will be of enormous value in therapeutics—for example, it should be of the greatest assistance in the study of the causation and prevention of heart failure in disease.

Professor Hill's conclusions with regard to the fundamental laws governing muscular activity were supported by the work of Professor Otto Meyerhof, who shares the Nobel Prize. Professor Meyerhof commenced researches on the same subject independently; he studied especially the chemical processes involved in muscular contraction, and showed the nature of the reaction which provided the necessary energy for muscular contraction. His results have confirmed those of Professor Hill in almost every particular and have resulted in more accurate appraisement of the balance of the isolated muscle than would have been possible from Professor Hill's researches alone.

that it rests on the solid basis of fact. No one who has seen the anatomical conditions which Sir Arbuthnot Lane describes as existing in cases of intestinal toxaemia can fail to recognize them, or to appreciate the results that must ensue from them.

It has been my good fortune to become convinced, by repeated demonstrations in a series of cases exhibiting various grave manifestations of intestinal toxaemia, of the existence of the anatomical conditions which Sir Arbuthnot Lane describes, and of the little short of marvellous results that have followed on the comparatively simple operative treatment which he is now practising.

The object of this letter is to urge those who have not yet given Sir Arbuthnot Lane's teaching careful and practical consideration to do so without prejudice, and when they are convinced to go out and preach, with all the vigour and conviction that is in them, the evils that follow in the wake of intestinal stasis.—I am, etc.,

London, W., October 22nd. S. HENNING BELFRAGE.

CANNABIS INDICA IN SMOKING TOBACCO.

SIR,—In your issue of September 22nd, 1923 (p. 521), you published an interesting memorandum on the presence of cannabis indica in smoking tobacco by Dr. R. L. E. Downer.

I do not recollect having heard of any previous case of such adulteration in England. In Egypt, and the East generally, as is well known, "hashish" is mixed with tobacco—chiefly cigarette tobacco—with the deliberate intention of catering for the palate of the "hashash." Tobaccos and cigarettes so admixed with hashish are expensive and can only be purchased clandestinely. The precise object of mixing cannabis indica with tobacco for sale in England is not clear.

In regard to the analysis submitted—"0.66 per cent. of solid cannabis indica in the sample, equivalent roughly to about 1 drachm of the *British Pharmacopoeia* tincture per ounce of tobacco"—one or two points occur to me. Assuming 7½ minims of the tincture have been known to produce toxic effects (as your correspondent states), then to consume this amount of tincture 3.5 grams or 1/8 of an ounce of tobacco would have to be taken, equivalent to about 3½ cigarettes. I am aware that Indian hemp when smoked is much more rapid in its action than when taken internally. It would be interesting to know if the gentleman who smoked the tobacco was at all affected. There is one further point of interest to a chemist, and that is by what method cannabis indica can be so accurately estimated when present in tobacco. I assume the estimation was carried out microscopically. I am interested at the moment in the question of the relation of the Beam test to the toxicity of samples of cannabis indica and would welcome the information as to whether or not the tobacco in question gave a positive result with the Beam reaction. Indian hemp yields from 10 to 18 per cent. of substances soluble in alcohol (*B.P. Codex*, 1923). Assuming the cannabis indica to yield 15 per cent. of extract from which the tincture was prepared, 0.66 per cent. of extract of cannabis indica would be equivalent to 1 fluid drachm of *B.P.* tincture, but 0.66 per cent. of solid cannabis indica would be equivalent to only 0.16 fluid drachm.—I am, etc.,

E. GRIFFITHS-JONES, M.Sc., A.I.C.

Public Health Laboratories, Department of Public Health, Cairo, Oct. 13th.

ASTHMA DUE TO INSECT POWDER.

SIR,—With regard to the case of asthma due to insect powder, recorded in your issue of October 27th (p. 764) by Drs. Garratt and Bigger, it would be most interesting to know (1) whether the patient was sensitive to dog hair, for dogs enter largely into the history of both her attacks, and (2) whether the insect powder was tested on a normal arm as well as the patient's. I think this should always be done when a reaction is obtained to a new drug; so many articles give reactions on everybody's arms—notably is this so with morphine. Though this drug was the undoubted cause of the asthma of one of my patients, it gave just as large a reaction on my own arm,—I am, etc.,

London, W., October 28th. FRANK COKE.

DECREASE OF ACUTE RHEUMATISM.

SIR,—In Dr. Reginald Miller's paper on the etiology and treatment of heart disease in early life, published in the BRITISH MEDICAL JOURNAL, October 20th (p. 702), is the following passage referring to acute rheumatism:

> "Still we may at least say that some progress has been made, and it would seem probable that it is to clinical work rather than to public health administration that we attribute what improvement has occurred. It appears to affect the severity rather than the frequency of the disease, and this suggests that earlier diagnosis and more efficient treatment have been the factors responsible for the improvement."

It is of considerable importance that the causes of any decrease in either the amount or severity of acute rheumatism that has taken place should be correctly assessed, for it is upon this knowledge that further action is likely to be based. Thinking, as I do, that the above statement is not correct, I feel that it should not go unchallenged.

In the absence of notification it is not easy to prove with certainty the decrease of a disease, as hospital figures for obvious reasons are not always a true guide. My own experience as house-surgeon at the Blackburn Infirmary thirty-five years ago is remarkable as showing the prevalence of this disease at that time in Blackburn and district. In the years 1888, 1889, and 1890 no less than 100 cases, mostly of a severe type, were treated as in-patients. During the years 1920, 1921, and 1922 I find from the reports that only eleven cases were admitted. I think it may safely be assumed that this disease is now less common, less severe, and is mostly confined to the poorer classes. Dr. Miller says:

> "What is the underlying connexion between rheumatism and poverty? This I believe to be by far the most important question not yet certainly solved."

He is, therefore, of opinion that there is a distinct connexion between rheumatism and poverty. The environment of the poor has during the last thirty or forty years improved enormously, by the abolition of slums and cellar [illegible] of construction of houses, diminis[illegible]er ventilation of houses, increased [illegible] better food and clothing, improved education, and in many other ways, so that it now much more closely approximates to the environment of the better-to-do class. This, I venture to say, is the principal reason that rheumatic fever, which is mostly a disease of the poor, has lessened both in amount and severity, although possibly enucleation of enlarged and infected tonsils may have prevented some cases and medical treatment greatly lessened the severity of others. The same improvement of environment has probably been the cause of lessened virulence of other throat affections such as scarlet fever, diphtheria, and acute suppurative tonsillitis.

The evidence seems to me to point to the fact that in acute rheumatism, as in most other diseases, we shall have to rely principally on those measures which are directed against disease as a whole, and probably the greatest of these is education. It seems desirable, however, that notification should be at once adopted, not necessarily for immediate administrative action, but as the first step towards research into the environmental causes of acute rheumatism.—I am, etc.,

JAMES WHEATLEY, M.D., D.P.H.,
Shrewsbury, Oct. 28th. Medical Officer of Health, Shropshire.

SPASM OF THE LARYNX.

SIR,—I regret extremely if my remarks on vertigo or syncope due to "spasm of the larynx" have in any way done my old friend Dr. Peter McBride an injustice. No chapter on "Laryngeal Vertigo" can be complete without quoting his early statement that the "*ictus laryngis*" is a syncope and not a vertigo. My remarks were necessarily limited and confined to the exposition of what I ventured to consider my own opinion. Dr. McBride's italicizing seems to suggest that it was not my own. In any case it does not appear to be his, because he very plainly states that it is erroneous. Meanwhile, my old friend is quite entitled to his own opinion and I am sure he will think none the worse of me because I form mine.—I am, etc.,

London, W., Oct. 30th. JAMES DUNDAS-GRANT.

VACCINATION PROPAGANDA.

A few months ago (July 14th, p. 72) we devoted some space to the present position with regard to vaccination propaganda, and called attention to the excellent little tract expounding the value and importance of vaccination issued by the Ministry of Health.[1] The paper by Dr. Killick Millard published on September 29th leads us to recur to the subject, as he raises certain matters not dealt with in our earlier article. Dr. Killick Millard stated that in 1906-20—a period, by the way, of fifteen and not sixteen years—"even the registered deaths from vaccinia amounted to 165, and it has recently been admitted, in answer to a question in Parliament, that by no means all the deaths due to sepsis following vaccination are debited by the Registrar-General to vaccinia." We have thought it well to make inquiries of the Registrar-General's department, and learn that the 165 deaths included every case in which sepsis or erysipelas following vaccination was mentioned in a death certificate. Not only so, but the 165 deaths also included cases of such diseases as bronchitis, pneumonia, diarrhoea, mentioned as following vaccination. Indeed, the practice was to debit the death to vaccination unless correspondence with the certifying practitioner—as occurs occasionally in connexion with certificates of doubtful meaning—made it clear that he did not regard the vaccination as in any way a contributory cause. Of the 165 deaths, 92 occurred in the eleven years 1910-20, and this 92 included only 41 attributed to "vaccinia"—and that term, as used in the Registrar-General's reports for these years, included much more than the rare condition sometimes described pathologically as vaccinia or general vaccinia:

It seems desirable to make clear the whole position with regard to such cases. In 1911 the classification of deaths in general was modified in this country, owing to the adoption of the international list of causes. This involved substitution of the class "Vaccinia" for the old class "Cow-pox and other effects of vaccination." At the same time occasion was taken to revise the entries in the class. It was deemed best to continue to ascribe to vaccination cases where it was mentioned in certificates of death from diseases like those named above—bronchitis, diarrhoea, and so forth. But in respect of sepsis or erysipelas there had always been a want of uniformity which it was thought right to rectify. Where sepsis or erysipelas followed an insect bite, or any scratch or slight puncture or abrasion of the skin, the death had always been attributed to sepsis or erysipelas as the case might be, and not to the trivial lesion which had given opportunity for the infection. But where that lesion chanced to be a vaccine vesicle the death had been set down to vaccination, and it was necessary, in accordance with the international list, to correct this anomaly by classifying any such death as due to sepsis or erysipelas just as in other cases. The change generally was explained in the Registrar-General's report for 1911.

That, however, is not all. For purposes of comparison the Registrar-General in his annual reports gives in respect of every separately tabulated cause of death the figures for a series of previous years. To continue this practice a kind of double entry was required for the years 1911-20, wherever the classification had been changed. Besides the new entries under vaccinia, the old entries under cow-pox and other effects of vaccination were given in a retrospective table, and it was only in 1921 that the double entry could be dropped. But a paragraph in the text of the report for 1921 gives the information which will enable anyone to transfer such deaths to the vaccinia column, so that the opponent of vaccination can add what he pleases to the Registrar-General's table. Regarding 1921 the present Minister of Health, Sir William Joynson-Hicks, in answer to a question in Parliament by Mr. Snowden, said that "vaccination" was mentioned on 7 certificates of death and "general vaccinia" on one. They were classified as follows: 3 due to vaccination, 3 to erysipelas, 2 to purulent infection, septicaemia.

We may take this opportunity of referring to another point in Dr. Millard's article. In writing of the attitude of the medical profession he asserted that when the conscience clause was proposed "we opposed it for all we were worth," and "we said it would result in a further neglect of vaccination." Dr. Millard's "we" is not a precise expression, and we desire to point out that it does not include the British Medical Association; far from opposing the conscience clause "for all it was worth," the Council of the Association was prepared to accept the clause, if only the law and the clause were to be applied not merely to infant vaccination, but to revaccination, which ought to be legislated for like infant vaccination. That was the official attitude of the Association, and the adoption of its proposal would have got rid of the anomaly of legislative pressure being applicable only to primary vaccination, though revaccination is also required for continued protection against small-pox. Moreover, domiciliary vaccination was begun along with the operation of the conscience clause, and Dr. Millard is mistaken when he asserts that "a further and serious decrease in vaccination followed." On the contrary, the percentage of vaccinations to births, which had fallen to 62.4 in 1897 and to 61.0 in 1898, began to rise immediately, and continued to be over 70 per cent. (in one year 75.8 per cent.) until the baleful Act of 1907 took effect. That Act was at once followed by a decline in infant vaccination, which has continued ever since.

Most fortunately for the public welfare the type of small-pox in this country, as is well known, has commonly in recent years been mild. This has done much to avert the punishment which would have followed the neglect of vaccination had the European variety of the disease continued to prevail. Gloucester and Leicester have been amongst the principal beneficiaries, though far from frankly appreciating their good fortune. Even 38 per cent. of infant vaccinations, as in 1921, is, however, much better than nothing, and the profession would be falsifying its whole position by giving any countenance to Dr. Millard's suggestion for repeal of all obligation towards vaccination, on the hypothesis that thereby, when epidemic small-pox reappears, vaccination would be more readily accepted by the public. Parliament may do what it likes and the consequences will be on its head. The medical profession can have no part in such political opportunism, and the newly improved administration of the existing law is welcomed as an indication of the present Government's recognition of its duty to the helpless infants who are allowed to run the risk of small-pox, mild or severe, owing to the indifference of their parents.

[1] Reports on Public Health and Medical Subjects. No. 8. Small-pox and Vaccination. H.M. Stationery Office. 1921. Price 3d. net.

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee forty-four cases were considered and £518 12s. voted to thirty-eight applicants. The following is a summary of some of the cases relieved.

Daughter, aged 29, of L.R.C.P. and S.I. who died in 1919. During the war the applicant was at the Bank of England as a temporary clerk—the temporary staff was dispensed with last July and the applicant, being untrained, has not been successful in obtaining another post. She asked the fund to help with training fees. The Committee made a small grant to render the applicant eligible for help from the R.M.B.F. Guild.

Widow, aged 59, of M.B.Aberd. who died in 1916. Afterwards she lived with her mother, who had a pension, but she died in November last year. Applicant tried to earn a living by keeping poultry, but found that she was out of pocket. Her only income is the interest on £100 War Loan and £250 mortgage. She asked for help to pay her rent (£13). Voted £15.

Daughter, aged 65, of M.D.Aberd. who died in 1904. She has been living with her sister, where they had their rooms free, but applicant developed mental trouble and the trustees of the home said she must find other accommodation. This necessitated her finding a lodging where she would have good attendance and also be near her sister. This was secured a few doors away, but the rent of the one room and box room is £1 a week. Her income is only £60 per annum. Voted £12 in twelve instalments.

Widow, aged 52, of L.R.C.P.S.Edin. who died in 1902. She is a nurse and has found it difficult to obtain work and has only received £90 in the last nine months. Her rent is £20 and she has to find £50 towards her daughter's board, who is a dental student. Applicant asks for a grant towards her daughter's expenses. The Committee made a small grant to render the case eligible for help from the R.M.B.F. Guild.

Widow, aged 30, of L.R.C.P. and S.I. who died suddenly last August. She has two small children. The Committee voted £15.

Widow, aged 35, of M.D.Glas. who died in 1916. Since the death of her husband she has managed to maintain herself and children, but she now asks the fund to assist her in the education of her two children, aged 11 and 8 years. The Committee voted a small grant to enable her to receive assistance from the R.M.B.F. Guild, to whom the case was referred.

Daughter, aged 81, of M.R.C.S. who died in 1853. Applicant was a mental nurse, but is now too old to work. Her total income is £50 per annum and her rent amounts to 6s. 6d. a week. Relieved once, £26 in twelve instalments. The Committee again voted the same amount.

A donation of £2 was received anonymously from Correggio at the beginning of October, and the Treasurer desires to thank the donor and trusts that this acknowledgement will be duly noted.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., M.S., at 11, Chandos Street, Cavendish Square, London, W.1.

The Royal Medical Benevolent Fund Guild still receives many applications for clothing, especially for coats and skirts for ladies and girls holding secretarial posts, and suits for working boys. The Guild appeals for second-hand clothes and household articles. The gifts should be sent to the Secretary of the Guild, 43, Bolsover Street, W.1.

Medico-Legal.

UNQUALIFIED PRACTICE AT PLUMSTEAD: CORONER'S STRICTURES.

AT an inquest held at Woolwich on October 27th, the coroner (Dr. W. H. Whitehouse) declared that the case disclosed the most flagrant breach of the Medical Act he had ever come across. It appeared that a woman named Healy, aged 72, who had died on the previous Monday, had been attended by Clarence Wilfred O'Donoghue, of a "Health Institute," who gave his address as 55, Heavitree Road, Plumstead, with a temporary address at 109, Alabama Street, Plumstead. A son of the deceased woman stated that Mr. O'Donoghue, as the family "doctor," had been treating his mother for the past twelve months, and had attended at the house. He had always been addressed as "doctor," and had been taken to be a qualified man, and his mother had had great faith in him. On the previous Sunday his mother had a severe attack of a long-standing gastric trouble and vomited blood. Mr. O'Donoghue was summoned and gave her medicines, which afforded some relief, and next day he called again. The woman's condition became very serious, and Mr. O'Donoghue then said that he must have a consultation with another doctor, who came in response to an urgent summons, but the woman died in his presence.

Mr. O'Donoghue, who was warned that the evidence he gave on oath might be used against him in another court, said that he was of Irish descent and was born in India. Asked his profession, he replied, "In medicine," but on being pressed for a more definite answer, he said that he had qualified abroad in the Faculty of State Medicine in India (Calcutta), whose diploma he declared to be the same as the "M.R.C.S." or "L.R.C.P." He said that it embraced medicine, surgery, and midwifery, and was not, as the coroner suggested, concerned only with sanitation and the things which might properly be considered as State medicine. In Plumstead during the last two years he had been attending some nervous cases and anaemias at his consulting rooms, and, exceptionally, he had visited patients in their houses. He had a brass plate bearing the name "Dr. O'Donoghue," but the plate was made with a view to his future qualifications, and the "D" of "Dr." was temporarily smudged out. He was hoping to take the Final English Diploma in London within the next month. He declared that he had been registered by the General Medical Council, which had antedated his studies, but on further questions by the coroner he admitted that his registration by the Council was only as a student. He also produced a card showing that he had received clinical instruction at Manchester Royal Infirmary in 1919, and he stated that he was a member of the Royal Institute of Public Health. In the case of Mrs. Healy he had used a stethoscope and had given advice and medicines. He had set out in a letter to the coroner his views of the case, that he believed the woman to have been suffering from chronic gastritis, and he gave particulars of the mixtures and diet he had prescribed. An hour or two before her death he had called in Dr. Riddell, who found the woman conscious, but failing fast.

Dr. D. F. Riddell, in his evidence, said that he was called to see Mrs. Healy on October 22nd. O'Donoghue, whom he had never seen before, although he had heard of him in the neighbourhood, had been to see his partner, Dr. Clarke, and had told him that he had been called in to see a case, but finding severe haemorrhage he could not attend it himself. Dr. Riddell agreed to go (Dr. Clarke being unable to do so) as it was an urgent case, but on the distinct understanding that O'Donoghue was not in actual attendance on the case. On arrival he found the woman just alive. O'Donoghue was in the house, but he elicited the history from other persons who were present, and not from him. The woman died before he had completed his examination, and in the circumstances he refused to give a death certificate. At the *post-mortem* examination he found appearances which made it evident that the cause of death was haemorrhage due to a ruptured vessel in chronic ulcer of the stomach.

The coroner, addressing Dr. Riddell, said that he had done exactly the right thing, and he hoped that his action with that of the coroner himself would rid the neighbourhood of a pest. To Mr. O'Donoghue he said, "You say you hope to be registered by the General Medical Council very shortly. I hope you will never be registered by the Council. I hope the police or the Medical Defence Union will take very strong action against you." He added that had this woman had other treatment, possibly surgical treatment, she might have been kept alive. To the son of the deceased the coroner said that he sympathized with him in having been grossly misled by having in his house as medical attendant a man who had no right to practise at all in this country, either as physician or surgeon, who knew really nothing about medicine, and could not even spell correctly some of the medical terms he used. He returned a verdict of "Death from natural causes," in accordance with Dr. Riddell's evidence.

Obituary.

JAMES LANE NOTTER, M.D.,

Colonel A.M.S.(ret.); formerly Professor of Hygiene, Army Medical School, Netley.

COLONEL JAMES LANE NOTTER, Army Medical Staff (retired), died in a nursing home at Southampton on October 24th. He was born on February 1st, 1843, the son of the late Richard Notter of Rock Island and Carrigduve, County Cork, and was educated as a Fellow Commoner at Trinity College, Dublin, where he graduated B.A in 1863, M.B. and M.Ch. in 1865, M.D. in 1875, and M.A. in 1891. He also took the L.R.C.S.I., in 1865 and the D.P.H. in 1875. He entered the army as assistant surgeon, passing first into Netley in 1866, and in the old regimental days was medical officer in the Royal Artillery and served in Canada and at Malta. In 1876 he was appointed assistant professor of military hygiene in the Army Medical School at Netley, a post which he held till 1882; from 1889 to 1900 he was professor of the same subject. He was promoted to surgeon colonel in 1896, and retired in 1903. He served in the South African war in 1900-01—on special duty at headquarters of the army—in the colony.

As assistant professor and professor at Netley, Colonel Notter was well known to many successive generations of officers of the R.A.M.C. and of the I.M.S., all who entered these services for over ten years having studied under him. He was frequently employed on special duty in connexion with his specialty; he attended, as British delegate, the International Medical Congresses at Berlin in 1890, at Chicago and Rome in 1893, and at Budapest in 1894; and as representative of the British Foreign Office and War Office signed the convention at the International Sanitary Science Conference at Venice in 1897. He had acted as examiner in public health at the universities of Cambridge, Leeds, Liverpool, Manchester, and Wales, and for the Conjoint Board of the Royal Colleges in England; he was a fellow and ex-chairman of the Council of the Royal Sanitary Institute, ex-president of the Epidemiological Society, and a governor of Wellington College.

He was the author of many works on public health. He edited the eighth edition of Parkes's *Manual of Practical Hygiene* in 1891; with R. H. Firth he wrote *The Theory and Practice of Hygiene*, which reached its third edition in 1908; with the same collaborator he wrote a popular manual on *Hygiene* which reached its tenth edition in 1920. He was the author also of *Practical Domestic Hygiene* (fifth edition, 1907). He also contributed the article on

Kilburn). The firm will place at the disposal of purchasers of cars, through the Medical Insurance Agency, their system of deferred payment; a purchaser pays 25 per cent. of the value on delivery and the balance by monthly or quarterly instalments as desired. An addition of 2½ per cent. to the list price of the car is made to cover interest charges. The company has a stand (No. 129) in the Coach Building Annexe of the Olympia Show, and its representatives will be prepared to give advice free of charge to medical men intending to purchase on the advice of the Medical Insurance Agency. Application for an introduction should be made to the Secretary of the Agency, 429, Strand, London, W.C.2. It appeared from the balance sheet of the Medical Insurance Agency for the year 1922 that a sum of over £2,000 had been returned by way of rebates to those insured through the Agency, an increase of £367 over 1921. The surplus carried to the Medical Benevolent Fund was slightly larger in 1922 than in the preceding year, and a sum of £1,500 was allotted as follows: to the Royal Medical Benevolent Fund Guild £630, to the Royal Medical Benevolent Fund £315, to the Epsom College Benevolent Fund £210, to the Royal Hospital and Home for Incurables, Putney, £52 10s., the *Lancet* Editor's Discretionary Fund for dealing with emergency cases £25. A further sum of £267 10s. was set aside for the fund established by the Agency to make grants in aid of the education of girls, orphans of medical men, or daughters of unfortunate brethren who are precluded by age or ill health from continuing to practise. Including the contributions now made the total sum subscribed to medical charities by the Medical Insurance Agency since 1910 exceeds £11,500.

THE HEALTH OF THE SCHOOL CHILD.

Sir George Newman's report for 1922 as Chief Medical Officer of the Board of Education has been issued this week. It contains twelve chapters. In an introduction he gives a general review of the situation and observes that in spite of the restrictive effect of the policy of public economy the year 1922 was not a time of reaction. Though the new weapons for the warfare against disease and neglect amongst school children could not be used to the extent intended, the scheme remains intact and ready for fuller application whenever circumstances permit. Ten years ago the only statutory obligations in connexion with medical services were the medical inspection of children in elementary schools, and special education for the blind and deaf. Medical treatment was purely optional, and so was the provision of special schools for the mentally and physically defective. Now treatment as well as inspection is obligatory, and it is the duty of every education authority to make comprehensive provision for all abnormal children. Some authorities, however, are behind-hand, and the inequalities between various areas must be reduced gradually and a minimum standard everywhere attained. The pause in expansion has been utilized by the Board to determine the general nature of future development. The standards of abnormality, which at present vary in different areas, must be investigated and harmonized, though due provision of special schools for the defective is expensive. It costs about £12 a year to educate a child in a public elementary school, £30 in a day special school, and £90 in a residential school. But knowledge of the causes and methods of prevention and treatment of fundamental defects is extending, though there are not yet accepted and reliable standards of mental defect. Reference is made to the widely different practice of different authorities in respect of requiring payments for medical treatment from parents, and the Board has had to take action. Free treatment must now be definitely restricted to the necessitous, though this may diminish attendances where no fee had hitherto been exacted. The organization of physical training in elementary schools has made good progress. The fundamental points are that the work of training should be carried out by the teachers themselves, who should from time to time have special assistance and guidance from experts. The great value of good work is testified by quotation from Dr. Wheatley, county medical officer for Shropshire. Unfortunately, skilled training organizers are few, and the cost of their services is apt to deter local education authorities from making such appointments. Meals for school children involved a very heavy outlay in 1921 owing to the coal strike, and much attention was given to limitation of expenditure in 1922. Sir George Newman, however, is satisfied, as a result of certain careful inquiries by school medical officers, that in spite of unemployment the nutrition of school children was not below the pre-war standard, and in some cases was appreciably higher. The most urgent questions awaiting solution are said to be the further co-ordination of the school medical work with the public health service, attention to the physical condition of children under 5, and effective education of the dull or backward child. The importance of a comprehensive scheme for the treatment of dental defects is recognized, as is the systematic organization of the teaching of hygiene and physical training. We hope in an early issue to deal further with this interesting report. It is published by H.M. Stationery Office, price 1s. 6d., and can be obtained through any bookseller.

POST-GRADUATE WORK IN MELBOURNE.

Under the auspices of the Melbourne Permanent Committee for Post-Graduate Work, regular general and special courses for graduates are arranged every year. The committee is composed of representatives of the Faculty of Medicine, the Council of the Victorian Branch of the British Medical Association, the Walter and Eliza Hall Institute of Research, and the metropolitan general and special hospitals. The courses arranged by the committee, for which Dr. J. W. Dunbar Hooper and Mr. Harold Dew are the enthusiastic honorary secretaries, have been signally successful. No better evidence of the attractive nature of the work provided could be furnished than the fact that a number of graduates have journeyed regularly from remote parts of Australia to attend the classes. The most recent attraction organized by the Melbourne Permanent Committee for Post-Graduate work was a series of four lectures on disorders of nutrition delivered by Professor C. J. Martin, F.R.S., Director of the Lister Institute, London, who was visiting Melbourne as a delegate to the Pan-Pacific Science Congress. The Permanent Post-Graduate Committee is endeavouring to establish a fund by means of which it will be able to obtain the services of distinguished leaders in research whose work will furnish not only instruction but a stimulus to medical men to keep up to date. By great good fortune Professor Martin was available as the first lecturer under this scheme. At the same time Professor Martin's visit to Melbourne afforded great pleasure to many of his old friends and former students. As professor of physiology in the University of Melbourne, and later in close association with the Australian Army Medical Corps during the war, Professor Martin made many enduring friendships in Australia.

ALCOHOL TAXATION AND DELIRIUM TREMENS IN DENMARK.

Each of the four Scandinavian countries is at present conducting different legislative experiments in the control of alcohol consumption. While one country rations the supply of alcohol, another attempts to enforce prohibition, and a third—Denmark—attempts to encourage sobriety by

Mr. A. C. Clauson, K.C., was appointed Senior Standing Counsel in the room of Sir Thomas J. C. Tomlin, K.C., appointed Judge in the High Court of Justice.

Dr. J. A. Nixon, C.M.G., was appointed a Representative on the Court of the University of Bristol, vice Dr. Newton Pitt, resigned.

Dr. Arthur J. Hall was appointed a Representative at the University of Sheffield, vice Sir Humphry Rolleston, resigned.

On the motion of the Senior Censor it was resolved that the Licence of the College, which was withdrawn from Reginald Nitch Smith in 1918, and the Licence of the College, withdrawn from David Arnold Chaning Pearce in January last, be now restored.

The President announced that he had appointed Sir Archibald Garrod to deliver the Harveian Oration in 1924.

On the motion of the Registrar alterations in the by-laws relating to the examinations for the licence as passed at last Comitia, were approved for the second time, and it was resolved that David Waters Sutherland, and John Cyril Holditch Leicester, being resident in India, should be admitted to the Fellowship *in absentia*.

Mr. Horace Barlow was appointed to the office of Bedell, vacant by the death of Mr. William Fleming.

The following report was received from the Committee of Management:

I. The Committee of Management recommend—

(1) That a note be inserted at the end of Clause II, Chapter II, of the Regulations for the Diplomas of L.R.C.P. and M.R.C.S. to the effect that "the course in general biology required by Clause VII. 2, may be taken concurrently with the study for the pre-medical examination, in cases where such study is taken at a recognized medical school and hospital."

(2) That the Higher Certificate Examination of the Central Welsh Board be added to the list of examinations in which the subjects of chemistry and physics may be accepted under the conditions of Clause 2, Section II, of the regulations for the preliminary examination and for the pre-medical examination.

(3) That the matriculation examination of the University of Queensland be added to the list of examinations recognized for the preliminary examination in general education.

The recommendations were adopted, and Dr. J. A. Ormerod was reappointed a member of the Committee of Management.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—R. S. Chambers, G. Israelstam, T. J. Liengme, D. Parsons.
MEDICINE.—E. N. C. Annis, R. Caplan, R. S. Chambers, D. Dimitrijevitch, S. Halperin, G. A. Lord, T. J. Liengme, M. A. E. Somers, A. J. Vickery.
FORENSIC MEDICINE.—E. N. C. Annis, R. S. Chambers, D. Dimitrijevitch, C. J. Fox, S. Halperin, W. M. Jones, Y. N. Lal, T. J. Liengme, G. A. Lord, W. R. H. Pooler.
MIDWIFERY.—H. J. Adams, H. P. Burns, H. T. Chiswell, A. J. M. Davies, S. Halperin, T. J. Liengme.

The Diploma of the Society was granted to Messrs. E. N. C. Annis, R. S. Chambers, T. J. Liengme, G. A. Lord, W. R. H. Pooler.

Medical News.

AT a meeting of the staff of the Wellcome Bureau of Scientific Research on October 29th Dr. Wenyon, in making a presentation to the retiring Director-in-Chief, Dr. Andrew Balfour, and his deputy, Colonel G. E. F. Stammers, who is also retiring, spoke of the admiration and esteem he and his colleagues felt for them. Each in turn thanked Dr. Wenyon and the other members of the staff, and expressed their hopes for the future prosperity of the Bureau. Dr. Balfour, we understand, before taking up his duties as Director of the School of Hygiene, will carry out a mission he had already undertaken to Bermuda.

THE new East Sussex Hospital erected in Cambridge Road, overlooking White Rock Gardens, Hastings, was formally opened by H.R.H. Princess Alice, Countess of Athlone, on October 23rd. Major W. H. Mallen, J.P., chairman of the hospital, said that the cost of the new building, amounting to £120,000, had been subscribed. The institution, which served Hastings, Bexhill, and the surrounding districts of East Sussex, had been erected on a site presented to the hospital by a committee in memory of the late King Edward VII. Her Royal Highness, having declared the hospital opened, congratulated everyone associated with the collection of the money, and said it was an achievement of which they might well feel proud; she subsequently made a tour of the hospital.

THE publication in 1798 of Jenner's *Inquiry into the Causes and Effects of the Variolae Vaccinae* was one of the most notable events in the history of medicine. It is only rarely nowadays that a copy of the first edition, dedicated to Dr. Parry of Bath, or of the second edition, dedicated to the King, is obtainable by the book-lover, and many medical libraries, public and private, must be without either. In these circumstances, and appropriately in this centenary year, a firm of publishers in Milan is issuing a facsimile of the thin old quarto. The volume is to contain four hand-coloured plates, and to be bound in boards as the original was. The net price is 55 lire, equivalent to about 11s., and the publishers are Messrs. R. Lier and Co., 7, Via Brera, Milano 1, Italia.

IN addition to the courses announced last week, the Fellowship of Medicine has arranged for a series of lectures to be given at the Children's Clinic, Western General Dispensary, from November 12th to December 6th at 5 p.m. Further particulars can be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

SIR OLIVER LODGE will deliver his presidential address to the Röntgen Society on Tuesday next at a meeting to be held in the Institution of Electrical Engineers, Savoy Place, W.C.2, at 8.15 p.m. The subject is x rays and the atom.

THE nineteenth annual dinner of the Birmingham and Midland Edinburgh Graduates' Club was held on October 25th at the Queen's Hotel, Birmingham; the President (Dr. J. R. Ratcliffe) was in the chair. Over fifty members were present, and spent a very enjoyable evening. Professor Arthur Robinson was the guest of the evening, and replied to the toast of the University in a delightful speech, in which, after giving reminiscences of his own student life, he described the Edinburgh school as it is to-day, and indicated its probable development in the future.

THE annual dinner of the past and present students of the Durham University College of Medicine will be held in the King's Hall, Armstrong College, on Tuesday, November 27th, at 7.30 p.m. Tickets, price 10s. 6d., may be obtained from the Honorary Secretary, Re-Union Dinner Committee, College of Medicine, Newcastle-on-Tyne.

THE next meeting of the Dental Board of the United Kingdom will begin on Tuesday, November 13th, at 2 p.m., when the chairman will deliver an address and the Board will consider disciplinary and other business.

DR. J. R. KAYE, county medical officer of health for the West Riding of Yorkshire, was entertained at dinner on October 12th, when he was presented with a pair of silver Georgian candelabra as an appreciation of the valuable and long services rendered by him to the Association of County Medical Officers of Health of England and Wales.

THE People's League of Health (12, Stratford Place, W.1) is arranging a series of four lectures on "Sunlight and Health," by Sir Henry Gauvain, M.D., M.Ch., and Dr. Saleeby, to be given at the Royal Society of Arts, John Street, Adelphi, commencing on Monday, November 5th, and following Mondays, at 6 p.m.

THE Minister of Health has appointed Mr. P. A. Ellis Richards, F.I.C., President of the Society of Public Analysts, to be a member of the Committee on Preservatives and Colouring Matters in Food, in the place of Mr. Otto Hehner, F.I.C., who has resigned from the committee in consequence of having to return to South Africa.

A WORK entitled *Psycho-analysis Analysed*, by Dr. P. McBride, with an introduction by Sir Bryan Donkin, M.D., will shortly be published (Heinemann Medical Books). In it Dr. McBride gives his reasons why psycho-analysis does not deserve a position in scientific medicine.

THE Canadian Medical Association has arranged for a Lister oration to be given once every three years. The first oration will be given at the annual meeting of the Association at Ottawa in 1924 by Dr. John Stewart of Halifax, who is a former house-surgeon of Lister's.

DR. CHARLES K. MILLS of Philadelphia has been elected president of the American Neurological Association for the ensuing year in succession to Dr. Harvey Cushing.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, amounting to about 300 dollars, will be made in 1924. Essays may be upon any subject in medicine, but cannot have been published; they must be received by the secretary of the college, 19, South 22nd Street, Philadelphia, U.S.A., on or before May 1st, 1924. Each essay must be typewritten and unsigned, but marked with a motto and accompanied by a sealed envelope having on its outside the motto and within the name and address of the author. The prize for 1923 has been awarded to Dr. Edward P. Heller.

THE October number of *Tubercle* is devoted to the surgery of the lungs and pleurae. Mr. H. Morriston Davies contributes an article on the progress of surgery of the lungs and cavity, and Dr. L. W. Sheily writes on anaesthesia in thoracic surgery. The number contains a bibliography of articles on chest surgery published during and since 1920, and a list of recent books on chest surgery; these references occupy between five and six pages. The statistical section of this number deals with thoracic suppuration and new growths, and includes mortality statistics for England and Wales. *Tubercle* is published by Messrs. John Bale, Sons, and Danielsson, Ltd., Great Titchfield Street, London, W.1, and the price is 2s. 6d. each number, or 25s. per annum.

begun that the first case of dysentery occurred. Blood specimens implicated the farmer and his foreman, but even before the cause of the outbreak was definitely established the farmer had voluntarily withheld the sale of his milk, a praiseworthy instance of intelligent and disinterested co-operation. The number of households ultimately affected was 11, and of the 18 cases 13 were below the age of adolescence. Multiple cases occurred in 5 households, and case-to-case infection may have operated. The outbreak was of long duration, and the period during which one of the two men implicated was presumably a carrier of *B. dysenteriae* was of unusual length. He had been invalided from the army in 1918 after suffering in the East from symptoms suggestive of dysentery, and had not since suffered from diarrhoeal disease. The bacteriology of the outbreak is reported in careful detail by Mr. Bruce White. Both *B. dysenteriae* Flexner and *B. dysenteriae* Shiga were found. The presumption would seem to be that Shiga cases in children occurred before the investigation and were fatal, while the Flexner infection did not cause severe symptoms in adults. Dr. Falkner, the medical officer of health, took an active part in the inquiry, and had already set on foot bacteriological investigation before the central authority was called in.

INSULIN BY THE MOUTH.

It has been advised that insulin should be given by subcutaneous injection to diabetic patients on the ground that it does not produce any effect when given by the mouth. Dudley and others have proved that insulin is rapidly destroyed by pepsin and trypsin *in vitro*. It is probably for this reason rather than the failure of insulin to pass the intestinal wall that the administration of pancreatic extracts by the mouth has been relatively ineffective. There is evidence that insulin may be absorbed from the stomach when given in alkaline solution, the effect of the alkali being not to neutralize the acid but to inactivate the pepsin. Large doses of insulin would appear to be necessary to produce any effect. It is known that water is not absorbed from the stomach, but that alcohol is. This suggested to L. B. Winter that the administration of insulin by the mouth might be more successful if it were given in weak alcoholic solution. He has recorded in the new number of the *Journal of Physiology* certain experiments on the rabbit. The insulin was dissolved in 15 to 25 c.cm. of 20 per cent. alcohol, warmed to body temperature, and administered by the stomach tube. In the first experiments large amounts of insulin or yeast extract were used, with the result that the blood sugar quickly fell to the convulsion point. It was evident, therefore, that the insulin must have been rapidly absorbed from the stomach. Smaller quantities of insulin were then used, and it was found that the amount of blood sugar was reduced, although convulsions did not actually occur. It is well known that the response of different animals to subcutaneous injection of insulin varies, and this is a source of uncertainty in the testing of preparations. Still greater uncertainty must attach to experiments in which the extract is given by the mouth, but the blood sugar values are held to show that the effect of insulin on animals is similar, whichever method be used. If large doses were given the blood sugar was reduced very rapidly; if small doses the fall and rise were both slower, but the action of insulin given by the mouth was not delayed. That the alcohol was responsible for the absorption of the insulin was shown by a control experiment in which insulin dissolved in normal saline was given by the mouth. No effect on the blood sugar was observed. The conclusion is that insulin in weak alcoholic solution, administered to rabbits by the mouth, causes the blood sugar to fall to a low level. We gather that the investigation has not yet been extended to man.

THE GARDNER COLLECTION AND LONDON MEDICAL TOPOGRAPHY.

From November 12th to 16th next there will be dispersed at Sotheby's, New Bond Street, the second portion of the great Gardner collection of London topography which is said to include altogether more than 50,000 prints, drawings, etchings, and other illustrations of old London. The items of medical interest disclosed by the catalogue may quite possibly omit many which a detailed examination of the parcels themselves would reveal; for many of the lots include twenty, thirty, or even forty items, only one or two of which are specified by the catalogue. Among those which are, however, thus distinguishable may be mentioned the following: the old Chelsea Physic Garden, of which there are apparently many different views; and Chelsea Hospital, of which there are even more; John Hunter's house at Earl's Court (where the District Railway station now stands); St. George's Hospital, of which there are several views, including the rare print by J. Ware; the Lock Hospital in Grosvenor Place, with a portrait of Daniel Lock; Windmill Street—the catalogue does not say whether this shows the Anatomy School for which that thoroughfare was famous. Golden Square, probably antedating the time of the Throat Hospital, is shown in a rare engraving by Nicholls and in other items. The interior of an old "doctor's shop" in Walker's Court is another from the same district in Soho. One of the lengthy series connected with the Covent Garden neighbourhood shows "Dr. Rock, Dr. Bossy, Martin Vanbutchell and other Quacks." Clare Market, Portugal Street, and (old) King's College Hospital make up three lots, including together forty-three items. The College of Surgeons in various views and portraits of celebrated surgeons—twenty-three items in all—are to be sold in one lot. Westminster is copiously represented in the sale, but the catalogue does not indicate whether any views of the Westminster Hospital are to be found. Nor does the Charing Cross section allude to either of the hospitals now situated there. The College of Physicians is listed with various other views of Pall Mall East and Whitcomb Street. The collection is to be on view to the public three days before the sale opens.

CLEAN MILK.

A pamphlet on clean milk has been published recently by the Kent Milk Recording Society; it contains a full report of the first clean milk competition held by it last spring in conjunction with the Kent Education Committee. The four purposes of this competition were as follows: (1) to show that there was already available a supply of clean milk in the county in addition to that sold as Grade A and as certified milk; (2) to assist dairy farmers by milk examinations and by advice as to possible improvement of their methods; (3) by means of a friendly rivalry to stimulate both the dairy farmers and their milkers to greater interest in the production of clean milk; (4) to demonstrate how reasonably clean milk can be produced under ordinary farm conditions, and without excessive increase of cost. The competition included the examination of samples of milk (chemical analysis and the investigation of the bacterial content and keeping quality), and inspections of the farms with especial reference to the health of the cows, the general equipment, and the methods of milking, cleansing, and so on. Each of the fifty-three competitors sent in samples of milk at fortnightly intervals, and, although licensed purveyors of certified or of Grade A milk were not allowed to compete, yet out of the 395 samples that were examined no fewer than 212 came up to the Grade A bacteriological standard, and 109 samples were actually within the standards of certified milk. These results certainly demonstrate the high quality of the milk

EPITOME OF CURRENT MEDICAL LITERATURE.

Medicine.

315. Muscle Tone in Rickets.

J. D. DOUGLAS GALBRAITH (*Brit. Journ. Child. Dis.*, July–September, 1923, p. 143) points out that the radiographic and clinical pictures in rickets, while showing general agreement, often present marked differences. Cases in which *x*-ray examination shows the bones to be healed or almost healed may exhibit only slight clinical improvement, whereas cases in which there is little or no evidence of healing on radiographic examination show considerable clinical improvement. Galbraith regards the condition of the muscles as a truer index of improvement than the radiographic picture. Once the muscle tone has increased the child improves both in ability to walk and in general health irrespective of the radiographic appearances. The tenderness of the limbs in rickets is usually considered to be bone tenderness, but its rapid disappearance under treatment by massage suggests that the tenderness is not in the bones but in the muscles. Bad hygienic conditions, especially confinement in an atmosphere loaded with the products of respiration, and an absence of moving air and sunlight, by depressing muscle activity are strong predisposing factors in the development of rickets; whereas exercise, fresh air, sunlight, and ultra-violet rays will both prevent and cure rickets.

316. Cerebral Glio-sarcoma simulating Lethargic Encephalitis.

SAKORRAFOS (*Ann. de Méd.*, August, 1923, p. 155) describes a case of a man, aged 57, previously healthy, with no history of syphilis or of alcoholism, who complained of malaise, headache, and diplopia. His temperature varied from 99.4° to 100.4°. The patient replied to questions clearly, but with apparent difficulty, and then closed his eyes and slept immediately. There was slight bilateral ptosis and transient diplopia, moderate bradycardia (pulse rate 60). The patellar and tendo Achillis reflexes were exaggerated, there was no Babinski's sign, no muscular twitchings nor epileptiform attacks. The cerebro-spinal fluid was normal, without increased pressure; slight mononuclear lymphocytosis. The Wassermann reaction of both cerebro-spinal fluid and blood was negative. The urine contained a trace of albumin and hyaline casts, with excess of uric acid. On the twenty-fourth day there was incontinence of urine and of faeces. Lethargy increased, but when addressed the patient opened his eyes as though examining his surroundings. On the twenty-eighth day he slept continuously; the cerebro-spinal fluid was under increased pressure and was blood stained. He had vomited without effort. He died on the thirty-first day. *Post mortem* there was found congestion of the superficial vessels, the cerebro-spinal fluid was in excess and slightly turbid, the pia mater generally thickened and whitish. The convolutions were slightly flattened. The lateral ventricles were dilated and contained blood; they formed one cavity, which contained a comparatively soft dark-coloured mass, in the centre of which were scattered whitish and greyish foci. It was oval, measuring 5 cm. in length by 2 cm. in width; it filled the dilated lateral ventricles and had flattened the optic thalami. Histologically it was a small round-celled sarcoma. Sakorrafos observes that this case presented the true tripod of lethargic encephalitis—somnolence, fever, and ocular disturbances; although there is usually some acceleration of the pulse in encephalitis lethargica, bradycardia has been noted rarely. There were no changes in the fundi. The absence of the classical symptoms of cerebral tumour was remarkable.

317. Results of Serotherapy in Enteric Fever.

G. ETIENNE (*Rev. Méd. de l'Est*, July 1st, 1923, p. 435) has treated, since 1914, 50 cases of enteric fever by injections of Rodet's serum. None of these patients had had antityphoid inoculations; many of the cases were very severe. Etienne observed in almost all cases arrest of the febrile curve; a more or less profound fall of temperature, followed by a rise; accentuation of febrile remissions; absence of reaction. He gives clinical details and charts of six typical cases, and concludes that the injection of Rodet's serum between the eighth and tenth days aborted the disease in 15 out of 23 cases (that is, 66 per cent.). After the tenth day it constantly produced more or less definite improvement. In 50 cases there were 5 deaths; of these, 2 were treated before the eighth day. In 23 cases treated between the eighth and tenth days 3 died—one of bronchopneumonia, one of exhaustion, and the third case died on the fourteenth day, after a severe haemorrhage on the twelfth day. Etienne observes that the majority of his cases were exceptionally grave, including many military cases in the autumn of 1914. Among certain other series of military cases the mortality ranged from 33 to 50 per cent. The action of serotherapy must be judged by the modification of the course of each case, the result being obtained without any other kind of treatment. His results correspond closely to those obtained by Rodet, Bonamour, and other observers, whose statistics are quoted. Etienne gives 15 to 20 c.cm. (according to the severity of the case) as an initial dose, and, if needed, after an interval of forty-eight hours, a second dose of 10 c.cm. Occasionally a third or fourth injection is required. In relapsing cases one or two injections of 10 or 5 c.cm. suffice usually. It is necessary to use Besredka's method for avoiding anaphylaxis—slow progressive injection of 0.25 c.cm. at first, then 0.5 c.cm., etc., spread over a period of eight days after the first injection. In certain very grave cases he gave intravenous injections of the serum, but severe shock followed in one case, so he abandoned that method. The serum, he says, should be kept in stock for at least two and a half months.

318. Sequels to the Injection of Tuberculin.

E. HOKE (*Zeit. f. Tuberk.*, Bd. 38, Heft 5, 1923, p. 346) records a series of complications resulting from diagnostic or therapeutic injections of tuberculin. The list of accidents includes a case of fatal anaphylactic shock, as well as cases of herpes zoster, Quincke's oedema, periodontitis, urticaria, purpura, polyneuritis, and areas of tenderness in the course of the phrenic nerve. The case of fatal anaphylactic shock was that of a woman, aged 42, who had been given injections of old tuberculin for some time with excellent results. But when the dose was increased to 0.2 c.cm. of tuberculin ("Volltuberkulin") severe dyspnoea and cyanosis ensued, the temperature rose to 39.7° in the axilla, and death occurred on the following day. The case in which herpes zoster occurred was instructive because, on repeating the administration of tuberculin, a second crop of vesicles appeared. The patient was a man, aged 32, who was given a subcutaneous injection of 0.5 mg. of old tuberculin. The temperature rose to 37.8° C., and a typical outbreak of herpes zoster appeared in the fifth intercostal space. Three weeks later the same quantity of tuberculin was injected subcutaneously, and herpes zoster again appeared, being in the same position as on the first occasion. The case of periodontitis was also marked by the recurrence of this complication when the injection of tuberculin was repeated. The patient was a man, aged 42, who was given an injection of 0.5 mg. of old tuberculin. The temperature rose to 37.9° C., the left side of the face became swollen, and the second upper molar became very painful and tender. The pain and swelling passed off in twenty-four hours, but when, four weeks later, an injection of 0.000005 mg. of old tuberculin was given, signs of acute periodontitis appeared in the same position as before, again disappearing in twenty-four hours. The next two injections of tuberculin aroused the same response. In the case in which urticaria broke out the tuberculin was given by skin inoculation, pure old tuberculin being rubbed into abrasions in the skin.

319. Tuberculosis in Tangiers.

ACCORDING to P. REMLINGER (*Rev. d'Hygiène*, September, 1923, p. 789), tuberculosis twelve years ago was a comparatively rare disease in the town of Tangiers. Since that date, however, and coincident with an increase in immigration and in commercial activity, there has been such a development of tuberculosis that it is now almost as prevalent as in the other seaports of the Mediterranean. This increase is noticed not merely in one class of the inhabitants or in one quarter of the town, but in French, Spanish, Mussulmans, and Jews alike, living in every class of property, in the opulent as well as in the poorer quarters. To what is this to be attributed? There appear to be two main factors. First, the introduction of tuberculosis on a large scale during the past few years, both in the shape of infected human beings and infected cattle, and secondly, the unfavourable nature of the climate. The summer, particularly, in Tangiers has a deleterious influence on the majority of tuberculous patients. In those affected with the congestive, febrile, or haemoptytic form of the disease, the progress is almost uniformly downward, and that with extreme rapidity. So unfavourable is the climate that the author considers that not only is it a mistake for European patients to be sent to Tangiers to be

British Medical Association.

THE COUNCIL DINNER.

THE second annual Council dinner of the British Medical Association was held in Edward VII's Rooms, Hotel Victoria, on October 24th. Dr. R. A. BOLAM, Chairman of Council, presided over a company of 200, and had on his right the chief guest of the evening, Sir Dawson Williams, Editor of the *British Medical Journal*, whose twenty-five years of editorship the dinner was designed to commemorate; and on his left Sir W. Joynson-Hicks, M.P., Minister of Health. The others at the principal table were:

The Right Hon. Lord Justice Atkin, Sir John Atkins, Dr. T. W. Naylor [illegible] ty of Medical Officers of Health), Sir John [illegible] of the Royal College of Surgeons), Dr. H. [illegible] Rear-Admiral J. Chambers (Director-General [illegible] of the Royal Navy), Mr. C. P. Childe (President of the Association), Sir John Collie, M.P., the Right Hon. Sir Henry Craik, M.P., the Right Hon. Lord Dawson of Penn, Sir W. Hale-White (President, Royal Society of Medicine), Sir Laurence Halsey, Dr. R. Wallace Henry, Dr. A. Bostock Hill (President, Association of County Medical Officers of Health), Lieut.-General Sir W. B. Leishman (Director-General, Army Medical Service), Sir Edwin Lutyens, R.A. (architect of the Association's new building in Tavistock Square), Dr. J. A. Macdonald, Major-General Sir William Macpherson, Sir Philip Magnus, Sir George H. Makins, Dr. L. G. S. Molloy, M.P., Air Commodore D. Munro (Director R.A.F. Medical Service), Sir George Newman (Chief Medical Officer, Ministry of Health), Sir Alfred Rice-Oxley, Sir Arthur Robinson (First Secretary, Ministry of Health), Sir Leonard Rogers, Sir Humphry Rolleston (President, Royal College of Physicians), Sir S. Russell-Wells, M.P., Major-General J. B. Smith (Medical Adviser to the India Office), Sir Squire Sprigge, Sir Charters Symonds, Mr. E. B. Turner, Sir Jenner Verrall, and Dr. T. Watts, M.P.

THE COMMON HEALTH.

Mr. C. P. CHILDE proposed "The Common Health." He spoke of the great advances made in recent years in preventive medicine, and in particular the enormous reduction in infant mortality. Thanks largely to sanitary science, which might be said to have begun in 1840 with the appointment of the Poor Law Commission to inquire into the high incidence of disease and the high mortality among the poorer classes of the community, the toll exacted by some common diseases had been greatly lessened, and some, like typhus, had become extinct. He quoted some cogent words from Lord Palmerston, who, as Home Secretary, was petitioned in 1853 to appoint a national religious fast with a view to averting an anticipated outbreak of cholera:

"It did not appear to Lord Palmerston" (the then Home Secretary wrote) "that a national fast would be suitable to the circumstances of the present moment. The Maker of the universe established certain laws of Nature for the planet on which we live, and the weal or woe of mankind depends upon the observance or neglect of those laws. Lord Palmerston would therefore suggest that the best course which the people of this country can pursue to deserve that the future progress of the cholera should be stayed would be to employ their time planning and executing measures by which those portions of their towns and cities inhabited by the poorer classes may be freed from those causes of contagion which if allowed to remain will be fruitful in death and disease in spite of all the prayers and fasting of a united but inactive nation."

The real function of health authorities was to remove those conditions which made ill health inevitable, and the first of these was the slum areas which disgraced the great industrial cities. A healthy home was the very basis and foundation of the common health. To build up a country of healthy homes was a gigantic financial and sociological proposition, but it could be done by a bold and imaginative statesmanship. (Applause.) On the publications of the New York State Health Department there occurred this heading: "Public health is purchaseable. Within its natural limitations every community can determine its own death rate." This had been abundantly proved during the past generation as a result of sanitary legislation.

Sir WILLIAM JOYNSON-HICKS, in responding, said that the Minister of Health was at all times assured of a welcome from the British Medical Association. They and he were concerned with the question of public health—they with a profound knowledge of the subject, he with but little. At the same time, in this curiously constituted world, it was the man who knew little about the subject (although advised by those who knew much) who had the last word. He went on to speak of the value of public health to the nation. In twelve months, among the insured population alone, 19½ million weeks of work had been lost by reason of sickness; 50 per cent. might be added for the workers not insured, bringing up the total to 30 million lost weeks of work, representing, at an average of £2 a week, £60,000,000. If that could be brought down by one-half it would mean a great addition, not only to the happiness, but to the financial well-being of the country. Then there was the wastage from premature deaths. Every man, by the time he had reached 21, had cost the community something like £400 in food, housing, clothing, and education, and the mortality from preventable disease meant that numbers of the population were cut off before they could make any return for this expenditure. The State and the practitioner must work together. ("Hear, hear.") There must be mutual understanding and co-operation. The Ministry of Health was the machinery which endeavoured to co-ordinate the work of the public health departments and of the private medical practitioner. "We are imperfect, but if we were not imperfect there would be no room for that expert and independent criticism to which the proposer referred and to which, I am bound to say, I am not a stranger. Any man in public life who objects to honest criticism is either a fool or a knave." He reminded the company that, great as had been the advances in preventive medicine, there still remained unconquered scourges. In dealing with these the Minister of Health was helpless without the medical profession and its gallant band of investigators. A great deal of his own work was purely administrative, but his dream as he sat in his chair at the Ministry was of wider discoveries and an enlarging compass of knowledge, bringing hitherto baffling diseases into subjection. He had been but a few weeks in his present position; he came to it with great ideals, but those ideals had grown every day, and he believed that great as had been the accomplishments in public health during the last fifty years the future would eclipse them all. (Applause.)

Sir WILLIAM HALE-WHITE referred to the remarkable altruism of the medical profession, whose quest for the common health was in defiance of its own interests. The secret of business was to create a demand; the medical profession existed, not to create a demand, but to spoil it. It was constantly stamping out the very diseases by which it lived. This had always been characteristic of the profession. In the early days the functions of priest and doctor were combined in one individual. The priests of Egypt made cats sacred because the cats killed the rats that caused the plague, although the plague unchecked would have brought large sums of money to those practising medicine. In Leviticus xiii and xiv there was described a disease called indifferently leprosy and plague, evidently a highly infectious disease, and all the instructions were directed to stamping out the very source of the doctor's income. The man affected had to be separated from his fellows, his clothing burned, his house (if it had harboured several cases) pulled down and its stones scattered. Coming down to the days of Edward Jenner, the speaker told the story of how, when all other pleas to Napoleon had failed to secure the release of two students in Geneva, Jenner added his request, and Napoleon's reply was, "We can refuse nothing to that great man." Coming to our own day he instanced the putting down of malaria and typhoid—in both cases thanks to the researches of Englishmen—although the profession was thereby doing the most unbusinesslike thing in its own interests that could be conceived.

"OUR EDITOR."

The CHAIRMAN said that the occasion of the dinner was one of which they in the British Medical Association were proud. The chief guest that evening was the Editor of the *Journal*, and before calling upon Sir John Bland-Sutton to propose his health he would read two telegrams, one from Sir John MacAlister, whose doctor forbade his attendance, and the other from Dr. Guy Stephen, who was associated with the *Journal* for many years, and who had

Radiology and Electrology.

326. The Late Results of X-ray Treatment of Cancer of the Breast.

H. E. WALTHER (*Schweiz. med. Woch.*, August 9th, 1923, p. 747) prefaces his record of cases of cancer of the breast treated by the *x* rays with the remark that the value of this treatment cannot be ganged with even approximate accuracy without a series of control cases in which operative, but not *x*-ray treatment, was given. He has no such series of his own to produce. To make good this deficit he has collected the statistics of 61 writers, the period covered being from 1891 to 1921, and the cases numbering about 9,000. After an observation period of three years 31.9 per cent. of these cases could still be regarded as cured. During the past twenty years no important advance has been made in the operative treatment of this disease, and there are only two ways in which the late, post-operative mortality can be reduced—they are, earlier diagnosis and actinotherapy. Since 1917 the author has treated about 90 cases, but 4 of the patients discontinued treatment prematurely and disappeared. Among the remaining cases there were 13 in which the disease was inoperable when first diagnosed; 7 of these patients were still alive after *x*-ray treatment. In a second category there were 23 patients who were suffering from local recurrences or metastases when *x*-ray treatment was instituted, and though in some cases it certainly had a palliative effect, tumours and pain disappearing, and weight being gained, death invariably supervened. The chief interest centred about the third category, in which *x*-ray treatment was adopted as a supplement to an operation. There were 52 patients in this category, and among them there were 22 with an observation period of at least three years after the operation. Of these 22 patients 8 had died after an average post-operative interval of twenty-eight months. The remaining 14 (64 per cent.) were still alive, and among the 8 who died there were 3 who lived more than thirty-seven months after the operation. Comparing this recovery rate of 64 per cent. after combined operative and *x*-ray treatment with the recovery rate of 31.9 per cent. after operative treatment alone, the author concludes that the *x* rays are a valuable supplement to the operative treatment of cancer of the breast.

327. Radiograms in Rickets.

A. A. WEECH and M. S. SMITH (*Amer. Journ. Dis. Children*, August, 1923, p. 117) investigated the anatomical basis for interpreting radiograms in 35 cases of rickets by comparing histological sections through the epiphyseo-diaphyseal junction with radiograms of the same sections in order to ascertain which of the histological elements was responsible for the characteristic shadows. Calcium is the only element which casts a shadow in rachitic bones, and decalcified tissues leave no record or only cast a negative shadow. It is possible from a knowledge of its pathology not only to explain the shadows which characterize rickets but also to predict the histological alterations. General rarefaction is present in all cases, the most definite signs occurring where the shafts meet with their cartilages, the normal sharp line of demarcation disappearing so that the shaft seems to fade away into the cartilage; and the transition may be gradual, giving the appearance of the shaft being capped with a fringe. Similar rarefaction occurs in the epiphyseal centres of ossification. Complete decalcification shows that the density of the shaft depends entirely upon the presence of inorganic salts while the histological structure remains unchanged. The presence of blood does not materially affect the permeability of bone to the rays. The epiphyseal cartilage, when its outline is visible, appears longer than normal and seems to embrace the upper portion of the metaphysis, but as healing occurs the deposit of lime salts marks sharply the normal boundary and causes this apparent lengthening to disappear. In the epiphyseal centres of ossification growth occurs along the circumference of the nucleus, which seems smaller than in reality because the peripheral sprouts of connective tissue do not cast a shadow, but with the onset of healing calcium deposits around the nucleus make it appear larger.

328. Observations on X-ray Cancer.

A CASE of *x*-ray carcinoma in a patient who had for twenty years been engaged in radiological work is described by J. HENRY DIBLE and J. M. WOODBURN MORISON (*Arch. Radiol. and Electrother.*, August, 1923, p. 65), and is accompanied by some general observations on this particular type of malignant disease. At the outset it is pointed out that *x*-ray carcinoma is unique in that the causal agency is of necessity purely physical, and that no specific stimulating substances, such as are often held to be essential in the experimental production of carcinoma by irritants, can be isolated by chemical methods. The case recorded came under observation in 1921 with a history that the patient, who had not hitherto worn gloves, commenced in 1911 to suffer from a burning sensation in his hands, followed by a shrivelling of the skin and the appearance of numerous warts, which later discharged and broke down, producing areas of progressive and intractable ulceration, one of which became very extensive and eventually assumed characters suggestive of malignancy. The conditions chiefly affected the fingers of the right hand, three of which were amputated in 1921, since when there has been a steady improvement, all breaches of surface having healed, warts diminished, irritation lessened, and recurrences failed to appear. Appearances on histological examination of the main ulcer differed in no essentials from those of a spontaneous malignant new growth in the skin. Keratinization in the cell nests was well marked, and there was little epithelium in a cellular state, which suggested a slow growth of a low type of malignancy with a tendency to mature rather than proliferate, and was in accordance with the clinical features. The authors are of opinion, reviewing reported cases, that the ease of production of experimental *x*-ray cancer, the rapidity of growth and degree of malignancy, other factors being equal, depend on individual susceptibility, and that where the disease is produced with difficulty in an insusceptible subject the prognosis will be favourable.

329. Radium in Lupus of the Interior of the Nose.

H. BAUMGARTNER (*Schweiz. med. Woch.*, August 16th, 1923, p. 775) gives a detailed report of twelve cases of lupus of the interior of the nose treated with radium since March, 1919, at the University Oto-Laryngological Hospital in Basel. The diagnosis was confirmed by microscopic examination of excised sections, and only in one case was the Wassermann reaction positive. Although the cases had proved refractory to other treatment a complete cure was invariably effected. Of its duration the author cannot at present speak with certainty, but from his own experience and from a study of the literature he has already come to the conclusion that in every case of lupus of the interior of the nose radium treatment should be preferred to every other treatment. Only when radium treatment has proved incapable of curing the disease should operative treatment be undertaken. The author worked with a tube containing 32 mg. of radium element, and with a 1.5 mm. platinum filter. The interior of the nose was anaesthetized for a few minutes by the application of cocaine and adrenaline on a cotton-wool or gauze tampon. The exposures lasted from six to ten hours and were repeated once or oftener. No ill effects from this treatment were observed. At the second and later sittings the exposures lasted somewhat more than six hours. Comparing this treatment with operation, the author notes that the former has many advantages over the latter, radium treatment in skilled hands being practically painless and not injuring healthy tissues.

Obstetrics and Gynaecology.

330. The Value of Sacral Nerve Block Anaesthesia in Obstetrics.

ACCORDING to B. E. BONAR and W. R. MEEKER (*Journ. Amer. Med. Assoc.*, September 29th, 1923, p. 1079), the pains of labour may be entirely controlled by block of the second, third, fourth, and fifth sacral and the ano-coccygeal nerves. Block of these nerves by the trans-sacral method, with the addition of a low epidural injection, gives satisfactory anaesthesia, but the epidural method alone is the more practical. The relaxation of the pelvic floor produced by these methods is a distinct advantage. Most operative and manipulative obstetric procedures may be painlessly performed under sacral nerve block anaesthesia. In normal delivery the abolition of the pain reflex also takes away the voluntary effort of bearing down, which loss must be compensated for by other means. The feature of greatest difficulty is the selection of the proper time to induce anaesthesia. In the authors' series the maximum benefit was obtained by induction when dilatation of the os had reached at least 7 cm. in primiparae and at least 4 cm. in multiparae. The field of usefulness of this means of anaesthesia in normal delivery will greatly increase when a means has been devised of prolonging the anaesthetic action of an epidural injection for at least six or seven hours. Such an anaesthesia, the authors suggest, should find widespread use.

331. Intraperitoneal Bleeding from Myomata.

ACCORDING to TÉDENAT (*La Gynécologie*, June, 1923, p. 329), traces of recent intraperitoneal haemorrhages of small amount are not infrequently found at operation for uterine myoma. As a complication of myoma, acute intraperitoneal

d) which had worked very well ever since, and had of ethics and a control over its members such as, ght, Lord Justice Atkin would allow him to compare e very efficient discipline maintained by the Bar. ise.) The conception of the *Journal* which was the Council, and which he believed to be a true ion, was that it should be at once a newspaper cientific organ. It was not always easy to meet those ditions. The progress of science was so remarkable s a reviewer said of a voluminous author, they d after" the writers of scientific papers in vain. uld read an extract from the very illuminating spiring Harveian Oration which Professor Starling d the other day:

l that I have had the good fortune to see the sun rise on ied world, and that the life of my contemporaries has coin- t with a renaissance but with a new birth of man's powers environment and his destinies unparalleled in the whole of mankind."

xactly expressed what had been his own fortune in to that side of the *Journal's* activities. That had ally the most important part of his life-work, as it be the most important part of the work of his ie, Dr. Horner. (Applause.)

nclusion, he would like to congratulate the Council series of dinners. In the past perhaps they had o businesslike, and had forgotten the advantages of menities. He was glad to think that this time next ere was a prospect of the Council holding its dinner Association's own dining-room in its own house in bury, which was already the home of many institu- f learning, and bade fair to become the university of London. The building was a beautiful example estic architecture, the work of a great imaginative Sir Edwin Lutyens, who had honoured the Associa- ith his presence that evening. They were greatly d to the Chairman, Dr. Bolam, for the trouble taken in the matter of the building. (Applause.) o was any difficulty in naming the house he suggested ht be called "Bolam's Buildings, Bloomsbury"! ter.) No dinner table was complete without some plate upon it. If then the Council was to dine, and in guests at its own table, it seemed imperative should have some silver, and he had ventured to with him that evening a very small beginning. The r. Francis Fowke, who during his thirty years as ial Secretary had worked a most satisfactory change finances of the Association, had sometimes to record, nanded, the minutes of Council meetings; he was in bit then, and only then, of taking an occasional of snuff to keep his attention alert when he found it g. The speaker did not wish to suggest that any rtificial stimulus was needed nowadays either by the ien and members or by the Secretaries, nevertheless d the Council would accept from him, as a beginning ir collection of silver plate, a snuff-box, which he to the Chairman amid applause.

Chairman accepted with many thanks this very ful gift as the first item in the Association's collec- silver plate. He added that he had already offered h to the Minister of Health. (Laughter.)

"Our Guests."

Chairman proposed the health of the guests. tage was usually taken of a dinner such as this to iour to retiring officers, but no officer of the Asso- who was retiring was able to be present that g; Sir William Macewen, the Past President, was t moment nearing the shores of Australia, if he had eady landed. The Council was very proud that so listinguished members of the profession, not specially ied with the political activities of the Association, have assembled that evening to do honour to their guest. In Sir Dawson Williams they had, not, as ditor sometimes asked them to believe, an archaic al, but a physician who had not lost touch with the development in his science, a man who exercised an ce wider than many of them dreamed, and one whose lled literary ability was an inspiration to his staff. (Applause.) It must not be assumed that his sole pre-occupation was his beloved *Journal*. Those in the offices of the Association had always found that he was what the old preacher termed that "medicine of life," a faithful friend. (Applause.) Dr. Bolam then went on to welcome in graceful phrases the titular heads of the medical services of the Navy, Army, and Air Force, and the Presidents of the two Royal Colleges. He coupled with the toast the names of Sir Humphry Rolleston, who was one of the greatest friends the Association ever had, and Lord Justice Atkin, who had given repeated evidence of his kindly feelings towards the medical profession.

Lord Justice Atkin caused much laughter by his description of an obscure disease the title of which he thought at present was not thoroughly well known. It began with a sense of shock, following upon the intelligence that the patient was expected to make a speech, followed by depression, failure of appetite, excitement at the crisis, occasional incoherence, sometimes aphasia in an extreme form; at other times the symptoms succeeding the crisis were different, the patient becoming talkative, sometimes exhibiting delusions, with signs of megalomania, and a marked inability to resume a sitting posture. The symptoms sometimes yielded to mild alcoholic treatment, and in course of time abated. His own claim to speak on that occasion was that he belonged to a small society (the Medico-Legal Society), composed of the members of both professions, in which each derived benefit from association with the other. The society dealt with a great many topics, and occasional echoes of its proceedings were to be found in the *British Medical Journal*. The medical profession quite properly prided itself upon its success in preventive directions, and the ideal of the lawyer was not very far removed; it was not to foment strife, but to abate it. Very few laymen were aware of the extent to which the ordinary legal practitioner acted as a peacemaker. In the legal profession also something was done towards relieving the legal necessities of the poor, but the contribution was small indeed in comparison with that which was made by the medical profession in a similar respect. There was no profession which showered such gifts upon the public.

Sir Humphry Rolleston said that he responded, not only as a private person, but as President of the Royal College of Physicians, and in that dual capacity he cordially expressed the best wishes for the progressive and assured prosperity of the wonderful organization of the British Medical Association, which now numbered 26,000 members, or more than half the registered medical practitioners of the Empire. Though well established in years, the Association was ever finding new avenues of activity, and with the enthusiasm of healthy vigour was anxious to go on and conquer new worlds. Indeed, the complexity of the Association's activities was somewhat bewildering; with new legislative measures the political responsibilities imposed on it had multiplied. Founded at Worcester in 1832 by Sir Charles Hastings with the object of promoting medical science and maintaining the honour and interests of the medical profession, it continued admirably to uphold its tradition of representing the whole country, as was shown by a glance at the list of its leading officers; though its headquarters were in London it was in no way metropolitan, and it took the broadest views. Devoted to the welfare of the profession and to the object of uniting its independent units into a combined force—no easy task—it exercised political and ethical and professional functions. After years of patient work it was instrumental in passing the Medical Act of 1858, and since then the increasingly numerous legislative procedures touching medical men and matters had been thoroughly scrutinized, criticized, and influenced by the special Committees of the Association. Its educational scope, including the Annual Meeting, was equally large, but he would refer only to the Library, the Science Committee, and the *Journal*. The Library was a most important part of such an organization, and with the recent appointment of Mr. W. G. Spencer as honorary librarian it was certain that the Library in the new building would be a leading feature, run on the most modern and efficient lines, and thoroughly worthy of this great organization. The Science Committee distributed funds for re-

An Address
ON
THE HABITS (ECOLOGY) OF TUMOURS.

Delivered to the Cambridge University Medical Society, November 7th, 1923,

BY

Sir JOHN BLAND-SUTTON, P.R.C.S.,
CONSULTING SURGEON TO THE MIDDLESEX HOSPITAL.

Writings which attempt to define the term "tumour" make a big literary rubbish heap. The name though undefinable is applied to a hotch-potch of morbid conditions. A mouse is a mammal, so is an elephant—they have features in common. Many morbid conditions called tumours have sufficient features in common which permit them to be classified for descriptive purposes, for clinical study, and for treatment, but in size and habits they vary as much as mice and elephants.

Tumours are of importance to surgeons because of their harmfulness to the individuals on whom they grow. Nearly all make life uncomfortable; many shorten life. Surgeons do their best to get rid of them and study their habits (ecology) in order to acquire increased proficiency in this respect.

The microscope taught us that the tissues of tumours do not differ from those normal to the body, and with the assistance of embryology the investigation of tumours has become for many an attractive study. Embryology has provided the key to many pathological riddles. I vainly imagined that it would help to solve the problem of the origin of tumours, and a large part of my leisure for many years was devoted to this quest.

I shall endeavour to show how the life history of a tumour corresponds with that of the parent organ. Tumours pass through a period of growth, attain maturity and in some instances exercise the same function as the parent organ; and this exercise by increasing their bulk leads to their discovery. The statement that tumours exercise no function is grossly erroneous.

The tissues of tumours do not differ in their habits (ecology) from the normal tissues of the body.

Take, for example, hyaline cartilage. When this tissue assumes the form of a tumour its naked-eye and microscopic characters are identical with normal cartilage. It often calcifies, and becomes converted into bone. Like cartilage covering the articular end of a bone, it may be smooth and *glistening; if submitted to friction a synovial membrane* forms over it, constituting a gliding capsule; the space enclosed by the capsule may become distended with synovial fluid. Many instances are known in which a bursa of this kind, formed over an exostosis, has contained loose bodies in every respect resembling the familiar joint-mice of normal articular cavities. Exostoses of long bones repeat the phases of development common to such bones, and during growth are capped with cartilage which behaves like an epiphysis; the growth of the exostosis ceases with that of the skeleton.

Tumours not only agree in structure with the tissues of the organs in which they arise, but they conform to the habits of the parent organ.

Composite odontomes are tumours derived from the germs of teeth and conform to the ecology of teeth. Ensconced in the jaw an odontome grows in silence. In due time this quiescence is disturbed and the tumour manifests its relationship to teeth by erupting. The chief signs are swelling of the gum and pain such as accompanies the cutting of teeth. These troubles lead to its discovery, which usually ends in its extraction. Some superstitious persons will not submit to its extraction; even then the natural process is triumphant, for the tumour may fall out spontaneously, or, in spite, the patient spits it out! In a few instances an odontome has erupted and taken its place in line with normal teeth and been used in mastication. This has happened to men and horses.

Tumours in hollow viscera can excite them to action.

A tumour growing from the walls and projecting into the cavity of a hollow muscular organ can excite its muscular tissue to contract. A fibroid, a lipoma, or a cluster of warts growing in the gastro-intestinal tract stimulates propulsive movements leading to invagination of the intestine. Many astounding examples have been recorded. A submucous fibroid growing in the gastric wall near the oesophageal opening has been propelled through the pylorus into the duodenum, invaginating the parts with fatal consequences. Invagination of the small intestine is often caused by a sessile tumour. The persistent propulsive action of the muscular tissue converts sessile into stalked tumours. The contractions of the gut excited by a polypus are declared by painful sensations called cramps.

An old woman had a tumour, the size of a walnut, protruding at the anus. A surgeon of experience cut it off and was surprised to see the vermiform appendix. The tumour in this case arose on the margin of the ileo-caecal valve and induced invagination of the whole colon.

The efforts of the uterus to extrude a submucous fibroid may be so vigorous that the organ inverts. A pregnant uterus in its endeavours to expel the placenta sometimes turns inside out. The ovaries and Fallopian tubes occupy the peritoneal pouch formed by the inversion.

A tumour can initiate functional activity in an organ.

A submucous fibroid can imitate pregnancy so successfully as to deceive experienced practitioners. When an oösperm embeds itself in the endometrium the uterus, in the course of a few months, is converted from an organ weighing 2 to 3 oz. to one weighing 2 to 3 lb., with a capacity of one gallon. At the end of 280 days the slow rhythmic contractions of the uterus, stimulated by the growing foetus, ultimately become so powerful that they expel the foetus, the placenta, and the membranes which contain the foetal excrementitious products. When pregnancy occurs in the rudimentary horn of an imperfect uterus, or in a Fallopian tube, the foetus cannot escape from its mother and is mummified; in course of time it becomes converted by the deposit of lime salts into a lithopaedion.

After a successful pregnancy the uterine tissue undergoes an autolytic change (which means it is transformed into soluble nitrogenous extractives) and slowly shrinks to nearly the same size and weight of an unimpregnated uterus. Similar changes may be observed in a uterus occupied by a submucous fibroid. As the tumour grows the uterus enlarges uniformly and as it rises in the hypogastrium becomes easily obvious on examination. When the tumour is soft and grows rapidly a murmur is audible on auscultation. The uterus persistently endeavours to expel the tumour and sometimes succeeds in forcing it into the vagina. This success is accompanied with painful spasms and bleeding so like a miscarriage as to sometimes deceive the medical attendant or a midwife. As a rule, the uterus fails to expel the fibroid and it slowly enlarges year by year, then ceases to grow, slowly dies and is mummified, and in many cases calcified. Large calcified fibroids and lithopaedia may be found in pathological museums and in disused graveyards.

Submucous fibroids, especially when complicated with pregnancy, undergo autolysis, and this process will reduce a submucous fibroid the size of a fist to the consistence of soft soap in two weeks. The comparison between the ecology of a submucous fibroid and normal pregnancy is emphasized when the fibroid stimulates a large corpus luteum to form in the ovary and mucous fluid exudes from the nipples.

Erosive Action of Villi in Relation to Tumours.

Villi of various kinds play a part in our lives usually for good; sometimes for evil. Embryologists and pathologists were surprised to learn that the delicate villi of the chorion embed themselves in the endometrium to form the foetal part of the placenta. Occasionally their erosive power enables them to pierce the uterine wall and peer into the peritoneal cavity. It was a greater surprise to learn that

d on turning over the later pages of Ireland's history there ere found, after the lapse of a hundred years, evidences of a storation to its former position, in the names of Colles, raves, Stokes, Corrigan, Butcher, Tuffnell, and many others. recent years Irish surgeons and physicians had been engaged a heart-breaking struggle in their efforts to advance, for e ideals of medical men were different from those of liticians. They of the College of Ireland were trained to be timists, and their optimism extended to a profound belief their country, and that the ship of State would ultimately steered into peaceful and happy channels.

Few institutions in Ireland could claim such a record as eirs, of having existed for over a hundred and forty years; l if it was asked how it was that their College had survived a robust condition through the storms of the past and present would answer, that it had always been content to attend ictly to its own business. Since the College ship was artered by King George III on March 9th, 1784, their pilots l steered for surgical progress without deviation. Storms ght have caused anxiety, but the ship's course had never en deflected by so much as a single degree; and of poli-ians, in the mischievous sense, they happily had none in the llege of Surgeons in Ireland. America had taught them the ver of self-reliance; they had felt the influence and had en stimulated by the example. He brought them fraternal etings from the medical profession in Ireland, with the hope t the unexampled progress and prosperity of their country ght continue in unabated vigour.

Nova et Vetera.

DOCTORS ON THEIR OWN ACCIDENTS AND ILLNESSES.

BY

THE LATE DR. J. W. BALLANTYNE OF EDINBURGH.

E references were made recently* to the sale of Sir ert Sibbald's library, and to its remarkable contents—mes, many of them, which would excite brisk competition modern auction room. This distinguished Edinburgh sician of the end of the seventeenth and the beginning of eighteenth centuries showed a curious interest in all the ils of the various accidents which happened to him, and he illnesses from which he suffered. Several instances be found in his autobiography (first published in 1833), g with engagingly frank disclosures of what occurred to numerous conceptions of his wives, for he was twice ied. Here is his narration of a golfing misadventure:

ne accident befell me on the 16th of October, 1690, that as I coming from Sir Robert Milne his house in Leith, where I been visiting his good brother Mr. Elphinston's wyfe, who aken physic that day, about four afternoon, as I was going e to passe the ditch to goe to the Links, wher I left some any playing at goufe, and my servant following me, neither or I, nor the boy, adverting, I was strucken by a boy (said to ptain Taylor his son) of fourteen or fyfteen years, with the of the club, with much force, betwixt the eyes, at the root of ose."

e wound is described with meticulous exactitude, for t not Sir Robert's own wound, so that all the details were rtant and suitable to be recorded?

e wound was oblong, large, and about half ane inch long. It ot half ane inch above the cartilage of the nose. The parts the right eye was [sic] livid, and both the canthi majores swelled. I bled much, and took a coach and came up, and good while before I could want [that is, do without] a plaster t. It was God his great goodness that neither the cartilage at, nor one of the eyes put out, for it was done with the sharp the club."

instance from more recent times may be quoted in another doctor also dwells with full descriptive lishments upon an ulcerated sore throat. Dr. John n, the author of the never-to-be-forgotten sketch, *nd his Friends*, and of the delightful *Horae Subsecivae*, e sufferer; the story was told in a letter to his brother m—the place again was Edinburgh, and the date 1838.

ll, when down at the Terrace on Friday night (September riting to Andrew, I felt my throat turn suddenly sore and ath get difficult, went home, couldn't sleep, got up, could , went out, frequent pleasant creepings over me, went into at the Infirmary, worse of this, all the blood inside, fought ill 3, went home to bed, and sent for Sandie Peddie; no Sunday going on worse and worse; no sleep. Monday desperate, getting afraid about myself, at twelve noon sent t, who looked very glum, six leeches had been put on on Sunday, mustard, etc., no sleep. Tuesday, throat ecstatically painful, pulse very quick, all the time headache very bad, alternately in badness with the throat. On Tuesday afternoon, 12 leeches behind the ear, no better, bran poultices everlastingly, no good. Sent for Scott at 12 at night. He bled me to more than 16 ounces, with instant relief, how delicious! nothing in the world like it. He is a wise wight that Scotus. He went off; a quiet but sleepless night, throat still very sore. Scott and Peddie saw me about 7. I told them I was sure ulceration had begun; so it had with a vengeance, a hole I could lay my thumb in on one side, and a smaller on the other. Nitrate of silver liberally applied. Dr. Scott looking black enough, muriate of morphia, slept from 9 till 11, awoke worse and worse, ulceration, I fear, going on. Scotus sent for again at dead of night, came, looking grimmer than ever, bled me till I fainted; about 16 ounces. I awoke and saw him brooding over the pulse with a face smiling with perfect delight. This did the business, and all has been easy enough."

There are many things in common in the two accounts. Both show an interest in every detail which leads to an absence of obedience to the ordinary laws of grammar and composition; in both the victim is frankly scared about himself. But there are differences too. Sir Robert records the accident solemnly, and puts the details in his autobiography, whilst John Brown tells his story in cheery phraseology to his brother in a letter. There is no relieving touch of humour in Sibbald's narration, but rather a cold resentment against circumstances; in Brown's there is a buoyancy of spirits which refuses to be cast down, and even sees a little fun in some of the events. It is the more excellent way of meeting an ailment. He indulges in a little speculation as to etiology: "It was a queer affair, not a common inflammatory sore throat, but as if a fever had been interrupted, aggravated, and destroyed by virulent sore throat, and then *it* bled to death." His explanation is hardly in the most recent phraseology, but contains a thought or two which are modern enough. His convalescence, too, was a joyous time as compared with Sibbald's slow and almost sullen return to normal. Brown had a literary feast: "I have read Southey's *Life of Bunyan*, the *Elixir of the Devil*, the fifth volume of *The Doctor*, etc., besides lots of Shakespeare's poems, and Carlyle's third volume of the *Revolution*. *It* is glorious; and now I am regaling myself with *Midshipman Easy*. . . ." He looks back on the fight with the malady with no resentment; "a rapid, fierce, but clean disease working its will for three or four days, 40 ounces of blood lost, no sleep for four nights running, desperate pain, total starvation, and then . . . health and a clear inside setting to work to make up."

It is easy to believe of this same doctor that at Chatham during the cholera epidemic he had been found asleep from fatigue by the bedside of a poor woman for whom he had ministered to the end. His is the right way to meet and to fight disease, whether in oneself or in another. Brown would have gone with Coué so far as cheery optimism went, but he would have accepted the "muriate of morphia" too, and whatever nowadays corresponds to the 16 ounces—a vaccine perhaps.

Sibbald's accident was in 1690 and Brown's illness in 1838; but in quite recent times one finds what is perhaps the most detailed description of the course of a malady by the medical man suffering from it which is on record. In 1912 Dr. Leonard Portal Mark published *Acromegaly: A Personal Experience*, and in 158 pages told the story of how from the age of 24 till that of 50 (1879–1905) he experienced and in many cases since he was 14 carefully entered in his diary the symptoms of progressing acromegaly, without himself suspecting that he was a victim of that malady. To this case and to many others in which medical men gave more or less accurate accounts of their sufferings Sir Humphry Rolleston has referred in an interesting and entertaining paper entitled "Diseases described by medical men who suffered with them."[1] Mark's medical friends had diagnosed it thirteen years previously, and some of his near relatives had also been in the secret. Here is the account of his self-discovery:

"I was walking across the north-east corner of Cavendish Square one afternoon in November, 1905, when all at once the idea seized hold of my mind that perhaps I might be suffering from acromegaly, and that it might be the cause of my head troubles. It came upon me like a bolt from the blue. As far as I could remember afterwards, no particular train of thought led up to it. For the first time I thought there might be some connexion between my headaches and the enlargement of my hands and feet. When I got home I at once looked up the subject in Bowlby's *Pathology*, and what was a suspicion was at once confirmed."

The whole story is a remarkable illustration of the not uncommon fact that a medical man may recognize his

* JOURNAL for June 3rd, 1922, p. 883, and September 8th, 1923, p. 432.

[1] *The Military Surgeon*, June, 1921.

important fact: The epithelium, and the associated soft tissues lodged in the tunnels of the osseous bosses, spring from the arachnoid—*they are, in fact, abnormal arachnoid villi.* When examined in sections these exaggerated villous tufts embedded in osseous tissue resemble fossil ferns in clay or shale. The bony edifice on the skull recalls the huge mounds built by termites in tropical forests.

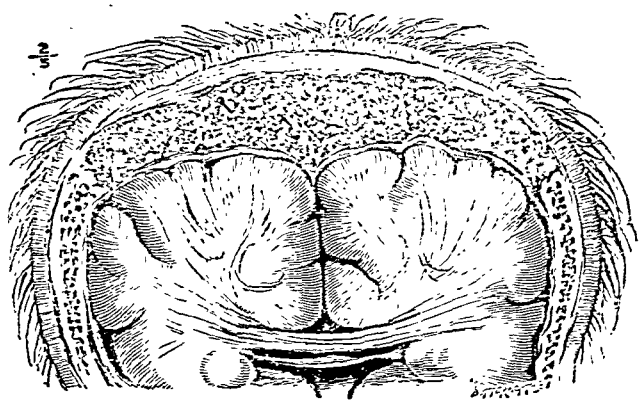


FIG. 3.—Coronal section of the frontal region of the head, showing a soft tumour growing from the arachnoid, permeating the frontal bone. (Museum, St. Bartholomew's Hospital.)

TUMOURS OF GLANDULAR ORGANS.

Tumours of glandular organs are often functional. Take, for example, an adenoma of the breast. This is a collection of mammary tissue isolated from the main secretory tissue by a firm capsule which cuts it off from the excretory ducts of the breast. Such a tumour in the breast of a pregnant woman takes on its share of lactation in due course, but as there are no ducts permitting the fluid to escape it accumulates in the glandular acini and the pressure of the fluid leads to atrophy of the secreting epithelium, dilatation and coalescence of the distended acini, and the formation of cavities. Such an *encapsuled collection of fluid is known as an adenocele,* and when large enough to attract the attention of a surgeon is, as a rule, excised.

A lobe of mammary tissue occasionally becomes detached from the axillary margin of the breast. Such a glandular islet has no excretory duct, but it enlarges during lactation in concert with the main gland and slowly declines when lactation ebbs. These islets are known as accessory breasts, but a similar islet in the substance of the breast would rank as an adenoma or a cyst.

Similar cystic tumours form in the liver in connexion with the minute bile ducts. Paul proved long ago that adenomas of the liver are clumps of encapsuled biliary ducts. The cells of such adenomas are functional and the cystic spaces contain bile. The solitary (non-parasitic) cyst of the liver, though rare, belongs to this set. Some of these cysts have been so large in women as to have been mistaken clinically for ovarian cysts. In such examples as have been examined microscopically the walls of the cyst contained minute bile ducts. I have satisfied myself that these large cysts arise from the dilatation and fusion of the minute biliary ducts unconnected with obstruction to the main bile ducts. It is certain that the parts concerned in the formation of such cysts have continued to exercise their function, for they contain bile.

As in the case of the mammary gland, an isolated lobe of liver attached to the liver by a fibrous band is called an accessory lobe of the liver, but a similar islet of hepatic tissue in the substance of the liver is called an adenoma, and may become a cyst by the accumulation of its own secretion—bile.

We owe to von Eiselsberg an account of a remarkable illustration of this habit of glandular tumours. Billroth in 1886 extirpated a goitrous thyroid from a woman aged 38. The operation was followed by myxoedema. A year after the removal of the thyroid the patient passed through a normal pregnancy; subsequently a tumour appeared in the upper part of the sternum, and as it increased in size the myxoedema disappeared. In 1892 the sternal tumour was as big as a fist and resembled a sarcoma. As it was incorporated with the bone von Eiselsberg removed it with the aid of a chisel and hammer. In structure it resembled an ossifying columnar-celled carcinoma and contained colloid material. The woman made a good recovery, but the symptoms of myxoedema recurred in the same order as after the thyroidectomy and persisted.

The thyroid gland, possessing no excretory duct, is very *liable to have portions of its secreting tissue isolated,* and these, becoming encapsuled and slowly enlarged by the accumulation of colloid material, form thyroid cysts and tumours, some of which attain an astonishing size.

The cell elements of primary and secondary cancer of the pancreas can produce ferments identical with or similar to those furnished by the normal cells of the gland (Waring). The active interest taken by physiologists in the function of the pancreas, especially in relation to glycosuria, has led to some valuable experimental work. In 1892 von Mering and Minkowski succeeded in completely removing the pancreas from living dogs. In man this is an impossible operation on account of its intimate relations with blood vessels and nerves. In dogs complete removal of the pancreas is followed in a day or two by glycosuria. Hédon confirmed the experiments (1892) and succeeded in transferring a piece of the tail of the pancreas into a subcutaneous pouch to one side of the linea alba, but retaining its intra-abdominal connexions. When the graft is well established the remainder of the pancreas is completely removed and glycosuria does not ensue. Later if the graft is excised glycosuria quickly follows. If the intra-abdominal vascular connexions of the graft are obliterated the graft scleroses and disappears; under such conditions glycosuria quickly becomes manifest. Hédon notes that after the graft is transformed to an artificial subcutaneous pouch, a fistula persists for a time and pancreatic fluid issues from it.

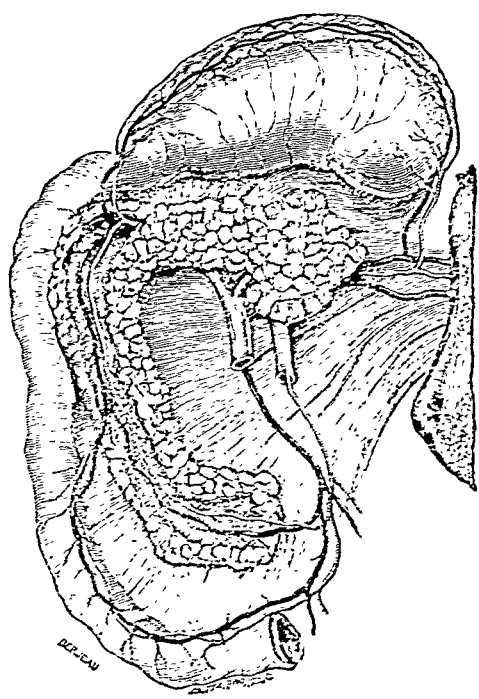


FIG. 4.—Pancreas of a dog, to show its environment. (Hédon.)

president, in the chair. It was reported that the work of the hospital was now carried on at four treatment centres (Camden Road, Lewisham Park, Holborn, and Clapham Common) and at ten borough council clinics in London, and that during the year there had been 13,437 attendances, including 4,788 cases which were dealt with by extraction. The London County Council had arranged to deal with over 3,000 cases during the present year—a considerable increase over any previous year—at the Lewisham school treatment centre. Valuable work was being done at the council clinics at Battersea and Paddington. Sir Harry Baldwin praised the work of the hospital as one which performed a first-class service for people who were not well-to-do but who did not desire to be treated on an entirely charitable basis. He was glad that such an institution was having to enlarge its borders and was paying its way. The members of the dental staff were required not only to hold the L.D.S. diploma, but to be members of the British Dental Association. He went on to speak of the proper measures to be taken to prevent dental decay; these were really three in number: (1) the proper selection of food, including a sufficiency of such foods as furnished the vitamins or accessory factors; (2) oral hygiene, in which he believed gum friction twice a day to be much more important than repeated tooth brushing; and (3) a little dentistry at the right time.

Scotland.

A Convalescent Hospital.

The first portion of the new Astley-Ainslie Institution for the reception of convalescent patients from the Royal Infirmary of Edinburgh has been opened. This institution, for which there is now available a sum of over £600,000, is the outcome of the beneficence of the late Mr. David Ainslie of Costerton, Midlothian, who died in 1900 and directed that the residue of his large fortune should accumulate for fifteen years for this purpose. The general idea of the scheme is to provide an institution midway between a general hospital and a convalescent home. When fully equipped it will be able to receive between 150 and 200 patients. The type of patient for whom it is intended are those who, though not yet able to walk about, have a good chance of being restored to health; it is not designed for incurable diseases or cases of dangerous illness. It is to be equipped with modern facilities for scientific treatment and research, so that the patients may be followed up by the physicians and surgeons under whose care they have been originally in the Royal Infirmary. Sheriff G. L. Crole, the Chairman of the Governors, in performing the opening ceremony, stated that no other such institution existed in Britain, or even in America. The governors had acquired four contiguous properties—Canaan Park, Canaan House, Millbank, and Southbank, beautifully situated and beautifully wooded in the southern suburbs of Edinburgh. The Board of the Royal Infirmary was represented on the Board of the Institution, but its management and funds were entirely separate. The unit now open for patients is Canaan Park House, which has been remodelled by Mr. John Jerdan, F.R.I.B.A., so that it consists of a two-story building with open-air verandahs having a southern exposure and attractive outlook on the Blackford Hill. This and the other three units to be opened later are old mansion houses surrounded by grounds extending to some twenty-five acres, so that the convalescent patients will have ample scope for exercise and treatment by open air and sunshine.

The late Sir Isaac Bayley Balfour.

A movement has been set on foot to establish a memorial to the late Sir Isaac Bayley Balfour, who for thirty-four years was professor of botany in the University of Edinburgh and Regius keeper of the Botanic Gardens, Edinburgh. He had, with the Forestry Commission and the Office of Works, arranged for the establishment of a forestry station where plants and trees imported and raised in the Edinburgh Botanic Garden could be cultivated under more favourable conditions. An area of fifty acres on the commission's estate in Glenbranter Forest, Argyllshire, between the Firth of Clyde and Loch Fyne, will be used for this purpose; it will be under the superintendence of the Regius keeper, and will be called the Bayley Balfour arboretum or garden. The expense of maintaining it will be small, as land, house accommodation, plants, and trees are already provided, and it is proposed that the memorial should take the form of a rest house for visitors, who desire to spend some days at the place. Simple accommodation, a caretaker, and botanical books of reference will be provided if sufficient funds are forthcoming. A small executive committee has been formed, and Mr. John Sutherland, 25, Drumsheugh Gardens, Edinburgh, is acting as honorary secretary and treasurer.

Conference of the National Council of Women.

The annual meeting and conference of the National Council of Women of Great Britain and Ireland was held in Edinburgh under the presidency of Lady Frances Balfour. This Council, which was founded twenty-seven years ago, is interdenominational and non-political; it seeks to raise the level of citizenship and gives attention to the supervision of bills before Parliament affecting women and children, the promotion of health measures, educational reforms, and improvement of industrial conditions. About 600 representatives from all parts of the country attended the conference, which devoted a considerable amount of the time to questions affecting children. Mrs. George Cadbury, vice-president of the Council, proposed a resolution urging the Government and local education authorities to find funds for the further development of the School Medical Service. The Rev. Dr. J. Harry Miller, warden of New College Settlement, Edinburgh, gave an address on the delinquent child. Statistics showed that the age at which delinquency became most evident was between 14 and 17, and that Sunday was the day on which most offences were committed. Outlet for youthful energy in adolescence should be provided, and there was much need for halls, gymnasia, and other places of wholesome recreation.

Rectorial Election in Edinburgh.

The triennial election of a Lord Rector for Edinburgh University took place on October 27th. The candidates were Mr. Stanley Baldwin, Prime Minister (Unionist); Lord Buckmaster (Liberal); and Mr. Bertrand Russell (Labour). Mr. Baldwin was elected, in succession to Mr. Lloyd George, with 1,236 votes as against 488 votes for Lord Buckmaster and 261 for Mr. Bertrand Russell. The rival parties of Unionists and Liberals engaged during the progress of the voting in the time-honoured "battle" for the steps of the quadrangle, and in the evening joined in a torchlight procession through the streets of Edinburgh.

Ireland.

Royal Victoria Hospital, Belfast.

The opening address of the session was delivered by Professor A. Fullerton, C.B., C.M.G., in the King Edward VII Memorial Hall of the hospital on October 23rd. Mr. Mitchell, chairman of the staff, presided, and Dr. Lindsay, emeritus professor of medicine, and Mr. Sinclair, emeritus professor of surgery, with a large attendance of the staff of the hospital and students, were present. The chairman, in a few introductory remarks, called on Professor Fullerton, who welcomed the students to another year's work. He hoped they did not come with the object of riches nor of social advancement; the doctor was too often the butt of the novelist and of the playwright. Unwholesome and too flagrant competition amongst themselves in practice, and flat contradiction in the witness-box, lowered the respect of the community for them, and injured the prestige of the profession. Still there must be no barrier to all of good character in entering their ranks. Some were born into the profession, and breathed a doctor's atmosphere from their earliest years; some were guided by a trivial circumstance; but others, the idealists and enthusiasts, whom nothing could turn aside nor make waver in the pursuit of high scientific medicine, the discovery of knowledge, the prevention of disease, the relief of suffering—these entered medicine because simply they must; they had no choice;

lanugo grows freely, and the epidermis develops the epitrichium (described by Welcker in 1864) which furnishes the soapy vernix caseosa so conspicuous on the skin of a newborn child. In an embryo the whole of the epidermis consists of a single layer of cells. Later this becomes double and the superficial layer is the epitrichium. About the eighth month the epitrichium is cast off, mixed with grease from the sebaceous glands, and lanugo. Occasionally it persists and forms a collodion-like envelope over the foetus, producing the comic appearance which recalls the harlequin (Fig. 5). The epitrichium persists in aquatic creatures such as frogs and salamanders; it protects them from maceration. The human foetus is an aquatic animal while disporting in the hydrosphere; the epitrichium and the vernix caseosa protect it from maceration.

Normal pregnancy terminates with the expulsion of the foetus and the by-products of its glandular organs. If all goes well it becomes an air-breathing mammal. It sometimes happens that a foetus cannot be expelled. In this event the placenta on which its life depends ceases to act and slowly disappears. The amnionic fluid dries up, the foetus dies, shrinks, mummifies, and eventually its tissues become calcified.

The life of an intrauterine foetus is dominated by the placenta.

FIG. 7.—Loculi of an ovarian tumour lined with big mucus-laden epithelium. (Magnified.)

THE EMBRYOMA.

An embryoma, the essential element of an ovarian dermoid, may contain nearly every organ required for the equipment of a foetus: skin with its essential glands, hair and teeth, pigment and nerves, limb-buds with cartilage and bone, fat and muscle, brain and spinal cord, nerves and ganglia, an eye, gut, and Auerbach's plexus (Nicholson); trachea and thyroid gland, liver tissue (Warwick).

For many years pathologists limited their search to the histology of these lumps. Professor S. G. Shattock critically reconstructed some of the sections. For him nervous tissue collected around a central tube is a syringo-myelus. Grey matter enclosed in dura mater is a miniature brain. C. E. Shattock removed an ovarian tumour the size of a bantam's egg from a girl aged 2½ years. The tumour on median section disclosed an embryoma which can be interpreted as an acormus-embryoma; it is trunkless and limbless, consisting only of a hydrocephalic head. The vault is membranous and the base cartilaginous. A piece of hairy scalp is attached to the head and, near it, some tissue consisting of groups of ganglia furnished with large typical nerve cells. This specimen is preserved in the museum of the Royal College of Surgeons.

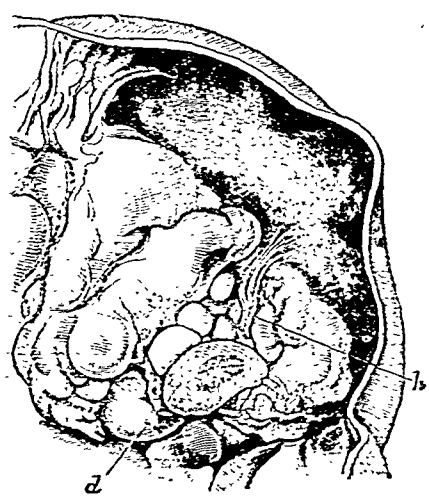


FIG. 8.—Segment of a huge mucigenous ovarian tumour presenting an embryoma, *d*, bedecked with a tuft of lanugo, *h*. (Museum, St. Thomas's Hospital.)

The importance of interpreting the gross features of embryomas, with the aid of histological details, adds a new interest to these deformed lumps; they seem like misdirected embryologic energy. The ovarian dermoid shown in Fig. 6 is actually the size of a coco-nut and contained the usual mixture of grease and hair. A remnant of the ovary is seen at the lower pole of the tumour and immediately adjacent there is a patch of skin covered with reddish hair resembling a piece of scalp. Two teeth, an incisor and a bicuspid, are fully erupted. The tissue immediately under the skin contains a collection of nerve tissue with cells like those in grey matter of the brain. The skin, hair, teeth, and nerve tissue may be interpreted as representing the cephalic end of an ovarian embryoma (Warwick). The loose matter filling the cyst is furnished by sebaceous glands, hair, and desquamating epidermis. The cyst wall, to meet requirements, grows in a most accommodating manner.

It is certain that an ovarian embryoma contains active organs, especially skin, which is continually discharging sebum and sweat, and shedding epidermic cells and hair. The embryoma has no time limit like a foetus, not being dependent on a placenta, and though it rarely exceeds the dimensions of a fist the products of its activity accumulate in the bag which encompasses it and may, in the course of years, amount to three litres or more. Occasionally the pressure of the accumulated organic rubbish bursts the sac and escapes into the peritoneal cavity, which may become so distended that the belly wall pits on pressure like dough. Sometimes the epithelial elements which escape from the sac engraft themselves on the peritoneum. In such circumstances hundreds of little islets of skin bearing tufts of lanugo dot the peritoneal surface of the intestines, liver, and omentum.

After an embryoma ceases to grow, its capsule, like the membranes of an extrauterine foetus, calcify; the museum of the Middlesex Hospital contains a good example, resembling a coco-nut containing a coil of hair, and three teeth on a plate of bone.

So far we have been dealing with ovarian embryomas in which skin played the prominent part in furnishing waste products. We must now consider some parallel conditions in which mucous membrane is the chief factor.

MULTILOCULAR GLANDULAR TUMOURS OF THE OVARY.

These are the biggest tumours which grow in women. Some of the tumours I have removed weighed nearly a hundredweight, and even bigger examples have been recorded. The loculi in such tumours vary in size and their walls are lined with soft tissue covered with a single layer of large columnar cells heavily charged with mucin (Fig. 7). The membrane lining the loculi is arranged in depressions, bays, and narrower recesses, recalling in their arrangement the simple glands of the large intestine. The amount of mucus furnished by them is often very great; as there are no excretory ducts for the escape of the secretion it accumulates in the loculi, which become enormously distended by the

clinical teaching units equal in value, superior even because of their variety, to the professorial units. All indications are that our own students will be greatly encouraged to send their cases to the Middlesex Hospital, from the knowledge that in addition to their efficient treatment full use will also be made of their value for teaching and research.

The action of the London Hospital to-day, in modifying the professorial unit system, after a full and fair trial, for the reasons and along lines which we advocated some time ago, still further encourages us in our belief that on the progressive development of this registrar system depends the successful solution of the teaching and of the research problems which the growing complexity of modern surgery, as of medicine and obstetrics, has set our schools of medicine.—I am, etc.,

W. Sampson Handley,
Chairman of the Medical Committee of the Middlesex Hospital.

October 30th.

P.S.—The appended extract is taken from a letter of March 14th, 1921, to the University Grants Committee, drafted by our Dean, Mr. A. E. Webb-Johnson. It shows the views held by the governing body and staff of the Middlesex Hospital at that time.

"... The governing body and staff of the Middlesex Hospital Medical School quite realize the advantages that may be expected from the adoption of the unit system, but feel that whole-time professors will not carry that system to its best and fullest degree of development. In the unit system under part-time directors they see great opportunities for the improvement of clinical teaching and research, and the general improvement of the practice of medicine, surgery, and obstetrics, both in hospital and private work. Chosen men will be given great opportunities, but in the opinion of the Council and staff these opportunities might be given to the whole staff of the hospital with greater advantage to teaching and research. They believe that this can be achieved with the expenditure of a third of the amount contemplated under the unit system. . . ."

Sir,—To one who has no connexion with any of the clinical units in London, but who has always regarded the inception of the scheme with interest and sympathy, Mr. Souttar's letter in your issue of October 27th (p. 783) has provided a rather unwelcome surprise.

In the first place, everyone is conversant with the excellent work that has been done at the London Hospital, particularly on certain aspects of surgical technique. In the second place, if the London surgical unit has failed in spite of much excellent work, is this an indication that the other surgical units, and perhaps even medical units, will fail also? In view of the importance of the subject it might be as well to examine the position more closely.

The clinical units in London arose from the feeling that not enough research work was being carried out at the London schools, and consequently that London students were missing the university element in their education, which means that they were not being taught by men who were themselves engaged in advancing the knowledge of these subjects. There was little likelihood of research being carried out by physicians and surgeons who had to make their living and keep up a certain state in the most expensive part of London. The advantages of the scheme seemed to lie in the fact that the work of the clinical units was to be carried on side by side with the other work of the hospital, that a student during his career would enjoy both types of education, and that the aim and scope of the education would be rather different in the clinical unit and in the other parallel units of the hospital.

These facts, if true, would seem to dispose of some of the earlier considerations brought forward by Mr. Souttar in his letter. The student "must learn how to deal with human beings who are ill and to discover those from whom he may best obtain assistance when he is out in the world and on his own responsibility." Undoubtedly he must, though I may be forgiven if I refuse to believe that this is more important than the technical knowledge of his profession, as Mr. Souttar seems to imply. Still, if the student is brought into direct contact with the advance of knowledge in the clinical unit, he may well learn the other part of his profession from his other teachers, who are in private practice themselves.

Much the same argument applies to the whole-time teacher himself. It is surely a curious way of describing his outlook to say that his horizon is narrowed to the wards and laboratories of his hospital, when these constitute the very field of his researches.

But I must confess that a still greater surprise awaited me. Mr. Souttar says that research in the surgical unit failed because the special cases so essential to research and to teaching were no longer being sent to the surgical unit. Does surgical research require special cases? I should have thought that the function of the surgical unit would be to investigate the common everyday cases met with in the surgical wards, of which our ignorance is at present sufficiently profound. For instance, if rheumatoid arthritis had been chosen for study, my experience teaches me that the researcher would have been overwhelmed with cases. He could also have applied to the infirmaries. Similarly, if the biochemical relationships of cancer as it occurs in the human body had been chosen, surely sufficient cases would have been forthcoming.

After all, what is surgical research? Sir Berkeley Moynihan has described himself as a physician compelled to practise surgery, and this suggests that there cannot be so very much difference between research in surgery and research in medicine. Surely in either subject research consists in investigating the causes, relationships, and treatment of the diseases met with in the medical or surgical wards, and nowadays great advances are possible owing to the numerous experimental methods elaborated since the beginning of the century.

A paragraph in Sir George Newman's report suggests to my mind that these possibilities of research have not been fully realized in the surgical unit at the London Hospital. It is there stated that "the very thorough system of examination and note-taking is regarded as chief contribution to research." But this is no more than has been carried out by practising physicians and surgeons for a hundred years. It entails careful clinical observations, the co-ordination of certain laboratory findings, and above all ample secretarial assistance. Any careful surgeon or physician in practice could undertake it. A whole-time clinical unit would surely be unnecessary. But will the great advances of medicine and surgery of the future be made by such means? Most emphatically, No! The experimental method will be necessary.—I am, etc.,

A London Teacher.

October 29th.

CHRONIC INTESTINAL STASIS AND CANCER.

Sir,—Sir Arbuthnot Lane's address on chronic intestinal stasis and cancer reported in the Journal (October 27th, p. 745) and your comments thereon give food for thought, for does he not attribute to its baneful influence nearly all the diseases to which the flesh is heir?

But a certain amount of intestinal stasis is physiological, and the bowel is specially designed to achieve stasis for purposes of absorption. Then why is it that this stasis, which ought to be only physiological, so often becomes pathological? Is it not because the lining membrane of the bowel is damaged by the continual use of irritating aperients?

More than forty years of general practice have convinced me of the evils produced by this pernicious habit, which in civilized communities has become wellnigh universal. The habit is generally contracted in the early years of life, and thereby one of Nature's most important periodical arrangements is interfered with and put out of gear, and the disastrous results show themselves later on.—I am, etc.,

John C. Uithoff.

Bournemouth, October 27th.

Sir,—Surely if the teaching of Sir Arbuthnot Lane (British Medical Journal, October 27th, p. 745) on the widespread effects and causation of intestinal stasis is true, it is the greatest and most illuminating truth that has been uttered in the realm of medical science in all the centuries. What other contribution to the etiology of disease, mental and bodily, is there to compare with it in its comprehensiveness, its simplicity, and its appeal to the common sense of doctors and laity alike? Can its truth be refuted? Can it be that, in its simplicity and in the enthusiasm of the teacher, lie the reasons that it has not hitherto been accepted with the acclamation it deserves? It seems to me

tation of the skin and mouth while under my own observation and treatment in hospital.

When admitted he was extremely pallid, apathetic, and feeble; the red blood corpuscles numbered 800,000 per c.mm., and the haemoglobin was 20 per cent. He had taken no arsenic previously and was put on 10 minims liquor arsenicalis three times daily, this dose being continued for eighty days. By the end of that time the red corpuscles had risen to 2,400,000 and the haemoglobin to 41 per cent., but the arsenic had then to be discontinued as it was beginning to cause neuritis, evidenced by disappearance of his knee-jerks and tenderness of the posterior tibial nerves. He had taken 2,400 minims of Fowler's solution, equal to 21.8 grains (1.4 grams) arsenious acid. After he had been taking the arsenic for about one month it was evident that his skin was becoming pigmented. The pigmentation began, as it usually does, on the lower abdomen towards the flanks, but it spread and deepened very rapidly, until at the end of the eighty days the whole body was more or less discoloured. The lower abdomen and back, hips, and upper thighs were then of a black-brown colour, the rest of the trunk was of a bronze hue showing different tints and variegated with numerous small round white unpigmented spots, the face was light brown, and the arms and legs showed a mottled mixture of various shades of yellow and brown. The lines on the palms were picked out in a deeper brown than the surrounding skin. There was no extreme keratosis, but the epidermis of the hands and round about the knees was thick, reddened, and coarse, and showed a good deal of branny desquamation. About six weeks after beginning the arsenic several dark bluish patches appeared on the inner surface of the lower lip and at both angles of the mouth, the inner surface of the cheeks took on a uniform bluish colour with several deeper patches here and there, and there was one very marked brown area on the hard palate. When pressure was made with the fingers round about the patches on the lip and cheeks so as to render the area anaemic, their blue-black colour changed to a light brown, showing that the peculiar bluish-black tint is due to the purple colour of the capillary blood modifying the brown of the pigment present in the epithelial cells.

As regards the pigmentation of the skin and mouth I cannot say that the appearances differed in any way from certain cases of Addison's disease. There was, however, at parts, a distinct tendency to coarsening, hyperaemia, and branny desquamation of the skin, not seen in the latter. The colours in the mouth deepened considerably as he went on taking more arsenic. Within one week after stopping it there was a visible lessening of coloration both in the skin and mouth, and in a fortnight the change was more decided, and accompanied by fine scaly desquamation at the more deeply discoloured areas of the skin. In a month the face was nearly normal in colour, the forearms and legs were of a yellowish tint, and elsewhere the pigmentation had lessened. The brown patch on the palate had disappeared entirely, but the blue-black spots on the lips could still be easily made out. He then left hospital at his own request and died two months later of pernicious anaemia. By this time his skin had again become pallid, and there was little or no trace of pigmentation.

During the prolonged treatment with arsenic of cases of chorea, pernicious anaemia, lymphadenoma, psoriasis, and other chronic diseases, pigmentation of the skin and keratosis are not infrequently produced, but their occurrence must be considered as relatively very rare in proportion to the large number of cases which are so treated without any untoward effects. It is notorious that arsenic causes these and other pathological lesions much more rapidly and after a much smaller quantity in some persons than in others.[3] Thus, pigmentation, keratosis, and neuritis may appear in a few weeks or months, all together or singly, or may not appear at all even after years of arsenic administration. The reason of this variation in action is unknown, and for the present it has to be put down to individual differences or idiosyncrasy.

The skin coloration fades with very varying rapidity, sometimes in a few weeks, sometimes only after months, or in two or three years, and Cheadle[4] has recorded an instance of its being present after nine years and presumably permanently. In my experience it almost invariably disappears fairly rapidly, and has no deleterious influence on the general health. This is also true of keratosis, although it also may be very persistent, and arsenic cancer may result from prolonged irritation of the skin by the drug.[5] On the other hand neuritis, which is equally capricious in its incidence, is very tedious and difficult to cure, and its possible occurrence should always be carefully watched for and avoided. It may prove permanent and even fatal in extreme cases.[3]

It is difficult to determine exactly when or by whom pigmentation of the skin was first noticed as a result of the therapeutical administration of arsenic. Arsenious acid, realgar, and orpiment have been used continuously from the earliest medical times, and their acute poisonous effects have long been familiar, but knowledge regarding the symptoms of chronic poisoning has dawned much more slowly.

Arsenical paralysis is said to have been first recorded in the thirteenth century, and at infrequent intervals afterwards till 1857,[6] when it was more particularly described by Leroy,[7] and since then by very many others. In the eighteenth century, when various preparations of arsenic were widely and successfully used in the treatment of agues, it was known that they might give rise to paralysis and dermatitis, but there is no record of pigmentation. Thickening of the skin was noted by Hunt,[8] and later by Wilson (in 1873),[9] but it was only after 1888, when keratosis of the soles and palms and other parts was first definitely drawn attention to by Jonathan Hutchinson,[5] that this very striking effect of the administration of arsenic came to be generally recognized. Its employment in chorea is also comparatively modern. Harles (1811)[10] merely mentions it without comment of any kind, and Martin,[11] Salter,[12] and Gregory[13] seem to be the earliest writers who published accounts of cases successfully treated with it. Later Begbie[14] and Pereira[15] spoke very highly of its value from their own experience. In 1877 Byrom Bramwell first advocated its use in pernicious anaemia.[16]

Arsenic was first employed accurately and systematically in skin diseases by Dr. Thomas Girdlestone[17] of Yarmouth in 1806, and in 1847 Hunt,[8] and later Devergie,[18] in their treatises on diseases of the skin, describe brown and grey discoloration as if this were a recognized and not uncommon incident during its administration. Hunt describes the skin as having a "dirt-brown, dingy, unwashed appearance," and Devergie uses the terms "iron-grey" and "brown." Veiel (1860)[19] says it occurs "not seldom." Since then it has been described in great detail by many writers. The colour may be mottled light or dark grey, the mottling being due to irregularities in the depth of pigmentation, or it may be in all shades of brown—pale, yellowish, coffee, bronze, dull coppery, or almost black. It is never equally deep over the whole surface, or even in the same area of the body, and the tint is often modified at places by hyperaemia in underlying patches of the corium. Small roundish spots of unpigmented, or more deeply or more slightly pigmented skin are always present, and this with the differences in colour-shades gives an impression of mottling. Warty growths are often present. On the rosa of the lips and mouth the brown deposit is modified to a dark bluish colour by the underlying tissues and blood, as has been previously mentioned, other instances of the same kind being the more familiar "blue line" of lead poisoning, and the bluish colour of the lips in dark-skinned races.

Erasmus Wilson[20] in 1868 gave an account of the nature of the pigment, which he describes as the ordinary melanin of the skin, and relates a case in which the eyeball presented a "dark tinge" in addition to deep cutaneous discoloration. But so far as I have been able to ascertain the two foregoing cases are the only instances in which pigmentation of the mucous membrane of the mouth has been recorded.

More careful examination of cases in which the skin is deeply pigmented would probably show, however, that the mouth is also not infrequently involved.

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HEART DISEASE IN EARLY LIFE.

SIR,—In reading the discussion reported in your issue of October 20th, I am reminded that in rheumatic infection one used to consider the presence of a positive glycogen reaction of the leucocytes concurrent with the activity of a carditis. When the reaction became negative the activity of the carditis was regarded as terminated.

Is this test now discarded? It had the merit of simplicity and helpfulness.—I am, etc.,

Erdington, Birmingham, Oct. 23rd. W. J. BURNS SELKIRK.

THE TREATMENT OF TUBERCULOSIS BY THE SPAHLINGER METHOD.

SIR,—The letter on this subject which you published in your issue of October 20th (p. 734) from Dr. Cheater is likely to produce a false impression. I will therefore try to reply to his points seriatim, in so far as this is possible.

In the first place he asks: "Why has not M. Spahlinger placed his discoveries before the medical and scientific world?" The answer is that M. Spahlinger has already done so. Communications were made to the Académie de Médecine and to the Académie des Sciences in Paris, and the *Lancet* published a note on this method in January, 1922. In these statements the principles on which his work is based were explained.

Dr. Cheater asserts that my statement to the effect that there is no secret about the preparation of the remedies is at variance with the report of the Chief Medical Officer to the Ministry of Health. I repeat that there is no secret about the principles underlying the production of these remedies. It is quite true that the details of the technique remain undisclosed for the time being, but that is to prevent irresponsible persons from producing hurriedly prepared serums and vaccines and so discrediting the remedy.

He then goes on to say, "an offer was unofficially made [by the Ministry] to M. Spahlinger for a medical committee to investigate his method of tratment," and he asks, "Why did not M. Spahlinger accept this offer, especially as he had four hundred cases already treated?" I have carefully studied the report, but I cannot find anything which bears this out. The implication clearly is that M. Spahlinger refused to allow the Ministry to investigate. This is the exact reverse of the truth. So far from declining investigation, M. Spahlinger on several occasions, in 1921 and 1922, asked the Ministry to investigate, with the result that Dr. McNalty was sent to Geneva for this purpose in July, 1922. The outcome of the visit is recorded in the report to which Dr. Cheater refers. The "unofficial offer" referred to by Dr. Cheater was sent in August, 1922, by the Chief Medical Officer to the Ministry of Health, who congratulated M. Spahlinger upon the cases reported on by Dr. McNalty, and suggested that fifty cases should be treated in England by a small expert committee of medical men to demonstrate the efficacy of the treatment. If he had read the report to the end he would have seen that the Chief Medical Officer himself explains why M. Spahlinger was unable to accept this offer. There was no serum.

With regard to the disclosure of the technique, every medical man and bacteriologist who has investigated the work at Geneva (including the representatives of the Ministry of Health) knows the technical difficulties and precision required in the production of these remedies. They will agree with me in opposing any premature publication of the technical details of the manufacture which would enable large quantities of ineffective preparations, said to be made according to Spahlinger's technique, to be hastily placed on the market, thus discrediting the treatment in the eyes of the medical profession.

Dr. Cheater asks why M. Spahlinger refused offers of several hundred thousand pounds. I thought I had made it clear in my last letter that the offers were for commercial interests—that is, for trading monopolies. M. Spahlinger is opposed to any form of monopoly run for profit and requiring that the formulae should remain undisclosed.

Dr. Cheater refers to "bacteriologists more favourably situated than" M. Spahlinger. Who may they be? Spahlinger has the specially trained staff to carry on this most precise and delicate work and a laboratory of which no counterpart exists, fitted with unique and original apparatus invented by him to produce his vaccines and serums. Only to reproduce the plant necessary to carry on this work would cost £20,000 to £30,000. The Chief Medical Officer to the Ministry of Health refers in his report to the fact that "M. Spahlinger controls and directs the work of his large, well equipped bacteriological institute and experimental farm, and the staff have all been trained by him in his own special methods."

All who have visited the institute—and the visitors have been numerous and distinguished—have been favourably impressed with the character of M. Spahlinger's work, and with his sincere desire to place his remedies at the disposal of mankind.—I am, etc.,

Manchester, Oct. 23rd. THOMAS WATTS, M.D., M.P.

SIR,—I am pleased to see the letter of Dr. Nabarro. I had the privilege of accompanying him on the visit to M. Spahlinger's laboratory at Geneva, and can confirm all he says. My interest in the problems of tuberculosis—dating from the day of Koch's publication of his discovery—took me to the intensive course of lectures and demonstrations on heliotherapy at Leysin. This course, commencing at about 8 a.m. daily and ending any time after 8 p.m., was attended by medical men from all over Europe and from South America, Canada, and the United States. I regret to say only three British general practitioners were present. It was at a lecture by Dr. Stephanie of Montana, a pioneer of Swiss sanatorium treatment, that I heard of M. Spahlinger and his work for the first time. However, I know enough of bacteriology and clinical tuberculosis—having served for two years under the late Professor Delépine of the Manchester Public Health Laboratory, who devoted himself specially to tuberculosis—to be able, after the inspection of M. Spahlinger's work, to form the opinion that it would be a crime against humanity to allow that work to lapse. With the characteristics of genius he appears to have thought of everything in the search for a cure. I drew the attention of my colleagues to the unique choice of biological material which was in correspondence with the results of a statistical investigation I made amongst the 1,200 tuberculous patients of Dr. Rollier at Leysin. I have in my pocket the offer of a London financier, failing other assistance, to find the money to commercialize M. Spahlinger's serum. This method of production has hitherto been refused by M. Spahlinger for the same good reasons which also meet Dr. Cheater's objection.—I am, etc.,

Luton, Oct. 29th. JOHN BIRCH.

SIR,—I was very pleased to read Dr. Leonard Williams's letter in your issue of October 27th (p. 786), as he practically answers my queries why M. Spahlinger had not published his technique. There is just one point in the last paragraph of his letter which I should like to rectify—namely, that a representative of the Ministry of Health was not refused permission by M. Spahlinger to investigate his treatment, but that the latter was unable to accept the proposal for a committee to do so. I refer Dr. Williams to page 95 of the report of the Chief Medical Officer to the Ministry of Health for 1922, where this matter is fully set forth.

I am also in cordial agreement with Dr. Nabarro that tuberculosis is of international importance and that no stone should be left unturned to discover a definite and permanent way of successfully combating this disease. For this reason I am still of the opinion that every new discovery, whether great or small, should be published as soon as possible so that other workers in the same field might perhaps derive assistance from it, and the ultimate object be the sooner achieved.—I am, etc.,

GEORGE W. CHEATER, M.B., D.P.H.

Whipps Cross, E., Oct. 29th.

"Hygiene" in the *Times* edition of the *Encyclopaedia Britannica*, 1902; the chapters on "Air" and "Military Hygiene" in Murphy and Stevenson's *Treatise on Hygiene and Public Health*, 1893; and that on "Hygiene of the Tropics" in Davidson's *Diseases of Warm Climates*, 1893.

He married Fanny, daughter of Surgeon-General J. McIllree, A.M.S., and had one daughter.

THE LATE SIR WILLIAM EDWARDS.—"A Brother Officer" writes: Sir William Edwards was eminently human, and therefore a very lovable character. Active in body and simple in his habits, he had absolutely no "frills," but was always the same—kindly, humorous, and withal shrewd. He was never spoilt by good fortune or unduly depressed for long by adversity. As the head of his service or as a private friend he was still—himself. He was an ideal chief. He thoroughly identified himself with the work, aspirations, and interests of his subordinates, and thus created confidence which drew them along with him. Nothing pleased him so much as ensuring that they got their meed and more of credit, when success was at least as much due to his loyal backing, which he modestly kept in the background. I personally owe more than I can say to his support at a critical juncture, and there are doubtless many others similarly indebted to him, though it is known only to themselves. Within a year of his appointment to be Director-General the difficult question of the revision of pay in the I.M.S. came up for settlement. It is only just to his memory to say that he met with a degree of factious opposition, personal discouragement, and even worse, which would have baffled a less single-minded or less honest man. When he was created K.C.I.E. in 1922 the honour was already overdue, but it did not come from India. It is even more difficult to write of him in his private capacity. He was a great reader and had a fund of miscellaneous information which he never obtruded, though it would out at times in the most unexpected way. He was a very entertaining companion, and would on occasion give shrewd criticisms on men and affairs. Though his opinions on others were at times trenchant, they were always just and never unkind. He was both a delightful guest and an admirable host. Modest in his estimation of himself, generous in his appreciation of others, wise in counsel, and unswerving in loyalty to his subordinates, we mourn the loss of a dear friend and—as we say in India—*a real Sahib*.

THE LATE PROFESSOR W. ASHLEY CUMMINS.—The funeral f the late Professor W. E. Ashley Cummins of University ollege, Cork, took place on October 20th, at Little Island churchyard, and was attended by a large and representative assembly, which included nearly all the members of the medical profession in Cork, the leading members of other professions, and many of the students of University College, Cork. At St. Finbarr's Cathedral at the morning service on October 21st, the preacher paid an eloquent tribute to the character of Professor Cummins. The following tribute from the medical profession in Cork appeared in the *Cork Examiner* on October 22nd:

"The Cork medical profession records with deep regret the great deprivation it has suffered by the death of Dr. W. Ashley Cummins, who continually occupied an honoured place in the estimation of each and every member. He had filled with integrity the many important positions to which he had been elected during a period of many years. His trained intelligence was always at the service of the members of his profession, who looked for his advice and co-operation in the several intricate problems connected with the daily life of the practitioner. The Cork medical profession, individually and collectively, sorrow over the loss of a much respected colleague. They feel it will be an impossibility to fill his place now vacant in their councils and deliberations. They beg to tender to Mrs. Cummins and the members of his family their earnest sympathy with them in their very sad bereavement."

By the death of Dr. HARRY GORDON in his 57th year the Natal Division of the British Medical Association has lost a loyal and valued member. Dr. Gordon was the youngest son of the late Rev. J. Gordon, Rector of Norbury, Cheshire, and was a brother of the late Dr. E. Gordon, who was the first medical graduate of the Victoria University. He was educated at the Manchester Grammar School and Owens College and Manchester Royal Infirmary. He took the diplomas of M.R.C.S. and L.R.C.P. in 1891, and practised for some time in London. On the outbreak of the Boer war he took an appointment as civil surgeon, and went all through the campaign. At the conclusion of the war he joined the Union Castle Line as a surgeon; he remained in that service about ten years, and was well known and highly popular with travellers to and from the colony. On leaving the sea he was for a time resident surgeon at the Addington Hospital, Durban, leaving there to become surgeon to Kynoch's Works and Hospital at Umbogintwini; later he became also medical officer to the Indian Immigration Board. After settling in Umbogintwini he built up a large private practice extending for many miles round. He was one of the best types of general practitioner, and was a very capable surgeon. Two or three years ago his health broke down after an attack of influenza, and in May last came home to England in the hope that the voyage and change would restore him. He stayed some time with an old fellow student and life-long friend—Dr. Thomas Watts, M.P.—at Southport. Unfortunately his health did not improve, and on the return voyage he became so ill that he had to be taken ashore at Cape Town and sent into a nursing home, where he died on October 1st. He leaves a widow and one young son aged 10.

Universities and Colleges.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on October 26th the degree of Doctor of Medicine was conferred on F. T. Burkitt and F. R. G. Heaf.

UNIVERSITY OF ST. ANDREWS.

AT a meeting of the University Court of St. Andrews held on October 27th it was reported that Dr. Adam Patrick had accepted the appointment to the chair of medicine and had also been appointed one of the physicians of the Royal Infirmary, Dundee. The Court also approved of the nomination by Professor Patrick of Dr. J. M. Morgan (Dundee) as assistant in the department of medicine.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN ordinary Comitia of the Royal College of Physicians of London was held on Thursday, October 25th, at 5 p.m., the President, Sir Humphry Rolleston, occupying the chair.

The Censors Board reported that Mr. George Denison Stillwell had been appointed Jenks Scholar.

The following candidates were admitted members:

Charles Keith Johnstone Hamilton, L.R.C.P., M.C., M.B.Oxf., Donald Hunter, M.D.Lond., L.R.C.P., Duncan Gerard Leys, M.B.Oxf., William Thomas Nelson, M.B.Sydney, Daniel Nicholson, M.D. Manitoba, Ernest Oscar Adolphus Singer, M.B.Edin., Kenneth Harry Tallerman, M.C., M.B.Camb., L.R.C.P.

Licences to practise physic were granted to the following 168 candidates who had conformed to the by-laws and regulations and passed the required examinations:

W. L. Ackerman, J. C. Ainsworth-Davis, R. H. Amm, R. S. Anderson, F. G. A. Armson, I. Atkin, W. Balendra, P. E. Bardsley, *Rose Barianov, J. S. Benzecry, E. M. Bergheim, *Dora M. Berry, E. J. Blackaby, *Margery G. Blackie, L. G. Blair, W. L. Blakemore, D. R. Blunn, A. J. Boase, *Hilda A. Bond, E. G. Bradbeer, R. T. Brain, A. Broido, C. O. S. B. Brooke, *G. G. Brown, J. W. Brown, *Mary Buck, B. H. Burns, *Lily C. Butler, *Kathleen F. Butterfield, F. B. Byrom, C. M. Carruthers, H. K. Christie, D. H. Cockell, M. Cohen, R. A. Colds, A. B. Cooper, R. Cove-Smith, I. S. Cristel, G. J. V. Crosby, D. T. Davies, I. G. Davies, T. D. Deighton, *Margaret B. M. Dewhurst, D. Diamond, V. W. Dix, A. F. Doyle, *Doris L. Durie, *Hilda R. Dutton, N. L. B. V. Eckhoff, L. C. J. Edwards, P. Elman, G. S. W. Evans, W. M. Evans, J. L. Farquharson, S. Farquharson, R. B. Fawkes, H. G. Goldwater, T. S. Goodwin, F. M. Gore, L. J. Green, J. V. Griffiths, P. D. Griffiths, C. J. P. Grosvenor, C. C. Halliwell, A. Harbour, H. E. Harris, *Doris I. Harston, G. T. Henderson, K. W. Heritage, G. Hochschild, *Frances A. Hogben, E. Holmes, J. W. Hope-Simpson, *Madge W. Hubble, D. F. Hutchinson, L. I. Hyder, C. Izatt, C. Ive, E. C. James, A. H. Johns, C. E. Keast, *Karin L. E. Kellgren, G. B. Kirkland, C. de W. Kitcat, R. A. E. Klaber, E. H. Koerner, P. E. M. Lanier, *Miriam A. Lawson, J. J. Lewinstein, R. H. Little, A. A. Lucas, A. R. Macdonald, G. B. McMichael, *Margaret D. Mason, G. B. Matthews, G. A. Metcalfe, H. D. N. Miller, G. O. Mitchell, P. McG. Moffatt, C. I. N. Morgan, O. G. Morris, N. Moulson, *Jeannette F. L. Murray, F. W. G. Nash, F. N. Newell-Roberts, M. F. Nicholls, J. R. Nicholson-Lailey, *Muriel L. M. Northcote, P. H. O'Donovan, R. J. Oliver, *Mary E. Ormsby, *Jean Orr-Ewing, *Amy M. Parkinson, J. Parrish, T. W. Preston, C. A. Probert, R. J. V. Pulvertaft, P. G. D. Quinet, K. Rai, W. A. Rankin, J. O. M. Rees, R. D. Reid, W. L. Roberts, H. A. Robertson, *Nina L. D. Robertson, *Sybil H. G. Robinson, T. Robson, D. J. Rose, *Marjorie Rushbrooke, Z. Salama, F. H. Scotson, J. M. Scott, H. M. Shelley, A. E. Sherwell, *Mary M. Sillito, *Lucy C. Simpson, A. J. D. Smith, N. R. Smith, L. V. Snowman, A. C. Sommerville, M. Stieber, R. M. L. Still, F. O. T. Strange, E. R. S. Sweeney, *Annie Sydenham, F. C. M. Taylor, H. Taylor, R. C. Taylor, L. M. Touten, B. M. Toop, A. Turner, H. F. Turney, *Helen R. Turover, F. C. O. Valentine, S. Vaughan, D. Vaughan, *Kathleen C. Voat, R. G. R. West, R. Whillis, R. W. White, A. G. E. Wilcock, *Doris Williams, E. L. Williams, *Elsie J. Williams, *Esther Wingate, J. Wolstencroft, T. Wooldridge, H. Yates.

* Under the Medical Act, 1876.

THE annual dinner of the Chelsea Clinical Society was held at the Café Royal on October 30th, with the President, Dr. G. Crewdson Thomas, in the chair. The toast of "Prosperity to the Society" was proposed by Dr. J. A. Torrens, Dean of St. George's Hospital Medical School, who praised the valuable work undertaken by such societies, which concentrate on the practical problems of private practice. The President in his reply expressed the gratitude of the society to St. George's Hospital for providing a meeting place. The society was now twenty-seven years old, and had come to the "dangerous age" when original members were passing away. In order to maintain the interest of its members the present session would be devoted to discussions on common diseases as seen in general practice, and he appealed to general practitioners to contribute their experiences. The toast of "The Visitors" was proposed by Sir Sydney Russell-Wells, M.P., who spoke of the services performed in promoting good fellowship within the medical world of London by the Chelsea Clinical, the Hunterian, the Harveian, and the West London Medico-Chirurgical Societies, each of which was represented that evening by its president. The work of these societies did much in modern times to reproduce that spirit of fellowship within the learned world which was a feature of the mediaeval universities of Europe. The toast was responded to by Sir Bruce Bruce-Porter (President of the Hunterian Society) and Sir William Willcox (President of the West London Medico-Chirurgical Society), and the proceedings closed with the health of the Chairman, proposed by Dr. Gordon Lane.

THE fourth congress of the Surgical Society of Central Germany will be held at Brunswick on November 11th, when the following subjects will be discussed: (1) Surgical treatment of epilepsy, introduced by Professor Felix Franke; (2) surgical treatment of hydrocephalus, introduced by Professor Wrede.

THE first meeting of the Petrograd Pathological Society since the war was recently held, and was attended by Professors Lubarsch and Aschoff at the special invitation of the Russian Soviet Government.

THE Montreal Maternity Hospital has been merged with the Royal Victoria Hospital, Montreal, and it is proposed to erect in the grounds of the latter institution a maternity pavilion, thus increasing the teaching facilities of McGill University.

AT a joint conference between the National Council for Combating Venereal Diseases and the Society for the Prevention of Venereal Disease, held at 1, Wimpole Street, on October 30th, the following resolutions were adopted: (1) "That the ultimate fusion of the two societies is desirable." (2) "Subject to the approval of their respective executives this Conference resolves itself into a deputation to the Ministry of Health to urge that 'the law should be altered so as to permit properly qualified chemists to sell *ad hoc* disinfectants, provided such disinfectants are sold in a form approved and with instructions for use approved by some competent authority.'" (3) "That this Conference recommends that the respective executives of the two societies should each appoint not more than five members to form a liaison committee between the two societies and to explore the possibility of fusion."

Letters, Notes, and Answers.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London*; telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediscera Westrand, London*; telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

"D. G."—We believe that no new edition of Allbutt's *System* will see the light in the next year or two.

INFANTILE JAUNDICE.

DR. H. E. BAMBER writes: Is there any association between the time after birth at which the cord of the newborn infant is tied and the tendency to jaundice of the infant? The opinion of a very experienced general practitioner under whom I once worked and who first called my attention to it was that jaundice in the newborn infant was more liable to occur if the cord was tied very soon after birth.

INCOME TAX.

Book Debts.

"J. S. H." asks: Can the inspector of taxes demand a return of the total of outstanding book debts at the end of the financial year, and can he claim tax on a proportion of these debts?

*** Strictly, the gross amount of the income of the practice is the total value of the debts which the year's work represents—that is, as near as can possibly be ascertained, the actual cash receipts during the year *plus* any increase or less any decrease in the *value* of the debts outstanding at the end of the year as compared with that at the beginning. The difficulty of estimating correctly or even approximately the value of a medical man's book debts nee is no emphasis, and the practice of regarding the theoretical gross income *of* any year as coinciding with the actual cash receipts *in* that year is of long standing and general application. It is, of course, based on the obvious truth that where the volume of debts remains fairly constant the two methods of reckoning must produce very nearly the same result in the long run. But where the circumstances of the practice are peculiar so that the inclusion of payment for debts incurred in past years does not approximately balance the exclusion of unpaid debts of the present year, the Revenue authorities are within their rights, both in law and equity, in discarding the cash basis system, and so is the practitioner if he wishes to do so. Unless, however, there are such circumstances in "J. S. H.'s" case—such as the recent taking over of the whole or part of a practice—he would do well to explain the position and oppose a departure from the normal method in his own case.

Motor Car Transactions.

"M. D. S." bought a car in 1918 for £273 and sold it in 1922 for £180, buying a car of similar make and power for £390. What allowance can he claim?

*** The allowance should be £390 − £180 = £210. The inspector objects on the ground that the more modern car is bound to be an improved model, and that therefore there is a capital improvement. We do not agree with the conclusion he draws. The official witness before the Royal Commission on the Income Tax agreed that where the cost of a machine rose the replacement cost should be determined by the new level of cost. Admitting, for the sake of argument, that the newer model is better in some respects than the old, it nevertheless remains the fact that a precisely similar car would cost as much as—in fact, in all probability, more than—the actual car which was purchased.

LETTERS, NOTES, ETC.

FOREIGN BODY IN THE INTESTINE.

DR. J. F. D. WILLOUGHBY (Southwell, Notts) writes: On October 22nd I was called in to see a child 2 years old who was said to have swallowed a metal pin with a large knob at one end used to fasten the apron to the side of her perambulator. Immediately after she had swallowed it the child was sick, but in thirty-six hours the foreign body had passed through the gullet, stomach, small and large intestines, without the slightest pain or inconvenience. When the pin was passed per anum it had a thick coating of faeces, the result of the soft bulky food she was ordered to take. The large size of the pin and complete absence of symptoms during its passage appeared to me to be of sufficient interest to record. The pin is 1¼ inches long and the head at its broadest part 1/2 inch wide.

CURAÇOA.

VARIOUS versions of Luttrell's punning verses on the illness of the Prince Regent, afterwards George IV, have been given. The following, which was printed by Sir Algernon West in his book of reminiscences, *One City and Many Men*, is probably as correct as any:

Sad news! The Prince is taken ill—
All will depend on Halford's skill.
"Tell, Sir Ben," says the physician:
"How comes he in this low condition?"
When Bloomfield ventured to announce
A small excess of cherry bounce,
The Regent, hearing what was said,
Raised from the couch his aching head
And cried in accents weak and low,
Curaçoa—curaçoa—cure us O Doctor, cure us O.

Sir Ben was the Prince's personal attendant, afterwards Lord Bloomfield.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 43, 44, and 45 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 42 and 43.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 215.

ıred, but that European patients contracting the disease cally should be repatriated as soon as possible. These marks apply to the pulmonary form of the disease. For ıses of surgical tuberculosis the large amount of sunshine and ıe freshness of the air appear to be distinctly favourable.

320. The Treatment of Tetany.

. Raab (*Klinische Wochenschrift*, September 3rd, 1923, 1696) refers to the recent work on the acidosis treatment tetany, and records a case which shows the practical alue of treatment of the affection with mono-ammonium hosphate ($NH_4H_2PO_4$), whatever the exact action of the rug may be. The case was one of persisting severe tetany ı a girl, which followed an operation for goitre. Para-ıyroidin tablets were tried, but only temporary benefit llowed. After the attacks had become as many as ırteen in the day, mono-ammonium phosphate was given 2 grams daily, by mouth). The attacks promptly ceased ıd have not recurred, the electric changes and Chvostek's ıd Trousseau's symptoms have disappeared, and the general ondition has become quite satisfactory.

Surgery.

321. Gastric Symptoms in Chronic Appendicitis.

. López-Baena (*Arch. de med., cir. y esp.*, August 25th, 1923, 373), who records a case in a woman, aged 25, illustrating ıe truth of Moynihan's dictum that "the most frequent site gastric ulcer is the right iliac fossa," states that the ıstric manifestations of chronic appendicitis may be divided ıto two groups. (1) The mild or dyspeptic form, which is ıost frequent in children and is characterized by the follow-ıg symptoms: loss of appetite, intolerance for certain articles diet, such as eggs and meat, sensation of fullness, vomiting ıd fatigue, and a severe pain in the right side, especially on ınning. Comby, Broca, and other French writers maintain ıat chronic appendicitis frequently assumes the form of cyclic omiting with acetonaemia. In the adult a similar clinical cture is sometimes, though rarely, seen. (2) The gastralgic orm. The patients complain of pain of variable degree, hich is very like gastric ulcer. In some it occurs directly ter food, and in others later. It may be relieved, or on the her hand aggravated, by a meal. Sometimes it radiates wards the appendix. The patients also suffer from aero-ıagia, nausea, and vomiting. Analysis of the gastric juice ıows the presence of hyperchlorhydria and hypersecretion many cases. Fenwick in 22 out of 112 cases with gastric ypersecretion on which he operated found appendicitis as ıe only lesion. Some cases, however, show hypochlorhydria a normal acidity (Hernando). Several explanations have een given of the gastric symptoms of appendicitis. Some gard them as reflex manifestations, a stimulus arising in ıe appendix causing a spasm of the pylorus which is followed y pain, vomiting, and other gastric symptoms. Others tribute the gastric symptoms to intestinal stasis and the onsequent absorption of toxic substances.

322. Exposure of the Kidney through the Lumbo-sacral Fascia.

ICHER (*Journ. d'Urologie*, July, 1923, p. 7) suggests a route ırough the lumbo-sacral fascia for the exposure of a kidney normal size, as one which would cause the minimum of ımage with the minimum of manipulation. A vertical skin cision is made over the erector spinae muscle, 3 to 3½ finger-eadths from the line of the spinous processes between ıe twelfth rib and the posterior superior iliac spine. The osterior lamella of the lumbar aponeurosis is then divided the same line and the outer border of the erector spinae splaced inwards. The middle lamella of the lumbar oneurosis is next exposed and divided vertically, just ıtside the tips of the transverse processes of the lumbar ertebrae, and the quadratus lumborum muscle, now xposed, is split in the direction of its fibres. The ilio-guinal nerve is seen and retracted upwards, the perirenal ssues are divided and, by blunt dissection, the renal edicle will be found on the right side at the level of the cond lumbar transverse process, and on the left side a ttle lower, at a depth of from 6 to 7 cm. from the surface. ıe author considers that this route should be of advantage the following cases: removal of a small atrophic kidney, ıed to the ribs and impossible to exteriorize; nephrotomy ıd nephropexy; for pyelotomy and in certain cases of dronephrosis; for plastic operations on the pelvis and per ureter. In those nephrectomies in which great diffi-lty is anticipated it would be of value for primary ligature the renal pedicle, after which the kidney may be removed rough an oblique lumbar incision. Finally, it may be used operations on the nerves of the kidney, and for high etero-lithotomy and other operations on the upper ureter.

323. Thoracoplasty for Pulmonary Tuberculosis.

P. Bull (*Norsk Mag. f. Laegevidenskaben*, June, 1923, p. 521) gives an account of 75 cases of pulmonary tuberculosis operated on by himself, and of 88 cases operated on by other Norwegian surgeons, the operation being extrapleural thoraco-plasty. The operation mortality for these 163 cases was 10 per cent. (16 deaths). The following data refer only to the author's 75 cases. In 73 cases tubercle bacilli were demon-strable in the sputum before the operation, yet even before the patients were discharged from hospital after the operation there were as many as 37 whose sputum was negative. This early disappearance of tubercle bacilli from the sputum proved a sign of great prognostic importance, and of 27 patients whose sputum was still positive on discharge from hospital only 2 achieved permanent recovery. On the other hand, of 22 patients whose sputum was negative on discharge or immediately afterwards, 15 were symptom-free from two months to eight years after the operation. A study of the 25 patients who were well and fit for work from one to eight years after the operation showed that as many as 18 had negative sputum on discharge from hospital. In the remain-ing 7 cases tubercle bacilli ultimately disappeared from the sputum, but in 3 of these cases they took from six to eighteen months to do so. The author, who has been performing thoracoplasties since May 1st, 1914, has made a special study of his first 37 patients, whose operations dated back from three to eight years. Sixteen were still alive, and of them 12 were symptom-free and more or less fit for work. The calculation may therefore be made that a permanent cure can be effected by thoracoplasty in about 32 per cent. of all cases of advanced pulmonary tuberculosis of a more or less unilateral character.

324. Prostatism due to Vesical Diverticula.

Tant (*Le Scalpel*, July 28th, 1923, p. 841) records a remark-able case of a man, aged 48, who had all the symptoms of prostatic hypertrophy, including 1 litre of residual urine, but without prostatic enlargement. Treatment gave only transient relief. Chronic cystitis was followed by severe haematuria. After six years' ineffectual treatment a further cystoscopy (rendered difficult by the quantity of muco-pus in the bladder) showed the orifices of two diverticula, each above and internal to the orifices of the corresponding ureters. Skiagrams taken according to the method of Papin (modified by Gayet and Gauthier), after distension of the bladder with a 10 per cent. sodium iodide solution, showed the shadows of large diverticula behind that of the bladder. The patient then emptied his bladder as completely as possible; the act closed the diverticular orifices, and the cavities re-mained distended with the solution. A second skiagram showed these diverticula. They were subsequently dis-sected out with difficulty, under spinal anaesthesia. The patiently ultimately made a complete recovery. Tant refers to the so-called "prostatism without prostate" described by Guyon, and while not denying the possibility of retention being due to rigidity of the neck of the bladder, he deprecates a too hasty diagnosis of this condition, and states that if we could know all the resections of the vesical neck which have been unsuccessful we might say that this diagnosis often masks our ignorance of the true origin of the retention.

325. The Mortality in Surgery of the Thyroid Gland.

C. M. Mayo and J. de J. Pemberton (*Annals of Surgery*, August, 1923, p. 145) remark that to evaluate accurately statistics in the results of operations on patients with goitre the knowledge of two facts is essential—the proportion of goitres with hyperthyroidism, and the basis on which operative mortality is reckoned. In cases without hyper-thyroidism the dangers are confined to operative and post-operative accidents, which include haemorrhage, pulmonary infections, embolism, and infections. When hyperthyroidism is present the greatest danger lies in the disease itself. The reduction of mortality to 1 per cent. in the surgery of exoph-thalmic goitre depends on (1) cases coming earlier to opera-tion, before the development of visceral degenerative changes; (2) combined medical and surgical treatment, by means of which post-operative acute hyperthyroidism is reduced to a minimum; (3) recognition of the dangers involved in injury to the recurrent laryngeal nerve—this has led the surgeon to greater care in its avoidance. The pre-liminary medical treatment consists of rest, diet, adequate fluids, digitalis, and oral administration of iodine (Lugol's solution). A preliminary surgical procedure, such as injec-tion of hot water or ligation, may be carried out as a tolerance test. As preliminary measures are ineffectual in adenomatous goitre with hyperthyroidism, the mortality is dependent on the number of bad risk cases accepted for operation.

haemorrhage of gravity comparable with that of ruptured ectopic gestation was first recorded by Rokitanski in 1841; it is a rare condition, and many of the earlier cases rest on evidence which is lacking in precision. Three personal cases are described by Tédenat. The first patient, who had a myomatous mass reaching nearly to the umbilicus, had been observed to become more anaemic after several successive menstruations, which were unaccompanied by any increase of the external bleeding; a haematocele was noted in the posterior cul-de-sac. Two days after this observation menstruation occurred and was associated with increase in size of the haematocele; external haemorrhage was slight, but progressive signs of internal bleeding led to laparotomy. After hysterectomy, three litres of blood clot were removed from the pouch of Douglas. The source of the haemorrhage was found in multiple erosions of large venous sinuses which lay on the surface of the myomatous mass. In the second patient a myoma was complicated by pyosalpinx; and in the third subacute torsion of a pediculated myoma was present, and probably accounted for the intra-abdominal bleeding.

332. Hidroadenoma of the Vulva.

W. M. J. SCHELLEKENS (*Nederl. Tijdschr. v. Geneesk.*, September 22nd, 1923, p. 1212) states that the first case of hidroadenoma of the vulva—that is, a tumour of the vulvar sweat glands—was described in 1892 by Brauer and by Gebhardt in his *Anatomy of the Sexual Organs*—and in greater detail by Schickelé in 1902. As a rule, it is the size of a pea, only slightly raised above the surface of the skin, and may occur either in single or multiple form. It develops in the corium, the connective tissue of which forms a capsule from which strands of connective tissue divide the adenoma into distinct lobules. The tumour itself consists of ramifying ducts, with two layers of epithelium bounded by a membrana propria. The union of several ducts forms cystic dilatations, which are lined with cubical epithelium. Some writers, such as Ruge and Schiffmann, emphasize the resemblance of hidroadenoma to malignant adenoma of the uterus. Although hidroadenoma is usually a benign growth, malignant degeneration sometimes occurs, and it is therefore important that it should be removed early. Schellekens reports a case in a woman, aged 39, in whom the tumour was situated on the left labium majus, and was successfully removed under local anaesthesia.

333. Hysterectomy in Pulmonary Tuberculosis.

J. F. BALDWIN (*Surg., Gyn., and Obstet.*, August, 1923, p. 201) recommends that hysterectomy should be performed in certain cases of pulmonary tuberculosis, particularly as an alternative to therapeutic abortion. The author accepts the opinion of certain authorities that in pregnant women with active tuberculosis the induction of abortion is indicated, and he suggests that hysterectomy, by removing the uterus, relieves the necessity for involution and thus saves the strength of the patient. He states that in cases where there are no complications and the patient is of spare build a hysterectomy can be performed in fifteen minutes from the first incision to the adjustment of the last stitch in closing the wound. The entire uterus is removed, and no cervix is left which might cause trouble in the future; the round ligaments and the broad ligaments are brought in so as to support the vagina and the floor of the pelvis is completely covered with peritoneum. The author has performed this operation on many cases under ether anaesthesia and has never seen any indication of trouble arising from the use of ether. He concludes that in selected cases of pulmonary tuberculosis with pregnancy as a complication, and also in menorrhagia, particularly in the presence of traumatism from child-bearing, or uterine hyperplasia, a panhysterectomy will give the patient the best possible opportunity of recovering from the primary disease.

Pathology.

334. Intestinal Peristalsis.

V. E. HENDERSON (*Canadian Med. Assoc. Journ.*, August, 1923, p. 561) reviews recent pharmacological studies in intestinal peristalsis, especially of the small intestine. Pilocarpine and physostigmine increase bowel tonus and movements by stimulating the vagus endings, while pituitary extract produces the same effect through its action on the muscle cells. Atropine, by its action on the vagus endings, relieves spasm without abolishing normal movements or central control, and is valuable in intestinal spasm. When once the bowel tonus has fallen and distension has existed for any length of time neither drugs nor nerve stimulation avail, and consequently it is essential that pharmacological help should be called upon directly the earliest symptoms of intestinal stasis can be detected, or where there may be any fear of distension developing, and for this purpose physostigmine in 1/64 grain doses every three hours is the best drug. Another point of practical value is demonstrated by the fact that if an isolated piece of bowel tied at both ends is suspended in oxygenated saline, choline, which is produced by all parts of the bowel by the digestion of such foods as lecithin, becomes diffused into the water and has the power of increasing tonus and rhythmic movements, and it has been suggested that in choline we have a hormone which maintains bowel activity. Intravenous injections of 10 mg. of choline hydrochloride per kilogram of body weight were found to restore normal movements in animals in which, from handling or prolonged anaesthesia, the movements had become sluggish. It was further found that, while peristalsis was shallow and failed to move the contained fluid when intestinal tonus was low and the bowel contained sufficient fluid to fill it, respiratory movements were effective, the fluid gradually passing upwards into the stomach to be vomited. Such a process probably more correctly explains faecal vomiting in intestinal stasis than does the usual theory of reversed peristalsis.

335. The Digestion of Cellulose in the Human Intestine.

MADAME Y. KHOUVINE (*Ann. de l'Institut Pasteur*, August, 1923, p. 711) reports experimental work in connexion with the digestion of cellulose and the conclusions to be drawn therefrom. She finds that cellulose is split up in the human intestine equally as in that of animals, vegetables such as carrots and cauliflowers disappearing almost completely. The process is attributed to micro-organisms which previously it had not been possible to identify, but in the course of the investigations recorded a bacillus, which she designates the *Bacillus cellulosae dissolvens*, was found to be present in 60 per cent. of cases. The species is difficult to cultivate, only growing in a putrefactive medium such as is constituted by an extract of faecal matter. It is extremely resistant to heat. The spore is only killed after forty-five to fifty minutes' boiling, and resists a 16 per cent. solution of chloropicrine for six days. The products of disintegration of cellulose were found to include carbonic acid gas, hydrogen, ethyl alcohol, acetic and butyric acids, and a yellow pigment, traces of lactic acid, and substances produced by hydrolysis and precipitated by alcohol. These represent about 60 per cent. of the total cellulose, and the author considers that there should exist saccharides soluble in alcohol which it is proposed to demonstrate in future research. She claims an important place for the *Bacillus cellulosae dissolvens* in the digestion of cellulose, pointing out that, whilst in a pure state it splits up, in sixteen days, 1 gram of cellulose, five times that amount can be dealt with in the presence of other organisms—a condition that exists to a most favourable degree in the intestinal lumen.

336. The Connexion of the Cerebro-spinal Fluid with Cerebral Lesions in Epilepsy.

W. E. DANDY (*Johns Hopkins Hosp. Bull.*, August, 1923, p. 245) reminds us that it is the generally accepted belief that the chief function of cerebro-spinal fluid is to protect the brain and spinal cord from the ordinary and extraordinary shocks to which these important structures are subjected. The cranio-vertebral chamber in the adult is a fixed cavity, and there can be no expansion or contraction of its walls. Intracranial lesions may be looked upon as space-occupying and destructive—in the first group tumours, abscesses, and the like; in the second group the late results of emboli and thrombi. In tumour growth space is obtained by anaemia directly over the tumour and throughout the brain, also by the destruction of brain tissue. Probably a greater amount of room for the direct expansion of the tumour is obtained through the cerebro-spinal spaces. As a result of inconsistent findings in many cases of epilepsy it is believed that apart from a few cases with the Jacksonian "march" epilepsy is an idiopathic disease. From a series of 75 brains of epileptics exposed at operation the author presents evidence of the frequent presence of gross organic lesions in epilepsy. In most instances he has been able to demonstrate the presence of a cerebral lesion or changes which indicate that a lesion is present. The changes found are (1) dilatation of the ventricles, (2) abnormally shaped ventricles, (3) dilatation of the subarachnoid spaces, (4) softening of the brain, (5) areas of increased density, (6) changes in the meninges. It is believed that these are evidences of actual cerebral lesions, and the frequency of the findings leads to the conclusion that there is a pathological basis for so-called idiopathic epilepsy in a large proportion of cases. Confirmation is obtained by ventriculography, which in a certain proportion of cases shows acquired or congenital distortion of the ventricles.

such delicate structures sometimes acquire malignant power and penetrate blood vessels. Fragments detached from such villi become emboli, and lodge in distant organs, embed themselves, and establish new tumour colonies. This disease of the villi, now well recognized, is described as chorionic cancer.

Arachnoid Villi.

It is well known that the pits in the cranial vault, familiar to students of human osteology as the foramina for the Pacchionian bodies, are due to the erosive action of arachnoid tufts; but it is a recent discovery that these villous bodies sometimes grow luxuriantly, overrun the adjacent bones, and produce in them extraordinary changes.

In 1885 Sir William Stokes described the skull of a male Cingalese (Fig. 1), and on the vault of this skull there is a mass of bone resembling a crown of loosely compacted coral. The tissue of this crown is intimately incorporated with the vault of the skull, and the whole mass is permeated with neat vertical pits. Each "pit" is really a tunnel, and as neat as a Pacchionian pit. These tunnels are exaggerated Pacchionian pits produced by pathological arachnoid tufts. Professor S. G. Shattock has made a thin transparent section of the crown, and the tunnels can be seen traversing it completely. There are hundreds of tunnels in this crown, and they recall holes in ship-timber bored by the teredo or those in limestone made by whelks (Pholas).

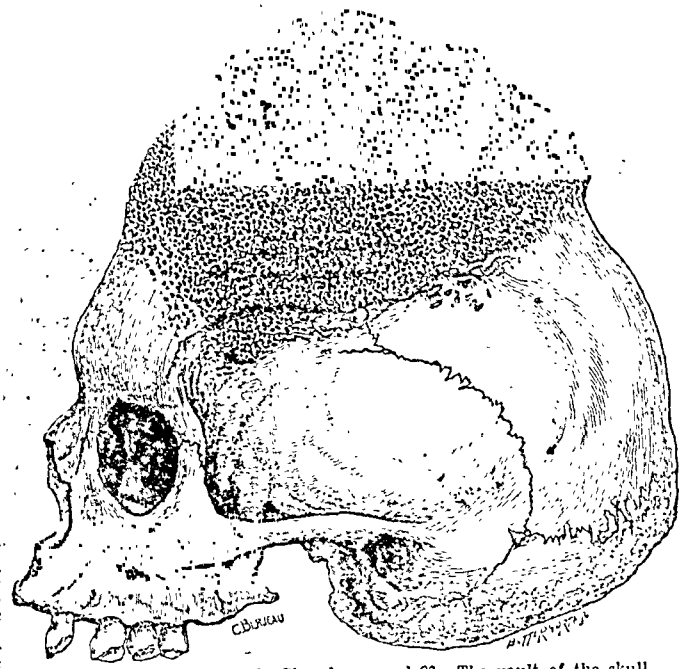

Fig. 1.—Skull of a male Cingalese, aged 20. The vault of the skull resembles a crown of loosely compacted coral. The mass is traversed by hundreds of tunnels—exaggerated Pacchionian pits—which open on the surface. The orifices are represented, for the sake of emphasis, too big. (Museum, Royal College of Surgeons.)

In recent and unmacerated hyperostoses of this kind arachnoid villi can be demonstrated in the tunnels. In the head of the patient there was a layer of gelatinous material over the bone, between it and the scalp; it also filled the tunnels. The dura adhered to the bone and to the surface of the brain.

When this extraordinary specimen was described by Stokes no one had the least suspicion that such a change could be produced by arachnoid villi. Dr. W. G. Penfield, in 1921, began a careful study of the intracranial tumours preserved in the museum of the National Hospital for the Paralysed and Epileptic, Queen Square, London. He has proved that the soft tissue of the tumour arises within the cranium, pierces the dura, and involves the overlying bone. The action of the tumour elements leads to complete rearrangement of the osseous tissue between the tumour and the scalp. It is a singular clinical feature, in many of the patients, that the presence of the hard sessile boss of bone was the first sign of disturbance. In some the first symptom is intense pain beneath the bony boss. In such patients epileptic seizures are common. In a few instances the tumour has been attributed to an intensive local injury, such as a blow upon the head.

In addition to the skull of the Cingalese the museum of the Royal College of Surgeons contains a similar and equally remarkable example obtained from a miner, who died in the General Infirmary, Leeds, 1904. Eleven years previously he fell backwards and bruised his head. The bruise did not subside and continued to increase. The man complained of headache and occasional diplopia. With the hope of arresting the growth of the tumour the left external carotid artery was tied, but death followed the operation in ten days. The hyperostosis involves the left parietal, adjacent parts of the occipital, and the squamous portion of the temporal. For the most part the normal tissue has been replaced by exceedingly dense bone, and a plaque-like portion extends within the skull. The dura adhered to this part of the tumour (Fig. 2).

Skulls changed in this way could not escape the observations of pathologists. Some examples have been described by French writers as hemicraniosis. The frontal is the bone of preference, but the parietal and squamosal are often involved. The relationship of cranial hyperostosis to meningeal tumours has also been considered by American surgeons — Spiller and Cushing among others.

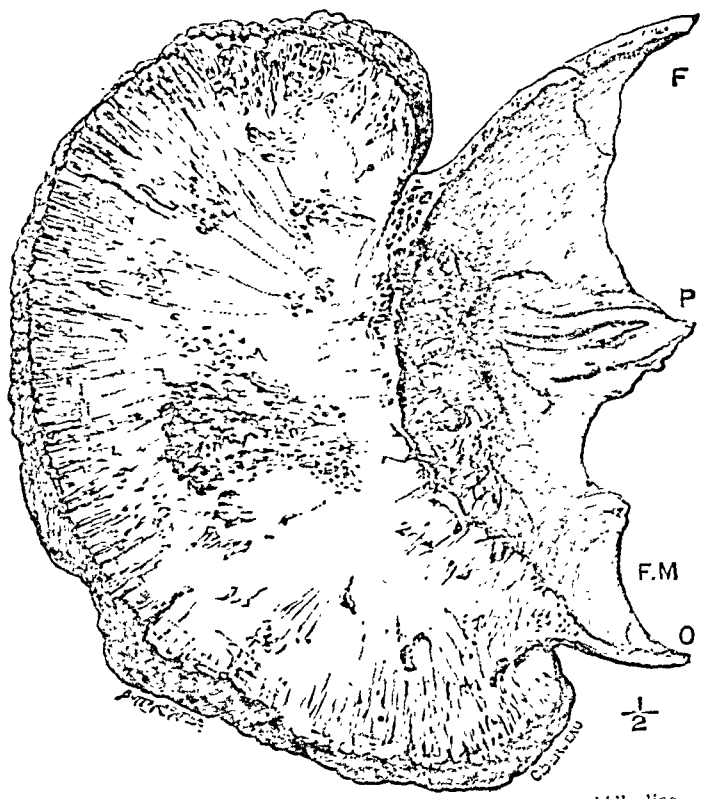

Fig. 2.—Portion of the base of a skull to the left of the middle line showing, in section, an immense hyperostosis. F, frontal; P, petrosal; O, occipital; F.M., foramen magnum. (Museum, Royal College of Surgeons.)

The relationship of an arachnoid tumour to the osseous elements is well shown in a specimen preserved in the museum of St. Bartholomew's Hospital (Fig. 3). The patient was under the care of Sir James Paget. A section prepared for the microscope, contained in the museum cabinet, shows well the villous nature of the tumour.

The merit of Penfield's excellent essay is his demonstration of the soft tissues which fill the tunnels in the cranial hyperostosis, and I enjoyed the privilege of examining the specimens prepared for microscopic investigation.

Penfield prefers to use the name "endothelioma" for these tumours; but names are only convenient labels, and in this case matter little if we keep in mind this

The skill and care required to remove completely a dog's pancreas successfully is appreciated by surgeons who have performed operations on the pancreas of man. The intimate connexions of the pancreas with the duodenum in dogs is shown in Fig. 4.

FIG. 5.—Harlequin foetus.

Colloid Omentum.

Extraordinary examples of functional activity in cancerous epithelium may be studied in the gastro-intestinal canal. The mucous membrane of this tract contains cells that secrete mucus. In the stomach the cell covering is almost entirely formed of them; in a cell swollen with mucus the nucleus is pushed towards the basement membrane. When the mucous membrane is cancerous, the epithelial cells often furnish large quantities of mucus, which infiltrates the omentum and converts it into a gelatinous mass, commonly called "colloid omentum." The mode in which this change is produced can be explained, and my knowledge of it has been obtained in the course of operations performed on the stomach for the relief of gastric disorders.

When the stomach contains a focus of cancer the cylindrical cells, heavily charged with mucin, permeate its wall, fall into the lesser bag of the peritoneum, engraft themselves, and appear, in the early stages, as small yellow flakes. At this stage microscopic examination shows them to consist of clumps of columnar cells full of mucin. These pathological or secondary foci of cancer act as glands and shed mucus in abundance into the omental fold. Such foci multiply, and being reinforced by cell-showers from the primary focus invade the omentum and convert it into a mass of "colloid" weighing many pounds. Omentum changed in this way sometimes forms such a large mass that it has been mistaken in women for a big ovarian tumour. It is not uncommon when cell-showers of this kind fall from a primary focus in the stomach or the colon for the epithelium to engraft itself on the ovaries and convert them into colloid tumours as big as coco-nuts. Implantation tumours of this kind are by no means rare, and as they are now appreciated by surgeons there is little danger of such enlargements, secondary to primary cancer of the stomach or colon, being mistaken for primary ovarian tumours.

I have considered these conditions especially because, in dealing with the large multilocular glandular tumours of the ovaries, there is a possibility of error unless care is taken in the microscopic examination of the tumour.

OVARIAN DERMOIDS.

Dermoids have an irresistible attraction for me. They prove that many tumours owe their grossness to the accumulation of retained secretions.

The simplest example is a sequestration dermoid on the face or scalp. This takes the form of a globular tumour with a central cavity lined with skin furnished with dermal elements—epidermis, sweat glands, hair bulbs, sebaceous glands. In such tumours the epidermis is continually shed with hair, sweat, and sebaceous grease into the central cavity. The dermoid slowly enlarges in consequence, and a tumour of this kind, no bigger than a pea or a walnut at birth, may in twenty years be as big as a coco-nut. When such a tumour is opened and the contents cleared away the skin lining its cavity will sweat when the patient sweats, and the fluid can be seen oozing from the sweat ducts. The skin lining the tumour is sensitive to the prick of a pin.

The most impressive examples of functioning tumours arise in the ovary, and the growth of our knowledge concerning these tumours reads like a fairy tale. Fifty years ago dermoids puzzled pathologists, but in the interval much knowledge has been gained concerning them. It is now established that these tumours are the products of ova which have become active and developed into ill conditioned foetuses independent of the stimulus of spermatozoa. *An ovarian foetus produced in this way is called an embryonal rudiment.*

Before dealing with the relation of ovarian embryomas to the products found in their sacs some matters must be considered relating to the activities of a normal uterine foetus.

In the mid-period of gestation the foetus floats freely in a hydrosphere formed by amnionic fluid. There are four sets of organs functional—the placenta on which its life depends, the kidneys, choroid plexuses, and skin with its epitrichium. The urine discharged by the kidneys mingles with the amnionic fluid. If the urine is hindered from

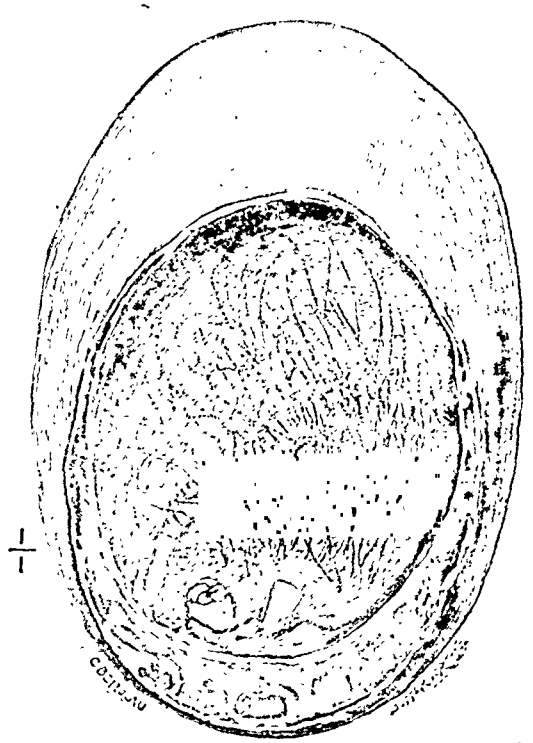

FIG. 6.—Ovarian dermoid. The skin, hair, teeth, and nerve tissue which it contains may be regarded as representing the cephalic end of an ovarian embryoma. From a single woman aged 26. (Museum, Middlesex Hospital.)

escaping the kidneys will become transformed into hydronephrotic sacs. The choroid plexuses secrete cerebro-spinal fluid, and if it cannot escape from the fourth ventricle hydrocephalus occurs. This is a common malformation, and museums contain examples by the score. The skin is active,

products of the cells. It is a gelatinous substance now called pseudo-mucin. Often the walls of adjacent loculi rupture and allow neighbouring cavities to communicate, and in this way large chambers form. It is not uncommon for a loculus near the periphery of the tumour to burst and allow the contents to escape into the belly. In some of the cases the amount of pseudo-mucin that collects in the belly is almost beyond belief.

A spinster, aged 54, was under my care in 1899 on account of an enlargement of the belly. The physical signs suggested an accumulation of fluid. The pressure was so great as to produce a hernial protrusion as big as a bantam's egg at the navel, and a similar one over the left femoral ring. A tumour could be felt in the pelvis. I removed three gallons of mucin and a mucigenous tumour of the ovary equal in size to a coco-nut. There was a rent in its capsule opening up three loculi, and through this rent the pseudo-mucin secreted by the mucous membrane lining the loculi escaped into the belly. The tumour was easily removed and the patient reported herself in good health five years after the operation.

Un Chiffonnier.

Many similar cases have been under my care and observation, but all do not end in this simple way. Occasionally, when a mucigenous tumour bursts, clumps of cells escape from the walls and settle on the peritoneum and act as grafts, and become independent tumours, discharging pseudo-mucin, which helps to increase the general mass. In some women hundreds of these pathological glands grow on the serous membrane, and the amount furnished in this way, after the primary tumour has been removed, is so great that it is necessary to open the abdomen annually for the removal of the pseudo-mucin. In removing this material care should be taken to protect the edges of the abdominal incision; it occasionally happens that the epithelial elements in the pseudo-mucin accidentally implanted will grow in the scar and form independent tumours. I have seen them as large as ripe gooseberries.

Surgeons are familiar with these remarkable tumours, concerning which the following facts may be stated: It is not uncommon to find in a woman one ovary occupied with a dermoid and the other converted into a mucigenous cyst. It is not rare to find an ovary transformed into a bilobed tumour one lobe of which is a typical dermoid and the other mucigenous. The inner walls of isolated cavities are often covered with cylindrical epithelium loaded with mucin and indistinguishable from the large cells found on the surface and recesses of the rectal polypi so common in children. Mucigenous tumours are often so large that it is only by chance the embryoma is detected. Quite by chance I saw one on the cut surface of a huge tumour. The embryoma presented as a patch of skin, less than 2 cm. square, bedecked with a tuft of delicate lanugo (Fig. 8).

I have studied the histology of these tumours in season and out of season, and often asked myself the question, Why is the intestinal tract rarely demonstrable in the ovarian embryoma? Gradually I have realized that the mucin (or pseudo-mucin) of these tumours is produced by the gastro-intestinal epithelium of the embryoma, and this, the active agent in the production of mucin, is masked by the accumulated products of its own activity.

The matter may be briefly expressed in this way: In the common kind of ovarian embryoma the cutaneous elements are conspicuous; the products resulting from the activity of the skin preponderate and make up the bulk of the tumour mass. In mucigenous ovarian tumours the so-called "colloid stuff" is furnished by the gastro-intestinal epithelium of the embryoma.

In dermoid tumours skin prevails.
In mucigenous tumours mucous membrane prevails.

In France the man who picks up rubbish in the streets and collects it in the *hotte* on his back is called a chiffonnier. The membranes of a uterine foetus, or the sac of an ovarian embryoma, serve to remind us of the *hotte* of the chiffonnier. The simile helps to illustrate the thesis set out in the beginning of this lecture: *Many tumours become manifest by the accumulation of the products of their own activity.*

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ARSENICAL PIGMENTATION OF THE MOUTH AND SKIN.

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PIGMENTATION of the skin, varying in depth of colour from a light mottled grey to black-brown, and in extent from a small area to the entire surface of the body, is now well known as one of the occasional effects of the ingestion of arsenic in repeated small doses. It has occurred also very exceptionally and in mild degree after a single large dose.[1] The most detailed account of it has been given by Nielsen,[2] who in the course of his article makes two statements which have also been made by many other writers, either on his authority or their own. He says:

"A deposit of pigment in the mucous membrane of the mouth seems never to have been seen"; and

"A far more trustworthy symptom, which will serve for the diagnosis between arsenical melanosis and argyria and Addison's disease, is the fact pointed out by several writers that in arsenical melanosis the visible mucous membrane is never pigmented. It is true one case has been reported,[20] in which the bulbus oculi had been affected by pigmentation, but no case apparently where the mucous membrane of the mouth had been so affected."

I have, however, now met with two cases in which not only was the skin deeply pigmented, but the mucous membrane of the mouth shared markedly in the discoloration. One of these I reported in 1921.[3] It was the case of a woman, aged 49, who had taken liquor arsenicalis daily for six years, and in that time had swallowed about 32,850 minims, equal to 298 grains (19.3 grams), arsenious acid. When I first saw her she had very extensive pigmentation of the skin, and keratosis of the palms and soles. The mucous membrane of the mouth and tongue had a bluish dark tint all over, and on the inner surface of the lower lip there was an irregular deep blue-black patch about the size of a sixpenny piece. She also had cirrhosis of the liver and ascites, but no neuritis.

The second case was that of a man, aged 57, suffering from pernicious anaemia, who developed marked pigmen-